library(ggplot2); library(ggpubr); library (dplyr); library(car); library(lsmeans); library(multcomp)

Data <- read.table("JAContent.txt", row.names=1, sep="\t", header=T, blank.lines.skip=F, check.names=F)

JA.Content <- **ggplot**(Data, aes(x= **factor**(Trt, levels=c('CMN+BC-,D', 'CMN+BC+,D', 'CMN+BC-,R', 'CMN+BC+,R')), y=JA, color=Trt) ) +

**stat\_boxplot** (geom="errorbar", width=0.35) +

**geom\_boxplot**(alpha=0, outlier.size=0.75, outlier.shape=1, width=0.5, lwd=1,

outlier.color = "grey30", fill="transparent", show.legend = F) +

**geom\_jitter(**color="grey30", position=position\_jitter(0.22), size=2, alpha=0.70) +

labs(x= NULL, y="JA content (ng/g FW)")+

scale\_y\_continuous (limits=c(30, 155), expand=c(0, 0.0001))+

theme\_bw() +

theme(panel.grid=element\_blank(), axis.text=element\_text(size=12, color="black"),

axis.title=element\_text(size=12),

axis.text.x = element\_text(angle = 75, hjust = 0.5, vjust = 0.5, color="black"),

legend.position = "none" )

JA.Content

JAIle.Content <- **ggplot**(Data, aes(x= **factor**(Trt, levels=c('CMN+BC-,D', 'CMN+BC+,D', 'CMN+BC-,R', 'CMN+BC+,R')), y= JAIle, color=Trt) ) +

**stat\_boxplot** (geom="errorbar", width=0.35) +

**geom\_boxplot**(alpha=0, outlier.size=0.75, outlier.shape=1, width=0.5, lwd=1,

outlier.color = "grey30", fill="transparent", show.legend = F) +

**geom\_jitter(**color="grey30", position=position\_jitter(0.22), size=2, alpha=0.70) +

labs(x= NULL, y="JA-Ile content (ng/g FW)")+

scale\_y\_continuous (limits=c(0, 55), expand=c(0, 0.0001))+

theme\_bw() +

theme(panel.grid=element\_blank(), axis.text=element\_text(size=12, color="black"),

axis.title=element\_text(size=12),

axis.text.x = element\_text(angle = 75, hjust = 0.5, vjust = 0.5, color="black"),

legend.position = "none" )

JAIle.Content

mydata <- Data

model<-lm(JA ~Trt, data= mydata); #summary(model);

Anova(model, type="II")

marginal=lsmeans(model, ~ Trt); #pairs(marginal, adjust="fdr")

cld(marginal, alpha=0.05, Letters=letters, adjust="fdr", reversed=T)

model<-lm(JAIle ~Trt, data= mydata); #summary(model);

Anova(model, type="II")

marginal=lsmeans(model, ~ Trt); #pairs(marginal, adjust="fdr")

cld(marginal, alpha=0.05, Letters=letters, adjust="fdr", reversed=T)

**ggarrange**(JA.Content, JAIle.Content, nrow=1, ncol=2, align="hv", legend="none" )

#### Lesion for JA mutants###

library(ggplot2); library(ggpubr); library (dplyr); library(car); library(lsmeans); library(multcomp)

mydata <- read.table("LesionJAMutant.txt", row.names=1, sep="\t", header=T, blank.lines.skip=F, check.names=F)

JAMutant.Lesion.box <- **ggplot**(mydata, aes(x= **factor**(Trt, levels=c('Wild-', 'Wild+', 'Jai1-', 'Jai1+', 'spr8-', 'spr8+' )), y=Area, color=Trt) ) +

**stat\_boxplot** (geom="errorbar", width=0.35) +

**geom\_boxplot**(alpha=0, outlier.size=0.75, outlier.shape=1, width=0.5, lwd=1,

outlier.color = "grey30", fill="transparent", show.legend = F) +

**geom\_jitter(**color="grey30", position=position\_jitter(0.22), size=2, alpha=0.70) +

labs(x=NULL, y="Lesion area (mm2)")+

scale\_y\_continuous (limits=c(0, 200), expand=c(0, 0.0001))+

theme\_bw() +

theme(panel.grid=element\_blank(), axis.text=element\_text(size=12, color="black"),

axis.title=element\_text(size=12),

axis.text.x = element\_text(angle = 75, hjust = 0.5, vjust = 0.5, color="black"),

legend.position = "none" )

JAMutant.Lesion.box

model<-lm(Area ~Trt, data= mydata); #summary(model); #Anova(model, type="II")

marginal=lsmeans(model, ~ Trt); #pairs(marginal, adjust="fdr")

cld(marginal, alpha=0.05, Letters=letters, adjust="fdr", reversed=T)

#### JA contents for JA mutants###

library(ggplot2); library(ggpubr); library (dplyr); library(car); library(lsmeans); library(multcomp)

Data <- read.table("JAContentMutant.txt", row.names=1, sep="\t", header=T, blank.lines.skip=F, check.names=F)

JA.Content <- **ggplot**(Data, aes(x= **factor**(Trt, levels=c('W-', 'W+', 'Jai1-', 'Jai1+', 'Spr8-', 'Spr8+')), y=JA, color=Trt) ) +

**stat\_boxplot** (geom="errorbar", width=0.35) +

**geom\_boxplot**(alpha=0, outlier.size=0.75, outlier.shape=1, width=0.5, lwd=1,

outlier.color = "grey30", fill="transparent", show.legend = F) +

**geom\_jitter(**color="grey30", position=position\_jitter(0.22), size=2, alpha=0.70) +

labs(x= NULL, y="JA content (ng/g FW)")+

scale\_y\_continuous (limits=c(20, 130), expand=c(0, 0.0001))+

theme\_bw() +

theme(panel.grid=element\_blank(), axis.text=element\_text(size=12, color="black"),

axis.title=element\_text(size=12),

axis.text.x = element\_text(angle = 75, hjust = 0.5, vjust = 0.5, color="black"),

legend.position = "none" )

JA.Content

mydata <- Data

model<-lm(JA ~Trt, data= mydata); #summary(model); #Anova(model, type="II")

marginal=lsmeans(model, ~ Trt); #pairs(marginal, adjust="fdr")

cld(marginal, alpha=0.05, Letters=letters, adjust="fdr", reversed=T)

JAIle.Content <- **ggplot**(Data, aes(x= **factor**(Trt, levels=c('W-', 'W+', 'Jai1-', 'Jai1+', 'Spr8-', 'Spr8+')), y= JAIle, color=Trt) ) +

**stat\_boxplot** (geom="errorbar", width=0.35) +

**geom\_boxplot**(alpha=0, outlier.size=0.75, outlier.shape=1, width=0.5, lwd=1,

outlier.color = "grey30", fill="transparent", show.legend = F) +

**geom\_jitter(**color="grey30", position=position\_jitter(0.22), size=2, alpha=0.70) +

labs(x= NULL, y="JA-Ile content (ng/g FW)")+

scale\_y\_continuous (limits=c(0, 45), expand=c(0, 0.0001))+

theme\_bw() +

theme(panel.grid=element\_blank(), axis.text=element\_text(size=12, color="black"),

axis.title=element\_text(size=12),

axis.text.x = element\_text(angle = 75, hjust = 0.5, vjust = 0.5, color="black"),

legend.position = "none" )

JAIle.Content

mydata <- Data

model<-lm(JAIle ~Trt, data= mydata); #summary(model); #Anova(model, type="II")

marginal=lsmeans(model, ~ Trt); #pairs(marginal, adjust="fdr")

cld(marginal, alpha=0.05, Letters=letters, adjust="fdr", reversed=T)

**ggarrange**(JA.Content, JAIle.Content, nrow=1, ncol=2, align="hv", legend="none" )

######JA transfer####

library(ggplot2); library(ggpubr); library (dplyr); library(car); library(lsmeans); library(multcomp)

Data <- read.table("D5JA.txt", row.names=1, sep="\t", header=T, blank.lines.skip=F, check.names=F)

D5JA.Content <- **ggplot**(Data, aes(x= **factor**(Trt, levels=c('CMN-D', 'CMN+D', 'CMN-R', 'CMN+R')), y=D5JA, color=Trt) ) +

**stat\_boxplot** (geom="errorbar", width=0.35) +

**geom\_boxplot**(alpha=0, outlier.size=0.75, outlier.shape=1, width=0.5, lwd=1,

outlier.color = "grey30", fill="transparent", show.legend = F) +

**geom\_jitter(**color="grey30", position=position\_jitter(0.22), size=2, alpha=0.70) +

labs(x= NULL, y="D5JA content (ng/g FW)")+

scale\_y\_continuous (limits=c(0, 15), expand=c(0, 0.0001))+

theme\_bw() +

theme(panel.grid=element\_blank(), axis.text=element\_text(size=12, color="black"),

axis.title=element\_text(size=12),

axis.text.x = element\_text(angle = 75, hjust = 0.5, vjust = 0.5, color="black"),

legend.position = "none" )

D5JA.Content

mydata <- Data

model<-lm(D5JA ~Trt, data= mydata); #summary(model); #Anova(model, type="II")

marginal=lsmeans(model, ~ Trt); #pairs(marginal, adjust="fdr")

cld(marginal, alpha=0.05, Letters=letters, adjust="fdr", reversed=T)

**###############H-Pot results########################################3**

Data <- read.table("HpotJA.txt", row.names=1, sep="\t", header=T, blank.lines.skip=F, check.names=F)

MyData <- **filter**(Data, Trt == 'Donor' | Trt == 'Receptor')

JA.Content.Hpot <- **ggplot**(MyData, aes(x= **factor**(Trt, levels=c('Donor', 'Receiver')), y=D5JA, color=Trt) ) +

**stat\_boxplot** (geom="errorbar", width=0.35) +

**geom\_boxplot**(alpha=0, outlier.size=0.75, outlier.shape=1, width=0.5, lwd=1,

outlier.color = "grey30", fill="transparent", show.legend = F) +

**geom\_jitter(**color="grey30", position=position\_jitter(0.22), size=2.5, alpha=0.70) +

labs(x= NULL, y="D5JA content (ng/g FW)")+

scale\_y\_continuous (limits=c(0, 12.1), expand=c(0, 0.0001))+

theme\_bw() +

theme(panel.grid=element\_blank(), axis.text=element\_text(size=12, color="black"),

axis.title=element\_text(size=12),

axis.text.x = element\_text(angle = 75, hjust = 0.5, vjust = 0.5, color="black"),

legend.position = "none" )

JA.Content.Hpot

**stats::t.test**(MyData $ D5JA ~ MyData $Trt, p.adj="BH", var.equal=F)

MyData.H <- **filter**(Data, Trt == 'H')

D5JA.Content.H <- **ggplot**(MyData.H, aes(x= **factor**(Trt, levels=c('H')), y=D5JA, color=Trt) ) +

**stat\_boxplot** (geom="errorbar", width=0.35) +

**geom\_boxplot**(alpha=0, outlier.size=0.75, outlier.shape=1, width=0.5, lwd=1,

outlier.color = "grey30", fill="transparent", show.legend = F) +

**geom\_jitter(**color="grey30", position=position\_jitter(0.22), size=2.5, alpha=0.70) +

labs(x= NULL, y="D5JA content (ng/g soil)")+

scale\_y\_continuous (limits=c(0, 1.5), expand=c(0, 0.0001))+

theme\_bw() +

theme(panel.grid=element\_blank(), axis.text=element\_text(size=12, color="black"),

axis.title=element\_text(size=12),

axis.text.x = element\_text(angle = 75, hjust = 0.5, vjust = 0.5, color="black"),

legend.position = "none" )

D5JA.Content.H

**ggarrange**(JA.Content.Hpot, D5JA.Content.H, nrow=1, ncol=2, widths = c(1.6, 1), align="hv", legend="none" )