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# ABNORMAL SEGMENTATION IN THE ANTENNA OF AN APTEROUS MALE LAC INSECT, *KERRIA LACCA* (KERR) (HOMOPTERA : TACHARDIIDAE)

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## INTRODUCTION

Unlike female, the male insect of the Indian lac coccid, *Kerria lacca* (Kerr), is a typical insect in structure and shape. No morphological abnormality has so far been reported in it, except in one individual which was devoid of the penial stylus (Chauhan, 1970). In the present paper, a case of abnormal segmentation in an antenna is reported in an apterous male lac insect.

The male lac insect has a pair of slender, pale-yellow, plumose type antennae, composed of 9-10 segments. According to Green (1922) the antennae are normally ten jointed, but he stated that Dr. Imms observed in the apterous form that the number is frequently reduced to nine. In the normal 10-jointed antenna, the terminal joint tapers to a point and bears one or more knobbed hairs at its apex. Misra (1931), who carried out detailed morphological studies on all stages of the Indian lac insect, has described the antennae in male composed of 9 or 10 segments; the basal one stout, almost globular and nearly as long as broad; the second more globular than the first, while the third narrower than the second but much more slender; and the terminal one somewhat tapering. Each component segment is irregularly indented and these indentations mark the attachment of the setae. The author, during his studies on the systematics of lac insects (Varshney, 1977), has examined a large number of specimens both male and female. In one case, an apterous male insect was found to have one antenna of 8-segments only. This being a rare and gross abnormality, is recorded here.

## MATERIAL

The material examined consisted of one slide, on which 7 apterous male lac insects (entire or teased) under one cover-slip, and two aedeagus under another cover-slip, were permanently mounted. Among these 7 specimens, only one had an abnormal antenna. The label data reads, "Apterous males (7); Ber Lac Kartiki crop; Pennis (2); 5.12.27. P. S. Negi" The slide was examined at the Indian Lac Research Institute, Namkum, Ranchi.

## OBSERVATIONS

The right side antenna of the male insect under report, is abnormally segmented (Fig. 1). This is slightly smaller than the left antenna, which is normal in length and

segmentation (*vide* Table I). The abnormality has occurred due to the unusual length of the 6th segment of right antenna, with the result of a loss of one segment in it. This 6th segment is comparatively broader at its distal end and is bigger in length than any other individual segment of both antennae. On the other hand, this 6th segment of right antenna is smaller than the total length of 6th and 7th segments of left antenna, to which it is supposed to symmetrically balance. The other segments of the abnormal right antenna including the terminal one, however, do not show any other marked difference from their left counterpart. The antenna of the left side in this specimen is normal in structure, with usual 9 segments as commonly met with in the apterous forms.

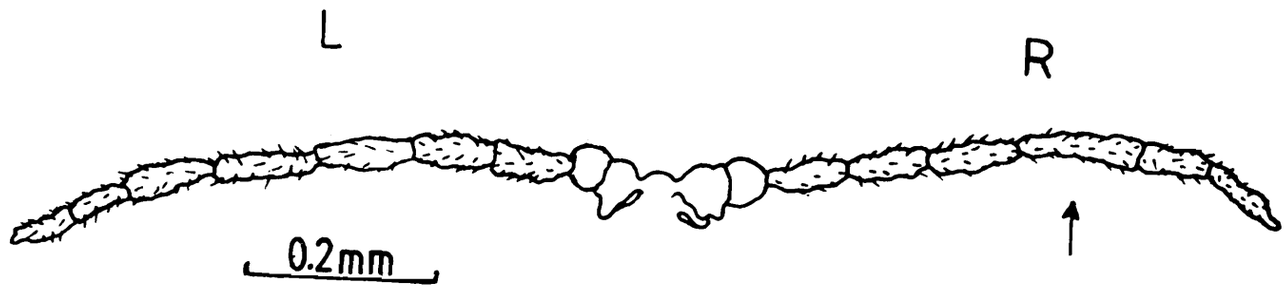


Fig. 1. Both antennae of an apterous male lac insect, drawn at table level with camera lucida, X 100.

L = left antenna; R = right antenna; arrow showing the abnormal 6th segment.

The measurements of both antennae are given in Table I.

TABLE – I

**Measurements of the abnormal (right) and normal (left) antennae of an apterous male lac insect, *Kerria lacca* (Kerr)**

| | | | |
|---|---|---|---|
| 1 | Total length of left antenna | — | 0.6 mm |
| 2. | Total length of right antenna | — | 0.54 mm |
| 3. | Length of 6th segment of right antenna | — | 0.13 mm |
| 4. | Length of 6th segment of left antenna | — | 0.1 mm |
| 5. | Total length of 6th and 7th segments of left antenna | — | 0.2 mm |

## DISCUSSION

Teratological observations, like the one made here, are interesting and reported frequently in insects. From India, the reports of antennal abnormality, however, are a few only. Ananthakrishnan (1948) reported abnormality in the antennae of *Rhipiphorothrips cruentatus* (Order Thysanoptera). Puttarudriah & Channabasavanna

(1952) found variations in the number of joints (segments) of antennae in individuals of *Bracon* spp. (Order Hymenoptera). Menon & Sarup (1958) recorded a freak in the antenna of a *Trogoderma granarium* (Order Coleoptera). Joshi (1961) has noted the asymmetrical position of pale segments in the antennae of *Paralabis dohrni* and *Euborellia annulipes* (Order Dermaptera). The present report of antennal abnormality in a male lac insect seems to be the first one in Order Homoptera from India.

Antennal abnormalities, although interesting, have little value to the taxonomists. Despite the suggestion of Hollinger (1917) for use of the antennal segmentation as a character in the coccid taxonomy, we find that the present day taxonomy of the coccids, to which the lac insect belongs, is largely based and practiced on the female morphology alone, which have either none or vestigeal antennae only. Hence, the observation of a 8-segmented antenna in an apterous male lac insect, *K. lacca*, will have no effect on the taxonomy of the group as understood at present.

The frequency of this abnormality also appears to be extremely low in nature. It may have been caused due to some physiological disturbance or tissue deformation in the metamorphosis. The fact that the number of segments in antennae of male lac insect are 9-10 remains valid. The range of segmentation need not be extended to 8-10 because of the unique record of an 8-segmented antenna reported here, since it is an exceptional case.

## SUMMARY

The male lac insect has a pair of 10-segmented antennae, which are reduced to 9-segments frequently in the apterous forms. The present paper reports a case of an apterous male insect of which the right antenna had 8-segments only, alongwith 9-segments in the left antenna. Its measurements and illustration are given. Antennal abnormalities in other insects are discussed.

## ACKNOWLEDGEMENTS

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