XIII Congresso de ECOLOGIA
III International Symposium of Ecology and Evolution
Múltiplas ecologias: evolução e diversidade
08 a 12 de outubro de 2017 • UFV - VIÇOSA | MG

CUTICULAR HYDROCARBONS IN ATTINA ANTS (HYMENOPTERA: FORMICIDAE: ATTINI) DO NOT EVOLVE TOGETHER WITH GENETICS.

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Tema/Meio de apresentação: Filogenia / Pôster

Cuticular hydrocarbons (CHC's) are responsible for social insects' biological signature. The combination of these compounds are what make each colony unique, allowing there to be discrimination between mates from the same nest e from other nests. This work sought to verify if the chemical distances found on CHC profiles of three *Atta* species have a phylogenetic pattern. For that, three *Atta* species were used (*A. capiguara, A. laevigata and A. sexdens*) and two other Attina, as an outgroup (*Acromyrmex balzani and Cyphomyrmex rimosus*). We made CHC profiles samples and, posteriorly, compound identification. Beyond that, sequences from two mitochondrial genes (COI and COI-IGS-RNALeu), and one nuclear EF1aF1, were taken from GenBank and aligned for genetic distance analysis. We created two pairwise distance matrices: one from genetic distances (F84); and one from chemical distances, with Bray-Curtis method. The two matrices were correlated with Mantel test, besides a simple linear regression with all compounds, and one using alkanes and olefins (alkenes + alkadienes) only. All results were non-significant. Both the Mantel test for the matrices and the linear regressions with all compounds and the one with only alkanes and olefins. Thus, it is possible to infer that the chemical evolution of the three species from the *Atta* genus were independent from the phylogenetic factor. Changes in genes, and consequently changes in organisms, are not congruent with the nests' changes in chemical profiles, which can vary in response to several genetic and environmental factors. Furthermore, it was not found any relationship between the genetic distances from these species as cause of the differences in the overall CHC profile, neither on the more specific profile of alkanes and olefins. In conclusion, environment must have a stronger influence over the CHC profile of each species than the phylogenetic factor, reflecting the chemical patterns found.

The authors thank FAPESP (DSA Proc. 2015/17358-0), USP (GARC) for the scholarships granted and CAPES (RCS) for the research scholarship.