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**OBSERVATIONS ON SOME BEHAVIOURAL ASPECTS OF THE
POTTER WASP *XENORHYNCHIUM NITIDULUM* (FABRICIUS)
(HYMENOPTERA : VESPIDAE : EUMENINAE)**

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INTRODUCTION

In a study on eumenid wasp *Xenorhynchium nitidulum* (Fabricius), we observed the presence of more than one female in a nest without division of labour and also reuse of cells in a nest by other female wasps and young adults. These studies on *X. nitidulum* is based on direct observations on certain nests at different sites within the campus of Bharathiar University, Coimbatore district, Tamil Nadu, India and from Kanjikode, Palakkad district, Kerala state, India from January 2004 to January 2007.

OBSERVATIONS

Initially the wasp *Xenorhynchium nitidulum* (Fabricius) hovers several times round the area to be selected, and inspects the substratum. Usually the cell sites are locations like window sills, door frames, tube light frames and walls.

The wasp after site selection for cell building brings moist mud pellets directly from wet ground surface. The wasp places these pellets one by one and forms a barrel shaped cell (Plate 1). But at this instance it was observed that till the cell building proceeded half way the wasp constructed the cell from outside. Then the other half of the cell was completed by the wasp sitting inside the cell. In this way the adult female wasp measured the depth and surface area of the cell. In about 30- 33 pellets, the cell was completed. Construction of a single cell was completed within one and half hours. After the completion of one cell, the wasp flew to the nearby areas and after gathering the resinous exudations from the *Acacia arabica* trees, gave a nice resinous coating on the whole surface area of the cell (Plate 3).

The female wasp then laid an egg at the bottom of the cell. In the same cell the mother wasp also resides. From the first day to the third day till the egg hatched and to a grub, the mother wasp stayed in the same cell. After hatching of the egg on the third day, the mother wasp immediately

started to feed the grub by progressive provisioning (Plate 2). After hatching for up to eight days the mother wasp fed the grub twice a day. Everyday the mother wasp was seen feeding the grub in the morning between 9 am to 11 am and in the evening between 3 pm to 4.30 pm. The mother wasp used to collect pod borers from the pods of the nearby *Acacia arabica* trees. After eight days, the mother wasp started to dump more caterpillars (9- 12 caterpillars) as mass provisioning and closed the cell. Then, it started to construct the next cell. In this way, the wasp constructed up to 25 cells in a nest.

In a time of 10 to 12 days, the grub grew well and attained maturity. Then it started pushing the faecal pellets to one corner of the cell and knitted a papery envelop throughout the inner surface by using its saliva and underwent pupation. Pupation lasted to 10-12 days and in a few days the young adult emerged its way out by gnawing through thus opening the cell. The whole life cycle of the wasp was completed in a period of 32-35 days. All these activities were recorded by dislocating the nest and by dissecting various cells of various nests at different localities from the study sites during the study period from January 2004 to January 2007. The young ones that emerged from the cells stayed in the same cell of the nest (Plate 4). It was also noticed that the parent male, female and other female wasps also stayed in the cells of the same nest (Fig. 5). Copulation took place on the nest itself. The male mounted on the female by fanning the wings with the antennae lowered along with the females.

The mother wasp was always seen in the nest other than the times it went for foraging, cell construction and provisioning.

SUMMARY

In the wasp *Xenorhynchium nitidulum* (Fabricius), only single female is responsible for cell construction and brood rearing of that particular nest. Observations of different cells in a nest in different nesting sites indicate that the larvae are progressively provisioned at least in the early larval stages, i.e. from 5- 8 days and then mass provisioning is given. Female sit facing outward in uncapped cells and sting defensively. The wasp gives a resinous coating on the whole surface area of the nest. The courtship behaviour was observed on the nest.

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