script-4.R

Usuario

2025-08-28

```
#script 4
#28/8/2025
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# importar ------------------------------------------------------------------

calidad <- read.csv("calidadplantula.csv",header=T)
calidad$Tratamiento <- as.factor(calidad$Tratamiento)
class(calidad$Tratamiento)
```

```
## [1] "factor"
```

```
summary(calidad)
```

```
##      planta            IE         Tratamiento
##  Min.   : 1.00   Min.   :0.5500   Ctrl:21
##  1st Qu.:11.25   1st Qu.:0.7025   Fert:21
##  Median :21.50   Median :0.7950
##  Mean   :21.50   Mean   :0.8371
##  3rd Qu.:31.75   3rd Qu.:0.9375
##  Max.   :42.00   Max.   :1.1600
```

```
mean(calidad$IE)
```

```
## [1] 0.8371429
```

```
tapply(calidad$IE,calidad$Tratamiento,mean)
```

```
##      Ctrl      Fert
## 0.7676190 0.9066667
```

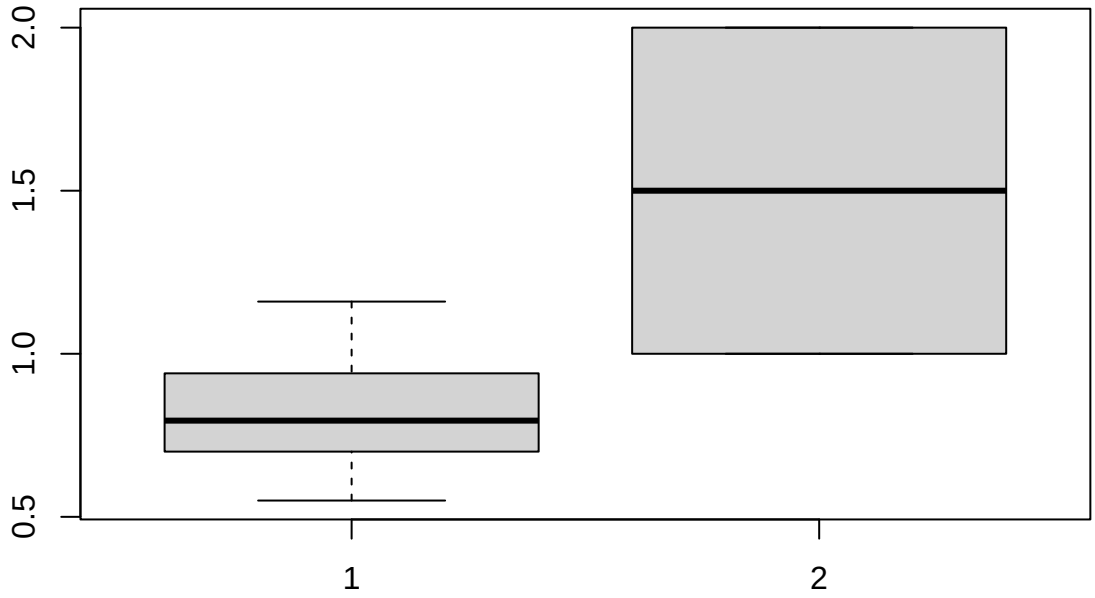
```
tapply(calidad$IE,calidad$Tratamiento,sd)
```

```
##      Ctrl      Fert
## 0.1153215 0.1799537
```

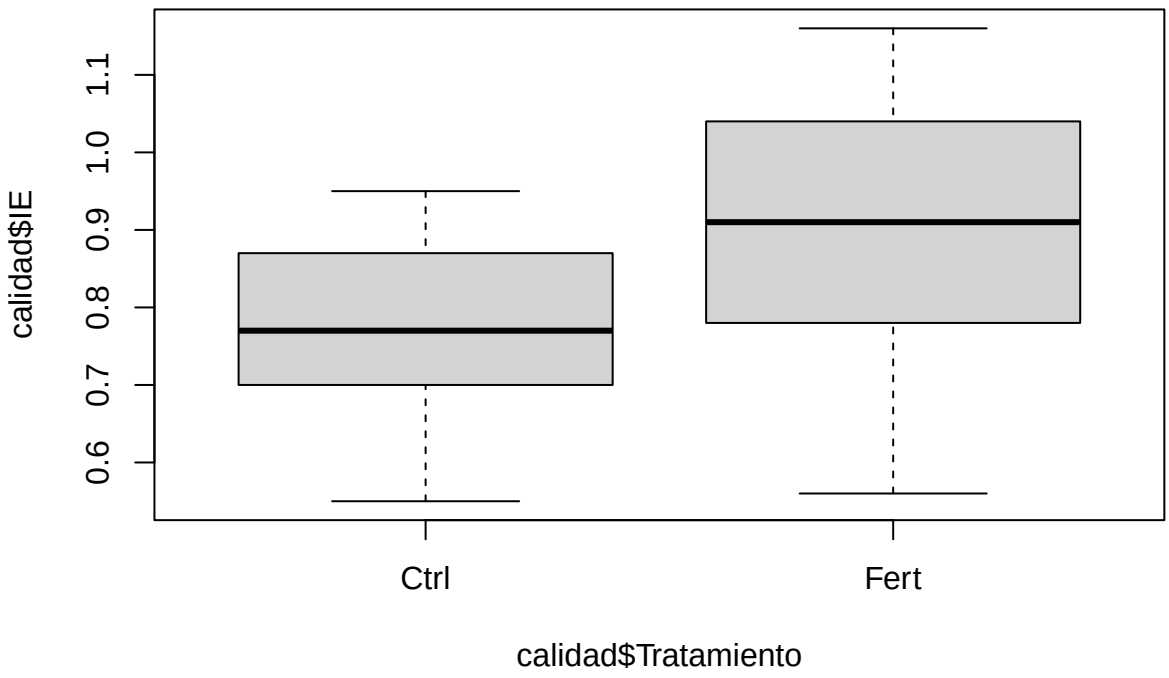
```r
tapply(calidad$IE,calidad$Tratamiento,var)
```

```
##       Ctrl       Fert
## 0.01329905 0.03238333
```

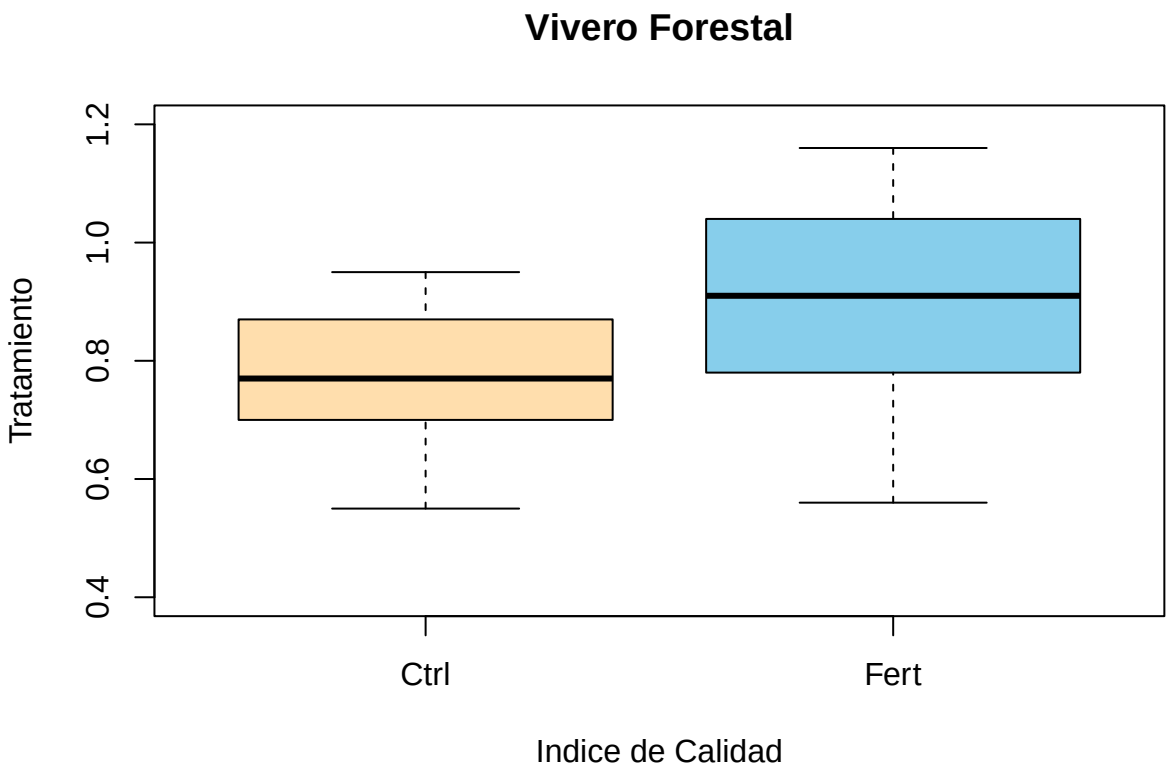
```r
colores <- c("navajowhite","skyblue" )

boxplot(calidad$IE,calidad$Tratamiento)
```



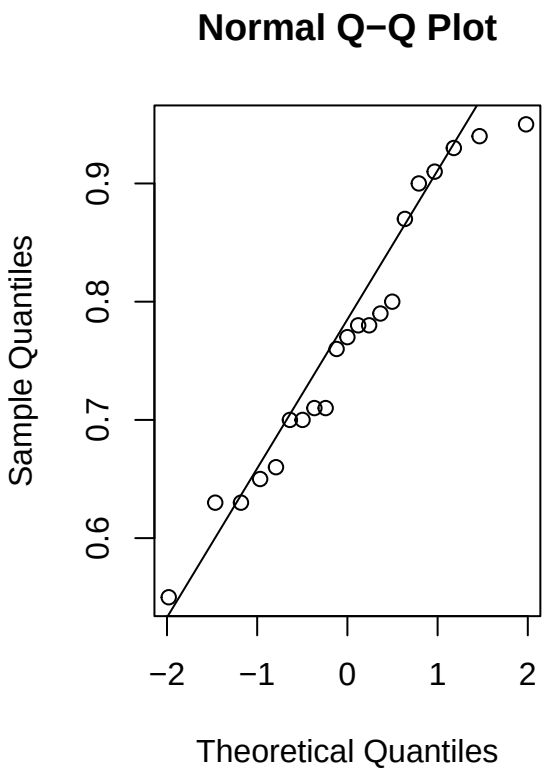

```r
boxplot(calidad$IE~calidad$Tratamiento)
```

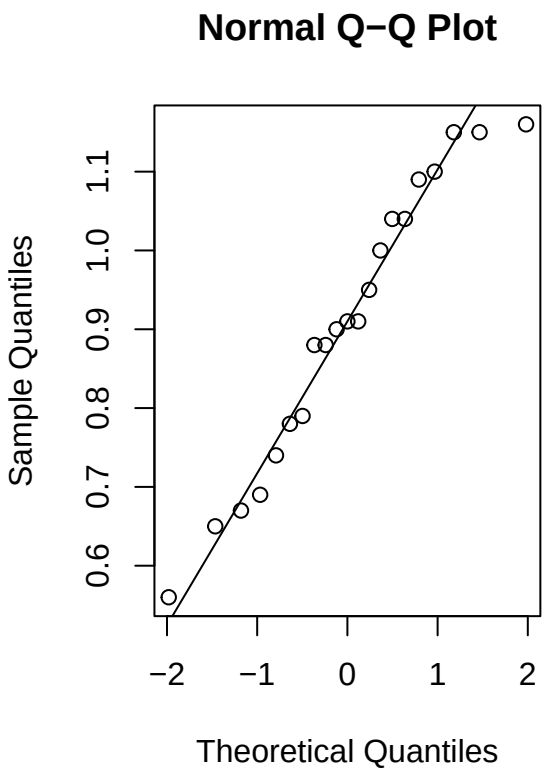



```r
boxplot(calidad$IE~calidad$Tratamiento ,col = c("navajowhite","skyblue" ), main= "Vivero Forestal",
        xlab = "Indice de Calidad",
        ylab= "Tratamiento",
        ylime=c(0.4,1.2))
```




```r
#aplicar un sibconjunto para cada tratamiento

def_ctrl <- subset(calidad$IE,calidad$Tratamiento=="Ctrl")

def_ctrl <- subset(calidad,Tratamiento=="Ctrl")
def_Fert <- subset(calidad,Tratamiento!="Ctrl")

par(mfrow=c(1,2))
qqnorm(def_ctrl$IE);qqline(def_ctrl$IE)
qqnorm(def_Fert$IE);qqline(def_Fert$IE)
```






```r
par(mfrow=c(1,1))


#normalidad de los datos
shapiro.test(def_ctrl$IE)
```

```
##
##  Shapiro-Wilk normality test
##
## data:  def_ctrl$IE
## W = 0.9532, p-value = 0.3908
```

```r
shapiro.test(def_Fert$IE)
```

```
##
##  Shapiro-Wilk normality test
##
## data:  def_Fert$IE
## W = 0.95339, p-value = 0.3941
```

```r
var.test(calidad$IE~calidad$Tratamiento)
```

```
##
##  F test to compare two variances
```

```
##
## data:  calidad$IE by calidad$Tratamiento
## F = 0.41068, num df = 20, denom df = 20, p-value = 0.05304
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  0.1666376 1.0121038
## sample estimates:
## ratio of variances
##          0.4106757
```

```
t.test(calidad$IE~calidad$Tratamiento,alternative="two.sided",var.equal=T)
```

```
##
##  Two Sample t-test
##
## data:  calidad$IE by calidad$Tratamiento
## t = -2.9813, df = 40, p-value = 0.004868
## alternative hypothesis: true difference in means between group Ctrl and group Fert is not equal to 0
## 95 percent confidence interval:
##  -0.23331192 -0.04478332
## sample estimates:
## mean in group Ctrl mean in group Fert
##          0.7676190          0.9066667
```

```
t.test(calidad$IE~calidad$Tratamiento,alternative="two.sided",var.equal=F)
```

```
##
##  Welch Two Sample t-test
##
## data:  calidad$IE by calidad$Tratamiento
## t = -2.9813, df = 34.056, p-value = 0.00527
## alternative hypothesis: true difference in means between group Ctrl and group Fert is not equal to 0
## 95 percent confidence interval:
##  -0.23382707 -0.04426816
## sample estimates:
## mean in group Ctrl mean in group Fert
##          0.7676190          0.9066667
```

```
t.test(calidad$IE~calidad$Tratamiento,alternative="greater",var.equal=T) #equivocado en este caso
```

```
##
##  Two Sample t-test
##
## data:  calidad$IE by calidad$Tratamiento
## t = -2.9813, df = 40, p-value = 0.9976
## alternative hypothesis: true difference in means between group Ctrl and group Fert is greater than 0
## 95 percent confidence interval:
##  -0.2175835        Inf
## sample estimates:
## mean in group Ctrl mean in group Fert
##          0.7676190          0.9066667
```

```r
cohens_efecto <- function(x, y) {
  n1 <- length(x)
  n2 <- length(y)
  s1 <- sd(x)
  s2 <- sd(y)
  sp <- sqrt(((n1 - 1) * s1^2 + (n2 - 1) * s2^2) / (n1 + n2 - 2))
  d <- (mean(x) - mean(y)) / sp
  return(d)
}
dl_cal <- cohens_efecto(def_ctrl$IE,def_Fert$IE)
dl_cal
```

```
## [1] -0.9200347
```

```r
round(dl_cal,2)
```

```
## [1] -0.92
```