

Table 1. Fecundity of 'Rangecini' female lac insects on 7 hosts during the *kathi* season from 1961 to 1965 and the *baisakhi* season from 1961-62 to 1965-66 crops at Damoh, Madhya Pradesh

Host	<i>Kathi</i> crop						<i>Baisakhi</i> crop					
	Small lac cells			Big lac cells			Small lac cells			Big lac cells		
	Average larvae per female (No.)	Larvae emerged from lac cells (%)	Larvae emerged from lac cells (%)	Average larvae per female (No.)	Larvae emerged from lac cells (%)	Larvae emerged from lac cells (%)	Average larvae per female (No.)	Larvae emerged from lac cells (%)	Larvae emerged from lac cells (%)	Average larvae per female (No.)	Larvae emerged from lac cells (%)	Larvae emerged from lac cells (%)
<i>Acacia catechu</i> (L.f.) Willd.	177.2	69.2	80.8	395.2	80.8	80.8	223.8	75.4	75.4	410.7	84.5	84.5
<i>Acacia donaldi</i> Haines	117.7	70.6	62.5	439.2	62.5	62.5	102.2	69.0	69.0	245.6	89.0	89.0
<i>Butea monosterna</i> (Lamk.) Taubert	165.6	77.2	86.0	426.7	86.0	86.0	89.0	67.8	67.8	394.6	82.8	82.8
<i>Ficus benghalensis</i> L.	123.0	96.7	82.0	315.5	82.0	82.0	28.0	53.5	53.5	132.7	74.9	74.9
<i>Ficus religiosa</i> L.	124.2	90.3	60.0	231.3	60.0	60.0	98.0	74.4	74.4	170.6	71.2	71.2
<i>Ziziphus mauritiana</i> Lamk.	171.9	81.5	84.8	262.7	84.8	84.8	52.5	70.4	70.4	408.6	66.5	66.5
<i>Ziziphus</i> × <i>xylopyra</i> Willd.	193.6	80.0	96.4	478.7	96.4	96.4	95.6	61.9	61.9	401.8	88.5	88.5

Table 2. Analysis of variance

Source of variation	Degree of freedom	Small lac cells			Big lac cells		
		Sum of squares	Mean squares	Variance ratio	Sum of squares	Mean squares	Variance ratio
<i>Main plots</i>							
Hosts	6	91,303.76	15,217.29	1.75 Insignificant	517,289.14	86,214.85	2.52 Insignificant
Blocks	1	52,651.88	52,651.88	6.08 Slightly significant	52,822.06	52,822.06	1.54 Insignificant
<i>Main-plot error</i>	6	51,938.63	8,656.43		204,752.13	34,125.35	
<i>Subplots</i>							
Seasons	4	16,209.69	4,052.42	3.06 Slightly significant	11,170.89	2,792.72	0.26 Insignificant
Seasons × hosts	24	49,501.55	2,062.56	1.55 Insignificant	247,753.10	10,323.04	0.97 Insignificant
Subplot error	28	37,052.41	1,323.30		296,050.17	10,573.22	
Total	69	298,657.92			1,329,837.49		

175

Note on the larval emergence from the 'Rangeeni' lac insect, *Kerria lacca* (Kerr)*

R. S. GOKULPURE¹ and B. P. MEHRA²

Indian Lac Research Institute, Namkum, Ranchi, Bihar

Received: January 6, 1971

The 'Rangeeni' strain of the lac insect, *Kerria lacca* (Kerr), completes 2 life-cycles in a year, called the *katki*³ and the *baisakhi*⁴ crops. A study was taken up at the Regional Field Research Station for Lac, Damoh, Madhya Pradesh, to investigate (i) the relationship between the size of the 'Rangeeni's female lac insect and the fecundity on the 7 hosts, viz. Cutch tree (*Acacia donaldi* Haines), flame-of-the-forest (*Butea monosperma* Lamk.), banyan (*Ficus benghalensis* L.), pipal tree (*Ficus religiosa* L.), jujube (*Ziziphus mauritiana* Lamk.) and *ghont* (*Ziziphus xylopyra* Willd.), (ii) the influence of the host and season on the fecundity of the lac insect on these hosts, (iii) the influence of season on the emergence of the young ones, and (iv) the total and peak period of emergence of the young ones during both the 'Rangeeni' crop seasons.

Fifteen mature female lac cells, each of small and big sizes, were kept individually in glass tubes plugged with cotton. The emerged larvae were counted for fecundity. The resinous tests were cracked opened and the dead larvae within were counted after the larvae had

emerged. Also, 25 non-emerging mature female cells were individually confined and counts were made at the end of every 4 hr.

The fecundity of the lac female was not dependent on the hosts (Tables 1s 2). It was directly proportional to the size of the female lac insect. This observation confirmed that of Chauhan (1967) and Majumdar *et al.* (1968). The fecundity of the lac female was more in the *katki* than in the *baisakhi* season, which is contradictory to the observations of Kulkarni (1967). On an average, 123.0 to 193.6 and 231.3 to 478.7 larvae were borne by a single mother insect in small and big cells, respectively, of the *katki* crop, and 28.0 to 223.8 and 132.7 to 410.7 from small and big lac cells, respectively, from the *baisakhi* crop (Table 1).

On an average, 69.2 to 96.7 per cent of the larvae emerged from the small cells, and 60.0 to 96.4 per cent from big cells of the *katki* crop. In the *baisakhi* crop the emergence was 53.5 to 75.4 per cent from the small cells, and 66.5, to 89.0 per cent from the big cells (Table 1). The rest died within the lac test.

The maximum larvae emerged from 8 to 12.00 hr both in the *katki* and *baisakhi* seasons and the maximum larvae on the fourth day (Fig. 1). Kulkarni (1967) reported that the maximum larvae emerged on the third day. The larval emergence continued for 8 to 15 days in the *katki* crop and for 6 to 9 days in the *baisakhi* crop. This difference in the behaviour of the female lac insect in the two crops may be attributed to the temperature, which was lower during the *katki* season than during the *baisakhi*

*This paper was read at the 56th session of the Indian Science Congress at Bombay in 1969.

¹Senior Research Assistant; ²Scientific Officer.

³*Katki* The rain crop of lac (June-July to October-November).

⁴*Baisakhi* The summer crop of lac (October-November to June-July).

In both ³ and ⁴, the broodlac is used from a source other than from *kusum*, or Indian lac-tree (*Schleiohera oleosa* (Lour.) Oken.) or its progeny on any other host.

⁵'Rangeeni' The lac crop derived from *palas*, the flame-of-the-forest (*Butea monosperma* (Lamk.) Taubert; syn. *B. frondosa* Koenig ex Roxb.), jujube (*Ziziphus mauritiana* Lamk.), etc.

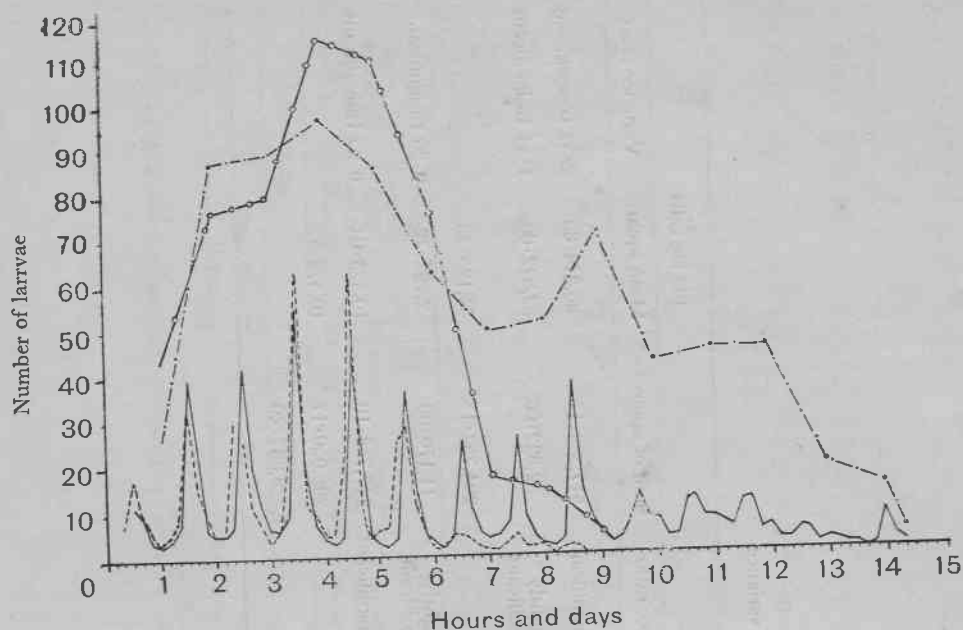


Fig. 1. Four-hourly and daily emergence of larvae of the lac insect from broodlac of *Ziziphus xylopyra* Willd.

season. Kulkarni (1967) reported this period to be 6.36 to 8.72 days for the 'Rangeeni' crops, without mentioning separately for the *katki* and *baisakhi* crops. The number of larvae emerged in a day was high for the first 4 days, after which it gradually decreased till it ceased. This confirms the findings of Kulkarni (1967).

ACKNOWLEDGEMENTS

Thanks are due to Mr Y. Sankaranarayanan, Director, and Dr A. Bhattacharya, Entomologist, Indian Lac Research Institute, Namkum, Ranchi, for providing the facilities; to Mr R.L. Singh, Artist and Photographer, for assistance in the graph;

and to Mr A. R. Rao, Regional Office for Lac Development, Ranchi, for assistance in the statistical analysis of the data.

REFERENCES

- CHAUHAN, N. S. 1967. A study of possible correlation among some of the economic attributes of the lac insect, *Kerria lacca* (Kerr). *Indian J. Ent.* **29**(2): 145-8.
- KULKARNI, S. M. 1967. Seasonal activities of larval emergence in the lac insect, *Kerria lacca* (Kerr) (Homoptera: Tachardiidae). *Indian Forester* **93**(8): 578-81.
- MAJUMDAR, N., BHATTACHARYA, A. and KUMAR, SANT. 1968. Studies on the variability in fecundity of the female lac insect, *Kerria lacca* (Kerr) (Homoptera: Coccidae), in relation to the size. *Indian J. agric. Sci.* **38**(3): 571-6.