

$$C_{Ei} = a_1 * y_{1i} + a_2 * y_{2i} + C_{0i}$$

C_{Ei} = Expected abundance of metabolite i in co-culture

a_j = abundance of species j in co-culture

y_{ji} = yield of metabolite i in species j monoculture

C_{0i} = Initial abundance of metabolite i in medium

Null hypothesis: $C_{Ei} = C_{fi}$

C_{fi} = observed abundance of metabolite i in co-culture