Perreira, H. : "Scavenging behaviour by ants depends on the prey infectiousness"

Abstract:

In social insects, sanitary strategies are established in the nest to prevent the outbreak of a pathogen. However, we just have little knowledge of the ability to detect and discriminate infected preys from uninfected ones. Here we challenged *Myrmica rubra* workers in individual bimodal prey choice tests with an entomopathogen fungus : *Metarhizium brunneum*. Five conditions were put in place including 3 with one infected prey and two in control conditions. (1) two freshly dead flies including one whose we artificially applied a well-known concentration of conidia ($6.0x10^6$ spores/mL) (2) one sporulated fly vs one control fly (3) one freshly died of the fungus vs one freshly dead fly. We noted the prey choice, and some behavioural expressions (number of contacts, exploration time of the preys, auto-grooming).

(1) We found that tested ants do not avoid artificially infected flies and choose whichever prey. The catch rate, the number of antennations, the time spend exploring the prey are the same than control conditions. (2) However, in the context of a natural infection of the fly, the catch rate of the sporulated prey is significantly lower than the unsporulated one. Besides, ants spend two times less exploring the sporulated prey than the other one and tend to perform more grooming than control conditions. (3) In the case where one fly is freshly dead of the fungus, we did not find a significant difference in the catch rate between the infected and the control.

Ours results show that ants do not seem to detect the presence of spores at this concentration on a dead prey. Besides it appear they did not discriminate freshly dead prey of the fungus to the control one. At the contrary, ants actively avoid sporulated prey which represent an instantaneous highly infective material.