

07_ANOVAR.R

Usuario

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```
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# 10/10/2023
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# Importar datos -----
--

library(repmis)

DAP <-
source_data("https://www.dropbox.com/s/fbrwxypacjgeayj/Datos_Rascon_Anova
.csv?dl=1")

## Downloading data from:
https://www.dropbox.com/s/fbrwxypacjgeayj/Datos_Rascon_Anova.csv?dl=1

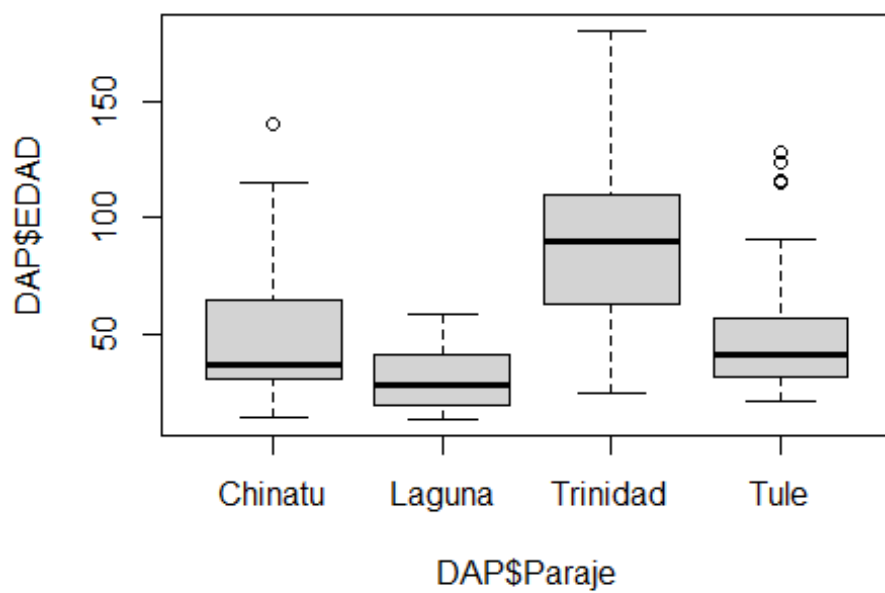
## SHA-1 hash of the downloaded data file is:
## 75a7b481bb1b844f43090d2711189c46afece8fa

DAP$Paraje <- as.factor(DAP$Paraje)

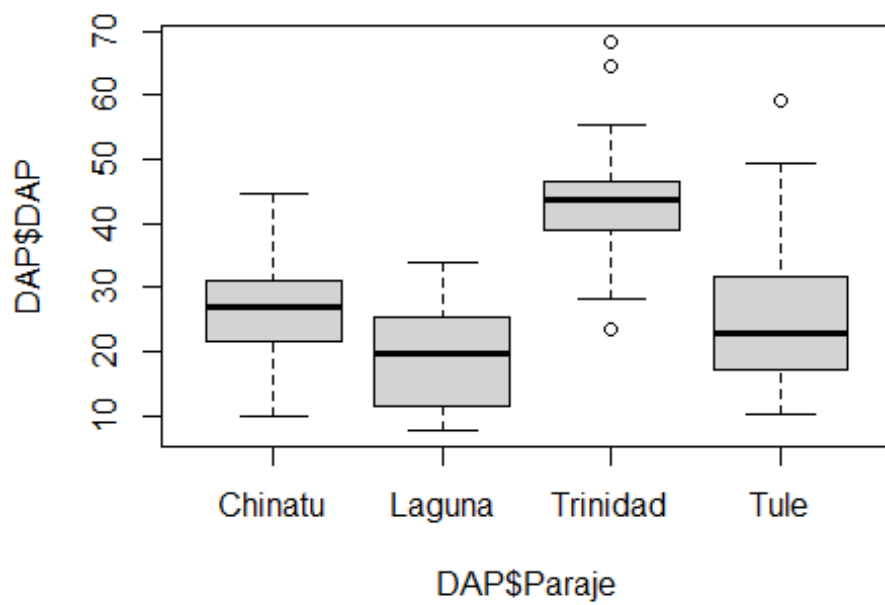
DAP$SP <- as.factor(DAP$SP)

# Determinar estadísticas descriptivas -----
--

boxplot(DAP$EDAD ~ DAP$Paraje)
```



```
boxplot(DAP$DAP ~ DAP$Paraje)
```



```
tapply(DAP$EDAD, DAP$Paraje, mean)
```

```
## Chinatu Laguna Trinidad Tule
## 48.70000 30.70000 93.40000 53.13333

tapply(DAP$EDAD, DAP$Paraje, var)

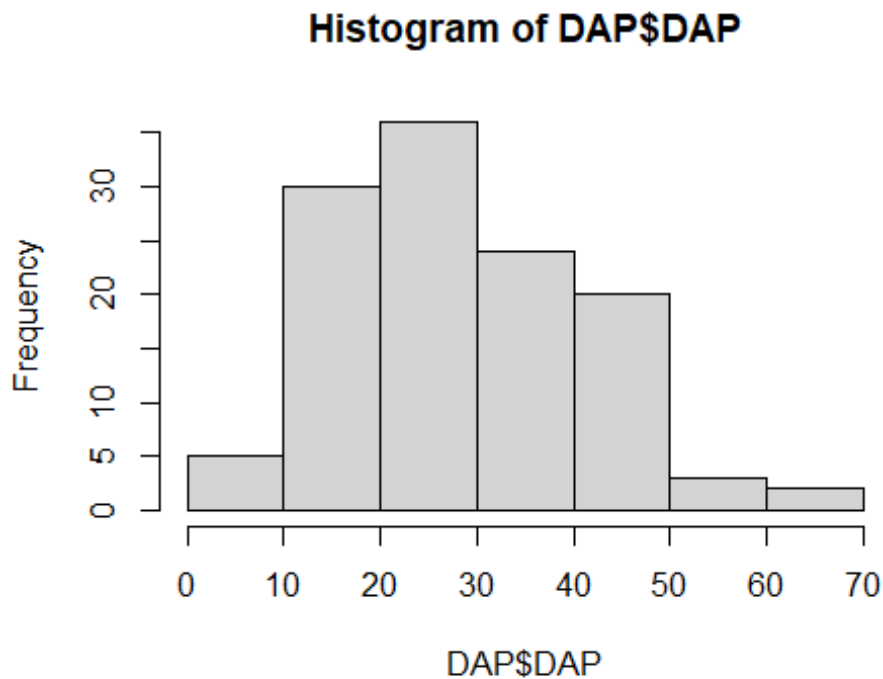
## Chinatu Laguna Trinidad Tule
## 837.3207 150.4931 1427.4897 998.2575

# Normalidad -----
--

shapiro.test(DAP$DAP)

##
## Shapiro-Wilk normality test
##
## data: DAP$DAP
## W = 0.96548, p-value = 0.003575

hist(DAP$DAP)
```



```
#Los datos del DAP no son normales

bartlett.test(DAP$DAP ~ DAP$Paraje)

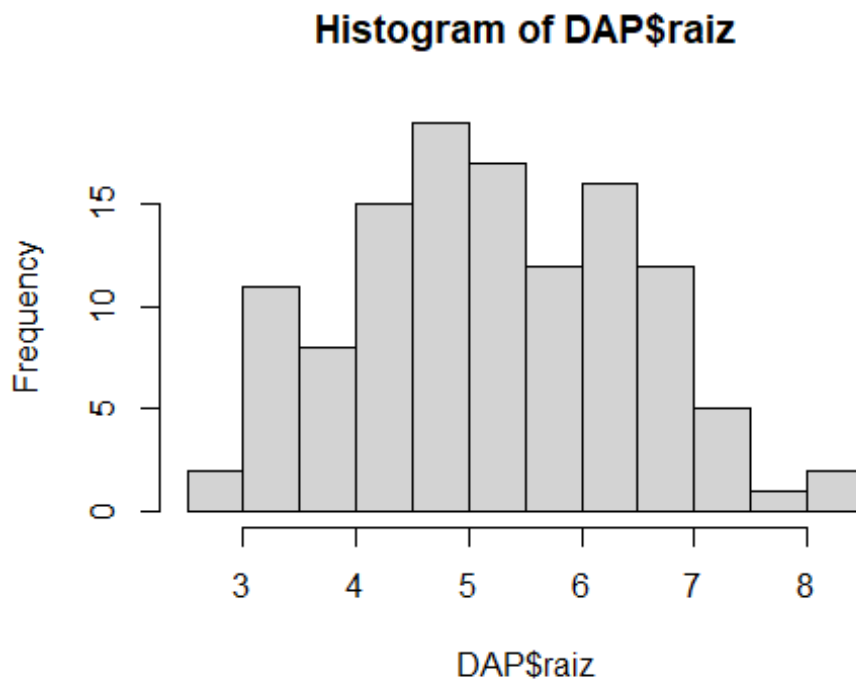
##
## Bartlett test of homogeneity of variances
##
```

```
## data: DAP$DAP by DAP$Paraje
## Bartlett's K-squared = 6.6622, df = 3, p-value = 0.08348

# La varianzas son iguales

#transformar DAP para cumplir normalidad
DAP$raiz <-sqrt(DAP$DAP)

hist(DAP$raiz)
```



```
#probar normalidad a Los datos transformados (raiz cuadrada)

shapiro.test(DAP$raiz)

##
## Shapiro-Wilk normality test
##
## data: DAP$raiz
## W = 0.98341, p-value = 0.1473

#Los datos son ahora normales

#probar homogeneidad de varianzas de Los datos transformados
bartlett.test(DAP$raiz ~ DAP$Paraje)
```

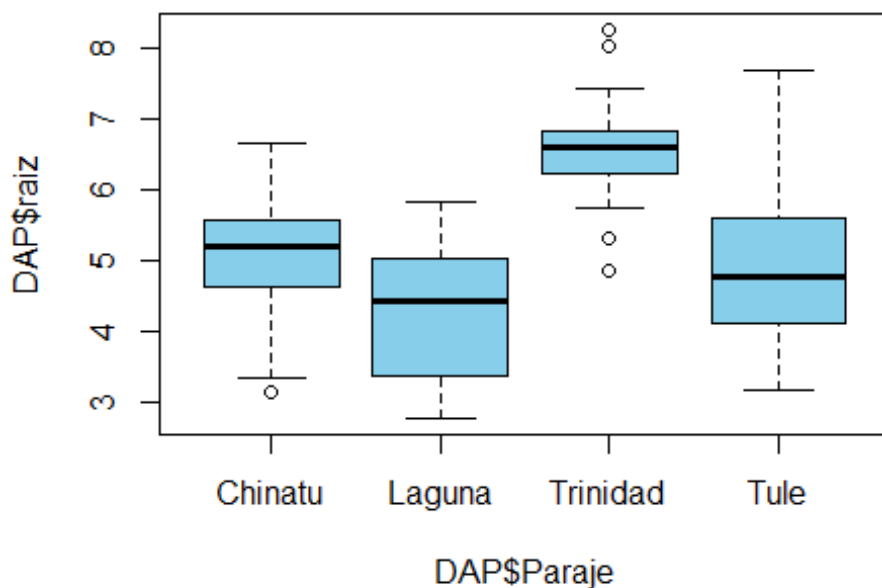
```
##
## Bartlett test of homogeneity of variances
##
## data: DAP$raiz by DAP$Paraje
## Bartlett's K-squared = 7.6911, df = 3, p-value = 0.05285

dap.aov <- aov(DAP$raiz ~ DAP$Paraje)

summary(dap.aov)

##              Df Sum Sq Mean Sq F value    Pr(>F)
## DAP$Paraje     3  84.09   28.029    33.2 1.45e-15 ***
## Residuals    116   97.94    0.844
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

boxplot(DAP$raiz ~ DAP$Paraje,
        col="skyblue")
```



```
#encontrar las diferencias significativas
TukeyHSD(dap.aov)

## Tukey multiple comparisons of means
## 95% family-wise confidence level
##
## Fit: aov(formula = DAP$raiz ~ DAP$Paraje)
##
## $`DAP$Paraje`
```

	diff	lwr	upr	p adj
## Laguna-Chinatu	-0.7331899	-1.351610796	-0.1147691	0.0131794
## Trinidad-Chinatu	1.5391985	0.920777631	2.1576194	0.0000000
## Tule-Chinatu	-0.1190328	-0.737453617	0.4993881	0.9585122
## Trinidad-Laguna	2.2723884	1.653967564	2.8908093	0.0000000
## Tule-Laguna	0.6141572	-0.004263685	1.2325780	0.0523230
## Tule-Trinidad	-1.6582312	-2.276652111	-1.0398104	0.0000000

#encontarr las diferencias significativas

plot(TukeyHSD(dap.aov))

95% family-wise confidence level

