

(Partie 2 Analyse) Concevez une application au service de la santé publique

Description du travail recopiée du site : L'agence "Santé publique France" a lancé un appel à projets pour trouver des idées innovantes d'applications en lien avec l'alimentation. Vous souhaitez y participer et proposer une idée d'application.

Les données

Extrait de l'appel à projets :

Le jeu de données Open Food Facts est disponible sur le site officiel (ou disponible à ce lien en téléchargement). Les variables sont définies à cette adresse: (<https://world.openfoodfacts.org/data/data-fields.txt>)

Données téléchargées dans le dossier "datasets"

Les champs sont séparés en quatre sections : Les informations générales sur la fiche du produit : nom, date de modification, etc. Un ensemble de tags : catégorie du produit, localisation, origine, etc. Les ingrédients composant les produits et leurs additifs éventuels. Des informations nutritionnelles : quantité en grammes d'un nutriment pour 100 grammes du produit.

Votre mission

Après avoir lu l'appel à projets, voici les différentes étapes que vous avez identifiées :

1) Traiter le jeu de données, en :

- Réfléchissant à une idée d'application.
- Repérant des variables pertinentes pour les traitements à venir, et nécessaires pour votre idée d'application.
- Nettoyant les données en :
 - mettant en évidence les éventuelles valeurs manquantes, avec au moins 3 méthodes de traitement adaptées aux variables concernées,
 - identifiant et en quantifiant les éventuelles valeurs aberrantes de chaque variable.
 - Automatisant ces traitements pour éviter de répéter ces opérations Le programme doit fonctionner si la base de données est légèrement modifiée (ajout d'entrées, par exemple).

2) Tout au long de l'analyse, produire des visualisations afin de mieux comprendre les données. Effectuer une analyse univariée pour chaque variable intéressante, afin de synthétiser son comportement.

L'appel à projets spécifie que l'analyse doit être simple à comprendre pour un public néophyte. Soyez donc attentif à la lisibilité : taille des textes, choix des couleurs, netteté suffisante, et variez les graphiques (boxplots, histogrammes, diagrammes circulaires, nuages de points...) pour illustrer au mieux votre propos.

3) Confirmer ou infirmer les hypothèses à l'aide d'une analyse multivariée. Effectuer les tests statistiques appropriés pour vérifier la significativité des résultats.

4) Justifier votre idée d'application. Identifier des arguments justifiant la faisabilité (ou non) de l'application à partir des données Open Food Facts.

5) Rédiger un rapport d'exploration et pitcher votre idée durant la soutenance du projet.

Livrables

- Un notebook du nettoyage des données (non cleané, pour comprendre votre démarche).
- Un notebook d'exploration comportant une analyse univariée, multivariée, une réduction dimensionnelle, ainsi que les différentes questions de recherches associées (non cleané, pour comprendre votre démarche).
- Une présentation, à utiliser en support pour la soutenance, comprenant :
 - La présentation de votre idée d'application.
 - Les opérations de nettoyage effectuées.
 - La description et l'analyse univariée des différentes variables importantes avec les visualisations associées.
 - L'analyse multivariée et les résultats statistiques associés, en lien avec votre idée d'application.
 - 3 observations solidement étayées (graphes et/ou tests statistiques à l'appui au besoin) évaluant la pertinence et la faisabilité de votre application.
 - La synthèse des différentes conclusions sur la faisabilité de votre projet.

Conseil additionnel : Il faut rester au stade de l'idée. On doit extraire une conclusion de chaque graphique. Doit-on mettre en oeuvre un algorithme de machine learning ? Non, pas forcément. Si on le temps utiliser KNN

In [51]:

```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
%matplotlib inline

#erreur au chargement -
#ParserError: Error tokenizing data. C error: Expected 34 fields in Line 3, saw 37
#on dirait que le CSV est séparé par des tabs ?
#il faut donc ajouter un séparateur tab au read_csv

myDF = pd.read_csv('./Datasets/FoodDataNettoyee.csv')

print("Données chargées")
```

D:\Users\yag\anaconda3\lib\site-packages\IPython\core\interactiveshell.py:3444: DtypeWarning: Columns (1,4,6,9,18,19,22,23,24,25,26,27,28,29,36,37,38,39,40,47,49) have mixed types.Specify dtype option on import or set low_memory=False.
exec(code_obj, self.user_global_ns, self.user_ns)
Données chargées

In [52]:

```
# Modification de l'affichage de colonnes, lignes et largeurs de colonnes pour avoir un maximum d'information
pd.set_option('display.max_columns', 200)
pd.set_option('display.max_rows', 200)
pd.set_option('display.max_colwidth', 50)
```

```
# a retenir : "none" value pour colwidth = illimité
```

```
myDF.head()
```

Out[52]:

	Unnamed: 0	code	url	creator	created_t	created_datetime	last_modified_t	last_modified_datetime	product_name	generic_name	quantit
0	0	3087	http://world-fr.openfoodfacts.org/produit/0000...	openfoodfacts-contributors	1474103866	2016-09-17T09:17:46Z	1474103893	2016-09-17T09:18:13Z	Farine de blé noir	NaN	1k
1	1	4530	http://world-fr.openfoodfacts.org/produit/0000...	usda-ndb-import	1489069957	2017-03-09T14:32:37Z	1489069957	2017-03-09T14:32:37Z	Banana Chips Sweetened (Whole)	NaN	NaN
2	2	4559	http://world-fr.openfoodfacts.org/produit/0000...	usda-ndb-import	1489069957	2017-03-09T14:32:37Z	1489069957	2017-03-09T14:32:37Z	Peanuts	NaN	NaN
3	3	16087	http://world-fr.openfoodfacts.org/produit/0000...	usda-ndb-import	1489055731	2017-03-09T10:35:31Z	1489055731	2017-03-09T10:35:31Z	Organic Salted Nut Mix	NaN	NaN
4	4	16094	http://world-fr.openfoodfacts.org/produit/0000...	usda-ndb-import	1489055653	2017-03-09T10:34:13Z	1489055653	2017-03-09T10:34:13Z	Organic Polenta	NaN	NaN

In [53]:

```
myDF.tail()
```

Out[53]:

	Unnamed: 0	code	url	creator	created_t	created_datetime	last_modified_t	last_modified_datetime	product_name	generic...
282653	320767	9948282780603	http://world-fr.openfoodfacts.org/produit/9948...	openfoodfacts-contributors	1490631299	2017-03-27T16:14:59Z	1491244498	2017-04-03T18:34:58Z	Tomato & ricotta	
282654	320768	99567453	http://world-fr.openfoodfacts.org/produit/9956...	usda-ndb-import	1489059076	2017-03-09T11:31:16Z	1491244499	2017-04-03T18:34:59Z	Mint Melange Tea A Blend Of Peppermint, Lemon ...	
282655	320769	9970229501521	http://world-fr.openfoodfacts.org/produit/9970...	tomato	1422099377	2015-01-24T11:36:17Z	1491244499	2017-04-03T18:34:59Z	乐吧泡菜味薯片	Leba flavor
282656	320770	9980282863788	http://world-fr.openfoodfacts.org/produit/9980...	openfoodfacts-contributors	1492340089	2017-04-16T10:54:49Z	1492340089	2017-04-16T10:54:49Z	Tomates aux Vermicelles	
282657	320771	999990026839	http://world-fr.openfoodfacts.org/produit/9999...	usda-ndb-import	1489072709	2017-03-09T15:18:29Z	1491244499	2017-04-03T18:34:59Z	Sugar Free Drink Mix, Peach Tea	

In [54]:

```
# qu'est ce que c'est que Unnamed ? cela semble etre une colonne d index initial, peut etre cree par Lors de L'enrgistrement  
# Je l'enleve.
```

```
myDF.drop('Unnamed: 0', axis=1, inplace=True)
```

```
myDF.shape
```

Out[54]:

```
(282658, 147)
```

In [55]:

```
myDF.info()
```

```
<class 'pandas.core.frame.DataFrame'>  
RangeIndex: 282658 entries, 0 to 282657  
Columns: 147 entries, code to total3nutriments_100g  
dtypes: float64(91), object(56)  
memory usage: 317.0+ MB
```

In [56]:

```
myColTypes = myDF.dtypes
```

```
myColTypes
```

Out[56]:

	code	object
url		object
creator		object

created_t	object
created_datetime	object
last_modified_t	object
last_modified_datetime	object
product_name	object
generic_name	object
quantity	object
packaging	object
packaging_tags	object
brands	object
brands_tags	object
categories	object
categories_tags	object
categories_fr	object
origins	object
origins_tags	object
manufacturing_places	object
manufacturing_places_tags	object
labels	object
labels_tags	object
labels_fr	object
emb_codes	object
emb_codes_tags	object
first_packaging_code_geo	object
cities	object
cities_tags	object
purchase_places	object
stores	object
countries	object
countries_tags	object
countries_fr	object
ingredients_text	object
allergens	object
allergens_fr	object
traces	object
traces_tags	object
traces_fr	object
serving_size	object
additives_n	float64
additives	object
additives_tags	object
additives_fr	object
ingredients_from_palm_oil_n	float64
ingredients_from_palm_oil_tags	object
ingredients_that_may_be_from_palm_oil_n	float64
ingredients_that_may_be_from_palm_oil_tags	object
nutrition_grade_fr	object
pnns_groups_1	object
pnns_groups_2	object
states	object
states_tags	object
states_fr	object
main_category	object
main_category_fr	object
image_url	object
image_small_url	object
energy_100g	float64
energy-from-fat_100g	float64
fat_100g	float64
saturated-fat_100g	float64
caprylic-acid_100g	float64
capric-acid_100g	float64
lauric-acid_100g	float64
myristic-acid_100g	float64
palmitic-acid_100g	float64
stearic-acid_100g	float64
arachidic-acid_100g	float64
behenic-acid_100g	float64
montanic-acid_100g	float64
monounsaturated-fat_100g	float64
polyunsaturated-fat_100g	float64
omega-3-fat_100g	float64
alpha-linolenic-acid_100g	float64
eicosapentaenoic-acid_100g	float64
docosahexaenoic-acid_100g	float64
omega-6-fat_100g	float64
linoleic-acid_100g	float64
arachidonic-acid_100g	float64
gamma-linolenic-acid_100g	float64
dihomo-gamma-linolenic-acid_100g	float64
omega-9-fat_100g	float64
oleic-acid_100g	float64
gondoic-acid_100g	float64
trans-fat_100g	float64
cholesterol_100g	float64
carbohydrates_100g	float64
sugars_100g	float64
sucrose_100g	float64
glucose_100g	float64
fructose_100g	float64
lactose_100g	float64
maltose_100g	float64
maltooligosaccharides_100g	float64
starch_100g	float64
polyols_100g	float64
fiber_100g	float64
proteins_100g	float64
casein_100g	float64
serum-proteins_100g	float64
nucleotides_100g	float64
salt_100g	float64
sodium_100g	float64
alcohol_100g	float64
vitamin-a_100g	float64
beta-carotene_100g	float64
vitamin-d_100g	float64
vitamin-e_100g	float64

```

vitamin-k_100g           float64
vitamin-c_100g           float64
vitamin-b1_100g          float64
vitamin-b2_100g          float64
vitamin-pp_100g          float64
vitamin-b6_100g          float64
vitamin-b9_100g          float64
folates_100g             float64
vitamin-b12_100g         float64
biotin_100g              float64
pantothenic-acid_100g   float64
silica_100g              float64
bicarbonate_100g         float64
potassium_100g           float64
chloride_100g            float64
calcium_100g              float64
phosphorus_100g          float64
iron_100g                float64
magnesium_100g           float64
zinc_100g                float64
copper_100g               float64
manganese_100g            float64
fluoride_100g             float64
selenium_100g             float64
chromium_100g             float64
molybdenum_100g           float64
iodine_100g               float64
caffeine_100g              float64
taurine_100g              float64
ph_100g                  float64
fruits-vegetables-nuts_100g float64
collagen-meat-protein-ratio_100g float64
cocoa_100g                float64
carbon-footprint_100g      float64
nutrition-score-fr_100g    float64
nutrition-score-uk_100g    float64
total3nutrients_100g       float64
dtype: object

```

In [57]: `myDF.isna().sum()`

```

Out[57]: code           8
url             8
creator         1
created_t       0
created_datetime 4
last_modified_t 0
last_modified_datetime 0
product_name    1351
generic_name    231848
quantity        182343
packaging       207063
packaging_tags 207062
brands          12412
brands_tags    12420
categories      202121
categories_tags 202129
categories_fr   202121
origins         261315
origins_tags   261351
manufacturing_places 247374
manufacturing_places_tags 247380
labels          237816
labels_tags    237734
labels_fr       237726
emb_codes       254582
emb_codes_tags 254586
first_packaging_code_geo 264621
cities          282650
cities_tags    263191
purchase_places 227033
stores          233003
countries       235
countries_tags 235
countries_fr   235
ingredients_text 55130
allergens       255375
allergens_fr   282650
traces          259047
traces_tags    259056
traces_fr      259048
serving_size    91399
additives_n     55138
additives       55169
additives_tags  141736
additives_fr   141736
ingredients_from_palm_oil_n 55138
ingredients_from_palm_oil_tags 278193
ingredients_that_may_be_from_palm_oil_n 55138
ingredients_that_may_be_from_palm_oil_tags 271827
nutrition_grade_fr 79836
pnns_groups_1   196660
pnns_groups_2   193888
states          31
states_tags    31
states_fr      31
main_category   202152
main_category_fr 202152
image_url       214668
image_small_url 214668
energy_100g     44424
energy_from_fat_100g 281862
fat_100g        29594
saturated-fat_100g 29594
caprylic-acid_100g 29594
capric-acid_100g 29594

```

```

lauric-acid_100g           29594
myristic-acid_100g          29594
palmitic-acid_100g          29594
stearic-acid_100g           29594
arachidic-acid_100g          29594
behenic-acid_100g           29594
montanic-acid_100g          29594
monounsaturated-fat_100g     29594
polyunsaturated-fat_100g     29594
omega-3-fat_100g            29594
alpha-linolenic-acid_100g    29594
eicosapentaenoic-acid_100g   29594
docosahexaenoic-acid_100g   29594
omega-6-fat_100g             29594
linoleic-acid_100g           29594
arachidonic-acid_100g         29594
gamma-linolenic-acid_100g    29594
dihomo-gamma-linolenic-acid_100g 29594
omega-9-fat_100g             29594
oleic-acid_100g              29594
gondoic-acid_100g            29594
trans-fat_100g                29594
cholesterol_100g              29594
carbohydrates_100g            29594
sugars_100g                   29594
sucrose_100g                  29594
glucose_100g                  29594
fructose_100g                  29594
lactose_100g                   29594
maltose_100g                   29594
maltodextrins_100g             29594
starch_100g                     29594
polyols_100g                   29594
fiber_100g                      29594
proteins_100g                  29594
casein_100g                     29594
serum-proteins_100g             29594
nucleotides_100g                 29594
salt_100g                       29594
sodium_100g                     29594
alcohol_100g                     29594
vitamin-a_100g                  29594
beta-carotene_100g               29594
vitamin-d_100g                   29594
vitamin-e_100g                   29594
vitamin-k_100g                   29594
vitamin-c_100g                   29594
vitamin-b1_100g                  29594
vitamin-b2_100g                  29594
vitamin-pp_100g                  29594
vitamin-b6_100g                  29594
vitamin-b9_100g                  29594
folates_100g                     29594
vitamin-b12_100g                 29594
biotin_100g                      29594
pantothenic-acid_100g             29594
silica_100g                      29594
bicarbonate_100g                 29594
potassium_100g                   29594
chloride_100g                   29594
calcium_100g                     29594
phosphorus_100g                  29594
iron_100g                        29594
magnesium_100g                  29594
zinc_100g                         29594
copper_100g                      29594
manganese_100g                   29594
fluoride_100g                     29594
selenium_100g                   29594
chromium_100g                   29594
molybdenum_100g                  29594
iodine_100g                      29594
caffeine_100g                     29594
taurine_100g                     29594
ph_100g                           29594
fruits-vegetables-nuts_100g        29594
collagen-meat-protein-ratio_100g   29594
cocoa_100g                         29594
carbon-footprint_100g                282405
nutrition-score-fr_100g                79836
nutrition-score-uk_100g                79836
total3nutrients_100g                  0
dtype: int64

```

```

In [58]: # myNumericCols = myDF.select_dtypes(include = ['int32','float64']).columns

# for column in myNumericCols:
#     plt.figure(figsize = (10,2))
#     sns.set(font_scale=1)
#     sns.distplot(myDF[column], bins=50)
#     chaine = 'Distribution de : ' + column
#     plt.title(chaine)
#     plt.xlabel(column)
#     plt.show()

# fonction distplot deprecated, using distplot instead

```

```

In [59]: myNumericCols = myDF.select_dtypes(include = ['int32','float64']).columns

for column in myNumericCols:
    plt.figure(figsize = (10,1))
    sns.set(font_scale=1)
    sns.distplot(myDF[column], bins=50)
    chaine = 'Distribution de : ' + column
    plt.title(chaine)

```

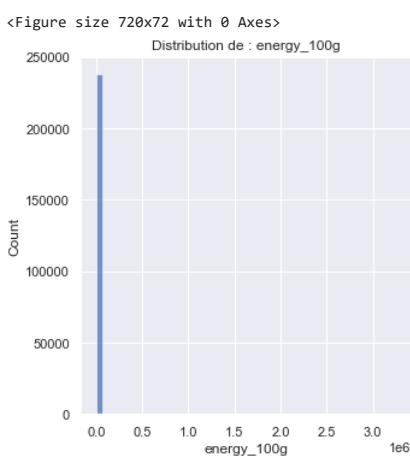
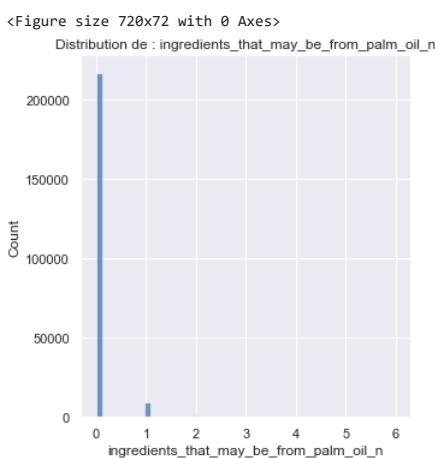
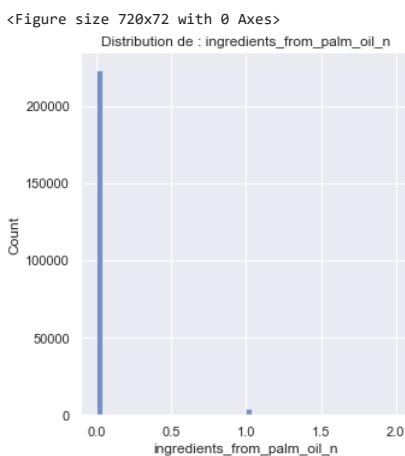
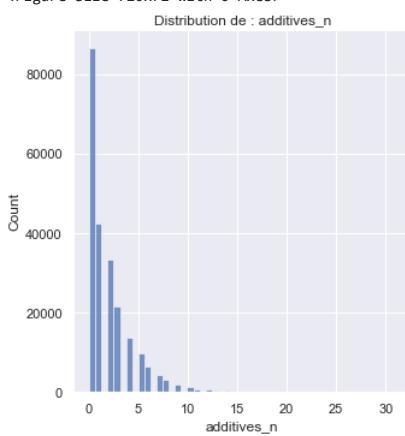
```

plt.xlabel(column)
plt.show()

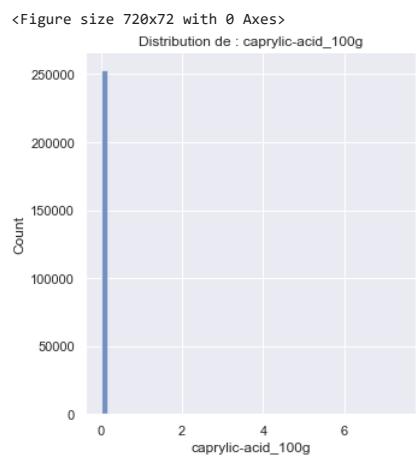
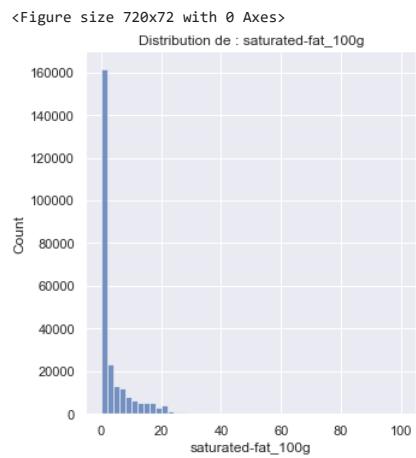
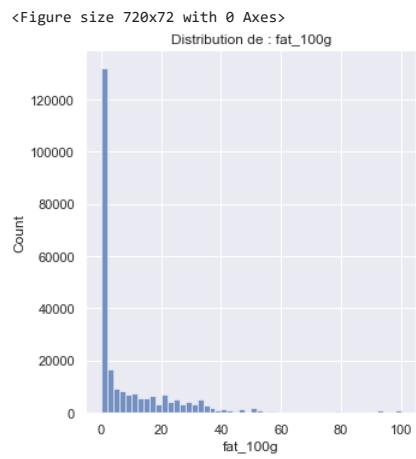
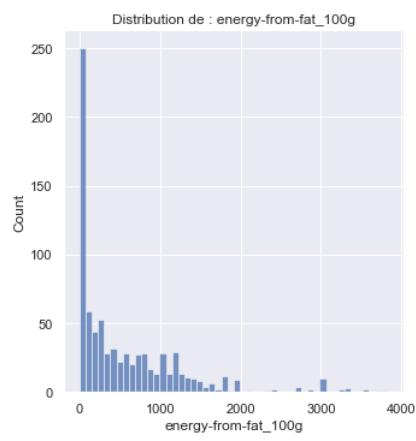
#####
# voir Pandas profiling pour obtenir data et graphiques
#####

<Figure size 720x72 with 0 Axes>

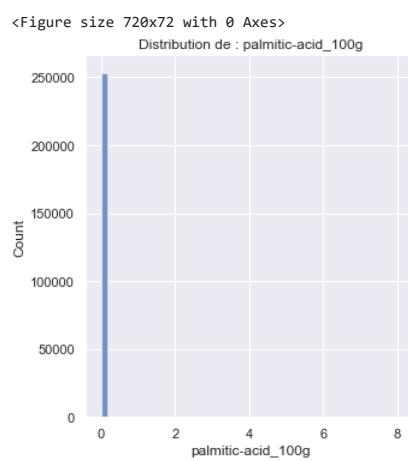
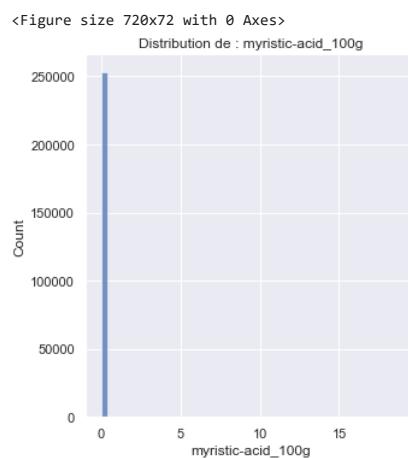
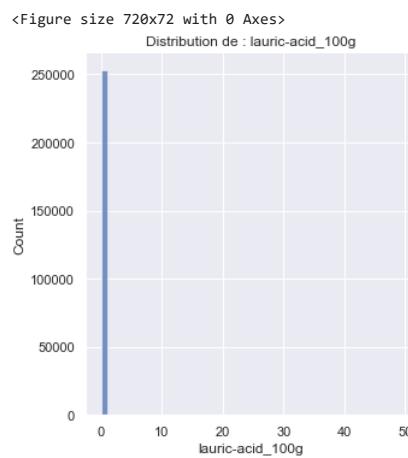
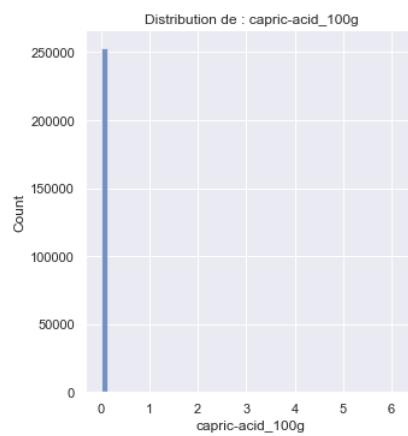
```



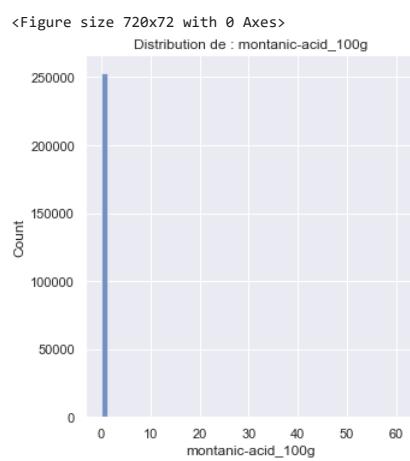
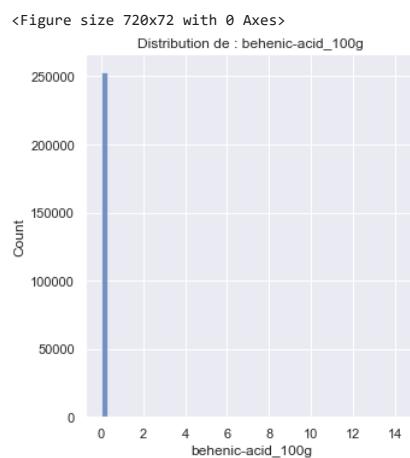
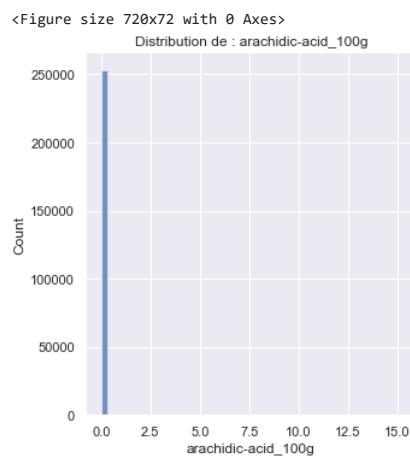
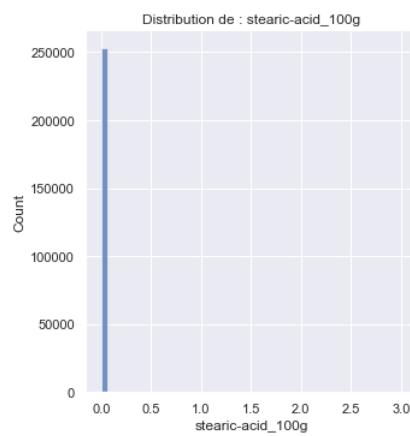
<Figure size 720x72 with 0 Axes>



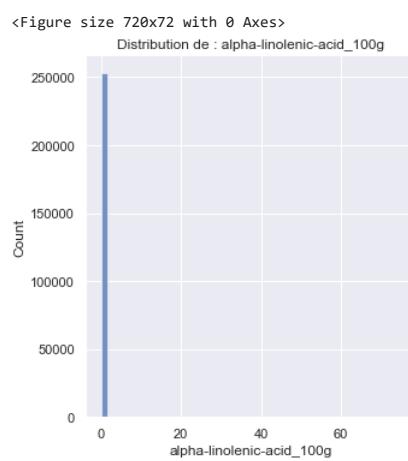
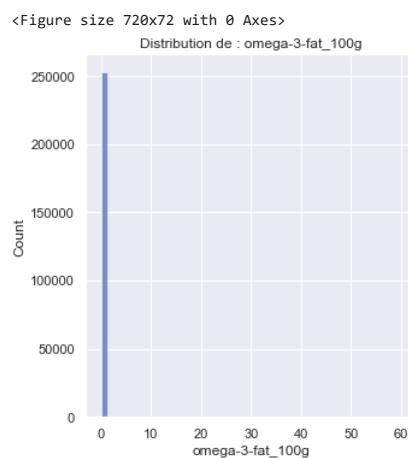
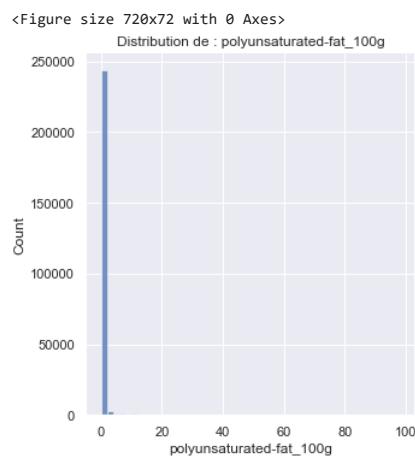
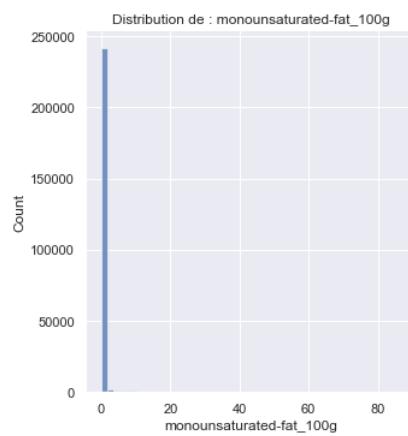
<Figure size 720x72 with 0 Axes>



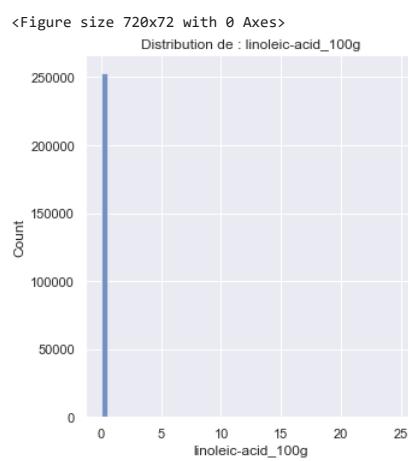
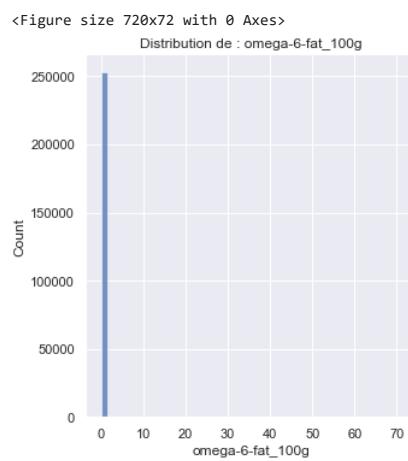
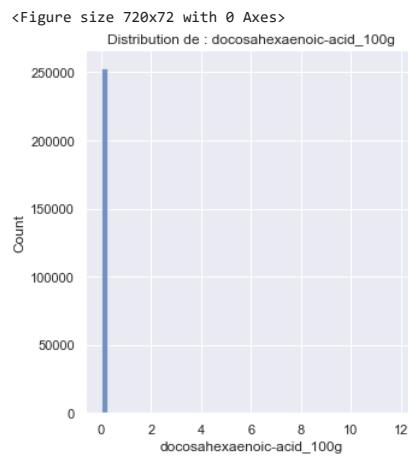
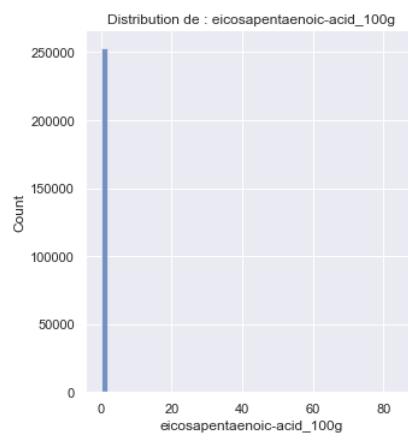
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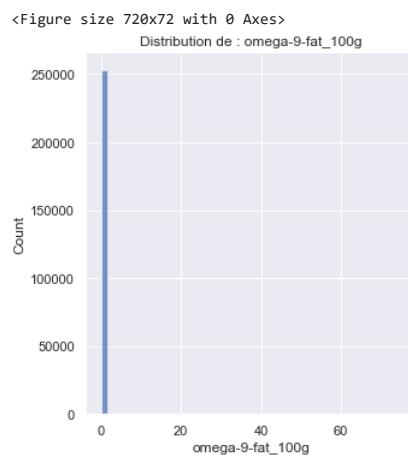
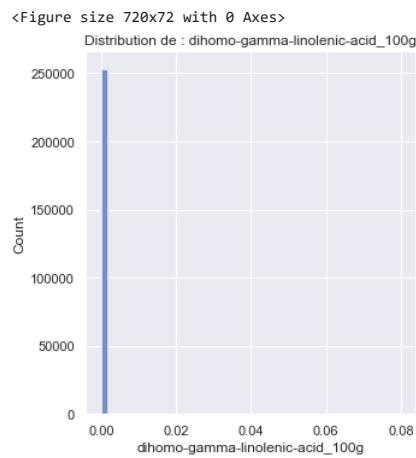
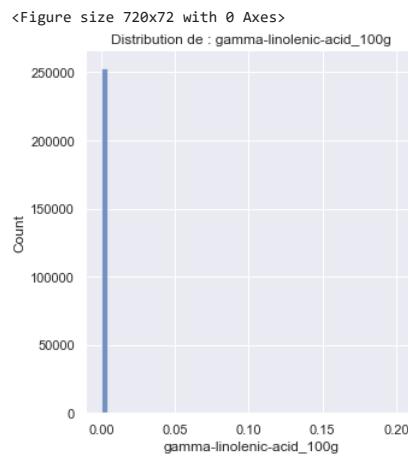
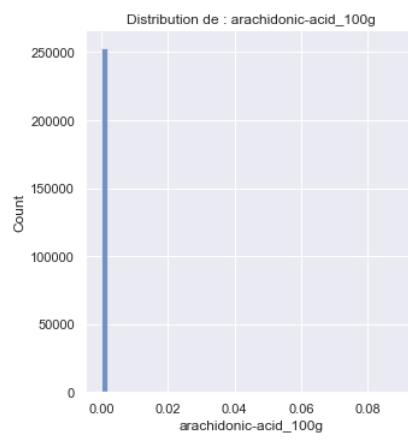
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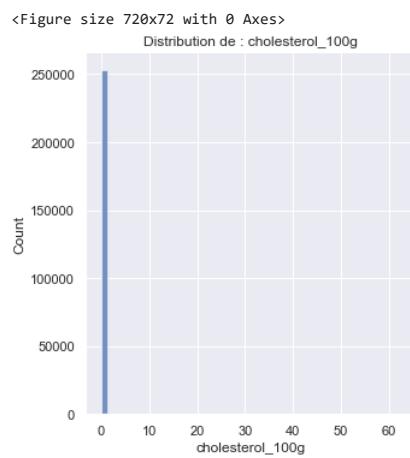
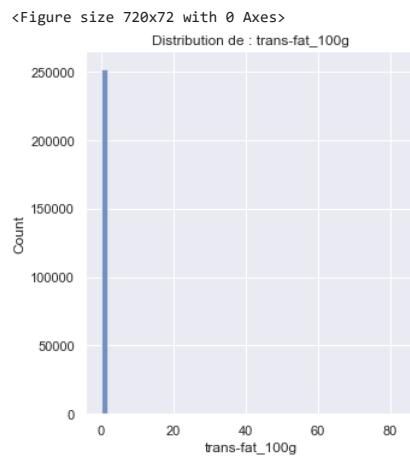
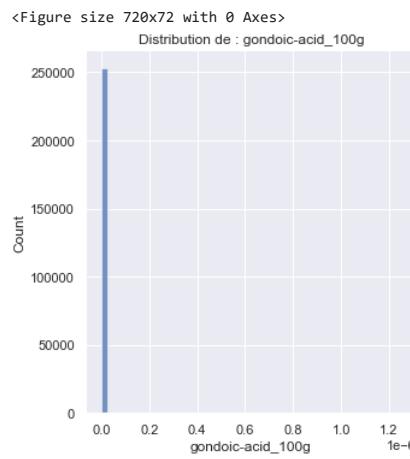
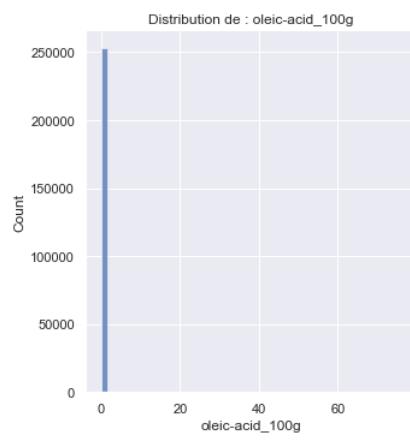
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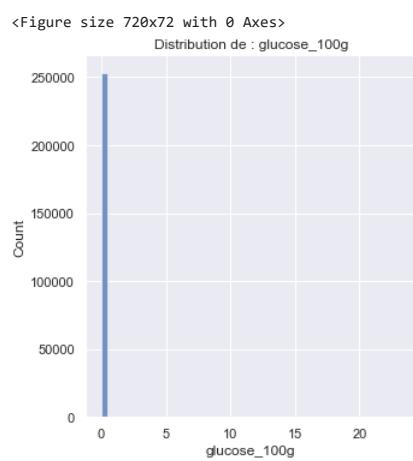
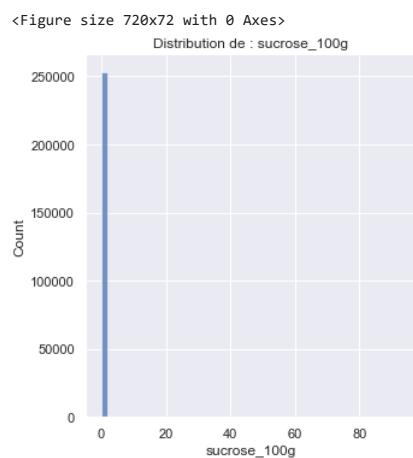
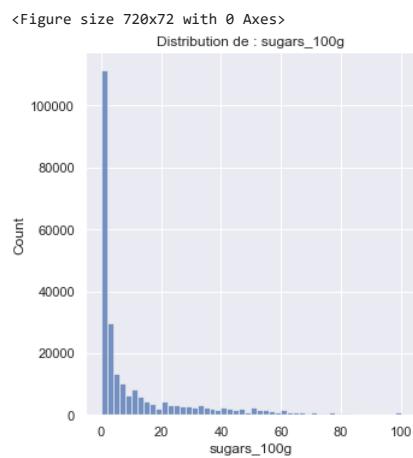
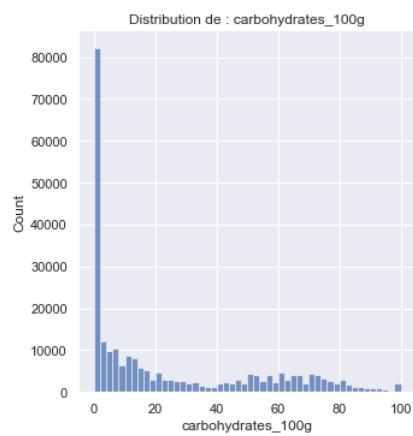


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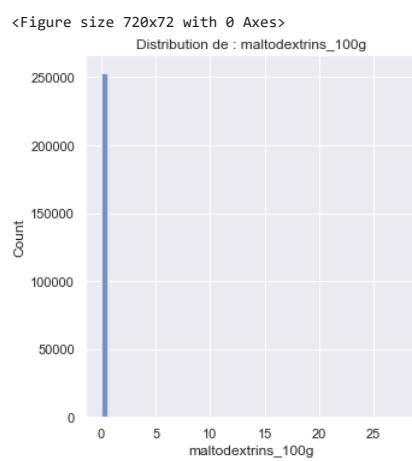
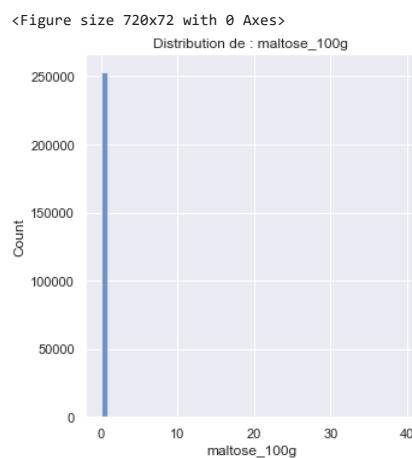
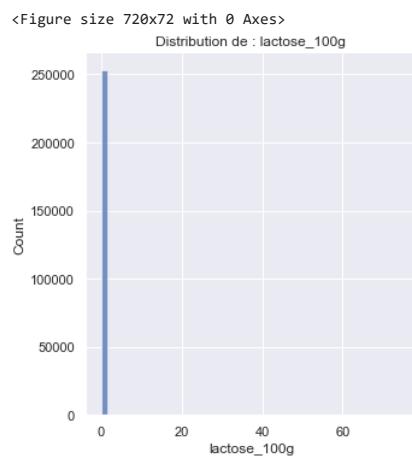
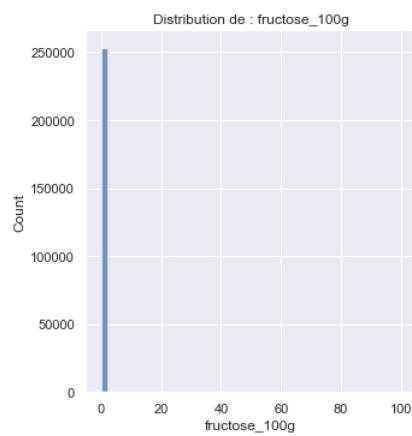


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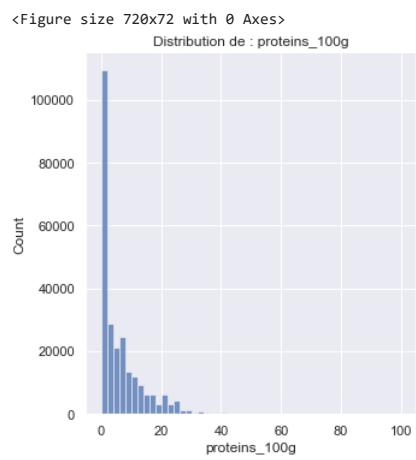
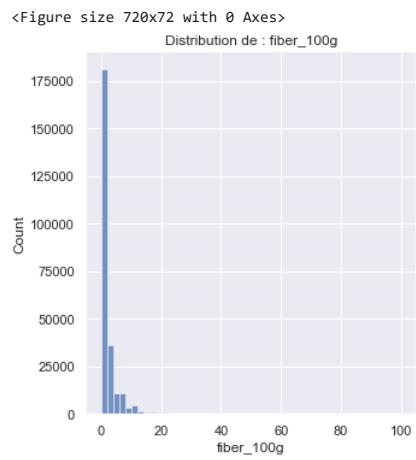
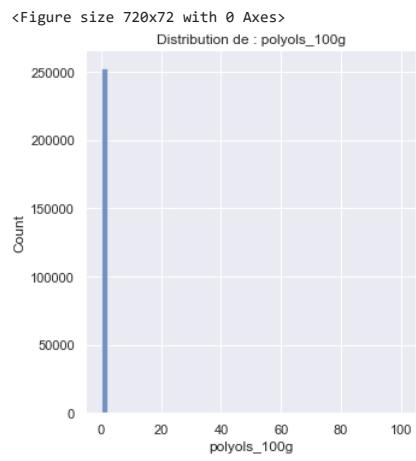
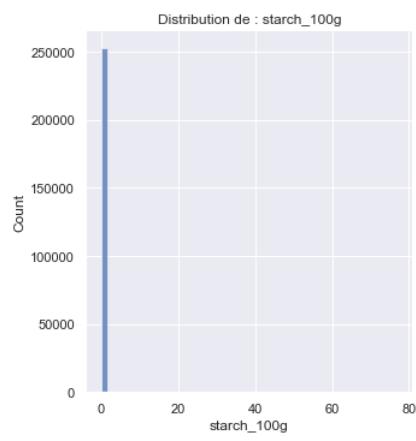




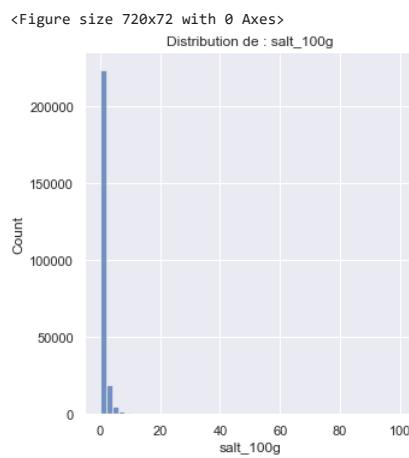
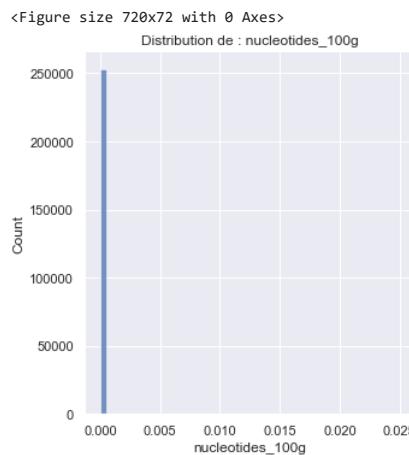
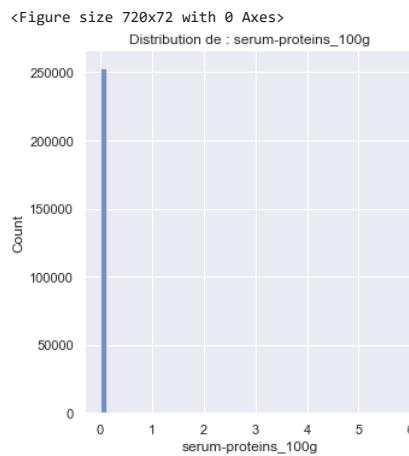
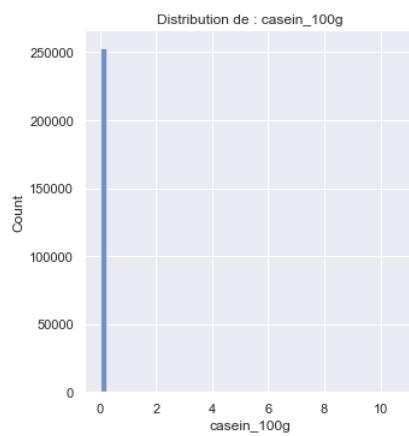
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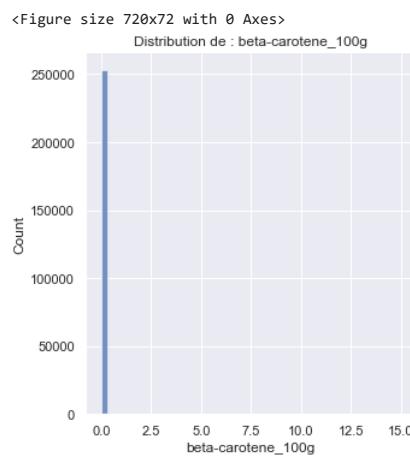
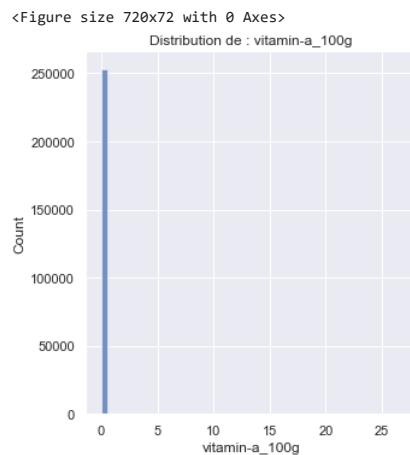
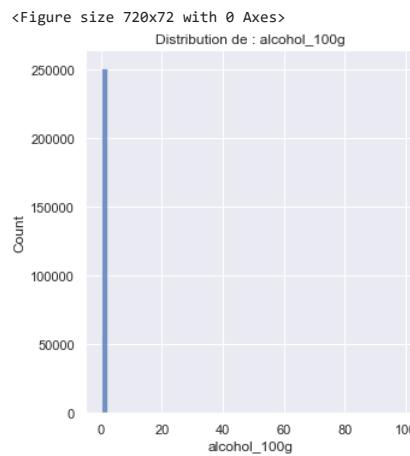
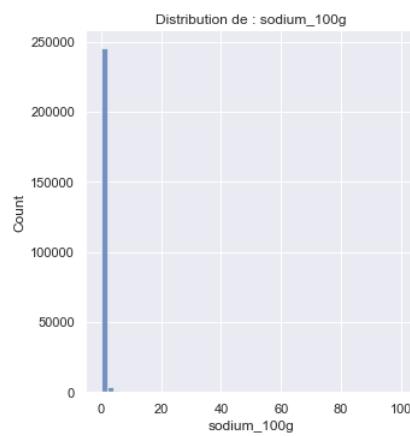
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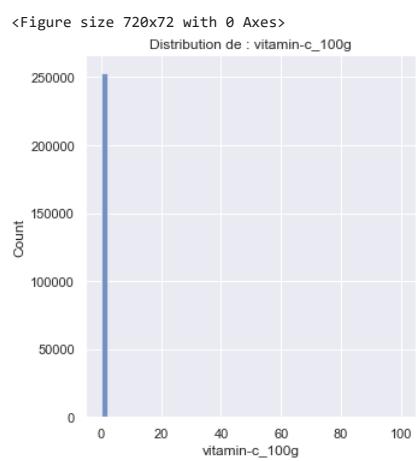
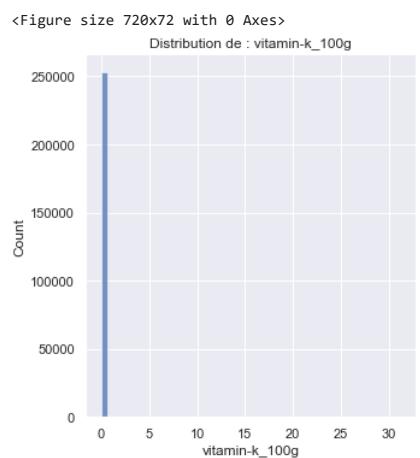
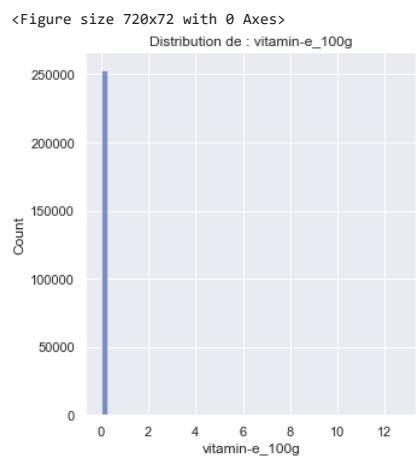
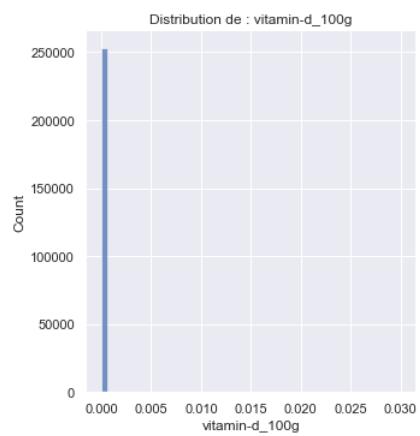
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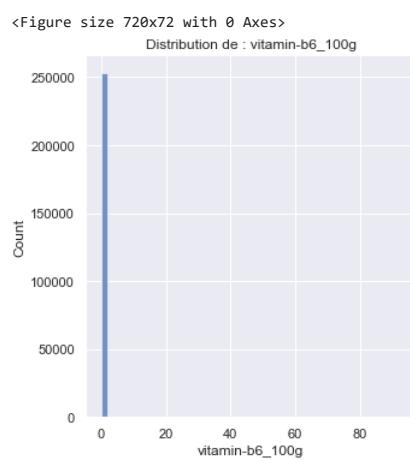
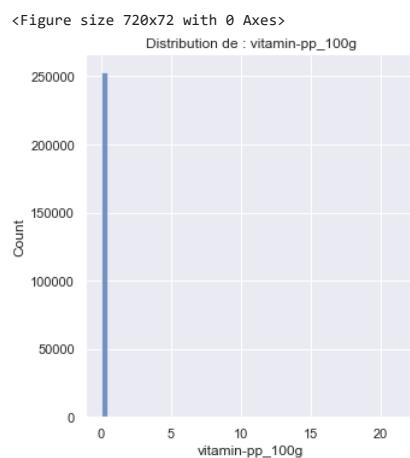
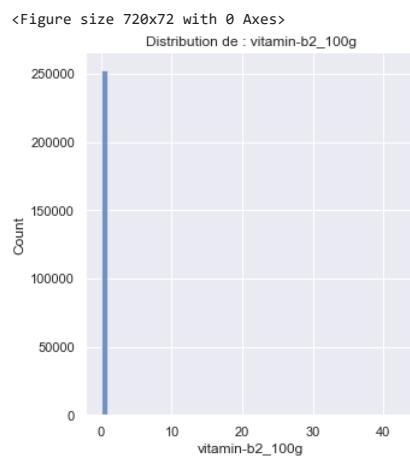
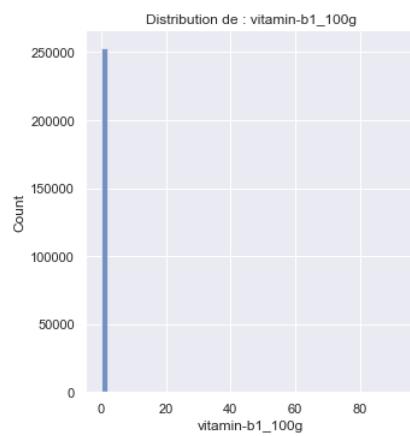
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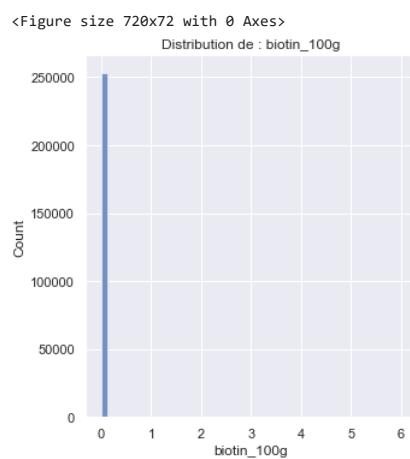
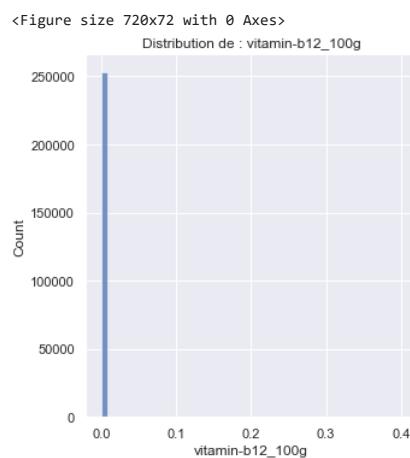
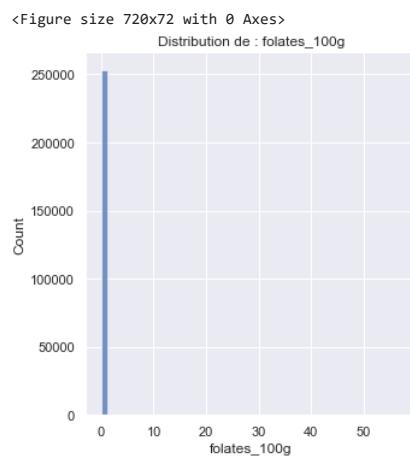
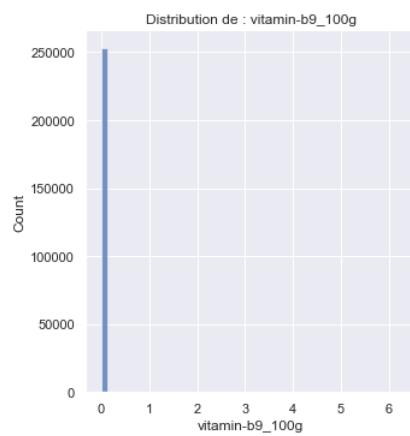
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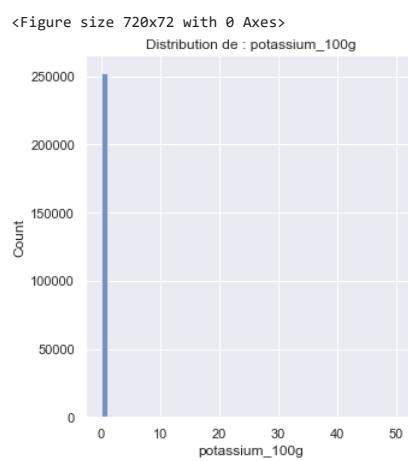
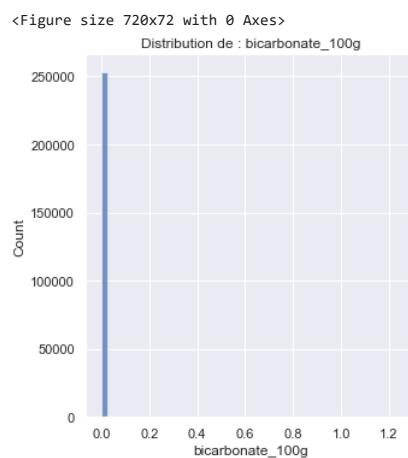
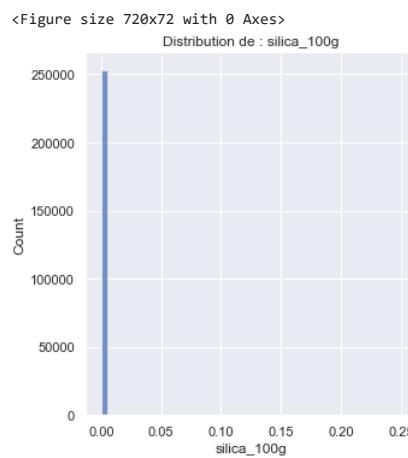
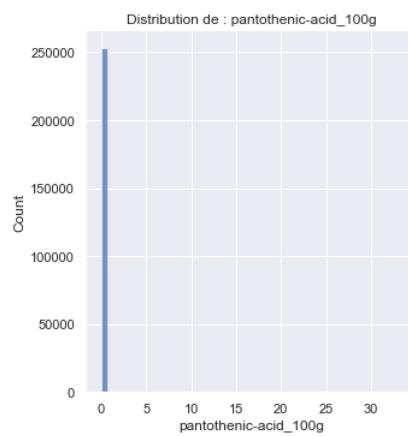


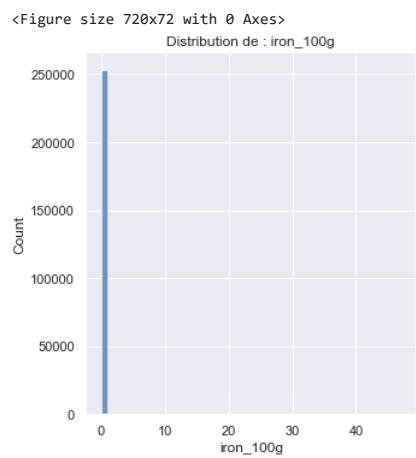
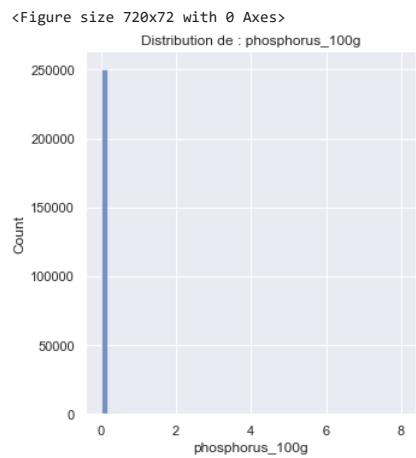
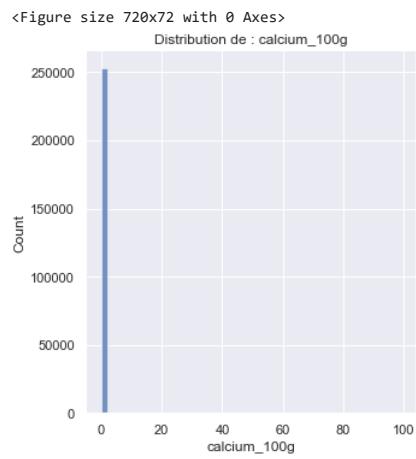
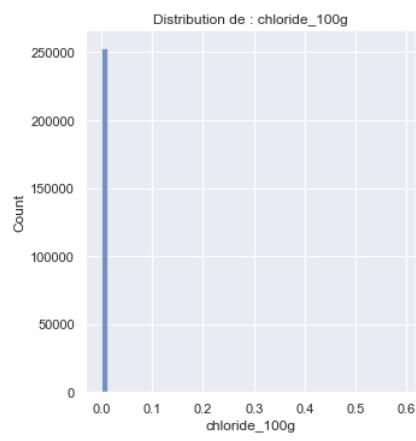
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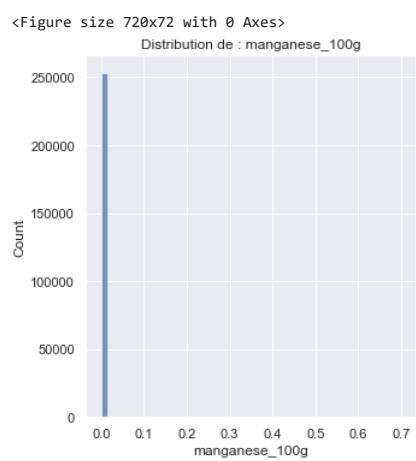
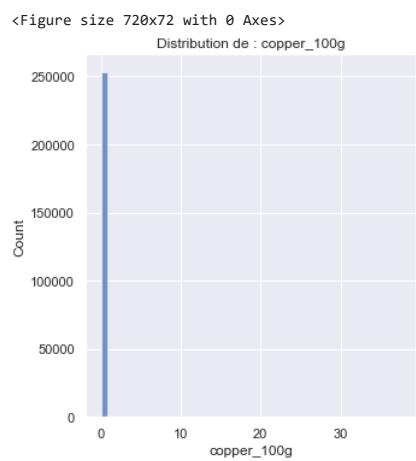
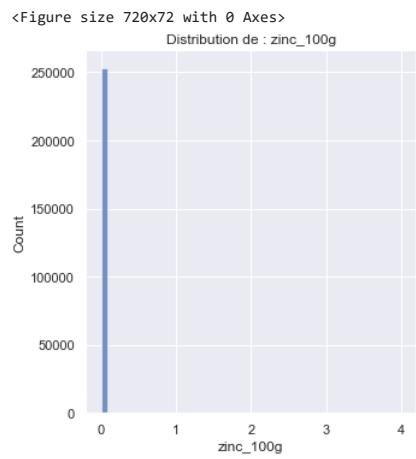
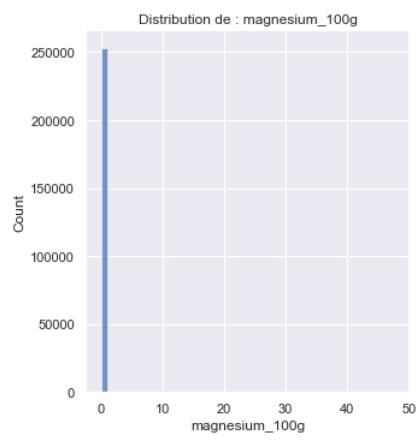
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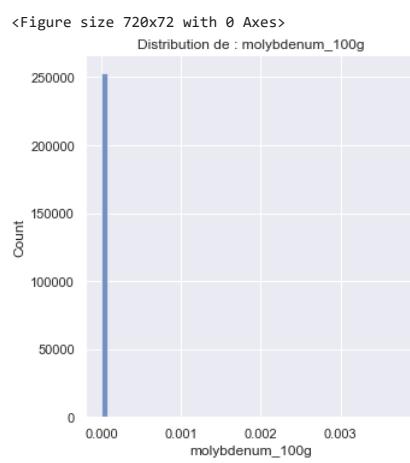
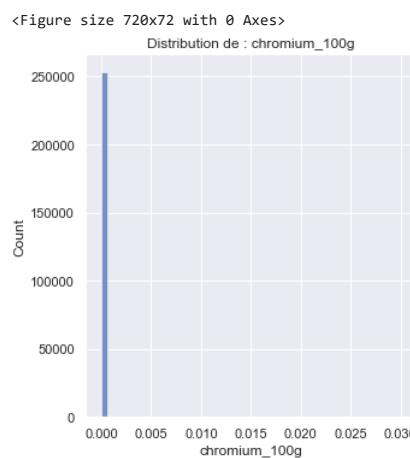
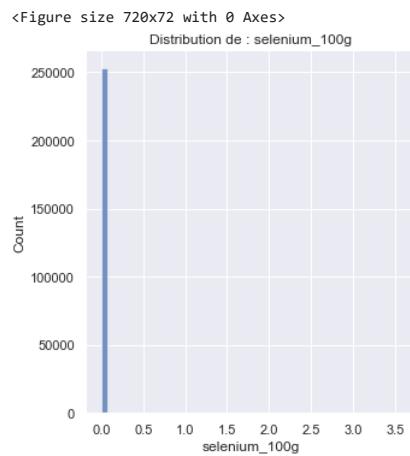
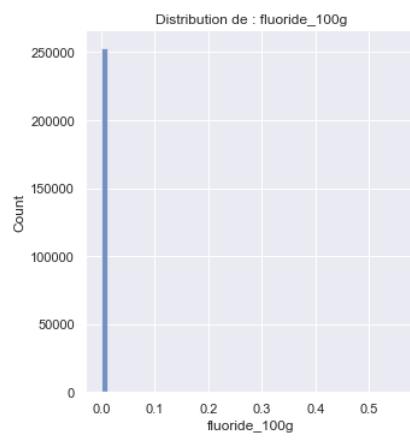




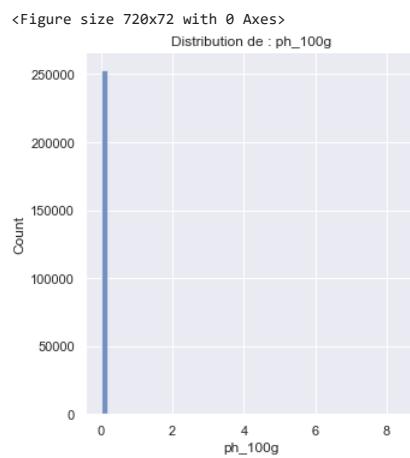
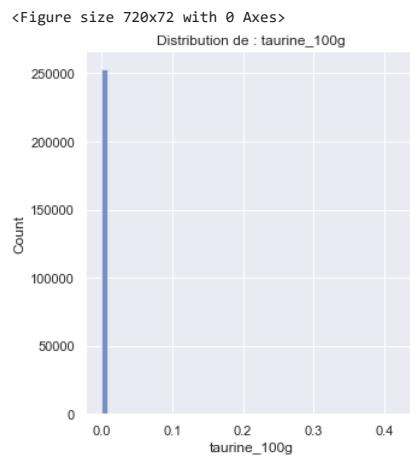
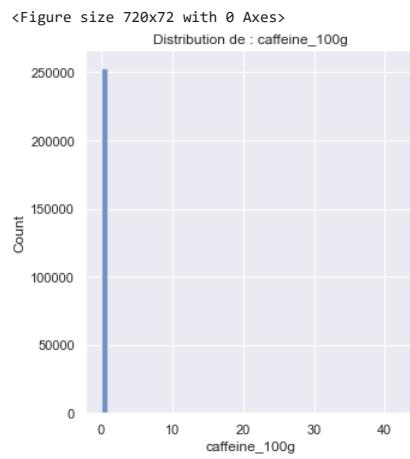
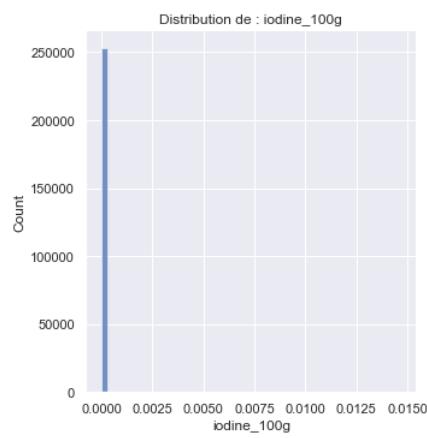
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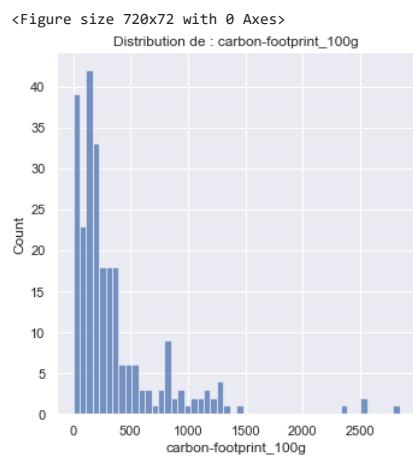
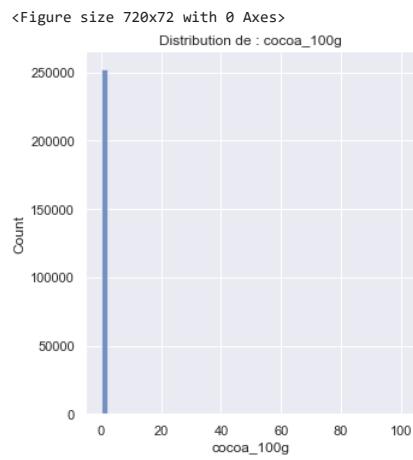
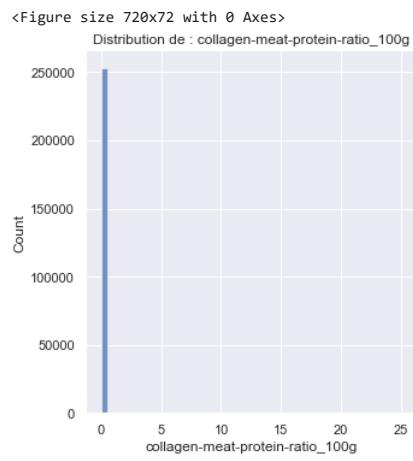
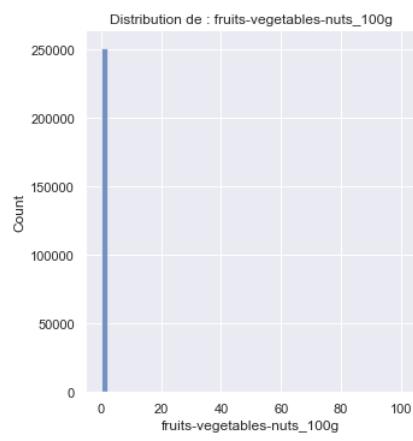
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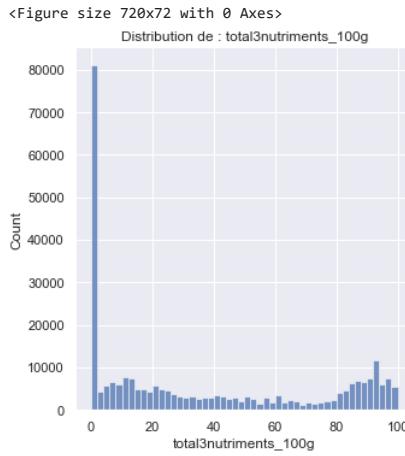
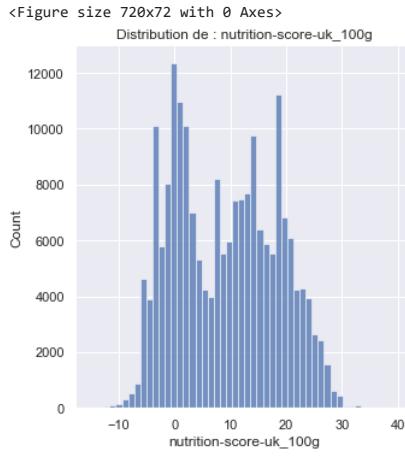
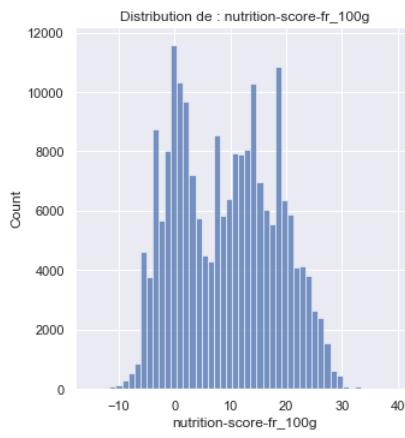
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<Figure size 720x72 with 0 Axes>



<Figure size 720x72 with 0 Axes>



```
In [60]: myDF[myNumericCols].describe()
```

```
Out[60]:
```

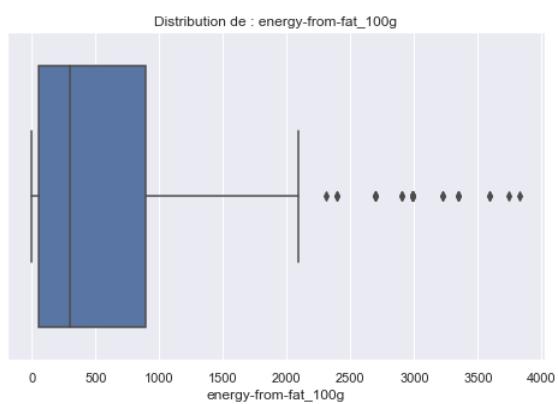
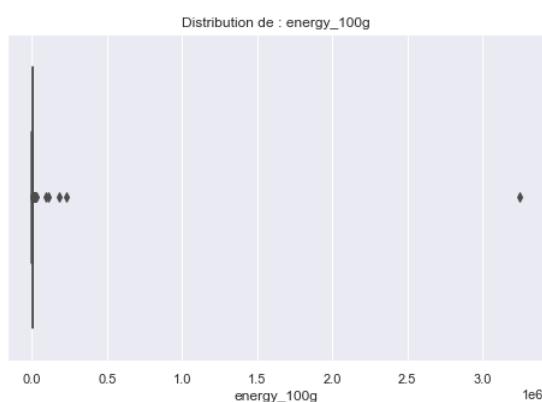
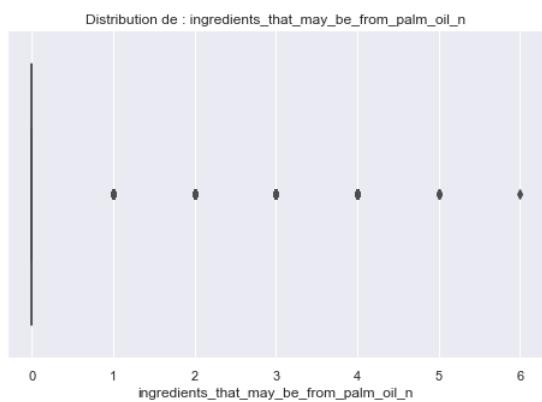
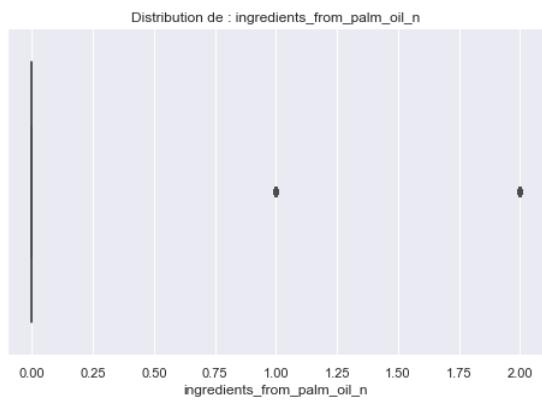
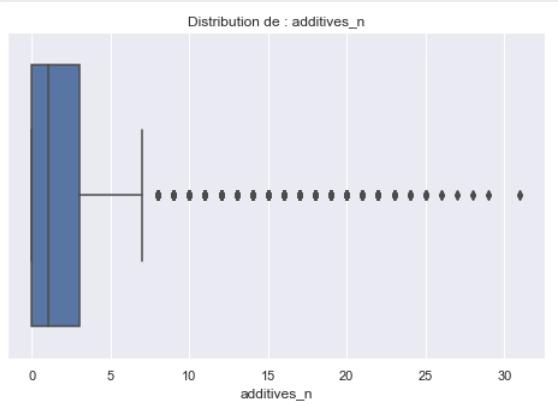
	additives_n	ingredients_from_palm_oil_n	ingredients_that_may_be_from_palm_oil_n	energy_100g	energy-from-fat_100g	fat_100g	saturated-fat_100g	caprylic-acid_100g	capric-acid_100g
count	227520.000000	227520.000000		227520.000000	2.382340e+05	796.000000	253064.000000	253064.000000	253064.000000
mean	1.931984	0.019871			0.056276	1.144028e+03	568.226307	9.824049	3.773187
std	2.509967	0.141309			0.272796	6.740682e+03	693.652140	16.067226	7.153336
min	0.000000	0.000000			0.000000	0.000000e+00	0.000000	0.000000	0.000000
25%	0.000000	0.000000			0.000000	3.850000e+02	52.575000	0.000000	0.000000
50%	1.000000	0.000000			0.000000	1.103000e+03	300.000000	1.600000	0.100000
75%	3.000000	0.000000			0.000000	1.674000e+03	888.500000	15.000000	4.800000
max	31.000000	2.000000			6.000000	3.251373e+06	3830.000000	100.000000	7.400000

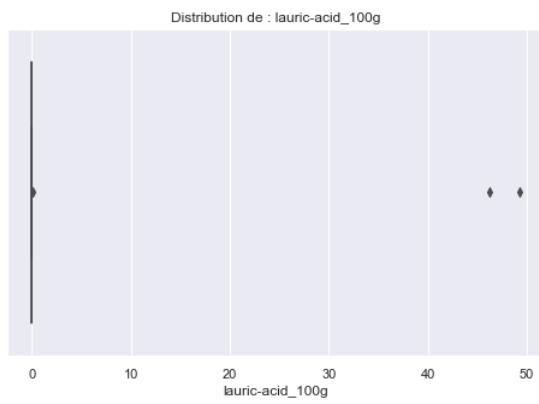
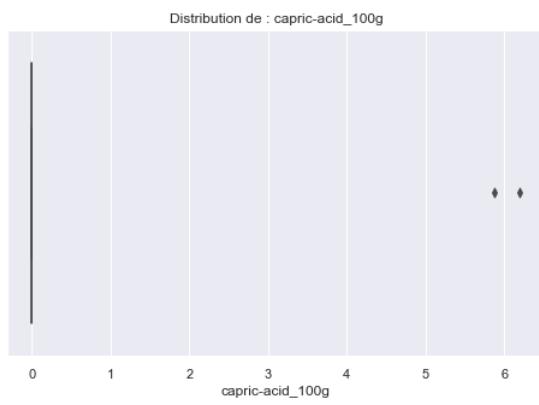
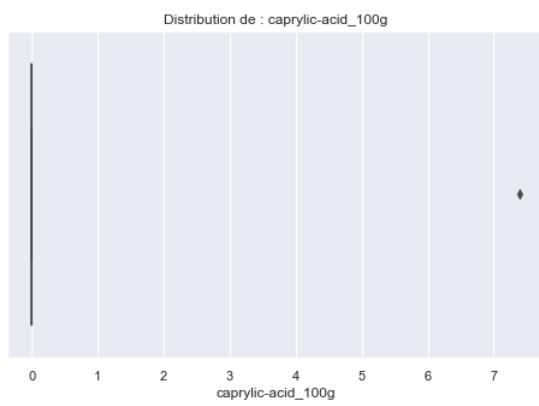
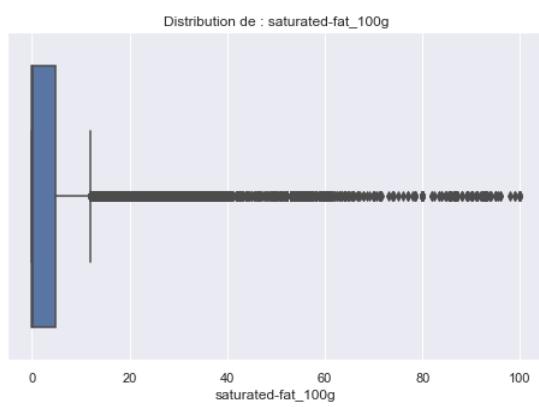
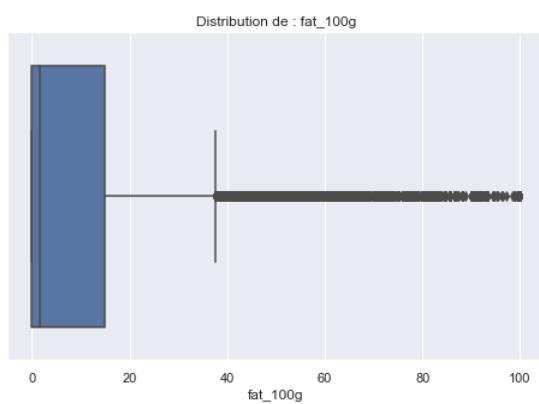
NB: la fonction distplot (par rapport à distplot) n'ajoute pas une courbe de distribution, et

```
In [61]:
```

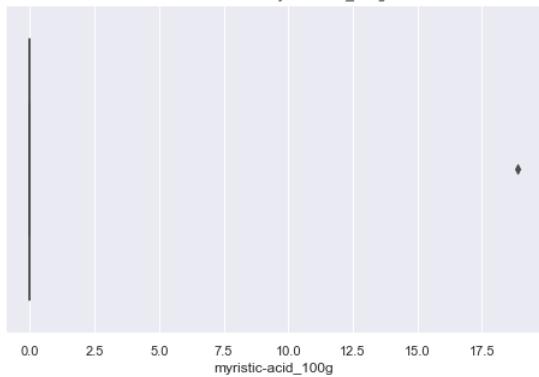
```
sns.set(font_scale=1)
for column in myNumericCols:
    plt.figure(figsize = (8,5))

    sns.boxplot(x = myDF[column])
    chaine = 'Distribution de : ' + column
    plt.title(chaine)
    plt.xlabel(column)
    plt.show()
sns.set(font_scale=1)
```

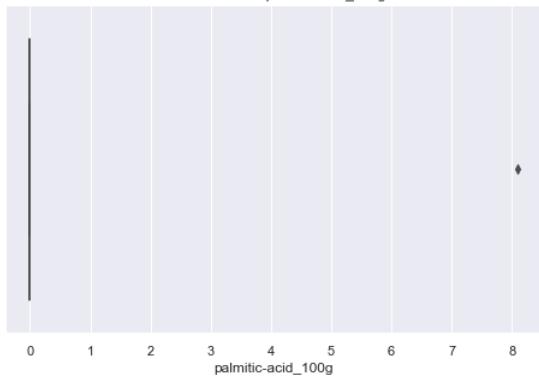




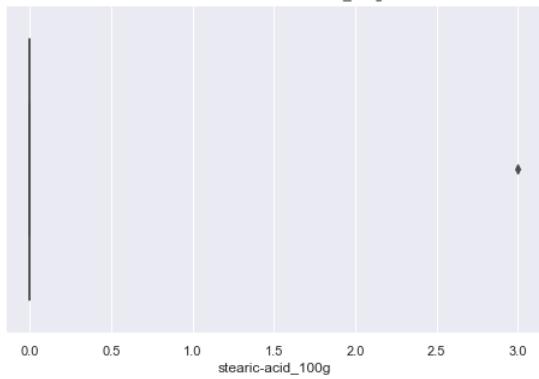
Distribution de : myristic-acid_100g



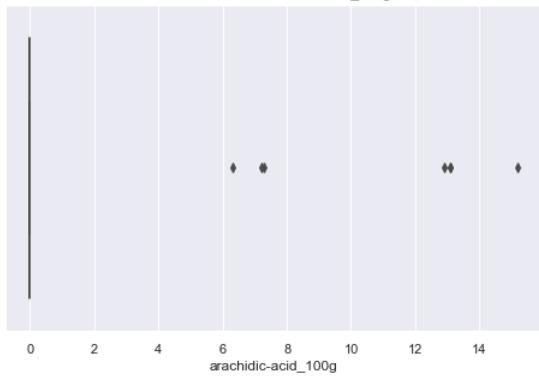
Distribution de : palmitic-acid_100g



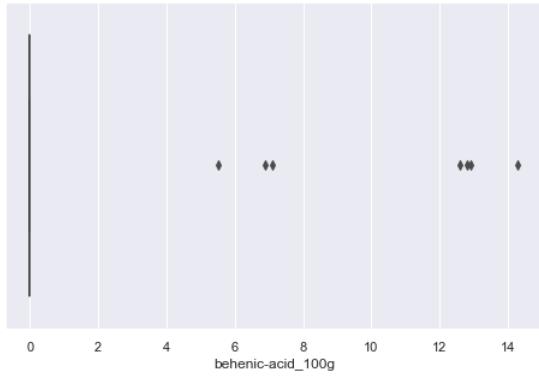
Distribution de : stearic-acid_100g



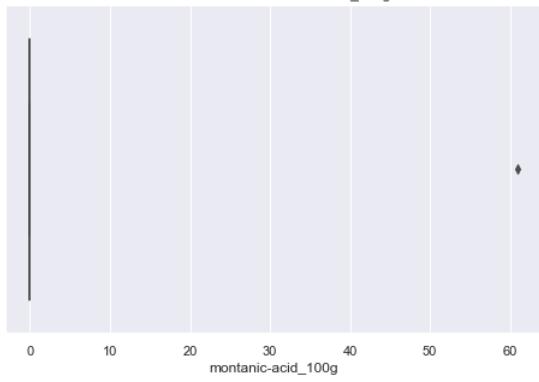
Distribution de : arachidic-acid_100g



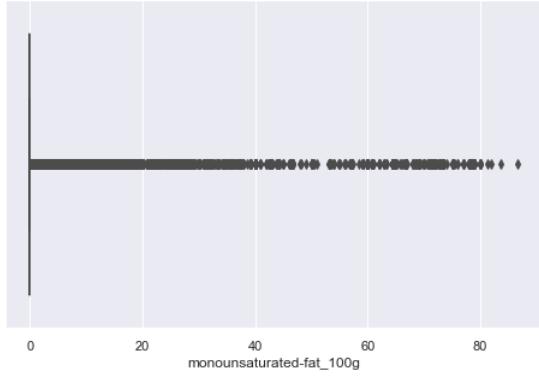
Distribution de : behenic-acid_100g



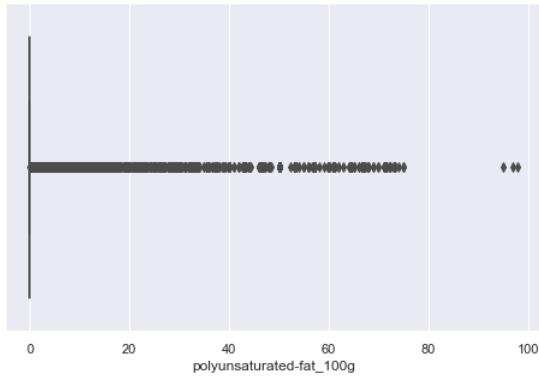
Distribution de : montanic-acid_100g



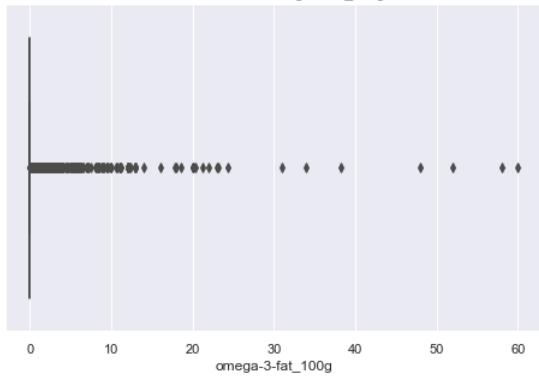
Distribution de : monounsaturated-fat_100g



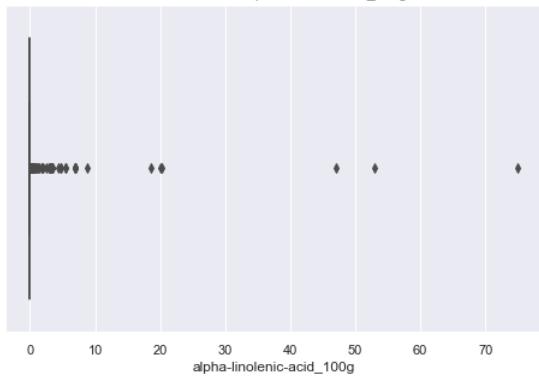
Distribution de : polyunsaturated-fat_100g



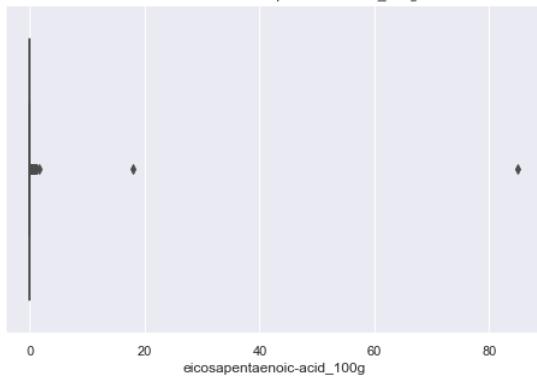
Distribution de : omega-3-fat_100g



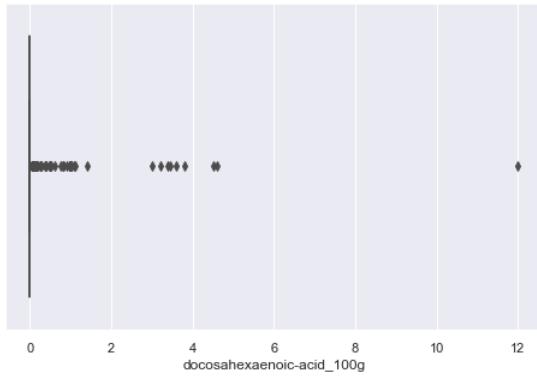
Distribution de : alpha-linolenic-acid_100g



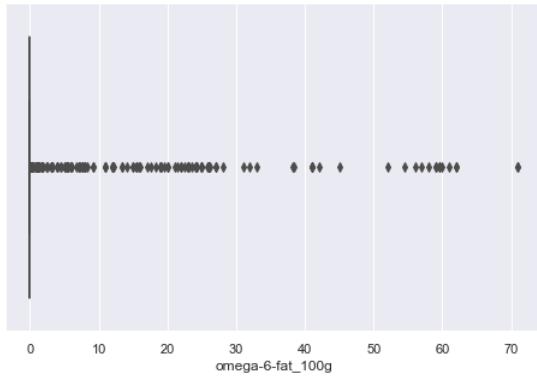
Distribution de : eicosapentaenoic-acid_100g



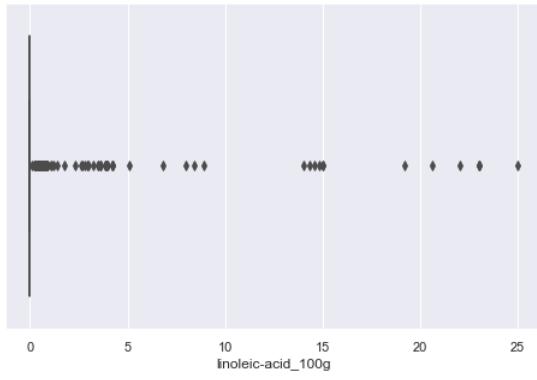
Distribution de : docosahexaenoic-acid_100g



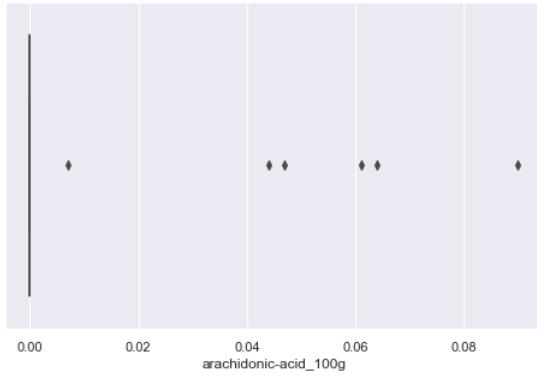
Distribution de : omega-6-fat_100g



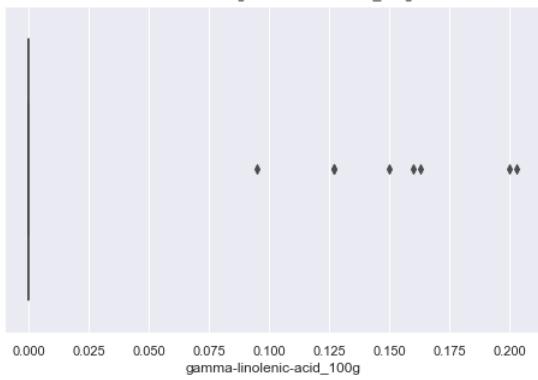
Distribution de : linoleic-acid_100g



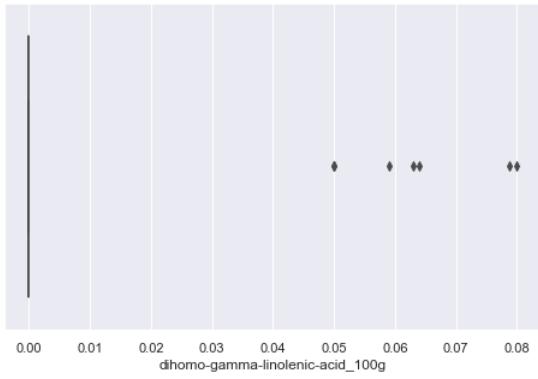
Distribution de : arachidonic-acid_100g



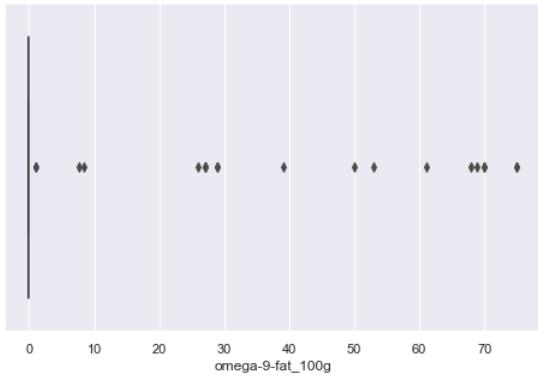
Distribution de : gamma-linolenic-acid_100g



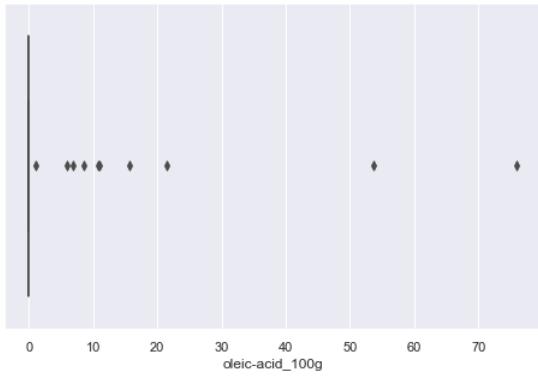
Distribution de : dihomo-gamma-linolenic-acid_100g



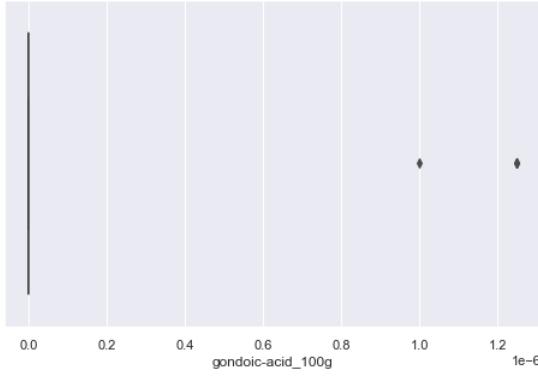
Distribution de : omega-9-fat_100g



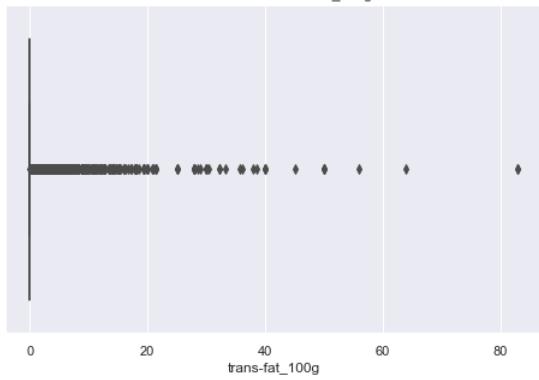
Distribution de : oleic-acid_100g



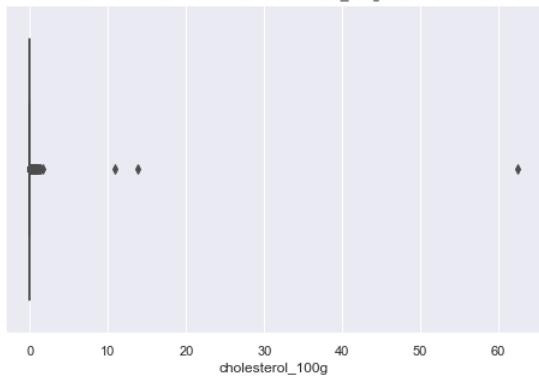
Distribution de : gondoic-acid_100g



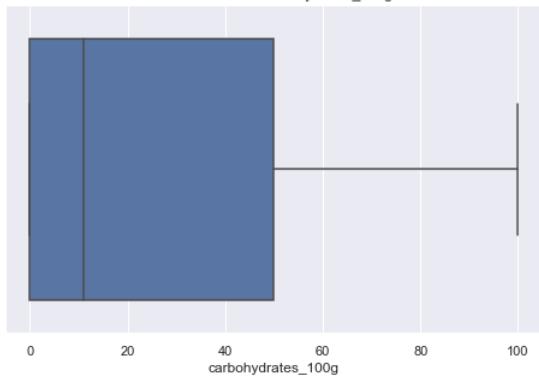
Distribution de : trans-fat_100g



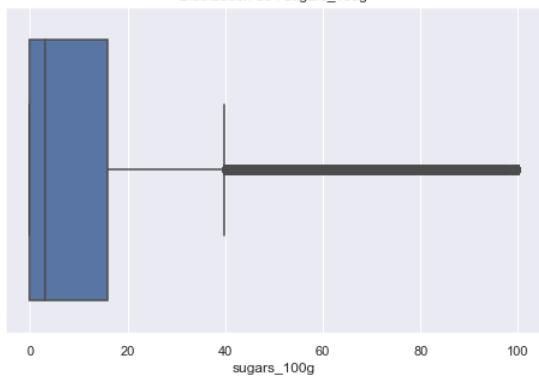
Distribution de : cholesterol_100g



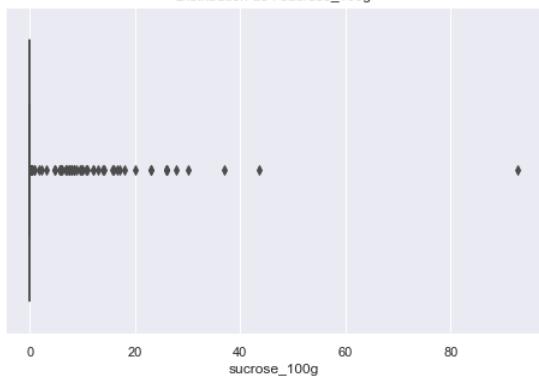
Distribution de : carbohydrates_100g



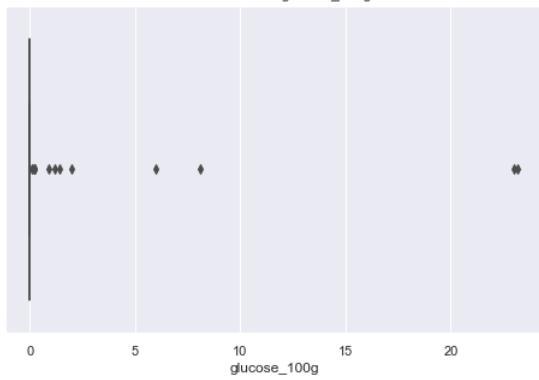
Distribution de : sugars_100g



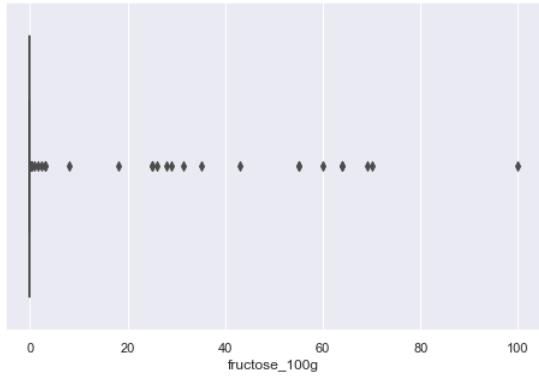
Distribution de : sucrose_100g



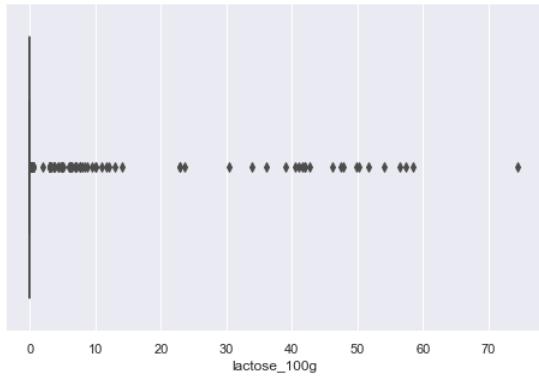
Distribution de : glucose_100g



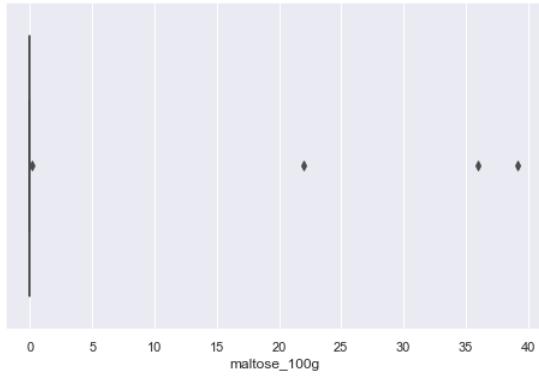
Distribution de : fructose_100g



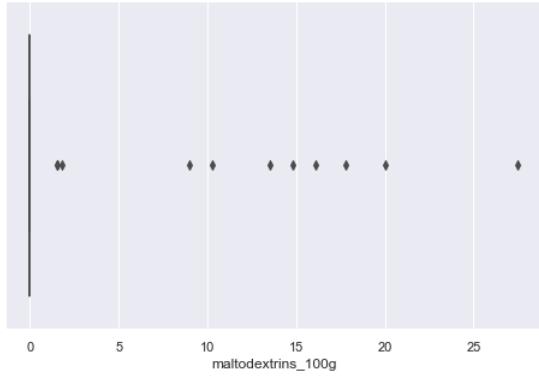
Distribution de : lactose_100g



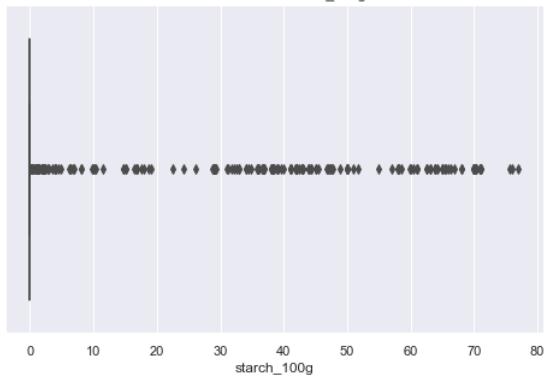
Distribution de : maltose_100g



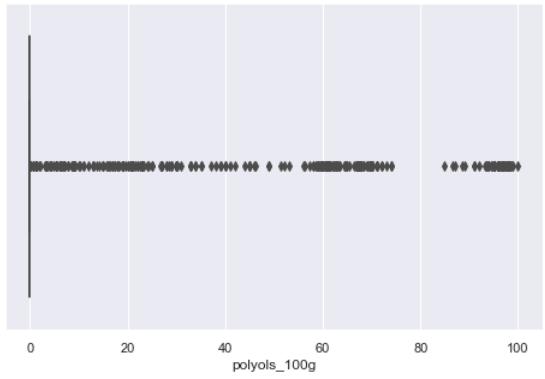
Distribution de : maltodextrins_100g



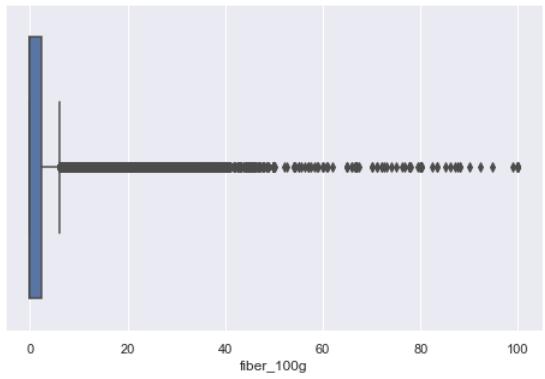
Distribution de : starch_100g



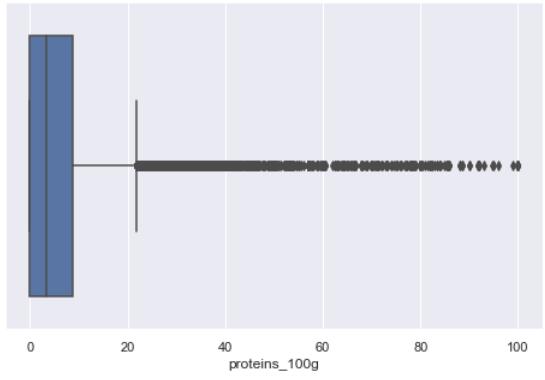
Distribution de : polyols_100g



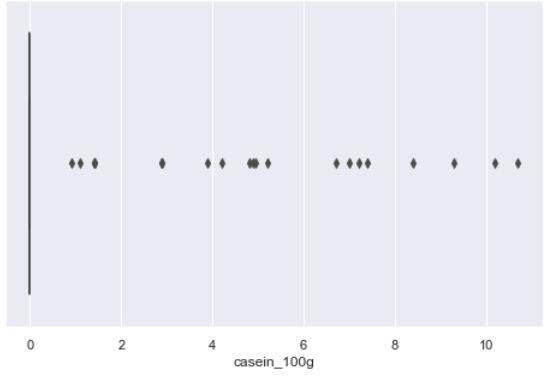
Distribution de : fiber_100g



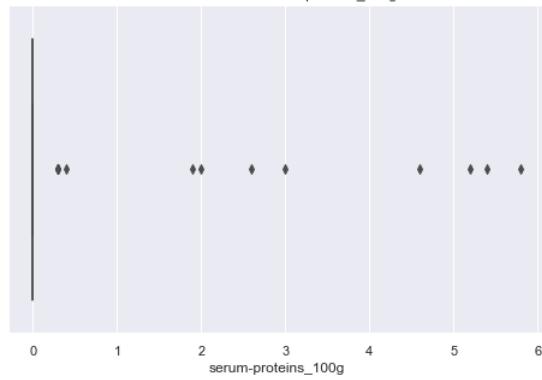
Distribution de : proteins_100g



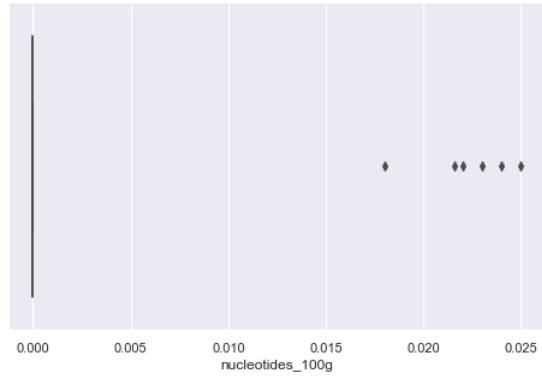
Distribution de : casein_100g



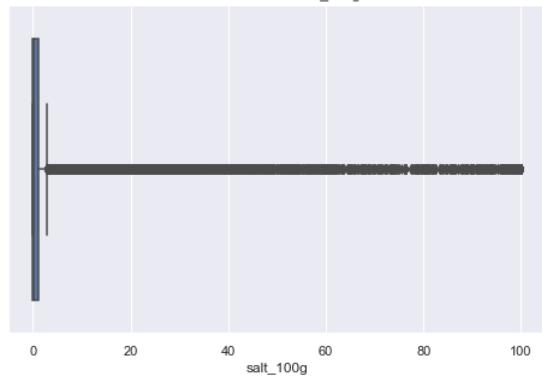
Distribution de : serum-proteins_100g



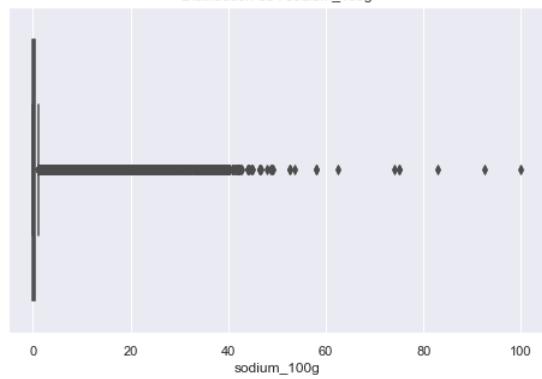
Distribution de : nucleotides_100g



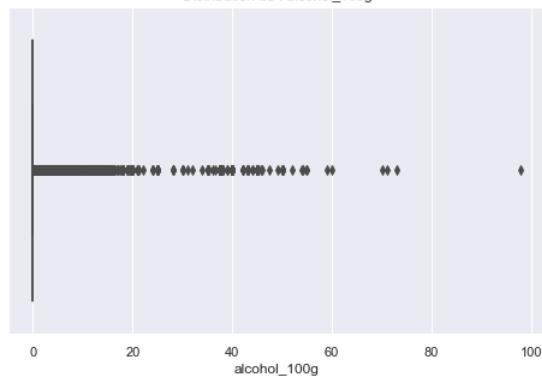
Distribution de : salt_100g



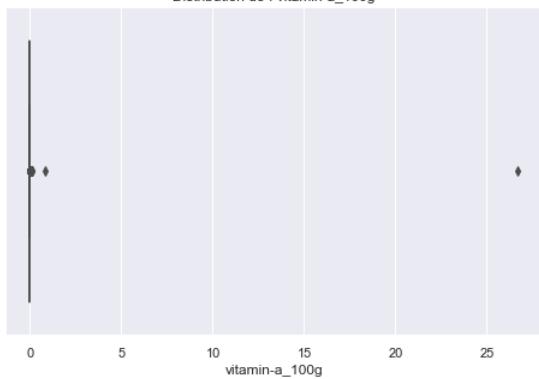
Distribution de : sodium_100g



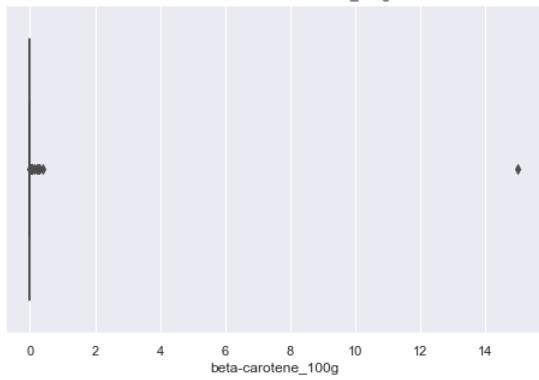
Distribution de : alcohol_100g



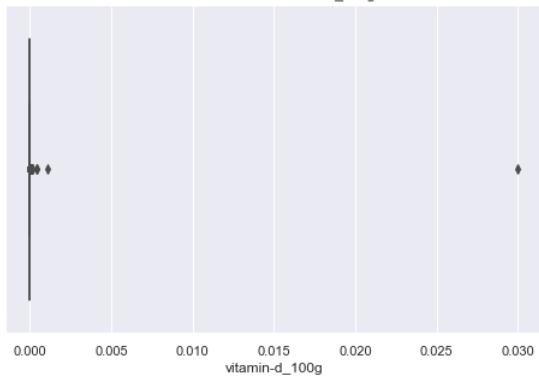
Distribution de : vitamin-a_100g



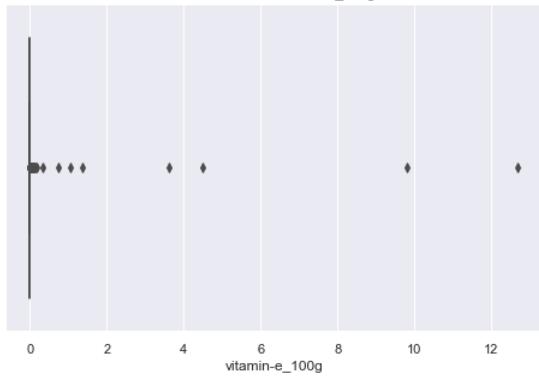
Distribution de : beta-carotene_100g



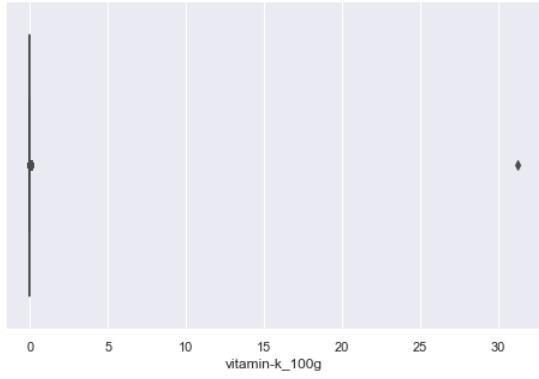
Distribution de : vitamin-d_100g



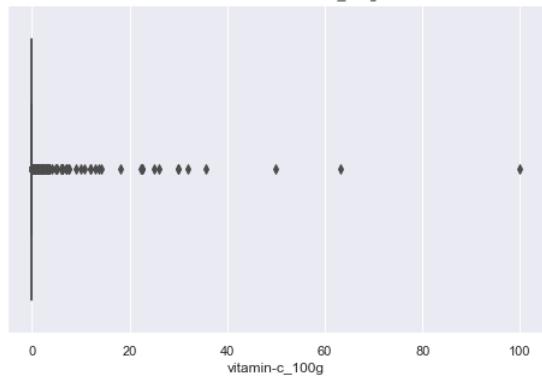
Distribution de : vitamin-e_100g



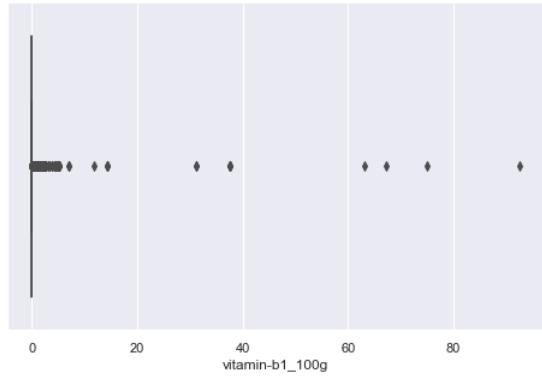
Distribution de : vitamin-k_100g



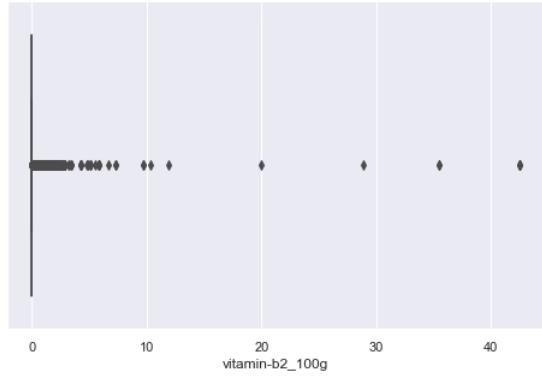
Distribution de : vitamin-c_100g



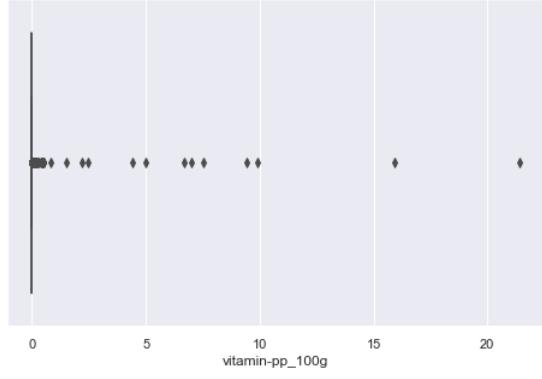
Distribution de : vitamin-b1_100g



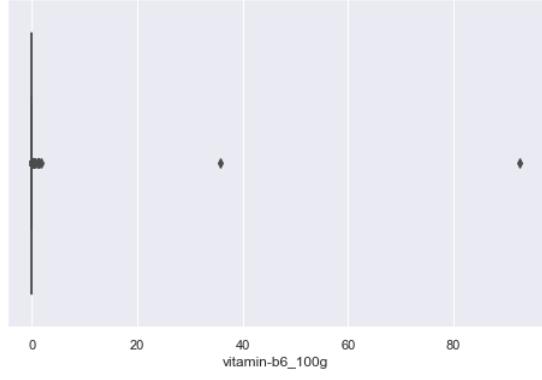
Distribution de : vitamin-b2_100g



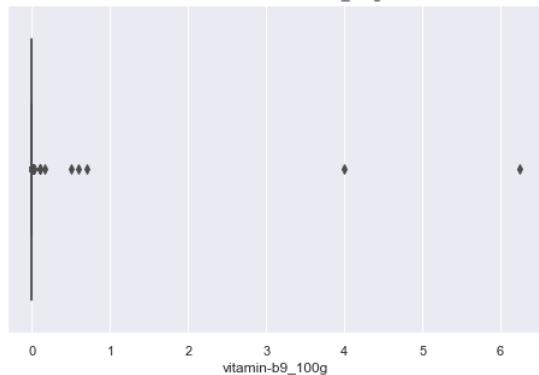
Distribution de : vitamin-pp_100g



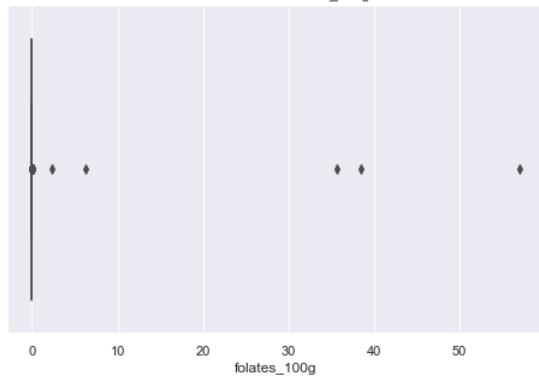
Distribution de : vitamin-b6_100g



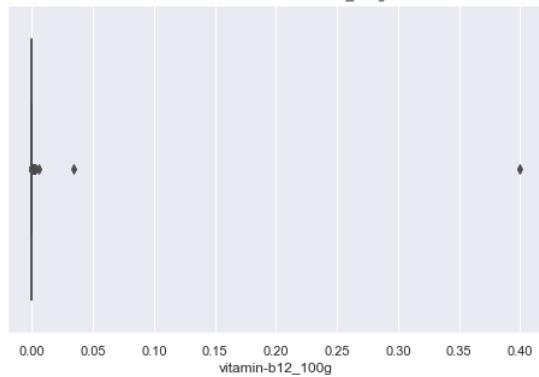
Distribution de : vitamin-b9_100g



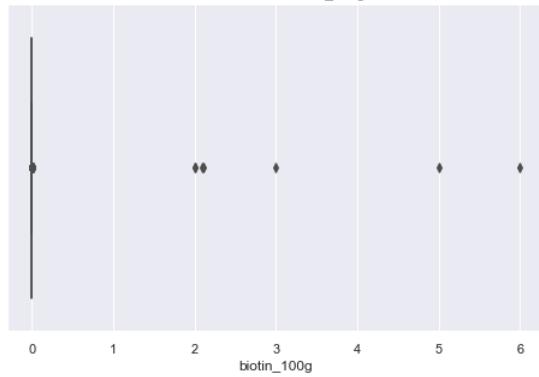
Distribution de : folates_100g



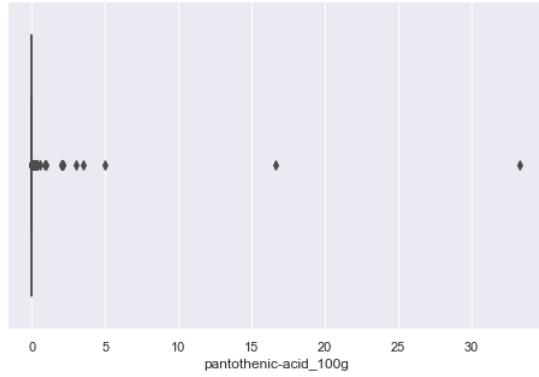
Distribution de : vitamin-b12_100g



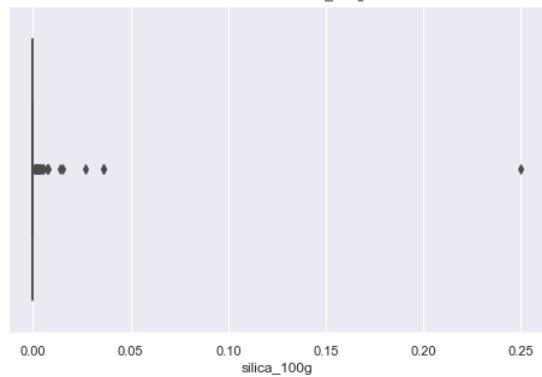
Distribution de : biotin_100g



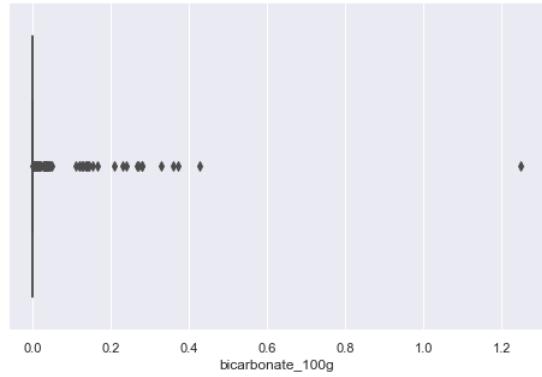
Distribution de : pantothenic-acid_100g



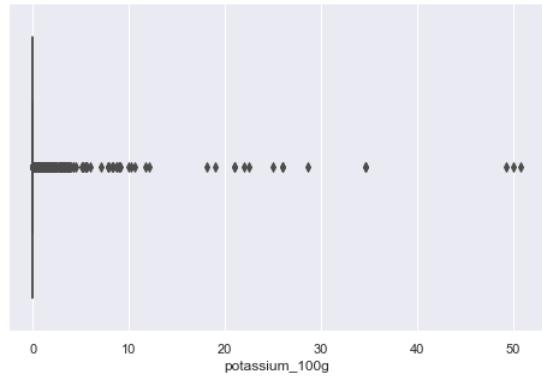
Distribution de : silica_100g



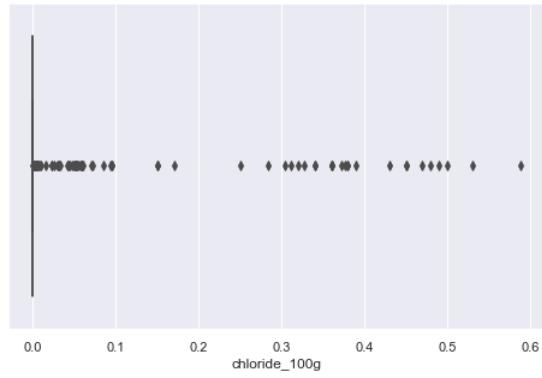
Distribution de : bicarbonate_100g



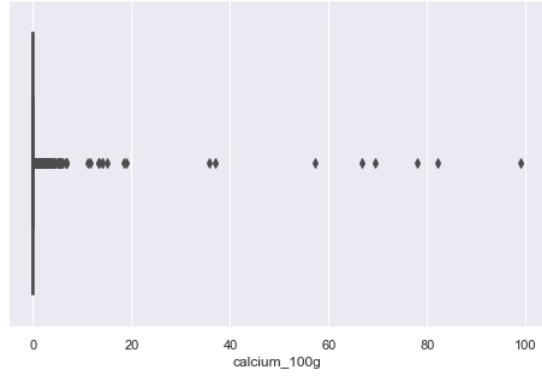
Distribution de : potassium_100g



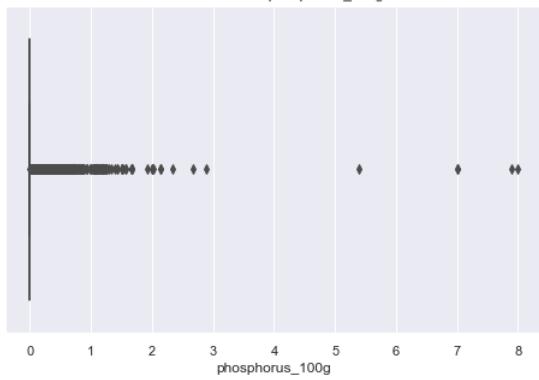
Distribution de : chloride_100g



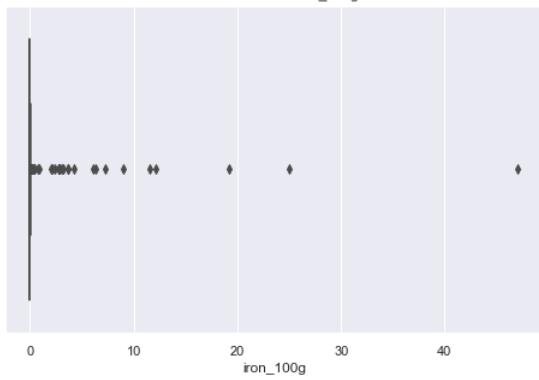
Distribution de : calcium_100g



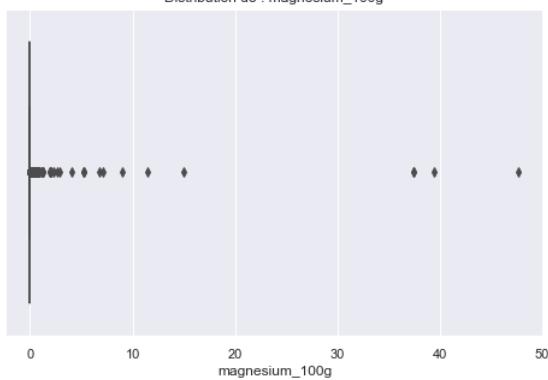
Distribution de : phosphorus_100g



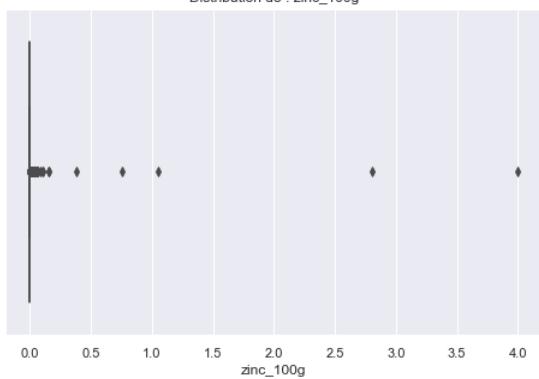
Distribution de : iron_100g



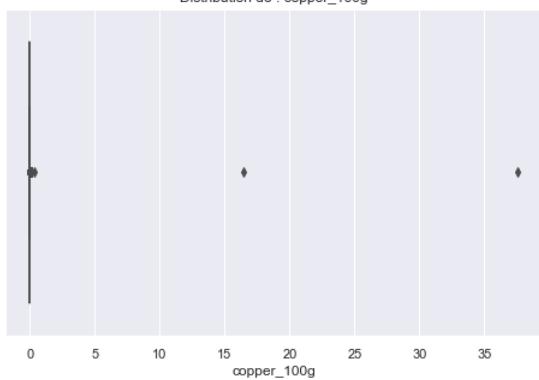
Distribution de : magnesium_100g



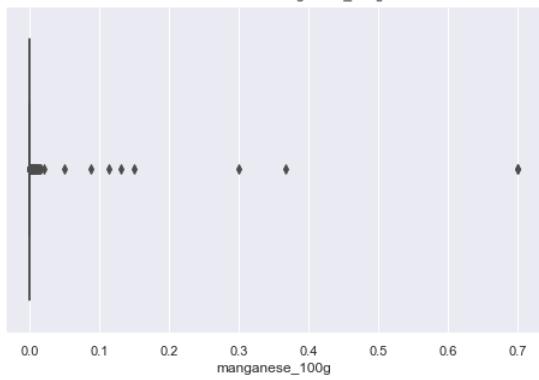
Distribution de : zinc_100g



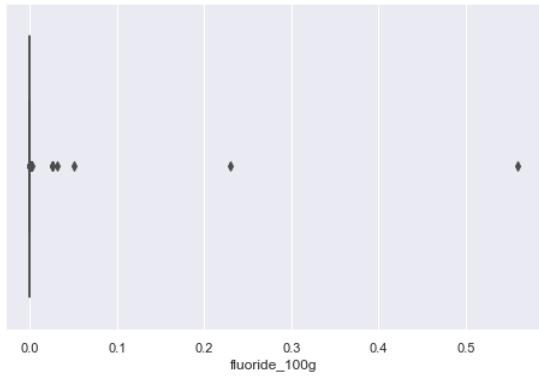
Distribution de : copper_100g



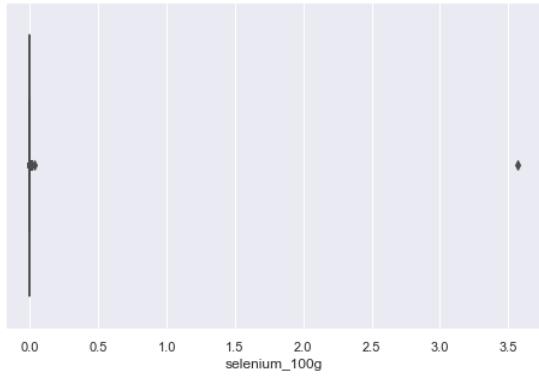
Distribution de : manganese_100g



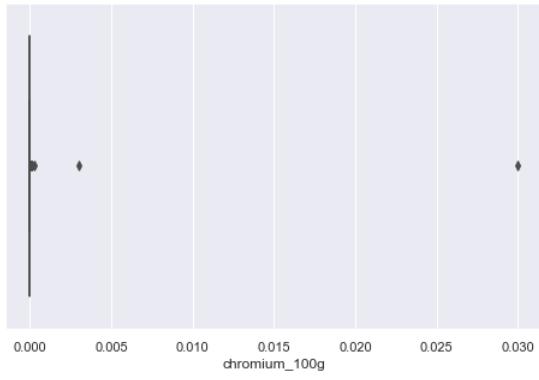
Distribution de : fluoride_100g



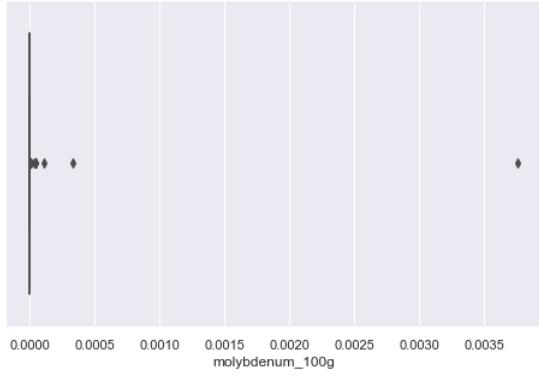
Distribution de : selenium_100g



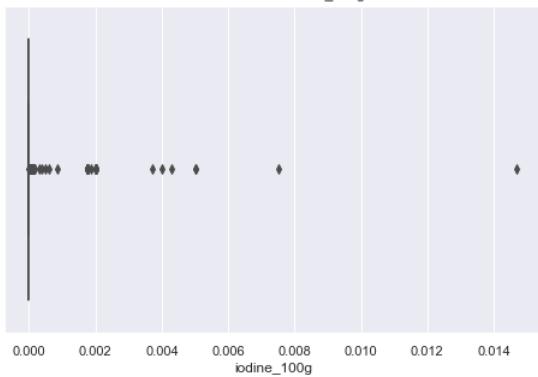
Distribution de : chromium_100g



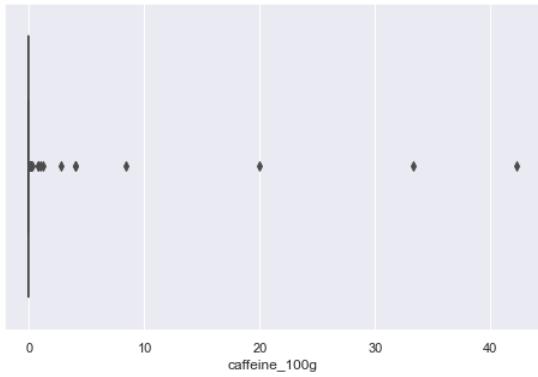
Distribution de : molybdenum_100g



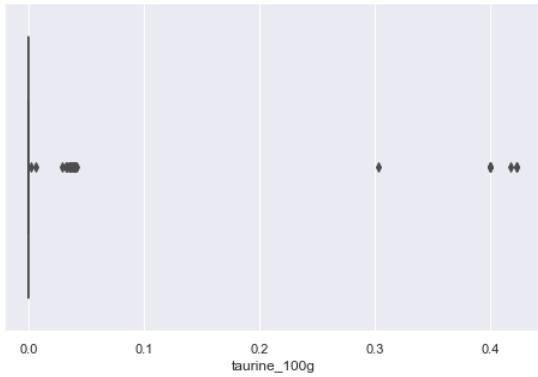
Distribution de : iodine_100g



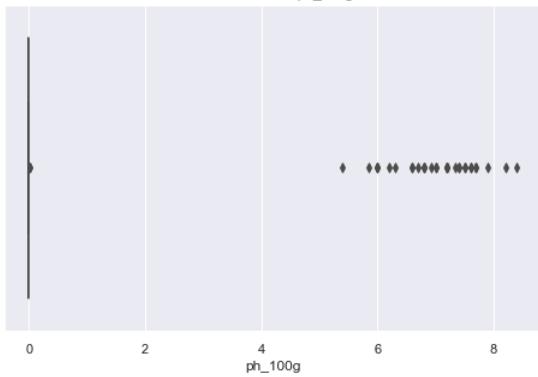
Distribution de : caffeine_100g



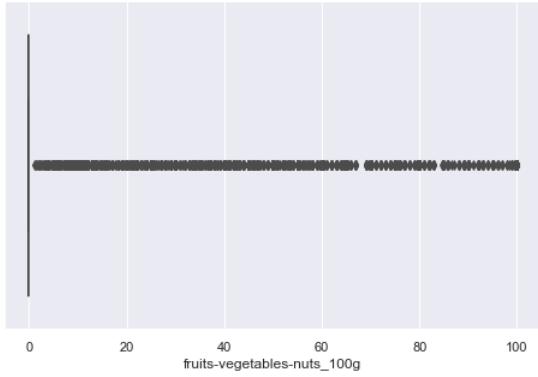
Distribution de : taurine_100g



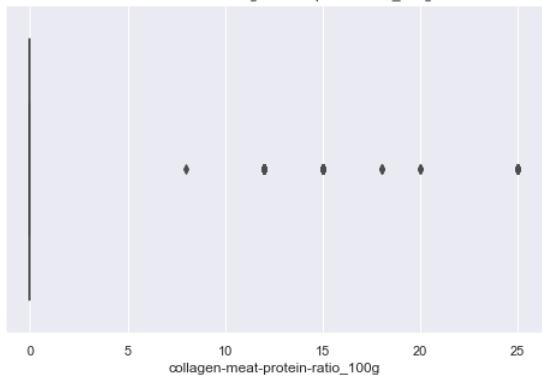
Distribution de : ph_100g



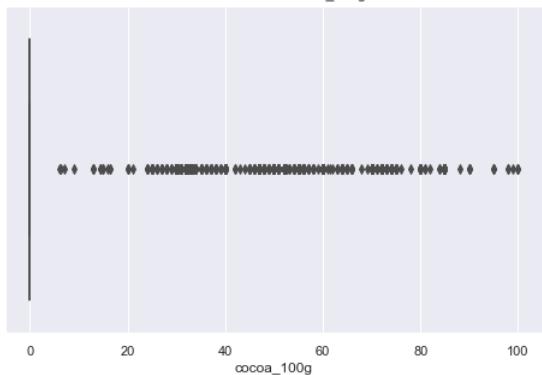
Distribution de : fruits-vegetables-nuts_100g



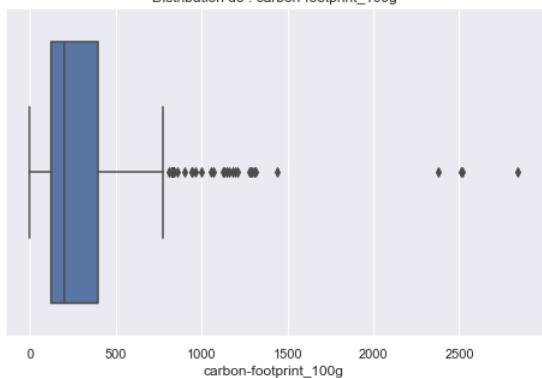
Distribution de : collagen-meat-protein-ratio_100g



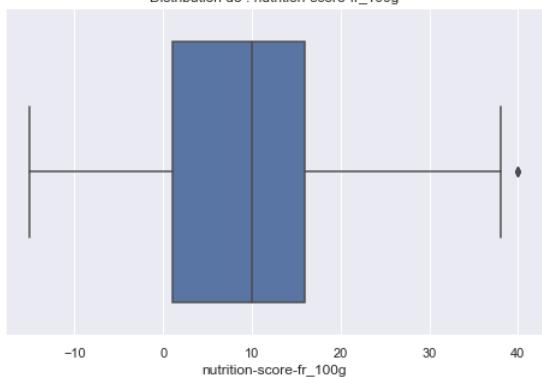
Distribution de : cocoa_100g



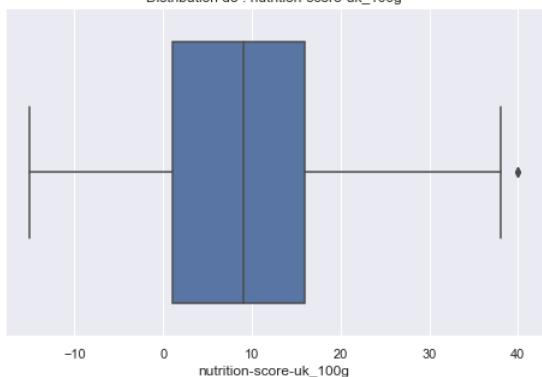
Distribution de : carbon-footprint_100g



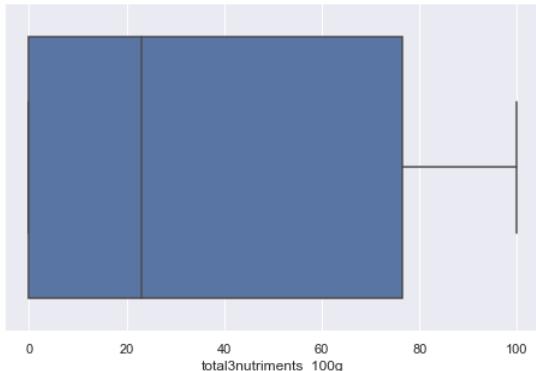
Distribution de : nutrition-score-fr_100g



Distribution de : nutrition-score-uk_100g



Distribution de : total3nutriments_100g



Ce qu'on voit dans les graphiques:

- certaines colonnes ressemblent à des booleens avec essentiellement des valeurs 0 ou 1 (comme ingredients_from_palm_oil_n) mais en fait ils prennent parfois des valeurs supérieures à 1 (cf max dans le describe). Ce sont donc des variables discrètes.
- Le nutrition-score-fr_100g est une note discrète entre -15 et +40 Attention : un moindre score est mieux (note A pour nutriscore inférieur à 0, note E pour supérieur à 19)
- La grande majorité des distributions ont des colonnes quasiement complètement à 0 (NB: en nettoyage, nous avons mis à zéro beaucoup de NaN).
- Certaines distributions ont des allures plus classiques (décroissance progressive) : fat_100g saturated-fat_100g carbohydrates_100g (celle-là semble avoir un mode au-dessus de 40g)

In [62]:

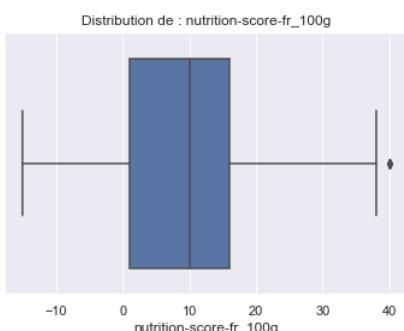
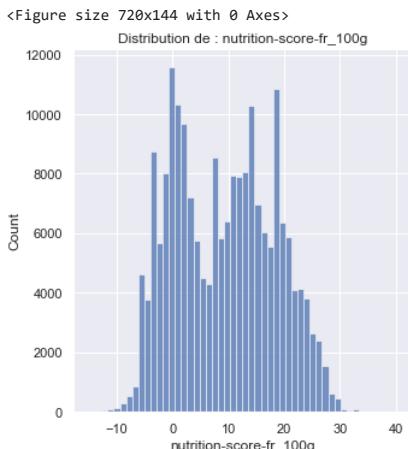
```

sns.set(font_scale=2)

column = "nutrition-score-fr_100g"
plt.figure(figsize = (10,2))
sns.set(font_scale=1)
sns.distplot(myDF[column], bins=50)
chaine = 'Distribution de : ' + column
plt.title(chaine)
plt.xlabel(column)
plt.show()

sns.boxplot(x = myDF[column])
chaine = 'Distribution de : ' + column
plt.title(chaine)
plt.xlabel(column)
plt.show()

```



In [63]:

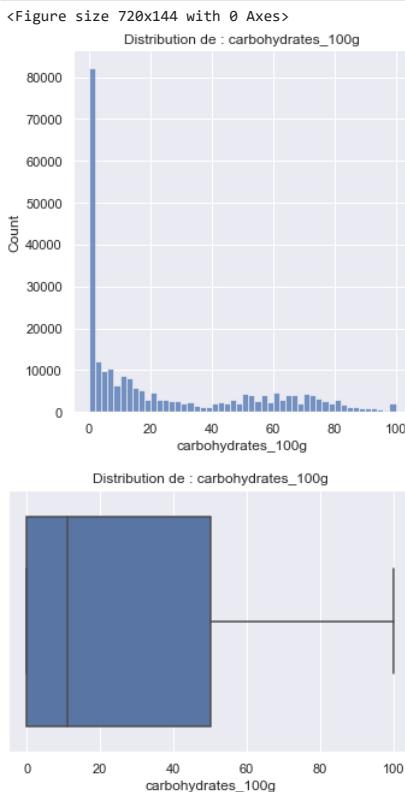
```

sns.set(font_scale=2)

column = "carbohydrates_100g"
plt.figure(figsize = (10,2))
sns.set(font_scale=1)
sns.distplot(myDF[column], bins=50)
chaine = 'Distribution de : ' + column
plt.title(chaine)
plt.xlabel(column)
plt.show()

```

```
sns.boxplot(x = myDF[column])
chaine = 'Distribution de : ' + column
plt.title(chaine)
plt.xlabel(column)
plt.show()
```

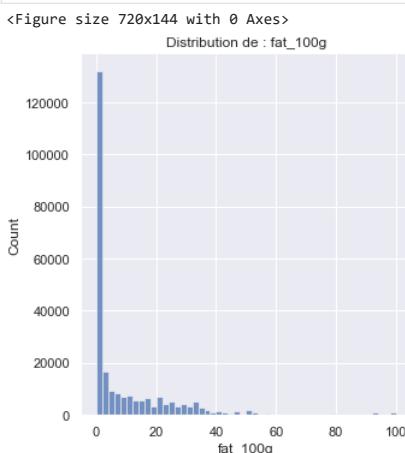


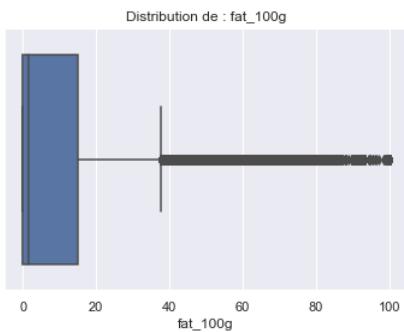
In [64]:

```
sns.set(font_scale=2)

column = "fat_100g"
plt.figure(figsize = (10,2))
sns.set(font_scale=1)
sns.distplot(x = myDF[column], bins=50)
chaine = 'Distribution de : ' + column
plt.title(chaine)
plt.xlabel(column)
plt.show()

sns.boxplot(x = myDF[column])
chaine = 'Distribution de : ' + column
plt.title(chaine)
plt.xlabel(column)
plt.show()
```





d

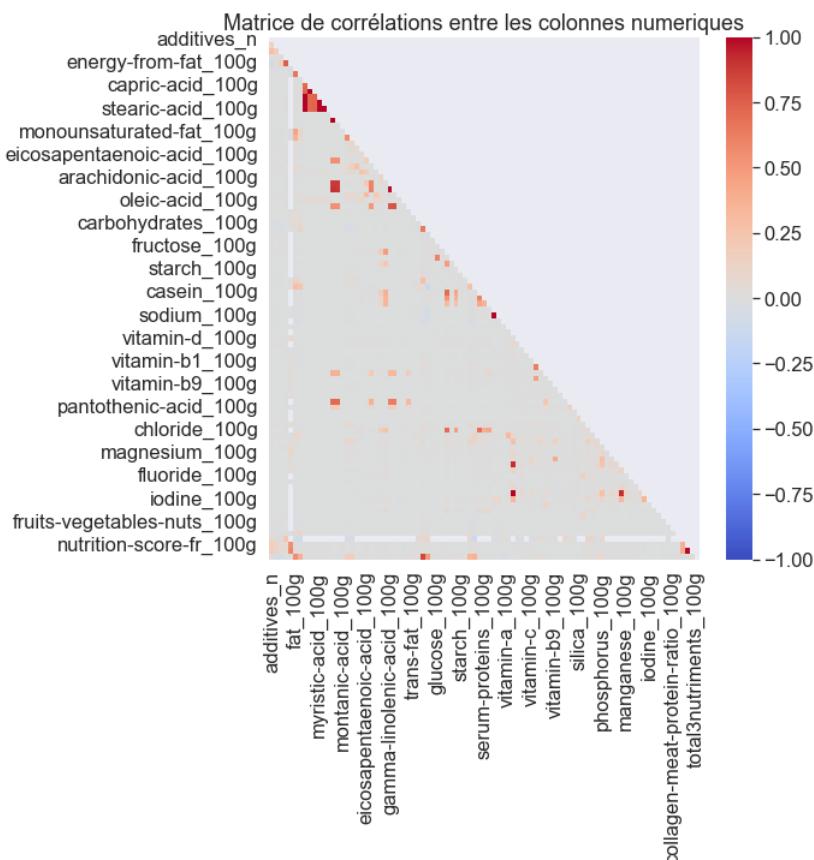
In [65]: # Correlations entre les colonnes numeriques

```
plt.figure(figsize=(8,8))
sns.set(font_scale=1.5)
plt.title('Matrice de corrélations entre les colonnes numériques')

myCorr = myDF[myNumericCols].corr()

myMasque = np.zeros_like(myCorr, dtype=bool)
myMasque[np.triu_indices_from(myMasque)] = True

ax = sns.heatmap(myCorr, mask=myMasque, vmin=-1, cmap='coolwarm')
plt.show()
sns.set(font_scale=1)
```



In [66]:

```
# remove 1 on the correlation diagonal
```

```
for col in myCorr.columns :
    myCorr.loc[col, col] = 0
```

```
print(myCorr)
```

	additives_n \
additives_n	0.00000
ingredients_from_palm_oil_n	0.121895
ingredients_that_may_be_from_palm_oil_n	0.287981
energy_100g	-0.002449
energy-from-fat_100g	-0.193141
fat_100g	0.012877
saturated-fat_100g	0.004695
caprylic-acid_100g	0.000041
capric-acid_100g	-0.000539
lauric-acid_100g	-0.00027
myristic-acid_100g	0.000041
palmitic-acid_100g	0.000041
stearic-acid_100g	0.000041
arachidic-acid_100g	-0.003694
behenic-acid_100g	-0.003711

montanic-acid_100g	0.000041
monounsaturated-fat_100g	0.010808
polyunsaturated-fat_100g	0.010935
omega-3-fat_100g	-0.001752
alpha-linolenic-acid_100g	0.001767
eicosapentaenoic-acid_100g	-0.002672
docosahexaenoic-acid_100g	-0.003579
omega-6-fat_100g	-0.003026
linoleic-acid_100g	-0.001248
arachidonic-acid_100g	-0.002516
gamma-linolenic-acid_100g	-0.003372
dihomo-gamma-linolenic-acid_100g	-0.003372
omega-9-fat_100g	-0.001150
oleic-acid_100g	-0.002245
gondoic-acid_100g	-0.002009
trans-fat_100g	0.012366
cholesterol_100g	0.007918
carbohydrates_100g	0.028031
sugars_100g	0.007481
sucrose_100g	0.000186
glucose_100g	-0.002497
fructose_100g	0.003032
lactose_100g	-0.002272
maltose_100g	-0.002269
maltdextrins_100g	-0.001251
starch_100g	-0.006198
polyols_100g	-0.003692
fiber_100g	0.010671
proteins_100g	0.012393
casein_100g	-0.000412
serum-proteins_100g	-0.001496
nucleotides_100g	-0.000995
salt_100g	0.007074
sodium_100g	0.006744
alcohol_100g	-0.007744
vitamin-a_100g	-0.001628
beta-carotene_100g	0.001760
vitamin-d_100g	-0.001588
vitamin-e_100g	-0.000842
vitamin-k_100g	-0.001695
vitamin-c_100g	-0.003112
vitamin-b1_100g	0.002506
vitamin-b2_100g	0.005956
vitamin-pp_100g	-0.000925
vitamin-b6_100g	-0.000665
vitamin-b9_100g	0.005785
folates_100g	0.005249
vitamin-b12_100g	0.001556
biotin_100g	-0.003839
pantothenic-acid_100g	-0.001279
silica_100g	-0.003204
bicarbonate_100g	-0.003133
potassium_100g	0.009487
chloride_100g	-0.001439
calcium_100g	0.006613
phosphorus_100g	0.008655
iron_100g	0.002435
magnesium_100g	-0.000474
zinc_100g	0.009016
copper_100g	0.001993
manganese_100g	-0.002505
fluoride_100g	-0.002465
selenium_100g	0.000045
chromium_100g	-0.001498
molybdenum_100g	0.001732
iodine_100g	-0.003722
caffeine_100g	-0.001538
taurine_100g	-0.001622
ph_100g	-0.004844
fruits-vegetables-nuts_100g	-0.009108
collagen-meat-protein-ratio_100g	-0.002968
cocoa_100g	-0.010697
carbon-footprint_100g	0.048841
nutrition-score-fr_100g	0.166911
nutrition-score-uk_100g	0.162892
total3nutrients_100g	0.037774
ingredients_from_palm_oil_n \	
additives_n	0.121895
ingredients_from_palm_oil_n	0.000000
ingredients_that_may_be_from_palm_oil_n	0.189792
energy_100g	0.011022
energy-from-fat_100g	0.036162
fat_100g	-0.016547
saturated-fat_100g	-0.004734
caprylic-acid_100g	-0.000262
capric-acid_100g	-0.000371
lauric-acid_100g	-0.000371
myristic-acid_100g	-0.000262
palmitic-acid_100g	-0.000262
stearic-acid_100g	-0.000262
arachidic-acid_100g	-0.000662
behenic-acid_100g	-0.000659
montanic-acid_100g	-0.000262
monounsaturated-fat_100g	-0.010351
polyunsaturated-fat_100g	-0.011397
omega-3-fat_100g	0.013834
alpha-linolenic-acid_100g	0.006464
eicosapentaenoic-acid_100g	-0.000994
docosahexaenoic-acid_100g	-0.001818
omega-6-fat_100g	0.008782
linoleic-acid_100g	0.001558
arachidonic-acid_100g	-0.000516
gamma-linolenic-acid_100g	-0.000683
dihomo-gamma-linolenic-acid_100g	-0.000683
omega-9-fat_100g	0.002172
oleic-acid_100g	-0.000364

gondoic-acid_100g	-0.000522
trans-fat_100g	-0.005659
cholesterol_100g	-0.007884
carbohydrates_100g	-0.046962
sugars_100g	-0.027115
sucrose_100g	0.003605
glucose_100g	-0.000496
fructose_100g	-0.000636
lactose_100g	0.005580
maltose_100g	-0.000443
maltooligosaccharides_100g	-0.000518
starch_100g	-0.002736
polyols_100g	0.002446
fiber_100g	-0.018723
proteins_100g	-0.015443
casein_100g	-0.000949
serum-proteins_100g	-0.000676
nucleotides_100g	-0.000639
salt_100g	-0.012068
sodium_100g	-0.011942
alcohol_100g	0.009460
vitamin-a_100g	-0.000412
beta-carotene_100g	-0.000277
vitamin-d_100g	-0.000359
vitamin-e_100g	0.000078
vitamin-k_100g	-0.000263
vitamin-c_100g	-0.002445
vitamin-b1_100g	-0.003833
vitamin-b2_100g	-0.004662
vitamin-pp_100g	-0.001202
vitamin-b6_100g	-0.000164
vitamin-b9_100g	-0.000431
folates_100g	-0.000472
vitamin-b12_100g	-0.000477
biotin_100g	-0.000625
pantothenic-acid_100g	-0.000512
silica_100g	-0.000713
bicarbonate_100g	-0.000847
potassium_100g	-0.010527
chloride_100g	-0.001329
calcium_100g	-0.011545
phosphorus_100g	-0.007531
iron_100g	-0.001471
magnesium_100g	-0.001203
zinc_100g	-0.001232
copper_100g	-0.000354
manganese_100g	-0.000998
fluoride_100g	-0.000398
selenium_100g	-0.000264
chromium_100g	-0.000283
molybdenum_100g	-0.000271
iodine_100g	-0.001099
caffeine_100g	-0.000513
taurine_100g	-0.000798
ph_100g	-0.001304
fruits-vegetables-nuts_100g	0.014322
collagen-meat-protein-ratio_100g	0.000592
cocoa_100g	0.006215
carbon-footprint_100g	0.057505
nutrition-score-fr_100g	0.116752
nutrition-score-uk_100g	0.118980
total3nutriments_100g	-0.078923
ingredients_that_may_be_from_palm_oil_n \	
additives_n	0.287981
ingredients_from_palm_oil_n	0.189792
ingredients_that_may_be_from_palm_oil_n	0.000000
energy_100g	0.002053
energy-from-fat_100g	0.164439
fat_100g	-0.019104
saturated-fat_100g	-0.006693
caprylic-acid_100g	-0.000429
capric-acid_100g	-0.000607
lauric-acid_100g	-0.000602
myristic-acid_100g	-0.000429
palmitic-acid_100g	-0.000429
stearic-acid_100g	-0.000429
arachidic-acid_100g	-0.001084
behenic-acid_100g	-0.001080
montanic-acid_100g	-0.000429
monounsaturated-fat_100g	-0.011643
polyunsaturated-fat_100g	-0.008576
omega-3-fat_100g	0.000419
alpha-linolenic-acid_100g	0.005863
eicosapentaenoic-acid_100g	0.002171
docosahexaenoic-acid_100g	-0.000204
omega-6-fat_100g	0.003090
linoleic-acid_100g	0.002728
arachidonic-acid_100g	-0.000845
gamma-linolenic-acid_100g	-0.001118
dihomo-gamma-linolenic-acid_100g	-0.001118
omega-9-fat_100g	0.005416
oleic-acid_100g	-0.000917
gondoic-acid_100g	-0.000855
trans-fat_100g	-0.005246
cholesterol_100g	-0.006535
carbohydrates_100g	-0.034238
sugars_100g	-0.017911
sucrose_100g	0.002911
glucose_100g	0.004891
fructose_100g	0.006066
lactose_100g	-0.001794
maltose_100g	-0.000725
maltooligosaccharides_100g	-0.000849
starch_100g	-0.003529
polyols_100g	0.012491
fiber_100g	-0.011644

proteins_100g	-0.008093
casein_100g	-0.001555
serum-proteins_100g	-0.001107
nucleotides_100g	-0.001046
salt_100g	-0.005667
sodium_100g	-0.005753
alcohol_100g	0.010546
vitamin-a_100g	-0.000576
beta-carotene_100g	-0.000310
vitamin-d_100g	-0.000502
vitamin-e_100g	0.000213
vitamin-k_100g	-0.000431
vitamin-c_100g	-0.002227
vitamin-b1_100g	-0.004312
vitamin-b2_100g	-0.003481
vitamin-pp_100g	-0.001448
vitamin-b6_100g	-0.000500
vitamin-b9_100g	-0.000709
folates_100g	-0.000772
vitamin-b12_100g	-0.000664
biotin_100g	-0.001023
pantothenic-acid_100g	-0.000828
silica_100g	-0.000975
bicarbonate_100g	0.000082
potassium_100g	-0.007121
chloride_100g	-0.001938
calcium_100g	-0.007833
phosphorus_100g	-0.005651
iron_100g	0.005801
magnesium_100g	-0.001270
zinc_100g	-0.001352
copper_100g	-0.000571
manganese_100g	-0.001048
fluoride_100g	-0.000655
selenium_100g	-0.000429
chromium_100g	-0.000446
molybdenum_100g	-0.000443
iodine_100g	-0.001982
caffeine_100g	-0.000857
taurine_100g	-0.001159
ph_100g	-0.002136
fruits-vegetables-nuts_100g	0.012251
collagen-meat-protein-ratio_100g	0.002986
cocoa_100g	0.000905
carbon-footprint_100g	-0.069185
nutrition-score-fr_100g	0.058519
nutrition-score-uk_100g	0.059108
total3nutriments_100g	-0.056025
	energy_100g \ energy-from-fat_100g \
additives_n	-2.449389e-03 -0.103141
ingredients_from_palm_oil_n	1.102218e-02 0.036162
ingredients_that_may_be_from_palm_oil_n	2.053127e-03 0.164439
energy_100g	0.000000e+00 0.765375
energy-from-fat_100g	7.653746e-01 0.000000
fat_100g	-4.082993e-04 -0.044033
saturated-fat_100g	-6.671946e-04 -0.034315
caprylic-acid_100g	4.220804e-05 NaN
capric-acid_100g	-7.514874e-07 NaN
lauric-acid_100g	-3.808450e-07 NaN
myristic-acid_100g	4.220804e-05 NaN
palmitic-acid_100g	4.220804e-05 NaN
stearic-acid_100g	4.220804e-05 NaN
arachidic-acid_100g	-1.073186e-04 NaN
behenic-acid_100g	-1.098236e-04 NaN
montanic-acid_100g	2.757454e-04 NaN
monounsaturated-fat_100g	-4.045416e-04 -0.034568
polyunsaturated-fat_100g	-3.469510e-04 -0.033179
omega-3-fat_100g	-1.222308e-04 NaN
alpha-linolenic-acid_100g	4.316938e-05 NaN
eicosapentaenoic-acid_100g	8.100826e-04 NaN
docosahexaenoic-acid_100g	5.221456e-05 NaN
omega-6-fat_100g	-5.321404e-05 NaN
linoleic-acid_100g	4.054833e-04 NaN
arachidonic-acid_100g	1.789940e-04 NaN
gamma-linolenic-acid_100g	2.997555e-04 NaN
dihomo-gamma-linolenic-acid_100g	1.313147e-04 NaN
omega-9-fat_100g	1.904677e-04 NaN
oleic-acid_100g	4.538507e-05 NaN
gondoic-acid_100g	2.226157e-04 NaN
trans-fat_100g	-6.150681e-05 0.003193
cholesterol_100g	-1.767206e-04 0.017944
carbohydrates_100g	-1.187461e-03 0.022670
sugars_100g	-1.038096e-03 -0.006770
sucrose_100g	-3.754212e-04 NaN
glucose_100g	2.668659e-05 NaN
fructose_100g	-1.052260e-04 NaN
lactose_100g	9.134557e-05 NaN
maltose_100g	-3.652792e-04 NaN
maltdextrins_100g	-2.933696e-04 NaN
starch_100g	-1.373218e-04 NaN
polyols_100g	-2.524973e-04 NaN
fiber_100g	-4.232799e-04 0.000384
proteins_100g	-8.259367e-04 0.027399
casein_100g	-5.907589e-05 NaN
serum-proteins_100g	7.916670e-05 NaN
nucleotides_100g	-1.583236e-04 NaN
salt_100g	-9.282520e-04 -0.006285
sodium_100g	-9.162661e-04 -0.006285
alcohol_100g	-2.476170e-05 NaN
vitamin-a_100g	-2.224980e-04 -0.004599
beta-carotene_100g	-1.021664e-04 NaN
vitamin-d_100g	1.486233e-05 0.069513
vitamin-e_100g	-7.133843e-05 NaN
vitamin-k_100g	2.040879e-04 -0.020377
vitamin-c_100g	9.943390e-05 0.002188
vitamin-b1_100g	-4.837139e-04 0.018609

vitamin-b2_100g	-4.118741e-04	0.035357
vitamin-pp_100g	-3.506721e-04	0.030325
vitamin-b6_100g	-1.275177e-04	0.030698
vitamin-b9_100g	-2.486408e-04	0.035159
folates_100g	-4.889015e-05	0.014486
vitamin-b12_100g	2.814353e-04	0.023728
biotin_100g	4.688375e-05	NaN
pantothenic-acid_100g	4.057847e-05	0.001968
silica_100g	3.255974e-05	NaN
bicarbonate_100g	1.611970e-04	NaN
potassium_100g	2.406810e-04	0.029168
chloride_100g	6.558206e-05	NaN
calcium_100g	2.402025e-04	-0.022303
phosphorus_100g	-1.819309e-04	0.021143
iron_100g	2.629128e-04	0.075620
magnesium_100g	-8.422469e-05	0.109313
zinc_100g	-4.004471e-05	0.019718
copper_100g	-7.015691e-05	0.038667
manganese_100g	3.816623e-04	0.031411
fluoride_100g	-1.540228e-05	NaN
selenium_100g	-3.080314e-05	0.013285
chromium_100g	1.820183e-04	NaN
molybdenum_100g	-9.835196e-05	NaN
iodine_100g	-6.057547e-05	NaN
caffeine_100g	-3.204650e-04	NaN
taurine_100g	-1.310855e-04	NaN
ph_100g	2.744806e-04	NaN
fruits-vegetables-nuts_100g	-5.434500e-04	NaN
collagen-meat-protein-ratio_100g	-2.606736e-04	NaN
cocoa_100g	-1.900845e-05	-0.029095
carbon-footprint_100g	2.354804e-01	NaN
nutrition-score-fr_100g	6.421036e-02	0.551535
nutrition-score-uk_100g	6.665194e-02	0.578537
total3nutriments_100g	-1.644392e-03	0.004297
	fat_100g	saturated-fat_100g \
additives_n	0.012877	0.004695
ingredients_from_palm_oil_n	-0.016547	-0.004734
ingredients_that_may_be_from_palm_oil_n	-0.019104	-0.006693
energy_100g	-0.000408	-0.000667
energy-from-fat_100g	-0.044033	-0.034315
fat_100g	0.000000	0.659261
saturated-fat_100g	0.659261	0.000000
caprylic-acid_100g	0.011157	-0.001049
capric-acid_100g	0.015202	0.014447
lauric-acid_100g	0.015210	0.014361
myristic-acid_100g	0.011157	-0.001049
palmitic-acid_100g	0.011157	-0.001049
stearic-acid_100g	0.011157	-0.001049
arachidic-acid_100g	-0.003068	-0.002646
behenic-acid_100g	-0.003057	-0.002637
montanic-acid_100g	0.011157	0.002008
monounsaturated-fat_100g	0.447842	0.117153
polyunsaturated-fat_100g	0.380588	0.087647
omega-3-fat_100g	0.065987	0.010326
alpha-linolenic-acid_100g	0.016233	0.003534
eicosapentaenoic-acid_100g	0.010659	0.001091
docosahexaenoic-acid_100g	-0.001969	-0.002812
omega-6-fat_100g	0.076995	0.016118
linoleic-acid_100g	0.026376	0.007977
arachidonic-acid_100g	0.004121	0.004185
gamma-linolenic-acid_100g	-0.000707	-0.002364
dihomo-gamma-linolenic-acid_100g	-0.003166	-0.002732
omega-9-fat_100g	0.039436	0.010110
oleic-acid_100g	0.019869	0.003937
gondoic-acid_100g	-0.002421	-0.002088
trans-fat_100g	0.046008	0.024879
cholesterol_100g	0.046661	0.062151
carbohydrates_100g	0.059648	0.036164
sugars_100g	0.012500	0.119244
sucrose_100g	0.001540	-0.004876
glucose_100g	-0.002295	-0.001993
fructose_100g	-0.003072	-0.002149
lactose_100g	0.005751	0.005473
maltose_100g	-0.002029	-0.001650
maltdextrins_100g	0.004046	0.002403
starch_100g	-0.001398	-0.003333
polyols_100g	-0.011732	-0.006076
fiber_100g	0.142278	0.047954
proteins_100g	0.283016	0.250414
casein_100g	0.005486	0.005756
serum-proteins_100g	0.003569	0.003068
nucleotides_100g	0.004118	0.003718
salt_100g	-0.022899	-0.019323
sodium_100g	-0.022762	-0.019305
alcohol_100g	-0.041567	-0.035799
vitamin-a_100g	0.002697	-0.000869
beta-carotene_100g	-0.001247	-0.001059
vitamin-d_100g	-0.001081	-0.001162
vitamin-e_100g	0.010472	0.002716
vitamin-k_100g	0.001361	0.001556
vitamin-c_100g	-0.008967	-0.009375
vitamin-b1_100g	-0.007878	-0.011229
vitamin-b2_100g	-0.007376	-0.011782
vitamin-pp_100g	-0.003223	-0.003965
vitamin-b6_100g	-0.001157	-0.001467
vitamin-b9_100g	-0.001541	-0.001534
folates_100g	-0.001052	-0.001187
vitamin-b12_100g	-0.001378	-0.001177
biotin_100g	-0.002898	-0.002500
pantothenic-acid_100g	-0.001660	-0.002053
silica_100g	-0.002054	-0.001786
bicarbonate_100g	-0.004841	-0.004256
potassium_100g	0.013405	-0.014709
chloride_100g	0.006567	0.004812
calcium_100g	0.057115	0.071943
phosphorus_100g	0.044768	-0.003268

iron_100g	0.001551	-0.001433
magnesium_100g	0.006793	-0.002869
zinc_100g	-0.002265	-0.003651
copper_100g	-0.001101	-0.000646
manganese_100g	0.004125	-0.001134
fluoride_100g	-0.001651	-0.001417
selenium_100g	0.001431	-0.000561
chromium_100g	-0.000445	-0.000774
molybdenum_100g	-0.001326	-0.001154
iodine_100g	-0.004862	-0.004284
caffeine_100g	-0.002486	-0.002150
taurine_100g	-0.002434	-0.002108
ph_100g	-0.006950	-0.005995
fruits-vegetables-nuts_100g	-0.030719	-0.030259
collagen-meat-protein-ratio_100g	0.004923	0.001314
cocoa_100g	0.078039	0.113881
carbon-footprint_100g	-0.077394	-0.092663
nutrition-score-fr_100g	0.012495	0.006243
nutrition-score-uk_100g	0.014058	0.006850
total3nutriments_100g	0.555983	0.377921
caprylic-acid_100g	capric-acid_100g \	
additives_n	0.000041	-5.388801e-04
ingredients_from_palm_oil_n	-0.000262	-3.705752e-04
ingredients_that_may_be_from_palm_oil_n	-0.000429	-6.069650e-04
energy_100g	0.000042	-7.514874e-07
energy-from-fat_100g	NaN	NaN
fat_100g	0.011157	1.520206e-02
saturated-fat_100g	-0.001049	1.444696e-02
caprylic-acid_100g	0.000000	7.255823e-01
capric-acid_100g	0.725582	0.000000e+00
lauric-acid_100g	0.7295674	9.999820e-01
myristic-acid_100g	1.000000	7.255823e-01
palmitic-acid_100g	1.000000	7.255823e-01
stearic-acid_100g	1.000000	7.255823e-01
arachidic-acid_100g	-0.000010	-1.409898e-05
behenic-acid_100g	-0.000010	-1.485075e-05
montanic-acid_100g	-0.000004	-5.586437e-06
monounsaturated-fat_100g	-0.000281	-3.977893e-04
polyunsaturated-fat_100g	-0.000268	4.769486e-04
omega-3-fat_100g	-0.000052	-7.343665e-05
alpha-linolenic-acid_100g	-0.000013	-1.792865e-05
eicosapentaenoic-acid_100g	-0.000005	-7.695581e-06
docosahexaenoic-acid_100g	-0.000015	-2.171671e-05
omega-6-fat_100g	-0.000034	-4.783031e-05
linoleic-acid_100g	0.016376	1.186732e-02
arachidonic-acid_100g	-0.000009	-1.233007e-05
gamma-linolenic-acid_100g	-0.000011	-1.541159e-05
dihomo-gamma-linolenic-acid_100g	-0.000010	-1.455331e-05
omega-9-fat_100g	-0.000015	-2.126134e-05
oleic-acid_100g	0.059723	4.332839e-02
gondoic-acid_100g	-0.000008	-1.112680e-05
trans-fat_100g	-0.000096	-1.350228e-04
cholesterol_100g	-0.000134	-1.889195e-04
carbohydrates_100g	-0.001724	-2.437870e-03
sugars_100g	-0.001260	-1.781976e-03
sucrose_100g	-0.000020	-2.784882e-05
glucose_100g	-0.000008	-1.089244e-05
fructose_100g	-0.000015	-2.138841e-05
lactose_100g	-0.000023	-3.310829e-05
maltose_100g	-0.000007	-9.438424e-06
maltdextrins_100g	-0.000011	-1.549052e-05
starch_100g	-0.000046	-6.553428e-05
polyols_100g	-0.000062	-8.755511e-05
fiber_100g	-0.000928	-1.311625e-03
proteins_100g	-0.001506	-2.128707e-03
casein_100g	-0.000016	-2.279014e-05
serum-proteins_100g	-0.000011	-1.544030e-05
nucleotides_100g	-0.000010	-1.361618e-05
salt_100g	-0.000448	-6.332850e-04
sodium_100g	-0.000440	-6.224842e-04
alcohol_100g	-0.000136	-1.927301e-04
vitamin-a_100g	-0.000007	-9.554642e-06
beta-carotene_100g	-0.000004	-6.218273e-06
vitamin-d_100g	-0.000006	-8.918213e-06
vitamin-e_100g	-0.000010	-1.457498e-05
vitamin-k_100g	-0.000004	-5.610554e-06
vitamin-c_100g	-0.000042	-5.963936e-05
vitamin-b1_100g	-0.000061	-8.613112e-05
vitamin-b2_100g	-0.000076	-1.075326e-04
vitamin-pp_100g	-0.000021	-2.983318e-05
vitamin-b6_100g	-0.000006	-8.371245e-06
vitamin-b9_100g	-0.000007	-9.641496e-06
folates_100g	-0.000007	-1.006567e-05
vitamin-b12_100g	-0.000005	-6.476030e-06
biotin_100g	-0.000009	-1.332324e-05
pantothenic-acid_100g	-0.000008	-1.188290e-05
silica_100g	-0.000007	-9.517008e-06
bicarbonate_100g	-0.000016	-2.267321e-05
potassium_100g	-0.000171	-2.415586e-04
chloride_100g	-0.000024	-3.357955e-05
calcium_100g	-0.000219	-3.093271e-04
phosphorus_100g	-0.000169	-2.386078e-04
iron_100g	-0.000025	-3.557050e-05
magnesium_100g	-0.000034	-4.874454e-05
zinc_100g	-0.000020	-2.888510e-05
copper_100g	-0.000005	-7.574085e-06
manganese_100g	-0.000015	-2.164294e-05
fluoride_100g	-0.000006	-8.777654e-06
selenium_100g	-0.000004	-5.687045e-06
chromium_100g	-0.000004	-6.251323e-06
molybdenum_100g	-0.000005	-6.454415e-06
iodine_100g	-0.000018	-2.548131e-05
caffeine_100g	-0.000008	-1.149287e-05
taurine_100g	-0.000012	-1.728696e-05
ph_100g	-0.000023	-3.194208e-05
fruits-vegetables-nuts_100g	-0.000142	-2.011647e-04

collagen-meat-protein-ratio_100g	-0.000046	-6.485345e-05
cocoa_100g	-0.000105	-1.486607e-04
carbon-footprint_100g		NaN
nutrition-score-fr_100g	0.000989	9.888763e-04
nutrition-score-uk_100g	0.001000	9.995695e-04
total3nutriments_100g	0.003268	4.365731e-03

additives_n	-5.270624e-04	0.000041
ingredients_from_palm_oil_n	-3.706835e-04	-0.000262
ingredients_that_may_be_from_palm_oil_n	-6.015130e-04	-0.000429
energy_100g	-3.808450e-07	0.000042
energy-from-fat_100g		NaN
fat_100g	1.520952e-02	0.011157
saturated-fat_100g	1.436120e-02	-0.001049
caprylic-acid_100g	7.296742e-01	1.000000
capric-acid_100g	9.999820e-01	0.725582
lauric-acid_100g	0.000000e+00	0.729674
myristic-acid_100g	7.296742e-01	0.000000
palmitic-acid_100g	7.296742e-01	1.000000
stearic-acid_100g	7.296742e-01	1.000000
arachidic-acid_100g	-1.410310e-05	-0.000010
behenic-acid_100g	-1.405486e-05	-0.000010
montanic-acid_100g	-5.588069e-06	-0.000004
monounsaturated-fat_100g	-3.960960e-04	-0.000281
polyunsaturated-fat_100g	4.720982e-04	-0.000268
omega-3-fat_100g	-7.345812e-05	-0.000052
alpha-linolenic-acid_100g	-1.793389e-05	-0.000013
eicosapentaenoic-acid_100g	-7.697830e-06	-0.000005
docosahexaenoic-acid_100g	-2.172305e-05	-0.000015
omega-6-fat_100g	-4.784429e-05	-0.000034
linoleic-acid_100g	1.193441e-02	0.016376
arachidonic-acid_100g	-1.233368e-05	-0.000009
gamma-linolenic-acid_100g	-1.541610e-05	-0.000011
dihomo-gamma-linolenic-acid_100g	-1.455756e-05	-0.000010
omega-9-fat_100g	-2.126755e-05	-0.000015
oleic-acid_100g	4.357280e-02	0.059723
gondoic-acid_100g	-1.113005e-05	-0.000008
trans-fat_100g	-1.350623e-04	-0.000096
cholesterol_100g	-1.889646e-04	-0.000134
carbohydrates_100g	-2.438583e-03	-0.001724
sugars_100g	-1.782497e-03	-0.001260
sucrose_100g	-2.785696e-05	-0.000020
glucose_100g	-1.089563e-05	-0.000008
fructose_100g	-2.139466e-05	-0.000015
lactose_100g	-3.311796e-05	-0.000023
maltose_100g	-9.441183e-06	-0.000007
maltdextrins_100g	-1.549505e-05	-0.000011
starch_100g	-6.555344e-05	-0.000046
polyols_100g	-8.758070e-05	-0.000062
fiber_100g	-1.312008e-03	-0.000928
proteins_100g	-2.129329e-03	-0.001506
casein_100g	-2.279680e-05	-0.000016
serum-proteins_100g	-1.544481e-05	-0.000011
nucleotides_100g	-1.362015e-05	-0.000010
salt_100g	-6.334695e-04	-0.000448
sodium_100g	-6.226656e-04	-0.000440
alcohol_100g	-1.927864e-04	-0.000136
vitamin-a_100g	-9.557435e-06	-0.000007
beta-carotene_100g	-6.220090e-06	-0.000004
vitamin-d_100g	-8.920819e-06	-0.000006
vitamin-e_100g	-1.457923e-05	-0.000010
vitamin-k_100g	-5.612194e-06	-0.000004
vitamin-c_100g	-5.965679e-05	-0.000042
vitamin-b1_100g	-8.615629e-05	-0.000061
vitamin-b2_100g	-1.075640e-04	-0.000076
vitamin-pp_100g	-2.984190e-05	-0.000021
vitamin-b6_100g	-8.373691e-06	-0.000006
vitamin-b9_100g	-9.644314e-06	-0.000007
folates_100g	-1.006861e-05	-0.000007
vitamin-b12_100g	-6.477923e-06	-0.000005
biotin_100g	-1.332714e-05	-0.000009
pantothenic-acid_100g	-1.188638e-05	-0.000008
silica_100g	-9.519790e-06	-0.000007
bicarbonate_100g	-2.267983e-05	-0.000016
potassium_100g	-2.416292e-04	-0.000171
chloride_100g	-3.358937e-05	-0.000024
calcium_100g	-3.094175e-04	-0.000219
phosphorus_100g	-2.386775e-04	-0.000169
iron_100g	-3.558090e-05	-0.000025
magnesium_100g	-4.875878e-05	-0.000034
zinc_100g	-2.889354e-05	-0.000020
copper_100g	-7.576298e-06	-0.000005
manganese_100g	-2.164927e-05	-0.000015
fluoride_100g	-8.780219e-06	-0.000006
selenium_100g	-5.688708e-06	-0.000004
chromium_100g	-6.253150e-06	-0.000004
molybdenum_100g	-6.456302e-06	-0.000005
iodine_100g	-2.548875e-05	-0.000018
caffeine_100g	-1.149623e-05	-0.000008
taurine_100g	-1.729201e-05	-0.000012
ph_100g	-3.195142e-05	-0.000023
fruits-vegetables-nuts_100g	-2.012235e-04	-0.000142
collagen-meat-protein-ratio_100g	-6.487240e-05	-0.000046
cocoa_100g	-1.487042e-04	-0.000105
carbon-footprint_100g		NaN
nutrition-score-fr_100g	9.888763e-04	0.000989
nutrition-score-uk_100g	9.995695e-04	0.001000
total3nutriments_100g	4.368355e-03	0.003268

additives_n	0.000041	palmitic-acid_100g \
ingredients_from_palm_oil_n	-0.000262	
ingredients_that_may_be_from_palm_oil_n	-0.000429	
energy_100g	0.000042	
energy-from-fat_100g		NaN
fat_100g	0.011157	

saturated-fat_100g	-0.001049
caprylic-acid_100g	1.000000
capric-acid_100g	0.725582
lauric-acid_100g	0.729674
myristic-acid_100g	1.000000
palmitic-acid_100g	0.000000
stearic-acid_100g	1.000000
arachidic-acid_100g	-0.000010
behenic-acid_100g	-0.000010
montanic-acid_100g	-0.000004
monounsaturated-fat_100g	-0.000281
polyunsaturated-fat_100g	-0.000268
omega-3-fat_100g	-0.000052
alpha-linolenic-acid_100g	-0.000013
eicosapentaenoic-acid_100g	-0.000005
docosahexaenoic-acid_100g	-0.000015
omega-6-fat_100g	-0.000034
linoleic-acid_100g	0.016376
arachidonic-acid_100g	-0.000009
gamma-linolenic-acid_100g	-0.000011
dihomo-gamma-linolenic-acid_100g	-0.000010
omega-9-fat_100g	-0.000015
oleic-acid_100g	0.059723
gondoic-acid_100g	-0.000008
trans-fat_100g	-0.000096
cholesterol_100g	-0.000134
carbohydrates_100g	-0.001724
sugars_100g	-0.001260
sucrose_100g	-0.000020
glucose_100g	-0.000008
fructose_100g	-0.000015
lactose_100g	-0.000023
maltose_100g	-0.000007
maltdextrins_100g	-0.000011
starch_100g	-0.000046
polyols_100g	-0.000062
fiber_100g	-0.000928
proteins_100g	-0.001506
casein_100g	-0.000016
serum-proteins_100g	-0.000011
nucleotides_100g	-0.000010
salt_100g	-0.000448
sodium_100g	-0.000440
alcohol_100g	-0.000136
vitamin-a_100g	-0.000007
beta-carotene_100g	-0.000004
vitamin-d_100g	-0.000006
vitamin-e_100g	-0.000010
vitamin-k_100g	-0.000004
vitamin-c_100g	-0.000042
vitamin-b1_100g	-0.000061
vitamin-b2_100g	-0.000076
vitamin-pp_100g	-0.000021
vitamin-b6_100g	-0.000006
vitamin-b9_100g	-0.000007
folates_100g	-0.000007
vitamin-b12_100g	-0.000005
biotin_100g	-0.000009
pantothenic-acid_100g	-0.000008
silica_100g	-0.000007
bicarbonate_100g	-0.000016
potassium_100g	-0.000171
chloride_100g	-0.000024
calcium_100g	-0.000219
phosphorus_100g	-0.000169
iron_100g	-0.000025
magnesium_100g	-0.000034
zinc_100g	-0.000020
copper_100g	-0.000005
manganese_100g	-0.000015
fluoride_100g	-0.000006
selenium_100g	-0.000004
chromium_100g	-0.000004
molybdenum_100g	-0.000005
iodine_100g	-0.000018
caffeine_100g	-0.000008
taurine_100g	-0.000012
ph_100g	-0.000023
fruits-vegetables-nuts_100g	-0.000142
collagen-meat-protein-ratio_100g	-0.000046
cocoa_100g	-0.000105
carbon-footprint_100g	NaN
nutrition-score-fr_100g	0.000989
nutrition-score-uk_100g	0.001000
total3nutriments_100g	0.003268

additives_n	stearic-acid_100g \ 0.000041
ingredients_from_palm_oil_n	-0.000262
ingredients_that_may_be_from_palm_oil_n	-0.000429
energy_100g	0.000042
energy-from-fat_100g	NaN
fat_100g	0.011157
saturated-fat_100g	-0.001049
caprylic-acid_100g	1.000000
capric-acid_100g	0.725582
lauric-acid_100g	0.729674
myristic-acid_100g	1.000000
palmitic-acid_100g	1.000000
stearic-acid_100g	0.000000
arachidic-acid_100g	-0.000010
behenic-acid_100g	-0.000010
montanic-acid_100g	-0.000004
monounsaturated-fat_100g	-0.000281
polyunsaturated-fat_100g	-0.000268
omega-3-fat_100g	-0.000052
alpha-linolenic-acid_100g	-0.000013

eicosapentaenoic-acid_100g	-0.000005
docosahexaenoic-acid_100g	-0.000015
omega-6-fat_100g	-0.000034
linoleic-acid_100g	0.016376
arachidonic-acid_100g	-0.000009
gamma-linolenic-acid_100g	-0.000011
dihomo-gamma-linolenic-acid_100g	-0.000010
omega-9-fat_100g	-0.000015
oleic-acid_100g	0.059723
gondoic-acid_100g	-0.000008
trans-fat_100g	-0.000096
cholesterol_100g	-0.000134
carbohydrates_100g	-0.001724
sugars_100g	-0.001260
sucrose_100g	-0.000020
glucose_100g	-0.000008
fructose_100g	-0.000015
lactose_100g	-0.000023
maltose_100g	-0.000007
maltdextrins_100g	-0.000011
starch_100g	-0.000046
polylols_100g	-0.000062
fiber_100g	-0.000028
proteins_100g	-0.001506
casein_100g	-0.000016
serum-proteins_100g	-0.000011
nucleotides_100g	-0.000010
salt_100g	-0.000448
sodium_100g	-0.000440
alcohol_100g	-0.000136
vitamin-a_100g	-0.000007
beta-carotene_100g	-0.000004
vitamin-d_100g	-0.000006
vitamin-e_100g	-0.000010
vitamin-k_100g	-0.000004
vitamin-c_100g	-0.000042
vitamin-b1_100g	-0.000061
vitamin-b2_100g	-0.000076
vitamin-pp_100g	-0.000021
vitamin-b6_100g	-0.000006
vitamin-b9_100g	-0.000007
folates_100g	-0.000007
vitamin-b12_100g	-0.000005
biotin_100g	-0.000009
pantothenic-acid_100g	-0.000008
silica_100g	-0.000007
bicarbonate_100g	-0.000016
potassium_100g	-0.000171
chloride_100g	-0.000024
calcium_100g	-0.000219
phosphorus_100g	-0.000169
iron_100g	-0.000025
magnesium_100g	-0.000034
zinc_100g	-0.000020
copper_100g	-0.000005
manganese_100g	-0.000015
fluoride_100g	-0.000006
selenium_100g	-0.000004
chromium_100g	-0.000004
molybdenum_100g	-0.000005
iodine_100g	-0.000018
caffeine_100g	-0.000008
taurine_100g	-0.000012
ph_100g	-0.000023
fruits-vegetables-nuts_100g	-0.000142
collagen-meat-protein-ratio_100g	-0.000046
cocoa_100g	-0.000105
carbon-footprint_100g	NaN
nutrition-score-fr_100g	0.000989
nutrition-score-uk_100g	0.001000
total3nutrients_100g	0.003268
	arachidic-acid_100g \
additives_n	-0.003694
ingredients_from_palm_oil_n	-0.000662
ingredients_that_may_be_from_palm_oil_n	-0.001084
energy_100g	-0.000107
energy-from-fat_100g	NaN
fat_100g	-0.003068
saturated-fat_100g	-0.002646
caprylic-acid_100g	-0.000010
capric-acid_100g	-0.000014
lauric-acid_100g	-0.000014
myristic-acid_100g	-0.000010
palmitic-acid_100g	-0.000010
stearic-acid_100g	-0.000010
arachidic-acid_100g	0.000000
behenic-acid_100g	0.999642
montanic-acid_100g	-0.000010
monounsaturated-fat_100g	-0.000710
polyunsaturated-fat_100g	-0.000676
omega-3-fat_100g	-0.000131
alpha-linolenic-acid_100g	-0.000032
eicosapentaenoic-acid_100g	0.005910
docosahexaenoic-acid_100g	0.552505
omega-6-fat_100g	-0.000085
linoleic-acid_100g	-0.000055
arachidonic-acid_100g	-0.000022
gamma-linolenic-acid_100g	0.881395
dihomo-gamma-linolenic-acid_100g	0.902177
omega-9-fat_100g	-0.000038
oleic-acid_100g	-0.000021
gondoic-acid_100g	0.550957
trans-fat_100g	-0.000241
cholesterol_100g	-0.000337
carbohydrates_100g	-0.004352
sugars_100g	-0.003181

sucrose_100g	-0.000050
glucose_100g	-0.000019
fructose_100g	-0.000038
lactose_100g	-0.000059
maltose_100g	-0.000017
maltdextrins_100g	-0.000028
starch_100g	-0.000117
polyols_100g	-0.000156
fiber_100g	-0.002342
proteins_100g	-0.003758
casein_100g	-0.000041
serum-proteins_100g	-0.000028
nucleotides_100g	-0.000024
salt_100g	-0.001131
sodium_100g	-0.001111
alcohol_100g	-0.000344
vitamin-a_100g	-0.000017
beta-carotene_100g	-0.000011
vitamin-d_100g	-0.000016
vitamin-e_100g	-0.000026
vitamin-k_100g	-0.000010
vitamin-c_100g	-0.000106
vitamin-b1_100g	-0.000154
vitamin-b2_100g	-0.000192
vitamin-pp_100g	0.369730
vitamin-b6_100g	-0.000015
vitamin-b9_100g	-0.000017
folates_100g	-0.000018
vitamin-b12_100g	-0.000012
biotin_100g	0.712418
pantothenic-acid_100g	0.174006
silica_100g	-0.000017
bicarbonate_100g	-0.000040
potassium_100g	-0.000431
chloride_100g	-0.000060
calcium_100g	-0.000552
phosphorus_100g	-0.000426
iron_100g	-0.000064
magnesium_100g	-0.000087
zinc_100g	-0.000052
copper_100g	-0.000014
manganese_100g	-0.000039
fluoride_100g	-0.000016
selenium_100g	-0.000010
chromium_100g	-0.000011
molybdenum_100g	-0.000012
iodine_100g	-0.000045
caffeine_100g	-0.000021
taurine_100g	-0.000031
ph_100g	-0.000057
fruits-vegetables-nuts_100g	-0.000359
collagen-meat-protein-ratio_100g	-0.000116
cocoa_100g	-0.000265
carbon-footprint_100g	NaN
nutrition-score-fr_100g	-0.002258
nutrition-score-uk_100g	-0.002168
total3nutriments_100g	-0.005681
behenic-acid_100g \	
additives_n	-0.003711
ingredients_from_palm_oil_n	-0.000659
ingredients_that_may_be_from_palm_oil_n	-0.001080
energy_100g	-0.000110
energy-from-fat_100g	NaN
fat_100g	-0.003057
saturated-fat_100g	-0.002637
caprylic-acid_100g	-0.000010
capric-acid_100g	-0.000014
lauric-acid_100g	-0.000014
myristic-acid_100g	-0.000010
palmitic-acid_100g	-0.000010
stearic-acid_100g	-0.000010
arachidic-acid_100g	0.999642
behenic-acid_100g	0.000000
montanic-acid_100g	-0.000010
monounsaturated-fat_100g	-0.000708
polyunsaturated-fat_100g	-0.000674
omega-3-fat_100g	-0.000131
alpha-linolenic-acid_100g	-0.000032
eicosapentaenoic-acid_100g	0.005950
docosahexaenoic-acid_100g	0.550758
omega-6-fat_100g	-0.000085
linoleic-acid_100g	-0.000055
arachidonic-acid_100g	-0.000022
gamma-linolenic-acid_100g	0.877513
dihomo-gamma-linolenic-acid_100g	0.898194
omega-9-fat_100g	-0.000038
oleic-acid_100g	-0.000021
gondoic-acid_100g	0.545224
trans-fat_100g	-0.000240
cholesterol_100g	-0.000336
carbohydrates_100g	-0.004337
sugars_100g	-0.003170
sucrose_100g	-0.000050
glucose_100g	-0.000019
fructose_100g	-0.000038
lactose_100g	-0.000059
maltose_100g	-0.000017
maltdextrins_100g	-0.000028
starch_100g	-0.000117
polyols_100g	-0.000156
fiber_100g	-0.002334
proteins_100g	-0.003746
casein_100g	-0.000041
serum-proteins_100g	-0.000027
nucleotides_100g	-0.000024
salt_100g	-0.001127

sodium_100g	-0.001107
alcohol_100g	-0.000343
vitamin-a_100g	-0.000017
beta-carotene_100g	-0.000011
vitamin-d_100g	-0.000016
vitamin-e_100g	-0.000026
vitamin-k_100g	-0.000010
vitamin-c_100g	-0.000106
vitamin-b1_100g	-0.000153
vitamin-b2_100g	-0.000191
vitamin-pp_100g	0.374494
vitamin-b6_100g	-0.000015
vitamin-b9_100g	-0.000017
folates_100g	-0.000018
vitamin-b12_100g	-0.000012
biotin_100g	0.711630
pantothenic-acid_100g	0.173813
silica_100g	-0.000017
bicarbonate_100g	-0.000040
potassium_100g	-0.000430
chloride_100g	-0.000060
calcium_100g	-0.000550
phosphorus_100g	-0.000425
iron_100g	-0.000063
magnesium_100g	-0.000087
zinc_100g	-0.000051
copper_100g	-0.000013
manganese_100g	-0.000039
fluoride_100g	-0.000016
selenium_100g	-0.000010
chromium_100g	-0.000011
molybdenum_100g	-0.000011
iodine_100g	-0.000045
caffeine_100g	-0.000020
taurine_100g	-0.000031
ph_100g	-0.000057
fruits-vegetables-nuts_100g	-0.000358
collagen-meat-protein-ratio_100g	-0.000115
cocoa_100g	-0.000264
carbon-footprint_100g	Nan
nutrition-score-fr_100g	-0.002255
nutrition-score-uk_100g	-0.002166
total3nutriments_100g	-0.005662
	montanic-acid_100g \
additives_n	0.000041
ingredients_from_palm_oil_n	-0.000262
ingredients_that_may_be_from_palm_oil_n	-0.000429
energy_100g	0.000276
energy-from-fat_100g	Nan
fat_100g	0.011157
saturated-fat_100g	0.002008
caprylic-acid_100g	-0.000004
capric-acid_100g	-0.000006
lauric-acid_100g	-0.000006
myristic-acid_100g	-0.000004
palmitic-acid_100g	-0.000004
stearic-acid_100g	-0.000004
arachidic-acid_100g	-0.000010
behenic-acid_100g	-0.000010
montanic-acid_100g	0.000000
monounsaturated-fat_100g	-0.000281
polyunsaturated-fat_100g	-0.000268
omega-3-fat_100g	-0.000052
alpha-linolenic-acid_100g	-0.000013
eicosapentaenoic-acid_100g	-0.000005
docosahexaenoic-acid_100g	-0.000015
omega-6-fat_100g	-0.000034
linoleic-acid_100g	0.04973
arachidonic-acid_100g	-0.000009
gamma-linolenic-acid_100g	-0.000011
dihomo-gamma-linolenic-acid_100g	-0.000010
omega-9-fat_100g	-0.000015
oleic-acid_100g	-0.000008
gondoic-acid_100g	-0.000008
trans-fat_100g	-0.000096
cholesterol_100g	-0.000134
carbohydrates_100g	-0.001724
sugars_100g	-0.001260
sucrose_100g	-0.000020
glucose_100g	-0.000008
fructose_100g	-0.000015
lactose_100g	-0.000023
maltose_100g	-0.000007
maltdodextrins_100g	-0.000011
starch_100g	-0.000046
polylols_100g	-0.000062
fiber_100g	-0.0000928
proteins_100g	-0.001506
casein_100g	-0.000016
serum-proteins_100g	-0.000011
nucleotides_100g	-0.000010
salt_100g	-0.000448
sodium_100g	-0.000440
alcohol_100g	-0.000136
vitamin-a_100g	-0.000007
beta-carotene_100g	-0.000004
vitamin-d_100g	-0.000006
vitamin-e_100g	-0.000010
vitamin-k_100g	-0.000004
vitamin-c_100g	-0.000042
vitamin-b1_100g	-0.000061
vitamin-b2_100g	-0.000076
vitamin-pp_100g	-0.000021
vitamin-b6_100g	-0.000006
vitamin-b9_100g	-0.000007
folates_100g	-0.000007

vitamin-b12_100g	-0.000005
biotin_100g	-0.000009
pantothenic-acid_100g	-0.000008
silica_100g	-0.000007
bicarbonate_100g	-0.000016
potassium_100g	-0.000171
chloride_100g	-0.000024
calcium_100g	-0.000219
phosphorus_100g	-0.000169
iron_100g	-0.000025
magnesium_100g	-0.000034
zinc_100g	-0.000020
copper_100g	-0.000005
manganese_100g	-0.000015
fluoride_100g	-0.000006
selenium_100g	-0.000004
chromium_100g	-0.000004
molybdenum_100g	-0.000005
iodine_100g	-0.000018
caffeine_100g	-0.000008
taurine_100g	-0.000012
ph_100g	-0.000023
fruits-vegetables-nuts_100g	-0.000142
collagen-meat-protein-ratio_100g	-0.000046
cocoa_100g	-0.000105
carbon-footprint_100g	NaN
nutrition-score-fr_100g	0.002015
nutrition-score-uk_100g	0.002011
total3nutriments_100g	0.003268
monounsaturated-fat_100g \	
additives_n	0.010808
ingredients_from_palm_oil_n	-0.010351
ingredients_that_may_be_from_palm_oil_n	-0.011643
energy_100g	-0.000405
energy-from-fat_100g	-0.034568
fat_100g	0.447842
saturated-fat_100g	0.117153
caprylic-acid_100g	-0.000281
capric-acid_100g	-0.000398
lauric-acid_100g	-0.000396
myristic-acid_100g	-0.000281
palmitic-acid_100g	-0.000281
stearic-acid_100g	-0.000281
arachidic-acid_100g	-0.000710
behenic-acid_100g	-0.000708
montanic-acid_100g	-0.000281
monounsaturated-fat_100g	0.000000
polyunsaturated-fat_100g	0.564861
omega-3-fat_100g	0.058615
alpha-linolenic-acid_100g	0.014508
eicosapentaenoic-acid_100g	0.026433
docosahexaenoic-acid_100g	0.002355
omega-6-fat_100g	0.080768
linoleic-acid_100g	0.029005
arachidonic-acid_100g	-0.000621
gamma-linolenic-acid_100g	0.005054
dihomo-gamma-linolenic-acid_100g	-0.000733
omega-9-fat_100g	0.072608
oleic-acid_100g	0.038493
gondoic-acid_100g	-0.000560
trans-fat_100g	0.014731
cholesterol_100g	-0.000127
carbohydrates_100g	-0.024805
sugars_100g	-0.050928
sucrose_100g	-0.001403
glucose_100g	-0.000537
fructose_100g	-0.001077
lactose_100g	-0.000262
maltose_100g	-0.000475
maltdextrins_100g	-0.000780
starch_100g	0.006143
polyols_100g	-0.003745
fiber_100g	0.026780
proteins_100g	0.003124
casein_100g	-0.001120
serum-proteins_100g	-0.000778
nucleotides_100g	-0.000686
salt_100g	-0.014909
sodium_100g	-0.014736
alcohol_100g	-0.009468
vitamin-a_100g	-0.000312
beta-carotene_100g	-0.000308
vitamin-d_100g	0.000199
vitamin-e_100g	0.003265
vitamin-k_100g	-0.000281
vitamin-c_100g	-0.002416
vitamin-b1_100g	0.001506
vitamin-b2_100g	0.004334
vitamin-pp_100g	-0.000376
vitamin-b6_100g	-0.000341
vitamin-b9_100g	-0.000149
folates_100g	0.000202
vitamin-b12_100g	-0.000317
biotin_100g	-0.000671
pantothenic-acid_100g	-0.000556
silica_100g	-0.000479
bicarbonate_100g	-0.001142
potassium_100g	0.043386
chloride_100g	-0.000598
calcium_100g	-0.001190
phosphorus_100g	0.066532
iron_100g	0.000565
magnesium_100g	0.011056
zinc_100g	0.001003
copper_100g	-0.000170
manganese_100g	0.005268

fluoride_100g	-0.000441
selenium_100g	0.003964
chromium_100g	-0.000313
molybdenum_100g	-0.000299
iodine_100g	-0.001156
caffeine_100g	-0.000579
taurine_100g	-0.000871
ph_100g	-0.001609
fruits-vegetables-nuts_100g	-0.010064
collagen-meat-protein-ratio_100g	-0.003267
cocoa_100g	-0.002960
carbon-footprint_100g	-0.054690
nutrition-score-fr_100g	-0.001124
nutrition-score-uk_100g	-0.000516
total3nutriments_100g	0.180694
polyunsaturated-fat_100g \	
additives_n	0.010935
ingredients_from_palm_oil_n	-0.011397
ingredients_that_may_be_from_palm_oil_n	-0.008576
energy_100g	-0.000347
energy-from-fat_100g	-0.033179
fat_100g	0.380588
saturated-fat_100g	0.087647
caprylic-acid_100g	-0.000268
capric-acid_100g	0.000477
lauric-acid_100g	0.000472
myristic-acid_100g	-0.000268
palmitic-acid_100g	-0.000268
stearic-acid_100g	-0.000268
arachidic-acid_100g	-0.000676
behenic-acid_100g	-0.000674
montanic-acid_100g	-0.000268
monounsaturated-fat_100g	0.564861
polyunsaturated-fat_100g	0.000000
omega-3-fat_100g	0.120556
alpha-linolenic-acid_100g	0.050368
eicosapentaenoic-acid_100g	0.013407
docosahexaenoic-acid_100g	0.001823
omega-6-fat_100g	0.169740
linoleic-acid_100g	0.056541
arachidonic-acid_100g	-0.000591
gamma-linolenic-acid_100g	0.002227
dihomo-gamma-linolenic-acid_100g	-0.000698
omega-9-fat_100g	0.047441
oleic-acid_100g	0.031701
gondoic-acid_100g	-0.000534
trans-fat_100g	0.012905
cholesterol_100g	-0.003714
carbohydrates_100g	-0.006869
sugars_100g	-0.047310
sucrose_100g	-0.001336
glucose_100g	-0.000514
fructose_100g	-0.001026
lactose_100g	-0.001531
maltose_100g	-0.000453
maltooligosaccharides_100g	-0.000743
starch_100g	0.006059
polyols_100g	-0.003979
fiber_100g	0.048399
proteins_100g	0.011728
casein_100g	-0.001074
serum-proteins_100g	-0.000741
nucleotides_100g	-0.000653
salt_100g	-0.011763
sodium_100g	-0.011652
alcohol_100g	-0.009160
vitamin-a_100g	-0.000264
beta-carotene_100g	-0.000250
vitamin-d_100g	0.000316
vitamin-e_100g	0.004186
vitamin-k_100g	-0.000268
vitamin-c_100g	-0.001617
vitamin-b1_100g	0.004076
vitamin-b2_100g	0.004751
vitamin-pp_100g	-0.000127
vitamin-b6_100g	-0.000358
vitamin-b9_100g	0.000424
folates_100g	0.000728
vitamin-b12_100g	-0.000301
biotin_100g	-0.000639
pantothenic-acid_100g	-0.000498
silica_100g	-0.000457
bicarbonate_100g	-0.001088
potassium_100g	0.051443
chloride_100g	-0.000499
calcium_100g	-0.000642
phosphorus_100g	0.096515
iron_100g	0.001480
magnesium_100g	0.014452
zinc_100g	0.001943
copper_100g	-0.000234
manganese_100g	0.007057
fluoride_100g	-0.000420
selenium_100g	0.003069
chromium_100g	-0.000289
molybdenum_100g	-0.000241
iodine_100g	-0.001117
caffeine_100g	-0.000551
taurine_100g	-0.000829
ph_100g	-0.001532
fruits-vegetables-nuts_100g	-0.009538
collagen-meat-protein-ratio_100g	-0.003111
cocoa_100g	-0.006559
carbon-footprint_100g	-0.054690
nutrition-score-fr_100g	0.003624
nutrition-score-uk_100g	0.004876

total3nutriments_100g	0.166941
omega-3-fat_100g \	
additives_n	-0.001752
ingredients_from_palm_oil_n	0.013834
ingredients_that_may_be_from_palm_oil_n	0.000419
energy_100g	-0.000122
energy-from-fat_100g	Nan
fat_100g	0.065987
saturated-fat_100g	0.010326
caprylic-acid_100g	-0.000052
capric-acid_100g	-0.000073
lauric-acid_100g	-0.000073
myristic-acid_100g	-0.000052
palmitic-acid_100g	-0.000052
stearic-acid_100g	-0.000052
arachidic-acid_100g	-0.000131
behenic-acid_100g	-0.000131
montanic-acid_100g	-0.000052
monounsaturated-fat_100g	0.058615
polyunsaturated-fat_100g	0.120556
omega-3-fat_100g	0.000000
alpha-linolenic-acid_100g	0.040928
eicosapentaenoic-acid_100g	0.001487
docosahexaenoic-acid_100g	0.009899
omega-6-fat_100g	0.271403
linoleic-acid_100g	0.001485
arachidonic-acid_100g	-0.000115
gamma-linolenic-acid_100g	-0.000143
dihomo-gamma-linolenic-acid_100g	-0.000135
omega-9-fat_100g	0.049603
oleic-acid_100g	0.034160
gondoic-acid_100g	-0.000103
trans-fat_100g	-0.000555
cholesterol_100g	-0.001642
carbohydrates_100g	-0.020013
sugars_100g	-0.015486
sucrose_100g	-0.000259
glucose_100g	-0.000099
fructose_100g	-0.000199
lactose_100g	0.001226
maltose_100g	-0.000087
maltdextrins_100g	-0.000144
starch_100g	0.000216
polylols_100g	-0.000486
fiber_100g	0.009250
proteins_100g	0.011254
casein_100g	-0.000191
serum-proteins_100g	-0.000144
nucleotides_100g	-0.000127
salt_100g	-0.003402
sodium_100g	-0.003355
alcohol_100g	-0.001792
vitamin-a_100g	0.000528
beta-carotene_100g	-0.000056
vitamin-d_100g	0.000951
vitamin-e_100g	0.013112
vitamin-k_100g	-0.000052
vitamin-c_100g	-0.000547
vitamin-b1_100g	-0.000799
vitamin-b2_100g	-0.000999
vitamin-pp_100g	-0.000252
vitamin-b6_100g	-0.000075
vitamin-b9_100g	0.001251
folates_100g	-0.000094
vitamin-b12_100g	-0.000059
biotin_100g	-0.000124
pantothenic-acid_100g	-0.000107
silica_100g	-0.000088
bicarbonate_100g	-0.000211
potassium_100g	-0.001338
chloride_100g	0.003996
calcium_100g	-0.001607
phosphorus_100g	0.004132
iron_100g	-0.000302
magnesium_100g	0.000734
zinc_100g	-0.000178
copper_100g	-0.000070
manganese_100g	0.000325
fluoride_100g	-0.000082
selenium_100g	-0.000053
chromium_100g	-0.000055
molybdenum_100g	0.000058
iodine_100g	-0.000126
caffeine_100g	-0.000107
taurine_100g	-0.000161
ph_100g	-0.000297
fruits-vegetables-nuts_100g	-0.001867
collagen-meat-protein-ratio_100g	-0.000603
cocoa_100g	-0.001382
carbon-footprint_100g	Nan
nutrition-score-fr_100g	-0.001435
nutrition-score-uk_100g	-0.000536
total3nutriments_100g	0.015851
alpha-linolenic-acid_100g \	
additives_n	0.001767
ingredients_from_palm_oil_n	0.006464
ingredients_that_may_be_from_palm_oil_n	0.005863
energy_100g	0.000043
energy-from-fat_100g	Nan
fat_100g	0.016233
saturated-fat_100g	0.003534
caprylic-acid_100g	-0.000013
capric-acid_100g	-0.000018
lauric-acid_100g	-0.000018
myristic-acid_100g	-0.000013

palmitic-acid_100g	-0.000013
stearic-acid_100g	-0.000013
arachidic-acid_100g	-0.000032
behenic-acid_100g	-0.000032
montanic-acid_100g	-0.000013
monounsaturated-fat_100g	0.014508
polyunsaturated-fat_100g	0.050368
omega-3-fat_100g	0.040928
alpha-linolenic-acid_100g	0.000000
eicosapentaenoic-acid_100g	0.061591
docosahexaenoic-acid_100g	0.002286
omega-6-fat_100g	0.004582
linoleic-acid_100g	0.253744
arachidonic-acid_100g	0.009260
gamma-linolenic-acid_100g	0.013442
dihomo-gamma-linolenic-acid_100g	-0.000033
omega-9-fat_100g	0.022571
oleic-acid_100g	0.103516
gondoic-acid_100g	-0.000025
trans-fat_100g	0.000249
cholesterol_100g	-0.000427
carbohydrates_100g	-0.004057
sugars_100g	-0.003147
sucrose_100g	-0.000059
glucose_100g	-0.000021
fructose_100g	-0.000049
lactose_100g	0.015658
maltose_100g	-0.000021
maltooligosaccharides_100g	0.012755
starch_100g	-0.000037
polyols_100g	-0.000199
fiber_100g	0.001135
proteins_100g	-0.002182
casein_100g	0.016557
serum-proteins_100g	0.010731
nucleotides_100g	0.008610
salt_100g	-0.001213
sodium_100g	-0.001193
alcohol_100g	-0.000438
vitamin-a_100g	-0.000005
beta-carotene_100g	-0.000014
vitamin-d_100g	0.000152
vitamin-e_100g	0.001386
vitamin-k_100g	-0.000013
vitamin-c_100g	-0.000067
vitamin-b1_100g	-0.000194
vitamin-b2_100g	-0.000241
vitamin-pp_100g	-0.000041
vitamin-b6_100g	-0.000003
vitamin-b9_100g	-0.000018
folates_100g	-0.000023
vitamin-b12_100g	-0.000014
biotin_100g	-0.000030
pantothenic-acid_100g	-0.000012
silica_100g	-0.000022
bicarbonate_100g	-0.000051
potassium_100g	0.001244
chloride_100g	0.032315
calcium_100g	0.000362
phosphorus_100g	0.001663
iron_100g	-0.000029
magnesium_100g	0.000820
zinc_100g	0.000302
copper_100g	-0.000016
manganese_100g	-0.000033
fluoride_100g	0.000350
selenium_100g	-0.000012
chromium_100g	-0.000013
molybdenum_100g	-0.000011
iodine_100g	0.000697
caffeine_100g	-0.000026
taurine_100g	0.001848
ph_100g	-0.000073
fruits-vegetables-nuts_100g	-0.000404
collagen-meat-protein-ratio_100g	-0.000147
cocoa_100g	-0.000337
carbon-footprint_100g	NaN
nutrition-score-fr_100g	-0.001900
nutrition-score-uk_100g	-0.001250
total3nutriments_100g	0.003515

	eicosapentaenoic-acid_100g \
additives_n	-0.002672
ingredients_from_palm_oil_n	-0.000994
ingredients_that_may_be_from_palm_oil_n	0.002171
energy_100g	0.000810
energy-from-fat_100g	NaN
fat_100g	0.010659
saturated-fat_100g	0.001091
caprylic-acid_100g	-0.000005
capric-acid_100g	-0.000008
lauric-acid_100g	-0.000008
myristic-acid_100g	-0.000005
palmitic-acid_100g	-0.000005
stearic-acid_100g	-0.000005
arachidic-acid_100g	0.005910
behenic-acid_100g	0.005950
montanic-acid_100g	-0.000005
monounsaturated-fat_100g	0.026433
polyunsaturated-fat_100g	0.013467
omega-3-fat_100g	0.001487
alpha-linolenic-acid_100g	0.061591
eicosapentaenoic-acid_100g	0.000000
docosahexaenoic-acid_100g	0.185599
omega-6-fat_100g	-0.000047
linoleic-acid_100g	0.197657
arachidonic-acid_100g	-0.000012

gamma-linolenic-acid_100g	0.216510
dihomo-gamma-linolenic-acid_100g	0.007594
omega-9-fat_100g	0.314781
oleic-acid_100g	-0.000012
gondoic-acid_100g	0.006800
trans-fat_100g	-0.000126
cholesterol_100g	-0.000184
carbohydrates_100g	-0.002362
sugars_100g	-0.001724
sucrose_100g	-0.000027
glucose_100g	-0.000011
fructose_100g	-0.000021
lactose_100g	-0.000032
maltose_100g	-0.000009
maltdextrins_100g	-0.000015
starch_100g	-0.000064
polyols_100g	-0.000085
fiber_100g	-0.001258
proteins_100g	-0.001118
casein_100g	-0.000022
serum-proteins_100g	-0.000015
nucleotides_100g	-0.000013
salt_100g	-0.000508
sodium_100g	-0.000499
alcohol_100g	-0.000188
vitamin-a_100g	-0.000009
beta-carotene_100g	-0.000006
vitamin-d_100g	-0.000004
vitamin-e_100g	0.003123
vitamin-k_100g	-0.000005
vitamin-c_100g	-0.000058
vitamin-b1_100g	-0.000084
vitamin-b2_100g	-0.000195
vitamin-pp_100g	0.004120
vitamin-b6_100g	-0.000008
vitamin-b9_100g	-0.000009
folates_100g	-0.000010
vitamin-b12_100g	-0.000006
biotin_100g	0.004333
pantothenic-acid_100g	0.001050
silica_100g	-0.000009
bicarbonate_100g	-0.000022
potassium_100g	-0.000221
chloride_100g	-0.000033
calcium_100g	-0.000292
phosphorus_100g	-0.000200
iron_100g	-0.000035
magnesium_100g	-0.000047
zinc_100g	-0.000028
copper_100g	-0.000007
manganese_100g	-0.000021
fluoride_100g	-0.000009
selenium_100g	-0.000006
chromium_100g	-0.000006
molybdenum_100g	-0.000006
iodine_100g	-0.000025
caffeine_100g	-0.000011
taurine_100g	-0.000017
ph_100g	-0.000031
fruits-vegetables-nuts_100g	-0.000196
collagen-meat-protein-ratio_100g	-0.000063
cocoa_100g	-0.000145
carbon-footprint_100g	NaN
nutrition-score-fr_100g	0.001618
nutrition-score-uk_100g	0.001639
total3nutriments_100g	0.002619

additives_n	docosahexaenoic-acid_100g \ -0.003579
ingredients_from_palm_oil_n	-0.001018
ingredients_that_may_be_from_palm_oil_n	-0.000204
energy_100g	0.000052
energy-from-fat_100g	Nan
fat_100g	-0.001969
saturated-fat_100g	-0.002812
caprylic-acid_100g	-0.000015
capric-acid_100g	-0.000022
lauric-acid_100g	-0.000022
myristic-acid_100g	-0.000015
palmitic-acid_100g	-0.000015
stearic-acid_100g	-0.000015
arachidic-acid_100g	0.552505
behenic-acid_100g	0.550758
montanic-acid_100g	-0.000015
monounsaturated-fat_100g	0.002355
polyunsaturated-fat_100g	0.001823
omega-3-fat_100g	0.009899
alpha-linolenic-acid_100g	0.002286
eicosapentaenoic-acid_100g	0.185599
docosahexaenoic-acid_100g	0.000000
omega-6-fat_100g	-0.000132
linoleic-acid_100g	0.005405
arachidonic-acid_100g	0.007040
gamma-linolenic-acid_100g	0.596488
dihomo-gamma-linolenic-acid_100g	0.605871
omega-9-fat_100g	0.006960
oleic-acid_100g	-0.000033
gondoic-acid_100g	0.500668
trans-fat_100g	-0.000323
cholesterol_100g	-0.000519
carbohydrates_100g	-0.006498
sugars_100g	-0.004725
sucrose_100g	-0.000077
glucose_100g	-0.000030
fructose_100g	-0.000059
lactose_100g	0.004367
maltose_100g	-0.000026

maltoextrins_100g	0.000866
starch_100g	-0.000180
polyols_100g	-0.000241
fiber_100g	-0.003462
proteins_100g	0.002357
casein_100g	0.003273
serum-proteins_100g	0.004250
nucleotides_100g	0.002103
salt_100g	-0.000887
sodium_100g	-0.000876
alcohol_100g	-0.000530
vitamin-a_100g	-0.000026
beta-carotene_100g	-0.000017
vitamin-d_100g	0.000021
vitamin-e_100g	0.000071
vitamin-k_100g	-0.000015
vitamin-c_100g	-0.000156
vitamin-b1_100g	-0.000237
vitamin-b2_100g	-0.000296
vitamin-pp_100g	0.209691
vitamin-b6_100g	-0.000015
vitamin-b9_100g	-0.000026
folates_100g	-0.000028
vitamin-b12_100g	-0.000017
biotin_100g	0.379188
pantothenic-acid_100g	0.092601
silica_100g	-0.000026
bicarbonate_100g	-0.000062
potassium_100g	-0.000477
chloride_100g	0.002761
calcium_100g	-0.000737
phosphorus_100g	-0.000226
iron_100g	-0.000096
magnesium_100g	-0.000124
zinc_100g	-0.000058
copper_100g	-0.000020
manganese_100g	-0.000058
fluoride_100g	0.000195
selenium_100g	-0.000015
chromium_100g	-0.000017
molybdenum_100g	-0.000018
iodine_100g	0.000017
caffeine_100g	-0.000032
taurine_100g	0.000582
ph_100g	-0.000088
fruits-vegetables-nuts_100g	-0.000553
collagen-meat-protein-ratio_100g	-0.000178
cocoa_100g	-0.000409
carbon-footprint_100g	NaN
nutrition-score-fr_100g	-0.004458
nutrition-score-uk_100g	-0.004108
total3nutriments_100g	-0.005580
	omega-6-fat_100g linoleic-acid_100g \
additives_n	-0.003026 -0.001248
ingredients_from_palm_oil_n	0.008782 0.001558
ingredients_that_may_be_from_palm_oil_n	0.003090 0.002728
energy_100g	-0.000053 0.000405
energy-from-fat_100g	NaN NaN
fat_100g	0.076995 0.026376
saturated-fat_100g	0.016118 0.007977
caprylic-acid_100g	-0.000034 0.016376
capric-acid_100g	-0.000048 0.011867
lauric-acid_100g	-0.000048 0.011934
myristic-acid_100g	-0.000034 0.016376
palmitic-acid_100g	-0.000034 0.016376
stearic-acid_100g	-0.000034 0.016376
arachidic-acid_100g	-0.000085 -0.000055
behenic-acid_100g	-0.000085 -0.000055
montanic-acid_100g	-0.000034 0.040973
monounsaturated-fat_100g	0.080768 0.029005
polyunsaturated-fat_100g	0.169740 0.056541
omega-3-fat_100g	0.271403 0.001405
alpha-linolenic-acid_100g	0.004582 0.253744
eicosapentaenoic-acid_100g	-0.000047 0.197657
docosahexaenoic-acid_100g	-0.000132 0.005405
omega-6-fat_100g	0.000000 -0.000186
linoleic-acid_100g	-0.000186 0.000000
arachidonic-acid_100g	-0.000075 0.115735
gamma-linolenic-acid_100g	-0.000093 0.043201
dihomo-gamma-linolenic-acid_100g	-0.000088 -0.000057
omega-9-fat_100g	0.210429 0.081648
oleic-acid_100g	0.100437 0.051360
gondoic-acid_100g	-0.000067 -0.000043
trans-fat_100g	0.000110 0.002935
cholesterol_100g	-0.001106 -0.000605
carbohydrates_100g	-0.014113 -0.004738
sugars_100g	-0.010440 -0.002473
sucrose_100g	-0.000168 -0.000039
glucose_100g	-0.000065 -0.000042
fructose_100g	-0.000129 -0.000083
lactose_100g	0.002724 0.177972
maltose_100g	-0.000056 -0.000037
maltoextrins_100g	-0.000094 0.125312
starch_100g	-0.000397 0.002313
polyols_100g	-0.000530 -0.000224
fiber_100g	-0.006333 -0.003707
proteins_100g	-0.010294 -0.004484
casein_100g	-0.000125 0.166846
serum-proteins_100g	-0.000094 0.096795
nucleotides_100g	-0.000082 0.091309
salt_100g	-0.003043 -0.001419
sodium_100g	-0.002995 -0.001399
alcohol_100g	-0.001167 -0.000751
vitamin-a_100g	0.001162 0.000039
beta-carotene_100g	-0.000038 -0.000024
vitamin-d_100g	0.001096 0.000736

vitamin-e_100g	0.029269	0.003648
vitamin-k_100g	-0.000034	-0.000021
vitamin-c_100g	-0.000355	0.000195
vitamin-b1_100g	-0.000519	-0.000332
vitamin-b2_100g	-0.000650	-0.000410
vitamin-pp_100g	-0.000150	0.000009
vitamin-b6_100g	-0.000047	0.000095
vitamin-b9_100g	-0.000053	-0.000026
folates_100g	-0.000061	-0.000039
vitamin-b12_100g	-0.000038	-0.000022
biotin_100g	-0.000081	-0.000050
pantothenic-acid_100g	-0.000069	0.000026
silica_100g	-0.000058	-0.000037
bicarbonate_100g	-0.000137	-0.000088
potassium_100g	-0.000780	0.003251
chloride_100g	0.008683	0.179610
calcium_100g	-0.001567	0.001184
phosphorus_100g	-0.000966	0.010032
iron_100g	-0.000195	-0.000023
magnesium_100g	0.000368	0.000469
zinc_100g	-0.000012	0.0000909
copper_100g	-0.000045	-0.000021
manganese_100g	0.000382	-0.000004
fluoride_100g	-0.000053	0.004274
selenium_100g	-0.000034	-0.000018
chromium_100g	-0.000031	-0.000014
molybdenum_100g	0.000231	0.000003
iodine_100g	-0.000065	0.004271
caffeine_100g	-0.000070	-0.000045
taurine_100g	-0.000105	0.019808
ph_100g	-0.000193	-0.000124
fruits-vegetables-nuts_100g	-0.001218	-0.000733
collagen-meat-protein-ratio_100g	-0.000393	-0.000253
cocoa_100g	-0.000900	-0.000579
carbon-footprint_100g	NaN	NaN
nutrition-score-fr_100g	0.001504	0.003122
nutrition-score-uk_100g	0.002453	0.003390
total3nutriments_100g	0.020801	0.006994

	arachidonic-acid_100g	\
additives_n	-0.002516	
ingredients_from_palm_oil_n	-0.000516	
ingredients_that_may_be_from_palm_oil_n	-0.000845	
energy_100g	0.000179	
energy-from-fat_100g	NaN	
fat_100g	0.004121	
saturated-fat_100g	0.004185	
caprylic-acid_100g	-0.000009	
capric-acid_100g	-0.000012	
lauric-acid_100g	-0.000012	
myristic-acid_100g	-0.000009	
palmitic-acid_100g	-0.000009	
stearic-acid_100g	-0.000009	
arachidic-acid_100g	-0.000022	
behenic-acid_100g	-0.000022	
montanic-acid_100g	-0.000009	
monounsaturated-fat_100g	-0.000621	
polyunsaturated-fat_100g	-0.000591	
omega-3-fat_100g	-0.000115	
alpha-linolenic-acid_100g	0.009260	
eicosapentaenoic-acid_100g	-0.000012	
docosahexaenoic-acid_100g	0.007040	
omega-6-fat_100g	-0.000075	
linoleic-acid_100g	0.115735	
arachidonic-acid_100g	0.000000	
gamma-linolenic-acid_100g	-0.000024	
dihomo-gamma-linolenic-acid_100g	-0.000023	
omega-9-fat_100g	-0.000033	
oleic-acid_100g	-0.000019	
gondoic-acid_100g	-0.000017	
trans-fat_100g	-0.000211	
cholesterol_100g	-0.000295	
carbohydrates_100g	0.005175	
sugars_100g	0.008552	
sucrose_100g	-0.000043	
glucose_100g	-0.000017	
fructose_100g	-0.000033	
lactose_100g	0.486870	
maltose_100g	-0.000015	
maltdextrins_100g	0.211730	
starch_100g	-0.000182	
polyols_100g	-0.000137	
fiber_100g	-0.000799	
proteins_100g	0.002182	
casein_100g	0.374093	
serum-proteins_100g	0.351522	
nucleotides_100g	0.353503	
salt_100g	-0.000701	
sodium_100g	-0.000690	
alcohol_100g	-0.000301	
vitamin-a_100g	0.000007	
beta-carotene_100g	-0.000010	
vitamin-d_100g	0.000294	
vitamin-e_100g	0.000547	
vitamin-k_100g	-0.000007	
vitamin-c_100g	0.000492	
vitamin-b1_100g	-0.000131	
vitamin-b2_100g	-0.000156	
vitamin-pp_100g	0.000084	
vitamin-b6_100g	0.000905	
vitamin-b9_100g	-0.000006	
folates_100g	-0.000016	
vitamin-b12_100g	-0.000007	
biotin_100g	-0.000019	
pantothenic-acid_100g	0.000052	
silica_100g	-0.000015	
bicarbonate_100g	-0.000035	

potassium_100g	0.007666
chloride_100g	0.261253
calcium_100g	0.003346
phosphorus_100g	0.012546
iron_100g	0.000083
magnesium_100g	0.001017
zinc_100g	0.001499
copper_100g	0.000002
manganese_100g	0.000166
fluoride_100g	0.025525
selenium_100g	-0.000003
chromium_100g	-0.000010
molybdenum_100g	-0.000010
iodine_100g	0.007928
caffeine_100g	-0.000018
taurine_100g	0.065826
ph_100g	-0.000050
fruits-vegetables-nuts_100g	-0.000314
collagen-meat-protein-ratio_100g	-0.000101
cocoa_100g	-0.000232
carbon-footprint_100g	NaN
nutrition-score-fr_100g	0.005229
nutrition-score-uk_100g	0.005191
total3nutriments_100g	0.006468
gamma-linolenic-acid_100g	\
additives_n	-0.003372
ingredients_from_palm_oil_n	-0.000683
ingredients_that_may_be_from_palm_oil_n	-0.001118
energy_100g	0.000300
energy-from-fat_100g	NaN
fat_100g	-0.000707
saturated-fat_100g	-0.002364
caprylic-acid_100g	-0.000011
capric-acid_100g	-0.000015
lauric-acid_100g	-0.000015
myristic-acid_100g	-0.000011
palmitic-acid_100g	-0.000011
stearic-acid_100g	-0.000011
arachidic-acid_100g	0.881395
behenic-acid_100g	0.877513
montanic-acid_100g	-0.000011
monounsaturated-fat_100g	0.005054
polyunsaturated-fat_100g	0.002227
omega-3-fat_100g	-0.000143
alpha-linolenic-acid_100g	0.013442
eicosapentaenoic-acid_100g	0.216510
docosahexaenoic-acid_100g	0.596488
omega-6-fat_100g	-0.000093
linoleic-acid_100g	0.043201
arachidonic-acid_100g	-0.000024
gamma-linolenic-acid_100g	0.000000
dihomo-gamma-linolenic-acid_100g	0.976853
omega-9-fat_100g	0.068849
oleic-acid_100g	-0.000023
gondoic-acid_100g	0.784582
trans-fat_100g	-0.000263
cholesterol_100g	-0.000369
carbohydrates_100g	-0.004757
sugars_100g	-0.003477
sucrose_100g	-0.000054
glucose_100g	-0.000021
fructose_100g	-0.000042
lactose_100g	-0.000065
maltose_100g	-0.000018
maltdextrins_100g	-0.000030
starch_100g	-0.000128
polyols_100g	-0.000171
fiber_100g	-0.002560
proteins_100g	-0.004096
casein_100g	-0.000044
serum-proteins_100g	-0.000030
nucleotides_100g	-0.000027
salt_100g	-0.001236
sodium_100g	-0.001215
alcohol_100g	-0.000376
vitamin-a_100g	-0.000019
beta-carotene_100g	-0.000012
vitamin-d_100g	-0.000017
vitamin-e_100g	0.000657
vitamin-k_100g	-0.000011
vitamin-c_100g	-0.000016
vitamin-b1_100g	-0.000168
vitamin-b2_100g	-0.000210
vitamin-pp_100g	0.327383
vitamin-b6_100g	-0.000016
vitamin-b9_100g	-0.000019
folates_100g	-0.000020
vitamin-b12_100g	-0.000013
biotin_100g	0.617859
pantothenic-acid_100g	0.150906
silica_100g	-0.000019
bicarbonate_100g	-0.000044
potassium_100g	-0.000471
chloride_100g	-0.000066
calcium_100g	-0.000604
phosphorus_100g	-0.000466
iron_100g	-0.000069
magnesium_100g	-0.000095
zinc_100g	-0.000056
copper_100g	-0.000015
manganese_100g	-0.000042
fluoride_100g	-0.000017
selenium_100g	-0.000011
chromium_100g	-0.000012
molybdenum_100g	-0.000013
iodine_100g	-0.000050

caffeine_100g	-0.000022
taurine_100g	-0.000034
ph_100g	-0.000062
fruits-vegetables-nuts_100g	-0.000393
collagen-meat-protein-ratio_100g	-0.000127
cocoa_100g	-0.000290
carbon-footprint_100g	NaN
nutrition-score-fr_100g	-0.001969
nutrition-score-uk_100g	-0.001878
total3nutriments_100g	-0.005026
	dihomo-gamma-linolenic-acid_100g \
additives_n	-0.003372
ingredients_from_palm_oil_n	-0.000683
ingredients_that_may_be_from_palm_oil_n	-0.001118
energy_100g	0.000131
energy-from-fat_100g	NaN
fat_100g	-0.003166
saturated-fat_100g	-0.002732
caprylic-acid_100g	-0.000010
capric-acid_100g	-0.000015
lauric-acid_100g	-0.000015
myristic-acid_100g	-0.000010
palmitic-acid_100g	-0.000010
stearic-acid_100g	-0.000010
arachidic-acid_100g	0.902177
behenic-acid_100g	0.898194
montanic-acid_100g	-0.000010
monounsaturated-fat_100g	-0.000733
polyunsaturated-fat_100g	-0.000698
omega-3-fat_100g	-0.000135
alpha-linolenic-acid_100g	-0.000033
eicosapentaenoic-acid_100g	0.007594
docosahexaenoic-acid_100g	0.605871
omega-6-fat_100g	-0.000088
linoleic-acid_100g	-0.000057
arachidonic-acid_100g	-0.000023
gamma-linolenic-acid_100g	0.976853
dihomo-gamma-linolenic-acid_100g	0.000000
omega-9-fat_100g	-0.000039
oleic-acid_100g	-0.000022
gondoic-acid_100g	0.803478
trans-fat_100g	-0.000249
cholesterol_100g	-0.000348
carbohydrates_100g	-0.004492
sugars_100g	-0.003284
sucrose_100g	-0.000051
glucose_100g	-0.000020
fructose_100g	-0.000039
lactose_100g	-0.000061
maltose_100g	-0.000017
maltodextrins_100g	-0.000029
starch_100g	-0.000121
polyols_100g	-0.000161
fiber_100g	-0.002417
proteins_100g	-0.003863
casein_100g	-0.000042
serum-proteins_100g	-0.000028
nucleotides_100g	-0.000025
salt_100g	-0.001167
sodium_100g	-0.001147
alcohol_100g	-0.000355
vitamin-a_100g	-0.000018
beta-carotene_100g	-0.000011
vitamin-d_100g	-0.000016
vitamin-e_100g	-0.000027
vitamin-k_100g	-0.000010
vitamin-c_100g	-0.000110
vitamin-b1_100g	-0.000159
vitamin-b2_100g	-0.000198
vitamin-pp_100g	0.334986
vitamin-b6_100g	-0.000015
vitamin-b9_100g	-0.000018
folates_100g	-0.000019
vitamin-b12_100g	-0.000012
biotin_100g	0.632523
pantothenic-acid_100g	0.154489
silica_100g	-0.000018
bicarbonate_100g	-0.000042
potassium_100g	-0.000445
chloride_100g	-0.000062
calcium_100g	-0.000570
phosphorus_100g	-0.000440
iron_100g	-0.000066
magnesium_100g	-0.000090
zinc_100g	-0.000053
copper_100g	-0.000014
manganese_100g	-0.000040
fluoride_100g	-0.000016
selenium_100g	-0.000010
chromium_100g	-0.000012
molybdenum_100g	-0.000012
iodine_100g	-0.000047
caffeine_100g	-0.000021
taurine_100g	-0.000032
ph_100g	-0.000059
fruits-vegetables-nuts_100g	-0.000371
collagen-meat-protein-ratio_100g	-0.000120
cocoa_100g	-0.000274
carbon-footprint_100g	NaN
nutrition-score-fr_100g	-0.002435
nutrition-score-uk_100g	-0.002342
total3nutriments_100g	-0.005861
	omega-9-fat_100g oleic-acid_100g \
additives_n	-0.001150 -0.002245
ingredients_from_palm_oil_n	0.002172 -0.000364

ingredients_that_may_be_from_palm_oil_n	0.005416	-0.000917
energy_100g	0.000190	0.000045
energy-from-fat_100g	NaN	NaN
fat_100g	0.039436	0.019869
saturated-fat_100g	0.010110	0.003937
caprylic-acid_100g	-0.000015	0.059723
capric-acid_100g	-0.000021	0.043328
lauric-acid_100g	-0.000021	0.043573
myristic-acid_100g	-0.000015	0.059723
palmitic-acid_100g	-0.000015	0.059723
stearic-acid_100g	-0.000015	0.059723
arachidic-acid_100g	-0.000038	-0.000021
behenic-acid_100g	-0.000038	-0.000021
montanic-acid_100g	-0.000015	-0.000008
monounsaturated-fat_100g	0.072608	0.038493
polyunsaturated-fat_100g	0.047441	0.031701
omega-3-fat_100g	0.049603	0.034160
alpha-linolenic-acid_100g	0.022571	0.103516
eicosapentaenoic-acid_100g	0.314781	-0.000012
docosahexaenoic-acid_100g	0.006960	-0.000033
omega-6-fat_100g	0.210429	0.100437
linoleic-acid_100g	0.081648	0.051360
arachidonic-acid_100g	-0.000033	-0.000019
gamma-linolenic-acid_100g	0.068849	-0.000023
dihomo-gamma-linolenic-acid_100g	-0.000039	-0.000022
omega-9-fat_100g	0.000000	0.000480
oleic-acid_100g	0.000480	0.000000
gondoic-acid_100g	-0.000038	-0.000017
trans-fat_100g	-0.000153	-0.000204
cholesterol_100g	-0.000509	-0.000285
carbohydrates_100g	-0.006206	-0.002508
sugars_100g	-0.004595	-0.002254
sucrose_100g	-0.000075	-0.000042
glucose_100g	-0.000029	-0.000016
fructose_100g	-0.000058	-0.000032
lactose_100g	0.003967	0.008527
maltose_100g	-0.000025	-0.000014
maltdextrins_100g	-0.000042	-0.000023
starch_100g	-0.000176	-0.000099
polyols_100g	-0.000236	-0.000132
fiber_100g	-0.003496	-0.001300
proteins_100g	-0.005516	-0.002539
casein_100g	-0.000061	-0.000034
serum-proteins_100g	-0.000042	-0.000023
nucleotides_100g	-0.000037	-0.000021
salt_100g	-0.001598	-0.000756
sodium_100g	-0.001572	-0.000744
alcohol_100g	-0.000519	-0.000291
vitamin-a_100g	-0.000025	-0.000011
beta-carotene_100g	-0.000017	-0.000009
vitamin-d_100g	-0.000011	0.000040
vitamin-e_100g	0.002981	0.001424
vitamin-k_100g	-0.000015	-0.000008
vitamin-c_100g	-0.000144	-0.000058
vitamin-b1_100g	-0.000231	-0.000129
vitamin-b2_100g	-0.000289	-0.000161
vitamin-pp_100g	-0.000071	-0.000027
vitamin-b6_100g	-0.000022	-0.000012
vitamin-b9_100g	-0.000025	0.000050
folates_100g	-0.000027	-0.000015
vitamin-b12_100g	-0.000017	-0.000009
biotin_100g	-0.000036	-0.000020
pantothenic-acid_100g	-0.000027	-0.000007
silica_100g	-0.000026	-0.000014
bicarbonate_100g	-0.000061	-0.000034
potassium_100g	-0.000462	0.000231
chloride_100g	0.011105	0.017854
calcium_100g	-0.000749	-0.000037
phosphorus_100g	-0.000151	0.001580
iron_100g	-0.000090	-0.000042
magnesium_100g	-0.000050	0.000040
zinc_100g	-0.000032	0.000061
copper_100g	-0.000020	-0.000011
manganese_100g	-0.000057	0.008018
fluoride_100g	-0.000024	-0.000013
.selenium_100g	-0.000015	-0.000008
chromium_100g	-0.000017	-0.000009
molybdenum_100g	-0.000017	-0.000010
iodine_100g	0.000159	0.000489
caffeine_100g	-0.000031	-0.000017
taurine_100g	-0.000047	-0.000026
ph_100g	-0.000086	-0.000048
fruits-vegetables-nuts_100g	-0.000542	-0.000304
collagen-meat-protein-ratio_100g	-0.000175	-0.000098
cocoa_100g	-0.000400	-0.000225
carbon-footprint_100g	NAN	NaN
nutrition-score-fr_100g	-0.000999	0.002023
nutrition-score-uk_100g	-0.000900	0.004183
total3nutriments_100g	0.011422	0.006304
	gondoic-acid_100g	trans-fat_100g \
additives_n	-0.002009	0.012366
ingredients_from_palm_oil_n	-0.000522	-0.005659
ingredients_that_may_be_from_palm_oil_n	-0.000855	-0.005246
energy_100g	0.000223	-0.000062
energy-from-fat_100g	NAN	0.003193
fat_100g	-0.002421	0.046008
saturated-fat_100g	-0.002088	0.024879
caprylic-acid_100g	-0.000008	-0.000096
capric-acid_100g	-0.000011	-0.000135
lauric-acid_100g	-0.000011	-0.000135
myristic-acid_100g	-0.000008	-0.000096
palmitic-acid_100g	-0.000008	-0.000096
stearic-acid_100g	-0.000008	-0.000096
arachidic-acid_100g	0.550957	-0.000241
behenic-acid_100g	0.545224	-0.000240
montanic-acid_100g	-0.000008	-0.000096

monounsaturated-fat_100g	-0.000560	0.014731
polyunsaturated-fat_100g	-0.000534	0.012905
omega-3-fat_100g	-0.000103	-0.000555
alpha-linolenic-acid_100g	-0.000025	0.000249
eicosapentaenoic-acid_100g	0.006800	-0.000126
docosahexaenoic-acid_100g	0.500668	-0.000323
omega-6-fat_100g	-0.000067	0.000110
linoleic-acid_100g	-0.000043	0.002935
arachidonic-acid_100g	-0.000017	-0.000211
gamma-linolenic-acid_100g	0.784582	-0.000263
dihomo-gamma-linolenic-acid_100g	0.803478	-0.000249
omega-9-fat_100g	-0.000030	-0.000153
oleic-acid_100g	-0.000017	-0.000204
gondoic-acid_100g	0.000000	-0.000190
trans-fat_100g	-0.000190	0.000000
cholesterol_100g	-0.000266	0.002640
carbohydrates_100g	-0.003435	0.024479
sugars_100g	-0.002511	0.010207
sucrose_100g	-0.000039	-0.000476
glucose_100g	-0.000015	-0.000186
fructose_100g	-0.000030	-0.000366
lactose_100g	-0.000047	-0.000452
maltose_100g	-0.000013	-0.000161
maltdextrins_100g	-0.000022	-0.000265
starch_100g	-0.000092	-0.001120
polyols_100g	-0.000123	-0.001497
fiber_100g	-0.001848	0.010513
proteins_100g	-0.002925	0.000709
casein_100g	-0.000032	-0.000390
serum-proteins_100g	-0.000022	-0.000264
nucleotides_100g	-0.000019	-0.000233
salt_100g	-0.000892	0.002048
sodium_100g	-0.000877	0.001952
alcohol_100g	-0.000272	-0.003295
vitamin-a_100g	-0.000013	-0.000052
beta-carotene_100g	-0.000009	-0.000106
vitamin-d_100g	-0.000013	-0.000121
vitamin-e_100g	-0.000021	-0.000214
vitamin-k_100g	-0.000008	-0.000096
vitamin-c_100g	-0.000084	-0.000714
vitamin-b1_100g	-0.000121	-0.001892
vitamin-b2_100g	-0.000151	-0.001436
vitamin-pp_100g	0.172943	-0.000453
vitamin-b6_100g	-0.000012	-0.000142
vitamin-b9_100g	-0.000014	-0.000162
folates_100g	-0.000014	-0.000172
vitamin-b12_100g	-0.000009	-0.000111
biotin_100g	0.325944	-0.000228
pantothenic-acid_100g	0.079605	-0.000203
silica_100g	-0.000013	-0.000163
bicarbonate_100g	-0.000032	-0.000388
potassium_100g	-0.000340	-0.002361
chloride_100g	-0.000047	-0.000574
calcium_100g	-0.000436	0.002170
phosphorus_100g	-0.000336	-0.002641
iron_100g	-0.000050	0.004609
magnesium_100g	-0.000069	-0.000486
zinc_100g	-0.000041	-0.000235
copper_100g	-0.000011	-0.000129
manganese_100g	-0.000030	-0.000370
fluoride_100g	-0.000012	-0.000150
selenium_100g	-0.000008	-0.000097
chromium_100g	-0.000009	-0.000107
molybdenum_100g	-0.000009	-0.000110
iodine_100g	-0.000036	-0.000436
caffeine_100g	-0.000016	-0.000196
taurine_100g	-0.000024	-0.000296
ph_100g	-0.000045	-0.000546
fruits-vegetables-nuts_100g	-0.000283	-0.003439
collagen-meat-protein-ratio_100g	-0.000091	-0.001109
cocoa_100g	-0.000209	-0.002439
carbon-footprint_100g	NaN	NaN
nutrition-score-fr_100g	-0.002709	0.004086
nutrition-score-uk_100g	-0.002622	0.004661
total3nutriments_100g	-0.004475	0.040337
cholesterol_100g carbohydrates_100g \		
additives_n	0.007918	0.028031
ingredients_from_palm_oil_n	-0.007884	-0.046962
ingredients_that_may_be_from_palm_oil_n	-0.006535	-0.034238
energy_100g	-0.000177	-0.001187
energy-from-fat_100g	0.017944	0.022670
fat_100g	0.046661	0.059648
saturated-fat_100g	0.062151	0.036164
caprylic-acid_100g	-0.000134	-0.001724
capric-acid_100g	-0.000189	-0.002438
lauric-acid_100g	-0.000189	-0.002439
myristic-acid_100g	-0.000134	-0.001724
palmitic-acid_100g	-0.000134	-0.001724
stearic-acid_100g	-0.000134	-0.001724
arachidic-acid_100g	-0.000037	-0.004352
behenic-acid_100g	-0.000036	-0.004337
montanic-acid_100g	-0.000134	-0.001724
monounsaturated-fat_100g	-0.000027	-0.024805
polyunsaturated-fat_100g	-0.003714	-0.006869
omega-3-fat_100g	-0.001642	-0.020013
alpha-linolenic-acid_100g	-0.0000427	-0.0004057
eicosapentaenoic-acid_100g	-0.000184	-0.002362
docosahexaenoic-acid_100g	-0.000519	-0.006498
omega-6-fat_100g	-0.001106	-0.014113
linoleic-acid_100g	-0.0000605	-0.004738
arachidonic-acid_100g	-0.000295	0.005175
gamma-linolenic-acid_100g	-0.000369	-0.004757
dihomo-gamma-linolenic-acid_100g	-0.000348	-0.004492
omega-9-fat_100g	-0.000509	-0.006206
oleic-acid_100g	-0.000285	-0.002508
gondoic-acid_100g	-0.000266	-0.003435

trans-fat_100g	0.002640	0.024479
cholesterol_100g	0.000000	-0.021701
carbohydrates_100g	-0.021701	0.000000
sugars_100g	-0.014831	0.646930
sucrose_100g	-0.000666	0.004623
glucose_100g	-0.000261	0.005234
fructose_100g	-0.000512	0.018491
lactose_100g	-0.000792	0.008211
maltose_100g	-0.000226	0.003882
maltdextrins_100g	-0.000371	0.006299
starch_100g	-0.001557	0.031288
polyols_100g	-0.002084	0.054677
fiber_100g	-0.020006	0.282261
proteins_100g	0.076944	0.032384
casein_100g	-0.000545	0.008555
serum-proteins_100g	-0.000369	0.005329
nucleotides_100g	-0.000326	0.005491
salt_100g	0.002771	-0.030991
sodium_100g	0.002638	-0.030589
alcohol_100g	-0.004610	-0.057959
vitamin-a_100g	-0.000024	-0.001457
beta-carotene_100g	-0.000149	-0.001574
vitamin-d_100g	-0.000152	-0.001196
vitamin-e_100g	-0.000340	-0.001688
vitamin-k_100g	-0.000134	0.000997
vitamin-c_100g	-0.001115	0.001694
vitamin-b1_100g	-0.001418	0.036651
vitamin-b2_100g	-0.000970	0.038511
vitamin-pp_100g	-0.000619	0.007775
vitamin-b6_100g	-0.000199	0.005624
vitamin-b9_100g	-0.000228	-0.000770
folates_100g	-0.000240	0.005077
vitamin-b12_100g	-0.000153	-0.001373
biotin_100g	-0.000319	-0.004107
pantothenic-acid_100g	-0.000253	0.002197
silica_100g	-0.000228	0.002320
bicarbonate_100g	-0.000542	-0.006947
potassium_100g	-0.002671	0.035602
chloride_100g	-0.000803	0.010424
calcium_100g	0.027616	0.002244
phosphorus_100g	-0.001513	0.052711
iron_100g	0.000496	0.009001
magnesium_100g	-0.001089	0.006154
zinc_100g	-0.000555	0.009610
copper_100g	-0.000181	-0.001349
manganese_100g	0.000049	-0.000916
fluoride_100g	-0.000210	-0.002339
selenium_100g	-0.000133	0.002689
chromium_100g	-0.000149	0.002231
molybdenum_100g	-0.000153	-0.001688
iodine_100g	-0.000577	-0.003873
caffeine_100g	-0.000275	-0.001186
taurine_100g	-0.000414	-0.002306
ph_100g	-0.000764	-0.009860
fruits-vegetables-nuts_100g	-0.004812	-0.009205
collagen-meat-protein-ratio_100g	-0.001551	-0.019348
cocoa_100g	-0.000259	0.027019
carbon-footprint_100g	0.068144	0.068211
nutrition-score-fr_100g	-0.000372	0.019623
nutrition-score-uk_100g	0.000220	0.023338
total3nutriments_100g	0.020191	0.836193

	sugars_100g	sucrose_100g	\
additives_n	0.007481	0.000186	
ingredients_from_palm_oil_n	-0.027115	0.003605	
ingredients_that_may_be_from_palm_oil_n	-0.017911	0.002911	
energy_100g	-0.001038	-0.000375	
energy-from-fat_100g	-0.006770	NaN	
fat_100g	0.012500	0.001540	
saturated-fat_100g	0.119244	-0.004876	
caprylic-acid_100g	-0.001260	-0.000020	
capric-acid_100g	-0.001782	-0.000028	
lauric-acid_100g	-0.001782	-0.000028	
myristic-acid_100g	-0.001260	-0.000020	
palmitic-acid_100g	-0.001260	-0.000020	
stearic-acid_100g	-0.001260	-0.000020	
arachidic-acid_100g	-0.003181	-0.000050	
behenic-acid_100g	-0.003170	-0.000050	
montanic-acid_100g	-0.001260	-0.000020	
monounsaturated-fat_100g	-0.050928	-0.001403	
polyunsaturated-fat_100g	-0.047310	-0.001336	
omega-3-fat_100g	-0.015406	-0.000259	
alpha-linolenic-acid_100g	-0.003147	-0.000059	
eicosapentaenoic-acid_100g	-0.001724	-0.000027	
docosahexaenoic-acid_100g	-0.004725	-0.000077	
omega-6-fat_100g	-0.010440	-0.000168	
linoleic-acid_100g	-0.002473	-0.000039	
arachidonic-acid_100g	0.008552	-0.000043	
gamma-linolenic-acid_100g	-0.003477	-0.000054	
dihomo-gamma-linolenic-acid_100g	-0.003284	-0.000051	
omega-9-fat_100g	-0.004595	-0.000075	
oleic-acid_100g	-0.002254	-0.000042	
gondoic-acid_100g	-0.002511	-0.000039	
trans-fat_100g	0.010207	-0.000476	
cholesterol_100g	-0.014831	-0.000666	
carbohydrates_100g	0.646930	0.004623	
sugars_100g	0.000000	0.000666	
sucrose_100g	0.000666	0.000000	
glucose_100g	0.005094	0.003051	
fructose_100g	0.011950	0.004986	
lactose_100g	0.012821	0.001213	
maltose_100g	0.007433	0.000824	
maltdextrins_100g	0.006363	-0.000055	
starch_100g	-0.000203	-0.000231	
polyols_100g	-0.018380	-0.000309	
fiber_100g	0.037827	-0.003868	
proteins_100g	-0.135476	-0.002248	

casein_100g	0.011576	0.000435
serum-proteins_100g	0.008831	0.000293
nucleotides_100g	0.005344	-0.000048
salt_100g	-0.062660	-0.002145
sodium_100g	-0.061455	-0.002109
alcohol_100g	-0.042916	-0.000680
vitamin-a_100g	-0.001469	-0.000034
beta-carotene_100g	-0.001222	-0.000022
vitamin-d_100g	-0.001129	-0.000031
vitamin-e_100g	-0.001150	-0.000022
vitamin-k_100g	-0.001054	-0.000020
vitamin-c_100g	0.000782	-0.000178
vitamin-b1_100g	0.002535	-0.000303
vitamin-b2_100g	0.003268	-0.000379
vitamin-pp_100g	0.002662	-0.000079
vitamin-b6_100g	0.002441	-0.000029
vitamin-b9_100g	-0.000568	-0.000032
folates_100g	0.000961	-0.000035
vitamin-b12_100g	-0.001286	-0.000023
biotin_100g	-0.003005	-0.000046
pantothenic-acid_100g	0.000669	-0.000034
silica_100g	0.005532	-0.000034
bicarbonate_100g	-0.005116	-0.000080
potassium_100g	0.004348	-0.000844
chloride_100g	0.010878	0.000101
calcium_100g	-0.010486	-0.001069
phosphorus_100g	-0.000968	-0.000821
iron_100g	-0.000835	0.000641
magnesium_100g	0.000796	-0.000171
zinc_100g	0.000799	-0.000100
copper_100g	-0.001620	-0.000027
manganese_100g	-0.001664	-0.000076
fluoride_100g	-0.001644	-0.000031
selenium_100g	-0.000548	-0.000020
chromium_100g	-0.001310	-0.000022
molybdenum_100g	-0.001154	-0.000023
iodine_100g	-0.004887	-0.000082
caffeine_100g	0.000394	-0.000041
taurine_100g	-0.000295	-0.000061
ph_100g	-0.007207	-0.000113
fruits-vegetables-nuts_100g	0.024531	-0.000709
collagen-meat-protein-ratio_100g	-0.014268	-0.000229
cocoa_100g	0.055398	-0.000524
carbon-footprint_100g	0.094985	NaN
nutrition-score-fr_100g	0.011150	-0.002024
nutrition-score-uk_100g	0.013240	-0.003661
total3nutriments_100g	0.495205	0.003907
	glucose_100g	fructose_100g \
additives_n	-0.002497	0.003032
ingredients_from_palm_oil_n	-0.000496	-0.000636
ingredients_that_may_be_from_palm_oil_n	0.004891	0.006066
energy_100g	0.000027	-0.000105
energy-from-fat_100g		NaN
fat_100g	-0.002295	-0.003072
saturated-fat_100g	-0.001993	-0.002149
caprylic-acid_100g	-0.000008	-0.000015
capric-acid_100g	-0.000011	-0.000021
lauric-acid_100g	-0.000011	-0.000021
myristic-acid_100g	-0.000008	-0.000015
palmitic-acid_100g	-0.000008	-0.000015
stearic-acid_100g	-0.000008	-0.000015
arachidic-acid_100g	-0.000019	-0.000038
behenic-acid_100g	-0.000019	-0.000038
montanic-acid_100g	-0.000008	-0.000015
monounsaturated-fat_100g	-0.000537	-0.001077
polyunsaturated-fat_100g	-0.000514	-0.001026
omega-3-fat_100g	-0.000099	-0.000199
alpha-linolenic-acid_100g	-0.000021	-0.000049
eicosapentaenoic-acid_100g	-0.000011	-0.000021
docosahexaenoic-acid_100g	-0.000030	-0.000059
omega-6-fat_100g	-0.000065	-0.000129
linoleic-acid_100g	-0.000042	-0.000083
arachidonic-acid_100g	-0.000017	-0.000033
gamma-linolenic-acid_100g	-0.000021	-0.000042
dihomo-gamma-linolenic-acid_100g	-0.000020	-0.000039
omega-9-fat_100g	-0.000029	-0.000058
oleic-acid_100g	-0.000016	-0.000032
gondoic-acid_100g	-0.000015	-0.000030
trans-fat_100g	-0.000186	-0.000366
cholesterol_100g	-0.000261	-0.000512
carbohydrates_100g	0.005234	0.010491
sugars_100g	0.005094	0.011950
sucrose_100g	0.003051	0.004986
glucose_100g	0.000000	0.011161
fructose_100g	0.011161	0.000000
lactose_100g	0.003804	0.000667
maltose_100g	0.005626	0.013587
maltdextrins_100g	-0.000021	-0.000042
starch_100g	-0.000076	0.000852
polyols_100g	0.004734	-0.000006
fiber_100g	-0.001642	0.000502
proteins_100g	-0.002442	-0.004889
casein_100g	0.000067	-0.000046
serum-proteins_100g	-0.000021	-0.000042
nucleotides_100g	-0.000019	-0.000037
salt_100g	-0.000829	-0.001657
sodium_100g	-0.000815	-0.001629
alcohol_100g	-0.000266	-0.000522
vitamin-a_100g	-0.000011	-0.000025
beta-carotene_100g	0.000012	-0.000017
vitamin-d_100g	-0.000011	-0.000024
vitamin-e_100g	0.000022	0.000050
vitamin-k_100g	-0.000008	-0.000015
vitamin-c_100g	-0.000031	-0.000042
vitamin-b1_100g	-0.000018	-0.000233
vitamin-b2_100g	-0.000148	-0.000291

vitamin-pp_100g	-0.000013	-0.000074
vitamin-b6_100g	-0.000011	-0.000022
vitamin-b9_100g	-0.000012	-0.000026
folates_100g	-0.000014	-0.000027
vitamin-b12_100g	-0.000009	-0.000017
biotin_100g	-0.000017	-0.000036
pantothenic-acid_100g	-0.000007	-0.000030
silica_100g	-0.000013	-0.000026
bicarbonate_100g	-0.000031	-0.000061
potassium_100g	0.000264	-0.000626
chloride_100g	-0.000046	-0.000091
calcium_100g	-0.000314	-0.000818
phosphorus_100g	0.000625	-0.000423
iron_100g	-0.000039	-0.000086
magnesium_100g	0.000300	-0.000073
zinc_100g	-0.000037	-0.000078
copper_100g	-0.000010	-0.000021
manganese_100g	-0.000030	-0.000059
fluoride_100g	-0.000012	-0.000024
selenium_100g	-0.000008	-0.000015
chromium_100g	-0.000009	-0.000017
molybdenum_100g	-0.000009	-0.000017
iodine_100g	-0.000022	-0.000069
caffeine_100g	-0.000016	-0.000031
taurine_100g	-0.000024	-0.000047
ph_100g	-0.000044	-0.000087
fruits-vegetables-nuts_100g	-0.000277	0.009766
collagen-meat-protein-ratio_100g	-0.000089	-0.000176
cocoa_100g	-0.000205	0.006944
carbon-footprint_100g		NaN
nutrition-score-fr_100g	-0.001304	0.000810
nutrition-score-uk_100g	-0.001245	0.001603
total3nutriments_100g	0.002643	0.005982

lactose_100g	maltose_100g	\
additives_n	-2.271548e-03	-2.269199e-03
ingredients_from_palm_oil_n	5.579945e-03	-4.428714e-04
ingredients_that_may_be_from_palm_oil_n	-1.793657e-03	-7.253788e-04
energy_100g	9.134557e-05	-3.652792e-04
energy-from-fat_100g		NaN
fat_100g	5.750980e-03	-2.028694e-03
saturated-fat_100g	5.473177e-03	-1.649810e-03
caprylic-acid_100g	-2.341926e-05	-6.676302e-06
capric-acid_100g	-3.310829e-05	-9.438424e-06
lauric-acid_100g	-3.311796e-05	-9.441183e-06
myristic-acid_100g	-2.341926e-05	-6.676302e-06
palmitic-acid_100g	-2.341926e-05	-6.676302e-06
stearic-acid_100g	-2.341926e-05	-6.676302e-06
arachidic-acid_100g	-5.910523e-05	-1.684956e-05
behenic-acid_100g	-5.890306e-05	-1.679193e-05
montanic-acid_100g	-2.341926e-05	-6.676302e-06
monounsaturated-fat_100g	-2.616621e-04	-4.750299e-04
polyunsaturated-fat_100g	-1.531449e-03	-4.525136e-04
omega-3-fat_100g	1.225804e-03	-8.666839e-05
alpha-linolenic-acid_100g	1.565823e-02	-2.142637e-05
eicosapentaenoic-acid_100g	-3.226114e-05	-9.196922e-06
docosahexaenoic-acid_100g	4.366625e-03	-2.595345e-05
omega-6-fat_100g	2.723984e-03	-5.648936e-05
linoleic-acid_100g	1.779724e-01	-3.677663e-05
arachidonic-acid_100g	4.868700e-01	-1.473556e-05
gamma-linolenic-acid_100g	-6.460794e-05	-1.841826e-05
dihomo-gamma-linolenic-acid_100g	-6.100985e-05	-1.739253e-05
omega-9-fat_100g	3.967269e-03	-2.540924e-05
oleic-acid_100g	8.527188e-03	-1.425688e-05
gondoic-acid_100g	-4.664538e-05	-1.329754e-05
trans-fat_100g	-4.522073e-04	-1.613646e-04
cholesterol_100g	-7.919817e-04	-2.257761e-04
carbohydrates_100g	8.211039e-03	3.882238e-03
sugars_100g	1.282129e-02	7.432914e-03
sucrose_100g	1.212713e-03	8.240111e-04
glucose_100g	3.804493e-03	6.056263e-01
fructose_100g	6.672500e-04	1.358716e-02
lactose_100g	0.000000e+00	1.949591e-02
maltose_100g	1.949591e-02	0.000000e+00
maltodextrins_100g	4.821143e-01	-1.851259e-05
starch_100g	1.459638e-02	-7.831945e-05
polysols_100g	-3.670454e-04	1.389268e-02
fiber_100g	-2.512697e-03	-6.020167e-04
proteins_100g	6.136201e-03	-1.705288e-03
casein_100g	6.957406e-01	3.138641e-05
serum-proteins_100g	5.168011e-01	-1.845257e-05
nucleotides_100g	3.332719e-01	-1.627257e-05
salt_100g	-2.025332e-03	-6.464293e-04
sodium_100g	-1.993799e-03	-6.359320e-04
alcohol_100g	-8.079561e-04	-2.303300e-04
vitamin-a_100g	2.468140e-05	2.146568e-08
beta-carotene_100g	7.328121e-05	-7.431404e-06
vitamin-d_100g	1.011727e-03	-1.062338e-05
vitamin-e_100g	1.629785e-03	2.497300e-04
vitamin-k_100g	-2.011398e-05	-6.705124e-06
vitamin-c_100g	1.421005e-03	1.165820e-04
vitamin-b1_100g	-3.498515e-04	-1.006295e-04
vitamin-b2_100g	-4.180658e-04	-1.239132e-04
vitamin-pp_100g	3.460400e-04	1.477293e-04
vitamin-b6_100g	6.070432e-04	-4.619158e-06
vitamin-b9_100g	2.774485e-06	-1.333006e-06
folates_100g	-4.219695e-05	-1.202940e-05
vitamin-b12_100g	-1.556484e-05	-5.360724e-06
biotin_100g	-4.656113e-05	-1.387224e-05
pantothenic-acid_100g	2.217336e-04	4.589607e-05
silica_100g	-3.989686e-05	-1.137369e-05
bicarbonate_100g	-9.504981e-05	-2.709655e-05
potassium_100g	1.409450e-02	1.424883e-03
chloride_100g	7.050526e-01	-4.013863e-05
calcium_100g	1.019034e-02	1.702621e-04
phosphorus_100g	3.979318e-02	5.790591e-03
iron_100g	2.781700e-04	-4.250999e-05

magnesium_100g	2.113496e-03	1.779228e-03
zinc_100g	3.541507e-03	-3.452033e-05
copper_100g	5.496639e-07	-9.051723e-06
manganese_100g	1.450863e-04	-2.586529e-05
fluoride_100g	1.398044e-02	-1.049010e-05
selenium_100g	-1.083252e-05	-6.796538e-06
chromium_100g	-2.467522e-05	-7.470901e-06
molybdenum_100g	-2.298296e-05	-7.713616e-06
iodine_100g	1.673552e-02	-3.045249e-05
caffeine_100g	-4.738943e-05	-1.373503e-05
taurine_100g	7.679316e-02	-2.065950e-05
ph_100g	-1.339065e-04	-3.817371e-05
fruits-vegetables-nuts_100g	-8.433156e-04	-2.404102e-04
collagen-meat-protein-ratio_100g	-2.718763e-04	-7.750579e-05
cocoa_100g	1.844676e-03	-1.776632e-04
carbon-footprint_100g	NaN	NaN
nutrition-score-fr_100g	3.673376e-03	-3.608830e-03
nutrition-score-uk_100g	2.594934e-03	-3.524142e-03
total3nutriments_100g	1.049462e-02	1.838067e-03
	maltodextrins_100g starch_100g \	
additives_n	-0.001251	-0.006198
ingredients_from_palm_oil_n	-0.000518	-0.002736
ingredients_that_may_be_from_palm_oil_n	-0.000849	-0.003529
energy_100g	-0.000293	-0.000137
energy-from-fat_100g	NaN	NaN
fat_100g	0.000406	-0.001398
saturated-fat_100g	0.002403	-0.003333
caprylic-acid_100g	-0.000011	-0.000046
capric-acid_100g	-0.000015	-0.000066
lauric-acid_100g	-0.000015	-0.000066
myristic-acid_100g	-0.000011	-0.000046
palmitic-acid_100g	-0.000011	-0.000046
stearic-acid_100g	-0.000011	-0.000046
arachidic-acid_100g	-0.000028	-0.000117
behenic-acid_100g	-0.000028	-0.000117
montanic-acid_100g	-0.000011	-0.000046
monounsaturated-fat_100g	-0.000780	0.000143
polyunsaturated-fat_100g	-0.000743	0.000609
omega-3-fat_100g	-0.000144	0.000216
alpha-linolenic-acid_100g	0.012755	-0.000037
eicosapentaenoic-acid_100g	-0.000015	-0.000064
docosahexaenoic-acid_100g	0.000866	-0.000180
omega-6-fat_100g	-0.000094	-0.000397
linoleic-acid_100g	0.125312	0.002313
arachidonic-acid_100g	0.211730	-0.000102
gamma-linolenic-acid_100g	-0.000030	-0.000128
dihomo-gamma-linolenic-acid_100g	-0.000029	-0.000121
omega-9-fat_100g	-0.000042	-0.000176
oleic-acid_100g	-0.000023	-0.000099
gondoic-acid_100g	-0.000022	-0.000092
trans-fat_100g	-0.000265	-0.000120
cholesterol_100g	-0.000371	-0.001557
carbohydrates_100g	0.006299	0.031288
sugars_100g	0.006363	-0.000203
sucrose_100g	-0.000055	-0.000231
glucose_100g	-0.000021	-0.000076
fructose_100g	-0.000042	0.000852
lactose_100g	0.482114	0.014596
maltose_100g	-0.000019	-0.000078
maltdextrins_100g	0.000000	-0.000129
starch_100g	-0.000129	0.000000
polyols_100g	-0.000172	0.004803
fiber_100g	-0.002353	0.016717
proteins_100g	0.003854	0.008010
casein_100g	0.444842	0.011553
serum-proteins_100g	0.381618	-0.000128
nucleotides_100g	0.272876	-0.000113
salt_100g	-0.000826	-0.002045
sodium_100g	-0.000814	-0.002025
alcohol_100g	-0.000378	-0.001599
vitamin-a_100g	0.000025	-0.000078
beta-carotene_100g	-0.000012	-0.000052
vitamin-d_100g	0.000710	0.000026
vitamin-e_100g	0.001248	0.000124
vitamin-k_100g	-0.000008	-0.000046
vitamin-c_100g	0.000976	-0.000324
vitamin-b1_100g	-0.000161	-0.000704
vitamin-b2_100g	-0.000190	-0.000876
vitamin-pp_100g	0.000260	0.000351
vitamin-b6_100g	-0.000004	0.000268
vitamin-b9_100g	0.000015	-0.000043
folates_100g	-0.000020	-0.000084
vitamin-b12_100g	-0.000004	-0.000046
biotin_100g	-0.000022	-0.000110
pantothenic-acid_100g	0.000193	-0.000082
silica_100g	-0.000019	-0.000079
bicarbonate_100g	-0.000044	-0.000188
potassium_100g	0.010865	-0.001753
chloride_100g	0.483717	0.000113
calcium_100g	0.005809	-0.000842
phosphorus_100g	0.028954	-0.001520
iron_100g	0.000236	0.004836
magnesium_100g	0.001516	0.001306
zinc_100g	0.002293	-0.000186
copper_100g	0.000005	-0.000062
manganese_100g	0.000084	-0.000174
fluoride_100g	0.001547	-0.000069
selenium_100g	-0.000002	-0.000047
chromium_100g	-0.000012	-0.000052
molybdenum_100g	-0.000013	-0.000054
iodine_100g	0.009601	0.000089
caffeine_100g	-0.000023	-0.000095
taurine_100g	0.034357	0.000629
ph_100g	-0.000063	-0.000265
fruits-vegetables-nuts_100g	-0.000395	-0.001518
collagen-meat-protein-ratio_100g	-0.000127	-0.000538

cocoa_100g	-0.000292	-0.001047
carbon-footprint_100g	NaN	NaN
nutrition-score-fr_100g	-0.001693	-0.000016
nutrition-score-uk_100g	-0.001627	0.000156
total3nutriments_100g	0.007702	0.026231
	polyols_100g fiber_100g \	
additives_n	-0.003692	0.010671
ingredients_from_palm_oil_n	0.002446	-0.018723
ingredients_that_may_be_from_palm_oil_n	0.012491	-0.011644
energy_100g	-0.000252	-0.000423
energy-from-fat_100g	NaN	0.000384
fat_100g	-0.011732	0.142278
saturated-fat_100g	-0.006076	0.047954
caprylic-acid_100g	-0.000062	-0.000928
capric-acid_100g	-0.000088	-0.001312
lauric-acid_100g	-0.000088	-0.001312
myristic-acid_100g	-0.000062	-0.000928
palmitic-acid_100g	-0.000062	-0.000928
stearic-acid_100g	-0.000062	-0.000928
arachidic-acid_100g	-0.000156	-0.002342
behenic-acid_100g	-0.000156	-0.002334
montanic-acid_100g	-0.000062	-0.000928
monounsaturated-fat_100g	-0.003745	0.026780
polyunsaturated-fat_100g	-0.003979	0.048399
omega-3-fat_100g	-0.000406	0.009250
alpha-linolenic-acid_100g	-0.000199	0.001135
eicosapentaenoic-acid_100g	-0.000085	-0.001258
docosahexaenoic-acid_100g	-0.000241	-0.003462
omega-6-fat_100g	-0.000530	-0.006333
linoleic-acid_100g	-0.000224	-0.003707
arachidonic-acid_100g	-0.000137	-0.000799
gamma-linolenic-acid_100g	-0.000171	-0.002560
dihomo-gamma-linolenic-acid_100g	-0.000161	-0.002417
omega-9-fat_100g	-0.000236	-0.003496
oleic-acid_100g	-0.000132	-0.001300
gondoic-acid_100g	-0.000123	-0.001848
trans-fat_100g	-0.001497	0.010513
cholesterol_100g	-0.002084	-0.020006
carbohydrates_100g	0.054677	0.282261
sugars_100g	-0.018380	0.037827
sucrose_100g	-0.000309	-0.003868
glucose_100g	0.004734	-0.001642
fructose_100g	-0.000006	0.000502
lactose_100g	-0.000367	-0.002513
maltose_100g	0.013893	-0.000602
maltooligosaccharides_100g	-0.000172	-0.002353
starch_100g	0.004803	0.016717
polyols_100g	0.000000	-0.002460
fiber_100g	-0.002460	0.000000
proteins_100g	-0.016301	0.273154
casein_100g	-0.000253	-0.001804
serum-proteins_100g	-0.000171	0.000363
nucleotides_100g	-0.000151	0.000247
salt_100g	-0.006505	-0.015039
sodium_100g	-0.006396	-0.015180
alcohol_100g	-0.002137	-0.031895
vitamin-a_100g	-0.000105	-0.000401
beta-carotene_100g	-0.000069	-0.000949
vitamin-d_100g	-0.000098	-0.000609
vitamin-e_100g	-0.000120	0.005038
vitamin-k_100g	-0.000062	0.005397
vitamin-c_100g	0.000333	0.000340
vitamin-b1_100g	-0.000054	0.021618
vitamin-b2_100g	-0.001192	0.025599
vitamin-pp_100g	-0.000313	0.002019
vitamin-b6_100g	-0.000092	0.002518
vitamin-b9_100g	-0.000105	0.000439
folates_100g	-0.000112	0.007605
vitamin-b12_100g	-0.000072	-0.000946
biotin_100g	-0.000148	-0.002212
pantothenic-acid_100g	-0.000126	-0.000093
silica_100g	-0.000106	-0.001581
bicarbonate_100g	-0.000251	-0.003766
potassium_100g	-0.002345	0.070016
chloride_100g	-0.000372	-0.002672
calcium_100g	-0.003305	0.027735
phosphorus_100g	-0.002394	0.110067
iron_100g	-0.000379	0.012114
magnesium_100g	-0.000247	0.021250
zinc_100g	-0.000293	0.008703
copper_100g	-0.000084	-0.000254
manganese_100g	-0.000232	0.006486
fluoride_100g	-0.000097	-0.001456
selenium_100g	-0.000063	0.002667
chromium_100g	-0.000069	-0.001011
molybdenum_100g	-0.000072	-0.000956
iodine_100g	-0.000203	0.013556
caffeine_100g	-0.000127	-0.000159
taurine_100g	-0.000192	-0.002377
ph_100g	-0.000354	-0.005305
fruits-vegetables-nuts_100g	-0.001441	-0.009582
collagen-meat-protein-ratio_100g	-0.000719	-0.009710
cocoa_100g	0.009205	0.034177
carbon-footprint_100g	NaN	0.055909
nutrition-score-fr_100g	-0.003895	0.010204
nutrition-score-uk_100g	-0.004012	0.011648
total3nutriments_100g	0.035087	0.349589
	proteins_100g casein_100g \	
additives_n	0.012393	-0.000412
ingredients_from_palm_oil_n	-0.015443	-0.000949
ingredients_that_may_be_from_palm_oil_n	-0.008093	-0.001555
energy_100g	-0.000826	-0.000059
energy-from-fat_100g	0.027399	NaN
fat_100g	0.283016	0.005486
saturated-fat_100g	0.250414	0.005756

caprylic-acid_100g	-0.001506	-0.000016
capric-acid_100g	-0.002129	-0.000023
lauric-acid_100g	-0.002129	-0.000023
myristic-acid_100g	-0.001506	-0.000016
palmitic-acid_100g	-0.001506	-0.000016
stearic-acid_100g	-0.001506	-0.000016
arachidic-acid_100g	-0.003758	-0.000041
behenic-acid_100g	-0.003746	-0.000041
montanic-acid_100g	-0.001506	-0.000016
monounsaturated-fat_100g	0.003124	-0.001120
polyunsaturated-fat_100g	0.011728	-0.001074
omega-3-fat_100g	0.011254	-0.000191
alpha-linolenic-acid_100g	-0.002182	0.016557
eicosapentaenoic-acid_100g	-0.001118	-0.000022
docosahexaenoic-acid_100g	0.002357	0.000273
omega-6-fat_100g	-0.010294	-0.000125
linoleic-acid_100g	-0.004484	0.166846
arachidonic-acid_100g	0.002182	0.374093
gamma-linolenic-acid_100g	-0.004096	-0.000044
dihomo-gamma-linolenic-acid_100g	-0.003863	-0.000042
omega-9-fat_100g	-0.005516	-0.000061
oleic-acid_100g	-0.002539	-0.000034
gondoic-acid_100g	-0.002925	-0.000032
trans-fat_100g	0.000709	-0.000390
cholesterol_100g	0.076944	-0.000545
carbohydrates_100g	0.032384	0.008555
sugars_100g	-0.135476	0.011576
sucrose_100g	-0.002248	0.000435
glucose_100g	-0.002442	0.000067
fructose_100g	-0.004889	-0.000046
lactose_100g	0.006136	0.695741
maltose_100g	-0.001705	0.000031
maltdextrins_100g	0.003854	0.444842
starch_100g	0.008010	0.011553
polyols_100g	-0.016301	-0.000253
fiber_100g	0.273154	-0.001804
proteins_100g	0.000000	0.004729
casein_100g	0.004729	0.000000
serum-proteins_100g	0.002960	0.604148
nucleotides_100g	0.002846	0.437468
salt_100g	0.023406	-0.001264
sodium_100g	0.022304	-0.001245
alcohol_100g	-0.051648	-0.000556
vitamin-a_100g	0.004520	0.000032
beta-carotene_100g	-0.001061	-0.000018
vitamin-d_100g	-0.001288	0.001018
vitamin-e_100g	0.002309	0.001571
vitamin-k_100g	0.006940	-0.000013
vitamin-c_100g	-0.007978	0.001343
vitamin-b1_100g	0.015390	-0.000238
vitamin-b2_100g	0.017540	-0.000280
vitamin-pp_100g	0.001431	0.000341
vitamin-b6_100g	0.000507	0.000387
vitamin-b9_100g	-0.000693	0.000014
folates_100g	0.003519	-0.000029
vitamin-b12_100g	-0.001543	-0.000007
biotin_100g	-0.003556	-0.000033
pantothenic-acid_100g	-0.001640	0.000217
silica_100g	-0.002539	-0.000027
bicarbonate_100g	-0.005922	-0.000065
potassium_100g	0.031322	0.014088
chloride_100g	0.005971	0.681686
calcium_100g	0.117707	0.007628
phosphorus_100g	0.098993	0.037163
iron_100g	0.008338	0.000310
magnesium_100g	0.018407	0.001847
zinc_100g	0.003838	0.003526
copper_100g	-0.001473	0.000005
manganese_100g	0.007812	0.000147
fluoride_100g	-0.002139	0.015887
selenium_100g	0.000324	-0.000006
chromium_100g	0.000563	-0.000018
molybdenum_100g	-0.001533	-0.000019
iodine_100g	-0.002472	0.015359
caffeine_100g	-0.002642	-0.000033
taurine_100g	-0.003372	0.074251
ph_100g	-0.008610	-0.000092
fruits-vegetables-nuts_100g	-0.036616	-0.000580
collagen-meat-protein-ratio_100g	0.018339	-0.000187
cocoa_100g	0.006405	-0.000429
carbon-footprint_100g	-0.129010	NaN
nutrition-score-fr_100g	0.011213	0.000900
nutrition-score-uk_100g	0.011293	0.000149
total3nutriments_100g	0.370372	0.010345

serum-proteins_100g \	
additives_n	-0.001496
ingredients_from_palm_oil_n	-0.000676
ingredients_that_may_be_from_palm_oil_n	-0.001107
energy_100g	0.000079
energy-from-fat_100g	NaN
fat_100g	0.003569
saturated-fat_100g	0.003068
caprylic-acid_100g	-0.000011
capric-acid_100g	-0.000015
lauric-acid_100g	-0.000015
myristic-acid_100g	-0.000011
palmitic-acid_100g	-0.000011
stearic-acid_100g	-0.000011
arachidic-acid_100g	-0.000028
behenic-acid_100g	-0.000027
montanic-acid_100g	-0.000011
monounsaturated-fat_100g	-0.000778
polyunsaturated-fat_100g	-0.000741
omega-3-fat_100g	-0.000144
alpha-linolenic-acid_100g	0.010731
eicosapentaenoic-acid_100g	-0.000015

docosahexaenoic-acid_100g	0.004250
omega-6-fat_100g	-0.000094
linoleic-acid_100g	0.096795
arachidonic-acid_100g	0.351522
gamma-linolenic-acid_100g	-0.000030
dihomo-gamma-linolenic-acid_100g	-0.000028
omega-9-fat_100g	-0.000042
oleic-acid_100g	-0.000023
gondoic-acid_100g	-0.000022
trans-fat_100g	-0.000264
cholesterol_100g	-0.000369
carbohydrates_100g	0.005329
sugars_100g	0.008831
sucrose_100g	0.000293
glucose_100g	-0.000021
fructose_100g	-0.000042
lactose_100g	0.516801
maltose_100g	-0.000018
maltooligosaccharides_100g	0.381618
starch_100g	-0.000128
polyols_100g	-0.000171
fiber_100g	0.000363
proteins_100g	0.002960
casein_100g	0.604148
serum-proteins_100g	0.000000
nucleotides_100g	0.369120
salt_100g	0.002587
sodium_100g	0.002525
alcohol_100g	-0.000377
vitamin-a_100g	0.000019
beta-carotene_100g	-0.000012
vitamin-d_100g	0.000753
vitamin-e_100g	0.001012
vitamin-k_100g	-0.000009
vitamin-c_100g	0.000891
vitamin-b1_100g	-0.000162
vitamin-b2_100g	-0.000191
vitamin-pp_100g	0.000224
vitamin-b6_100g	0.001370
vitamin-b9_100g	0.000015
folates_100g	-0.000020
vitamin-b12_100g	-0.000005
biotin_100g	-0.000022
pantothenic-acid_100g	0.000153
silica_100g	-0.000019
bicarbonate_100g	-0.000044
potassium_100g	0.009559
chloride_100g	0.394644
calcium_100g	0.005172
phosphorus_100g	0.024831
iron_100g	0.000205
magnesium_100g	0.001161
zinc_100g	0.002092
copper_100g	0.000003
manganese_100g	0.000075
fluoride_100g	0.000582
selenium_100g	-0.000005
chromium_100g	-0.000012
molybdenum_100g	-0.000013
iodine_100g	0.009469
caffeine_100g	-0.000022
taurine_100g	0.048881
ph_100g	-0.000062
fruits-vegetables-nuts_100g	-0.000393
collagen-meat-protein-ratio_100g	-0.000127
cocoa_100g	-0.000291
carbon-footprint_100g	NaN
nutrition-score-fr_100g	-0.003699
nutrition-score-uk_100g	-0.003598
total3nutriments_100g	0.006516
	nucleotides_100g salt_100g \
additives_n	-0.000995 0.007074
ingredients_from_palm_oil_n	-0.000639 -0.012068
ingredients_that_may_be_from_palm_oil_n	-0.001046 -0.005667
energy_100g	-0.000158 -0.000928
energy-from-fat_100g	NAN -0.006285
fat_100g	0.004118 -0.022809
saturated-fat_100g	0.003718 -0.019323
caprylic-acid_100g	-0.000010 -0.000448
capric-acid_100g	-0.000014 -0.000633
lauric-acid_100g	-0.000014 -0.000633
myristic-acid_100g	-0.000010 -0.000448
palmitic-acid_100g	-0.000010 -0.000448
stearic-acid_100g	-0.000010 -0.000448
arachidic-acid_100g	-0.000024 -0.001131
behenic-acid_100g	-0.000024 -0.001127
montanic-acid_100g	-0.000010 -0.000448
monounsaturated-fat_100g	-0.000686 -0.014909
polyunsaturated-fat_100g	-0.000653 -0.011763
omega-3-fat_100g	-0.000127 -0.003402
alpha-linolenic-acid_100g	0.008610 -0.001213
eicosapentaenoic-acid_100g	-0.000013 -0.000508
docosahexaenoic-acid_100g	0.002103 -0.000887
omega-6-fat_100g	-0.000082 -0.003043
linoleic-acid_100g	0.091309 -0.001419
arachidonic-acid_100g	0.353503 -0.000701
gamma-linolenic-acid_100g	-0.000027 -0.001236
dihomo-gamma-linolenic-acid_100g	-0.000025 -0.001167
omega-9-fat_100g	-0.000037 -0.001598
oleic-acid_100g	-0.000021 -0.000756
gondoic-acid_100g	-0.000019 -0.000892
trans-fat_100g	-0.000233 0.002048
cholesterol_100g	-0.000326 0.002771
carbohydrates_100g	0.005491 -0.030991
sugars_100g	0.005344 -0.062660
sucrose_100g	-0.000048 -0.002145

glucose_100g	-0.000019	-0.000829
fructose_100g	-0.000037	-0.001657
lactose_100g	0.333272	-0.002025
maltose_100g	-0.000016	-0.000646
maltdextrins_100g	0.272876	-0.000826
starch_100g	-0.000113	-0.002045
polyols_100g	-0.000151	-0.006505
fiber_100g	0.000247	-0.015039
proteins_100g	0.002846	0.023406
casein_100g	0.437468	-0.001264
serum-proteins_100g	0.369120	0.002587
nucleotides_100g	0.000000	-0.000737
salt_100g	-0.000737	0.000000
sodium_100g	-0.000726	0.994259
alcohol_100g	-0.000332	-0.015207
vitamin-a_100g	0.000019	0.000488
beta-carotene_100g	-0.000011	-0.000476
vitamin-d_100g	0.000639	-0.000553
vitamin-e_100g	0.000926	-0.000836
vitamin-k_100g	-0.000007	0.000127
vitamin-c_100g	0.000800	0.004284
vitamin-b1_100g	-0.000144	-0.002531
vitamin-b2_100g	-0.000171	-0.002451
vitamin-pp_100g	0.094742	0.005502
vitamin-b6_100g	0.001199	0.000259
vitamin-b9_100g	0.000006	-0.000606
folates_100g	-0.000017	-0.000341
vitamin-b12_100g	-0.000004	-0.000296
biotin_100g	-0.000020	-0.001067
pantothenic-acid_100g	0.000120	-0.000481
silica_100g	-0.000016	-0.000214
bicarbonate_100g	-0.000039	-0.001705
potassium_100g	0.009185	0.014069
chloride_100g	0.433959	-0.001941
calcium_100g	0.004535	0.008708
phosphorus_100g	0.020149	-0.005984
iron_100g	0.000167	0.003422
magnesium_100g	0.001018	0.000302
zinc_100g	0.002156	-0.001057
copper_100g	0.000003	-0.000482
manganese_100g	0.000063	-0.001327
fluoride_100g	0.000516	0.004955
selenium_100g	-0.000002	0.000084
chromium_100g	0.000615	-0.000358
molybdenum_100g	0.004988	-0.000438
iodine_100g	0.008558	0.082570
caffeine_100g	-0.000020	0.015019
taurine_100g	0.085572	-0.001204
ph_100g	-0.000055	-0.002502
fruits-vegetables-nuts_100g	-0.000347	-0.012649
collagen-meat-protein-ratio_100g	-0.000112	-0.003994
cocoa_100g	-0.000256	-0.011064
carbon-footprint_100g	NAN	-0.018277
nutrition-score-fr_100g	-0.003476	-0.001433
nutrition-score-uk_100g	-0.003392	-0.000711
total3nutriments_100g	0.006865	-0.029949

	sodium_100g	alcohol_100g	\
additives_n	0.006744	-0.007744	
ingredients_from_palm_oil_n	-0.011942	0.009460	
ingredients_that_may_be_from_palm_oil_n	-0.005753	0.010546	
energy_100g	-0.000916	-0.000025	
energy-from-fat_100g	-0.006285	NAN	
fat_100g	-0.022762	-0.041567	
saturated-fat_100g	-0.019305	-0.035799	
caprylic-acid_100g	-0.000440	-0.000136	
capric-acid_100g	-0.000622	-0.000193	
lauric-acid_100g	-0.000623	-0.000193	
myristic-acid_100g	-0.000440	-0.000136	
palmitic-acid_100g	-0.000440	-0.000136	
stearic-acid_100g	-0.000440	-0.000136	
arachidic-acid_100g	-0.001111	-0.000344	
behenic-acid_100g	-0.001107	-0.000343	
montanic-acid_100g	-0.000440	-0.000136	
monounsaturated-fat_100g	-0.014736	-0.009468	
polyunsaturated-fat_100g	-0.011652	-0.009160	
omega-3-fat_100g	-0.003355	-0.001792	
alpha-linolenic-acid_100g	-0.001193	-0.000438	
eicosapentaenoic-acid_100g	-0.000499	-0.000188	
docosahexaenoic-acid_100g	-0.000876	-0.000530	
omega-6-fat_100g	-0.002995	-0.001167	
linoleic-acid_100g	-0.001399	-0.000751	
arachidonic-acid_100g	-0.000690	-0.000301	
gamma-linolenic-acid_100g	-0.001215	-0.000376	
dihomo-gamma-linolenic-acid_100g	-0.001147	-0.000355	
omega-9-fat_100g	-0.001572	-0.000519	
oleic-acid_100g	-0.000744	-0.000291	
gondoic-acid_100g	-0.000877	-0.000272	
trans-fat_100g	0.001952	-0.003295	
cholesterol_100g	0.002638	-0.004610	
carbohydrates_100g	-0.030589	-0.057959	
sugars_100g	-0.061455	-0.042916	
sucrose_100g	-0.002109	-0.000680	
glucose_100g	-0.000815	-0.000266	
fructose_100g	-0.001629	-0.000522	
lactose_100g	-0.001994	-0.000808	
maltose_100g	-0.000636	-0.000230	
maltdextrins_100g	-0.000814	-0.000378	
starch_100g	-0.002025	-0.001599	
polyols_100g	-0.006396	-0.002137	
fiber_100g	-0.015180	-0.031895	
proteins_100g	0.022304	-0.051648	
casein_100g	-0.001245	-0.000556	
serum-proteins_100g	0.002525	-0.000377	
nucleotides_100g	-0.000726	-0.000332	
salt_100g	0.994259	-0.015207	
sodium_100g	0.000000	-0.014948	

alcohol_100g	-0.014948	0.000000
vitamin-a_100g	0.000485	-0.000233
beta-carotene_100g	-0.000468	-0.000152
vitamin-d_100g	-0.000544	-0.000218
vitamin-e_100g	-0.000823	-0.000348
vitamin-k_100g	0.000122	-0.000137
vitamin-c_100g	0.004534	-0.001455
vitamin-b1_100g	-0.002501	-0.002102
vitamin-b2_100g	-0.002434	-0.002624
vitamin-pp_100g	0.005363	-0.000727
vitamin-b6_100g	0.000250	-0.000204
vitamin-b9_100g	-0.000596	-0.000235
folates_100g	-0.000337	-0.000246
vitamin-b12_100g	-0.000292	-0.000158
biotin_100g	-0.001049	-0.000325
pantothenic-acid_100g	-0.000475	-0.000290
silica_100g	-0.000214	-0.000232
bicarbonate_100g	-0.001676	-0.000553
potassium_100g	0.013706	-0.005867
chloride_100g	-0.001911	-0.000819
calcium_100g	0.008408	-0.007546
phosphorus_100g	-0.005917	-0.005823
iron_100g	0.003335	-0.000867
magnesium_100g	0.000333	-0.001172
zinc_100g	-0.001045	-0.000705
copper_100g	-0.000475	-0.000185
manganese_100g	-0.001302	-0.000528
fluoride_100g	0.004843	-0.000214
selenium_100g	0.000080	-0.000139
chromium_100g	-0.000353	-0.000153
molybdenum_100g	-0.000431	-0.000158
iodine_100g	0.000756	-0.000622
caffeine_100g	0.014665	-0.000280
taurine_100g	-0.001184	-0.000422
ph_100g	-0.002460	-0.000779
fruits-vegetables-nuts_100g	-0.012450	-0.004909
collagen-meat-protein-ratio_100g	-0.003931	-0.001583
cocoa_100g	-0.010880	-0.003335
carbon-footprint_100g	-0.018277	0.038832
nutrition-score-fr_100g	-0.001556	-0.000293
nutrition-score-uk_100g	-0.000834	-0.000364
total3nutriments_100g	-0.029846	-0.076329
additives_n	vitamin-a_100g	beta-carotene_100g \
ingredients_from_palm_oil_n	-1.628208e-03	0.001760
ingredients_that_may_be_from_palm_oil_n	-4.118919e-04	-0.000277
energy_100g	-5.760319e-04	-0.000310
energy-from-fat_100g	-2.224980e-04	-0.000102
fat_100g	-4.599184e-03	NaN
saturated-fat_100g	2.697200e-03	-0.001247
caprylic-acid_100g	-8.686062e-04	-0.001059
capric-acid_100g	-6.758509e-06	-0.000004
lauric-acid_100g	-9.554642e-06	-0.000006
myristic-acid_100g	-9.557435e-06	-0.000006
palmitic-acid_100g	-6.758509e-06	-0.000004
stearic-acid_100g	-6.758509e-06	-0.000004
arachidic-acid_100g	-1.705704e-05	-0.000011
behenic-acid_100g	-1.699870e-05	-0.000011
montanic-acid_100g	-6.758509e-06	-0.000004
monounsaturated-fat_100g	-3.128724e-04	-0.000308
polyunsaturated-fat_100g	-2.638697e-04	-0.000250
omega-3-fat_100g	5.276647e-04	-0.000056
alpha-linolenic-acid_100g	-5.037167e-06	-0.000014
eicosapentaenoic-acid_100g	-9.267118e-06	-0.000006
docosahexaenoic-acid_100g	-2.567315e-05	-0.000017
omega-6-fat_100g	1.162354e-03	-0.000038
linoleic-acid_100g	3.941303e-05	-0.000024
arachidonic-acid_100g	6.653761e-06	-0.000010
gamma-linolenic-acid_100g	-1.864505e-05	-0.000012
dihomo-gamma-linolenic-acid_100g	-1.760669e-05	-0.000011
omega-9-fat_100g	-2.467888e-05	-0.000017
oleic-acid_100g	-1.110213e-05	-0.000009
gondoic-acid_100g	-1.346128e-05	-0.000009
trans-fat_100g	-5.164590e-05	-0.000106
cholesterol_100g	-2.422109e-05	-0.000149
carbohydrates_100g	-1.456832e-03	-0.001574
sugars_100g	-1.469400e-03	-0.001222
sucrose_100g	-3.366424e-05	-0.000022
glucose_100g	-1.138478e-05	0.000012
fructose_100g	-2.545483e-05	-0.000017
lactose_100g	2.468140e-05	0.000073
maltose_100g	2.146568e-08	-0.000007
maltodextrins_100g	2.508593e-05	-0.000012
starch_100g	-7.818402e-05	-0.000052
polyols_100g	-1.054286e-04	-0.000069
fiber_100g	-4.007003e-04	-0.000949
proteins_100g	4.519556e-03	-0.001061
casein_100g	3.203268e-05	-0.000018
serum-proteins_100g	1.870281e-05	-0.000012
nucleotides_100g	1.851459e-05	-0.000011
salt_100g	4.884895e-04	-0.000476
sodium_100g	4.851295e-04	-0.000468
alcohol_100g	-2.331662e-04	-0.000152
vitamin-a_100g	0.000000e+00	0.002244
beta-carotene_100g	2.244398e-03	0.000000
vitamin-d_100g	1.338080e-04	0.012517
vitamin-e_100g	1.740669e-02	0.078606
vitamin-k_100g	2.332952e-05	0.000068
vitamin-c_100g	5.890609e-04	0.055307
vitamin-b1_100g	9.228839e-05	0.000592
vitamin-b2_100g	2.154989e-04	0.001276
vitamin-pp_100g	1.066545e-04	0.045222
vitamin-b6_100g	1.511873e-05	0.001583
vitamin-b9_100g	-2.039304e-06	0.001992
folates_100g	2.256681e-05	-0.000008
vitamin-b12_100g	-9.701154e-07	0.000557

biotin_100g	-1.459655e-05	0.000494
pantothenic-acid_100g	4.408485e-05	0.014768
silica_100g	-1.151374e-05	-0.000007
bicarbonate_100g	-2.743020e-05	-0.000018
potassium_100g	1.422235e-04	0.000010
chloride_100g	4.259152e-05	0.000459
calcium_100g	3.140329e-01	0.070368
phosphorus_100g	9.498213e-04	0.278576
iron_100g	1.565847e-05	0.004552
magnesium_100g	2.399576e-04	0.104553
zinc_100g	2.021855e-04	0.073829
copper_100g	2.058605e-03	0.914970
manganese_100g	2.927781e-04	0.132856
fluoride_100g	-8.869947e-06	-0.000007
selenium_100g	6.671970e-06	0.000628
chromium_100g	2.174986e-04	0.099787
molybdenum_100g	2.236061e-03	0.994582
iodine_100g	7.815349e-04	0.353030
caffeine_100g	-1.389849e-05	-0.000009
taurine_100g	-1.412575e-05	-0.000014
ph_100g	-3.864375e-05	-0.000025
fruits-vegetables-nuts_100g	-2.390326e-04	-0.000151
collagen-meat-protein-ratio_100g	-7.846014e-05	-0.000051
cocoa_100g	-1.795065e-04	0.000413
carbon-footprint_100g	9.376885e-03	NaN
nutrition-score-fr_100g	-2.789884e-03	0.002766
nutrition-score-uk_100g	-2.715291e-03	0.002754
total3nutriments_100g	1.020389e-03	-0.002051
		vitamin-d_100g \ vitamin-e_100g \
additives_n	-0.001588	-0.000842
ingredients_from_palm_oil_n	-0.000359	0.000078
ingredients_that_may_be_from_palm_oil_n	-0.000502	0.000213
energy_100g	0.000015	-0.000071
energy-from-fat_100g	0.069513	NaN
fat_100g	-0.001081	0.010472
saturated-fat_100g	-0.001162	0.002716
caprylic-acid_100g	-0.000006	-0.000010
capric-acid_100g	-0.000009	-0.000015
lauric-acid_100g	-0.000009	-0.000015
myristic-acid_100g	-0.000006	-0.000010
palmitic-acid_100g	-0.000006	-0.000010
stearic-acid_100g	-0.000006	-0.000010
arachidic-acid_100g	-0.000016	-0.000026
behenic-acid_100g	-0.000016	-0.000026
montanic-acid_100g	-0.000006	-0.000010
monounsaturated-fat_100g	0.000199	0.003265
polyunsaturated-fat_100g	0.000316	0.004186
omega-3-fat_100g	0.000951	0.013112
alpha-linolenic-acid_100g	0.000152	0.001386
eicosapentaenoic-acid_100g	-0.000004	0.003123
docosahexaenoic-acid_100g	0.000021	0.000071
omega-6-fat_100g	0.001096	0.029269
linoleic-acid_100g	0.000736	0.003648
arachidonic-acid_100g	0.000294	0.000547
gamma-linolenic-acid_100g	-0.000017	0.000657
dihomo-gamma-linolenic-acid_100g	-0.000016	-0.000027
omega-9-fat_100g	-0.000011	0.002981
oleic-acid_100g	0.000040	0.001424
gondoic-acid_100g	-0.000013	-0.000021
trans-fat_100g	-0.000121	-0.000214
cholesterol_100g	-0.000152	-0.000340
carbohydrates_100g	-0.001196	-0.001688
sugars_100g	-0.001129	-0.001150
sucrose_100g	-0.000031	-0.000022
glucose_100g	-0.000011	0.000022
fructose_100g	-0.000024	0.000050
lactose_100g	0.001012	0.001630
maltose_100g	-0.000011	0.000250
maltodextrins_100g	0.000710	0.001248
starch_100g	0.000026	0.000124
polyols_100g	-0.000098	-0.000120
fiber_100g	-0.000609	0.005038
proteins_100g	-0.001288	0.002309
casein_100g	0.001018	0.001571
serum-proteins_100g	0.000753	0.001012
nucleotides_100g	0.000639	0.000926
salt_100g	-0.000553	-0.000836
sodium_100g	-0.000544	-0.000823
alcohol_100g	-0.000218	-0.000348
vitamin-a_100g	0.000134	0.017407
beta-carotene_100g	0.012517	0.078606
vitamin-d_100g	0.000000	0.001225
vitamin-e_100g	0.001225	0.000000
vitamin-k_100g	-0.000001	-0.000005
vitamin-c_100g	0.000937	0.009342
vitamin-b1_100g	0.000797	-0.000097
vitamin-b2_100g	0.000926	-0.000074
vitamin-pp_100g	0.000795	0.004331
vitamin-b6_100g	0.000824	0.000156
vitamin-b9_100g	0.000054	0.000394
folates_100g	0.000196	-0.000019
vitamin-b12_100g	0.000055	0.000040
biotin_100g	-0.000004	0.000021
pantothenic-acid_100g	0.000228	0.001243
silica_100g	-0.000011	0.000080
bicarbonate_100g	-0.000026	-0.000042
potassium_100g	0.000478	0.003260
chloride_100g	0.001348	0.002997
calcium_100g	0.001778	0.007956
phosphorus_100g	0.005333	0.036157
iron_100g	0.000090	0.000334
magnesium_100g	0.001432	0.011276
zinc_100g	0.001249	0.005870
copper_100g	0.011460	0.072053
manganese_100g	0.001757	0.010690
fluoride_100g	0.000014	0.000034

selenium_100g	0.000002	0.000040
chromium_100g	0.001244	0.008021
molybdenum_100g	0.012464	0.078320
iodine_100g	0.004478	0.027865
caffeine_100g	-0.000013	-0.000021
taurine_100g	0.000098	0.000162
ph_100g	-0.000036	-0.000059
fruits-vegetables-nuts_100g	-0.000226	-0.000325
collagen-meat-protein-ratio_100g	-0.000073	-0.000120
cocoa_100g	-0.000168	-0.000240
carbon-footprint_100g	-0.033925	0.009377
nutrition-score-fr_100g	0.001044	0.001990
nutrition-score-uk_100g	0.001060	0.002012
total3nutriments_100g	-0.001724	0.003824
		vitamin-k_100g vitamin-c_100g \
additives_n	-1.695024e-03	-0.003112
ingredients_from_palm_oil_n	-2.630246e-04	-0.002445
ingredients_that_may_be_from_palm_oil_n	-4.308718e-04	-0.002227
energy_100g	2.040879e-04	0.000099
energy-from-fat_100g	-2.037667e-02	0.002188
fat_100g	1.361482e-03	-0.008967
saturated-fat_100g	1.555749e-03	-0.009375
caprylic-acid_100g	-3.968645e-06	-0.000042
capric-acid_100g	-5.610554e-06	-0.000060
lauric-acid_100g	-5.612194e-06	-0.000060
myristic-acid_100g	-3.968645e-06	-0.000042
palmitic-acid_100g	-3.968645e-06	-0.000042
stearic-acid_100g	-3.968645e-06	-0.000042
arachidic-acid_100g	-1.001601e-05	-0.000106
behenic-acid_100g	-9.981755e-06	-0.000106
montanic-acid_100g	-3.968645e-06	-0.000042
monounsaturated-fat_100g	-2.814102e-04	-0.002416
polyunsaturated-fat_100g	-2.680207e-04	-0.001617
omega-3-fat_100g	-5.214811e-05	-0.000547
alpha-linolenic-acid_100g	-1.257366e-05	-0.000067
eicosapentaenoic-acid_100g	-5.466996e-06	-0.000058
docosahexaenoic-acid_100g	-1.541065e-05	-0.000156
omega-6-fat_100g	-3.394152e-05	-0.000355
linoleic-acid_100g	-2.094143e-05	0.000195
arachidonic-acid_100g	-7.332805e-06	0.000492
gamma-linolenic-acid_100g	-1.094851e-05	-0.000116
dihomo-gamma-linolenic-acid_100g	-1.033877e-05	-0.000110
omega-9-fat_100g	-1.506381e-05	-0.000144
oleic-acid_100g	-8.384649e-06	-0.000058
gondoic-acid_100g	-7.904559e-06	-0.000084
trans-fat_100g	-9.586406e-05	-0.000714
cholesterol_100g	-1.341695e-04	-0.001115
carbohydrates_100g	9.973819e-04	0.001694
sugars_100g	-1.054313e-03	0.000782
sucrose_100g	-1.978183e-05	-0.000178
glucose_100g	-7.734433e-06	-0.000031
fructose_100g	-1.519448e-05	-0.000042
lactose_100g	-2.011398e-05	0.001421
maltose_100g	-6.705124e-06	0.000117
maltdextrins_100g	-8.496075e-06	0.000976
starch_100g	-4.648593e-05	-0.000324
polyols_100g	-6.219978e-05	0.000333
fiber_100g	5.396941e-03	0.000340
proteins_100g	6.939557e-03	-0.007978
casein_100g	-1.292566e-05	0.001343
serum-proteins_100g	-9.255385e-06	0.000891
nucleotides_100g	-7.366779e-06	0.000800
salt_100g	1.269151e-04	0.004284
sodium_100g	1.219934e-04	0.004534
alcohol_100g	-1.369168e-04	-0.001455
vitamin-a_100g	2.332952e-05	0.000589
beta-carotene_100g	6.791942e-05	0.055307
vitamin-d_100g	-1.123525e-06	0.000937
vitamin-e_100g	-4.580070e-06	0.009342
vitamin-k_100g	0.000000e+00	0.000156
vitamin-c_100g	1.558709e-04	0.000000
vitamin-b1_100g	-2.737121e-05	0.002961
vitamin-b2_100g	-2.107176e-05	0.001915
vitamin-pp_100g	1.702583e-04	0.004049
vitamin-b6_100g	4.946577e-07	0.000343
vitamin-b9_100g	-6.645335e-06	0.000335
folates_100g	-5.056558e-06	0.000016
vitamin-b12_100g	1.267793e-07	0.000223
biotin_100g	-9.413475e-06	-0.000069
pantothenic-acid_100g	7.462878e-05	0.001244
silica_100g	-6.760951e-06	-0.000072
bicarbonate_100g	-1.610721e-05	-0.000171
potassium_100g	1.730019e-03	0.028176
chloride_100g	-1.913517e-05	0.001762
calcium_100g	7.675549e-04	0.007886
phosphorus_100g	1.088576e-02	0.024207
iron_100g	3.605341e-05	0.011827
magnesium_100g	9.378604e-04	0.009524
zinc_100g	9.063769e-04	0.087878
copper_100g	6.085764e-05	0.050690
manganese_100g	-4.891501e-06	0.008791
fluoride_100g	-6.115443e-06	-0.000020
selenium_100g	-3.992454e-06	-0.000004
chromium_100g	2.794905e-06	0.005512
molybdenum_100g	6.744537e-05	0.055378
iodine_100g	7.602844e-06	0.019591
caffeine_100g	-8.164618e-06	0.000085
taurine_100g	-1.185977e-05	0.000091
ph_100g	-2.269189e-05	-0.000241
fruits-vegetables-nuts_100g	-1.429089e-04	-0.001296
collagen-meat-protein-ratio_100g	-4.607235e-05	-0.000490
cocoa_100g	-1.056097e-04	-0.001117
carbon-footprint_100g		NaN
nutrition-score-fr_100g	1.503086e-03	0.005141
nutrition-score-uk_100g	1.506598e-03	0.005270
total3nutriments_100g	2.921300e-03	-0.004383

	vitamin-b1_100g	vitamin-b2_100g	\
additives_n	0.002506	0.005956	
ingredients_from_palm_oil_n	-0.003833	-0.004662	
ingredients_that_may_be_from_palm_oil_n	-0.004312	-0.003481	
energy_100g	-0.000484	-0.000412	
energy-from-fat_100g	0.018609	0.035357	
fat_100g	-0.007878	-0.007376	
saturated-fat_100g	-0.011229	-0.011782	
caprylic-acid_100g	-0.000061	-0.000076	
capric-acid_100g	-0.000086	-0.000108	
lauric-acid_100g	-0.000086	-0.000108	
myristic-acid_100g	-0.000061	-0.000076	
palmitic-acid_100g	-0.000061	-0.000076	
stearic-acid_100g	-0.000061	-0.000076	
arachidic-acid_100g	-0.000154	-0.000192	
behenic-acid_100g	-0.000153	-0.000191	
montanic-acid_100g	-0.000061	-0.000076	
monounsaturated-fat_100g	0.001506	0.004334	
polyunsaturated-fat_100g	0.004076	0.004751	
omega-3-fat_100g	-0.000799	-0.000999	
alpha-linolenic-acid_100g	-0.000194	-0.000241	
eicosapentaenoic-acid_100g	-0.000084	-0.000185	
docosahexaenoic-acid_100g	-0.000237	-0.000296	
omega-6-fat_100g	-0.000519	-0.000650	
linoleic-acid_100g	-0.000332	-0.000410	
arachidonic-acid_100g	-0.000131	-0.000156	
gamma-linolenic-acid_100g	-0.000168	-0.000210	
dihomo-gamma-linolenic-acid_100g	-0.000159	-0.000198	
omega-9-fat_100g	-0.000231	-0.000289	
oleic-acid_100g	-0.000129	-0.000161	
gondoic-acid_100g	-0.000121	-0.000151	
trans-fat_100g	-0.001092	-0.001436	
cholesterol_100g	-0.001418	-0.000970	
carbohydrates_100g	0.036651	0.038511	
sugars_100g	0.002535	0.003268	
sucrose_100g	-0.000303	-0.000379	
glucose_100g	-0.000118	-0.000148	
fructose_100g	-0.000233	-0.000291	
lactose_100g	-0.000350	-0.000418	
maltose_100g	-0.000101	-0.000124	
maltodextrins_100g	-0.000161	-0.000190	
starch_100g	-0.000704	-0.000876	
polyols_100g	-0.000954	-0.001192	
fiber_100g	0.021618	0.025599	
proteins_100g	0.015390	0.017540	
casein_100g	-0.000238	-0.000280	
serum-proteins_100g	-0.000162	-0.000191	
nucleotides_100g	-0.000144	-0.000171	
salt_100g	-0.002531	-0.002451	
sodium_100g	-0.002501	-0.002434	
alcohol_100g	-0.002102	-0.002624	
vitamin-a_100g	0.000092	0.000215	
beta-carotene_100g	0.000592	0.001276	
vitamin-d_100g	0.000797	0.000926	
vitamin-e_100g	-0.000097	-0.000074	
vitamin-k_100g	-0.000027	-0.000021	
vitamin-c_100g	0.002961	0.001915	
vitamin-b1_100g	0.000000	0.626388	
vitamin-b2_100g	0.626388	0.000000	
vitamin-pp_100g	0.020475	0.035587	
vitamin-b6_100g	0.474770	0.001861	
vitamin-b9_100g	-0.000022	-0.000106	
folates_100g	0.001536	0.002729	
vitamin-b12_100g	0.000851	0.001405	
biotin_100g	-0.000144	-0.000179	
pantothenic-acid_100g	0.0008075	0.014665	
silica_100g	-0.000103	-0.000128	
bicarbonate_100g	-0.000247	-0.000309	
potassium_100g	0.015662	0.026728	
chloride_100g	-0.000281	-0.000362	
calcium_100g	0.005157	0.010220	
phosphorus_100g	0.038509	0.088558	
iron_100g	0.001420	0.002067	
magnesium_100g	0.008805	0.012346	
zinc_100g	0.008527	0.014441	
copper_100g	0.000555	0.001200	
manganese_100g	0.001533	0.002476	
fluoride_100g	-0.000095	-0.000118	
selenium_100g	-0.000036	-0.000047	
chromium_100g	-0.000002	0.000051	
molybdenum_100g	0.000585	0.001272	
iodine_100g	-0.000044	0.000135	
caffeine_100g	-0.000125	0.001150	
taurine_100g	-0.000188	-0.000220	
ph_100g	-0.000348	-0.000435	
fruits-vegetables-nuts_100g	-0.002193	-0.002738	
collagen-meat-protein-ratio_100g	-0.000707	-0.000883	
cocoa_100g	-0.001621	-0.002024	
carbon-footprint_100g	0.009377	0.058899	
nutrition-score-fr_100g	-0.004973	-0.005532	
nutrition-score-uk_100g	-0.004586	-0.004964	
total3nutriments_100g	0.029252	0.031437	

	vitamin-pp_100g	vitamin-b6_100g	\
additives_n	-0.000925	-6.65117e-04	
ingredients_from_palm_oil_n	-0.001202	-1.644017e-04	
ingredients_that_may_be_from_palm_oil_n	-0.001448	-5.003091e-04	
energy_100g	-0.000351	-1.275177e-04	
energy-from-fat_100g	0.030325	3.069819e-02	
fat_100g	-0.003223	-1.157159e-03	
saturated-fat_100g	-0.003965	-1.467114e-03	
caprylic-acid_100g	-0.000021	-5.921429e-06	
capric-acid_100g	-0.000030	-8.371245e-06	
lauric-acid_100g	-0.000030	-8.373691e-06	
myristic-acid_100g	-0.000021	-5.921429e-06	
palmitic-acid_100g	-0.000021	-5.921429e-06	

stearic-acid_100g	-0.000021	-5.921429e-06
arachidic-acid_100g	0.369730	-1.494443e-05
behenic-acid_100g	0.374494	-1.489331e-05
montanic-acid_100g	-0.000021	-5.921429e-06
monounsaturated-fat_100g	-0.000376	-3.412186e-04
polyunsaturated-fat_100g	-0.000127	-3.577419e-04
omega-3-fat_100g	-0.000252	-7.501740e-05
alpha-linolenic-acid_100g	-0.000041	-2.915731e-06
eicosapentaenoic-acid_100g	0.000420	-8.157048e-06
docosahexaenoic-acid_100g	0.209691	-1.512877e-05
omega-6-fat_100g	-0.000150	-4.728958e-05
linoleic-acid_100g	0.000009	9.482159e-05
arachidonic-acid_100g	0.000084	9.045844e-04
gamma-linolenic-acid_100g	0.327383	-1.633575e-05
dihomo-gamma-linolenic-acid_100g	0.334986	-1.542600e-05
omega-9-fat_100g	-0.000071	-2.226550e-05
oleic-acid_100g	-0.000027	-1.202355e-05
gondoic-acid_100g	0.172943	-1.179402e-05
trans-fat_100g	-0.000453	-1.423655e-04
cholesterol_100g	-0.000619	-1.987976e-04
carbohydrates_100g	0.007775	5.624201e-03
sugars_100g	0.002662	2.440674e-03
sucrose_100g	-0.000079	-2.875969e-05
glucose_100g	-0.000013	-1.071908e-05
fructose_100g	-0.000074	-2.247279e-05
lactose_100g	0.000346	6.070432e-04
maltose_100g	0.000148	-4.619158e-06
maltdextrins_100g	0.000260	-3.708800e-06
starch_100g	0.000351	2.678603e-04
polyols_100g	-0.000313	-9.197002e-05
fiber_100g	0.002019	2.517604e-03
proteins_100g	0.001431	5.068387e-04
casein_100g	0.000341	3.865662e-04
serum-proteins_100g	0.000224	1.370174e-03
nucleotides_100g	0.094742	1.198579e-03
salt_100g	0.005502	2.585906e-04
sodium_100g	0.005363	2.501676e-04
alcohol_100g	-0.000727	-2.042819e-04
vitamin-a_100g	0.000107	1.511873e-05
beta-carotene_100g	0.045222	1.583196e-03
vitamin-d_100g	0.000795	8.235420e-04
vitamin-e_100g	0.004331	1.562933e-04
vitamin-k_100g	0.000170	4.946577e-07
vitamin-c_100g	0.004049	3.433966e-04
vitamin-b1_100g	0.020475	4.747701e-01
vitamin-b2_100g	0.035587	1.861341e-03
vitamin-pp_100g	0.000000	2.310855e-03
vitamin-b6_100g	0.002311	0.000000e+00
vitamin-b9_100g	0.000476	1.027551e-04
folates_100g	0.000384	2.365533e-06
vitamin-b12_100g	0.001234	5.278416e-05
biotin_100g	0.235871	-1.130219e-05
pantothenic-acid_100g	0.061256	1.373583e-04
silica_100g	0.000039	-1.008770e-05
bicarbonate_100g	-0.000086	-2.403281e-05
potassium_100g	0.003907	1.125021e-03
chloride_100g	0.050060	4.419792e-04
calcium_100g	0.004721	4.467483e-03
phosphorus_100g	0.022518	5.461415e-03
iron_100g	0.000491	3.348315e-04
magnesium_100g	0.006316	2.087200e-03
zinc_100g	0.005072	2.725935e-03
copper_100g	0.041215	1.449883e-03
manganese_100g	0.006260	6.678742e-04
fluoride_100g	0.000145	-8.715533e-06
.selenium_100g	0.000010	-2.072553e-06
chromium_100g	0.004809	1.522456e-04
molybdenum_100g	0.047469	1.577174e-03
iodine_100g	0.016757	5.487761e-04
caffeine_100g	0.114242	3.835771e-03
taurine_100g	0.008662	1.083659e-04
ph_100g	-0.000121	-3.385750e-05
fruits-vegetables-nuts_100g	-0.000735	-1.661875e-04
collagen-meat-protein-ratio_100g	-0.000236	-6.800759e-05
cocoa_100g	-0.000557	-1.574150e-04
carbon-footprint_100g	0.009377	9.376885e-03
nutrition-score-fr_100g	-0.003432	-1.667179e-03
nutrition-score-uk_100g	-0.003121	-1.610010e-03
total3nutriments_100g	0.005113	4.107399e-03
		vitamin-b9_100g folates_100g \
additives_n	5.784904e-03	0.005249
ingredients_from_palm_oil_n	-4.308104e-04	-0.000472
ingredients_that_may_be_from_palm_oil_n	-7.086221e-04	-0.000772
energy_100g	-2.486408e-04	-0.000049
energy-from-fat_100g	3.515857e-02	0.014486
fat_100g	-1.541119e-03	-0.001052
saturated-fat_100g	-1.534468e-03	-0.001187
caprylic-acid_100g	-6.819946e-06	-0.000007
capric-acid_100g	-9.641496e-06	-0.000010
lauric-acid_100g	-9.644314e-06	-0.000010
myristic-acid_100g	-6.819946e-06	-0.000007
palmitic-acid_100g	-6.819946e-06	-0.000007
stearyl-acid_100g	-6.819946e-06	-0.000007
arachidic-acid_100g	-1.721209e-05	-0.000018
behenic-acid_100g	-1.715322e-05	-0.000018
montanic-acid_100g	-6.819946e-06	-0.000007
monounsaturated-fat_100g	-1.494952e-04	0.000202
polyunsaturated-fat_100g	4.242909e-04	0.000728
omega-3-fat_100g	1.251156e-03	-0.000094
alpha-linolenic-acid_100g	-1.810758e-05	-0.000023
eicosapentaenoic-acid_100g	-9.394798e-06	-0.000010
docosahexaenoic-acid_100g	-2.638458e-05	-0.000028
omega-6-fat_100g	-5.298068e-05	-0.000061
linoleic-acid_100g	-2.612427e-05	-0.000039
arachidonic-acid_100g	-6.269793e-06	-0.000016
gamma-linolenic-acid_100g	-1.881454e-05	-0.000020

dihomo-gamma-linolenic-acid_100g	-1.776674e-05	-0.000019
omega-9-fat_100g	-2.508539e-05	-0.000027
oleic-acid_100g	5.049896e-05	-0.000015
gondoic-acid_100g	-1.358365e-05	-0.000014
trans-fat_100g	-1.623584e-04	-0.000172
cholesterol_100g	-2.283641e-04	-0.000240
carbohydrates_100g	-7.703275e-04	0.005077
sugars_100g	-5.683068e-04	0.000961
sucrose_100g	-3.231558e-05	-0.000035
glucose_100g	-1.171080e-05	-0.000014
fructose_100g	-2.573607e-05	-0.000027
lactose_100g	2.774485e-06	-0.000042
maltose_100g	-1.333006e-06	-0.000012
maltdextrins_100g	1.512705e-05	-0.000020
starch_100g	-4.291220e-05	-0.000084
polyols_100g	-1.052396e-04	-0.000112
fiber_100g	4.389138e-04	0.007695
proteins_100g	-6.927025e-04	0.003519
casein_100g	1.368163e-05	-0.000029
serum-proteins_100g	1.4527446e-05	-0.000020
nucleotides_100g	6.309318e-06	-0.000017
salt_100g	-6.058659e-04	-0.000341
sodium_100g	-5.963282e-04	-0.000337
alcohol_100g	-2.352790e-04	-0.000246
vitamin-a_100g	-2.039384e-06	0.000023
beta-carotene_100g	1.992306e-03	-0.000008
vitamin-d_100g	5.366460e-05	0.000196
vitamin-e_100g	3.938950e-04	-0.000019
vitamin-k_100g	-6.645335e-06	-0.000005
vitamin-c_100g	3.347225e-04	0.000016
vitamin-b1_100g	-2.248747e-05	0.001536
vitamin-b2_100g	-1.062606e-04	0.002729
vitamin-pp_100g	4.758617e-04	0.000384
vitamin-b6_100g	1.027551e-04	0.000002
vitamin-b9_100g	0.000000e+00	-0.000012
folates_100g	-1.228820e-05	0.000000
vitamin-b12_100g	6.516071e-07	-0.000004
biotin_100g	-1.152580e-05	-0.000017
pantothenic-acid_100g	1.643300e-04	0.000035
silica_100g	-7.895084e-06	-0.000012
bicarbonate_100g	-2.767955e-05	-0.000029
potassium_100g	2.113304e-03	0.003348
chloride_100g	1.881662e-05	-0.000043
calcium_100g	-1.580616e-04	0.001689
phosphorus_100g	1.553101e-01	0.007773
iron_100g	-4.319444e-06	0.000148
magnesium_100g	4.950589e-04	0.000943
zinc_100g	4.194118e-01	-0.000033
copper_100g	1.875045e-03	-0.000009
manganese_100g	1.379117e-03	-0.000027
fluoride_100g	-1.061916e-05	-0.000011
selenium_100g	9.341401e-06	-0.000007
chromium_100g	1.922631e-04	-0.000008
molybdenum_100g	1.984028e-03	-0.000008
iodine_100g	9.763449e-04	-0.000032
caffeine_100g	-1.493055e-05	-0.000015
taurine_100g	-1.693691e-05	-0.000022
ph_100g	-3.899503e-05	-0.000041
fruits-vegetables-nuts_100g	-2.437676e-04	-0.000256
collagen-meat-protein-ratio_100g	-7.917337e-05	-0.000083
cocoa_100g	-1.812204e-04	-0.000189
carbon-footprint_100g	9.376885e-03	Nan
nutrition-score-fr_100g	-1.188508e-03	-0.002397
nutrition-score-uk_100g	-1.051997e-03	-0.002319
total3nutriments_100g	-1.457195e-03	0.004372
additives_n	1.556242e-03	-0.003839
ingredients_from_palm_oil_n	-4.766953e-04	-0.000625
ingredients_that_may_be_from_palm_oil_n	-6.639940e-04	-0.001023
energy_100g	2.814353e-04	0.000047
energy-from-fat_100g	2.372818e-02	Nan
fat_100g	-1.377811e-03	-0.002898
saturated-fat_100g	-1.177136e-03	-0.002500
caprylic-acid_100g	-4.580842e-06	-0.000009
capric-acid_100g	-6.476030e-06	-0.000013
lauric-acid_100g	-6.477923e-06	-0.000013
myristic-acid_100g	-4.580842e-06	-0.000009
palmitic-acid_100g	-4.580842e-06	-0.000009
stearic-acid_100g	-4.580842e-06	-0.000009
arachidic-acid_100g	-1.156107e-05	0.712418
behenic-acid_100g	-1.152153e-05	0.711638
montanic-acid_100g	-4.580842e-06	-0.000009
monounsaturated-fat_100g	-3.172987e-04	-0.000671
polyunsaturated-fat_100g	-3.006833e-04	-0.000639
omega-3-fat_100g	-5.888131e-05	-0.000124
alpha-linolenic-acid_100g	-1.400687e-05	-0.000038
eicosapentaenoic-acid_100g	-6.242156e-06	0.004333
docosahexaenoic-acid_100g	-1.704959e-05	0.379188
omega-6-fat_100g	-3.830469e-05	-0.000081
linoleic-acid_100g	-2.214020e-05	-0.000050
arachidonic-acid_100g	-6.703225e-06	-0.000019
gamma-linolenic-acid_100g	-1.263741e-05	0.617859
dihomo-gamma-linolenic-acid_100g	-1.193362e-05	0.632523
omega-9-fat_100g	-1.729299e-05	-0.000036
oleic-acid_100g	-9.308778e-06	-0.000020
gondoic-acid_100g	-9.123905e-06	0.325944
trans-fat_100g	-1.105230e-04	-0.000228
cholesterol_100g	-1.527558e-04	-0.000319
carbohydrates_100g	-1.373144e-03	-0.004107
sugars_100g	-1.286003e-03	-0.003005
sucrose_100g	-2.282715e-05	-0.000046
glucose_100g	-8.558752e-06	-0.000017
fructose_100g	-1.745082e-05	-0.000036
lactose_100g	-1.556484e-05	-0.000047
maltose_100g	-5.360724e-06	-0.000014
maltdextrins_100g	-3.629681e-06	-0.000022

starch_100g	-4.621407e-05	-0.000110
polyols_100g	-7.153977e-05	-0.000148
fiber_100g	-9.463669e-04	-0.002212
proteins_100g	-1.542660e-03	-0.003556
casein_100g	-7.102158e-06	-0.000033
serum-proteins_100g	-4.565102e-06	-0.000022
nucleotides_100g	-4.317292e-06	-0.000020
salt_100g	-2.961484e-04	-0.001067
sodium_100g	-2.923401e-04	-0.001049
alcohol_100g	-1.580340e-04	-0.000325
vitamin-a_100g	-9.701154e-07	-0.000015
beta-carotene_100g	5.574096e-04	0.000494
vitamin-d_100g	5.506152e-05	-0.000004
vitamin-e_100g	4.046895e-05	0.000021
vitamin-k_100g	1.267793e-07	-0.000009
vitamin-c_100g	2.232934e-04	-0.000069
vitamin-b1_100g	8.510407e-04	-0.000144
vitamin-b2_100g	1.404630e-03	-0.000179
vitamin-pp_100g	1.233766e-03	0.235871
vitamin-b6_100g	5.278416e-05	-0.000011
vitamin-b9_100g	6.516071e-07	-0.000012
folates_100g	-4.464513e-06	-0.000017
vitamin-b12_100g	0.000000e+00	-0.000010
biotin_100g	-9.807336e-06	0.000000
pantothenic-acid_100g	1.051571e-04	0.142962
silica_100g	-7.803885e-06	-0.000014
bicarbonate_100g	-1.859188e-05	-0.000038
potassium_100g	-4.823237e-05	-0.000047
chloride_100g	-1.160933e-05	-0.000049
calcium_100g	-1.625944e-04	-0.000485
phosphorus_100g	1.340257e-04	-0.000259
iron_100g	-1.976118e-05	-0.000058
magnesium_100g	4.605913e-05	-0.000012
zinc_100g	6.984306e-05	-0.000011
copper_100g	5.093790e-04	0.000449
manganese_100g	6.722594e-05	0.000033
fluoride_100g	-6.907298e-06	-0.000015
selenium_100g	-4.258845e-06	-0.000009
chromium_100g	5.108747e-05	0.000040
molybdenum_100g	5.552040e-04	0.000492
iodine_100g	1.790363e-04	0.000136
caffeine_100g	2.834603e-03	-0.000019
taurine_100g	-4.999986e-07	-0.000026
ph_100g	-2.619230e-05	-0.000054
fruits-vegetables-nuts_100g	-1.646658e-04	-0.000339
collagen-meat-protein-ratio_100g	-5.175341e-05	-0.000109
cocoa_100g	-1.218414e-04	-0.000251
carbon-footprint_100g	9.185731e-02	0.009377
nutrition-score-fr_100g	-2.487072e-03	-0.000056
nutrition-score-uk_100g	-2.424309e-03	-0.000002
total3nutriments_100g	-2.053383e-03	-0.005365
		pantothenic-acid_100g \ silica_100g \
additives_n	-0.001279	-0.003204
ingredients_from_palm_oil_n	-0.000512	-0.000713
ingredients_that_may_be_from_palm_oil_n	-0.000828	-0.000975
energy_100g	0.000041	0.000033
energy-from-fat_100g	0.001968	NaN
fat_100g	-0.001660	-0.002054
saturated-fat_100g	-0.002053	-0.001786
caprylic-acid_100g	-0.000008	-0.000007
capric-acid_100g	-0.000012	-0.000010
lauric-acid_100g	-0.000012	-0.000010
myristic-acid_100g	-0.000008	-0.000007
palmitic-acid_100g	-0.000008	-0.000007
stearic-acid_100g	-0.000008	-0.000007
arachidic-acid_100g	0.174006	-0.000017
behenic-acid_100g	0.173813	-0.000017
montanic-acid_100g	-0.000008	-0.000007
monounsaturated-fat_100g	-0.000556	-0.000479
polyunsaturated-fat_100g	-0.000498	-0.000457
omega-3-fat_100g	-0.000107	-0.000088
alpha-linolenic-acid_100g	-0.000012	-0.000022
eicosapentaenoic-acid_100g	0.001050	-0.000009
docosahexaenoic-acid_100g	0.092601	-0.000026
omega-6-fat_100g	-0.000069	-0.000058
linoleic-acid_100g	0.000026	-0.000037
arachidonic-acid_100g	0.000052	-0.000015
gamma-linolenic-acid_100g	0.150906	-0.000019
dihomo-gamma-linolenic-acid_100g	0.154489	-0.000018
omega-9-fat_100g	-0.000027	-0.000026
oleic-acid_100g	-0.000007	-0.000014
gondoic-acid_100g	0.079605	-0.000013
trans-fat_100g	-0.000203	-0.000163
cholesterol_100g	-0.000253	-0.000228
carbohydrates_100g	0.002197	0.002320
sugars_100g	0.000669	0.005532
sucrose_100g	-0.000034	-0.000034
glucose_100g	-0.000007	-0.000013
fructose_100g	-0.000030	-0.000026
lactose_100g	0.000222	-0.000040
maltose_100g	0.000046	-0.000011
maltdextrins_100g	0.000193	-0.000019
starch_100g	-0.000082	-0.000079
polyols_100g	-0.000126	-0.000106
fiber_100g	-0.000093	-0.001581
proteins_100g	-0.001640	-0.002539
casein_100g	0.000217	-0.000027
serum-proteins_100g	0.000153	-0.000019
nucleotides_100g	0.000120	-0.000016
salt_100g	-0.000481	-0.000214
sodium_100g	-0.000475	-0.000214
alcohol_100g	-0.000290	-0.000232
vitamin-a_100g	0.000044	-0.000012
beta-carotene_100g	0.014768	-0.000007
vitamin-d_100g	0.000228	-0.000011
vitamin-e_100g	0.001243	0.000080

vitamin-k_100g	0.000075	-0.000007
vitamin-c_100g	0.001244	-0.000072
vitamin-b1_100g	0.008075	-0.000103
vitamin-b2_100g	0.014665	-0.000128
vitamin-pp_100g	0.061256	0.000039
vitamin-b6_100g	0.000137	-0.000010
vitamin-b9_100g	0.000164	-0.000008
folates_100g	0.000035	-0.000012
vitamin-b12_100g	0.000105	-0.000008
biotin_100g	0.142962	-0.000014
pantothenic-acid_100g	0.000000	0.000008
silica_100g	0.000008	0.000000
bicarbonate_100g	-0.000034	0.111379
potassium_100g	0.000424	0.011042
chloride_100g	0.000329	0.004299
calcium_100g	0.000914	0.007378
phosphorus_100g	0.005742	-0.000288
iron_100g	0.000120	0.000416
magnesium_100g	0.001623	0.008868
zinc_100g	0.002158	0.004336
copper_100g	0.013533	0.000040
manganese_100g	0.002024	0.003557
fluoride_100g	-0.000013	0.000224
selenium_100g	0.000001	0.000024
chromium_100g	0.001467	0.002671
molybdenum_100g	0.014714	0.026684
iodine_100g	0.005204	-0.000031
caffeine_100g	0.000023	-0.000014
taurine_100g	0.000181	-0.000021
ph_100g	-0.000048	0.017182
fruits-vegetables-nuts_100g	-0.000294	-0.000242
collagen-meat-protein-ratio_100g	-0.000098	-0.000078
cocoa_100g	-0.000222	-0.000179
carbon-footprint_100g	0.009377	NaN
nutrition-score-fr_100g	-0.000838	-0.000109
nutrition-score-uk_100g	-0.000777	-0.000031
total3nutriments_100g	0.000665	0.000391

	bicarbonate_100g	potassium_100g	\
additives_n	-0.003133	0.009407	
ingredients_from_palm_oil_n	-0.000847	-0.010527	
ingredients_that_may_be_from_palm_oil_n	0.000082	-0.007121	
energy_100g	0.000161	0.000241	
energy-from-fat_100g		NaN	0.029168
fat_100g	-0.004841	0.013405	
saturated-fat_100g	-0.004256	-0.014709	
caprylic-acid_100g	-0.000016	-0.000171	
capric-acid_100g	-0.000023	-0.000242	
lauric-acid_100g	-0.000023	-0.000242	
myristic-acid_100g	-0.000016	-0.000171	
palmitic-acid_100g	-0.000016	-0.000171	
stearic-acid_100g	-0.000016	-0.000171	
arachidic-acid_100g	-0.000040	-0.000431	
behenic-acid_100g	-0.000040	-0.000430	
montanic-acid_100g	-0.000016	-0.000171	
monounsaturated-fat_100g	-0.001142	0.043386	
polyunsaturated-fat_100g	-0.001088	0.051443	
omega-3-fat_100g	-0.000211	-0.001338	
alpha-linolenic-acid_100g	-0.000051	0.001244	
eicosapentaenoic-acid_100g	-0.000022	-0.000221	
docosahexaenoic-acid_100g	-0.000062	-0.000477	
omega-6-fat_100g	-0.000137	-0.000780	
linoleic-acid_100g	-0.000088	0.003251	
arachidonic-acid_100g	-0.000035	0.007666	
gamma-linolenic-acid_100g	-0.000044	-0.000471	
dihomo-gamma-linolenic-acid_100g	-0.000042	-0.000445	
omega-9-fat_100g	-0.000061	-0.000462	
oleic-acid_100g	-0.000034	0.000231	
gondoic-acid_100g	-0.000032	-0.000340	
trans-fat_100g	-0.000388	-0.002361	
cholesterol_100g	-0.000542	-0.002671	
carbohydrates_100g	-0.006947	0.035602	
sugars_100g	-0.005116	0.004348	
sucrose_100g	-0.000080	-0.000844	
glucose_100g	-0.000031	0.000264	
fructose_100g	-0.000051	-0.000626	
lactose_100g	-0.000095	0.014094	
maltose_100g	-0.000027	0.001425	
maltdextrins_100g	-0.000044	0.010865	
starch_100g	-0.000188	-0.001753	
polyols_100g	-0.000251	-0.002345	
fiber_100g	-0.003766	0.070016	
proteins_100g	-0.005922	0.031322	
casein_100g	-0.000065	0.014088	
serum-proteins_100g	-0.000044	0.009559	
nucleotides_100g	-0.000039	0.009185	
salt_100g	-0.001705	0.014069	
sodium_100g	-0.001676	0.013706	
alcohol_100g	-0.000553	-0.005867	
vitamin-a_100g	-0.000027	0.000142	
beta-carotene_100g	-0.000018	0.000010	
vitamin-d_100g	-0.000026	0.000478	
vitamin-e_100g	-0.000042	0.003260	
vitamin-k_100g	-0.000016	0.001730	
vitamin-c_100g	-0.000171	0.028176	
vitamin-b1_100g	-0.000247	0.015662	
vitamin-b2_100g	-0.000309	0.026728	
vitamin-pp_100g	-0.000086	0.003907	
vitamin-b6_100g	-0.000024	0.001125	
vitamin-b9_100g	-0.000028	0.002113	
folates_100g	-0.000029	0.003348	
vitamin-b12_100g	-0.000019	-0.000048	
biotin_100g	-0.000038	-0.000407	
pantothenic-acid_100g	-0.000034	0.000424	
silica_100g	0.111379	0.011042	
bicarbonate_100g	0.000000	-0.000574	
potassium_100g	-0.000574	0.000000	

chloride_100g	0.046776	0.019318
calcium_100g	0.000597	0.022176
phosphorus_100g	-0.000685	0.141097
iron_100g	-0.000102	0.003863
magnesium_100g	0.001090	0.054885
zinc_100g	-0.000083	0.008620
copper_100g	-0.000022	0.000298
manganese_100g	-0.000062	0.010813
fluoride_100g	0.149932	0.000086
selenium_100g	-0.000016	0.001723
chromium_100g	-0.000018	0.002010
molybdenum_100g	-0.000019	0.000273
iodine_100g	-0.000073	0.075080
caffeine_100g	-0.000033	-0.000331
taurine_100g	-0.000050	0.001184
ph_100g	0.120868	-0.000960
fruits-vegetables-nuts_100g	-0.000578	-0.006096
collagen-meat-protein-ratio_100g	-0.000186	-0.001984
cocoa_100g	-0.000427	-0.004547
carbon-footprint_100g	NAN	0.091857
nutrition-score-fr_100g	0.000634	0.008976
nutrition-score-uk_100g	0.000493	0.009461
total3nutriments_100g	-0.009027	0.041385
	chloride_100g	calcium_100g \
additives_n	-0.001439	0.006613
ingredients_from_palm_oil_n	-0.001329	-0.011545
ingredients_that_may_be_from_palm_oil_n	-0.001938	-0.007833
energy_100g	0.000066	0.000240
energy-from-fat_100g	NAN	-0.022303
fat_100g	0.006567	0.057115
saturated-fat_100g	0.004812	0.071943
caprylic-acid_100g	-0.000024	-0.000219
capric-acid_100g	-0.000034	-0.000309
lauric-acid_100g	-0.000034	-0.000309
myristic-acid_100g	-0.000024	-0.000219
palmitic-acid_100g	-0.000024	-0.000219
stearic-acid_100g	-0.000024	-0.000219
arachidic-acid_100g	-0.000060	-0.000552
behenic-acid_100g	-0.000060	-0.000550
montanic-acid_100g	-0.000024	-0.000219
monounsaturated-fat_100g	-0.000598	-0.001190
polyunsaturated-fat_100g	-0.000499	-0.000642
omega-3-fat_100g	0.003996	-0.001607
alpha-linolenic-acid_100g	0.032315	0.000362
eicosapentaenoic-acid_100g	-0.000033	-0.000292
docosahexaenoic-acid_100g	0.002761	-0.000737
omega-6-fat_100g	0.008683	-0.001567
linoleic-acid_100g	0.179618	0.001184
arachidonic-acid_100g	0.261253	0.003346
gamma-linolenic-acid_100g	-0.000066	-0.000604
dihomo-gamma-linolenic-acid_100g	-0.000062	-0.000570
omega-9-fat_100g	0.011105	-0.000749
oleic-acid_100g	0.017854	-0.000037
gondoic-acid_100g	-0.000047	-0.000436
trans-fat_100g	-0.000574	0.002170
cholesterol_100g	-0.000803	0.027616
carbohydrates_100g	0.010424	0.002244
sugars_100g	0.010878	-0.010486
sucrose_100g	0.000101	-0.001069
glucose_100g	-0.000046	-0.000314
fructose_100g	-0.000091	-0.000818
lactose_100g	0.705053	0.010190
maltose_100g	-0.000040	0.000170
maltooligosaccharides_100g	0.483717	0.005809
starch_100g	0.008113	-0.000842
polyols_100g	-0.000372	-0.003305
fiber_100g	-0.002672	0.027735
proteins_100g	0.005971	0.117707
casein_100g	0.681686	0.007628
serum-proteins_100g	0.394644	0.005172
nucleotides_100g	0.433959	0.004535
salt_100g	-0.001941	0.008708
sodium_100g	-0.001911	0.008408
alcohol_100g	-0.000819	-0.007546
vitamin-a_100g	0.000043	0.314033
beta-carotene_100g	0.000459	0.070368
vitamin-d_100g	0.001348	0.001778
vitamin-e_100g	0.002097	0.007956
vitamin-k_100g	-0.000019	0.000768
vitamin-c_100g	0.001762	0.007886
vitamin-b1_100g	-0.000281	0.005157
vitamin-b2_100g	-0.000362	0.010220
vitamin-pp_100g	0.050060	0.004721
vitamin-b6_100g	0.000442	0.004467
vitamin-b9_100g	0.000019	-0.000158
folates_100g	-0.000043	0.001689
vitamin-b12_100g	-0.000012	-0.000163
biotin_100g	-0.000049	-0.000485
pantothenic-acid_100g	0.000329	0.000914
silica_100g	0.004299	0.007378
bicarbonate_100g	0.046776	0.000597
potassium_100g	0.019318	0.022176
chloride_100g	0.000000	0.010312
calcium_100g	0.010312	0.000000
phosphorus_100g	0.054468	0.071047
iron_100g	0.000410	0.060475
magnesium_100g	0.002866	0.018641
zinc_100g	0.004655	0.008689
copper_100g	0.000008	0.064417
manganese_100g	0.000401	0.011451
fluoride_100g	0.030160	0.000245
selenium_100g	-0.000007	0.000165
chromium_100g	0.000314	0.006933
molybdenum_100g	0.003809	0.071257
iodine_100g	0.020815	0.027242
caffeine_100g	-0.000049	0.001410

taurine_100g	0.079355	0.000374
ph_100g	0.005241	-0.001120
fruits-vegetables-nuts_100g	-0.000855	-0.007673
collagen-meat-protein-ratio_100g	-0.000276	-0.002540
cocoa_100g	-0.000632	-0.005577
carbon-footprint_100g	0.091857	-0.030487
nutrition-score-fr_100g	0.001566	0.005567
nutrition-score-uk_100g	0.001234	0.006464
total3nutriments_100g	0.012599	0.052962
	phosphorus_100g	iron_100g \
additives_n	0.008655	0.002435
ingredients_from_palm_oil_n	-0.007531	-0.001471
ingredients_that_may_be_from_palm_oil_n	-0.005651	0.005801
energy_100g	-0.000182	0.000263
energy-from-fat_100g	0.021143	0.075620
fat_100g	0.044768	0.001551
saturated-fat_100g	-0.003268	-0.001433
caprylic-acid_100g	-0.000169	-0.000025
capric-acid_100g	-0.000239	-0.000036
lauric-acid_100g	-0.000239	-0.000036
myristic-acid_100g	-0.000169	-0.000025
palmitic-acid_100g	-0.000169	-0.000025
stearic-acid_100g	-0.000169	-0.000025
arachidic-acid_100g	-0.000426	-0.000064
behenic-acid_100g	-0.000425	-0.000063
montanic-acid_100g	-0.000169	-0.000025
monounsaturated-fat_100g	0.066532	0.000565
polyunsaturated-fat_100g	0.096515	0.001480
omega-3-fat_100g	0.004132	-0.000302
alpha-linolenic-acid_100g	0.001663	-0.000029
eicosapentaenoic-acid_100g	-0.000200	-0.000035
docosahexaenoic-acid_100g	-0.000226	-0.000096
omega-6-fat_100g	-0.000966	-0.000195
linoleic-acid_100g	0.010032	-0.000023
arachidonic-acid_100g	0.012546	0.000083
gamma-linolenic-acid_100g	-0.000466	-0.000069
dihomo-gamma-linolenic-acid_100g	-0.000440	-0.000066
omega-9-fat_100g	-0.000151	-0.000090
oleic-acid_100g	0.001580	-0.000042
gondoic-acid_100g	-0.000336	-0.000050
trans-fat_100g	-0.002641	0.004609
cholesterol_100g	-0.001513	0.000496
carbohydrates_100g	0.052711	0.009001
sugars_100g	-0.000968	-0.000835
sucrose_100g	-0.000821	0.000641
glucose_100g	0.000625	-0.000039
fructose_100g	-0.000423	-0.000086
lactose_100g	0.039793	0.000278
maltose_100g	0.005791	-0.000043
maltdextrins_100g	0.028954	0.000236
starch_100g	-0.001520	0.004836
polyols_100g	-0.002394	-0.000379
fiber_100g	0.110067	0.012114
proteins_100g	0.098993	0.008338
casein_100g	0.037163	0.000310
serum-proteins_100g	0.024831	0.000205
nucleotides_100g	0.020149	0.000167
salt_100g	-0.005984	0.003422
sodium_100g	-0.005917	0.003335
alcohol_100g	-0.005823	-0.000867
vitamin-a_100g	0.000950	0.000016
beta-carotene_100g	0.278576	0.004552
vitamin-d_100g	0.005333	0.000090
vitamin-e_100g	0.036157	0.000334
vitamin-k_100g	0.010886	0.000036
vitamin-c_100g	0.024207	0.011827
vitamin-b1_100g	0.038509	0.001420
vitamin-b2_100g	0.088558	0.002067
vitamin-pp_100g	0.022518	0.000491
vitamin-b6_100g	0.005461	0.000335
vitamin-b9_100g	0.155310	-0.000004
folates_100g	0.007773	0.000148
vitamin-b12_100g	0.000134	-0.000020
biotin_100g	-0.000259	-0.000058
pantothenic-acid_100g	0.005742	0.000120
silica_100g	-0.000288	0.000416
bicarbonate_100g	-0.000685	-0.000102
potassium_100g	0.141097	0.003863
chloride_100g	0.054468	0.000410
calcium_100g	0.071047	0.060475
phosphorus_100g	0.000000	0.006355
iron_100g	0.006355	0.000000
magnesium_100g	0.104115	0.001177
zinc_100g	0.277269	0.001158
copper_100g	0.257120	0.004165
manganese_100g	0.069883	0.000785
fluoride_100g	0.000859	-0.000029
selenium_100g	0.007628	0.000019
chromium_100g	0.036043	0.000432
molybdenum_100g	0.277860	0.004535
iodine_100g	0.110009	0.002213
caffeine_100g	-0.000347	-0.000052
taurine_100g	0.003590	-0.000032
ph_100g	-0.000965	-0.000144
fruits-vegetables-nuts_100g	-0.005945	-0.000903
collagen-meat-protein-ratio_100g	-0.001959	-0.000264
cocoa_100g	-0.003519	-0.000545
carbon-footprint_100g	0.091857	Nan
nutrition-score-fr_100g	0.005595	0.001482
nutrition-score-uk_100g	0.006180	0.001584
total3nutriments_100g	0.083870	0.009734
	magnesium_100g	zinc_100g \
additives_n	-0.000474	0.009016
ingredients_from_palm_oil_n	-0.001203	-0.001232
ingredients_that_may_be_from_palm_oil_n	-0.001270	-0.001352

energy_100g	-0.000084	-0.000040
energy-from-fat_100g	0.109313	0.019718
fat_100g	0.006793	-0.002265
saturated-fat_100g	-0.002869	-0.003651
caprylic-acid_100g	-0.000034	-0.000020
capric-acid_100g	-0.000049	-0.000029
lauric-acid_100g	-0.000049	-0.000029
myristic-acid_100g	-0.000034	-0.000020
palmitic-acid_100g	-0.000034	-0.000020
stearic-acid_100g	-0.000034	-0.000020
arachidic-acid_100g	-0.000087	-0.000052
behenic-acid_100g	-0.000087	-0.000051
montanic-acid_100g	-0.000034	-0.000020
monounsaturated-fat_100g	0.011056	0.001003
polyunsaturated-fat_100g	0.014452	0.001943
omega-3-fat_100g	0.000734	-0.000170
alpha-linolenic-acid_100g	0.000820	0.000302
eicosapentaenoic-acid_100g	-0.000047	-0.000028
docosahexaenoic-acid_100g	-0.000124	-0.000058
omega-6-fat_100g	0.000368	-0.000012
linoleic-acid_100g	0.000469	0.000909
arachidonic-acid_100g	0.001817	0.001499
gamma-linolenic-acid_100g	-0.000095	-0.000056
dihomo-gamma-linolenic-acid_100g	-0.000090	-0.000053
omega-9-fat_100g	-0.000050	-0.000032
oleic-acid_100g	0.000040	0.000061
gondoic-acid_100g	-0.000069	-0.000041
trans-fat_100g	-0.000486	-0.000235
cholesterol_100g	-0.001089	-0.000555
carbohydrates_100g	0.006154	0.009610
sugars_100g	0.000796	0.000799
sucrose_100g	-0.000171	-0.000100
glucose_100g	0.000300	-0.000037
fructose_100g	-0.000073	-0.000078
lactose_100g	0.002113	0.003542
malto-dextrins_100g	0.001779	-0.000035
starch_100g	0.001516	0.002293
polyols_100g	0.001306	-0.000186
fiber_100g	-0.000247	-0.000293
proteins_100g	0.021250	0.008703
casein_100g	0.010407	0.003838
serum-proteins_100g	0.001847	0.003526
nucleotides_100g	0.001161	0.002092
salt_100g	0.001018	0.002156
sodium_100g	0.000302	-0.001057
alcohol_100g	0.000333	-0.001845
vitamin-a_100g	-0.001172	-0.000705
beta-carotene_100g	0.000240	0.000202
vitamin-d_100g	0.104553	0.073829
vitamin-e_100g	0.001432	0.001249
vitamin-k_100g	0.011276	0.005870
vitamin-c_100g	0.000938	0.000906
vitamin-b1_100g	0.009524	0.087878
vitamin-b2_100g	0.008805	0.008527
vitamin-pp_100g	0.012346	0.014441
vitamin-b6_100g	0.006316	0.005072
vitamin-b9_100g	0.002087	0.002726
folates_100g	0.000495	0.419412
vitamin-b12_100g	0.000943	-0.000033
biotin_100g	0.000046	0.000070
pantothenic-acid_100g	-0.000012	-0.000011
silica_100g	0.001623	0.002158
bicarbonate_100g	0.008868	0.004336
potassium_100g	0.001090	-0.000083
chloride_100g	0.054885	0.008620
calcium_100g	0.002866	0.004655
phosphorus_100g	0.018641	0.008689
iron_100g	0.104115	0.277269
magnesium_100g	0.001177	0.001158
zinc_100g	0.000000	0.012432
copper_100g	0.012432	0.000000
manganese_100g	0.096017	0.067747
fluoride_100g	0.038164	0.018305
selenium_100g	0.000107	0.000059
chromium_100g	0.000378	0.000032
molybdenum_100g	0.011800	0.007888
iodine_100g	0.105196	0.074206
caffeine_100g	0.044672	0.026382
taurine_100g	0.008724	0.000614
ph_100g	0.000190	0.000385
fruits-vegetables-nuts_100g	-0.000048	-0.000117
collagen-meat-protein-ratio_100g	-0.001235	-0.000736
cocoa_100g	-0.000400	-0.000188
carbon-footprint_100g	-0.000003	-0.000493
nutriton-score-fr_100g	NaN	NaN
nutriton-score-uk_100g	0.001660	0.003394
total3nutriments_100g	0.001759	0.003458
	0.010240	0.007538

copper_100g	manganese_100g	\
additives_n	1.993348e-03	-0.002505
ingredients_from_palm_oil_n	-3.542165e-04	-0.000998
ingredients_that_may_be_from_palm_oil_n	-5.714209e-04	-0.001048
energy_100g	-7.015691e-05	0.000382
energy-from-fat_100g	3.866673e-02	0.031411
fat_100g	-1.101325e-03	0.004125
saturated-fat_100g	-6.461466e-04	-0.001134
caprylic-acid_100g	-5.357555e-06	-0.000015
capric-acid_100g	-7.574085e-06	-0.000022
lauric-acid_100g	-7.576298e-06	-0.000022
myristic-acid_100g	-5.357555e-06	-0.000015
palmitic-acid_100g	-5.357555e-06	-0.000015
stearic-acid_100g	-5.357555e-06	-0.000015
arachidic-acid_100g	-1.352133e-05	-0.000039
behenic-acid_100g	-1.347508e-05	-0.000039
montanic-acid_100g	-5.357555e-06	-0.000015
monounsaturated-fat_100g	-1.702177e-04	0.005268

polyunsaturated-fat_100g	-2.339258e-04	0.007057
omega-3-fat_100g	-6.973015e-05	0.000325
alpha-linolenic-acid_100g	-1.584750e-05	-0.000033
eicosapentaenoic-acid_100g	-7.321475e-06	-0.000021
docosahexaenoic-acid_100g	-2.038192e-05	-0.000058
omega-6-fat_100g	-4.520916e-05	0.000382
linoleic-acid_100g	-2.135933e-05	-0.000004
arachidonic-acid_100g	2.257729e-06	0.000106
gamma-linolenic-acid_100g	-1.478017e-05	-0.000042
dihomo-gamma-linolenic-acid_100g	-1.395704e-05	-0.000040
omega-9-fat_100g	-2.005703e-05	-0.000057
oleic-acid_100g	-1.074951e-05	0.000018
gondoic-acid_100g	-1.067093e-05	-0.000030
trans-fat_100g	-1.293129e-04	-0.000370
cholesterol_100g	-1.805761e-04	0.000049
carbohydrates_100g	-1.348762e-03	-0.000016
sugars_100g	-1.619736e-03	-0.001664
sucrose_100g	-2.670074e-05	-0.000076
glucose_100g	-1.044617e-05	-0.000030
fructose_100g	-2.051211e-05	-0.000059
lactose_100g	5.496639e-07	0.000145
maltose_100g	-9.051723e-06	-0.000026
maltdextrins_100g	5.032411e-06	0.000084
starch_100g	-6.239586e-05	-0.000174
polyols_100g	-8.352346e-05	-0.000232
fiber_100g	-2.536313e-04	0.006486
proteins_100g	-1.472724e-03	0.007812
casein_100g	4.873562e-06	0.000147
serum-proteins_100g	3.014800e-06	0.000075
nucleotides_100g	3.038360e-06	0.000063
salt_100g	-4.822350e-04	-0.001327
sodium_100g	-4.745694e-04	-0.001302
alcohol_100g	-1.848337e-04	-0.000528
vitamin-a_100g	2.058605e-03	0.000293
beta-carotene_100g	9.149702e-01	0.132856
vitamin-d_100g	1.145966e-02	0.001757
vitamin-e_100g	7.205259e-02	0.010690
vitamin-k_100g	6.085764e-05	-0.000005
vitamin-c_100g	5.068996e-02	0.008791
vitamin-b1_100g	5.552600e-04	0.001533
vitamin-b2_100g	1.199740e-03	0.002476
vitamin-pp_100g	4.121492e-02	0.006260
vitamin-b6_100g	1.449883e-03	0.000668
vitamin-b9_100g	1.875045e-03	0.001379
folates_100g	-9.462419e-06	-0.000027
vitamin-b12_100g	5.093790e-04	0.000067
biotin_100g	4.492575e-04	0.000033
pantothenic-acid_100g	1.353256e-02	0.002024
silica_100g	3.998406e-05	0.003557
bicarbonate_100g	-2.174426e-05	-0.000062
potassium_100g	2.975365e-04	0.018013
chloride_100g	8.363223e-06	0.000401
calcium_100g	6.441679e-02	0.011451
phosphorus_100g	2.571203e-01	0.069883
iron_100g	4.164832e-03	0.000785
magnesium_100g	9.601713e-02	0.038164
zinc_100g	6.774740e-02	0.018305
copper_100g	0.000000e+00	0.122139
manganese_100g	1.221393e-01	0.000000
fluoride_100g	-7.623051e-06	-0.000016
selenium_100g	5.743541e-04	0.000968
chromium_100g	9.142350e-02	0.013644
molybdenum_100g	9.117240e-01	0.132468
iodine_100g	3.235627e-01	0.048287
caffeine_100g	-1.102200e-05	-0.000031
taurine_100g	-1.327899e-05	-0.000020
ph_100g	-3.063339e-05	-0.000088
fruits-vegetables-nuts_100g	-1.929228e-04	-0.000551
collagen-meat-protein-ratio_100g	-6.219634e-05	-0.000178
cocoa_100g	-1.417320e-04	-0.000407
carbon-footprint_100g	NaN	NaN
nutrition-score-fr_100g	2.571706e-03	0.002681
nutrition-score-uk_100g	2.568811e-03	0.002729
total3nutriments_100g	-1.895143e-03	0.002810

fluoride_100g	selenium_100g	\
additives_n	-0.002465	0.000045
ingredients_from_palm_oil_n	-0.000398	-0.000264
ingredients_that_may_be_from_palm_oil_n	-0.000655	-0.000429
energy_100g	-0.000015	-0.000031
energy-from-fat_100g	NaN	0.013285
fat_100g	-0.001651	0.001431
saturated-fat_100g	-0.001417	-0.000561
caprylic-acid_100g	-0.000006	-0.000004
capric-acid_100g	-0.000009	-0.000006
lauric-acid_100g	-0.000009	-0.000006
myristic-acid_100g	-0.000006	-0.000004
palmitic-acid_100g	-0.000006	-0.000004
stearic-acid_100g	-0.000006	-0.000004
arachidic-acid_100g	-0.000016	-0.000010
behenic-acid_100g	-0.000016	-0.000010
montanic-acid_100g	-0.000006	-0.000004
monounsaturated-fat_100g	-0.000441	0.003964
polyunsaturated-fat_100g	-0.000420	0.003069
omega-3-fat_100g	-0.000082	-0.000053
alpha-linolenic-acid_100g	0.000350	-0.000012
eicosapentaenoic-acid_100g	-0.000009	-0.000006
docosahexaenoic-acid_100g	0.000195	-0.000015
omega-6-fat_100g	-0.000053	-0.000034
linoleic-acid_100g	0.004274	-0.000018
arachidonic-acid_100g	0.025525	-0.000003
gamma-linolenic-acid_100g	-0.000017	-0.000011
dihomo-gamma-linolenic-acid_100g	-0.000016	-0.000010
omega-9-fat_100g	-0.000024	-0.000015
oleic-acid_100g	-0.000013	-0.000008
gondoic-acid_100g	-0.000012	-0.000008
trans-fat_100g	-0.000150	-0.000097

cholesterol_100g	-0.000210	-0.000133
carbohydrates_100g	-0.002339	0.002689
sugars_100g	-0.001644	-0.000548
sucrose_100g	-0.000031	-0.000020
glucose_100g	-0.000012	-0.000008
fructose_100g	-0.000024	-0.000015
lactose_100g	0.013980	-0.000011
maltose_100g	-0.000010	-0.000007
maltdextrins_100g	0.001547	-0.000002
starch_100g	-0.000069	-0.000047
polyols_100g	-0.000097	-0.000063
fiber_100g	-0.001456	0.002667
proteins_100g	-0.002139	0.000324
casein_100g	0.015887	-0.000006
serum-proteins_100g	0.000582	-0.000005
nucleotides_100g	0.000516	-0.000002
salt_100g	0.004955	0.000084
sodium_100g	0.004843	0.000080
alcohol_100g	-0.000214	-0.000139
vitamin-a_100g	-0.000099	0.000007
beta-carotene_100g	-0.000007	0.000628
vitamin-d_100g	0.000014	0.000002
vitamin-e_100g	0.000034	0.000040
vitamin-k_100g	-0.000006	-0.000004
vitamin-c_100g	-0.000020	-0.000004
vitamin-b1_100g	-0.000095	-0.000036
vitamin-b2_100g	-0.000118	-0.000047
vitamin-pp_100g	0.000145	0.000010
vitamin-b6_100g	-0.000009	-0.000002
vitamin-b9_100g	-0.000011	0.000009
folates_100g	-0.000011	-0.000007
vitamin-b12_100g	-0.000007	-0.000004
biotin_100g	-0.000015	-0.000009
pantothenic-acid_100g	-0.000013	0.000001
silica_100g	0.000224	0.000024
bicarbonate_100g	0.149932	-0.000016
potassium_100g	0.000086	0.001723
chloride_100g	0.030160	-0.000007
calcium_100g	0.000245	0.000165
phosphorus_100g	0.000859	0.007628
iron_100g	-0.000029	0.000019
magnesium_100g	0.000107	0.000378
zinc_100g	0.000059	0.000032
copper_100g	-0.000008	0.000574
manganese_100g	-0.000016	0.000968
fluoride_100g	0.000000	-0.000006
selenium_100g	-0.000006	0.000000
chromium_100g	-0.000005	0.000059
molybdenum_100g	0.000003	0.000631
iodine_100g	0.015333	0.000206
caffeine_100g	-0.000013	-0.000008
taurine_100g	0.000087	-0.000011
ph_100g	0.000259	-0.000023
fruits-vegetables-nuts_100g	-0.000224	-0.000145
collagen-meat-protein-ratio_100g	-0.000072	-0.000047
cocoa_100g	-0.000165	-0.000107
carbon-footprint_100g	NaN	NaN
nutrition-score-fr_100g	0.000750	0.000194
nutrition-score-uk_100g	0.000775	0.000216
total3nutriments_100g	-0.003081	0.002867
	chromium_100g	molybdenum_100g \
additives_n	-0.001498	0.001732
ingredients_from_palm_oil_n	-0.000283	-0.000271
ingredients_that_may_be_from_palm_oil_n	-0.000446	-0.000443
energy_100g	0.000182	-0.000098
energy-from-fat_100g	NaN	NaN
fat_100g	-0.000445	-0.001326
saturated-fat_100g	-0.000774	-0.001154
caprylic-acid_100g	-0.000004	-0.000005
capric-acid_100g	-0.000006	-0.000006
lauric-acid_100g	-0.000006	-0.000006
myristic-acid_100g	-0.000004	-0.000005
palmitic-acid_100g	-0.000004	-0.000005
stearic-acid_100g	-0.000004	-0.000005
arachidic-acid_100g	-0.000011	-0.000012
behenic-acid_100g	-0.000011	-0.000011
montanic-acid_100g	-0.000004	-0.000005
monounsaturated-fat_100g	-0.000313	-0.000299
polyunsaturated-fat_100g	-0.000289	-0.000241
omega-3-fat_100g	-0.000055	0.000058
alpha-linolenic-acid_100g	-0.000013	-0.000011
eicosapentaenoic-acid_100g	-0.000006	-0.000006
docosahexaenoic-acid_100g	-0.000017	-0.000018
omega-6-fat_100g	-0.000031	0.000231
linoleic-acid_100g	-0.000014	0.000003
arachidonic-acid_100g	-0.000010	-0.000010
gamma-linolenic-acid_100g	-0.000012	-0.000013
dihomo-gamma-linolenic-acid_100g	-0.000012	-0.000012
omega-9-fat_100g	-0.000017	-0.000017
oleic-acid_100g	-0.000009	-0.000010
gondoic-acid_100g	-0.000009	-0.000009
trans-fat_100g	-0.000107	-0.000110
cholesterol_100g	-0.000149	-0.000153
carbohydrates_100g	0.002231	-0.001688
sugars_100g	-0.001310	-0.001154
sucrose_100g	-0.000022	-0.000023
glucose_100g	-0.000009	-0.000009
fructose_100g	-0.000017	-0.000017
lactose_100g	-0.000025	-0.000023
maltose_100g	-0.000007	-0.000008
maltdextrins_100g	-0.000012	-0.000013
starch_100g	-0.000052	-0.000054
polyols_100g	-0.000069	-0.000072
fiber_100g	-0.001011	-0.000956
proteins_100g	0.000563	-0.001533
casein_100g	-0.000018	-0.000019

serum-proteins_100g	-0.000012	-0.000013
nucleotides_100g	0.000615	0.004988
salt_100g	-0.000358	-0.000438
sodium_100g	-0.000353	-0.000431
alcohol_100g	-0.000153	-0.000158
vitamin-a_100g	0.000217	0.002236
beta-carotene_100g	0.099787	0.994582
vitamin-d_100g	0.001244	0.012464
vitamin-e_100g	0.088021	0.078320
vitamin-k_100g	0.000003	0.000067
vitamin-c_100g	0.005512	0.055378
vitamin-b1_100g	-0.000002	0.000585
vitamin-b2_100g	0.000051	0.001272
vitamin-pp_100g	0.004809	0.047469
vitamin-b6_100g	0.000152	0.001577
vitamin-b9_100g	0.000192	0.001984
folates_100g	-0.000008	-0.000008
vitamin-b12_100g	0.000051	0.000555
biotin_100g	0.000040	0.000492
pantothenic-acid_100g	0.001467	0.014714
silica_100g	0.002671	0.026684
bicarbonate_100g	-0.000018	-0.000019
potassium_100g	0.002010	0.000273
chloride_100g	0.000314	0.003809
calcium_100g	0.006933	0.071257
phosphorus_100g	0.036043	0.277860
iron_100g	0.000432	0.004535
magnesium_100g	0.011800	0.105196
zinc_100g	0.007888	0.074206
copper_100g	0.091423	0.911724
manganese_100g	0.013644	0.132468
fluoride_100g	-0.000005	0.000003
selenium_100g	0.000059	0.000631
chromium_100g	0.000000	0.100269
molybdenum_100g	0.100269	0.000000
iodine_100g	0.035265	0.351815
caffeine_100g	-0.000009	-0.000009
taurine_100g	0.000040	0.000413
ph_100g	-0.000025	-0.000026
fruits-vegetables-nuts_100g	-0.000159	-0.000164
collagen-meat-protein-ratio_100g	-0.000051	-0.000053
cocoa_100g	-0.000118	-0.000121
carbon-footprint_100g	NaN	NaN
nutrition-score-fr_100g	-0.000501	0.002917
nutrition-score-uk_100g	-0.000455	0.003015
total3nutriments_100g	0.001714	-0.002281

additives_n	iodine_100g	caffeine_100g	\
ingredients_from_palm_oil_n	-0.003722	-0.001538	
ingredients_that_may_be_from_palm_oil_n	-0.001099	-0.000513	
energy_100g	-0.001982	-0.000857	
energy-from-fat_100g	-0.000061	-0.000320	
fat_100g	NaN	NaN	
saturated-fat_100g	-0.004862	-0.002486	
caprylic-acid_100g	-0.004284	-0.002150	
capric-acid_100g	-0.000018	-0.000008	
lauric-acid_100g	-0.000025	-0.000011	
myristic-acid_100g	-0.000018	-0.000008	
palmitic-acid_100g	-0.000018	-0.000008	
stearic-acid_100g	-0.000018	-0.000008	
arachidic-acid_100g	-0.000045	-0.000021	
behenic-acid_100g	-0.000045	-0.000020	
montanic-acid_100g	-0.000018	-0.000008	
monounsaturated-fat_100g	-0.001156	-0.000579	
polyunsaturated-fat_100g	-0.001117	-0.000551	
omega-3-fat_100g	-0.000126	-0.000107	
alpha-linolenic-acid_100g	0.000697	-0.000026	
eicosapentaenoic-acid_100g	-0.000025	-0.000011	
docosahexaenoic-acid_100g	0.000017	-0.000032	
omega-6-fat_100g	-0.000065	-0.000070	
linoleic-acid_100g	0.004271	-0.000045	
arachidonic-acid_100g	0.007928	-0.000018	
gamma-linolenic-acid_100g	-0.000050	-0.000022	
dihomo-gamma-linolenic-acid_100g	-0.000047	-0.000021	
omega-9-fat_100g	0.000159	-0.000031	
oleic-acid_100g	0.000489	-0.000017	
gondoic-acid_100g	-0.000036	-0.000016	
trans-fat_100g	-0.000436	-0.000196	
cholesterol_100g	-0.000577	-0.000275	
carbohydrates_100g	-0.003873	-0.001186	
sugars_100g	-0.004887	0.000394	
sucrose_100g	-0.000082	-0.000041	
glucose_100g	-0.000022	-0.000016	
fructose_100g	-0.000069	-0.000031	
lactose_100g	0.016736	-0.000047	
maltose_100g	-0.000030	-0.000014	
maltdodextrins_100g	0.009601	-0.000023	
starch_100g	0.000089	-0.000095	
polyols_100g	-0.000203	-0.000127	
fiber_100g	0.013556	-0.000159	
proteins_100g	-0.002472	-0.002642	
casein_100g	0.015359	-0.000033	
serum-proteins_100g	0.009469	-0.000022	
nucleotides_100g	0.008558	-0.000020	
salt_100g	0.082570	0.015019	
sodium_100g	0.080756	0.014665	
alcohol_100g	-0.000622	-0.000280	
vitamin-a_100g	0.000782	-0.000014	
beta-carotene_100g	0.353030	-0.000009	
vitamin-d_100g	0.004478	-0.000013	
vitamin-e_100g	0.027865	-0.000021	
vitamin-k_100g	0.000008	-0.000008	
vitamin-c_100g	0.019591	0.000085	
vitamin-b1_100g	-0.000044	-0.000125	
vitamin-b2_100g	0.000135	0.001150	
vitamin-pp_100g	0.016757	0.114242	

vitamin-b6_100g	0.000549	0.003836
vitamin-b9_100g	0.000976	-0.000014
folates_100g	-0.000032	-0.000015
vitamin-b12_100g	0.000179	0.002835
biotin_100g	0.000136	-0.000019
pantothenic-acid_100g	0.005204	0.000023
silica_100g	-0.000031	-0.000014
bicarbonate_100g	-0.000073	-0.000033
potassium_100g	0.075080	-0.000331
chloride_100g	0.020815	-0.000049
calcium_100g	0.027242	0.001410
phosphorus_100g	0.110009	-0.000347
iron_100g	0.002213	-0.000052
magnesium_100g	0.044672	0.008724
zinc_100g	0.026382	0.000614
copper_100g	0.323563	-0.000011
manganese_100g	0.048287	-0.000031
fluoride_100g	0.015333	-0.000013
selenium_100g	0.000206	-0.000008
chromium_100g	0.035265	-0.000009
molybdenum_100g	0.351815	-0.000009
iodine_100g	0.000000	-0.000037
caffeine_100g	-0.000037	0.000000
taurine_100g	0.001810	0.001104
ph_100g	-0.000103	-0.000046
fruits-vegetables-nuts_100g	-0.000649	-0.000293
collagen-meat-protein-ratio_100g	-0.000299	-0.000094
cocoa_100g	-0.000480	-0.000216
carbon-footprint_100g	NaN	NaN
nutrition-score-fr_100g	-0.000026	-0.000263
nutrition-score-uk_100g	-0.000705	-0.000203
total3nutriments_100g	-0.005818	-0.002638
taurine_100g	ph_100g	\
additives_n	-1.621954e-03	-0.004844
ingredients_from_palm_oil_n	-7.075203e-04	-0.001304
ingredients_that_may_be_from_palm_oil_n	-1.158847e-03	-0.002136
energy_100g	-1.310855e-04	0.000274
energy-from-fat_100g	NaN	NaN
fat_100g	-2.434258e-03	-0.006950
saturated-fat_100g	-2.108157e-03	-0.005995
caprylic-acid_100g	-1.222799e-05	-0.000023
capric-acid_100g	-1.728696e-05	-0.000032
lauric-acid_100g	-1.729201e-05	-0.000032
myristic-acid_100g	-1.222799e-05	-0.000023
palmitic-acid_100g	-1.222799e-05	-0.000023
stearic-acid_100g	-1.222799e-05	-0.000023
arachidic-acid_100g	-3.086085e-05	-0.000057
behenic-acid_100g	-3.075529e-05	-0.000057
montanic-acid_100g	-1.222799e-05	-0.000023
monounsaturated-fat_100g	-8.707096e-04	-0.001609
polyunsaturated-fat_100g	-8.292371e-04	-0.001532
omega-3-fat_100g	-1.607434e-04	-0.000297
alpha-linolenic-acid_100g	1.847547e-03	-0.000073
eicosapentaenoic-acid_100g	-1.684464e-05	-0.000031
docosahexaenoic-acid_100g	5.821573e-04	-0.000088
omega-6-fat_100g	-1.046944e-04	-0.000193
linoleic-acid_100g	1.980825e-02	-0.000124
arachidonic-acid_100g	6.582641e-02	-0.000050
gamma-linolenic-acid_100g	-3.373400e-05	-0.000062
dihomo-gamma-linolenic-acid_100g	-3.185532e-05	-0.000059
omega-9-fat_100g	-4.653833e-05	-0.000086
oleic-acid_100g	-2.611220e-05	-0.000048
gondoic-acid_100g	-2.435514e-05	-0.000045
trans-fat_100g	-2.955476e-04	-0.000546
cholesterol_100g	-4.135206e-04	-0.000764
carbohydrates_100g	-2.305889e-03	-0.009860
sugars_100g	-2.948154e-04	-0.007207
sucrose_100g	-6.095748e-05	-0.000113
glucose_100g	-2.384216e-05	-0.000044
fructose_100g	-4.681648e-05	-0.000087
lactose_100g	7.679316e-02	-0.000134
maltose_100g	-2.065950e-05	-0.000038
maltdextrins_100g	3.435746e-02	-0.000063
starch_100g	6.286738e-04	-0.000265
polyols_100g	-1.916469e-04	-0.000354
fiber_100g	-2.376753e-03	-0.005305
proteins_100g	-3.372167e-03	-0.008610
casein_100g	7.425107e-02	-0.000092
serum-proteins_100g	4.888095e-02	-0.000062
nucleotides_100g	8.557187e-02	-0.000055
salt_100g	-1.203936e-03	-0.002502
sodium_100g	-1.184263e-03	-0.002460
alcohol_100g	-4.218614e-04	-0.000779
vitamin-a_100g	-1.412575e-05	-0.000039
beta-carotene_100g	-1.361100e-05	-0.000025
vitamin-d_100g	9.841581e-05	-0.000036
vitamin-e_100g	1.624517e-04	-0.000059
vitamin-k_100g	-1.185977e-05	-0.000023
vitamin-c_100g	9.105772e-05	-0.000241
vitamin-b1_100g	-1.875550e-04	-0.000348
vitamin-b2_100g	-2.203209e-04	-0.000435
vitamin-pp_100g	8.662215e-03	-0.000121
vitamin-b6_100g	1.083659e-04	-0.000034
vitamin-b9_100g	-1.693691e-05	-0.000039
folates_100g	-2.203246e-05	-0.000041
vitamin-b12_100g	-4.999986e-07	-0.000026
biotin_100g	-2.586898e-05	-0.000054
pantothenic-acid_100g	1.812485e-04	-0.000048
silica_100g	-2.083151e-05	0.017182
bicarbonate_100g	-4.962874e-05	0.120868
potassium_100g	1.184400e-03	-0.000960
chloride_100g	7.935485e-02	0.005241
calcium_100g	3.735555e-04	-0.001120
phosphorus_100g	3.589813e-03	-0.000965
iron_100g	-3.234298e-05	-0.000144
magnesium_100g	1.896238e-04	-0.000048

zinc_100g	3.854905e-04	-0.000117
copper_100g	-1.327899e-05	-0.000031
manganese_100g	-1.952642e-05	-0.000088
fluoride_100g	8.733948e-05	0.000259
selenium_100g	-1.096810e-05	-0.000023
chromium_100g	3.986014e-05	-0.000025
molybdenum_100g	4.133197e-04	-0.000026
iodine_100g	1.810448e-03	-0.000103
caffeine_100g	1.103998e-03	-0.000046
taurine_100g	0.000000e+00	-0.000070
ph_100g	-6.991712e-05	0.000000
fruits-vegetables-nuts_100g	-4.403237e-04	-0.000014
collagen-meat-protein-ratio_100g	-1.419559e-04	-0.0000262
cocoa_100g	-3.253993e-04	-0.000061
carbon-footprint_100g	NaN	NaN
nutrition-score-fr_100g	-5.557133e-03	0.000624
nutrition-score-uk_100g	-5.475290e-03	0.000970
total3nutriments_100g	-3.672431e-03	-0.012892
fruits-vegetables-nuts_100g	\	
additives_n	-0.009108	
ingredients_from_palm_oil_n	0.014322	
ingredients_that_may_be_from_palm_oil_n	0.012251	
energy_100g	-0.000543	
energy-from-fat_100g	NaN	
fat_100g	-0.030719	
saturated-fat_100g	-0.030259	
caprylic-acid_100g	-0.000142	
capric-acid_100g	-0.000201	
lauric-acid_100g	-0.000201	
myristic-acid_100g	-0.000142	
palmitic-acid_100g	-0.000142	
stearic-acid_100g	-0.000142	
arachidic-acid_100g	-0.000359	
behenic-acid_100g	-0.000358	
montanic-acid_100g	-0.000142	
monounsaturated-fat_100g	-0.010064	
polyunsaturated-fat_100g	-0.009538	
omega-3-fat_100g	-0.001867	
alpha-linolenic-acid_100g	-0.000404	
eicosapentaenoic-acid_100g	-0.000196	
docosahexaenoic-acid_100g	-0.000553	
omega-6-fat_100g	-0.001218	
linoleic-acid_100g	-0.000733	
arachidonic-acid_100g	-0.000314	
gamma-linolenic-acid_100g	-0.000393	
dihomo-gamma-linolenic-acid_100g	-0.000371	
omega-9-fat_100g	-0.000542	
oleic-acid_100g	-0.000304	
gondoic-acid_100g	-0.000283	
trans-fat_100g	-0.003439	
cholesterol_100g	-0.004812	
carbohydrates_100g	-0.009205	
sugars_100g	0.024531	
sucrose_100g	-0.000709	
glucose_100g	-0.000277	
fructose_100g	0.009766	
lactose_100g	-0.000843	
maltose_100g	-0.000240	
maltdextrins_100g	-0.000395	
starch_100g	-0.001518	
polyols_100g	-0.001441	
fiber_100g	-0.009582	
proteins_100g	-0.036616	
casein_100g	-0.000580	
serum-proteins_100g	-0.000393	
nucleotides_100g	-0.000347	
salt_100g	-0.012649	
sodium_100g	-0.012450	
alcohol_100g	-0.004909	
vitamin-a_100g	-0.000239	
beta-carotene_100g	-0.000151	
vitamin-d_100g	-0.000226	
vitamin-e_100g	-0.000325	
vitamin-k_100g	-0.000143	
vitamin-c_100g	-0.001296	
vitamin-b1_100g	-0.002193	
vitamin-b2_100g	-0.002738	
vitamin-pp_100g	-0.000735	
vitamin-b6_100g	-0.000166	
vitamin-b9_100g	-0.000244	
folates_100g	-0.000256	
vitamin-b12_100g	-0.000165	
biotin_100g	-0.000339	
pantothenic-acid_100g	-0.000294	
silica_100g	-0.000242	
bicarbonate_100g	-0.000578	
potassium_100g	-0.006096	
chloride_100g	-0.000855	
calcium_100g	-0.007673	
phosphorus_100g	-0.005945	
iron_100g	-0.000903	
magnesium_100g	-0.001235	
zinc_100g	-0.000736	
copper_100g	-0.000193	
manganese_100g	-0.000551	
fluoride_100g	-0.000224	
selenium_100g	-0.000145	
chromium_100g	-0.000159	
molybdenum_100g	-0.000164	
iodine_100g	-0.000649	
caffeine_100g	-0.000293	
taurine_100g	-0.000440	
ph_100g	-0.000814	
fruits-vegetables-nuts_100g	0.000000	
collagen-meat-protein-ratio_100g	-0.001652	
cocoa_100g	-0.001865	

carbon-footprint_100g	0.009377
nutrition-score-fr_100g	-0.005627
nutrition-score-uk_100g	-0.006470
total3nutriments_100g	-0.029084
collagen-meat-protein-ratio_100g \	
additives_n	-0.002968
ingredients_from_palm_oil_n	0.000592
ingredients_that_may_be_from_palm_oil_n	0.002986
energy_100g	-0.000261
energy-from-fat_100g	Nan
fat_100g	0.004923
saturated-fat_100g	0.001314
caprylic-acid_100g	-0.000046
capric-acid_100g	-0.000065
lauric-acid_100g	-0.000065
myristic-acid_100g	-0.000046
palmitic-acid_100g	-0.000046
stearic-acid_100g	-0.000046
arachidic-acid_100g	-0.000116
behenic-acid_100g	-0.000115
montanic-acid_100g	-0.000046
monounsaturated-fat_100g	-0.003267
polyunsaturated-fat_100g	-0.003111
omega-3-fat_100g	-0.000603
alpha-linolenic-acid_100g	-0.000147
eicosapentaenoic-acid_100g	-0.000063
docosahexaenoic-acid_100g	-0.000178
omega-6-fat_100g	-0.000393
linoleic-acid_100g	-0.000253
arachidonic-acid_100g	-0.000101
gamma-linolenic-acid_100g	-0.000127
dihomo-gamma-linolenic-acid_100g	-0.000120
omega-9-fat_100g	-0.000175
oleic-acid_100g	-0.000098
gondoic-acid_100g	-0.000091
trans-fat_100g	-0.000109
cholesterol_100g	-0.000151
carbohydrates_100g	-0.019348
sugars_100g	-0.014268
sucrose_100g	-0.000229
glucose_100g	-0.000089
fructose_100g	-0.000176
lactose_100g	-0.000272
maltose_100g	-0.000078
maltodextrins_100g	-0.000127
starch_100g	-0.000538
polyols_100g	-0.000719
fiber_100g	-0.009710
proteins_100g	0.018339
casein_100g	-0.000187
serum-proteins_100g	-0.000127
nucleotides_100g	-0.000112
salt_100g	-0.003994
sodium_100g	-0.003931
alcohol_100g	-0.001583
vitamin-a_100g	-0.000078
beta-carotene_100g	-0.000051
vitamin-d_100g	-0.000073
vitamin-e_100g	-0.000120
vitamin-k_100g	-0.000046
vitamin-c_100g	-0.000490
vitamin-b1_100g	-0.000707
vitamin-b2_100g	-0.000883
vitamin-pp_100g	-0.000236
vitamin-b6_100g	-0.000068
vitamin-b9_100g	-0.000079
folates_100g	-0.000083
vitamin-b12_100g	-0.000052
biotin_100g	-0.000109
pantothenic-acid_100g	-0.000098
silica_100g	-0.000078
bicarbonate_100g	-0.000186
potassium_100g	-0.001984
chloride_100g	-0.000276
calcium_100g	-0.002540
phosphorus_100g	-0.001959
iron_100g	-0.000264
magnesium_100g	-0.000400
zinc_100g	-0.000188
copper_100g	-0.000062
manganese_100g	-0.000178
fluoride_100g	-0.000072
selenium_100g	-0.000047
chromium_100g	-0.000051
molybdenum_100g	-0.000053
iodine_100g	-0.000209
caffeine_100g	-0.000094
taurine_100g	-0.000142
ph_100g	-0.000262
fruits-vegetables-nuts_100g	-0.001652
collagen-meat-protein-ratio_100g	0.000000
cocoa_100g	-0.001221
carbon-footprint_100g	Nan
nutrition-score-fr_100g	-0.001416
nutrition-score-uk_100g	-0.001502
total3nutriments_100g	-0.009331
cocoa_100g carbon-footprint_100g \	
additives_n	-0.010697
ingredients_from_palm_oil_n	0.006215
ingredients_that_may_be_from_palm_oil_n	0.000905
energy_100g	-0.000019
energy-from-fat_100g	-0.029095
fat_100g	0.078039
saturated-fat_100g	0.113881
caprylic-acid_100g	-0.000105

capric-acid_100g	-0.000149	NaN
lauric-acid_100g	-0.000149	NaN
myristic-acid_100g	-0.000105	NaN
palmitic-acid_100g	-0.000105	NaN
stearic-acid_100g	-0.000105	NaN
arachidic-acid_100g	-0.000265	NaN
behenic-acid_100g	-0.000264	NaN
montanic-acid_100g	-0.000105	NaN
monounsaturated-fat_100g	-0.002960	-0.054690
polyunsaturated-fat_100g	-0.006559	-0.054690
omega-3-fat_100g	-0.001382	NaN
alpha-linolenic-acid_100g	-0.000337	NaN
eicosapentaenoic-acid_100g	-0.000145	NaN
docosahexaenoic-acid_100g	-0.000409	NaN
omega-6-fat_100g	-0.000900	NaN
linoleic-acid_100g	-0.000579	NaN
arachidonic-acid_100g	-0.000232	NaN
gamma-linolenic-acid_100g	-0.000290	NaN
dihomo-gamma-linolenic-acid_100g	-0.000274	NaN
omega-9-fat_100g	-0.000400	NaN
oleic-acid_100g	-0.000225	NaN
gondoic-acid_100g	-0.000209	NaN
trans-fat_100g	-0.002439	NaN
cholesterol_100g	-0.000259	0.068144
carbohydrates_100g	0.027019	0.068211
sugars_100g	0.055398	0.094985
sucrose_100g	-0.000524	NaN
glucose_100g	-0.000205	NaN
fructose_100g	0.006944	NaN
lactose_100g	0.001845	NaN
maltose_100g	-0.000178	NaN
maltdextrins_100g	-0.000292	NaN
starch_100g	-0.001047	NaN
polyols_100g	0.009205	NaN
fiber_100g	0.034177	0.055909
proteins_100g	0.006405	-0.129010
casein_100g	-0.000429	NaN
serum-proteins_100g	-0.000291	NaN
nucleotides_100g	-0.000256	NaN
salt_100g	-0.011064	-0.018277
sodium_100g	-0.010880	-0.018277
alcohol_100g	-0.003335	0.038832
vitamin-a_100g	-0.000180	0.009377
beta-carotene_100g	0.000413	NaN
vitamin-d_100g	-0.000168	-0.033925
vitamin-e_100g	-0.000240	0.009377
vitamin-k_100g	-0.000106	NaN
vitamin-c_100g	-0.001117	-0.027580
vitamin-b1_100g	-0.001621	0.009377
vitamin-b2_100g	-0.002024	0.058899
vitamin-pp_100g	-0.000557	0.009377
vitamin-b6_100g	-0.000157	0.009377
vitamin-b9_100g	-0.000181	0.009377
folates_100g	-0.000189	NaN
vitamin-b12_100g	-0.000122	0.091857
biotin_100g	-0.000251	0.009377
pantothenic-acid_100g	-0.000222	0.009377
silica_100g	-0.000179	NaN
bicarbonate_100g	-0.000427	NaN
potassium_100g	-0.004547	0.091857
chloride_100g	-0.000632	0.091857
calcium_100g	-0.005577	-0.030487
phosphorus_100g	-0.003519	0.091857
iron_100g	-0.000545	NaN
magnesium_100g	-0.000003	NaN
zinc_100g	-0.000493	NaN
copper_100g	-0.000142	NaN
manganese_100g	-0.000407	NaN
fluoride_100g	-0.000165	NaN
selenium_100g	-0.000107	NaN
chromium_100g	-0.000118	NaN
molybdenum_100g	-0.000121	NaN
iodine_100g	-0.000480	NaN
caffeine_100g	-0.000216	NaN
taurine_100g	-0.000325	NaN
ph_100g	-0.000601	NaN
fruits-vegetables-nuts_100g	-0.001865	0.009377
collagen-meat-protein-ratio_100g	-0.001221	NaN
cocoa_100g	0.000000	NaN
carbon-footprint_100g	NaN	0.000000
nutrition-score-fr_100g	-0.003616	0.376427
nutrition-score-uk_100g	-0.003994	0.411711
total3nutriments_100g	0.057917	-0.054521
		nutrition-score-fr_100g \
additives_n		0.166911
ingredients_from_palm_oil_n		0.116752
ingredients_that_may_be_from_palm_oil_n		0.058519
energy_100g		0.064210
energy-from-fat_100g		0.551535
fat_100g		0.012495
saturated-fat_100g		0.006243
caprylic-acid_100g		0.000989
capric-acid_100g		0.000989
lauric-acid_100g		0.000989
myristic-acid_100g		0.000989
palmitic-acid_100g		0.000989
stearic-acid_100g		0.000989
arachidic-acid_100g		-0.002258
behenic-acid_100g		-0.002255
montanic-acid_100g		0.002015
monounsaturated-fat_100g		-0.001124
polyunsaturated-fat_100g		0.003624
omega-3-fat_100g		-0.001435
alpha-linolenic-acid_100g		-0.001900
eicosapentaenoic-acid_100g		0.001618
docosahexaenoic-acid_100g		-0.004458

omega-6-fat_100g	0.001504
linoleic-acid_100g	0.003122
arachidonic-acid_100g	0.005229
gamma-linolenic-acid_100g	-0.001969
dihomo-gamma-linolenic-acid_100g	-0.002435
omega-9-fat_100g	-0.000999
oleic-acid_100g	0.002023
gondoic-acid_100g	-0.002709
trans-fat_100g	0.004086
cholesterol_100g	-0.000372
carbohydrates_100g	0.019623
sugars_100g	0.011150
sucrose_100g	-0.002024
glucose_100g	-0.001304
fructose_100g	0.000810
lactose_100g	0.003673
maltose_100g	-0.003609
maltodextrins_100g	-0.001693
starch_100g	-0.000016
polyols_100g	-0.003895
fiber_100g	0.010204
proteins_100g	0.011213
casein_100g	0.000900
serum-proteins_100g	-0.003699
nucleotides_100g	-0.003476
salt_100g	-0.001433
sodium_100g	-0.001556
alcohol_100g	-0.000293
vitamin-a_100g	-0.002790
beta-carotene_100g	0.002766
vitamin-d_100g	0.001044
vitamin-e_100g	0.001990
vitamin-k_100g	0.001503
vitamin-c_100g	0.005141
vitamin-b1_100g	-0.004973
vitamin-b2_100g	-0.005532
vitamin-pp_100g	-0.003432
vitamin-b6_100g	-0.001667
vitamin-b9_100g	-0.001109
folates_100g	-0.002397
vitamin-b12_100g	-0.002487
biotin_100g	-0.000056
pantothenic-acid_100g	-0.000838
silica_100g	-0.000109
bicarbonate_100g	0.000634
potassium_100g	0.008976
chloride_100g	0.001566
calcium_100g	0.005567
phosphorus_100g	0.005595
iron_100g	0.001482
magnesium_100g	0.001660
zinc_100g	0.003394
copper_100g	0.002572
manganese_100g	0.002681
fluoride_100g	0.000750
selenium_100g	0.000194
chromium_100g	-0.000501
molybdenum_100g	0.002917
iodine_100g	-0.000026
caffeine_100g	-0.000263
taurine_100g	-0.005557
ph_100g	0.000624
fruits-vegetables-nuts_100g	-0.005627
collagen-meat-protein-ratio_100g	-0.001416
cocoa_100g	-0.003616
carbon-footprint_100g	0.376427
nutrition-score-fr_100g	0.000000
nutrition-score-uk_100g	0.986033
total3nutriments_100g	0.020371

additives_n	nutrition-score-uk_100g \ 0.162892
ingredients_from_palm_oil_n	0.118980
ingredients_that_may_be_from_palm_oil_n	0.059108
energy_100g	0.066652
energy-from-fat_100g	0.578537
fat_100g	0.014058
saturated-fat_100g	0.006850
caprylic-acid_100g	0.001000
capric-acid_100g	0.001000
lauric-acid_100g	0.001000
myristic-acid_100g	0.001000
palmitic-acid_100g	0.001000
stearic-acid_100g	0.001000
arachidic-acid_100g	-0.002168
behenic-acid_100g	-0.002166
montanic-acid_100g	0.002011
monounsaturated-fat_100g	-0.000516
polyunsaturated-fat_100g	0.004876
omega-3-fat_100g	-0.000536
alpha-linolenic-acid_100g	-0.001250
eicosapentaenoic-acid_100g	0.001639
docosahexaenoic-acid_100g	-0.004108
omega-6-fat_100g	0.002453
linoleic-acid_100g	0.003390
arachidonic-acid_100g	0.005191
gamma-linolenic-acid_100g	-0.001878
dihomo-gamma-linolenic-acid_100g	-0.002342
omega-9-fat_100g	-0.000900
oleic-acid_100g	0.004183
gondoic-acid_100g	-0.002622
trans-fat_100g	0.004661
cholesterol_100g	0.000220
carbohydrates_100g	0.023338
sugars_100g	0.013240
sucrose_100g	-0.003661
glucose_100g	-0.001245

fructose_100g	0.001603
lactose_100g	0.002595
maltose_100g	-0.003524
maltdextrins_100g	-0.001627
starch_100g	0.000156
polyols_100g	-0.004012
fiber_100g	0.011648
proteins_100g	0.011293
casein_100g	0.000149
serum-proteins_100g	-0.003598
nucleotides_100g	-0.003392
salt_100g	-0.000711
sodium_100g	-0.000834
alcohol_100g	-0.000364
vitamin-a_100g	-0.002715
beta-carotene_100g	0.002754
vitamin-d_100g	0.001060
vitamin-e_100g	0.002012
vitamin-k_100g	0.001507
vitamin-c_100g	0.005270
vitamin-b1_100g	-0.004586
vitamin-b2_100g	-0.004964
vitamin-pp_100g	-0.003121
vitamin-b6_100g	-0.001610
vitamin-b9_100g	-0.001052
folates_100g	-0.002319
vitamin-b12_100g	-0.002424
biotin_100g	-0.000002
pantothenic-acid_100g	-0.000777
silica_100g	-0.000031
bicarbonate_100g	0.000493
potassium_100g	0.009461
chloride_100g	0.001234
calcium_100g	0.006464
phosphorus_100g	0.006180
iron_100g	0.001584
magnesium_100g	0.001759
zinc_100g	0.003458
copper_100g	0.002569
manganese_100g	0.002729
fluoride_100g	0.000775
selenium_100g	0.000216
chromium_100g	-0.000455
molybdenum_100g	0.003015
iodine_100g	-0.000705
caffeine_100g	-0.000203
taurine_100g	-0.005475
ph_100g	0.000970
fruits-vegetables-nuts_100g	-0.006470
collagen-meat-protein-ratio_100g	-0.001502
cocoa_100g	-0.003994
carbon-footprint_100g	0.411711
nutrition-score-fr_100g	0.986033
nutrition-score-uk_100g	0.000000
total3nutriments_100g	0.024973

	total3nutriments_100g
additives_n	0.037774
ingredients_from_palm_oil_n	-0.078923
ingredients_that_may_be_from_palm_oil_n	-0.056025
energy_100g	-0.001644
energy-from-fat_100g	0.004297
fat_100g	0.555983
saturated-fat_100g	0.377921
caprylic-acid_100g	0.003268
capric-acid_100g	0.004366
lauric-acid_100g	0.004368
myristic-acid_100g	0.003268
palmitic-acid_100g	0.003268
stearic-acid_100g	0.003268
arachidic-acid_100g	-0.005681
behenic-acid_100g	-0.005662
montanic-acid_100g	0.003268
monounsaturated-fat_100g	0.180694
polyunsaturated-fat_100g	0.166941
omega-3-fat_100g	0.015851
alpha-linolenic-acid_100g	0.003515
eicosapentaenoic-acid_100g	0.002619
docosahexaenoic-acid_100g	-0.005580
omega-6-fat_100g	0.020801
linoleic-acid_100g	0.006994
arachidonic-acid_100g	0.006468
gamma-linolenic-acid_100g	-0.005026
dihomo-gamma-linolenic-acid_100g	-0.005861
omega-9-fat_100g	0.011422
oleic-acid_100g	0.006304
gondoic-acid_100g	-0.004475
trans-fat_100g	0.040337
cholesterol_100g	0.020191
carbohydrates_100g	0.836193
sugars_100g	0.495205
sucrose_100g	0.003907
glucose_100g	0.002643
fructose_100g	0.005982
lactose_100g	0.010495
maltose_100g	0.001838
maltdextrins_100g	0.007702
starch_100g	0.026231
polyols_100g	0.035087
fiber_100g	0.349589
proteins_100g	0.370372
casein_100g	0.010345
serum-proteins_100g	0.006516
nucleotides_100g	0.006865
salt_100g	-0.029949
sodium_100g	-0.029846
alcohol_100g	-0.076329

```

vitamin-a_100g          0.001020
beta-carotene_100g      -0.002051
vitamin-d_100g           -0.001724
vitamin-e_100g            0.003824
vitamin-k_100g            0.002921
vitamin-c_100g           -0.004383
vitamin-b1_100g           0.029252
vitamin-b2_100g           0.031437
vitamin-pp_100g            0.005113
vitamin-b6_100g           0.004187
vitamin-b9_100g           -0.001457
folates_100g              0.004372
vitamin-b12_100g          -0.002053
biotin_100g                0.005365
pantothenic-acid_100g     0.000665
silica_100g                 0.000391
bicarbonate_100g          -0.009027
potassium_100g             0.041385
chloride_100g              0.012599
calcium_100g                0.052962
phosphorus_100g             0.083870
iron_100g                  0.009734
magnesium_100g              0.010240
zinc_100g                   0.007538
copper_100g                 -0.001895
manganese_100g              0.002810
fluoride_100g                -0.003081
selenium_100g                0.002867
chromium_100g                 0.001714
molybdenum_100g              -0.002281
iodine_100g                  0.005818
caffeine_100g                 -0.002638
taurine_100g                  -0.003672
ph_100g                      -0.012892
fruits-vegetables-nuts_100g   -0.029084
collagen-meat-protein-ratio_100g -0.009331
cocoa_100g                     0.057917
carbon-footprint_100g          -0.054521
nutrition-score-fr_100g         0.020371
nutrition-score-uk_100g          0.024973
total3nutriments_100g          0.000000

```

In [67]: `myCorr.describe()`

Out[67]:

	additives_n	ingredients_from_palm_oil_n	ingredients_that_may_be_from_palm_oil_n	energy_100g	energy-from-fat_100g	fat_100g	saturated-fat_100g	caprylic-acid_100g	capric-acid_100g	lauric-acid_100g	myristic-acid_100g
count	91.000000	91.000000		91.000000	91.000000	42.000000	91.000000	91.000000	89.000000	89.000000	89.000000
mean	0.008699	0.004236		0.005490	0.012448	0.057794	0.031832	0.018906	0.050979	0.044721	0.044907
std	0.042502	0.032235		0.042348	0.084054	0.168541	0.112790	0.087201	0.208664	0.182481	0.183176
min	-0.103141	-0.078923		-0.069185	-0.002449	-0.103141	-0.077394	-0.092663	-0.001724	-0.002438	-0.002439
25%	-0.002481	-0.001268		-0.001960	-0.000236	-0.005863	-0.002428	-0.002772	-0.000052	-0.000066	-0.000066
50%	-0.000665	-0.000513		-0.000772	-0.000031	0.018277	0.001431	-0.001059	-0.000011	-0.000015	-0.000015
75%	0.005517	-0.000262		0.000041	0.000115	0.034222	0.012689	0.004753	-0.000005	-0.000008	-0.000008
max	0.287981	0.189792		0.287981	0.765375	0.765375	0.659261	0.659261	1.000000	0.999982	0.999982

In [68]: `myCorr.shape`

Out[68]: (91, 91)

In [69]: `#take only the columns that have a Corr > 0.2 in absolute value`

```
maxAbs = lambda x: max( - x.min(), x.max())
```

```
mySubsetColCorr = myCorr.apply(maxAbs, axis=1) > 0.7
myCorr.apply(maxAbs, axis=1)
```

additives_n	0.287981
ingredients_from_palm_oil_n	0.189792
ingredients_that_may_be_from_palm_oil_n	0.287981
energy_100g	0.765375
energy-from-fat_100g	0.765375
fat_100g	0.659261
saturated-fat_100g	0.659261
caprylic-acid_100g	1.000000
capric-acid_100g	0.999982
lauric-acid_100g	0.999982
myristic-acid_100g	1.000000
palmitic-acid_100g	1.000000
stearic-acid_100g	1.000000
arachidic-acid_100g	0.999642
behenic-acid_100g	0.999642
montanic-acid_100g	0.040973
monounsaturated-fat_100g	0.564861
polyunsaturated-fat_100g	0.564861
omega-3-fat_100g	0.271403
alpha-linolenic-acid_100g	0.253744
eicosapentaenoic-acid_100g	0.314781
docosahexaenoic-acid_100g	0.605871
omega-6-fat_100g	0.271403
linoleic-acid_100g	0.253744

```

arachidonic-acid_100g           0.486870
gamma-linolenic-acid_100g       0.976853
dihomo-gamma-linolenic-acid_100g 0.976853
omega-9-fat_100g                0.314781
oleic-acid_100g                 0.103516
gondoic-acid_100g               0.803478
trans-fat_100g                  0.046008
cholesterol_100g                0.076944
carbohydrates_100g              0.836193
sugars_100g                     0.646930
sucrose_100g                    0.004986
glucose_100g                    0.605626
fructose_100g                   0.013587
lactose_100g                    0.705053
maltose_100g                    0.605626
maltodextrins_100g              0.483717
starch_100g                     0.031288
polyols_100g                    0.054677
fiber_100g                      0.349589
proteins_100g                   0.370372
casein_100g                     0.695741
serum-proteins_100g             0.604148
nucleotides_100g                0.437468
salt_100g                       0.994259
sodium_100g                     0.994259
alcohol_100g                    0.076329
vitamin-a_100g                  0.314033
beta-carotene_100g              0.994582
vitamin-d_100g                  0.069513
vitamin-e_100g                  0.078606
vitamin-k_100g                  0.020377
vitamin-c_100g                  0.087878
vitamin-b1_100g                 0.626388
vitamin-b2_100g                 0.626388
vitamin-pp_100g                 0.374494
vitamin-b6_100g                 0.474770
vitamin-b9_100g                 0.419412
folates_100g                   0.014486
vitamin-b12_100g                0.091857
biotin_100g                     0.712418
pantothenic-acid_100g           0.174006
silica_100g                     0.111379
bicarbonate_100g                0.149932
potassium_100g                  0.141097
chloride_100g                   0.705053
calcium_100g                    0.314033
phosphorus_100g                 0.278576
iron_100g                       0.075620
magnesium_100g                 0.109313
zinc_100g                        0.419412
copper_100g                     0.914970
manganese_100g                  0.132856
fluoride_100g                   0.149932
selenium_100g                   0.013285
chromium_100g                   0.100269
molybdenum_100g                 0.994582
iodine_100g                     0.353030
caffeine_100g                   0.114242
taurine_100g                    0.085572
ph_100g                          0.120868
fruits-vegetables-nuts_100g     0.036616
collagen-meat-protein-ratio_100g 0.019348
cocoa_100g                       0.113881
carbon-footprint_100g            0.411711
nutrition-score-fr_100g          0.986033
nutrition-score-uk_100g          0.986033
total3nutriments_100g           0.836193
dtype: float64

```

In [70]: #take only the columns that have a Corr > 0.2 in absolute value

```

myCorr2 = myCorr[mySubsetColCorr]
myCorr3 = myCorr2[myCorr2.columns[mySubsetColCorr]]

myCorr3.shape

```

Out[70]: (25, 25)

```

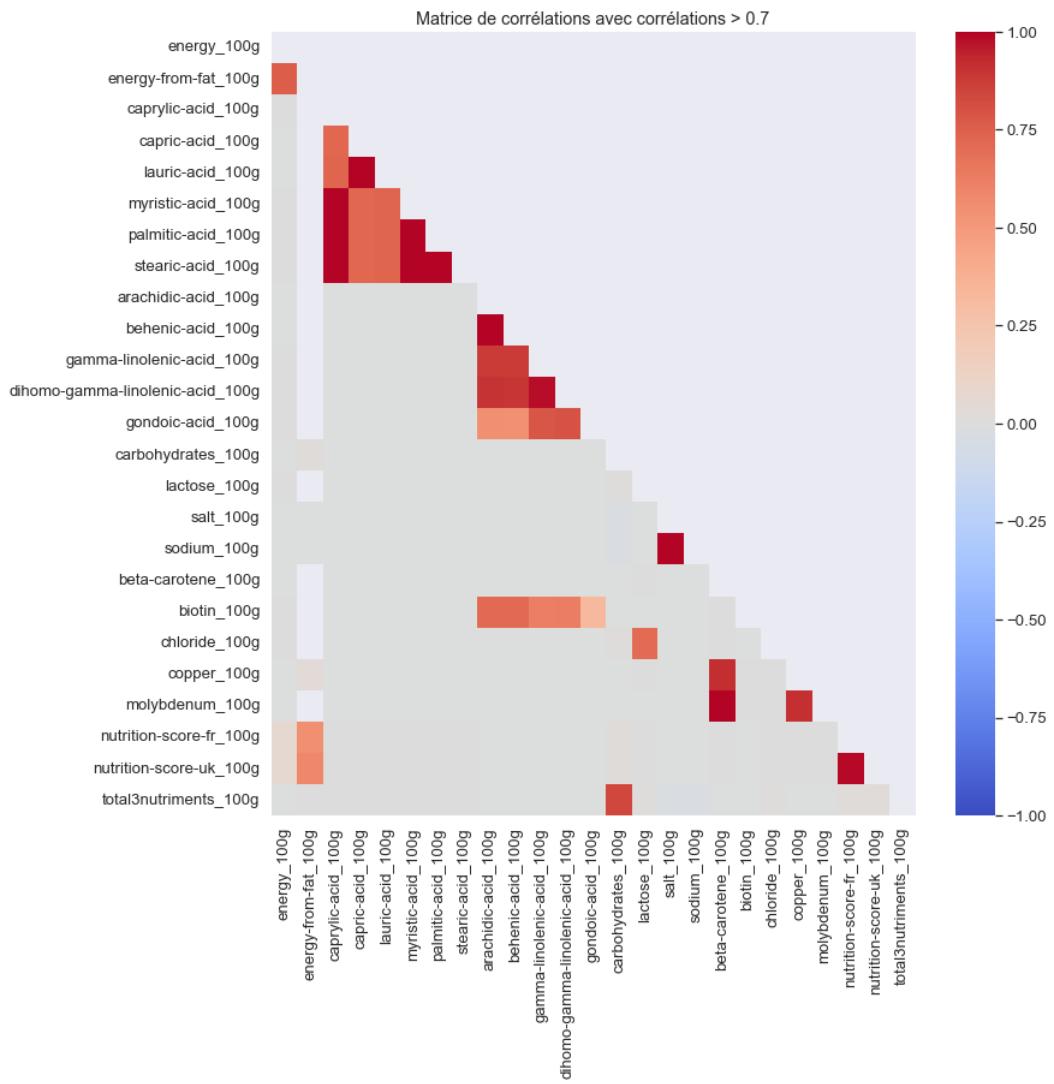
In [71]:
plt.figure(figsize=(12,12))
sns.set(font_scale=1.2)
plt.title('Matrice de corrélations avec corrélations > 0.7')

myMasque = np.zeros_like(myCorr3, dtype=bool)
myMasque[np.triu_indices_from(myMasque)] = True

ax = sns.heatmap(myCorr3, mask=myMasque, vmin=-1, cmap='coolwarm')
plt.show()
sns.set(font_scale=1)

# RENDRE NOMS PLUS VISIBLES

```



In []:

Certaines corrélations sont logiques : energy_100g 0.769854 energy-from-fat_100g 0.987721 fat_100g 0.987721 saturated-fat_100g

D'autres sont un effet artificiel où toutes les colonnes (ingrédients) qui sont presque tout le temps égaux à zero sont (artificiellement?) correles entre eux. il es possible que la corrélation ne soit que le signe de "données détaillées non remplies" (acid et vitamines non estimés)

Quelles idées d'analyses ?

1. Qualifier les produits selon le pays d'origine: Quel pays a les produits les plus sains, faut-il mieux acheter français ou européens ?

2.

Pour rappel, les 3 exemples donnés :

- David = "nutrisport = scanner un produit, suggérer des alternatives"
- Aurélia = choisir de meilleures alternatives (a la place des chips)
- Sylvain = "donner une note à un produit selon l'impact sur l'environnement"

Faut-il acheter Français ?

Premiere analyse brutale : les nutriscores des produits selon le pays d'origine :

J'ai deux colonnes bien remplies (Nan = 8.7% de la colonne) pour le pays d'origine ; countries_fr
countries_tags

In [72]:

```
myDF[["countries_fr", "countries_tags"]]
```

Out[72]:

	countries_fr	countries_tags
0	France	en:france
1	États-Unis	en:united-states
2	États-Unis	en:united-states
3	États-Unis	en:united-states
4	États-Unis	en:united-states
...

	countries_fr	countries_tags
282653	Roumanie	en:romania
282654	États-Unis	en:united-states
282655	Chine	en:china
282656	France	en:france
282657	États-Unis	en:united-states

282658 rows × 2 columns

In [73]: myDF.countries_fr.unique()

```
Out[73]: array(['France', 'États-Unis', 'Royaume-Uni', 'France,États-Unis',
   'Canada', 'Suisse', 'Allemagne', 'Slovénie', 'Italie', 'Roumanie',
   'Espagne', 'Portugal', 'France,Royaume-Uni',
   'Belgique,France,Pays-Bas,Royaume-Uni', 'Guadeloupe', nan,
   'Royaume-Uni,États-Unis', 'Australie', 'Canada,États-Unis',
   'Pays-Bas', 'Australie,France', 'Canada,France,Suisse,États-Unis',
   'France,États-Unis,en:Etats-unis', 'Irlande', 'France,La Réunion',
   'Taiwan', 'France,Allemagne', 'Brésil', 'Belgique,France',
   'République dominicaine', 'États-Unis,en:Australie',
   'Arabie saoudite', 'Émirats arabes unis', 'Irak', 'Koweït',
   'Moldavie', 'Belgique', 'Nouvelle-Calédonie', 'Singapour',
   'Finlande', 'Australie,États-Unis', 'France,Suisse',
   'Australie,Nouvelle-Zélande,Singapour,Thaïlande,Etats-Unis',
   'Polynésie française', 'Panama', 'Costa Rica', 'Mexique',
   'États-Unis,en:Pays-bas', 'Espagne,Royaume-Uni,en:Scotland',
   'Polynésie française,États-Unis', 'Thaïlande', 'Chine',
   'Luxembourg', 'Liban', 'Suisse,États-Unis', 'Allemagne,États-Unis',
   'États-Unis,en:Deutschland', 'France,Suisse,États-Unis',
   'Belgique,Suisse,États-Unis', 'Danemark,États-Unis,en:Spanien',
   'États-Unis,en:Belgie,en:Nederland', 'Belgique,Suisse',
   'Malaisie,États-Unis', 'Guyana,États-Unis', 'Serbie', 'Martinique',
   'Barbade', 'Aruba', 'Hong Kong', 'Norvège', 'Haïti', 'Salvador',
   'Bahreïn,États-Unis', 'France,Italie', 'Taiwan,États-Unis',
   'La Réunion', 'Maroc', 'Oman', 'Corée du Sud', 'Trinité-et-Tobago',
   'États-Unis,en:Niederlande', 'Chili', 'Cuba',
   'France,Royaume-Uni,États-Unis', 'Italie,États-Unis',
   'Suisse,Royaume-Uni', 'Philippines', 'Espagne,États-Unis',
   'Panama,États-Unis', 'en:United-states-of-america',
   'Australie,France,Royaume-Uni', 'Autriche', 'Suède', 'Guinée',
   'Costa Rica,États-Unis', 'Israël,États-Unis', 'Chine,Suisse',
   'Russie', 'Saint-Pierre-et-Miquelon', 'Canada,France', 'Algérie',
   'Pays-Bas,États-Unis', 'Québec', 'République tchèque',
   'Canada,Québec', 'Canada,France,Suisse',
   'Belgique,Canada,France,Suisse', 'Royaume-Uni,en:Czech',
   'France,Saint-Pierre-et-Miquelon', 'Canada,Portugal',
   'Allemagne,Suisse', 'France,Russie,Espagne,Royaume-Uni', 'Maurice',
   'Indonésie', 'Arménie', 'France,Suisse,Royaume-Uni',
   'France,Nouvelle-Zélande', 'Côte d'Ivoire', 'Autriche,Suisse',
   'Pologne', 'Grèce', 'Mexique,États-Unis', 'Espagne,Royaume-Uni',
   'Inde,Royaume-Uni,États-Unis', 'Belgique,France,Royaume-Uni',
   'Singapour,États-Unis', 'Inde', 'Équateur', 'Turquie', 'Cambodge',
   'Chili,États-Unis', 'Nouvelle-Calédonie,États-Unis',
   'Hong Kong,États-Unis', 'États-Unis,en:香港',
   'Canada,France,États-Unis', 'Grèce,États-Unis', 'Argentine',
   'France,Pays-Bas', 'France,Pays-Bas,Royaume-Uni',
   'République tchèque,Royaume-Uni', 'Union européenne', 'Jordanie',
   'Australie,Indonésie,États-Unis', 'Australie,Indonésie', 'Japon',
   'Israël', 'Colombie', 'Burundi', 'France,Qatar', 'Tunisie',
   'Danemark,Norvège,Suède', 'Danemark', 'Algérie,France',
   'France,Guyane', 'Belgique,France,Pays-Bas', 'Bulgarie', 'Hongrie',
   'Pérou', 'France,Tunisie', 'Porto Rico', 'Belgique,France,Suisse',
   'Belgique,États-Unis', 'Monaco', 'Nigeria', 'Guyane', 'Honduras',
   'Égypte', 'Chypre,Royaume-Uni', 'Venezuela', 'France,en:An',
   'Afrique du Sud', 'Autriche,États-Unis', 'Australie,Philippines',
   'Espagne,Suisse', 'France,Japon', 'Côte d'Ivoire,États-Unis',
   'Mongolie', 'Birmanie', 'France,Inde', 'Bahreïn',
   'France,Portugal,Royaume-Uni',
   'France,Guyane,Grèce,Guadeloupe,Suriname,Royaume-Uni', 'Pakistan',
   'Qatar', 'Chili,France,Espagne,Suisse,Royaume-Uni',
   'Belgique,France,États-Unis', 'Cameroun',
   'États-Unis,îles Vierges des États-Unis',
   'France,États-Unis,en:Royaume-un', 'Danemark,France,Royaume-Uni',
   'Finlande,Portugal,Espagne,Suède,Royaume-Uni', 'Slovaquie',
   'Lituanie,Royaume-Uni', 'Portugal,Espagne,Royaume-Uni', 'Sénégal',
   'France,Sénégal', 'France,Luxembourg', 'Allemagne,Espagne',
   'Other-', 'Togo', 'Islande', 'Belgique,Allemagne',
   'Belgique,France,Allemagne,Suisse',
   'Allemagne,Royaume-Uni,États-Unis', 'Autriche,Allemagne,Pays-Bas',
   'Australie,Allemagne', 'Hongrie,Roumanie,Royaume-Uni',
   'Allemagne,de:Weltweit,en:Worldwide',
   'France,Royaume-Uni,en:Angleterre',
   'Russie,Union des républiques socialistes soviétiques',
   'en:Deutschland', 'en:Global-market',
   'الإمارات-العربية-المتحدة',
   'en:السعودية',
   'Colombie,Ukraine,en:Czech,en:All-over-the-world', 'en:Island',
   'World',
   'Danemark,France,Italie,Pays-Bas,Pologne,Portugal,Espagne',
   'en:Gulf-countries,en:الإمارات-العربية-المتحدة', 'en:Turkiye', 'Chili,France',
   'France,Allemagne,Espagne', 'France,Espagne',
   'France,Allemagne,Roumanie,Royaume-Uni,Scotland',
   'Allemagne,Portugal,Espagne', 'Allemagne,Italie',
   'Allemagne,Portugal', 'France,Allemagne,Suisse',
   'France,Portugal,Espagne',
   'Danemark,Finlande,Allemagne,Italie,Portugal,Espagne,Suède,Royaume-Uni',
   'France,Maroc', 'France,La Réunion,Suisse',
   'République tchèque,France', 'Ukraine', 'Portugal,Espagne',
   'France,Portugal', 'France,en:Allemagne',
   'France,Allemagne,Italie', 'en:Scotland,Royaume-Uni',
```

'France,Slovénie', 'Autriche,Espagne', 'France,Suède',
'Autriche,Allemagne', 'Belgique,France,Allemagne',
'France,Royaume-Uni,en:Scotland', 'France,Allemagne,Italie,Suisse',
'France,Allemagne,Vereinigtes-königreich',
'France,Allemagne,Portugal,Espagne', 'en:Belgie',
'Autriche,République tchèque,France,Allemagne',
'Allemagne,Royaume-Uni', 'Autriche,France,Allemagne',
'France,en:Scotland',
'Belgique,France,Allemagne,Italie,Pays-Bas,Portugal,Espagne',
'Autriche,France,Allemagne,Italie,Suisse',
'Belgique,France,Allemagne,Irlande,Pays-Bas,Portugal,Espagne,Royaume-Uni',
'Albanie', 'France,Allemagne,Royaume-Uni', 'Pologne,Royaume-Uni',
'Belgique,France,Allemagne,Italie,Pays-Bas',
'France,Italie,Suisse', 'Royaume-Uni,en:Scotland',
'France,Allemagne,Pays-Bas,Espagne', 'France,77-provins',
'France,Irlande,Royaume-Uni', 'Malte', 'Croatie',
'Belgique,France,Allemagne,Pays-Bas,Portugal,Espagne',
'France,Irlande', 'Belgique,République tchèque,France',
'Danemark,Pologne,Portugal,Espagne', 'Belgique,Pays-Bas',
'Portugal,Suède', 'Belgique,Luxembourg',
'République tchèque,Allemagne', 'Malawi', 'France,Guadeloupe',
'France,Nouvelle-Calédonie',
'Belgique,Brésil,Canada,France,Suisse',
'Belgique,France,Italie,Maroc,Suisse,Royaume-Uni',
'Algérie,Belgique,Canada,France,Polynésie française,Allemagne,Irlande,Italie,Liban,Luxembourg,Mali,Martinique,Maroc,Pays-Bas,Nouvelle-Calédonie,
Portugal,La Réunion,Espagne,Suisse,Tunisie,Royaume-Uni,États-Unis',
'Algérie,Belgique,Canada,France,Allemagne,Italie,Mali,Martinique,Espagne,Suisse',
'Belgique,Danemark,France,Suisse', 'Polynésie française,Suisse',
'Belgique,France,La Réunion,Suisse', 'France,Monaco,Suisse',
'Belgique,France,Polynésie française,Martinique,Suisse', 'Gabon',
'France,Saint-Pierre-et-Miquelon,Suisse',
'Suisse,Deutschland,Frankreich', 'Danemark,France', 'Kazakhstan',
'Belgique,France,Luxembourg', 'en:whole-milk-yogurts',
'en:stirred-yogurts', 'en:yogurts', 'en:fruit-yogurts',
'en:dairies', 'France,Mali', 'France,Gabon',
'Belgique,France,Espagne,Suisse',
'Danemark,France,Suisse,Royaume-Uni', 'République du Congo',
'France,Allemagne,Portugal,Suisse', 'France,Espagne,Suisse',
'Malaisie', 'Autriche,France,Allemagne,Italie,Pays-Bas,Suisse',
'Danemark,Suisse,es:Franciaorszag,es:Magyarorszag,es:Nagy-britannia,es:Portugalia,es:Spanyolorszag',
'Belgique,Danemark,Suisse,es:Franciaorszag,es:Magyarorszag,es:Nagy-britannia,es:Portugalia,es:Spanyolorszag',
'Danemark,France,Suisse,Magyarorszag,Nagy-britannia,Svajc',
'Belgique,Danemark,France,Suisse,Royaume-Uni',
'France,Allemagne,Maurice,de:Espagne,de:Royaume-uni',
'Danemark,France,Espagne,Suisse', 'Suisse,Émirats arabes unis',
'Belgique,France,Guyane',
'Belgique,France,Mali,La Réunion,Suisse,Royaume-Uni',
'France,Russie', 'Belgique,France,Suisse,Royaume-Uni',
'France,Pays-Bas,Suisse',
'Belgique,France,Maroc,La Réunion,Suisse',
'Belgique,France,Maroc,Espagne,Suisse', 'Danemark,Portugal',
'Italie,Suisse', 'Danemark,Espagne,Suisse',
'France,Aix-en-provence,Bouches-du-rhône,Paca',
'Belgique,France,Portugal,Suisse', 'France,Monaco',
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'Belgique,France,La Réunion,Espagne,Suisse', 'La Réunion,Suisse',
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'Moldavie,États-Unis', 'Monténégro,Serbie,Slovénie',
'Hongrie,Serbie', 'Bulgarie,République tchèque,Roumanie,Slovaquie',
'France,Malawi', 'Burkina Faso', 'Mozambique', 'Kenya', 'Tanzanie',
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'Belgique,France,Hongrie',
'Bulgarie,Allemagne,Irlande,Monténégro,Portugal,Roumanie,Serbie,Royaume-Uni',
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'France,Guadeloupe,Hongrie,Slovénie,Royaume-Uni',
'Danemark,Espagne,en:Frankrike,en:Kina,en:Sverige',
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'États-Unis,en:ประเทศไทย,en:สหราชอาณาจักร',
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'Cambodge,Thailande', 'Chine,France,Viêt Nam',
'France,Hongrie,Royaume-Uni', 'Thailande,Royaume-Uni', 'en:ଭାରତ',
'Croatie,France', 'Egypte,Royaume-Uni,États-Unis',
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'Australie,Japon', 'Maldives', 'Australie,Malaisie',
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In [74]: myDF.countries_tags.unique()

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'en:china,en:hong-kong'], dtype=object)
```

```
In [75]: print("nombre venant de France seule")
print((myDF["countries_fr"] == "France").sum())

print("nombre venant partiellement de France")
print(myDF["countries_fr"].str.contains('France').sum())

# Len(myDF[myDF["countries_fr"].str.contains('France')])

print("Total")
print(myDF.shape)

nombre venant de France seule
83986
nombre venant partiellement de France
87871
Total
(282658, 147)
```

```
In [76]: # on a un tiers des lignes venant de France, l'analyse est possible.
# On peut initialement ignorer les origines multiples.

# regardons en premiere approche brutalement :

myFrenchBool = myDF["countries_fr"] == "France"
myDF2 = myDF.assign(origine_france_b = myFrenchBool)

myDF2.head()
```

	code	url	creator	created_t	created_datetime	last_modified_t	last_modified_datetime	product_name	generic_name	quantity	packagin
0	3087	http://world-fr.openfoodfacts.org/produit/0000...	openfoodfacts-contributors	1474103866	2016-09-17T09:17:46Z	1474103893	2016-09-17T09:18:13Z	Farine de blé noir	NaN	1kg	Na
1	4530	http://world-fr.openfoodfacts.org/produit/0000...	usda-ndb-import	1489069957	2017-03-09T14:32:37Z	1489069957	2017-03-09T14:32:37Z	Banana Chips Sweetened (Whole)	NaN	NaN	Na
2	4559	http://world-fr.openfoodfacts.org/produit/0000...	usda-ndb-import	1489069957	2017-03-09T14:32:37Z	1489069957	2017-03-09T14:32:37Z	Peanuts	NaN	NaN	Na
3	16087	http://world-fr.openfoodfacts.org/produit/0000...	usda-ndb-import	1489055731	2017-03-09T10:35:31Z	1489055731	2017-03-09T10:35:31Z	Organic Salted Nut Mix	NaN	NaN	Na
4	16094	http://world-fr.openfoodfacts.org/produit/0000...	usda-ndb-import	1489055653	2017-03-09T10:34:13Z	1489055653	2017-03-09T10:34:13Z	Organic Polenta	NaN	NaN	Na

```
In [77]: pd.pivot_table(
```

```

        data=myDF2,
        values="nutrition-score-fr_100g",
        index="origine_france_b",
        columns=None,
        aggfunc='mean',
        fill_value=None,
        margins=False,
        dropna=True,
        margins_name='All',
        observed=False,
        sort=True
    )
)

```

Out[77]: nutrition-score-fr_100g

	origine_france_b
False	9.368172
True	8.597621

In [78]: # on est content, les produits français sont un peu mieux que les produits non français en mmoyenne.
mais ça peut cacher le contraire, il faut regarder plus en détails

```

# on peut laisser tomber les lignes sans nutriscore

print(myDF2.shape)
myDF3 = myDF2.dropna(subset = ['nutrition-score-fr_100g'])

print(myDF3.shape)

(282658, 148)
(202822, 148)

```

In [79]:

```

pd.pivot_table(
    data=myDF3,
    values="nutrition-score-fr_100g",
    index="origine_france_b",
    columns=None,
    aggfunc='mean',
    fill_value=None,
    margins=False,
    dropna=True,
    margins_name='All',
    observed=False,
    sort=True
)

```

Out[79]: nutrition-score-fr_100g

	origine_france_b
False	9.368172
True	8.597621

In []:

In [80]: # on peut déjà rajouter qq graphiques (boxplot, pie) ici pour comparer France vs le reste

```

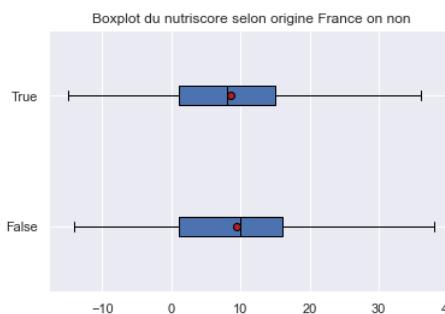
X = "origine_france_b" # qualitative
Y = "nutrition-score-fr_100g" # quantitative

modalites = myDF3["origine_france_b"].unique()
groupes = []
for m in modalites:
    groupes.append(myDF3[myDF3[X] == m][Y])

# Propriétés graphiques (pas très importantes)
medianprops = {'color':'black'}
meanprops = {'marker':'o', 'markeredgecolor':'black',
            'markerfacecolor':'firebrick'}

plt.boxplot(groupes, labels=modalites, showfliers=False, medianprops=medianprops,
            vert=False, patch_artist=True, showmeans=True, meanprops=meanprops )
plt.title("Boxplot du nutriscore selon origine France ou non")
plt.show()

```



In []:

In [81]: groupes

```

Out[81]: [1      14.0
          2      0.0
          3     12.0
          7      7.0
         12     12.0
          ...
         282604    6.0
         282630    9.0
         282634   11.0
         282637   -1.0
         282654    0.0
Name: nutrition-score-fr_100g, Length: 146907, dtype: float64,
184     14.0
185     14.0
216     13.0
223     15.0
229     13.0
          ...
         282635   16.0
         282636    0.0
         282642   -4.0
         282645    0.0
         282650    2.0
Name: nutrition-score-fr_100g, Length: 55915, dtype: float64]

```

```

In [82]: # on va maintenant faire des groupes de produits pour les comparer :
# Quel algorithme utiliser ? Le K-NN ou ACP ?
# faire un premier ACP avec un faible nombre de variables (3 à 5) pour voir - et sur un sous-ensemble de points.
# aller voir dans les outputs (cf tuto Garcia) les contributions par individus/variable

# Attendu : il faut faire une ACP, mais aussi savoir l'interpréter.

# clustering voir CAH classification ascendante hiérarchique (peut être mieux que les KNN pour créer les groupes)

```

```

In [83]: from sklearn import decomposition, preprocessing
import fanalysis
#from functions import *

# commençons avec un ACP sur quelques colonnes clefs uniquement :

myCols = [ 'energy_100g', 'fat_100g' , 'carbohydrates_100g', 'proteins_100g']

myDF_ACP = myDF2[myCols]

# préparation des données pour l'ACP
myDF_ACP = myDF_ACP.fillna(myDF_ACP.mean())
# Il est fréquent de remplacer les valeurs inconnues par la moyenne de la variable - est-ce pertinent dans ce cas?
# on pourrait aussi mettre 0 ?

# choix du nombre de composantes à calculer (prendre moins de composantes que de dimensions ?)
n_comp = 2
X = myDF_ACP.values #pour retourner une matrice numpy

# Réduire n'est ici pas nécessaire car les variables sont exprimées dans la même unité (g).
# On se contente juste de centrer les données, ce qui est obligatoire pour une ACP.
X = preprocessing.StandardScaler(with_std=False).fit_transform(X)

# Calcul des composantes principales
myPCA = decomposition.PCA(n_components= n_comp)
myPCA.fit(X)

# Eboulis des valeurs propres
#display_scree_plot(myPCA)

# projection des individus
X_projected = myPCA.transform(X)
#display_factorial_planes(X_projected, n_comp, myPCA, [(0,1),(1,2)], alpha = 0.2)

# j'ai des difficultés à importer le module fonction.
# on va essayer des scatter plot plus classique :

# plt.show()

X_projected

```

```

Out[83]: array([[ 1.39064625e-04, -2.55721046e+01],
       [ 1.09897157e+03,  4.00731110e+01],
       [ 7.96971581e+02,  3.61430013e+01],
       ...,
       [ 1.78955015e-12, -1.94783652e-12],
       [ 1.78955015e-12, -1.94783652e-12],
       [ 9.47971776e+02,  4.74561758e-03]])

```

```

In [84]: pd.DataFrame(X_projected).describe()

```

	0	1
count	2.826580e+05	2.826580e+05
mean	1.289807e-13	1.661567e-13
std	6.188351e+03	2.735367e+01
min	-1.144029e+03	-2.557783e+01
25%	-6.590281e+02	-2.400403e+01
50%	1.498516e-06	-1.012852e+01

```
0 1  
75% 4.419719e+02 2.063855e+01  
max 3.250229e+06 7.431663e+01
```

```
In [85]: # garder Les 5 composantes, pour vérifier % explication de chaque axe.
```

```
# "variance expliquée"  
# idem exemple Anthony avec fanalysis
```

```
# https://medium.com/analytics-vidhya/pca-and-how-to-interpret-it-with-python-8aa664f7a69a
```

```
In [ ]:
```

```
In [ ]:
```

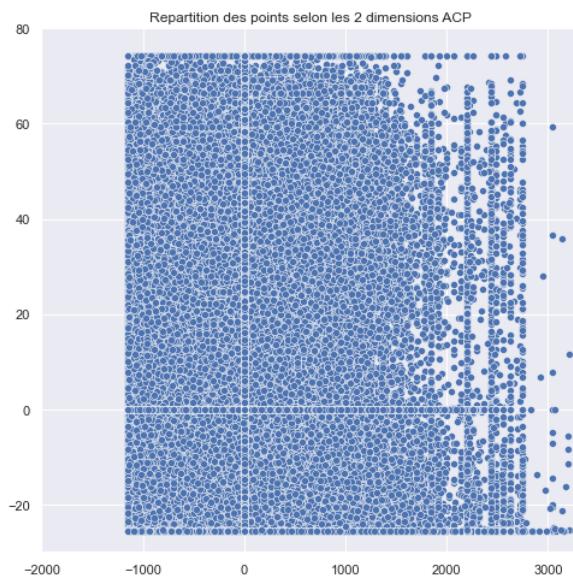
```
In [ ]:
```

```
In [86]: # faire 2 représentations = les individus + cercle des corrélations (ou matrice des corrélations)  
#
```

```
In [87]:
```

```
plt.figure(figsize=(8,8))  
plt.title('Repartition des points selon les 2 dimensions ACP')  
sns.scatterplot(x = X_projected[:,0],y = X_projected[:,1])  
#sns.scatterplot(x = resultat['Premiere composante'], y = resultat['Deuxieme composante'])  
#plt.legend(['random forest regressor', 'régression linéaire multiple'])  
#sns.lineplot([0,25],[0,25], color='r')  
ax = plt.gca()  
#ax.Axes.autoscale(enable=True, axis='both', tight=None)  
  
ax.set_xlim(-2e+03,3.3e+03)  
ax.set_ylim(-30,80)  
#ax.axis('equal')
```

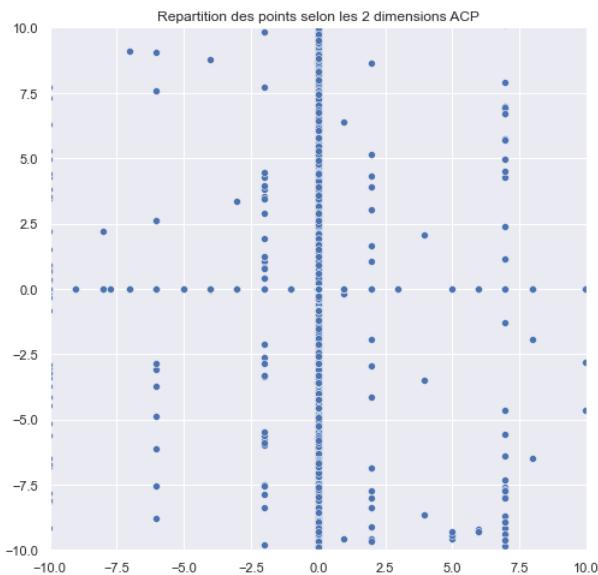
```
Out[87]: (-30.0, 80.0)
```



```
In [88]:
```

```
plt.figure(figsize=(8,8))  
plt.title('Repartition des points selon les 2 dimensions ACP')  
sns.scatterplot(x = X_projected[:,0],y = X_projected[:,1])  
#sns.scatterplot(x = resultat['Premiere composante'], y = resultat['Deuxieme composante'])  
#plt.legend(['random forest regressor', 'régression linéaire multiple'])  
#sns.lineplot([0,25],[0,25], color='r')  
ax = plt.gca()  
#ax.Axes.autoscale(enable=True, axis='both', tight=None)  
  
ax.set_xlim(-10,10)  
ax.set_ylim(-10,10)  
#ax.axis('equal')
```

```
Out[88]: (-10.0, 10.0)
```

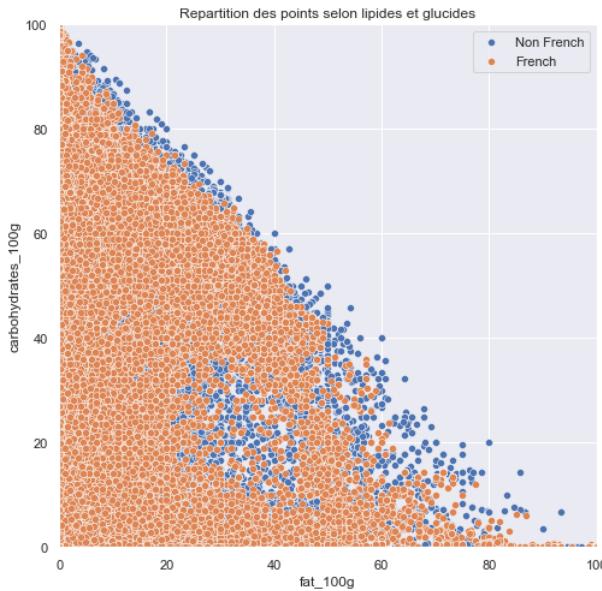


```
In [89]: plt.figure(figsize=(8,8))
plt.title('Repartition des points selon lipides et glucides')
# myCols 'energy_100g', 'fat_100g', 'carbohydrates_100g', 'proteins_100g origine_france_b'

sns.scatterplot(x = myDF2[ ~myDF2.origine_france_b].fat_100g,y = myDF2[ ~myDF2.origine_france_b].carbohydrates_100g)
sns.scatterplot(x = myDF2[ myDF2.origine_france_b].fat_100g,y = myDF2[ myDF2.origine_france_b].carbohydrates_100g)
plt.legend(['Non French', 'French'])
ax = plt.gca()

ax.set_xlim(0,100)
ax.set_ylim(0,100)
#ax.axis('equal')
```

Out[89]: (0.0, 100.0)



```
In [90]: plt.figure(figsize=(8,8))
plt.title('Repartition des points selon premiere et seconde composante ACP')
# myCols 'energy_100g', 'fat_100g', 'carbohydrates_100g', 'proteins_100g origine_france_b'
myDF3 = myDF2
myDF3['myCP1'] = X_projected[:,0]
myDF3['myCP2'] = X_projected[:,1]

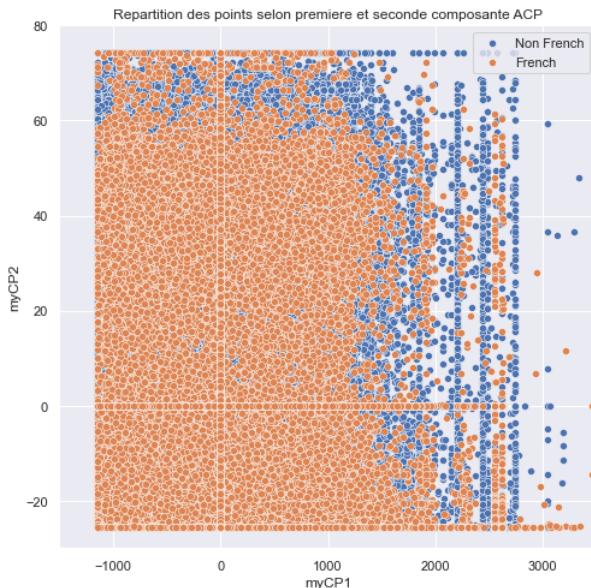
sns.scatterplot(x = myDF3[ ~myDF3.origine_france_b].myCP1, y = myDF3[ ~myDF3.origine_france_b].myCP2)
sns.scatterplot(x = myDF3[ myDF3.origine_france_b].myCP1, y = myDF3[ myDF3.origine_france_b].myCP2)
plt.legend(['Non French', 'French'])
ax = plt.gca()

ax = plt.gca()
#ax.Axes.autoscale(enable=True, axis='both', tight=None)

ax.set_xlim(-1500,3500)
ax.set_ylim(-30,80)
#ax.axis('equal')
```

Out[90]: (-30.0, 80.0)

```
D:\Users\yag\anaconda3\lib\site-packages\IPython\core\pylabtools.py:151: UserWarning: Creating legend with loc="best" can be slow with large amounts of data.
fig.canvas.print_figure(bytes_io, **kw)
```

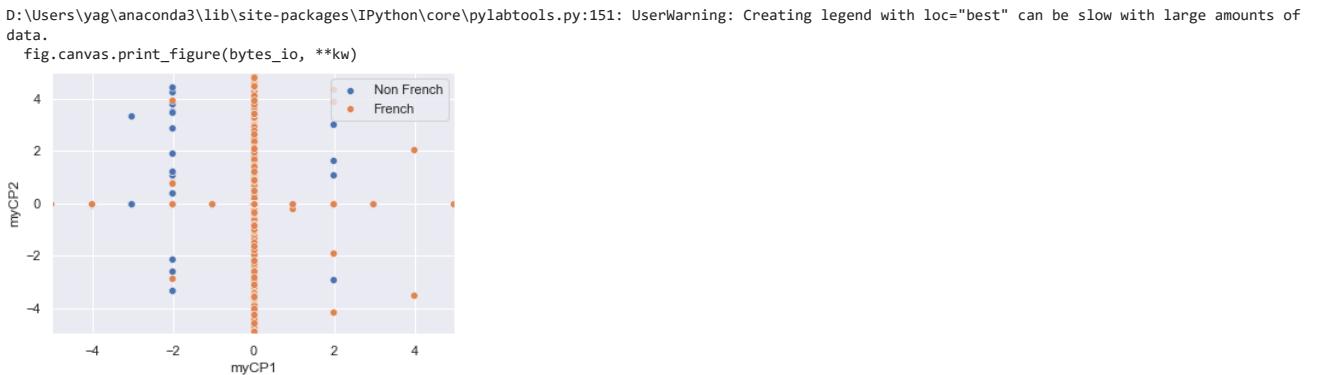


```
In [91]: sns.scatterplot(x = myDF3[ ~myDF3.origine_france_b ].myCP1, y = myDF3[ ~myDF3.origine_france_b ].myCP2)
sns.scatterplot(x = myDF3[ myDF3.origine_france_b ].myCP1, y = myDF3[ myDF3.origine_france_b ].myCP2)
plt.legend(['Non French', 'French'])
ax = plt.gca()

ax = plt.gca()
#ax.Axes.autoscale(enable=True, axis='both', tight=None)

ax.set_xlim(-5,5)
ax.set_ylim(-5,5)
#ax.axis('equal')
```

Out[91]: (-5.0, 5.0)



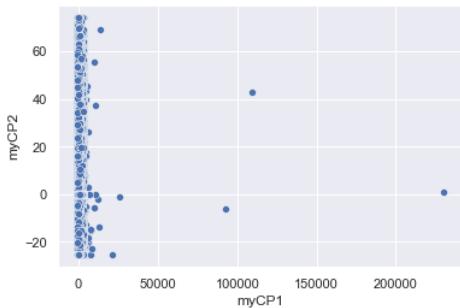
```
In [92]: sns.scatterplot(x = myDF3[ ~myDF3.origine_france_b ].myCP1, y = myDF3[ ~myDF3.origine_france_b ].myCP2)
sns.scatterplot(x = myDF3[ myDF3.origine_france_b ].myCP1, y = myDF3[ myDF3.origine_france_b ].myCP2)
plt.legend(['Non French', 'French'])
ax = plt.gca()

ax = plt.gca()
#ax.Axes.autoscale(enable=True, axis='both', tight=None)

ax.set_xlim(10,210)
ax.set_ylim(20,40)
#ax.axis('equal')
```

```
-----  
AttributeError                                Traceback (most recent call last)  
~\AppData\Local\Temp\ipykernel_28560\3158189596.py in <module>  
      1 sns.scatterplot(x = myDF3[ ~myDF3.origine_france_b ].myCP1, y = myDF3[ ~myDF3.origine_france_b ].myCP2)  
----> 2 sns.scatterplot(x = myDF3[ myDF3.origine_france_b ].myCP1, y = myDF3[ myDF3.origine_france_b ].myCP2)  
      3 plt.legend(['Non French', 'French'])  
      4 ax = plt.gca()  
      5  
~\anaconda3\lib\site-packages\pandas\core\generic.py in __getattr__(self, name)  
  5485     ):  
  5486         return self[name]  
-> 5487     return object.__getattribute__(self, name)  
  5488  
  5489     def __setattr__(self, name: str, value) -> None:
```

AttributeError: 'DataFrame' object has no attribute 'myCP1myCP1'



Quelle interprétation donner a ces 2 composantes ?

```
In [93]: # ideee = boxplot des composantes 1 et 2 à comparer entre français anglais
# question - est ce que les produits français sont différents (intrinsèquement) des produits étrangers?
```

```
In [94]: # essayons maintenant de trouver les voisins d'un point

# on peut se limiter à une analyse sur une ou deux catégories de produits (qq centaines de produits, eg soda, huiles d'olives, ice cream)
# dans un second temps, il faudrait une analyse sur au moins 10 000 produits

# une méthode d'analyse explicative (anova, segmentation, ...)
# => knn
# Laisser tomber les knn, faire plutôt CAH sur les 1, 2 ou 3 axes de l'ACP
```

```
In [95]: myDF4.origine_france_b.sum()
```

```
NameError                                 Traceback (most recent call last)
~\AppData\Local\Temp\ipykernel_28560\3194992194.py in <module>
----> 1 myDF4.origine_france_b.sum()

NameError: name 'myDF4' is not defined
```

```
In [96]: # L'échantillon est un peu petit, mais on va essayer comme ça pour voir.

# on va chercher à prédire le nutriscore des voisins non français dans MDF4:

from sklearn import neighbors

# on a l'intérêt à se focaliser sur une partie de la zone pour limiter la puissance de calcul
# (CF cours avec sample = 5000)

# Par exemple, on va prendre la zone ci-dessus.
#ax.set_xlim(10, 210)
#ax.set_ylim(20, 40)

myDF4 = myDF3[(myDF3.myCP1 > 10) & (myDF3.myCP1 < 210) & (myDF3.myCP2 > 20) & (myDF3.myCP2 < 40)]
myDF4.shape
```

```
Out[96]: (2025, 150)
```

```
In [97]: myDF4.head()
```

```
Out[97]:
```

	code	url	creator	created_t	created_datetime	last_modified_t	last_modified_datetime	product_name	generic_name	quantity	packaging	p
49	30540	http://world-fr.openfoodfacts.org/produit/0000...	usda-ndb-import	1489055649	2017-03-09T10:34:09Z	1489055650	2017-03-09T10:34:10Z	Organic Garbanzo Beans		NaN	NaN	NaN
57	30724	http://world-fr.openfoodfacts.org/produit/0000...	usda-ndb-import	1489055678	2017-03-09T10:34:38Z	1489055678	2017-03-09T10:34:38Z	Organic Dark Red Kidney Bean		NaN	NaN	NaN
69	33060	http://world-fr.openfoodfacts.org/produit/0000...	usda-ndb-import	1489055668	2017-03-09T10:34:28Z	1489055668	2017-03-09T10:34:28Z	10-Grain Pancake Mix		NaN	NaN	NaN
99	35583	http://world-fr.openfoodfacts.org/produit/0000...	usda-ndb-import	1489055714	2017-03-09T10:35:14Z	1489055715	2017-03-09T10:35:15Z	Curry Lentil Soup Mix		NaN	NaN	NaN
100	35590	http://world-fr.openfoodfacts.org/produit/0000...	usda-ndb-import	1489055724	2017-03-09T10:35:24Z	1489055724	2017-03-09T10:35:24Z	Split Pea Soup Mix		NaN	NaN	NaN

```
In [98]: myDF4.columns
```

```
Out[98]: Index(['code', 'url', 'creator', 'created_t', 'created_datetime',
       'last_modified_t', 'last_modified_datetime', 'product_name',
       'generic_name', 'quantity',
       ...
       'fruits-vegetables-nuts_100g', 'collagen-meat-protein-ratio_100g',
       'cocoa_100g', 'carbon-footprint_100g', 'nutrition-score-fr_100g',
       'nutrition-score-uk_100g', 'total3nutriments_100g', 'origine_france_b',
       'myCP1', 'myCP2'],
      dtype='object', length=150)
```

```
In [99]: myDF4.dropna(subset = [ 'myCP1', 'myCP2', 'nutrition-score-fr_100g' ] )
```

Out[99]:

	code	url	creator	created_t	created_datetime	last_modified_t	last_modified_datetime	product_name	generic_name	qua
69	33060	http://world-fr.openfoodfacts.org/produit/0000...	usda-ndb-import	1489055668	2017-03-09T10:34:28Z	1489055668	2017-03-09T10:34:28Z	10-Grain Pancake Mix		NaN
101	35613	http://world-fr.openfoodfacts.org/produit/0000...	usda-ndb-import	1489055714	2017-03-09T10:35:14Z	1489055714	2017-03-09T10:35:14Z	Whole Wheat 'N Honey Fig Bars		NaN
176	4302544	http://world-fr.openfoodfacts.org/produit/0000...	b7	1488464896	2017-03-02T14:28:16Z	1488465687	2017-03-02T14:41:27Z	Pain Burger Artisan	Pain	1.00 / 12
292	606009841	http://world-fr.openfoodfacts.org/produit/0000...	kiliweb	1485947637	2017-02-01T11:13:57Z	1485947637	2017-02-01T11:13:57Z	Beignets framboises		NaN
342	790350385	http://world-fr.openfoodfacts.org/produit/0000...	usda-ndb-import	1489077888	2017-03-09T16:44:48Z	1489077888	2017-03-09T16:44:48Z	Angry Birds, Fruit Snack, Cherry, Lemon, Raspb...		NaN
...
250548	5601159207125	http://world-fr.openfoodfacts.org/produit/5601...	usda-ndb-import	1489097448	2017-03-09T22:10:48Z	1489097448	2017-03-09T22:10:48Z	Solid Tuna In Vegetable Oil		NaN
251226	5760466872102	http://world-fr.openfoodfacts.org/produit/5760...	openfood-ch-import	1486506934	2017-02-07T22:35:34Z	1487257093	2017-02-16T14:58:13Z	Ananas		NaN
251945	6001052001018	http://world-fr.openfoodfacts.org/produit/6001...	adieyal	1416123807	2014-11-16T07:43:27Z	1422522538	2015-01-29T09:08:58Z	Weet-bix		NaN
252138	60788003712	http://world-fr.openfoodfacts.org/produit/6078...	usda-ndb-import	1489091185	2017-03-09T20:26:25Z	1489091185	2017-03-09T20:26:25Z	Bun Size Beef Franks		NaN
252841	642568200638	http://world-fr.openfoodfacts.org/produit/6425...	openfoodfacts-contributors	1470225774	2016-08-03T12:02:54Z	1475907821	2016-10-08T06:23:41Z	Biscuiți vegani cu coacăze și trandafiri	Biscuiți	

1756 rows × 150 columns

```
In [100]: # on va chercher à prédire le nutriscore des voisins non français dans MDF4:  
knn = neighbors.KNeighborsClassifier(n_neighbors=5)  
knn.fit(mvDF4[['mvCP1', 'mvCP2']], mvDF4['nutrition-score-fr 100g'])
```

```

~\anaconda3\lib\site-packages\sklearn\base.py in _validate_data(self, X, y, reset, validate_separately, **check_params)
    431             y = check_array(y, **check_y_params)
    432         else:
--> 433             X, y = check_X_y(X, y, **check_params)
    434         out = X, y
    435

~\anaconda3\lib\site-packages\sklearn\utils\validation.py in inner_f(*args, **kwargs)
    61     extra_args = len(args) - len(all_args)
    62     if extra_args <= 0:
--> 63         return f(*args, **kwargs)
    64
    65     # extra_args > 0

~\anaconda3\lib\site-packages\sklearn\utils\validation.py in check_X_y(X, y, accept_sparse, accept_large_sparse, dtype, order, copy, force_all_finite,
    878     ensure_2d, allow_nd, multi_output, ensure_min_samples, ensure_min_features, y_numeric, estimator)
    879     if multi_output:
--> 880         y = check_array(y, accept_sparse='csc', force_all_finite=True,
    881                         ensure_2d=False, dtype=None)
    882     else:

~\anaconda3\lib\site-packages\sklearn\utils\validation.py in inner_f(*args, **kwargs)
    61     extra_args = len(args) - len(all_args)
    62     if extra_args <= 0:
--> 63         return f(*args, **kwargs)
    64
    65     # extra_args > 0

~\anaconda3\lib\site-packages\sklearn\utils\validation.py in check_array(array, accept_sparse, accept_large_sparse, dtype, order, copy, force_all_finite,
    718     ensure_2d, allow_nd, ensure_min_samples, ensure_min_features, estimator)
    719     if force_all_finite:
--> 720         _assert_all_finite(array,
    721                             allow_nan=force_all_finite == 'allow-nan')
    722

~\anaconda3\lib\site-packages\sklearn\utils\validation.py in _assert_all_finite(X, allow_nan, msg_dtype)
    101         not np.isfinite(X).all()):
    102         type_err = 'infinity' if allow_nan else 'NaN, infinity'
--> 103     raise ValueError(
    104         msg_err.format(
    105             type_err,

```

`ValueError: Input contains NaN, infinity or a value too large for dtype('float64').`

```
In [ ]: # il faut toujours quand utilise un k-nn, utiliser un set de training et un set de test,
# pour mesurer la qualite predictive
```

```
In [ ]: # https://scikit-Learn.org/stable/modules/generated/skLearn.neighbors.KNeighborsClassifier.html
```

```
In [ ]: # dans L'ACP - cercle des corre'lation sur les 2 premiers axes pour expliquer la raison des axes
# Anova (comme "méthode d'analyse explicative") - peut-être à remplacer par Anova
```

```
In [ ]:
```

je reprends a partir de l'ACP en utilisant la bibliothèque fanalysis

```
In [101...]: # from sklearn import decomposition, preprocessing
import pandas as pd
from fanalysis.pca import PCA
%matplotlib inline

# commençons avec un ACP sur quelques colonnes clefs uniquement :

myColsACP = [ 'energy_100g', 'fat_100g' , 'carbohydrates_100g', 'proteins_100g', 'saturated-fat_100g',
              'salt_100g', 'ingredients_from_palm_oil_n', 'sugars_100g']
myCols = myColsACP.copy()
myCols.extend(['product_name', 'nutrition-score-fr_100g', 'origine_france_b'])

myDF_ACP = myDF3[myColsACP].values

print(myDF_ACP)
myDF_ACP.shape
```

```
[[      nan  0.000e+00  0.000e+00 ...  0.000e+00      nan  0.000e+00]
 [2.243e+03 2.857e+01 6.429e+01 ...  0.000e+00  0.000e+00 1.429e+01]
 [1.941e+03 1.786e+01 6.071e+01 ...  6.350e-01  0.000e+00 1.786e+01]
 ...
 [      nan      nan      nan ...      nan      nan      nan]
 [      nan      nan      nan ...      nan      nan      nan]
 [2.092e+03      nan      nan ...      nan  0.000e+00      nan]]
(282658, 8)
```

```
Out[101...]

In [102...]: # Que faut-il faire des Nan ?

myDF4= myDF3[myCols].dropna()
myDF4.shape
```

```
Out[102...]: (166934, 11)
```

```
In [103...]: my_pca = PCA(std_unit=True, row_labels=myDF4.product_name, col_labels=myColsACP)
```

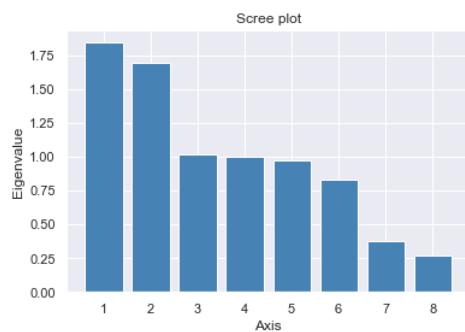
```
X = myDF4[myColsACP].values
type(X)

Out[103... numpy.ndarray

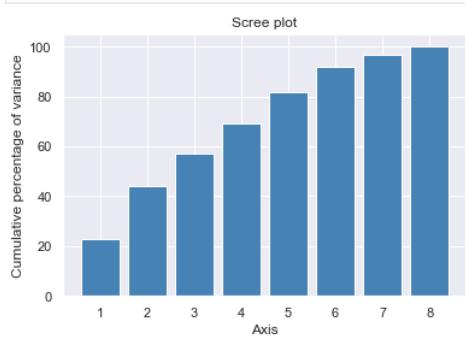
In [104... my_pca.fit(X)

Out[104... PCA(col_labels=['energy_100g', 'fat_100g', 'carbohydrates_100g',
   'proteins_100g', 'saturated-fat_100g', 'salt_100g',
   'ingredients_from_palm_oil_n', 'sugars_100g'],
   row_labels=1          Banana Chips Sweetened (Whole)
2                  Peanuts
3          Organic Salted Nut Mix
7          Organic Muesli
12         Zen Party Mix
...
253050        White Rice Vinegar
253051        Vinaigre noir
253052        Cooked Salted Duck Egg
253059        Gourmet Powder
253060        Bamboo Shoots
Name: product_name, Length: 166934, dtype: object)
```

```
In [105... my_pca.plot_eigenvalues()
```



```
In [106... my_pca.plot_eigenvalues(type="cumulative")
```

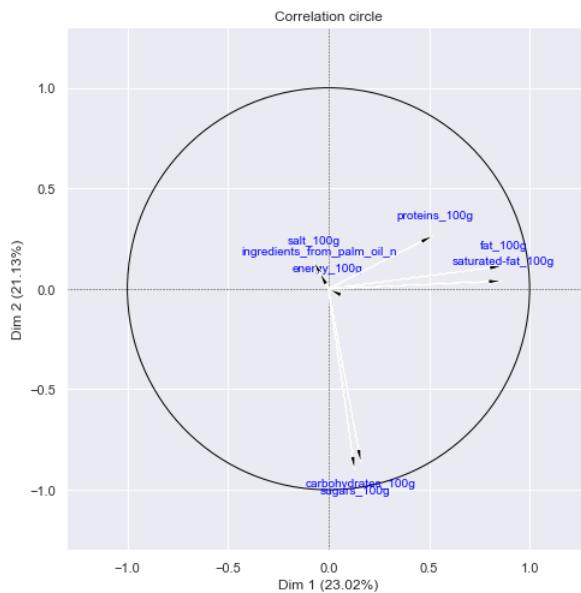


```
In [107... # ce n' est pas un bel ébouli, les 2 premières composantes atteignent pas 50%.
```

```
In [108... ### ajouter ici matrice des corrélations sur les 4 dimensions initiales
```

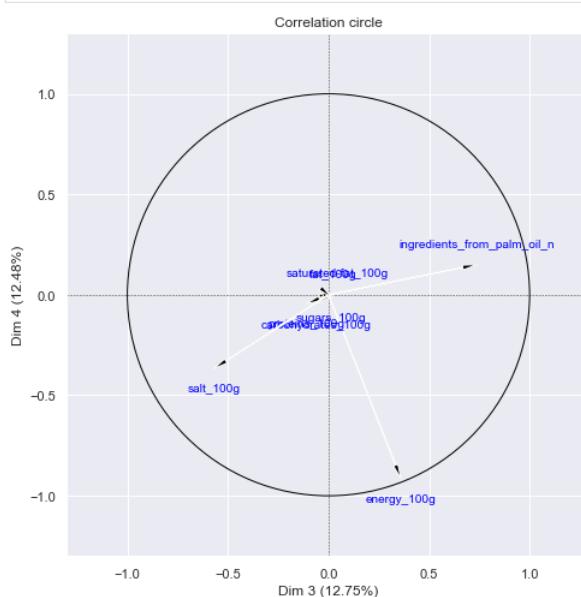
```
# CCL = c'est pour cela que l'ACP n'explique que 40% sur les premières dimensions)
```

```
In [109... # Cercle des corrélations
# Les paramètres de la méthode correlation circle indiquent que ce sont les axes 1 et 2 qui sont ici représentés
my_pca.correlation_circle(num_x_axis=1, num_y_axis=2, figsize=(10, 8))
```



```
In [110]: # Donc composante 1 : les produits gras (et protéinés), composante 2 = les produits peu sucrés.
```

```
my_pca.correlation_circle(num_x_axis=3, num_y_axis=4, figsize=(10, 8))
```



```
In [111]: # composante 3 : Les produit peu salé, mais avec huile de palm/énergie
# composante 4 : les produits moins énergétiques, moins salés. (axe plus santé, les 3 premiers axes sont plus "ingrédient")
```

```
In [112]: # Je vais récupérer les composantes par la suite:
```

```
myDF5 = my_pca.row_topandas()
```

```
print(myDF5)
myDF5.shape
```

	row_coord_dim1	row_coord_dim2	\
product_name			
Banana Chips Sweetened (Whole)	2.991945	-0.795258	
Peanuts	0.687341	-0.637991	
Organic Salted Nut Mix	2.466721	1.082344	
Organic Muesli	0.942250	-0.575450	
Zen Party Mix	1.643619	0.524098	
...	
White Rice Vinegar	-1.209915	0.805301	
Vinaigre noir	-1.209963	0.805326	
Cooked Salted Duck Egg	-1.031916	-0.344015	
Gourmet Powder	-1.209911	0.805299	
Bamboo Shoots	-1.209924	0.805306	
	row_coord_dim3	row_coord_dim4	\
product_name			
Banana Chips Sweetened (Whole)	0.221544	-0.069139	
Peanuts	-0.228619	-0.178796	
Organic Salted Nut Mix	-0.080622	-0.189572	
Organic Muesli	-0.101665	-0.105514	
Zen Party Mix	-0.185843	-0.204792	
...	
White Rice Vinegar	0.081198	0.281271	
Vinaigre noir	0.089776	0.259263	
Cooked Salted Duck Egg	0.068826	0.175174	
Gourmet Powder	0.080453	0.283182	
Bamboo Shoots	0.082683	0.277460	

```

        row_coord_dim5  row_coord_dim6 \
product_name
Banana Chips Sweetened (Whole)      -0.051109      -1.327956
Peanuts                               0.093715      1.617206
Organic Salted Nut Mix              0.154701      0.423220
Organic Muesli                         0.129024      0.968057
Zen Party Mix                          0.071346      0.783139
...
...                                ...
White Rice Vinegar                   0.400133      -0.538584
Vinaigre noir                         0.404665      -0.538651
Cooked Salted Duck Egg                0.254331      -0.394615
Gourmet Powder                         0.399740      -0.538578
Bamboo Shoots                           0.400918      -0.538596

        row_coord_dim7  row_coord_dim8 \
product_name
Banana Chips Sweetened (Whole)      0.436096      -1.902287
Peanuts                               -0.683128      0.191257
Organic Salted Nut Mix              -1.350019      1.194803
Organic Muesli                         0.484627      -0.184876
Zen Party Mix                          0.974248      0.335509
...
...                                ...
White Rice Vinegar                   0.087993      -0.009179
Vinaigre noir                         0.088017      -0.009182
Cooked Salted Duck Egg                0.180900      0.160278
Gourmet Powder                         0.087991      -0.009179
Bamboo Shoots                           0.087997      -0.009180

        row_contrib_dim1  row_contrib_dim2 \
product_name
Banana Chips Sweetened (Whole)      0.002912      0.000224
Peanuts                               0.000154      0.000144
Organic Salted Nut Mix              0.001979      0.000415
Organic Muesli                         0.000289      0.000117
Zen Party Mix                          0.000879      0.000097
...
...                                ...
White Rice Vinegar                   0.000476      0.000230
Vinaigre noir                         0.000476      0.000230
Cooked Salted Duck Egg                0.000346      0.000042
Gourmet Powder                         0.000476      0.000230
Bamboo Shoots                           0.000476      0.000230

        row_contrib_dim3  row_contrib_dim4 \
product_name
Banana Chips Sweetened (Whole)      0.000029      0.000003
Peanuts                               0.000031      0.000019
Organic Salted Nut Mix              0.000004      0.000022
Organic Muesli                         0.000006      0.000007
Zen Party Mix                          0.000020      0.000025
...
...                                ...
White Rice Vinegar                   0.000004      0.000047
Vinaigre noir                         0.000005      0.000040
Cooked Salted Duck Egg                0.000003      0.000018
Gourmet Powder                         0.000004      0.000048
Bamboo Shoots                           0.000004      0.000046

        row_contrib_dim5  row_contrib_dim6 \
product_name
Banana Chips Sweetened (Whole)      0.000002      0.001267
Peanuts                               0.000005      0.001879
Organic Salted Nut Mix              0.000015      0.000129
Organic Muesli                         0.000010      0.000673
Zen Party Mix                          0.000003      0.000441
...
...                                ...
White Rice Vinegar                   0.000099      0.000208
Vinaigre noir                         0.000101      0.000208
Cooked Salted Duck Egg                0.000040      0.000112
Gourmet Powder                         0.000099      0.000208
Bamboo Shoots                           0.000099      0.000208

        row_contrib_dim7  row_contrib_dim8 \
product_name
Banana Chips Sweetened (Whole)      0.000302      8.098982e-03
Peanuts                               0.000741      8.186796e-05
Organic Salted Nut Mix              0.002893      3.195003e-03
Organic Muesli                         0.000373      7.649649e-05
Zen Party Mix                          0.001507      2.519346e-04
...
...                                ...
White Rice Vinegar                   0.000012      1.885748e-07
Vinaigre noir                         0.000012      1.887031e-07
Cooked Salted Duck Egg                0.000052      5.749432e-05
Gourmet Powder                         0.000012      1.885636e-07
Bamboo Shoots                           0.000012      1.885970e-07

        row_cos2_dim1  row_cos2_dim2  row_cos2_dim3 \
product_name
Banana Chips Sweetened (Whole)      0.588427      0.041572      0.003226
Peanuts                               0.115480      0.099492      0.012776
Organic Salted Nut Mix              0.565926      0.108956      0.000605
Organic Muesli                         0.360429      0.134432      0.004196
Zen Party Mix                          0.570805      0.058038      0.007298
...
...                                ...
White Rice Vinegar                   0.551141      0.244157      0.002482
Vinaigre noir                         0.552547      0.244776      0.003042
Cooked Salted Duck Egg                0.711115      0.079032      0.003163
Gourmet Powder                         0.551008      0.244099      0.002436
Bamboo Shoots                           0.551401      0.244272      0.002575

        row_cos2_dim4  row_cos2_dim5  row_cos2_dim6 \
product_name
Banana Chips Sweetened (Whole)      0.000314      0.000172      0.115919
Peanuts                               0.007814      0.002147      0.639282
Organic Salted Nut Mix              0.003342      0.002226      0.016659
Organic Muesli                         0.004520      0.006758      0.380443
Zen Party Mix                          0.008862      0.001076      0.129587
...
...                                ...

```

```

White Rice Vinegar          0.029785    0.060278    0.109209
Vinaigre noir               0.025369    0.061804    0.109507
Cooked Salted Duck Egg     0.020492    0.043197    0.103992
Gourmet Powder              0.030184    0.060146    0.109181
Bamboo Shoots                0.028997    0.060543    0.109264

                           row_cos2_dim7  row_cos2_dim8
product_name
Banana Chips Sweetened (Whole) 0.012501    0.237869
Peanuts                      0.114068    0.008941
Organic Salted Nut Mix        0.169512    0.132774
Organic Muesli                 0.095346    0.013876
Zen Party Mix                  0.200551    0.023785
...
White Rice Vinegar          0.002915    0.000032
Vinaigre noir                0.002924    0.000032
Cooked Salted Duck Egg       0.021854    0.017155
Gourmet Powder                0.002914    0.000032
Bamboo Shoots                  0.002917    0.000032

[166934 rows x 24 columns]
Out[112...]
```

```
In [113...]: myDF6 = pd.concat([myDF4.reset_index(), myDF5.reset_index()], axis = 1)
pd.options.display.float_format = '{:.2f}'.format
myDF6.describe()
```

```
Out[113...]:
```

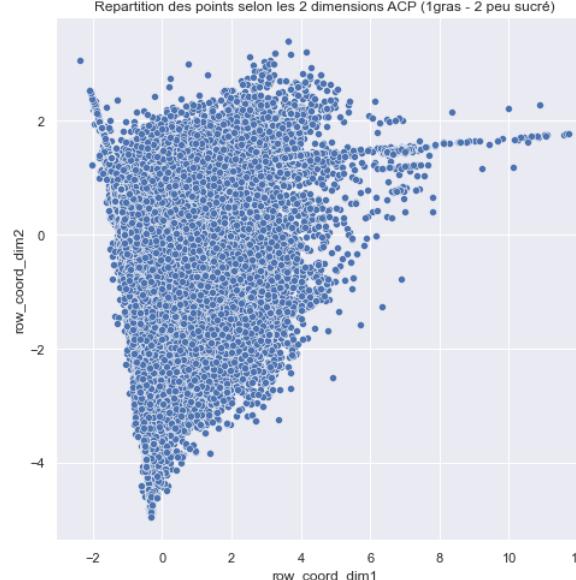
	index	energy_100g	fat_100g	carbohydrates_100g	proteins_100g	saturated-fat_100g	salt_100g	ingredients_from_palm_oil_n	sugars_100g	nutrition-score-fr_100g	row_coord_dim1	row_c...
count	166,934.00	166,934.00	166,934.00	166,934.00	166,934.00	166,934.00	166,934.00	166,934.00	166,934.00	166,934.00	166,934.00	
mean	110,770.29	1,201.50	10.37	26.75	6.17	3.86	1.47	0.02	13.21	9.17	-0.00	
std	68,090.87	7,995.35	16.33	29.19	8.00	7.10	6.34	0.13	20.13	9.06	1.36	
min	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-15.00	-2.36	
25%	53,004.25	467.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	1.00	-1.08	
50%	107,043.50	1,197.00	2.00	13.10	3.45	0.20	0.34	0.00	3.54	10.00	-0.42	
75%	160,220.75	1,707.00	16.13	52.73	9.09	5.08	1.24	0.00	17.86	16.00	0.63	
max	253,060.00	3,251,373.00	100.00	100.00	100.00	100.00	100.00	2.00	100.00	40.00	11.73	

```
In [114...]: plt.figure(figsize=(8,8))
plt.title('Repartition des points selon les 2 dimensions ACP (1gras - 2 peu sucré)')
sns.scatterplot(x = myDF6['row_coord_dim1'],y = myDF6['row_coord_dim2'])
#plt.Legend(['random forest regressor', 'régression linéaire multiple'])
#sns.Lineplot([0,25],[0,25], color='r')
ax = plt.gca()
ax.Axes.autoscale(enable=True, axis='both', tight=None)

#ax.set_xlim(-2e+03,3.3e+03)
#ax.set_ylim(-30,80)
#ax.axis('equal')
```

```
-----  
AttributeError                                Traceback (most recent call last)  
~\AppData\Local\Temp\ipykernel_1_28560\92234594.py in <module>  
      5 #sns.lineplot([0,25],[0,25], color='r')  
      6 ax = plt.gca()  
----> 7 ax.Axes.autoscale(enable=True, axis='both', tight=None)  
      8  
      9 #ax.set_xlim(-2e+03,3.3e+03)
```

```
AttributeError: 'AxesSubplot' object has no attribute 'Axes'
```



```
In [115...]: plt.figure(figsize=(8,8))
```

```

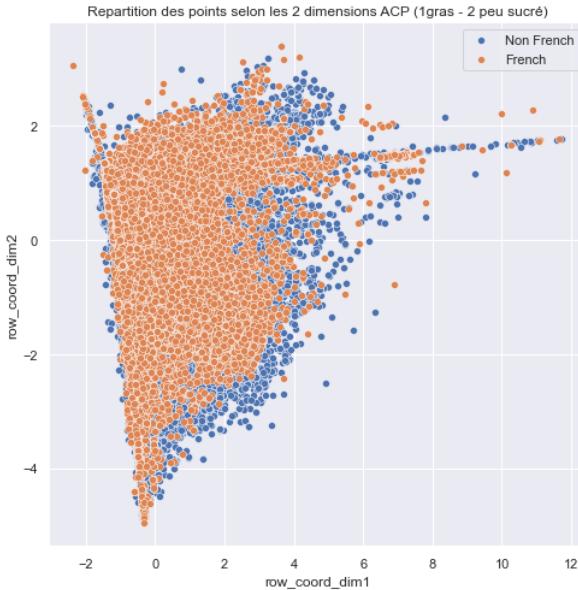
plt.title('Repartition des points selon les 2 dimensions ACP (1gras - 2 peu sucré')

sns.scatterplot(x = myDF6[ ~myDF6.origine_france_b].row_coord_dim1,
                 y = myDF6[ ~myDF6.origine_france_b].row_coord_dim2)
sns.scatterplot(x = myDF6[ myDF6.origine_france_b].row_coord_dim1,
                 y = myDF6[ myDF6.origine_france_b].row_coord_dim2)
plt.legend(['Non French', 'French'])
ax = plt.gca()

ax.autoscale(enable=True, axis='both', tight=None)

#ax.set_xlim(0,100)
#ax.set_ylim(0,100)
#ax.axis('equal')

```



In [116]: #On peut faire des statistiques sur certain produit de même type (repéré par des zones identiques sur le plan ci-dessus)

```

In [117]:
mymask1 = ( (abs(myDF6.row_coord_dim1 -1) < 0.3) & (abs(myDF6.row_coord_dim2) < 0.3))

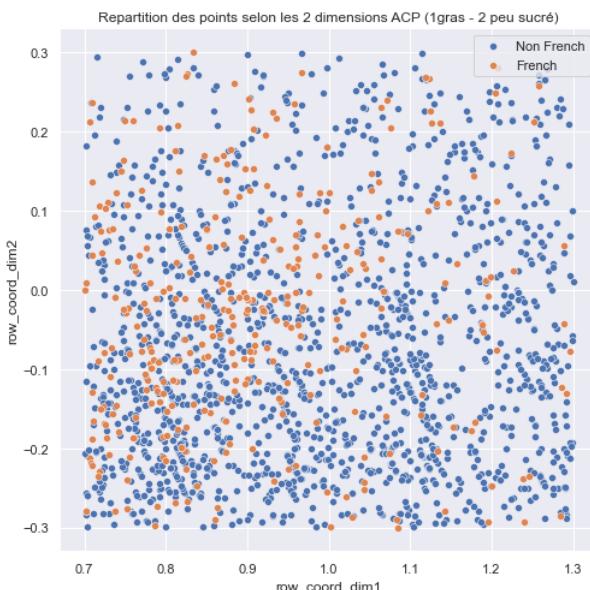
myDF7 = myDF6[mymask1]

plt.figure(figsize=(8,8))
plt.title('Repartition des points selon les 2 dimensions ACP (1gras - 2 peu sucré')

sns.scatterplot(x = myDF7[ ~myDF7.origine_france_b].row_coord_dim1,
                 y = myDF7[ ~myDF7.origine_france_b].row_coord_dim2)
sns.scatterplot(x = myDF7[ myDF7.origine_france_b].row_coord_dim1,
                 y = myDF7[ myDF7.origine_france_b].row_coord_dim2)
plt.legend(['Non French', 'French'])
ax = plt.gca()

ax.autoscale(enable=True, axis='both', tight=None)

```



In [118]:

```

X = "origine_france_b" # qualitative
Y = "nutrition-score-fr_100g" # quantitative

modalites = myDF7["origine_france_b"].unique()
groupes = []
for m in modalites:
    groupes.append(myDF7[myDF7[X] == m ][Y])

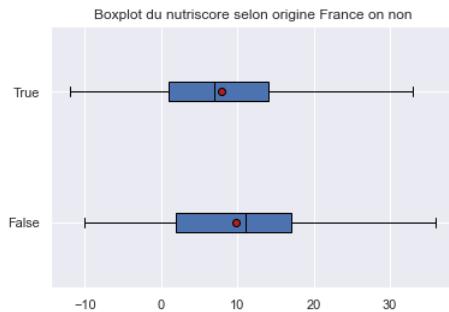
```

```

# Propriétés graphiques (pas très importantes)
medianprops = {'color':'black'}
meanprops = {'marker':'o', 'markeredgecolor':'black',
            'markerfacecolor':'firebrick'}

plt.boxplot(groupes, labels=modalites, showfliers=False, medianprops=medianprops,
            vert=False, patch_artist=True, showmeans=True, meanprops=meanprops )
plt.title("Boxplot du nutriscore selon origine France on non")
plt.show()

```



In [130]...

```

import statsmodels.api as sm
from statsmodels.formula.api import ols

def ComparaisonZone(c1, c2):

    mymask1 = ( (abs(myDF6.row_coord_dim1 -c1) < 0.3) & (abs(myDF6.row_coord_dim2 -c2) < 0.3))

    myDFzone = myDF6[mymask1]
    #print(myDF7.head())

    plt.figure(figsize=(8,8))
    plt.title('Repartition des points selon les 2 dimensions ACP (1gras - 2 peu sucré)')

    sns.scatterplot(x = myDFzone[ ~myDFzone.origine_france_b].row_coord_dim1,
                    y = myDFzone[ ~myDFzone.origine_france_b].row_coord_dim2)
    sns.scatterplot(x = myDFzone[ myDFzone.origine_france_b].row_coord_dim1,
                    y = myDFzone[ myDFzone.origine_france_b].row_coord_dim2)
    plt.legend(['Non French', 'French'])
    ax = plt.gca()

    ax.autoscale(enable=True, axis='both', tight=None)
    X = "origine_france_b" # qualitative
    Y = "nutrition-score-fr_100g" # quantitative
    plt.show()

    modalites = myDFzone["origine_france_b"].unique()
    groupes = []
    for m in modalites:
        groupes.append(myDFzone[myDFzone[X] == m][Y])

    # Propriétés graphiques (pas très importantes)
    medianprops = {'color':'black'}
    meanprops = {'marker':'o', 'markeredgecolor':'black',
                'markerfacecolor':'firebrick'}

    plt.boxplot(groupes, labels=modalites, showfliers=False, medianprops=medianprops,
                vert=False, patch_artist=True, showmeans=True, meanprops=meanprops )
    plt.title("Boxplot du nutriscore selon origine France on non")
    plt.show()

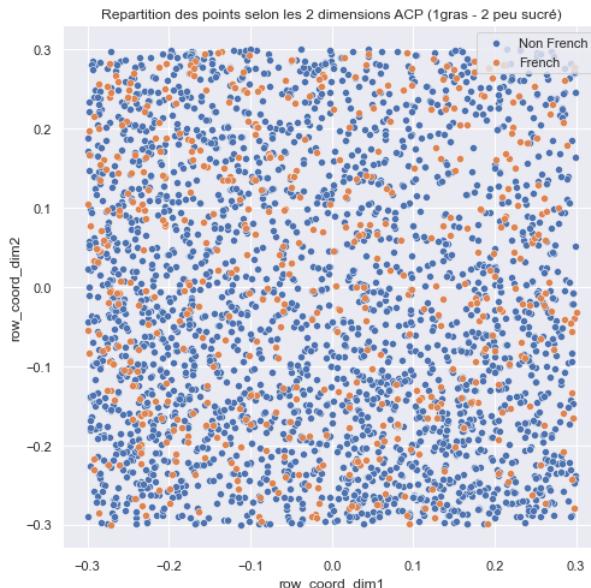
    myDFzone.rename(columns = { "nutrition-score-fr_100g" : "nutrition_score_fr_100g" }, inplace = True)

    model = ols('nutrition_score_fr_100g ~ origine_france_b', data=myDFzone).fit()
    anova_table = sm.stats.anova_lm(model, typ=2)
    anova_table

    # print("Moyenne non France {}".format(myDF7[myDF.origine_france_b].nutrition-score-fr_100h.mean()))

    ComparaisonZone(0,0)

```



```

KeyError                                     Traceback (most recent call last)
~\anaconda3\lib\site-packages\pandas\core\indexes\base.py in get_loc(self, key, method, tolerance)
    3360
    3361         try:
-> 3361             return self._engine.get_loc(casted_key)
    3362         except KeyError as err:

```

```

~\anaconda3\lib\site-packages\pandas\_libs\index.pyx in pandas._libs.index.IndexEngine.get_loc()
~\anaconda3\lib\site-packages\pandas\_libs\index.pyx in pandas._libs.index.IndexEngine.get_loc()

```

```

~\anaconda3\lib\site-packages\pandas\_libs\index.pyx in pandas._libs.index.IndexEngine._get_loc_duplicates()
~\anaconda3\lib\site-packages\pandas\_libs\index.pyx in pandas._libs.index.IndexEngine._maybe_get_bool_indexer()
~\anaconda3\lib\site-packages\pandas\_libs\index.pyx in pandas._libs.index.IndexEngine._unpack_bool_indexer()

KeyError: 'nutrition-score-fr_100g'

The above exception was the direct cause of the following exception:

KeyError                                     Traceback (most recent call last)
~\AppData\Local\Temp\ipykernel_28560\3500404955.py in <module>
    52 #     print("Moyenne non France {}".format(myDF[myDF.origine_france_b].nutrition-score-fr_100h.mean()))
    53
--> 54 ComparaisonZone(0,0)
    55

~\AppData\Local\Temp\ipykernel_28560\3500404955.py in ComparaisonZone(c1, c2)
    28 groupes = []
    29     for m in modalites:
--> 30         groupes.append(myDFzone[myDFzone[X] == m ][Y])
    31
    32     # Propriétés graphiques (pas très importantes)

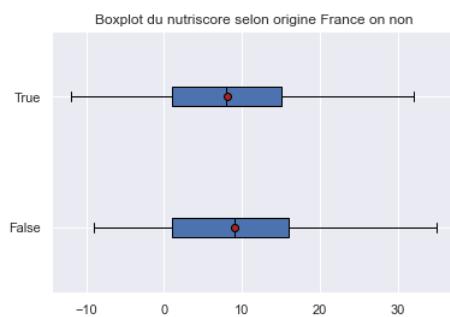
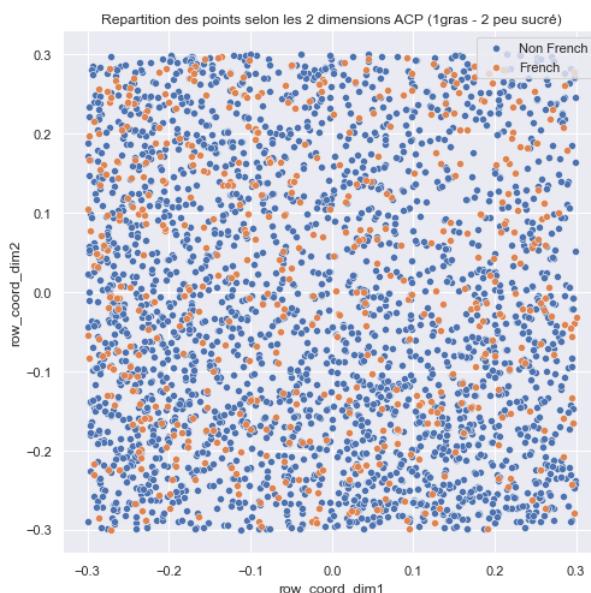
~\anaconda3\lib\site-packages\pandas\core\frame.py in __getitem__(self, key)
    3456         if self.columns.nlevels > 1:
    3457             return self._getitem_multilevel(key)
-> 3458         indexer = self.columns.get_loc(key)
    3459         if is_integer(indexer):
    3460             indexer = [indexer]

~\anaconda3\lib\site-packages\pandas\core\indexes\base.py in get_loc(self, key, method, tolerance)
    3361             return self._engine.get_loc(casted_key)
    3362         except KeyError as err:
-> 3363             raise KeyError(key) from err
    3364
    3365         if is_scalar(key) and isna(key) and not self.hasnans:
```

```
KeyError: 'nutrition-score-fr_100g'
```

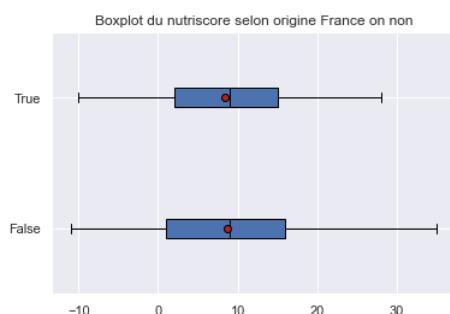
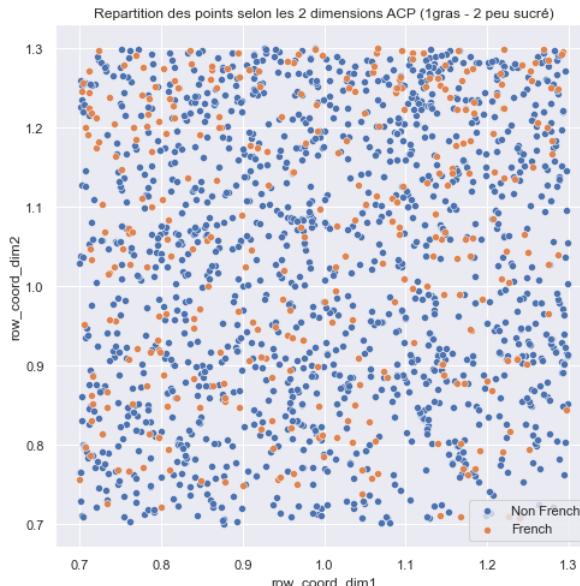
In [120...]

```
ComparaisonZone(0,0)
```



In [121]:

ComparaisonZone(1,1)



TEST :

Est-ce lié au mode de calcul du nutriscore en France vs le reste du monde?

In []:

```
In [122... # ANOVA = calcul de corrélation entre
# exemple : croiser "sucre" avec "francais"
# attention : vérifier égalité des variances avant de lancer L'anova (si pas égal, un log peut écraser les boîtes)
myDF6
```

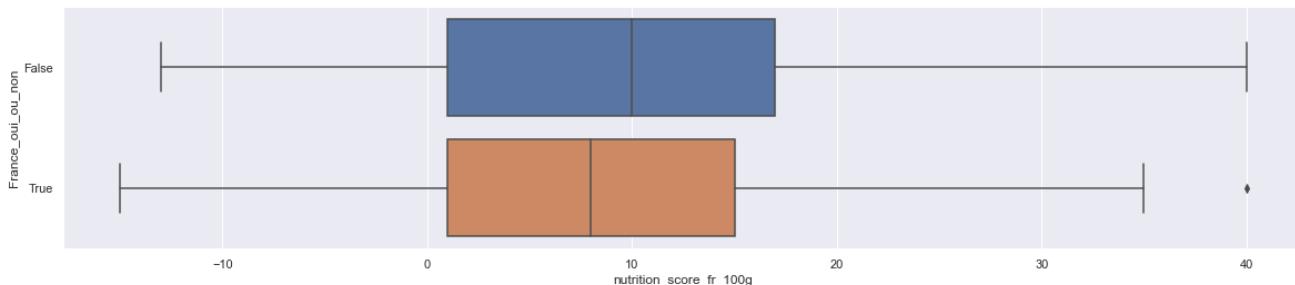
```
Out[122...      index  energy_100g  fat_100g  carbohydrates_100g  proteins_100g  saturated-fat_100g  salt_100g  ingredients_from_palm_oil_n  sugars_100g  product_name  nutrition-score-fr_100g  origine_fra
0             1     2,243.00    28.57          64.29           3.57         28.57        0.00            0.00       14.29  Banana Chips Sweetened (Whole)  14.00
1             2     1,941.00    17.86          60.71           17.86        0.00        0.64            0.00       17.86      Peanuts  0.00
2             3     2,540.00    57.14          17.86           17.86        5.36        1.22            0.00       3.57  Organic Salted Nut Mix  12.00
3             7     1,833.00    18.75          57.81           14.06        4.69        0.14            0.00      15.62  Organic Muesli  7.00
4            12     2,230.00    36.67          36.67           16.67        5.00        1.61            0.00      3.33  Zen Party Mix  12.00
...           ...
166929  253050    16.70        0.00            0.00           0.00        0.00        0.00            0.00       0.00      White Rice Vinegar  1.00
166930  253051    209.00       0.00            0.00           0.00        0.00        0.00            0.00       0.00  Vinaigre noir  0.00
166931  253052    523.00       0.00            21.05           0.00        0.00        0.05            0.00      19.30  Cooked Salted Duck Egg  14.00
166932  253059      0.00       0.00            0.00           0.00        0.00        0.00            0.00       0.00  Gourmet Powder  1.00
166933  253060     50.00       0.00            0.00           0.00        0.00        0.00            0.00       0.00  Bamboo Shoots  5.00
```

166934 rows × 37 columns

```
In [123... myDF6["France_oui_ou_non"] = myDF6.origine_france_b.astype("str")
myDF6.rename(columns = { "nutrition-score-fr_100g" : "nutrition_score_fr_100g" }, inplace = True)

#df.rename(columns={'PClass': 'Classe passager',
#                  'Age': 'Age passager'}, inplace=True)
```

```
In [124... plt.subplots(figsize=(20,4))
ax = sns.boxplot(x="nutrition_score_fr_100g", y="France_oui_ou_non", data = myDF6)
```



```
In [125... from scipy.stats import bartlett

bartlett(myDF6["nutrition_score_fr_100g"][myDF6.France_oui_ou_non == 'False'],
         myDF6["nutrition_score_fr_100g"][myDF6.France_oui_ou_non == 'True'])

# Le test de bartlett qui permet de tester si les variances sont significativement différentes ou non avec :

# H0 : Les variances de chaque groupe sont égales si p-value > 5%
# H1 : Les variances de chaque groupe ne sont pas toutes égales < 5%
```

```
Out[125... BartlettResult(statistic=4.4641509491569895, pvalue=0.034613287890019814)
```

```
In [ ]:
```

```
In [127... import statsmodels.api as sm
from statsmodels.formula.api import ols
model = ols('nutrition_score_fr_100g ~ France_oui_ou_non', data=myDF6).fit()
anova_table = sm.stats.anova_lm(model, typ=2)
anova_table
```

```
#~H0 : Les moyennes de chaque groupe sont égales si p-value > 5%
# H1 : Les moyennes de chaque groupe ne sont pas toutes égales < 5%
```

```
Out[127...      sum_sq        df         F    PR(>F)
France_oui_ou_non   46,441.69      1.00   568.27      0.00
Residual      13,642,526.03  166,932.00    NaN    NaN
```

```
In [ ]:
```

In []:

Questions pour Anthony

Quand j'imprime mes notebooks (en PDF), les dataframes et les graphiques sont tous imprimés (pas d'ascenseurs). Le document est très long (>20 pages). Est-ce paramétrable ?

■ solution : utiliser .head() à chaque print pour éviter de voir comment tagguer les cellules pour ne pas forcément les imprimer.