

Table 1. Response of attine workers to artificial trails prepared from three abdominal glands.

Species	No. of Tests ^a	No. of Positive Responses		
		(Total Workers Responding in Parentheses)		
		Hind Gut	Poison Gland (Plus Vesicle)	Dufour's Gland
<i>Cyphomyrmer rimosus</i>	8	0	8(69)	0
<i>Trachymyrmex septentrionalis</i>	10	1(3)	10(83)	0
<i>Acromyrmex octospinosus</i>	10	0	10(78)	0
<i>Atta cephalotes</i>	10	2(7)	10(90)	0

and after crossing it during a three minute observation period. Although the major workers of *Atta texana* are too excitable to be employed in the artificial trail test (Moser and Blum, 1963), the medium workers of *Acromyrmex octospinosus* and *Atta cephalotes* were found to be much more suitable than their minor workers for these tests. The results of these experiments are presented in table 1.

The poison glands are clearly the source of the odor trail substances in all four attine species. Ants frequently followed the artificial odor trails during the entire course of the observation period. When workers had run the entire length of the trail they would invariably overshoot and, often after milling around, they would encounter the artificial trail again and resume trail following.

SPECIES-SPECIFICITY OF THE ODOR TRAIL SUBSTANCES

Cross-species tests with artificial odor trails were made with the four attine species principally employing the circular trail technique of Moser and Blum (1963). Poison glands (and vesicle) were dissected out of freshly-killed or frozen workers and after rinsing in saline were crushed in 0.5-1.0 ml. of methylene chloride. Aliquots of 0.1-0.2 ml. of the methylene chloride solution of the poison gland contents were then applied with a pipette to a circle 6" in diameter and the solvent was allowed to evaporate. Subsequently, 10 ants were introduced into the middle of the circle and the numbers of ants which, after encountering the circle, followed the circular trail for at least half its length were recorded.

As the data in table 2 demonstrate, the odor trail substances in the attine genera are not generic or species-specific. Although the artificial trails prepared from extracts of the poison glands of *Atta* and

^aTen workers per replication.