

Análisis Nutricional de Productos de Mercadona

Exploratory Data Analysis

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“El 70-75% de la comida disponible en un supermercado es ultraprocesada, y de ella, un alto porcentaje es nutricionalmente insalubre”

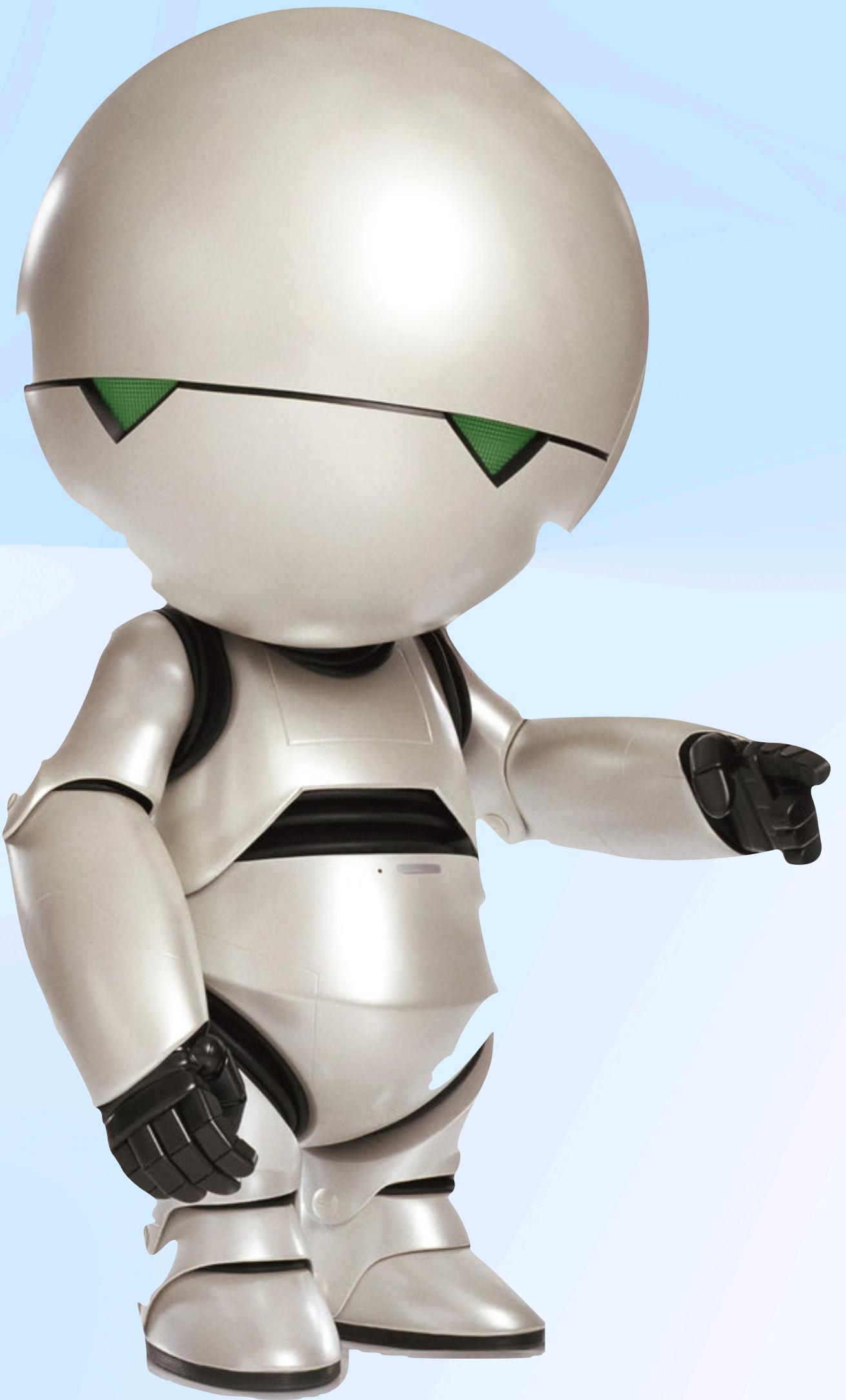


MYTHBUSTERS



MERCADONA





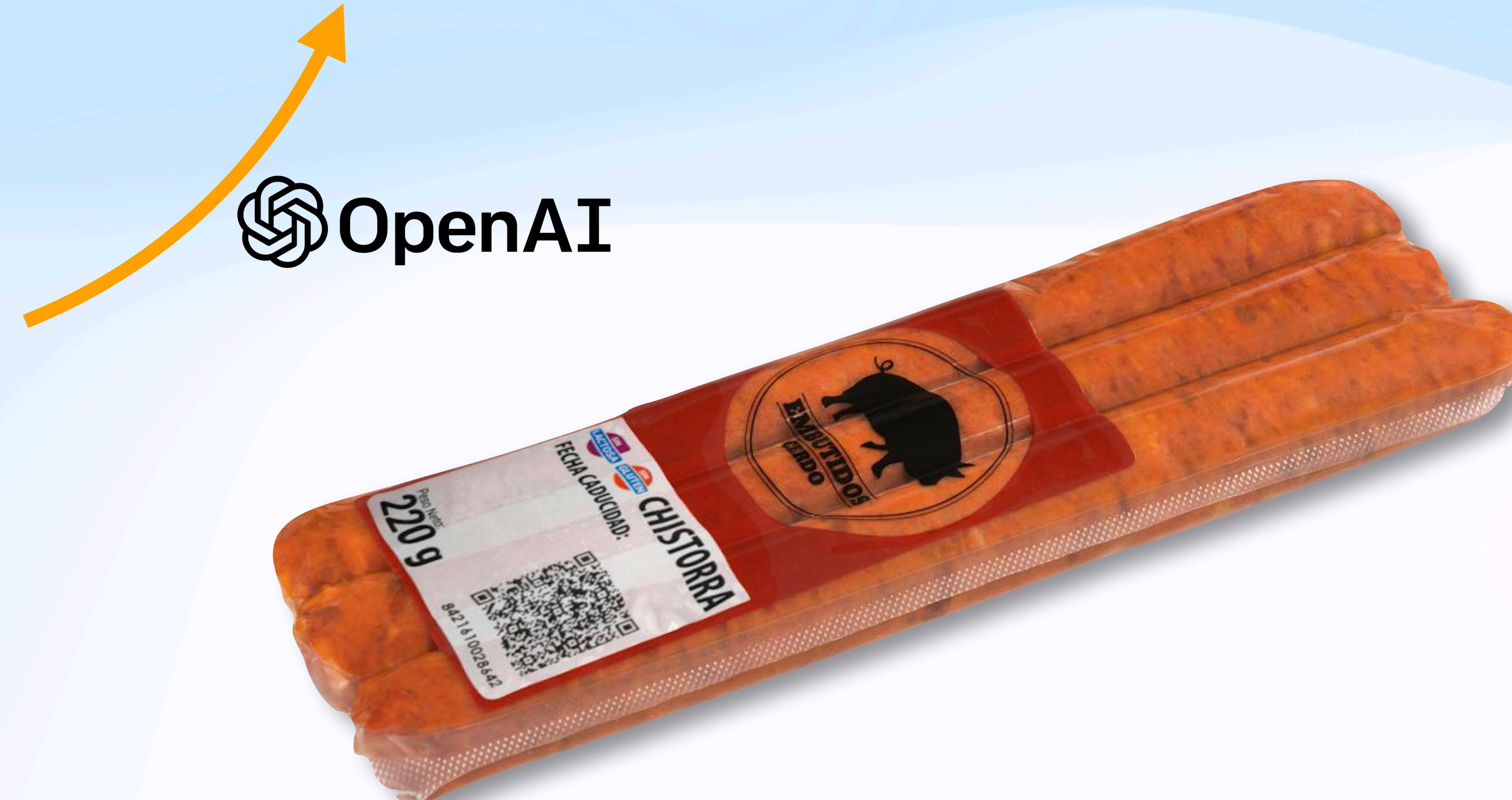
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Index: 4437 entries, 46658 to 45662
Data columns (total 66 columns):
 #   Column           Non-Null Count Dtype  
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 0   ean              4437 non-null  int64   
 1   status            0 non-null    float64 
 2   is_bulk           4437 non-null  bool    
 3   packaging         3903 non-null  object  
 4   published         4437 non-null  bool    
 5   share_url         4437 non-null  object  
 6   display_name      4437 non-null  object  
 7   is_variable_weight 4437 non-null  bool    
 8   details_brand     3873 non-null  object  
 9   details_origin    1304 non-null  object  
 10  details_suppliers 4437 non-null  object  
 11  details_legal_name 2845 non-null  object  
 12  details_description 4437 non-null  object  
 13  details_counter_info 96 non-null  object  
 14  details_danger_mentions 177 non-null  object  
 15  details_alcohol_by_volume 173 non-null  object  
 16  details_mandatory_mentions 1344 non-null  object  
 17  details_production_variant 438 non-null  object  
 18  details_usage_instructions 1350 non-null  object  
 19  details_storage_instructions 2574 non-null  object  
 20  price_iva          3409 non-null  float64 
 21  price_is_new       4437 non-null  bool    
 22  price_is_pack      4437 non-null  bool    
 23  price_pack_size    506 non-null  float64 
 24  price_unit_name    1292 non-null  object  
 25  price_unit_size    4398 non-null  float64 
 26  price_bulk_price   4437 non-null  float64 
 27  price_unit_price   4437 non-null  float64 
 28  price_approx_size  4437 non-null  bool    
 29  price_size_format  4437 non-null  object  
 30  price_total_units  1292 non-null  float64 
 31  price_unit_selector 4437 non-null  bool    
 32  price_bunch_selector 4437 non-null  bool    
 33  price_drained_weight 181 non-null  float64 
 34  price_selling_method 4437 non-null  int64   
 35  price_price_decreased 4437 non-null  bool    
 36  price_reference_price 4437 non-null  float64 
 37  price_min_bunch_amount 4437 non-null  float64 
 38  price_preference_format 4437 non-null  object  
 39  price_previous_unit_price 105 non-null  float64 
 40  price_increment_bunch_amount 4437 non-null  float64 
 41  allergens          2739 non-null  object  
 42  ingredients         2710 non-null  object  
 43  level_0_cat_id      4437 non-null  int64   
 44  level_0_cat_name     4437 non-null  object  
 45  level_0_cat_order    4437 non-null  int64   
 46  level_1_cat_id      4437 non-null  int64   
 47  level_1_cat_name     4437 non-null  object  
 48  level_1_cat_order    4437 non-null  int64   
 49  level_2_cat_id      4437 non-null  int64   
 50  level_2_cat_name     4437 non-null  object  
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 53  img_0_perspective    4437 non-null  int64   
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 55  img_1_perspective    4334 non-null  float64 
 56  img_2_url           796 non-null  object  
 57  img_2_perspective    796 non-null  float64 
 58  img_3_url           218 non-null  object  
 59  img_3_perspective    218 non-null  float64 
 60  img_4_url           18 non-null  object  
 61  img_4_perspective    18 non-null  float64 
 62  img_5_url           5 non-null  object  
 63  img_5_perspective    5 non-null  float64 
 64  img_6_url           3 non-null  object  
 65  img_6_perspective    3 non-null  float64 

dtypes: bool(9), float64(18), int64(9), object(30)
memory usage: 2.0+ MB
```

4437 filas
66 columnas



valor energético	Grasas	grasas saturadas	carbohidratos	azúcares	Proteínas	Sal
400	35.0	14.0	0.5	0.0	14.0	2.0



OpenAI

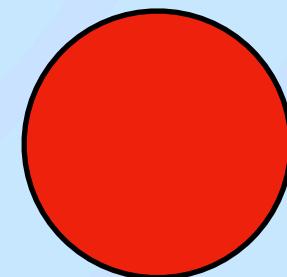
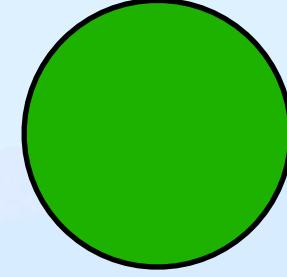
TORTILLA DE TRIGO 57%: Harina de trigo (38%), agua, grasa de palma, estabilizante (E-422), sal, gasificantes (E 450i, E 500ii), emulgente (E-471), gluten de trigo, agente de tratamiento de la harina (E-920). **PECHUGA DE POLLO COCIDA 29%:** pechuga de pollo (19.3%), agua, sal, estabilizantes (E-451i, E-407), dextrosa, aromas, antioxidantes (E-331, E-316), conservador (E-250). **QUESO FUNDIDO 14%:** Queso pasteurizado, almidón modificado, agua, lactosuero (leche), proteínas de la leche, sal y conservador (E-202). Almidón modificado (E-1442). Puede contener trazas de soja y mostaza.

$$2 + 2 + 1 = 5$$

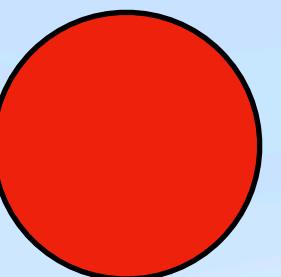
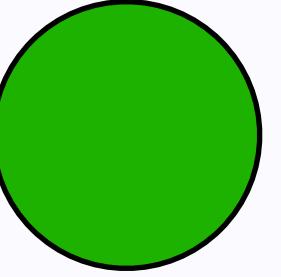


score $\geq 3 \rightarrow$ UPF
 1 \leq score $\leq 2 \rightarrow$ Procesado
 score = 0 \rightarrow Min/Ingred

Alimentos (por 100 g)

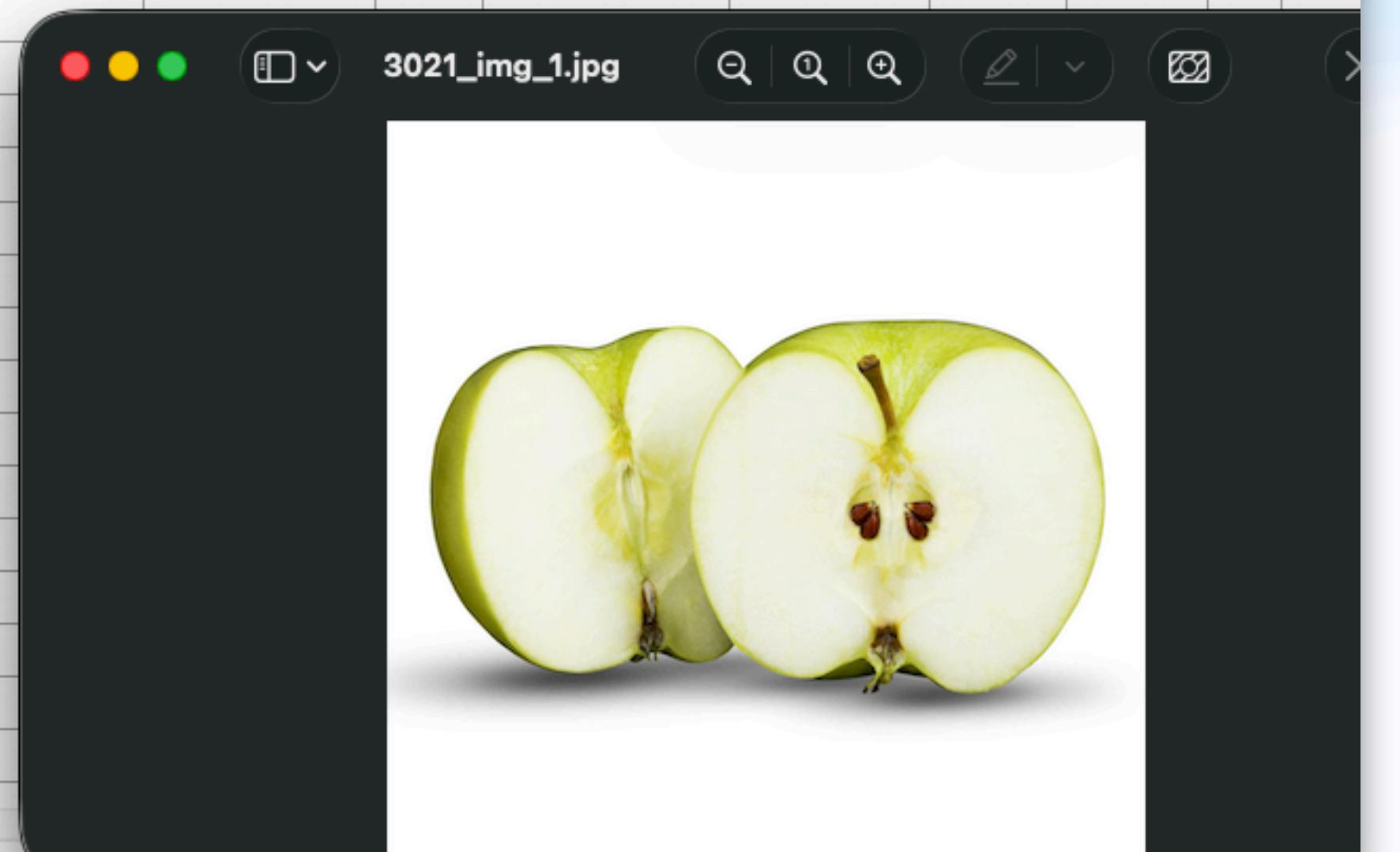
	grasas	grasas saturadas	azúcares	sal
	> 17,5 g	> 5 g	> 22,5 g	> 1,5 g
Valores intermedios				
	≤ 3 g	≤ 1,5 g	≤ 5 g	≤ 0,3 g

Bebidas (por 100 ml)

	grasas	grasas saturadas	azúcares	sal
	> 8,75 g	> 2,5 g	> 11,25 g	> 0,75 g
Valores intermedios				
	≤ 1,5 g	≤ 0,75 g	≤ 2,5 g	≤ 0,3 g

- Si $\text{reds} \geq 2 \Rightarrow$ no saludable.
- Si $\text{greens} \geq 3$ y $\text{reds} == 0 \Rightarrow$ saludable.
- En cualquier otro caso \Rightarrow a valorar.

1	id	img_6_nutri_info_file	valor_energético	grasas	grasas_saturadas	carbohidratos	azúcares	proteinas	sal
49	2854		169.0	8.8	2.6	3.8	0.0	18.6	0.25
50	2855		163.0	9.2	2.7	0.5	0.0	19.0	0.3
51	2856		80.0	1.85	0.6	0.0	0.0	16.0	0.23
52	2857		120.0	5.35	1.85	0.7	0.0	17.0	0.22
53	2859		120.0	3.7	1.2	0.0	0.0	21.4	0.23
54	2860		211.0	12.0	5.3	1.5	0.0	24.0	0.18
55	2861		133.0	4.5	1.7	1.9	1.7	21.0	0.17
56	2864		400.0	35.0	14.0	0.5	0.0	14.0	2.0
57	2867		206.0	16.0	6.0	2.0	0.5	17.0	0.6
58	2868		180.0	12.0	5.0	3.0	0.5	17.0	0.7
59	2869		184.0	12.0	5.4	2.0	0.5	17.0	0.42
60	2871		232.0	19.0	7.5	0.5	0.5	16.0	1.8
61	2872		223.0	16.0	6.6	2.7	0.9	17.0	1.5
62	2873		206.0	14.0	7.0	2.9	0.5	17.0	1.5
63	2876		208.0	12.9	6.4	17.2	1.03	5.9	0.76
64	3021								
65	3024		46.0	0.1	0.0	10.2	9.8	0.5	0.0
66	3026								
67	3028	3021_img_1.jpg							
68	3050								
69	3076								
70	3119								
71	3132								
72	3170								
73	3172								
74	3202								
75	3210								
76	3235								
77	3236								
78	3238								
79	3269								
80	3277								
81	3212								



- Si no hay tabla nutricional y la categoría `level_2_cat_name` pertenece a grupos frescos, se asignan tres semáforos verdes por defecto.

- Si `level_0_cat_name` == "Bodega", se fuerzan tres semáforos rojos (bebidas alcohólicas).

Score combinado

mixed_score = 0.6 * TL_norm + 0.4 * PR_norm

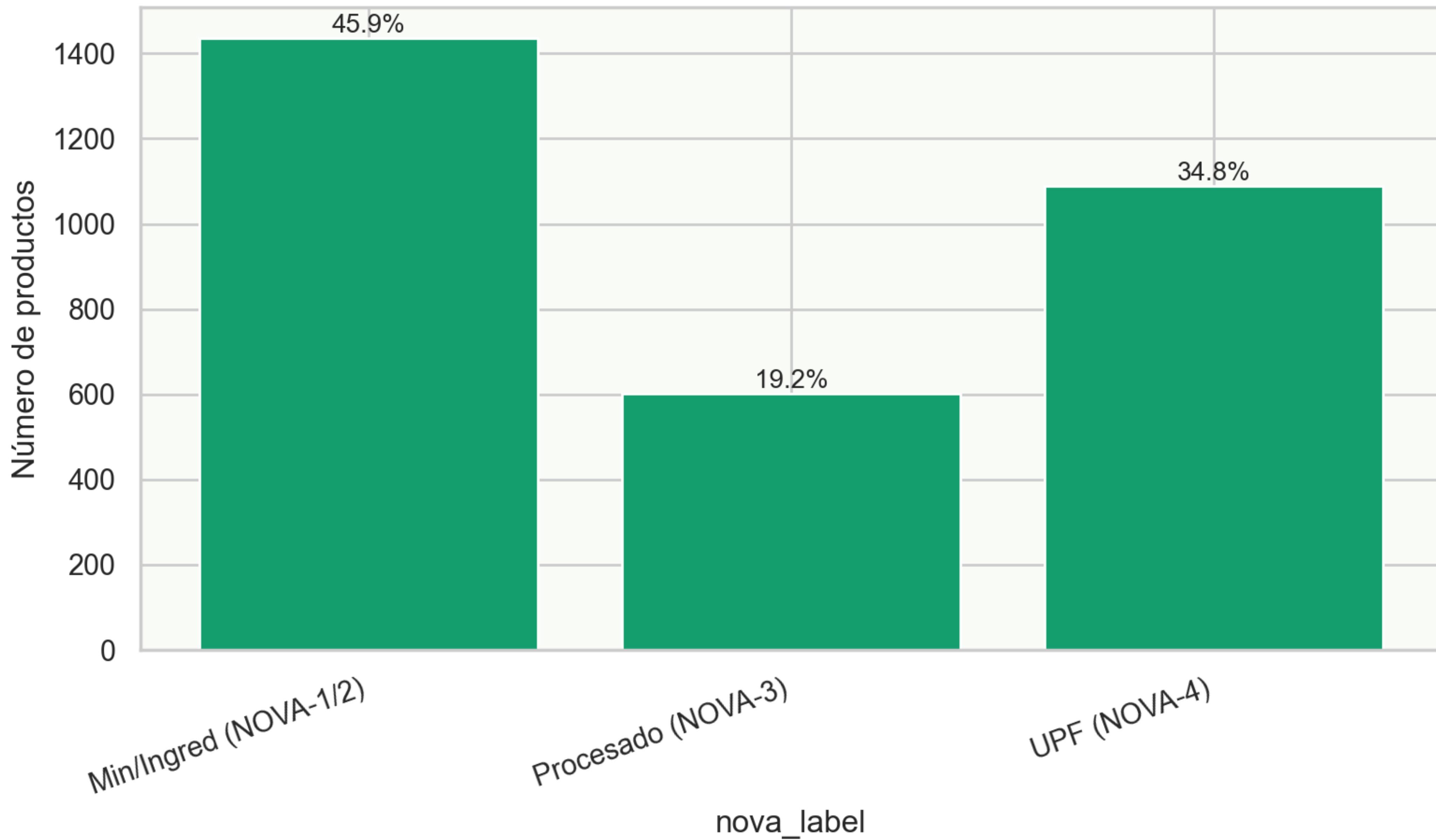
≥ 75 → “Saludable”

55–74.9 → “A valorar”

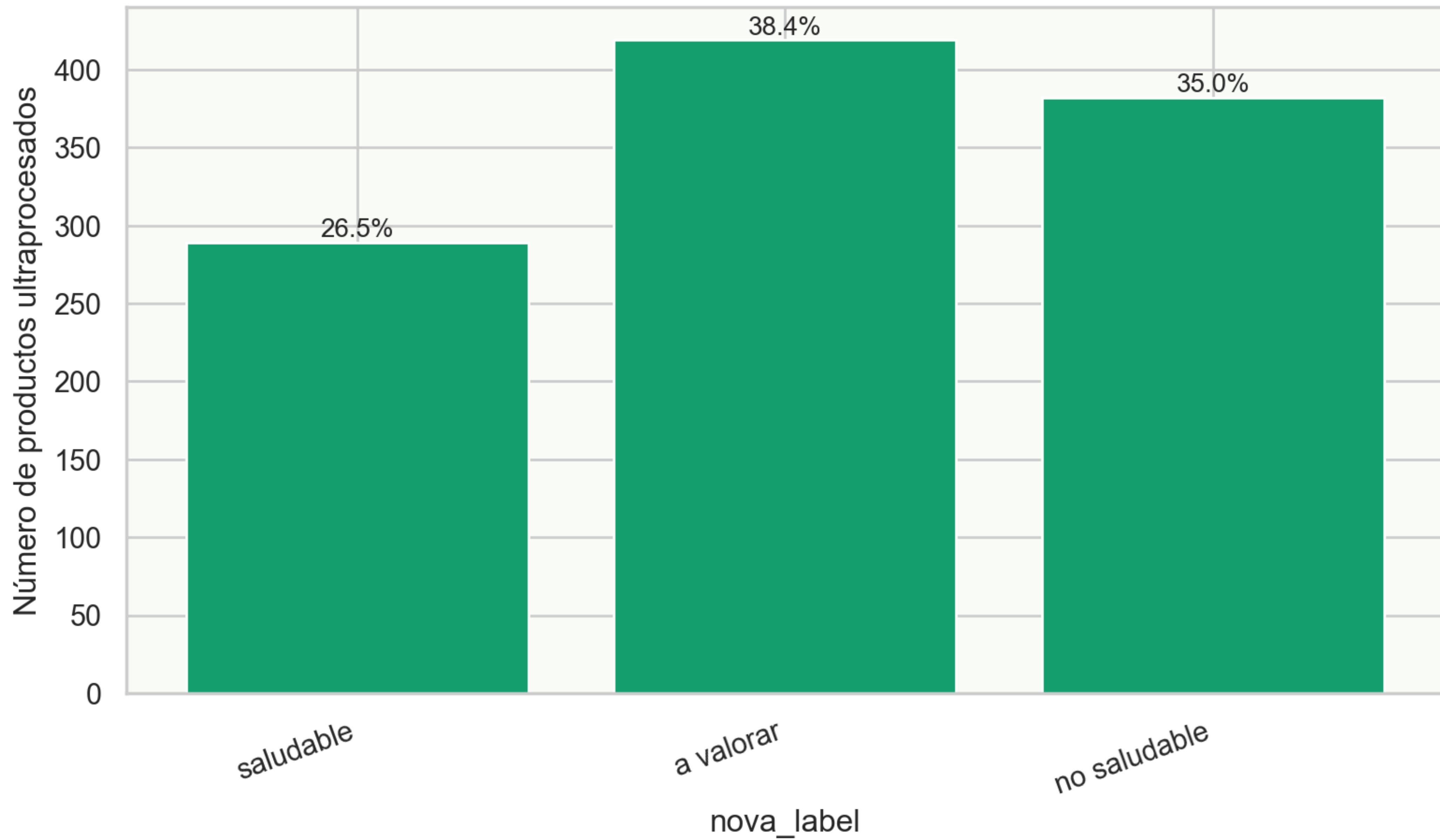
< 55 → “No saludable”

“El 70-75% de la comida disponible en un supermercado es ultraprocesada, y de ella, un alto porcentaje es nutricionalmente insalubre”

Conteo de productos por nivel NOVA (con porcentajes)



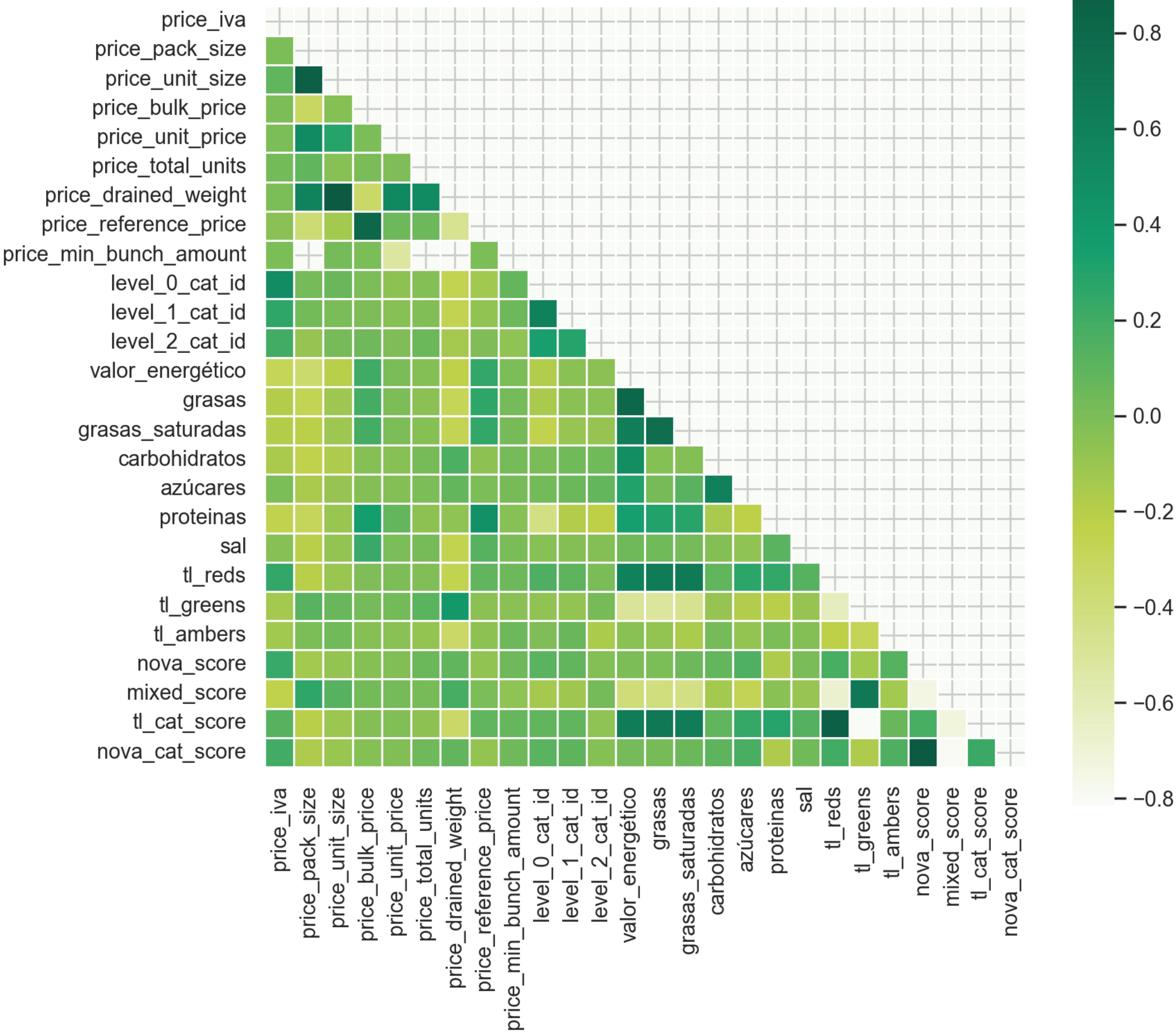
Conteo de productos ultraprocesados por salubridad (con porcentajes)



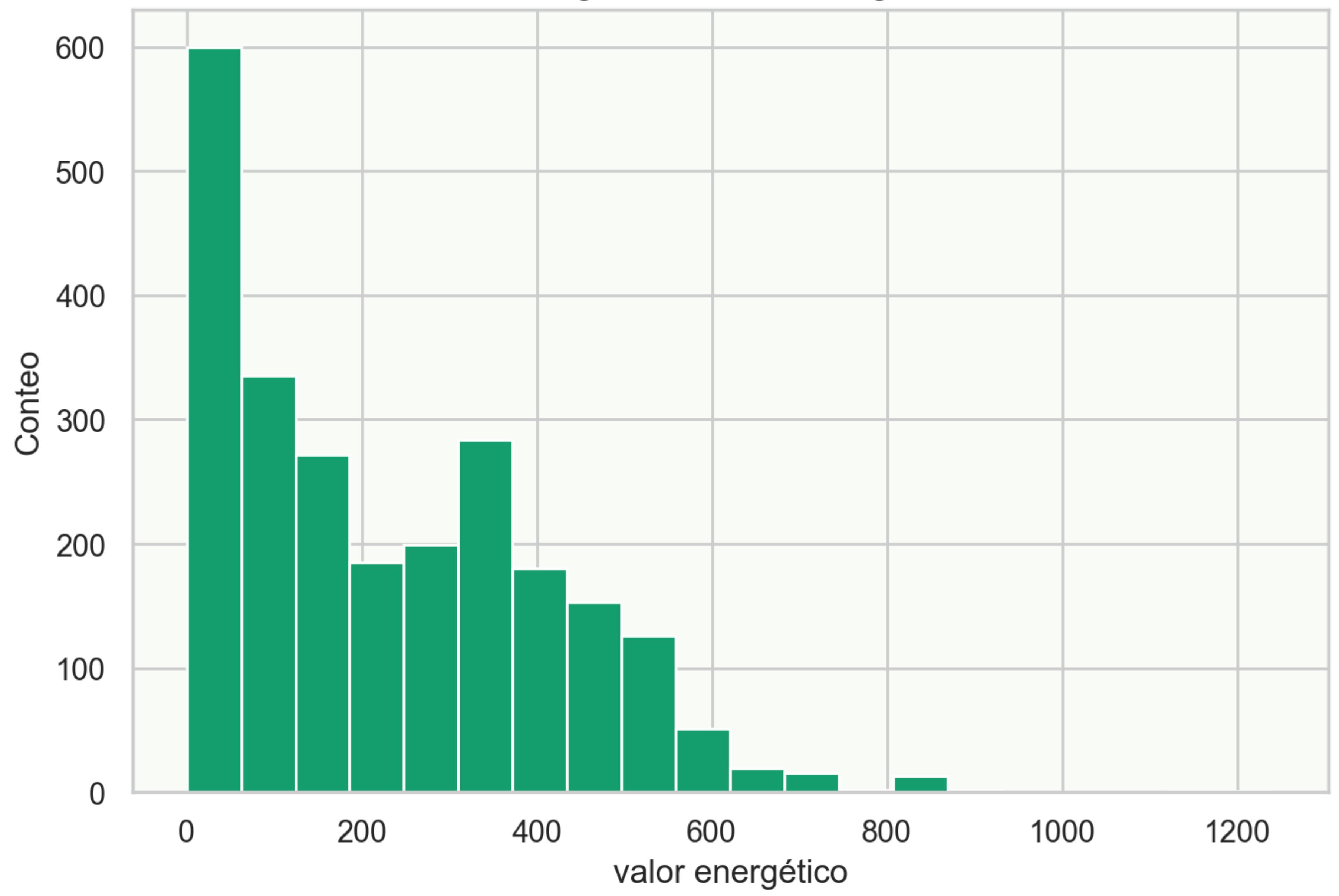
“El 70-75% de la comida
disponible en los
supermercados es
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Un alto porcentaje es
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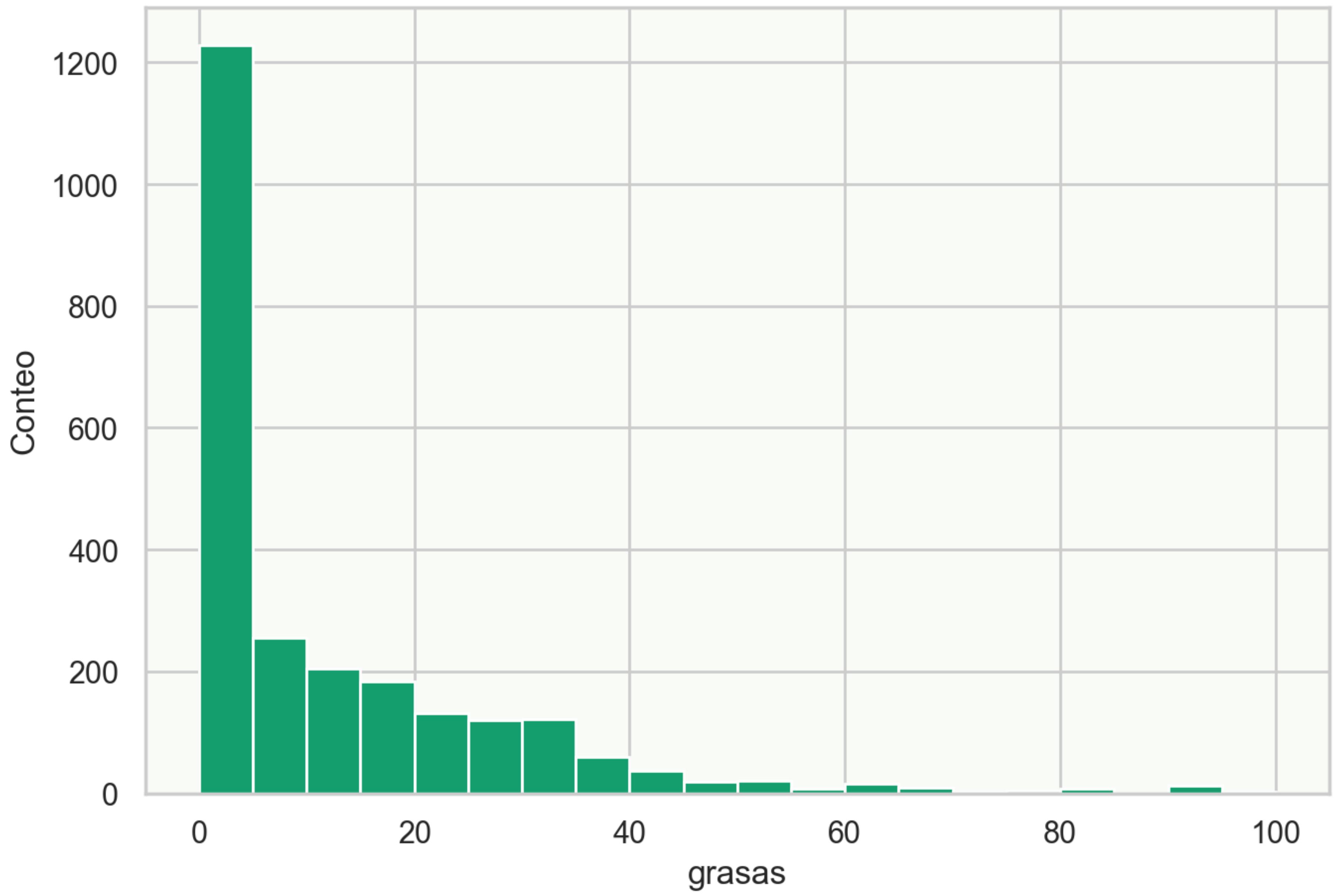
Matriz de correlación (Pearson) — columnas numéricas



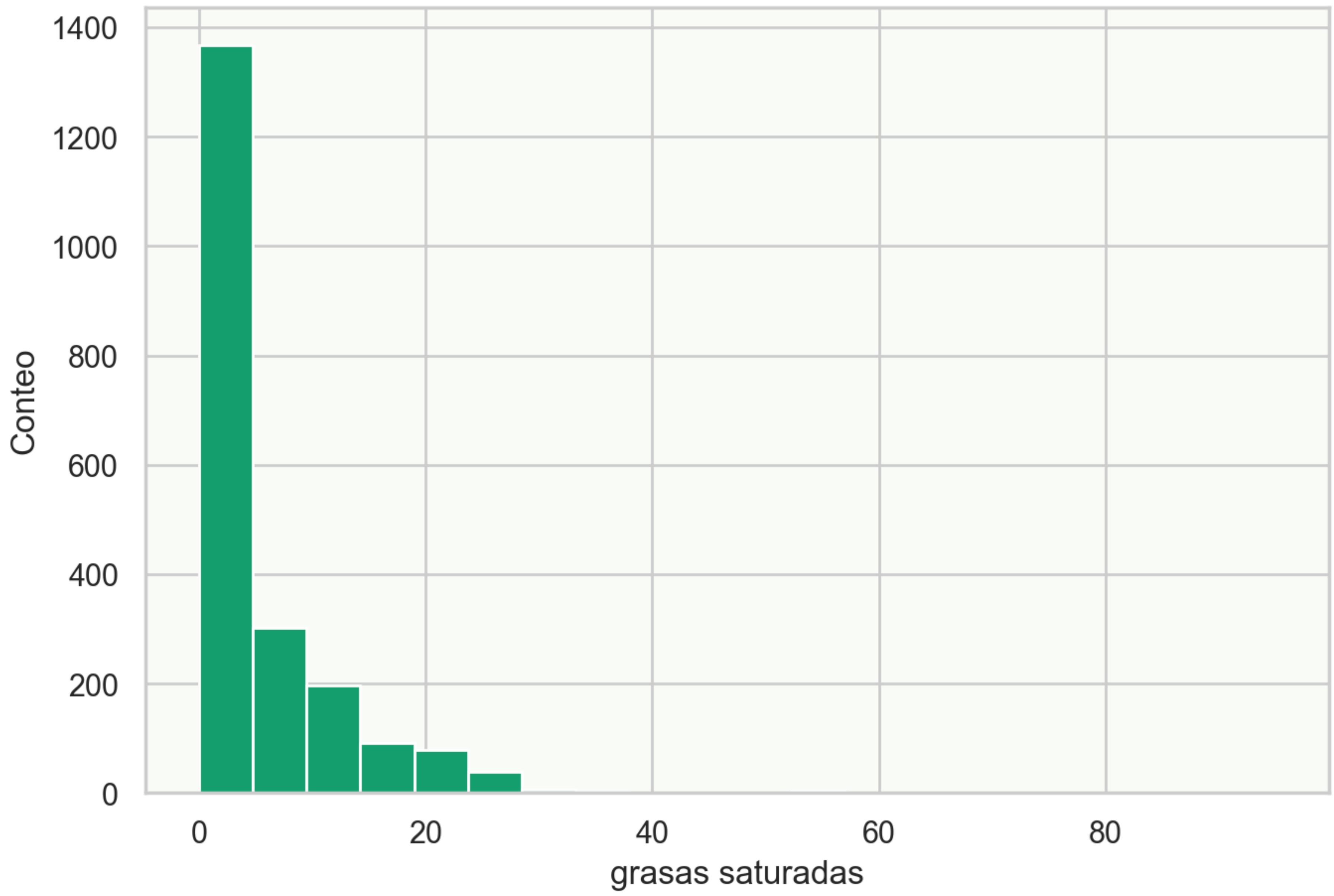
Histograma de valor energético



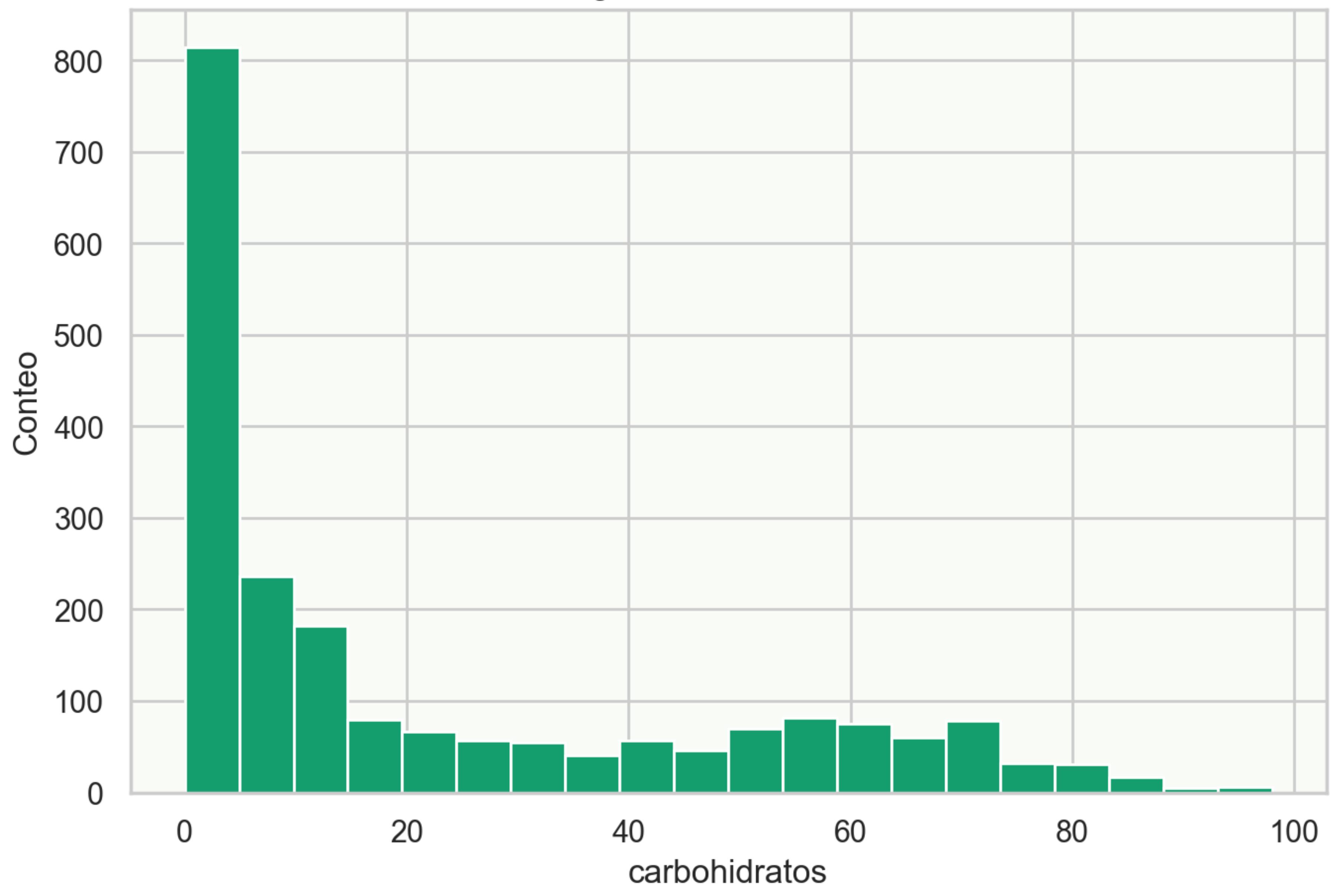
Histograma de grasas



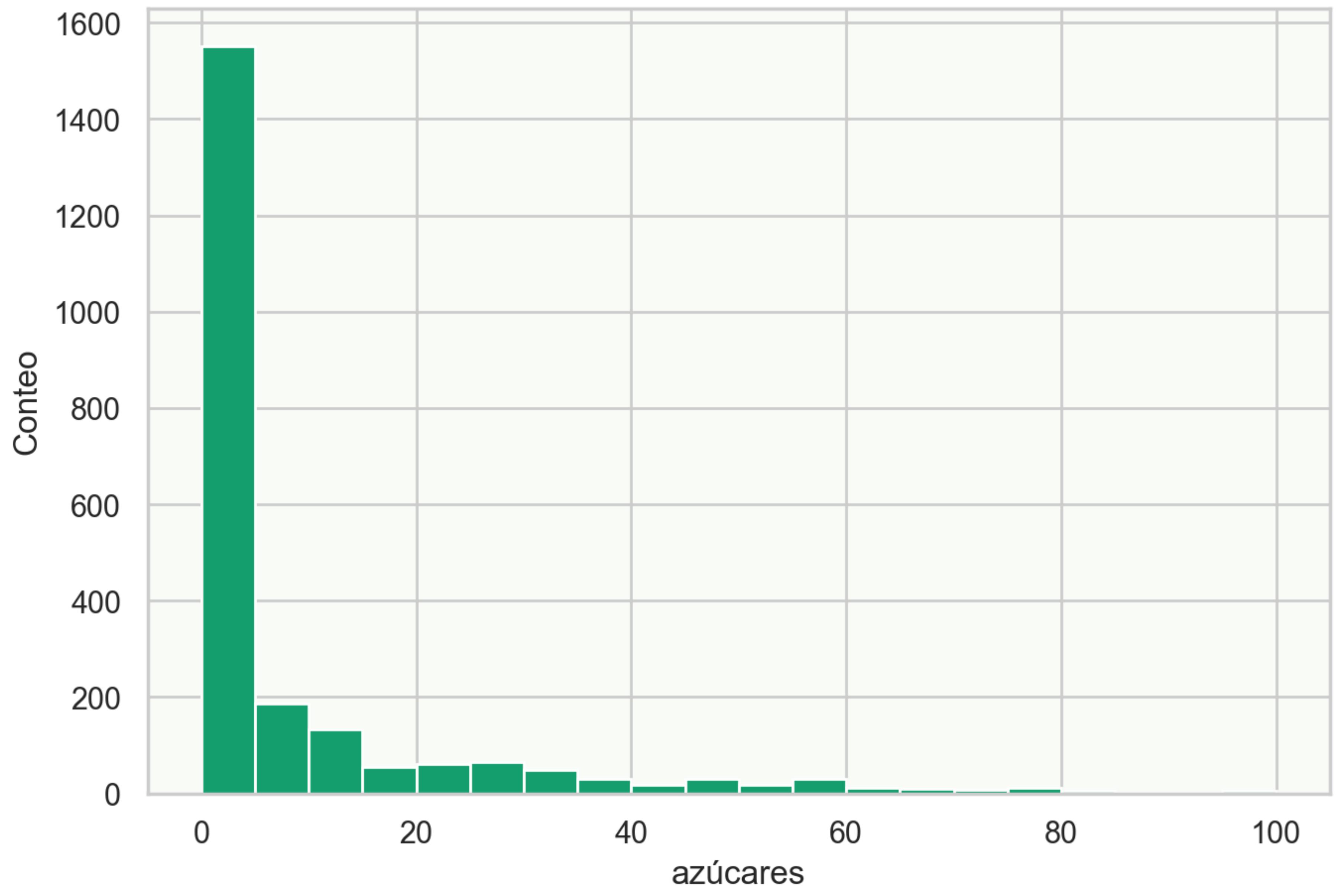
Histograma de grasas saturadas en productos con grasas



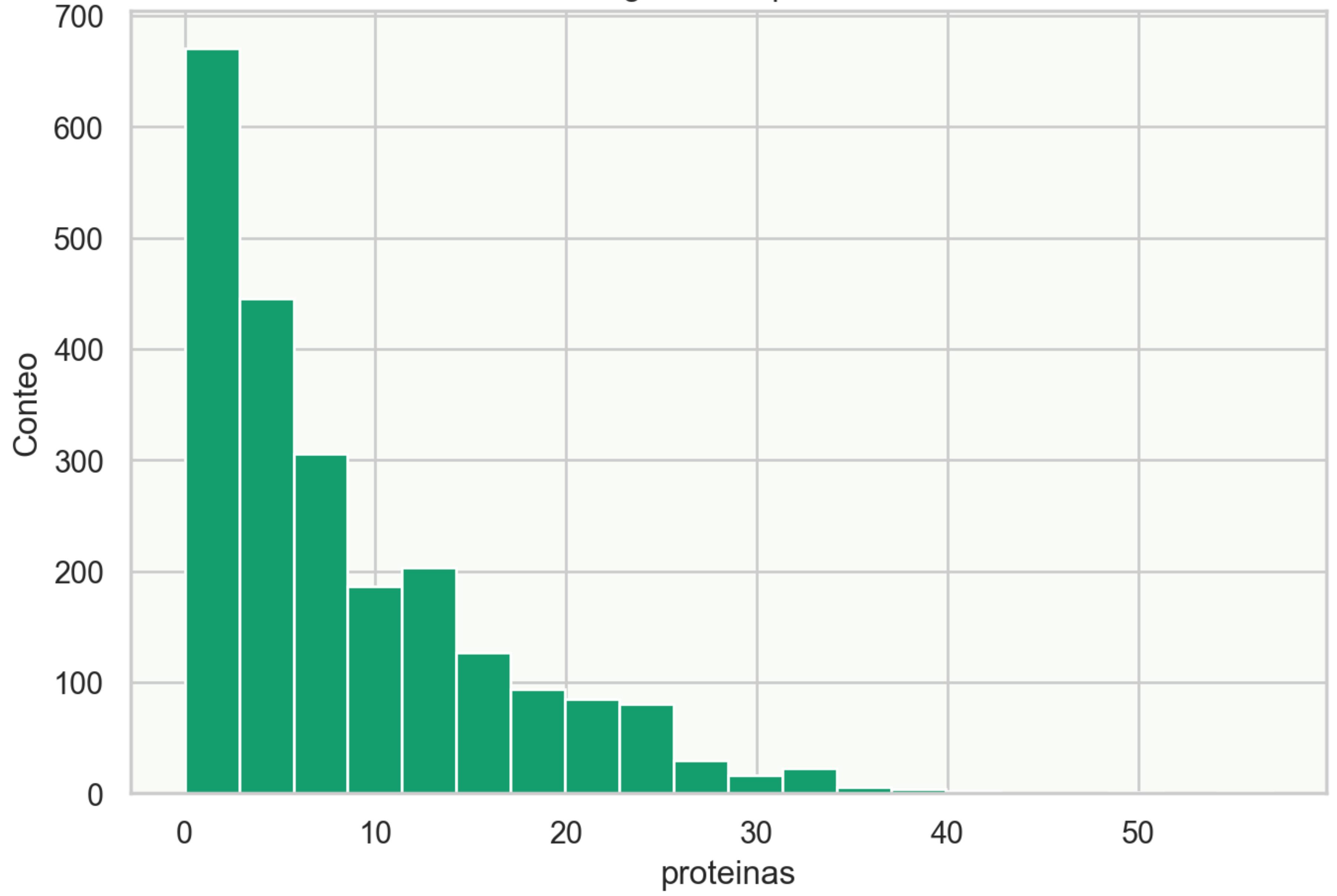
Histograma de carbohidratos



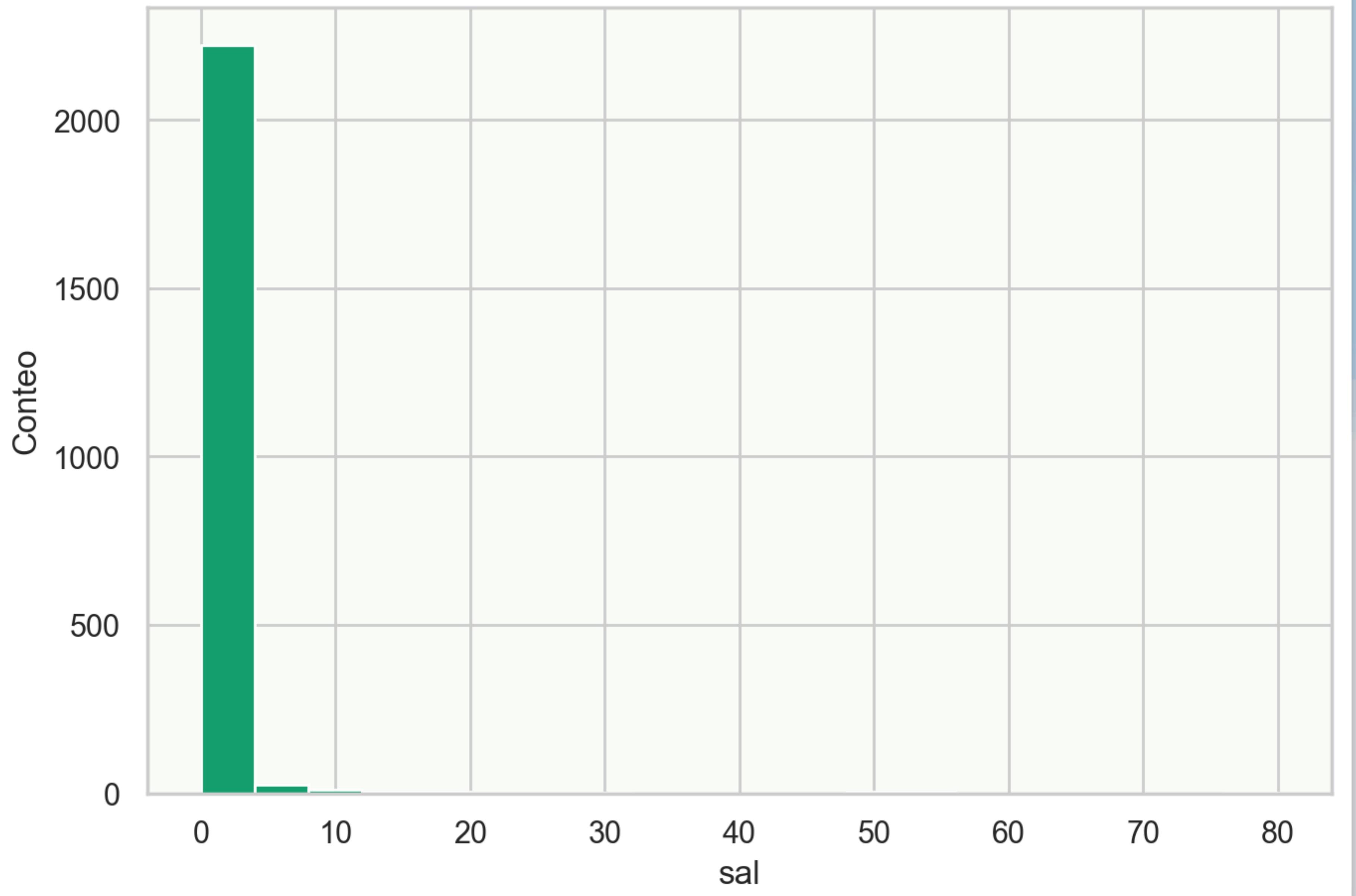
Histograma de azúcares en productos con carbohidratos



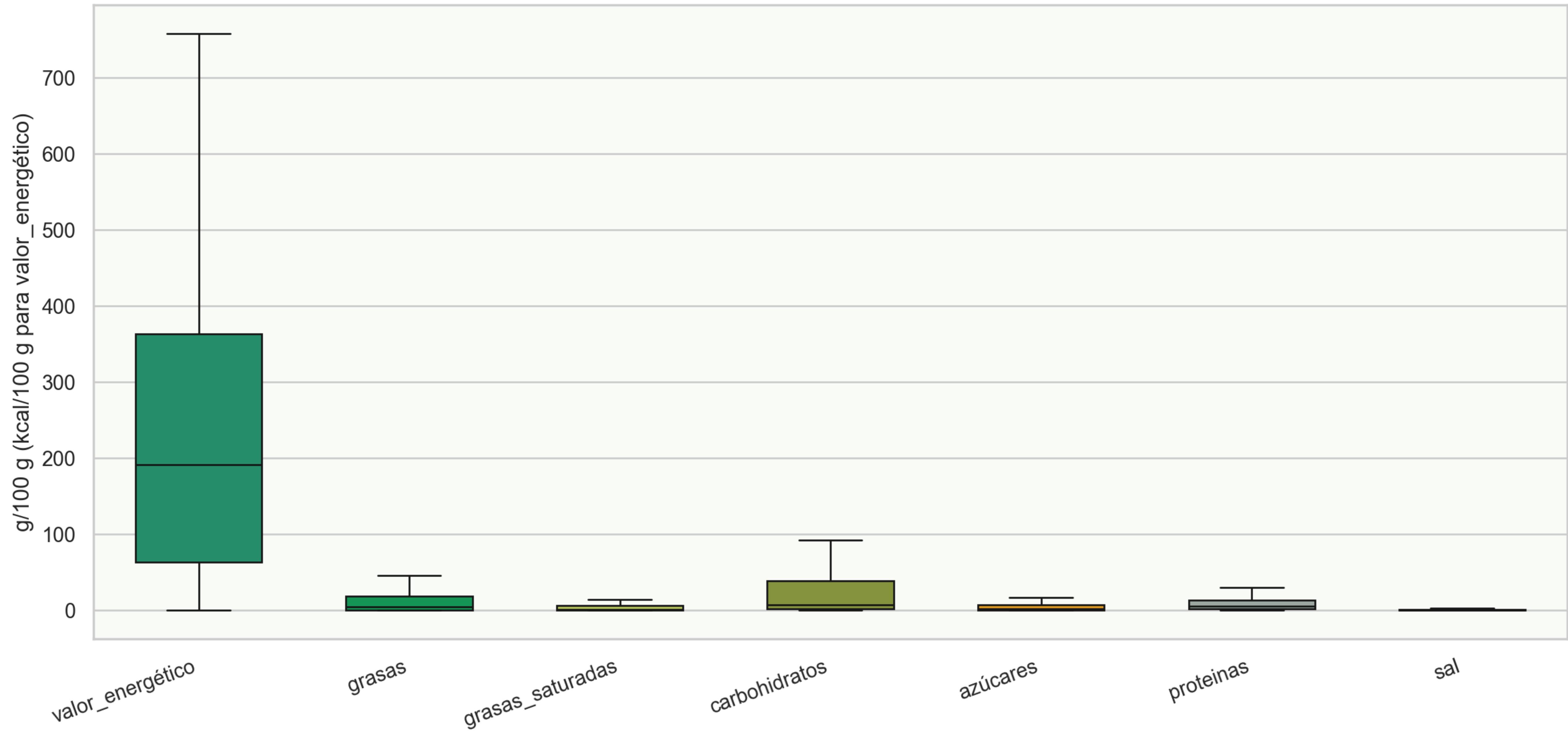
Histograma de proteínas



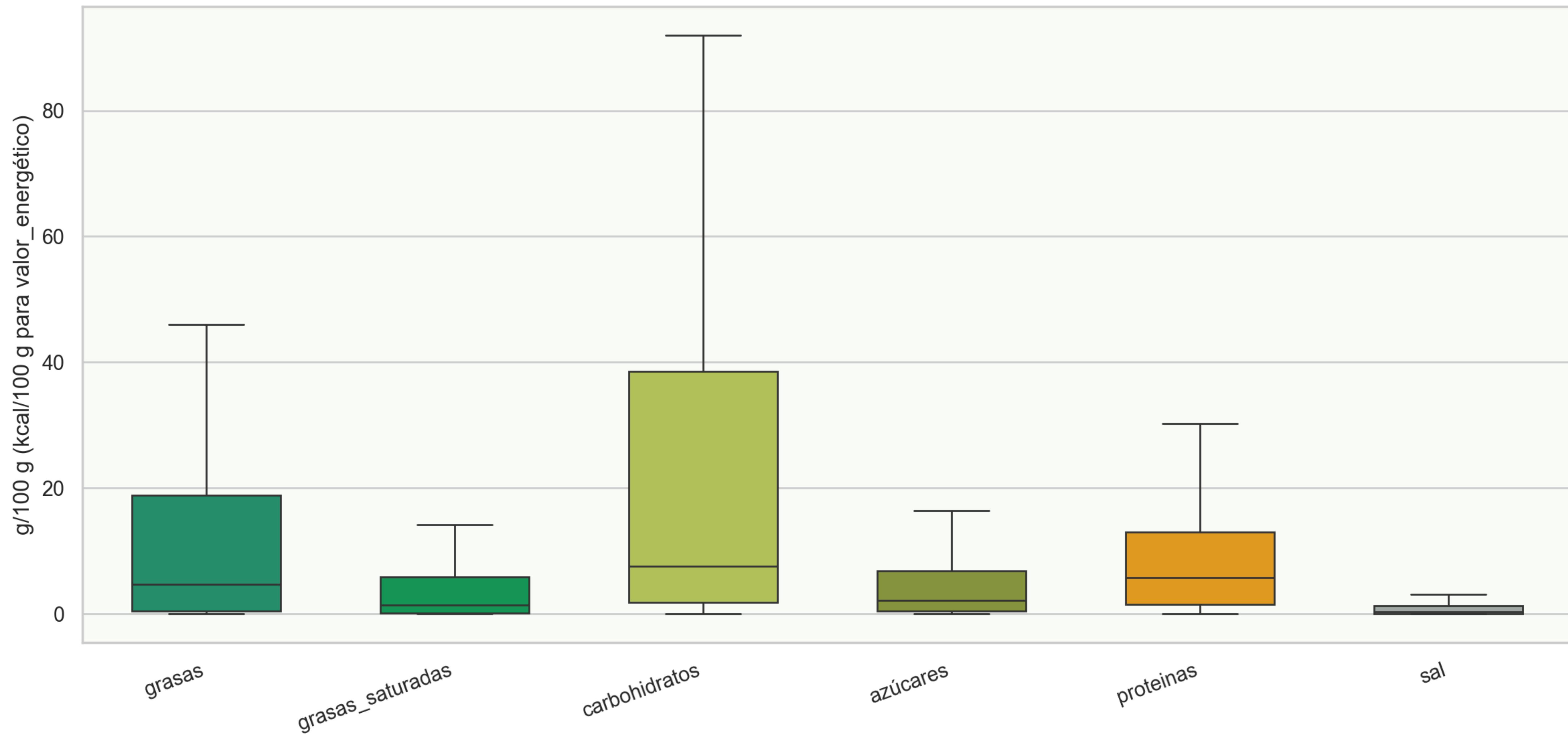
Histograma de sal



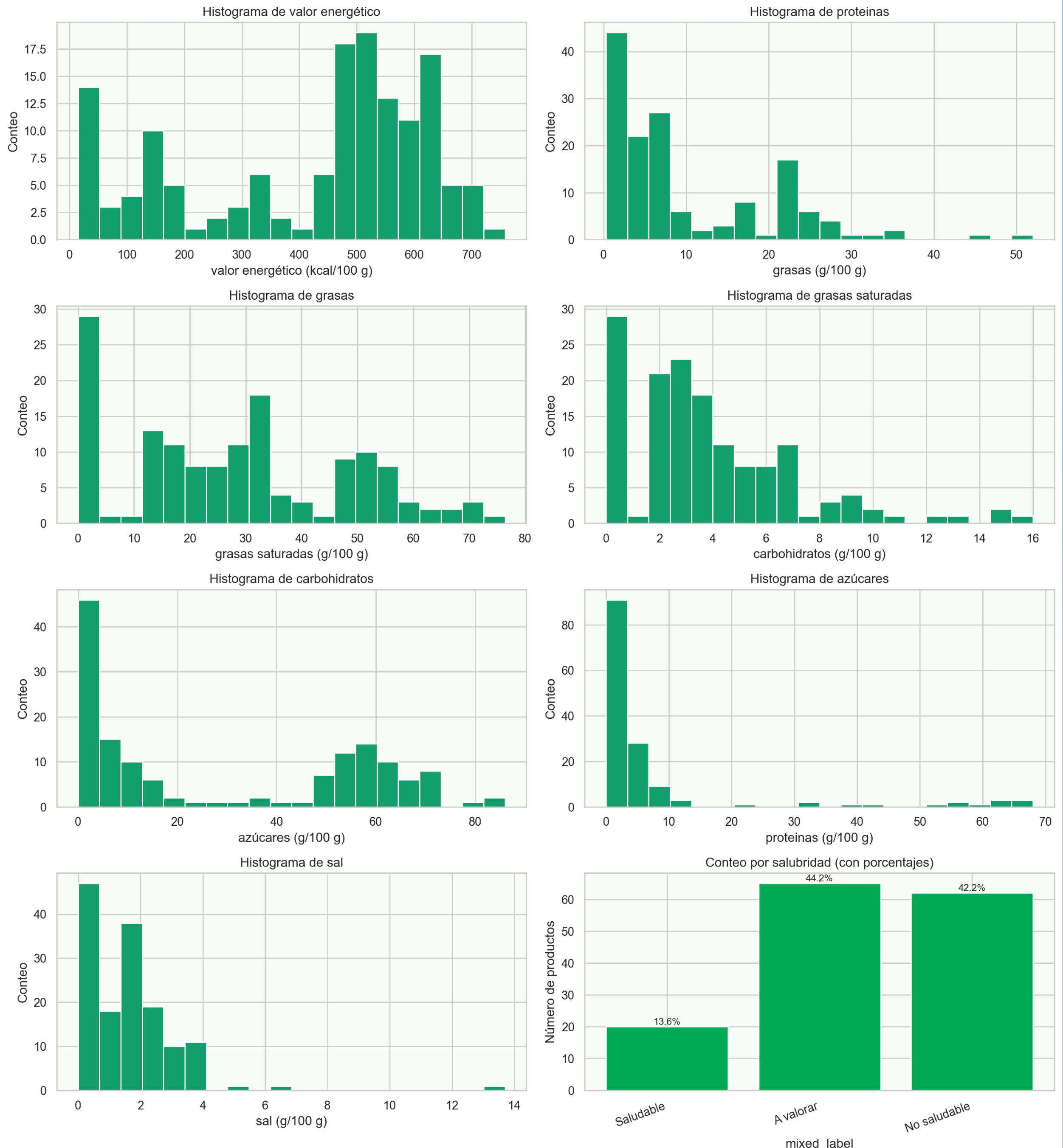
Boxplots nutricionales por 100 g — colores por variable



Boxplots nutricionales por 100 g — colores por variable



Aperitivos



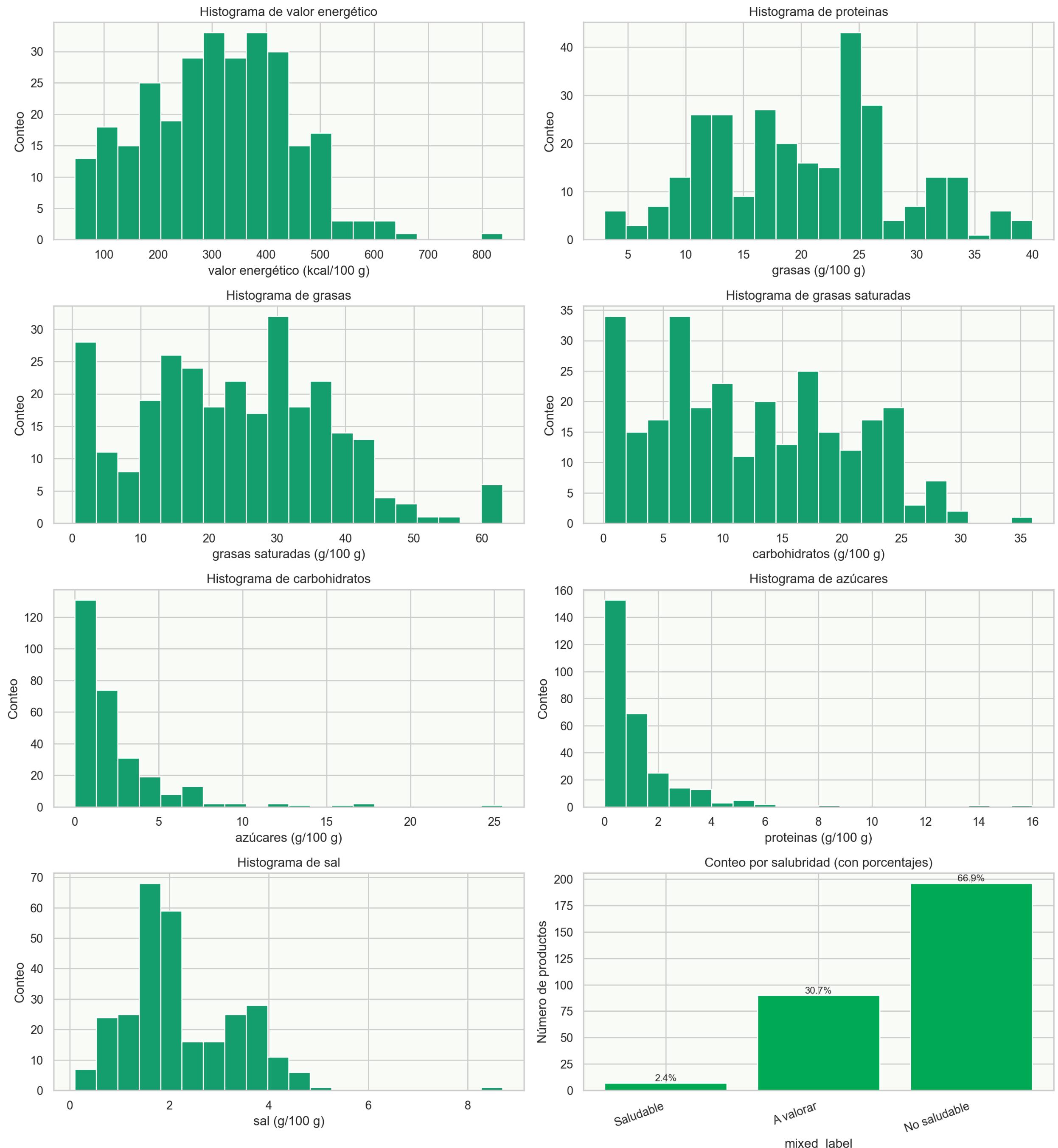
Arroz, legumbres y pasta



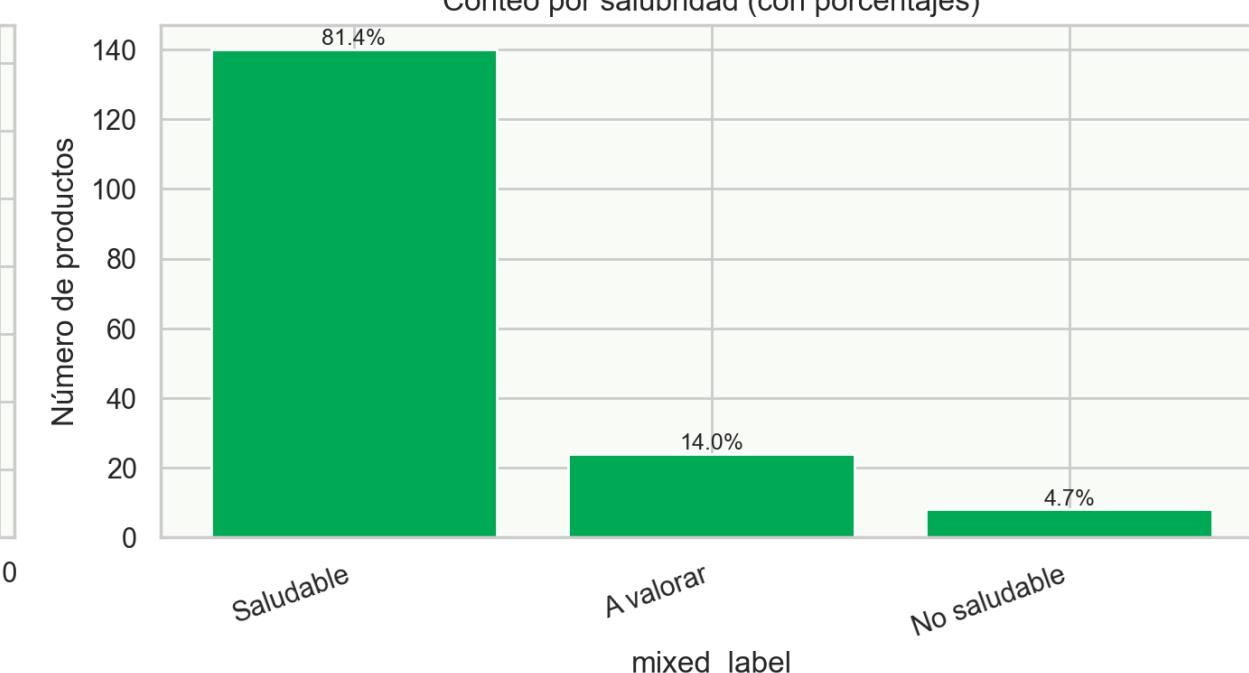
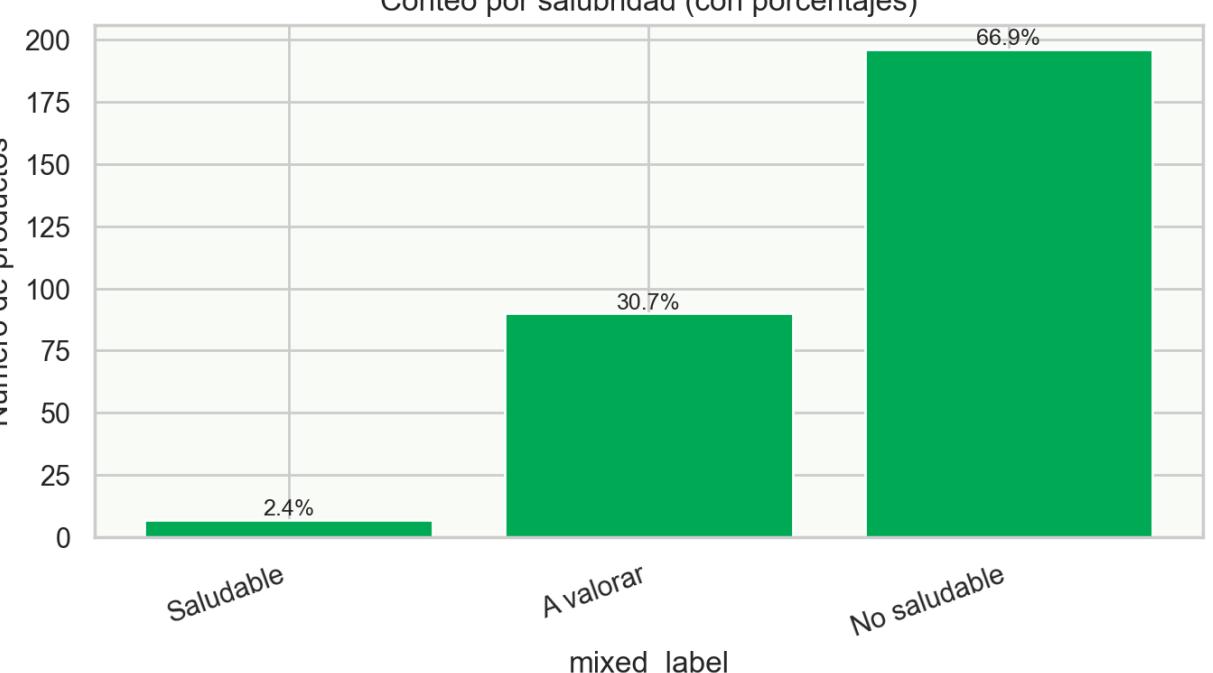
Azúcar, caramelos y chocolate



Charcutería y quesos



Fruta y verdura



Conclusiones

En el caso de Mercadona, la frase motivadora de la hipótesis, resulta ser falsa.

Por categorías, y atendiendo a la salubridad según mezcla de semáforos nutricionales y grado de procesamiento, salen mayoritariamente no saludables los alimentos pertenecientes a:

- Azúcar, caramelos y chocolate
- Cereales y galletas
- Panadería y pastelería
- Postres y yogures
- Pizzas y platos preparados
- Charcutería y quesos
- Aperitivos
- Bodega
- Congelados
- Agua y refrescos

