Análisis multivariado

```
## Importance of components:
##                            PC1     PC2     PC3     PC4     PC5     PC6     PC7     PC8     PC9    PC10
## Standard deviation      2.7782  2.0211  1.6823 1.26266 1.12181 1.09313 0.98938 0.88756 0.77791 0.76244
## Proportion of Variance 0.3216  0.1702  0.1179 0.06643 0.05244 0.04979 0.04079 0.03282 0.02521 0.02422
## Cumulative Proportion  0.3216  0.4918  0.6097 0.67615 0.72859 0.77837 0.81916 0.85198 0.87720 0.90142
##                           PC11    PC12    PC13    PC14    PC15    PC16    PC17    PC18    PC19     PC2
## Standard deviation     0.71890 0.61094 0.59243 0.51297 0.48791 0.45332 0.36702 0.28807 0.25415 0.2369
## Proportion of Variance 0.02153 0.01555 0.01462 0.01096 0.00992 0.00856 0.00561 0.00346 0.00269 0.0023
## Cumulative Proportion  0.92295 0.93851 0.95313 0.96409 0.97401 0.98258 0.98819 0.99165 0.99434 0.9960
##                           PC21    PC22    PC23     PC24
## Standard deviation     0.17206 0.16581 0.15056 0.002904
## Proportion of Variance 0.00123 0.00115 0.00094 0.000000
## Cumulative Proportion  0.99791 0.99906 1.00000 1.000000


##        PEN         IM       DMAF         pH        PFF         a*     ATT/SS        ATT        PSF
## 8.70827124 7.76789015 7.53413101 7.27058886 7.02575009 6.54985768 6.29330913 5.94357995 5.76768814
##        CLb        CLa        PSS         PT        DPF     DPPH25        ph8     DPPH50         b*
## 5.67273054 5.65990543 4.81306905 4.61070417 4.05428449 3.06975408 2.63564975 2.18002277 1.29162007
##    DPPH100        CTC         SS         L*         NS     DPPH250
## 1.25386278 1.14500902 0.51619777 0.18318633 0.03196175 0.02097578


##         L*         b*        DPF        PFF        PSF        PSS       DMAF         SS        CLa
## 12.7458133 11.0571486  8.6185104  7.0304350  6.8346191  6.3341881  5.5738117  3.5306837  3.5237796
##        CLb         NS    DPPH100        ATT         IM     ATT/SS    DPPH250         PT         pH
##  3.5225865  3.2896165  3.2887871  2.9101485  2.6768755  2.6667901  2.6095983  2.5532503  2.1928534
##         a*     DPPH50     DPPH25        PEN        ph8        CTC
##  2.0297828  1.9890855  1.9473648  1.5279107  1.4417688  0.1045918


##     DPPH50    DPPH100     DPPH25        PSF        PSS        ph8         SS         NS
## 22.13106768 18.68138446 17.02432287  7.04666164  5.32643213  4.86343944  3.60261897  3.19783935
##        PFF        DPF       DMAF    DPPH250        CTC         PT         IM        ATT
##  2.87184074  2.87051275  2.57160566  1.69909630  1.63908339  1.60952730  0.92420246  0.85735954
##        CLa        CLb        PEN         b*         a*     ATT/SS         L*         pH
##  0.84156816  0.83934628  0.69668305  0.32217039  0.18645803  0.14815951  0.03653389  0.01208599
```

Contribución acumulada de cada variable en CP1 y CP2

```
##        PFF       DMAF         L*        DPF        PSF         b*        PSS         IM        PEN         pH
## 14.056185 13.107943 12.929000 12.672795 12.602307 12.348769 11.147257 10.444766 10.236182  9.463442
##        CLb        CLa     ATT/SS        ATT         a*         PT     DPPH25    DPPH100     DPPH50        ph8
##  9.195317  9.183685  8.960099  8.853728  8.579640  7.163954  5.017119  4.542650  4.169108  4.077419
##         SS         NS    DPPH250        CTC
##  4.046881  3.321578  2.630574  1.249601
```

Supresión de variables

Resultados PCA

Resumen

```
## Importance of components:
##                           PC1    PC2     PC3     PC4     PC5     PC6     PC7     PC8     PC9    PC10
## Standard deviation     2.6800 1.9185 1.21642 1.00802 0.98835 0.86325 0.66558 0.63231 0.61074 0.51720
## Proportion of Variance 0.4225 0.2165 0.08704 0.05977 0.05746 0.04384 0.02606 0.02352 0.02194 0.01573
## Cumulative Proportion  0.4225 0.6390 0.72603 0.78580 0.84326 0.88709 0.91315 0.93667 0.95861 0.97435
##                           PC11   PC12    PC13    PC14    PC15    PC16     PC17
## Standard deviation     0.38087 0.3221 0.26234 0.24102 0.18977 0.15613 0.003031
## Proportion of Variance 0.00853 0.0061 0.00405 0.00342 0.00212 0.00143 0.000000
## Cumulative Proportion  0.98288 0.9890 0.99303 0.99645 0.99857 1.00000 1.000000
```

Contribuciones de las variables a cada componente principal

```
##       PEN       DMAF        IM         pH       PFF         a.     ATT.SS        PSF        ATT        CLb
## 9.4979398 8.5296807 8.3292185 8.0039985 7.7488815 7.0460675 6.7995607 6.4859841 6.2437314 5.9496840
##       CLa        PSS        PT        DPF     DPPH25         b.         L.
## 5.9348866 5.5016436 4.9218707 4.5658386 2.5588112 1.6171295 0.2650731
```

```
##        L.        DPF         b.        PSF       PFF        PSS       DMAF        CLa        CLb         IM
## 13.861935 11.580254 11.336556 10.648967  9.504779  9.320923  7.367315  4.905522  4.903379  3.536766
##    ATT.SS         pH        PEN        ATT         a.         PT     DPPH25
##  3.132359  2.280262  2.116587  2.021715  1.670050  1.621173  0.191458
```
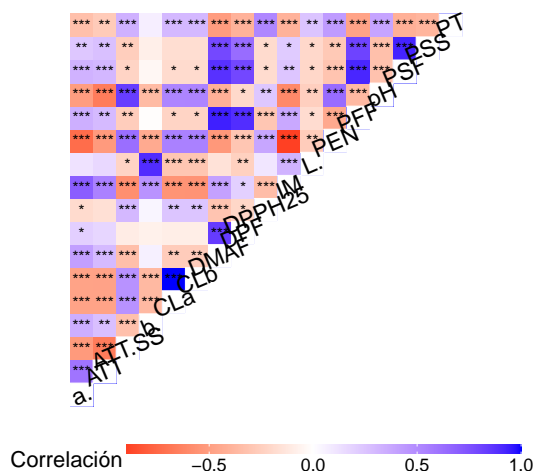
Contribución acumulada de cada variable en CP1 y CP2

```
##        PFF        PSF        DPF       DMAF        PSS         L.         b.         IM        PEN        CLb
## 17.253661 17.134952 16.146093 15.896996 14.822566 14.127008 12.953686 11.865985 11.614526 10.853063
##        CLa         pH     ATT.SS         a.        ATT         PT     DPPH25
## 10.840408 10.284261  9.931920  8.716118  8.265446  6.543044  2.750269
```
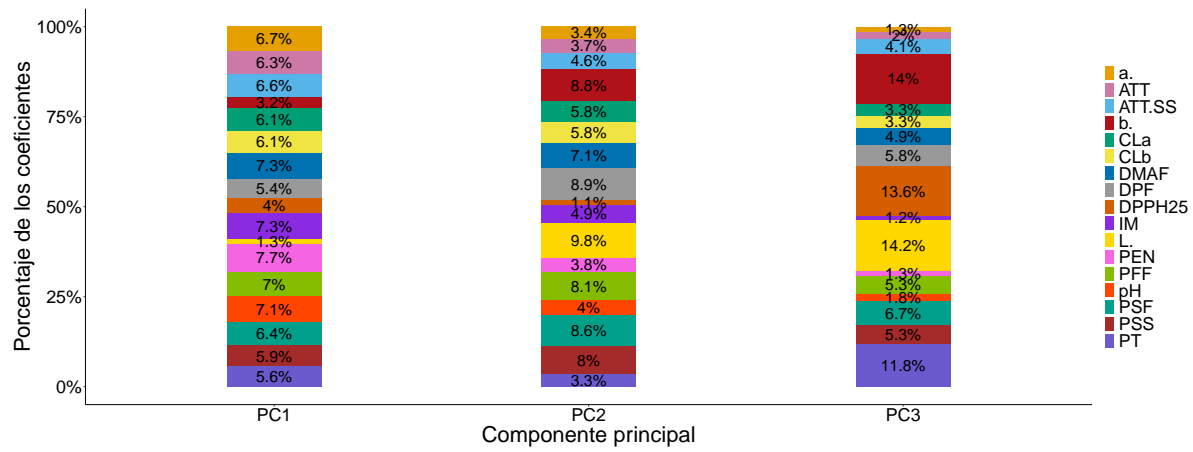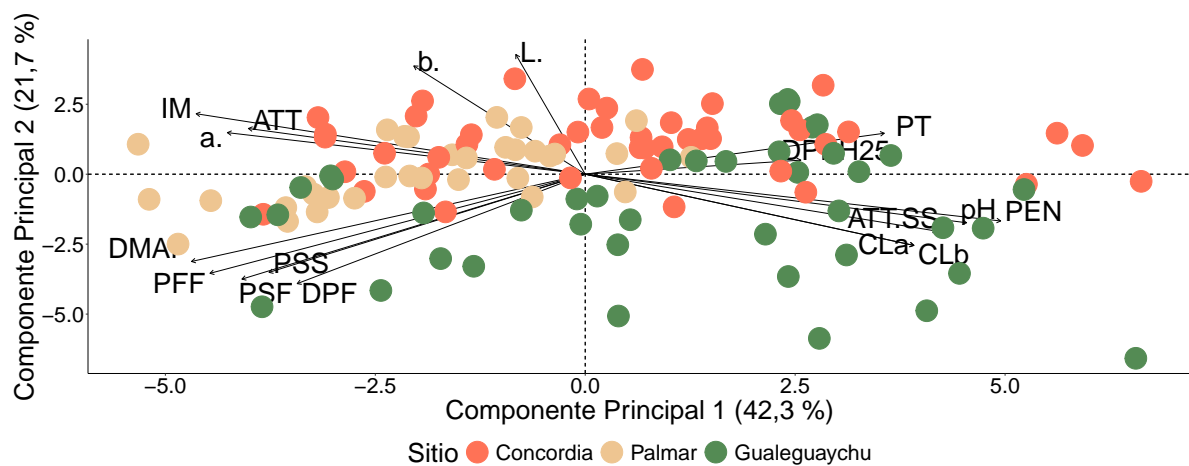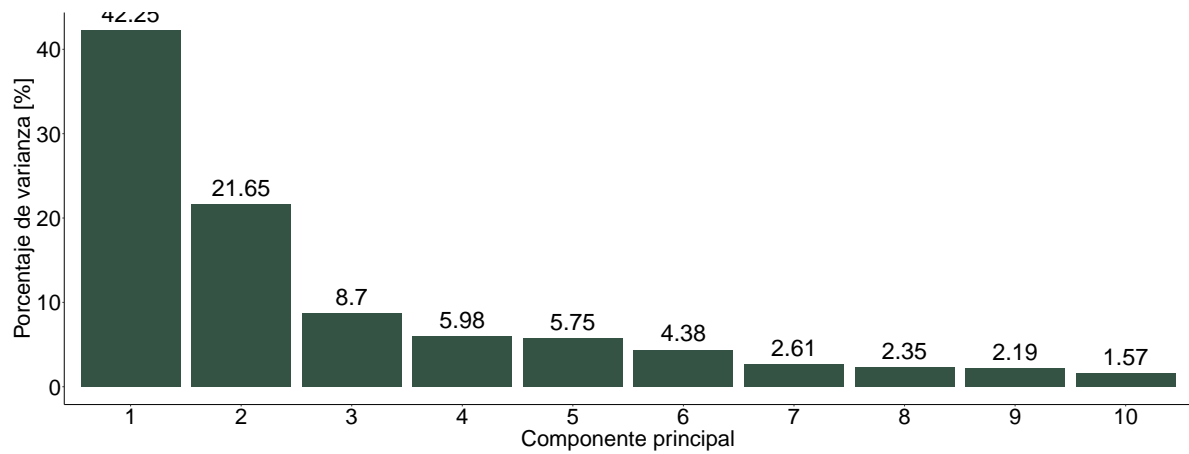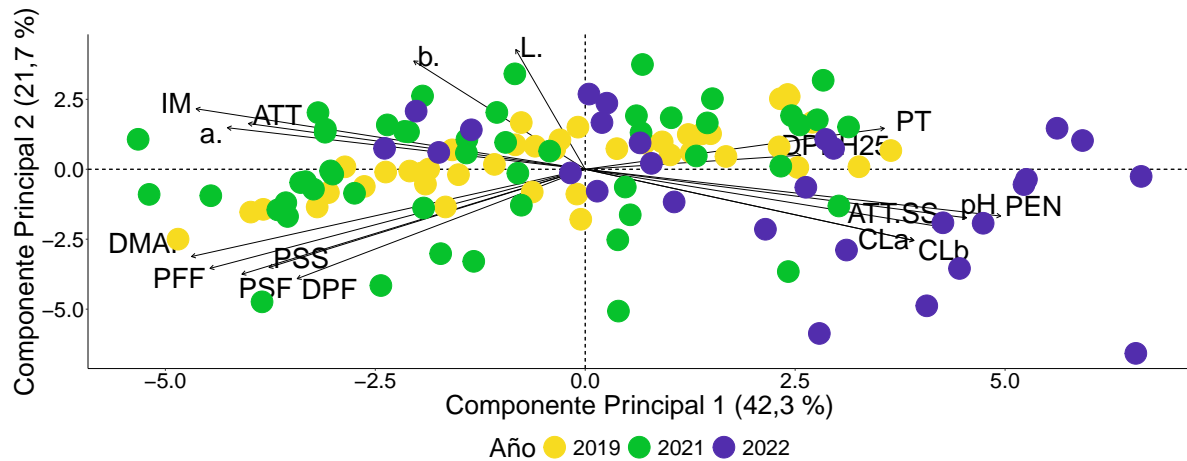
Heatmap

Proporción de contribución de cada variable a PC1, PC2 y PC3
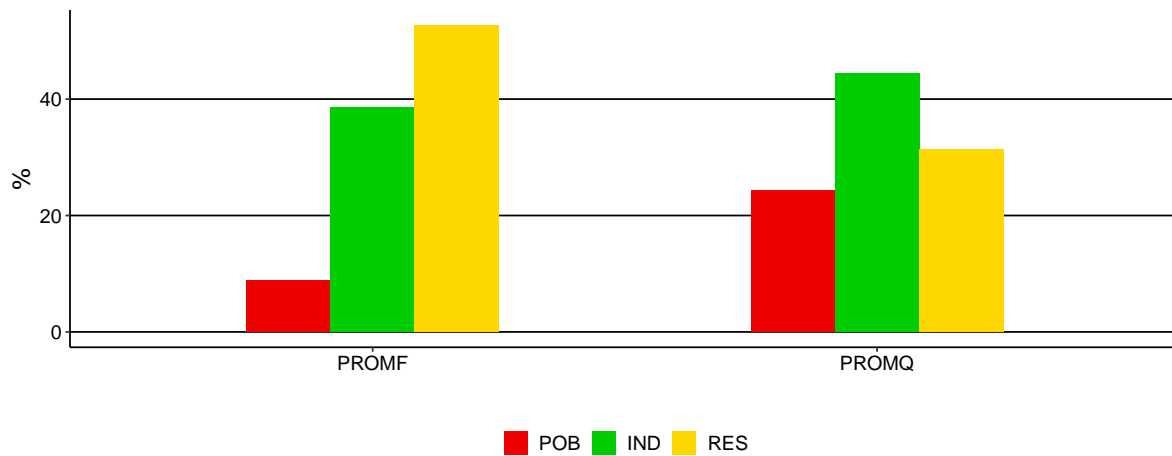

Scree plot para ver la varianza explicada por cada Principal component

Análisis univariado

- QUIM chemical variables

- FIS physical variables

- PFF Peso fresco del fruto

- DE Diámetro ecuatorial

- DP Diámetro polar

- PEN Resistencia a la penetración

- PSF Peso seco del fruto

- PSS Peso seco semilla

- IM Índice de madurez

- AAO Actividad Anti Oxidante

- CAR Carotenoides

- CLOA Clorofila a

- CLOB Clorofila b

- PHE Fenoles totales

- TSS Solidos solubles totales

- TTA Acidez Total Titulable

- POB population

- IND phenotype

- RES residual