

ON THE RELATIVE ABUNDANCE OF INIMICAL AND BENEFICIAL
INSECTS ASSOCIATED WITH THE INDIAN LAC INSECT,
KERRIA LACCA (KERR)

The biotic complex of the Indian lac insect, *Kerria lacca* (Kerr), being intricate and of applied significance has received considerable attention (Ferriere, 1928, 1935; Narayanan, 1962; Mashhood Alam, 1963; Teotia, 1964). However, information on the relative abundance of various insects involved in this complex is rather fragmentary. The present study was, therefore, undertaken to know the relative importance of the various inimical and beneficial insects associated with the lac insect. This note deals with such information for the summer crop seasons, namely *baisakhi** and *jethwi*** raised on the bushy lac host, *bhalia* (*Moghania macrophylla* (Willd. O. Ktze.)

The insects for the *baisakhi* crop season were maintained in three replications, each of 40 bushes, and for the *jethwi* crop season in three replications, each of 34 bushes. The number of bushes for each crop season was selected according to the number of samples to be drawn for each. The number again depended upon the duration of each crop season. One sample consisting of 500 g of lac sticks drawn at random from each replication of each crop was collected at fortnightly intervals, starting from the time of *phunki**** removal, i.e. three weeks after inoculation till the crop was harvested. These sticks were caged in the laboratory for recording the emergence of insects. The data in table 1 bring out the following characteristics of the biotic complex :

1 Among the parasites of the lac insect, *Tetrastichus purpureus* (Cam.), was most abundant during the *baisakhi* crop season, whereas *Tachardiaephagus tachardiae tachardiae* (How.) was so during the *jethwi* crop season.

2 Among the predators of the lac insect, *Eublemma amabilis* Moore, outnumbered *Holcocera pulverea* (Meyr.) during the *baisakhi* crop season, whereas both of them were more or less equally prevalent during the *jethwi* crop season.

3 The number of parasites of the lac predators, i. e. the parasites which are beneficial to the lac insect, was rather low, suggesting that their incidence in nature is probably low. However, *Bracon greeni* Ashm. was most prevalent.

The available information on the subject appears to be based on rather unsystematic work and at times lacks vital details, such as the locality of the crop (Anonymous, 1928, 1929, 1930, 1931 and 1932). The present observations

* *Baisakhi*, the summer crop of lac (October-November to June-July). For this crop, the broodlac is used from a source other than *kusum*, the Indian lac-tree (*Schleichera oleosa* (Lour.) or its progeny on any host. This crop is related to the *rangeeni* strain of the lac insect, which is derived from *palas*, the flame-of-the-forest (*Butea monosperma* (Lamk.) Taubert; syn. *B. frondosa* Koenig ex Roxb.), *jujube* (*Ziziphus mauritiana* Lamk.)

** *Jethwi*, the summer crop of lac (January-February to June-July). For this crop, the broodlac is used from *kusum* or its progeny on any other host. This crop is related to the *kusmi* strain of the lac insect, which is derived from *kusum* or its progeny on any other host.

*** *Phunki*, the spent broodlac or the mature female lac insects on the twigs from which the young ones have emerged.

Table 1. The relative abundance of various insects associated with the lac insect raised on *bhalia*, *Moghania macrophylla* (total numbers)

	<u>Baisakhi</u>	<u>Jethwi</u>
	1972-73 & 1973-74 (total samples collected- 93)	1973 & 1974 (total samples collected- 51)
Parasites of lac insect		
<i>Coccophagus tschirchi</i> Mahd.	13	
<i>Erencyrtus dewitzi</i> (Mahd.)	8	3
<i>Eupelmus tachardiae</i> (How.)	1	2
<i>Marietta javensis</i> (How.)	3	2
<i>Parechthrodryinus clavicornis</i> (Cam.)	78	21
<i>Tachardiaepagus tachardiae</i> <i>tachardiae</i> (How.)	408	354
<i>Tetrastichus purpureus</i> (Cam.)	765	195
Predators		
<i>Eublemma amabilis</i> Moore	130	18
<i>Holcocera pulverea</i> (Meyr.)	51	13
Parasites of predators		
<i>Apanteles tachardiae</i> Cam.	5	6
<i>Bracon greeni</i> Ashm.	9	23
<i>Elasmus claripennis</i> (Cam.)	1	—
<i>Pristomerus sulci</i> Mahd. & Kolub.	4	1

on *T. purpureus* and *E. amabilis*, as the most dominant inimical parasite and predator respectively in the *baisakhi* crop, is in conformity with the earlier reports (Anonymous, 1928 1930, 1931, 1932, 1956, 1957, 1964, 1966, 1968 and 1969). However, *T. tachardiae tachardiae* during the present studies was observed to be most abundant in the *jethwi* crop on which it has been reported to be so only once (Anonymous, 1964). This parasite has sometimes been reported as one of the most abundant inimical parasites of lac, usually ranking next to *T. purpureus* (Anonymous, 1928 and 1930) and at other times outnumbered by other parasites (Anonymous, 1968 and 1969). The abundance of the two predators in almost equal numbers, as observed in the present study, is in conformity with earlier reports (Anonymous, 1969). *Bracon greeni* is the most abundant beneficial parasite in both *jethwi* and *baisakhi* crops, which is quite consistent with the higher abundance of its hosts but no similar information is available in earlier reports, whereas *Pristomerus sulci* Mahd. and Kolub. has not been observed so abundantly during the present studies as in the earlier reports (Anonymous, 1964, 1966 and 1968).

It is worth recording that generally the incidence of the parasites of the lac insect was high at about the times of sexual and crop maturity of their host, whereas that of the predators was at its peak towards the crop maturity.

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