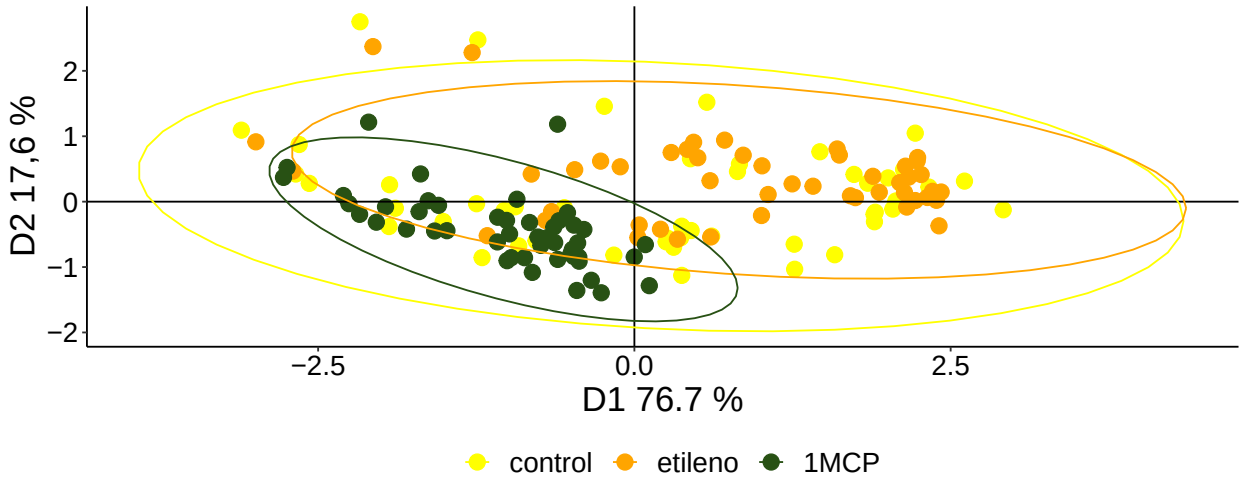
Colorimtric Analysis

Principal component analysis



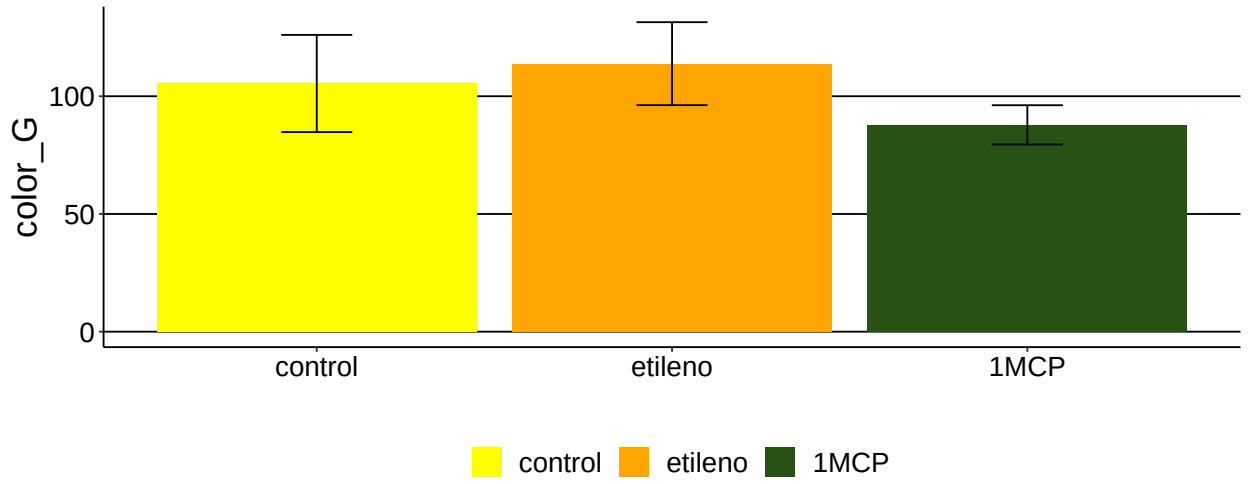
Univariate analysis for the color component Lab

Descriptive table for principal color component

treat	N	color_G	sd	se	ci
control	48	105.40914	20.64487	2.979831	5.994646
etileno	48	113.83946	17.62301	2.543663	5.117190
1MCP	48	87.83554	8.34984	1.205196	2.424541

Higher values indicate more advanced stages of maturation

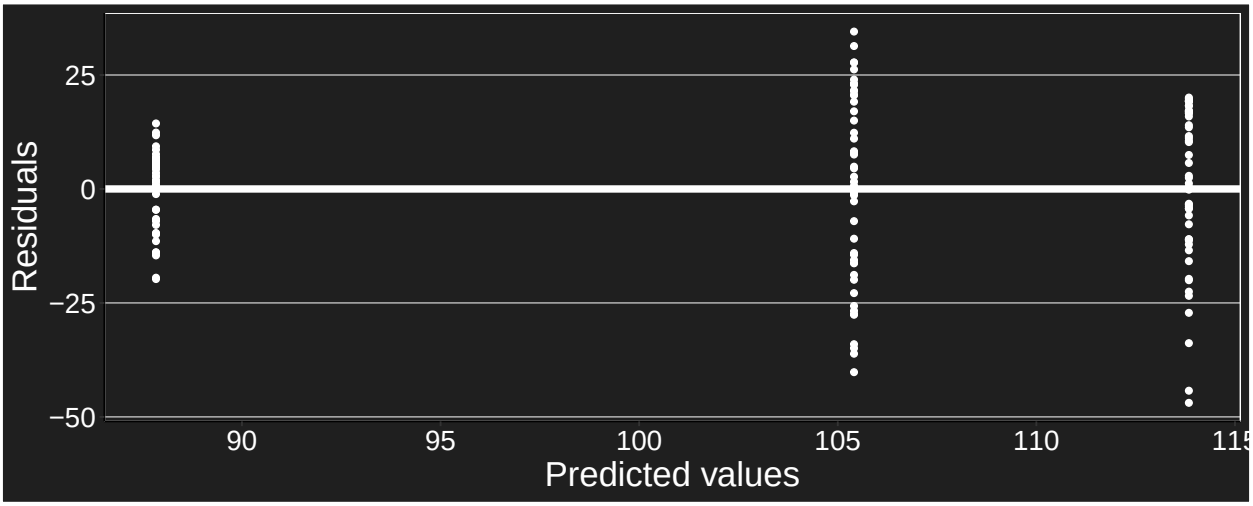
Descriptive graphic (sd)

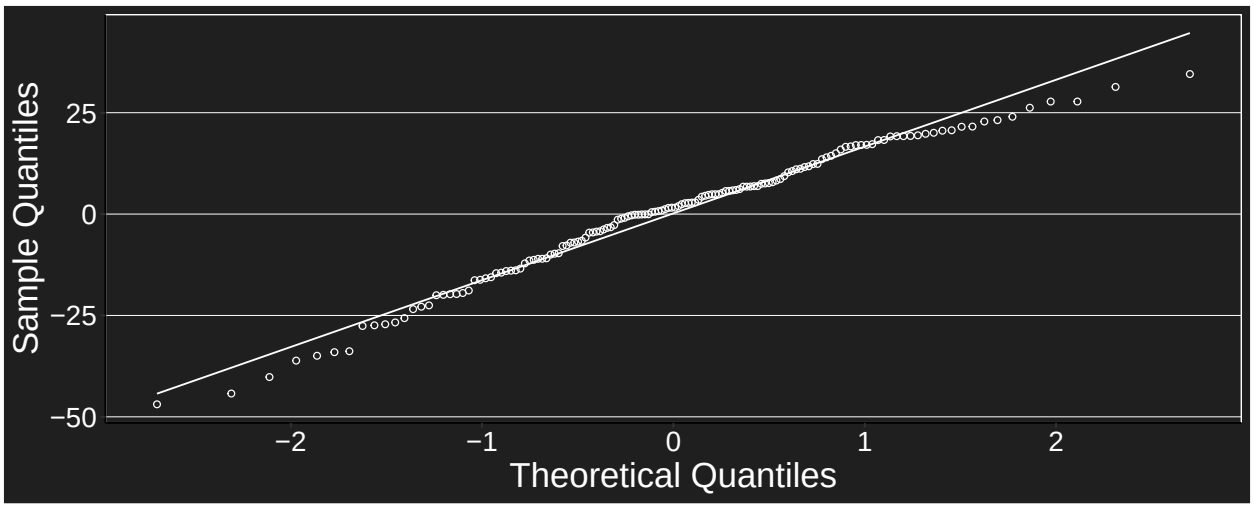


The model

```
## gls(model = (color_G) ~ treat, data = data_color_G, weights = varIdent(form = ~1 |
##     treat))
```

Assumptions check






```
##
##  Shapiro-Wilk normality test
##
## data:  e
## W = 0.97845, p-value = 0.02275
```

Anova (comparison of means)

	numDF	F-value	p-value
(Intercept)	1	8464.22994	0
treat	2	50.82155	0

Dunnett test

```
##
##   Dunnett's test for comparing several treatments with a control :
##     95% family-wise confidence level
##
## $control
##                       diff      lwr.ci    upr.ci    pval
## etileno-control   8.430321   0.9516702  15.90897  0.0243 *
## 1MCP-control    -17.573605 -25.0522561 -10.09495 1.1e-06 ***
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Tukey test

```
## $emmeans
##  treat      emmean       SE    df  lower.CL  upper.CL
##  control 105.40914 2.979832 47.10  99.41482 111.40346
##  etileno 113.83946 2.543663 47.13 108.72265 118.95628
##  1MCP     87.83554 1.205195 47.01  85.41101  90.26007
```

```
##
## Degrees-of-freedom method: satterthwaite
## Results are given on the ( (not the response) scale.
## Confidence level used: 0.95
##
## $contrasts
##  contrast           estimate       SE    df t.ratio p.value
##  control - etileno -8.430321 3.917860 91.75  -2.152  0.0852
##  control - 1MCP    17.573605 3.214327 62.11   5.467  <.0001
##  etileno - 1MCP    26.003926 2.814732 67.25   9.239  <.0001
##
## Note: contrasts are still on the ( scale
## Degrees-of-freedom method: satterthwaite
## P value adjustment: tukey method for comparing a family of 3 estimates
```

Lab coordinates Correlations

a vs. *L*

```
## [1] 0.4792544
```

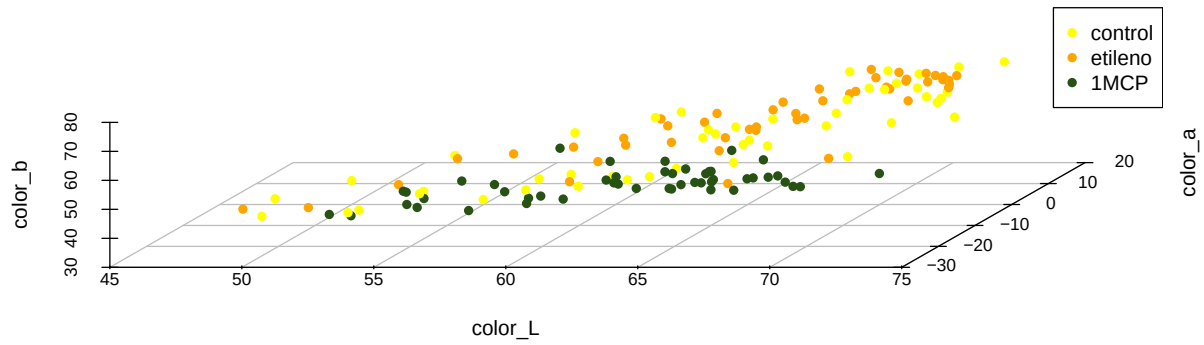
a vs. *b*

```
## [1] 0.6466095
```

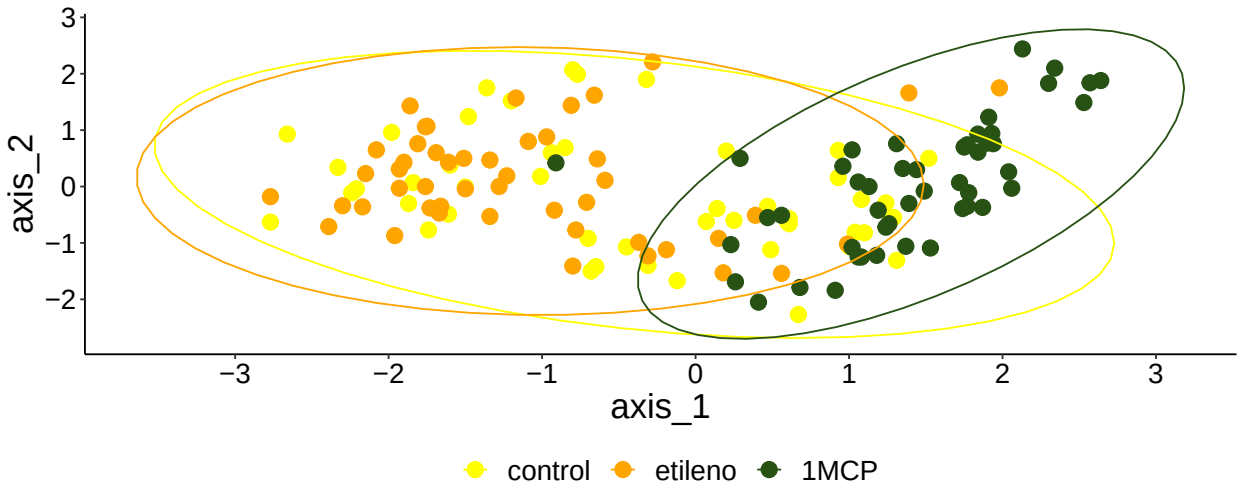
L vs. *b*

```
## [1] 0.7888804
```

Color correlation



Discriminant Analysis



Multiple Response Permutation Procedure (MRPP)

```
##
## Call:
## mrpp(dat = datos, grouping = grp, permutations = 999, distance = "bray",      weight.type = 1)
##
## Dissimilarity index: bray
## Weights for groups:  n
##
## Class means and counts:
##
##       1      2      3
## delta 0.1389 0.1047 0.08211
## n     48     48     48
##
## Chance corrected within-group agreement A: 0.1769
## Based on observed delta 0.1086 and expected delta 0.1319
##
## Significance of delta: 0.001
## Permutation: free
## Number of permutations: 999
```