

# Análisis multivariado maduración

## PCA resumen

```
## Importance of components:
##              PC1      PC2      PC3      PC4
## Standard deviation    5.6754 3.7386 2.7951 5.502e-16
## Proportion of Variance 0.5965 0.2588 0.1447 0.000e+00
## Cumulative Proportion 0.5965 0.8553 1.0000 1.000e+00
```

## Loadings (contribuciones de cada variable a los componentes principales)

##	PC1	PC2	PC3	PC4
## L*	0.114405036	-0.0133452700	-0.271510884	0.629389485
## a*	0.146027574	-0.1464963539	-0.041073459	0.410568553
## b*	0.042869713	-0.1361078369	-0.295429469	-0.021353510
## PFF	0.151582087	-0.1075472418	0.112134536	0.054633378
## DMIF	0.168470730	-0.0582020755	0.070155316	0.091160315
## DMAF	0.158869673	-0.0969279369	0.084446359	0.089055194
## DPF	-0.011334080	-0.1754293619	0.269090241	0.022016919
## DMAFDPF	0.173023297	0.0113220777	-0.065902902	0.044895736
## PSF	0.133029829	0.0544767984	0.222996419	-0.041987706
## H	0.097563661	-0.2174170299	-0.064689182	0.100879180
## PSS	0.151601507	0.0118950449	0.181631392	-0.032625926
## PSSPSF	0.067850062	-0.1432241045	-0.268922195	-0.244315254
## DPPH	-0.146144999	-0.1222831737	-0.114843032	0.036823579
## PT	-0.174500236	0.0183137587	-0.043085276	0.030051828
## PTHPLC	-0.175694736	-0.0069347866	0.025411065	0.061755879
## Gálico	-0.170607363	0.0463205632	-0.064472079	0.030062384
## Siríngico	-0.170202655	0.0171062726	-0.089668390	0.016366499
## Catecol	-0.156668186	0.0145140483	-0.162562929	-0.088513355
## Catequina	-0.166632167	0.0590501807	-0.085346274	-0.052101875
## Tánico	0.162513149	-0.1024493277	-0.018276449	-0.016164077
## Rutina	-0.152661933	0.1303499763	-0.038915436	0.137893161
## SS	0.108213084	0.1510749489	-0.197196873	0.027260721
## pH	-0.051781029	0.2257570949	0.160504533	-0.045077854
## ATT	-0.110099790	-0.1687558831	-0.164533744	-0.179032477
## ATT_SS	0.124390478	0.1806635372	-0.076233767	0.039844425
## Sacarosa	0.118836889	-0.1861460435	0.088220096	0.010417273
## Glucosa	0.131913294	0.1701756091	-0.066672642	-0.065804339
## Fructosa	0.126719781	0.1548953278	-0.137367389	-0.030278149
## Tartárico	0.124442987	0.1893121247	-0.005751573	0.003622479
## Málico	0.135383786	-0.1699833222	0.027160232	-0.094777099
## Quínico	0.146128690	-0.1093226732	0.136304453	-0.026606601
## Succinico	0.006645661	0.2343427920	-0.171949955	0.041424911
## GluFru	0.129840972	0.1775186723	0.045976856	0.086856769
## TS	0.166559524	0.0760613435	-0.057199212	-0.129549956

## Almidón	-0.142282925	0.0523816370	0.199060237	-0.023973394
## FDI	-0.145347033	-0.0002780786	0.202237931	0.138281543
## FDS	0.137765171	-0.1224497433	-0.151409276	-0.171865140
## FDT	-0.143329168	-0.0213041635	0.206130835	0.118470913
## CTC	0.167959584	0.0761491297	0.036289313	-0.037645369
## CLa	-0.163968088	0.0401211012	0.119472488	0.085890658
## CLb	-0.174866282	0.0328271163	0.001091161	0.098933390
## Feofitina_a	-0.152695196	0.1110235983	0.099087688	0.149083538
## Feofitina_b	-0.116984744	-0.1998973050	-0.009277714	-0.059681607
## Luteina	-0.029742422	0.2075142209	-0.217509054	0.109092255
## Beta_Cryptoxantina	0.171762307	0.0510833538	0.041187568	0.236443746
## Beta_caroteno	0.094778063	0.2159946745	0.086582739	-0.105117041
## Ésteres_Beta_Criptoxantina	0.164375104	0.0902918246	0.044909970	0.017093904
## Di_Ésteres_Luteina	0.174196766	-0.0266414741	-0.040284394	-0.111473195
## Respiración	0.170682698	-0.0429759855	0.067712410	-0.029970547
## PEN	-0.170367411	0.0674041490	-0.014291689	0.039171896
## Mg	-0.057192357	-0.2458249173	-0.079995729	0.020994657
## K	-0.064889666	-0.2357932995	-0.105682663	0.004513587
## Mn	0.002654055	-0.1867997132	0.256010769	0.094221102
## CT	-0.064602314	-0.2363417407	-0.104206407	0.121872984

Scores (valores de las muestras en los componentes principales)

##	PC1	PC2	PC3	PC4
## [1,]	-7.4283216	2.204890	-1.21533322	-2.522288e-15
## [2,]	-0.7580534	-2.024595	3.89201467	3.552714e-15
## [3,]	2.1738869	-4.149404	-2.60927963	-4.357625e-15
## [4,]	6.0124881	3.969108	-0.06740181	3.053113e-15

Contribución de las variables al CP1

##	PTHPLC	CLb	PT
##	3.0868640124	3.0578216620	3.0450332291
##	Di_Ésteres_Luteina	DMAFDPF	Beta_Cryptoxantina
##	3.0344513382	2.9937061155	2.9502290207
##	Respiración	Gálico	PEN
##	2.9132583551	2.9106872396	2.9025054661
##	Siríngico	DMIF	CTC
##	2.8968943778	2.8382386976	2.8210421780
##	Catequina	TS Ésteres_Beta_Criptoxantina	
##	2.7766279116	2.7742074870	2.7019174898
##	CLa	Tánico	DMAF
##	2.6885533991	2.6410523681	2.5239572954
##	Catecol	Feofitina_a	Rutina
##	2.4544920618	2.3315822848	2.3305665762
##	PSS	PFF	DPPH
##	2.2983017041	2.2977129097	2.1358360746
##	Quínico	a*	FDI
##	2.1353593982	2.1324052480	2.1125760010
##	FDT	Almidón	FDS
##	2.0543250511	2.0244430836	1.8979242340
##	Málico	PSF	Glucosa
##	1.8328769400	1.7696935439	1.7401117049

##	GluFru	Fructosa	Tartárico
##	1.6858677925	1.6057902917	1.5486057110
##	ATT_SS	Sacarosa	Feofitina_b
##	1.5472991023	1.4122206104	1.3685430223
##	L*	ATT	SS
##	1.3088512357	1.2121963659	1.1710071502
##	H	Beta_caroteno	PSSPSF
##	0.9518667915	0.8982881257	0.4603630965
##	K	CT	Mg
##	0.4210668792	0.4173458959	0.3270965662
##	pH	b*	Luteina
##	0.2681274928	0.1837812269	0.0884611655
##	DPF	Succinico	Mn
##	0.0128461377	0.0044164807	0.0007044006

Contribución de las variables al CP2

##	Mg	CT	K
##	6.042989e+00	5.585742e+00	5.559848e+00
##	Succinico	pH	H
##	5.491654e+00	5.096627e+00	4.727016e+00
##	Beta_caroteno	Luteina	Feofitina_b
##	4.665370e+00	4.306215e+00	3.995893e+00
##	Tartárico	Mn	Sacarosa
##	3.583908e+00	3.489413e+00	3.465035e+00
##	ATT_SS	GluFru	DPF
##	3.263931e+00	3.151288e+00	3.077546e+00
##	Glucosa	Málico	ATT
##	2.895974e+00	2.889433e+00	2.847855e+00
##	Fructosa	SS	a*
##	2.399256e+00	2.282364e+00	2.146118e+00
##	PSSPSF	b*	Rutina
##	2.051314e+00	1.852534e+00	1.699112e+00
##	FDS	DPPH	Feofitina_a
##	1.499394e+00	1.495317e+00	1.232624e+00
##	Quínico	PFF	Tánico
##	1.195145e+00	1.156641e+00	1.049586e+00
##	DMAF	Ésteres_Beta_Criptoxantina	CTC
##	9.395025e-01	8.152614e-01	5.798690e-01
##	TS	PEN	Catequina
##	5.785328e-01	4.543319e-01	3.486924e-01
##	DMIF	PSF	Almidón
##	3.387482e-01	2.967722e-01	2.743836e-01
##	Beta_Cryptoxantina	Gálico	Respiración
##	2.609509e-01	2.145595e-01	1.846935e-01
##	CLa	CLb	Di_Ésteres_Luteina
##	1.609703e-01	1.077620e-01	7.097681e-02
##	FDT	PT	Siríngico
##	4.538674e-02	3.353938e-02	2.926246e-02
##	Catecol	L*	PSS
##	2.106576e-02	1.780962e-02	1.414921e-02
##	DMAFDPF	PTHPLC	FDI
##	1.281894e-02	4.809126e-03	7.732770e-06

Contribución acumulada de cada variable a CP1 y CP2

##	Mg	CT	K
##	6.370086	6.003088	5.980915
##	H	Beta_caroteno	Succinico
##	5.678883	5.563658	5.496071
##	pH	Feofitina_b	Tartárico
##	5.364754	5.364436	5.132514
##	Sacarosa	GluFru	ATT_SS
##	4.877256	4.837156	4.811230
##	Málico	Glucosa	Luteina
##	4.722310	4.636085	4.394676
##	a*	ATT	Rutina
##	4.278523	4.060051	4.029678
##	Fructosa	Tánico	DPPH
##	4.005047	3.690639	3.631154
##	Feofitina_a	Ésteres_Beta_Criptoxantina	Mn
##	3.564206	3.517179	3.490118
##	DMAF	PFF	SS
##	3.463460	3.454354	3.453371
##	CTC	FDS	PEN
##	3.400911	3.397318	3.356837
##	TS	Quínico	Beta_Cryptoxantina
##	3.352740	3.330504	3.211180
##	DMIF	CLb	Catequina
##	3.176987	3.165584	3.125320
##	Gálico	Di_Ésteres_Luteina	Respiración
##	3.125247	3.105428	3.097952
##	PTHPLC	DPF	PT
##	3.091673	3.090392	3.078573
##	DMAFDPF	Siringico	CLa
##	3.006525	2.926157	2.849524
##	PSSPSF	Catecol	PSS
##	2.511678	2.475558	2.312451
##	Almidón	FDI	FDT
##	2.298827	2.112584	2.099712
##	PSF	b*	L*
##	2.066466	2.036316	1.326661

Biplot

