

**Influence of Host Plants on Larval Development, Longevity and Fecundity of *Nephantis Serinopa* Meyrick (Lepidoptera : Cryptophasidae)**

G. M. Talati and M. N. Kapadia

Department of Entomology, GAU, Junagadh  
Campus, Junagadh.

The black headed caterpillar, (*Nephantis serinopa* Meyrick) is a destructive pest of coconut palm. It is also known to attack leaves of other ornamental palms and wild palms. The senior author could rear *Nephantis* successfully for two generations on banana leaves in his laboratory at Junagadh. Though studies of life history, biology and food habits of *Nephantis* are carried out on coconut (Nirula *et al.*, 1951), on information on its host preference is available in literature. Present studies were, therefore, conducted to test the host preference of this pest.

Initial culture of the test insect was raised in laboratory on coconut leaves from field collected larvae. Leaves from five different palms, viz., coconut palm (*Cocos nucifera* L.), fan palm (*Livistona chinensis* L.), wild date palm (*Phoenix sylvestris* L.), date palm (*Phoenix dactylifera* L.), bottle palm (*Oreodexa regia* L.), and banana leaves (*Musca paradisiaca* L.) were tested as food for development of *Nephantis* larvae. Newly hatched larvae were

carefully transferred in plastic jars (19×10 cms) containing fresh leaves of different host palms and banana. There were 8 replications and in each 25 larvae were introduced. One generation of pest under test was reared on the host plants. The leaves were changed daily and adults after emergence were provided with 5% honey solution as food. The data on larval period, pupal period, percentage pupation, adult emergence, sex ratio, longevity and fecundity in relation to food sources were recorded. This study was carried out at Plantation Research Station, Mahuva (Gujarat) under laboratory condition at the prevailing temperature ranging from 21° to 37°C and relative humidity ranging from 25 to 75%. The results of the study are presented in Table 1.

**Larval development :** The effect of different food sources on the larval periods and per cent larval survival are indicated in Table 1. It is evident from the wide differences in growth index calculated on the basis of per cent pupation and average larval period that the type of food provided had distinctly affected the larval development. The larval development was the best on fan palm while the poorest on banana with only i.e. 3.5% pupation. Bottle palm also had a very low population (6.5%).

The average larval period was the shortest (31.38 days) on fan palm while on the bottle palm it was the

TABLE 1

Larval and post larval development of *Nephantis serinopa* Meyrick on different host plants.

| Sr. No. | Host plant                                        | Average       |           |              |               |            |           |           |            |        |  |
|---------|---------------------------------------------------|---------------|-----------|--------------|---------------|------------|-----------|-----------|------------|--------|--|
|         |                                                   | Larval period | Pupa-tion | Growth Index | Pupal. period | Emer-gence | Sex ratio | Longevity | Fecun-dity |        |  |
|         |                                                   | (Days)        | %         |              | (Days)        | %          | F.M.      | (days)    |            |        |  |
|         |                                                   |               |           |              |               |            |           |           | Male       | Female |  |
| 1.      | Fan palm<br>( <i>Livistona chinensis</i> L.)      | 31.38         | 39.50     | 1.258        | 11.88         | 62.03      | 1.43: 1   | 6.60      | 7.19       | 85.54  |  |
| 2.      | Coconut palm<br>( <i>Cocos nucifera</i> L.)       | 38.78         | 46.00     | 1.186        | 9.63          | 78.94      | 1.26: 1   | 4.75      | 5.00       | 45.60  |  |
| 3.      | Date palm<br>( <i>Phoenix dactylifera</i> L.)     | 39.51         | 20.50     | 0.521        | 11.54         | 63.42      | 1.78: 1   | 5.67      | 7.26       | 73.67  |  |
| 4.      | Wild date palm<br>( <i>Phoenix sylvestris</i> L.) | 48.93         | 29.00     | 0.593        | 11.03         | 53.55      | 1.36: 1   | 6.09      | 5.67       | 49.29  |  |
| 5.      | Bottle palm<br>( <i>Oreodoxa regia</i> L.)        | 58.82         | 6.50      | 0.111        | 10.78         | 68.25      | 2.00: 1   | 5.00      | 5.00       | 45.33  |  |
| 6.      | Banana<br>( <i>Musca paradisiaca</i> L.)          | 55.00         | 3.50      | 0.065        | 9.40          | 71.43      | 1.50: 1   | 6.50      | 8.67       | 46.67  |  |

longest being 58.82 days. Similar marked variations in larval periods of *prodenia litura* reared on different foods have been reported by Rattan Lal and Nayak (1963).

**Post larval development:** Once the larvae pupated, no striking differen-

ces were noticeable. The shortest pupal period was 9.4 days when reared on banana while the longest period being 11.88 days on fan palm. Similarly adult emergence ranged from 53.55% on wild date palm to 79.94% on coconut. Thus the adult emergence exceeded 50%

in all cases once the larvae had pupated. Scrutiny of sex ratio revealed that there was always a female preponderance over the male irrespective of food source. There was no appreciable difference in longevity of males or females, but egg laying capacity had wide variations. Higher number of eggs were laid by females reared on fan palm and date palm, while there was virtually no difference in fecundity amongst the other four sources.

These studies on host preference have indicated that besides coconut, fan palm, wild date palm and the common date palm, are suitable hosts for

the *Nephantis* pest and can serve as concurrent alternate hosts if situation warranted.

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# REFERENCES

Nirula, K. K., J. Antony, and K. P. V. Menon, 1961. Investigations on the pests of coconut palm. The coconut caterpillar, *Nephantis serinopa* Meyrick. Life history and habits. *Indian Coconut J.* 4 : 217-23.

Ratan Lal and G. N. Nayak, 1963. Effect of host plants on the development of caterpillars of *Prodonia litura* F. *Indian J. Ento.* 25 (4): 229-306.