

OPTIMUM SUPERPARASITISM FOR THE MASS BREEDING OF *TRICHOSPILUS PUIPIVORA* F.

Trichospilus pupivora Ferriere (Eulophidae) is being used in this country for the applied biological control of the coconut caterpillar *Nephantis serinopa*. Pupa of *Plusia peponis* is one of the alternate hosts used for the large scale rearing of this parasite. The methods of rearing this parasite have not yet been standardised to ensure production of maximum number of parasites with the most desirable attributes. The present work was hence undertaken with a view to determining the effect of different levels of superparasitism on the duration of development, size, longevity and fecundity of *T. pupivora* when bred on the pupae of *P. peponis*.

Pupae of *P. peponis* below 24 hours old were used for the experiments. One day old parasites reared on *P. peponis* were used for the experiments. One pupa was put in each specimen tube and the required number of female parasites introduced and allowed to remain in the tube till they died. To observe the fecundity of the emerging female parasites two females were permitted to parasitise a host pupa and the number of emerging parasites were counted. Results are given in Table 1.

It may be observed that the duration of development was not materially affected by increasing the degree of super parasitism; the number of parasites produced, however, showed a proportionate increase. The longevity of the adults did not show any relationship with the number of parasites used for parasitisation. The fecundity of the resulting parasites was seen to decrease considerably as the degree of superparasitism was raised. The size of the resulting parasites also had a similar relationship. Correlation studies have shown that there was significant negative correlation between the number of parasites emerging on the one hand and their fecundity, longevity and size on the other. Fecundity and size of the adults were positively correlated. With a view to determine the optimum rate of super parasitism which will ensure production of parasites with the best combination of the different desirable characters, the concordance test by Kendol was applied. According to this test, use of 10 females per pupa was found to be the best rate for multiplication of the parasites.

Table 1
Biometric and biological features of *Trichospilus pupivora* due to different degrees of super parasitism

No. of parasites used for parasitism	Duration of Development (days)	Number of parasites emerged	Longevity (days)		Fecundity No. of eggs/female	Body length (mm)
			Fed	unfed		
2	15	180	4	3	138	1.634
4	16	316	5	4	63	1.387
6	15	327	5	3	182	1.387
8	15	295	4	3	189	1.672
10	15	221	6	4	148	1.425
12	15	403	4	3	126	1.463
14	14	552	4	3	71	1.429
16	16	685	4	3	70	1.311
18	16	907	4	3	65	1.254
20	16	721	4	3	63	1.339

Correlation **co-efficients** between different characters

Number of parasites emerged	X their fecundity	-0.42
-do-	X longevity fed	-0.391
-do-	X longevity unfed	-0.439
-do-	X their size	-0.625
Fecundity of the parasites emerged	X their size	+ 0.38

Agricultural College and Research
 Institute, Vellayani, Trivandrum.

S. KABEERATHUMMA,
 M. R. G. K. NAIR

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