

## HARVESTER ANTS UTILIZE CUTICULAR HYDROCARBONS IN NESTMATE RECOGNITION

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(Received December 30, 1999; accepted May 18, 2000)

**Abstract**—Cuticular hydrocarbons appear to play a role in ant nestmate recognition, but few studies have tested this hypothesis experimentally with purified hydrocarbon extracts. We exposed captive colonies of the harvester ant *Pogonomyrmex barbatus* to small glass blocks coated with whole cuticular lipid extracts and the purified hydrocarbon portion of extracts from nestmate and nonnestmate workers. As an estimate of agonistic behavior, we measured the proportion of ants in contact with blocks that flared their mandibles. Blocks coated with cuticular extracts from nonnestmates were contacted by more workers in one of two experiments and elicited higher levels of aggression in both experiments than blocks bearing extracts from nestmates. The cuticular hydrocarbon fraction of extracts alone was sufficient to elicit agonistic behavior toward nonnestmates. The results demonstrate that harvester ants can perceive differences in cuticular hydrocarbon composition, and can use those differences in nestmate recognition.