Appendix S4: R-scripts for the PST-FST comparisons and corresponding sensitivity analyses.

```r
###Example for RTE conducted between RIO20 vs RIO40 : results
 obtained at 20 m###

# Computation MS obs:
dist.r <- seq(0,1,by=0.0001) #see expression for PST
growth <- c(0.1028, 0.12963, 0.06523, 0.08879, 0.09446, 0.08666,
 0.10209, 0.08717, 0.13931, 0.11118, 0.09091, 0.09213, 0.04487,
 0.06394, 0.08679, 0.07054, 0.05124, 0.0476, 0.05367, 0.05029); pop
 <- c("RIO20", "RIO20", "RIO20", "RIO20", "RIO20", "RIO20", "RIO20",
 "RIO20", "RIO20", "RIO20", "RIO40", "RIO40", "RIO40", "RIO40",
 "RIO40", "RIO40", "RIO40", "RIO40", "RIO40", "RIO40") #Dataset

require(nlme)
temp=lme(growth~1, random=~1|pop)

#PST for dist.r=1
varpop.obs <- as.numeric(VarCorr(temp)[1])
varres.obs <- as.numeric(VarCorr(temp)[2])
pst=(varpop.obs)/((varpop.obs)+(2*varres.obs))

#bootstrap PST-confidence interval:

 #définition dataset
RIO20 <-c(0.1028, 0.12963, 0.06523, 0.08879, 0.09446, 0.08666,
 0.10209, 0.08717, 0.13931, 0.11118); RIO40 <-c(0.09091, 0.09213,
 0.04487, 0.06394, 0.08679, 0.07054, 0.05124, 0.0476, 0.05367,
 0.05029)
nperm<-1000
growthboot<-matrix(NA,nrow=nperm,ncol=20)
MS.bootpop<-matrix(NA,nrow=nperm,ncol=1)
MS.bootres<-matrix(NA,nrow=nperm,ncol=1)
tablePSTboot<-matrix(NA,nrow=nperm,ncol=1)

 #Définition IC 95: boucle
for(i in 1:nperm){
growthboot[i,] <- c((sample(RIO20,10, replace=T)), (sample(RIO40,10,
 replace=T)))
growthb <- growthboot[i,]
temp<- lme(growthb~1, random=~1|pop)
MS.bootpop[i,] <-as.numeric(VarCorr(temp)[1])
MS.bootres[i,] <-as.numeric(VarCorr(temp)[2])
tablePSTboot[i,]=(as.numeric(VarCorr(temp)[1])/(as.numeric(VarCorr(t
 emp)[1])+2*as.numeric(VarCorr(temp)[2])))
}

 #extraction MS.bootpop/res.min/max:
quantpop <- quantile(MS.bootpop, c(0.025,0.975))
MS.bootpop.min <-c(quantpop[[1]][1])
MS.bootpop.max <- c(quantpop[[2]][1])

quantres <- quantile(MS.bootres, c(0.025,0.975))
```

```r
MS.bootres.min <-c(quantres[[1]][1])
MS.bootres.max <- c(quantres[[2]][1])


#plot PST function de r (=c/h2):
 #PSTobs --> fonction r
PSTobs <- (dist.r*varpop.obs)/((dist.r*varpop.obs)+(2*varres.obs))
PSTobs.ord <- sort(PSTobs)
plot(dist.r,PSTobs.ord,type="l", lty="solid", lwd=3, col="black",
 xlab="r", ylab="PST/FST", main= "PST-FST comparison function of c/h2
 for RIO20 vs. RIO40", xlim=0:1, ylim=0:1)
legend("topleft",lty=c("solid", "dotted", "dashed","dotted"),
 lwd=c(3,2,2,2), legend=c("PST", "95% CI", "Upper bound of 95% CI of
 FST", "FSTall2"), col=c("black","grey","black", "black"))
#PSTmin --> fonction r
PSTmin <- (dist.r*
 MS.bootpop.min)/(dist.r*MS.bootpop.min+2*MS.bootres.min)
PSTmin.ord <- sort(PSTmin)
lines(dist.r,PSTmin.ord,type="l", lty="dotted", lwd=2, col="grey")
 #PSTmax --> fonction r
PSTmax <- (dist.r*
 MS.bootpop.max)/(dist.r*MS.bootpop.max+2*MS.bootres.max)
PSTmax.ord <- sort(PSTmax)
lines(dist.r,PSTmax.ord,type="l", lty="dotted", lwd=2, col="grey")
abline(h=0.03, lty="dashed", lwd=2, col="black")
abline(h=0.1, lty="dotted", lwd=2, col="black")
```