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SOCIAL ORGANISATION IN LABORATORY COLONIES OF *ROPALIDIA MARGINATA*

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Ropalidia marginata (Lep.) (Hymenoptera : Vespidae) is a primitively eusocial wasp which lacks morphological caste differentiation. By constructing time activity budgets for individually identified wasps and subjecting these to multivariate statistical analysis, we have shown that adult female wasps can be classified into one of the three behavioural castes namely Sitters, Fighters and Foragers (1). In recent times we have often found it necessary to use laboratory colonies for a variety of experiments. It is important therefore to see if social organisation of the laboratory colonies is similar to that in natural colonies. This report describes the results of 306 hrs of observations of 2 laboratory colonies that were established by marking and releasing all adults present on two natural colonies.

Analysis of time activity budgets of wasps in such laboratory cages as described elsewhere (1) showed that three behavioural castes corresponding to the Sitters, Fighters and Foragers of natural colonies were present in both the colonies. An interesting difference however was that a fourth cluster of wasps, unlike anything seen in natural colonies, was present in both colonies. The wasps in this cluster spent almost all their time away from their nest and appeared to be completely excluded from the social organisation on the nests. Several wasps leave natural colonies from time to time and we suspect that wasps in the laboratory cages which would have left if they could, constituted this cluster. A second difference concerned the behaviour of feeding larvae. In natural colonies the foragers that bring food often pass it on to others on the nest and seldom feed the larvae themselves (2). This probably ensures efficient division of labour as the foragers are free to go back and bring more food. In contrast, foragers in laboratory cages that brought food often fed the larvae themselves before they went back to bring more food. They appeared to have learnt that the food in the cage will always be available. Apart from such differences which were obviously in response to laboratory conditions, we found no significant differences between natural and laboratory colonies in social organisation. These studies thus demonstrate the ability of the wasps to adjust to laboratory conditions and also justify the use of laboratory colonies where necessary.

1. Gadagkar, R. and N.V. Joshi. 1983. *Anim. Behav.* 31:26-31.
2. Chandrashekhara, K and R. Gadagkar. *this volume.*