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## 456 - DIVERSITY OF CUTICULAR CHEMICAL PROFILES OF FUNGUS-GROWING ANTS

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Cuticular hydrocarbons have been implicated in nest-mate recognition (Vander Meer and Morel. 1998). We used gas chromatography and mass spectrometry to identify the cuticular hydrocarbons on six species of fungus-growing ants from genera spanning their phylogeny. Each examined species differed in the number and type of identified hydrocarbons (*Acromyrmex octospinosus*, *A. echinator*, *Trachymyrmex cornetzi*, *Cyphomyrmex costatus*, an unidentified *Apterostigma* sp. and an unidentified *Sericomyrmex* sp.). The species with the lowest number of cuticular chemicals was *Acromyrmex echinator* with five, and that with the highest was *A. octospinosus* with eighteen. Additionally, we examined the intra-specific colony odor and nest-mate recognition in *A. octospinosus* and *A. echinator*. We hypothesized that there would be a correlation between intercolonial aggression and differences in cuticular hydrocarbon profiles of ant colonies. Our examination of two colonies of *A. octospinosus* found that their relative proportions of hydrocarbons differed significantly (MANOVA,  $d=1$ ,  $p<0.001$ ) whereas those of two colonies of *A. echinator* did not (MANOVA,  $d=0$ ,  $p=0.1387$ ). We found different aggression levels in both species of *Acromyrmex* using invader tests conducted in small sub-colonies. The level of aggression varied from attacking both conspecific and allospecific invaders, to attacking only allospecific invaders. Though we did not find the *A. echinator* colonies to differ significantly in cuticular profile, one of the *A. echinator* colonies showed significant levels of aggression toward ants of the same species; ants of that colony could distinguish between the invaders and their own nest-mates. A larger sample size may have been able to find a significant separation among colony cuticular profiles, or it may be that *A. echinator* uses additional cues in nest-mate recognition. The fungus-growing ant species we examined varied in cuticular hydrocarbon profiles, and *Acromyrmex* spp. colonies varied in aggression levels.