

Growth and Development of *Spodoptera litura* (Fabricius) on Certain Food Plants

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Spodoptera litura (Fabricius) thrives well on several host plants and cause serious damage to important crops throughout the country. According to Moussa *et al.* (1960), this pest is found in many parts of tropical and temperate zones and attacks over 112 plant species. Attempts were not made to understand the reaction of important host plants cultivated during winter season in this area. Hence, it is thought worthwhile to study on this aspect at Junagadh during the year 1978. A nucleus culture of *S. litura* was maintained in the laboratory on cabbage at an average temperature of 28.5° C and 85 per cent relative humidity. The larvae were reared in glass jars measuring 2 litre capacity having moist soil at bottom on leaves of cabbage (*Brassica oleracea*), groundnut (*Arachis hypogaea* L.), castor (*Ricinus communis* L.) and brinjal (*Solanum melongina*) for this investigation. Ten newly hatched larvae were released in each treatment and it was replicated five times. Observations were taken

for larval weight, larval survival, larval duration, pupal weight, pupal period and percentage emergence from pupae. The growth-index values were calculated as suggested by Srivastava (1959). The data were analysed statistically.

Effect of food plants on larval development:

The data given in table-1 indicate that larval weight of *S. litura* after 6 days of hatching was significantly less in case of brinjal (79 mg) and maximum in cabbage (110 mg) and similar differences were observed among them on the 10th day after hatching. These results are correlated with their growth-index values. Thobbi (1961) reported that the more nutritive food have effect in producing heavier weight in the larvae on *S. litura*. The larval period ranged from 11.42 days on cabbage to 14.83 days on brinjal. It was observed to be positively correlated to the development of larvae on different host plants, which corresponds with the findings of Basu (1944), Ratan Lal and Nayak (1963) and Pandey and Srivastava (1967). Further, the maximum (88.0 per cent) and minimum (46.0 per cent) larval survival were on cabbage and brinjal respectively. Thobbi (1961) also found that the different food plants

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TABLE I

Relative growth of *Spodoptera litura* (Fb) on different host plants.

Sr. No.	Particular	Host plants				C. D. at 5%
		Cabbage	Ground-nut	Castor	Brinjal	
1	Larval wt. (mg) 6 days after hatching	110	95	93	79	8.38
2	Larval wt. (mg) 10 days after hatching	380	368	352	321	29.34
3	Larval period (days)	11.42	12.37	12.05	14.83	0.73
4	% survival	88.00	76.00	84.00	46.00	4.31
5	Pupal period (days)	5.97	6.07	6.06	6.12	N.S.
6	Pupal wt. (mg)	297	291	268	198	14.83
7	Growth - index (4/3)	7.71	6.14	6.98	3.10	—
8	% emergence	84	72	74	42	3.23
9	Sex-ratio (M:F)	1:1.1	1:1.1	1:1	1:1.3	—

had significant effect on the mortality percentage of *S. litura*.

Effect of host plants on pupal period:

The duration of pupal period was only slightly variable on the different food plants as compared to the larval period and larval weight. Similar trend was observed by Srivastava (1959). The mean pupal duration on different hosts ranged from 5.97 days on cabbage to 6.12 days on brinjal. Further, the highest (297 mg) pupal weight was obtained with larvae fed on cabbage and the lowest (198 mg) on brinjal. These results significantly correlated with

their effect on the gain in larval weight and their growth-index values.

The effect of different food plants in inducing variation in percentage emergence of the adult moths shows that the percentage of adult emergence is significantly highest (84.0 per cent) when the larvae are reared on cabbage and lowest (31.0 per cent) on brinjal. The results also indicated that these four host plants did not differ from them in regard to the sex-ratio of adult moth produced.

Amongst four different host plants tried in this study on the development of *S. litura*, cabbage was found most

favourable host plant followed by castor, groundnut and brinjal.

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