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MULTIPLE COITUS IN THE LAC INSECT, *KERRIA LACCA* (KERR.)

In the lac insect *Kerria lacca* (Kerr.) (Syn. *Laccifer lacca* Kerr), the male was commonly believed to play rather an insignificant role in the reproductive activity of these insects. The apparent scarcity of males in natural populations along with the minuteness and fragility of the adult male, its ephemeral existence and complete dissimilarity to the female, and the fact that parthenogenesis had been reported in some other coccids, led to this belief which was little supported by experimental evidence. That the male's role was not so insignificant was clearly demonstrated by Teotia and Chauhan (1964) who established beyond doubt that the females when denied fertilisation do not become facultatively parthenogenetic as had been believed earlier, thus indicating that the male in these insects was as important as the female for the propagation of these insects. The present note pertains to other aspects of the reproductive activity in the lac insect.

Lac insect males do not feed throughout their immature stages nor after they emerge as adult. They are nevertheless highly active in mating and copulate with a large number of females during their short adult life of a few days. Their fecundating capacity was judged by collecting five newly emerged males and offering them as many females as they could copulate with. A male was found to mate with 45 females on an average, the range being 35 to 58. The first few copulations occupied 2 to 3 minutes each, whereas the subsequent ones were completed within a minute. Since all the females mated with these males produced progeny, the act of mating was complete.

In the laboratory cultures of these insects, more than one male was often found to attempt simultaneous coitus with one female. But, unlike *Planococcus citri* (Risso), in which simultaneous union of two males with one female can be accomplished (Nelson-Rees, 1959), one alone succeeded at a time. The female, after mating, remained attractive to males and mated a number of times. A single female was mated to nineteen males within a short period of 40 minutes. Whether the different males mating with one female were each effective in fertilising the female was tested using a recessive colour mutant in these insects. The colour difference (crimson and yellow) in these insects is inherited as a unit character and yellow is recessive to crimson (Chauhan, 1967). The yellow female could thus be mated to both yellow and crimson males and the progeny phenotype used to detect how the progeny was derived. Ten such progenies were reared using insects from the laboratory stocks of homozygous crimson and yellow insects. The progeny in each case consisted of both yellow and crimson insects, confirming that the different males were each effective in fertilising the female.

The same mutant, namely, yellow was again used to test the frequency of females mating more than once in nature. Twenty yellow females were collected at random from the mixed colonies of the two colour forms in the field and their individual progenies were reared in the laboratory on potted plants of *Moghania macrophylla* under cover of 80 mesh wirenet sleeve to protect them from their inimical insects. Nineteen of these progenies consisted of both yellow and crimson insects in varying proportions, indicating that the multiple coitus is a rule rather than exception in nature.

The successful fertilisation of the female by different males thus provides a mechanism to maintain heterozygosity in these insects. Otherwise, their peculiar breeding structure would tend to promote inbreeding and consequent loss of genetic variability in the natural aggregates of these insects.

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