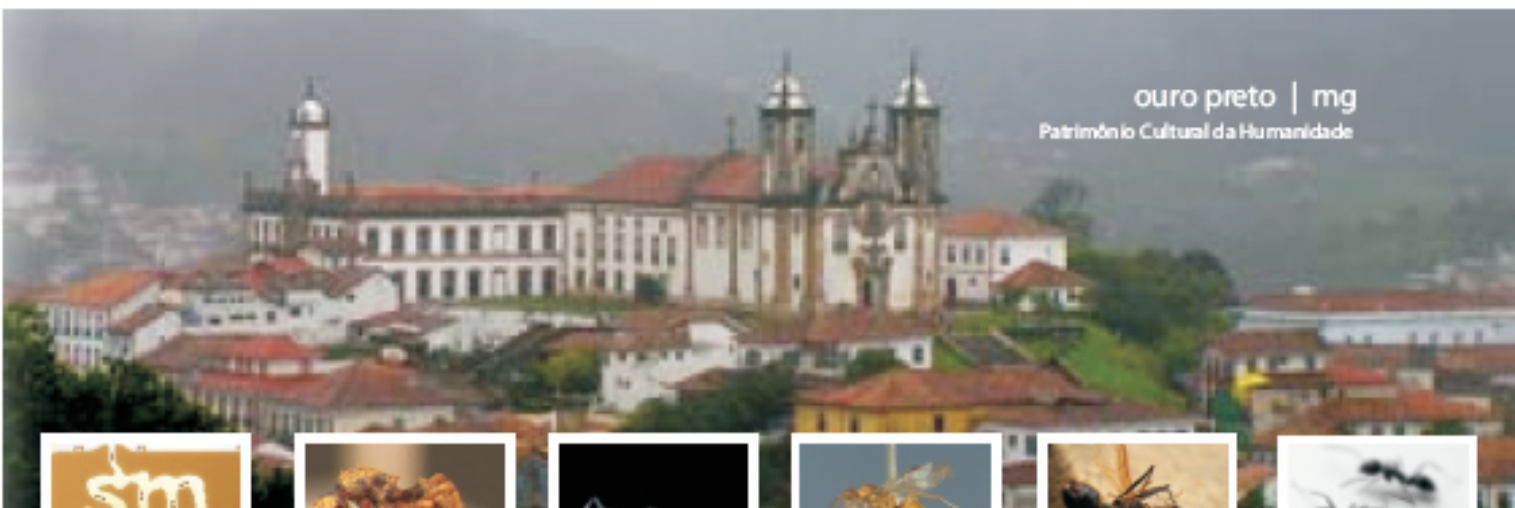
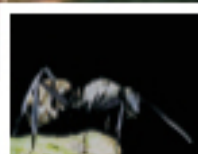


ANAIIS

XIX



ouro preto | mg
Patrimônio Cultural da Humanidade



17-21 | Novembro | 2009



CHEMICALS ON THE ANT'S CUTICLE: NESTMATE RECOGNITION, TERRITORIAL MARKING AND POLLUTION INDICATORS

ALAIN LENOIR¹

¹IRBI, Institut de Recherche sur la Biologie de l'Insecte, UMR CNRS 6035, Université François Rabelais, Parc de Grandmont, 37200 Tours, FR.

The cuticle of insects is generally considered to be a barrier against the environment and protects against desiccation. It is mainly formed of a lipid layer. In social insects, cuticular lipids have gained a role in communication generally attributed to hydrocarbons. We will rapidly review the role of hydrocarbons in nestmate recognition and the formation of colony odor focusing on ants. Hydrocarbons are permanently exchanged by trophallaxis and allogrooming between individuals of the colony to form a common "gestalt" odor. They are deposited passively on the walls of the nest chambers and on the foraging arena. It is known that the foraging arena is marked in a colony-specific way in territorial species. On the contrary, we found that in species like *Lasius niger*, the home range is marked in a colony-specific odor only when we consider the methyl-branched alkanes. We also will present new data on the exploitation of the common nest odor by different parasites and guests. This is the case of *Myrmica karavajevi*, a social parasite of the ant *Myrmica scabrinodis* which mimics the host odor. Some myrmecophiles have co-evolved with their host. We studied two myrmecophilous beetles associated with the ants *Cataglyphis sp.* and *Aphaenogaster senilis* which can be adopted in a conspecific colony but never in an allospecific species. They mimic the host cuticular hydrocarbon profile. We will see also that the cuticle is a barrier against potential parasites. In case of stress, for example induced by a shame parasite introduction, the ant will enhance its protection by increasing the hydrocarbon quantities and melanization. Finally, the cuticle is a trap which fixes all sorts of substances and particularly some pollutants which are generally neglected in the analyses. We will present data showing that the cuticle is contaminated with phthalates, one EDC Endocrine Disruptor Contaminant that is found everywhere in our environment.