

ABSTRACTS



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THE PLASTICITY OF THE CHEMICAL SIGNATURE IN ANTS AND THEIR GUEST: FROM PARASITISM TO MYRMECOPHILY

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Nestmate recognition is a fundamental trait in eusociality to ensure that altruistic behaviours are directed towards related individuals. Discrimination of non nestmates is determined by cuticular hydrocarbons that form a gestalt colony odour. Nevertheless, intruders from alien colonies or different species are frequently observed in ant colonies. I will present a review of this phenomenon ranging from intraspecific robbing to slavery, parasitism and guests and how these intruders can be tolerated within the host colony. Callow workers have small quantities of cuticular hydrocarbons and therefore are tolerated in any colony. This quantity increases in a few days to attain the mature level and adjust to the colony odour. Parasites and guests can synthesize their own hydrocarbons and / or obtain them from the host (chemical mimicry) and accordingly can have a large range of hosts, while others are strictly limited to one. Slave-makers ants *Polyergus* can be reared by various *Formica* species, indicating a large plasticity, but cannot enslave ants of another genus. They develop the host odour but keep some differences with the slaves. This is also observed in *Rossomyrmex* enslaving *Proformica*. Social parasite ants mimic their host odour, for example *Myrmica karavajevi*, the parasite of *M. scabrinodis*. Myrmecophiles are guests of ants; they are tolerated as they have the colony odour of the host. *Sternocoelis* beetles live only in *Aphaenogaster senilis* colonies, as they are able to synthesize the host's hydrocarbons. Coevolution has probably shaped and limited the extent of phenotypic plasticity to select hydrocarbon biosynthesis limited to a close profile of the host. Inside the host colony, contacts permit the integration into the gestalt of the colony. As guests and parasites keep some identity, learning is necessary to permit the mutual tolerance.