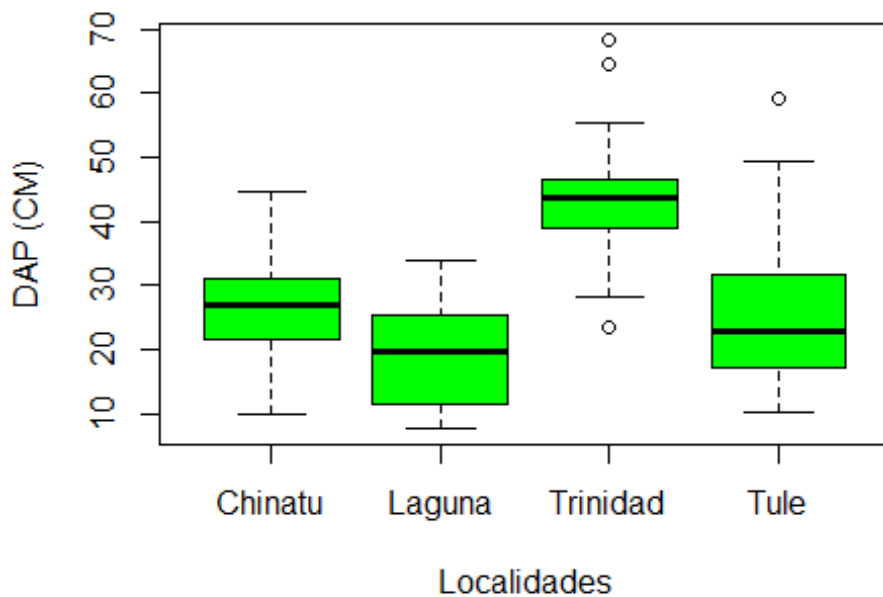


Lab6.R

Erik Manuel Aldape Becerra

07/05/2025

```
#Erik Manuel Aldape Becerra  
# 2027268  
# 07/05/2025  
  
# Importar datos de internet  
ur1 <-  
"https://raw.githubusercontent.com/mgtagle/Exp_Met_Est_AD2023/refs/heads/  
main/Scripts/localidades.csv"  
  
Datos <- read.csv(ur1, header = T)  
Datos$Paraje <- as.factor(Datos$Paraje)  
  
boxplot(Datos$DAP ~ Datos$Paraje,  
        col = "green",  
        xlab = "Localidades",  
        ylab = "DAP (CM)")
```



```

tapply(Datos$DAP, Datos$Paraje, mean)

## Chinatu Laguna Trinidad Tule
## 26.10000 19.31333 43.67667 25.44667

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

## Chinatu Laguna Trinidad Tule
## 71.46414 61.71775 81.51840 146.52395

shapiro.test(Datos$DAP)

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

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

##
## Bartlett test of homogeneity of variances
##
## data: Datos$DAP by Datos$Paraje
## Bartlett's K-squared = 6.6622, df = 3, p-value = 0.08348

Datos$tlog <- log10(Datos$DAP+1)

shapiro.test(Datos$tlog)

##
## Shapiro-Wilk normality test
##
## data: Datos$tlog
## W = 0.97171, p-value = 0.01243

Datos$tsqrt <- sqrt(Datos$DAP)
shapiro.test(Datos$tsqrt)

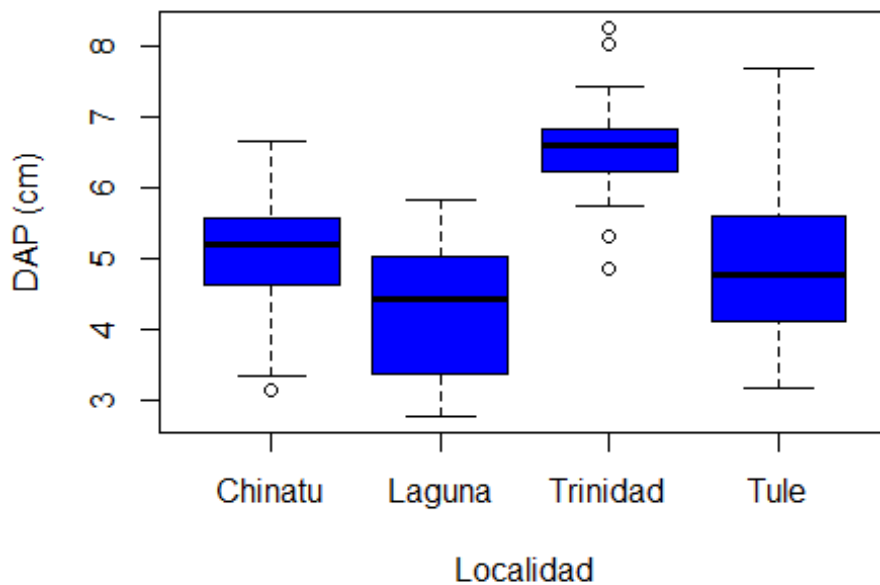
##
## Shapiro-Wilk normality test
##
## data: Datos$tsqrt
## W = 0.98341, p-value = 0.1473

bartlett.test(Datos$tsqrt ~ Datos$Paraje)

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

```

```
boxplot(Datos$tsqrt ~ Datos$Paraje,
        col = "blue",
        xlab = "Localidad",
        ylab = "DAP (cm)")
```



Iniciar con el AOV

```
par.aov <- aov(Datos$tsqrt ~ Datos$Paraje)
summary(par.aov)
```

```
##              Df Sum Sq Mean Sq F value    Pr(>F)
## Datos$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
```

```
TukeyHSD(par.aov)
```

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

plot(TukeyHSD(par.aov))
```

95% family-wise confidence level

