

Article Title: Interspecific competition among aphid parasitoids: molecular approaches reveal preferential exploitation of parasitized hosts.

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#=====
#                               newcalc: a novel function to calculate the theoretical
#                               counts of multiple parasitism on the aphids
#=====
newcalc= function(n,K,nrep=10000)
{
  tabres=NULL
  for(j in 1:nrep)
  {
    repart=rep(0,5)
    lst=NULL
    counts=rep(0,n)
    for(i in 1:4)
    {
      lst[[i]]=sample(subjects,K[i],replace=T)
      counts[subjects %in% lst[[i]]]=counts[subjects %in% lst[[i]]]+1
    }
    for(i in 0:4) repart[i+1]=length(counts[counts==i])
    tabres=rbind(tabres,repart)
  }

  theor=apply(tabres,2,sum)/nrep
  cat("\nObserved and theoretical counts without
  grouping\n=====\\n")
  print(rbind(observed,theor))

# Accumulation des effectifs th?oriques inf?rieurs ? 5
for (j in 5:1)
{
  if(theor[j]<5) { theor[j-1]=theor[j-1]+theor[j]
                observed[j-1]=observed[j-1]+observed[j]} else break()
}
theor=theor[1:j]
observed=observed[1:j]
cat("\nObserved and theoretical counts after
grouping\n=====\\n")
df=j-1
print(rbind(observed,theor))
Chi=sum((observed-theor)^2/theor);Chi
cat("Chisq = ",Chi," df = ",df,"pval = ",1-pchisq(Chi,df),"\\n")
#end function newcalc
}
#=====
#                               Date 1
#=====
# Order : uzbe,ervi,rhopa,pici and others
n=157
subjects=1:n
K=c(18,30,8,1)
observed=c(105,41,9,2,0)

newcalc(n,K)
#=====
#                               Date 2
#=====
# Order : uzbe,ervi,rhopa,pici and others
n=164
subjects=1:n
K=c(34,22,16,8)
observed=c(103,37,23,1,0)
newcalc(n,K)
#=====
#                               Date 3
#=====
# Order : uzbe,ervi,rhopa,pici and others
n=131
subjects=1:n
K=c(60,41,46,1)
observed=c(63,9,32,25,2)
newcalc(n,K)
#=====

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#                               Date 4
#=====
# Order : uzbe,ervi,rhopa,pici and others
n=107
subjects=1:n
K=c(28,14,20,2)
observed=c(73,10,18,6,0)
newcalc(n,K)
#=====
#                               Date 5
#=====
# Order : uzbe,ervi,rhopa,pici and others
n=82
subjects=1:n
K=c(7,4,2,5)
observed=c(66,14,2,0,0)
newcalc(n,K)
```