

## EFFECTS OF NUTRITIONAL STARVATION AND SATIATION ON FEEDING RESPONSES OF THREE HOUSEHOLD ANTS, *MONOMORIUM PHARAONIS*, *MONOMORIUM FLORICOLA* AND *MONOMORIUM DESTRUCTOR*

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**Abstract** The feeding responses of three urban pest ant species, *Monomorium pharaonis* (L.), *Monomorium floricola* (Jerdon) and *Monomorium destructor* (Jerdon) after being subjected to nutritional starvation and satiation (either for all nutrients, carbohydrate only, protein only or lipid only) were studied using laboratory-bred colonies. The 10% sucrose solution (w/v), canned tuna and peanut oil were used as representatives of carbohydrate, protein and lipid, respectively and the colonies were starved or satiated for 7 days before experiments on their feeding responses to different nutrients were executed. The numbers of foraging workers towards each nutrient were estimated. Results indicated that feeding preferences of *M. floricola* workers are correlated towards nutrients which they were deprived of. In the event when they were starved from all nutrients, lipid-based food remains their favoured choice. However, nutritional satiation would cause them to forage for either lipid or proteineous food. On the other hand, *M. pharaonis* consistently showed preference towards proteineous food, irrespective of the nutrient they were starved of, or satiated with. *M. destructor* workers foraged primarily towards both carbohydrate- and protein-based foods under both feeding conditions mentioned above. The results also showed that satiation would not merely reduce their foraging activity, but actually improve recruitment activity if the colony was induced under satiation of certain nutrient. Thus, it is tempting to suggest that the satiation behaviour could be exploited in baiting strategies against these *Monomorium* species as it could alter the feeding response of the ants towards different nutritional types. In a situation when removal of competing food sources in an infested area is not feasible, the results obtained could be used as a guideline in bait selection according to the feeding response of the particular species. In circumstances where the food-based attractant of a toxic bait has poor palatability to a particular ant species, the colony could first be satiated with a different nutritional source so that a sufficient intake of the toxic bait is ensured. Thus, this would possibly facilitate the use of a food-based toxic bait against a wider variety of ant species.

In conclusion, we believe satiation behaviour can be exploited in baiting strategies to enhance the effectiveness of the baits for a more successful control program. However, more studies in this respect should be conducted to further substantiate this hypothesis.