Uttar Pradesh J. Zool. 5 (2) : 195–198, 1985

CEPHALIC CHAETOTAXY OF THE LAST INSTAR LARVA OF A PYRALID : *CORCYRA CEPHALONICA* (STAINTON) (LEPIDOPTERA)

H. S. ROSE AND N. K. BEHL

DEPARTMENT OF ZOOLOGY, PUNJABI UNIVERSITY, PATIALA–147002, INDIA.

Twenty one setae and eleven punctures have been observed on various areas of the head capsule of *C. cephalonica* (Staint.).

INTRODUCTION

A perusal of literature shows that the chaetotaxy in order Lepidoptera as compared to its size, has not been studied in various subfamilies. Important information relating to the chaetotaxy of pyralid caterpillars includes the work of Mathur (1954 & 1959), Singh (1956), Mathur & Singh (1963), Azam & Ali (1965), Franzmann & Garrett (1978) and Yoshiyasu (1980). The description and the significance of cephalic setal arrangement on an arctiid caterpillar has been discussed by Goel & Kumar (1981). Hinton (1946) homologized the naming of various setae and punctures present on various segments of larvae. Keeping in view the scarcity of work in general and in subfamily Galleriinae in particular of family Pyralidae, an attempt has been made to describe the cephalic chaetotaxy of *C. cephalonica* (Staint.), a rice moth.

MATERIAL AND METHODS

The last instar larvae of *C. cephalonica* (Staint.) from the laboratory stock culture were killed with ethyl acetate vapours. The detached heads of the larvae were then postashed for 10 — 12 hrs in 10 % KOH. The material was then washed with 1 % glacial acetic acid and preserved in 70 % alcohol and glycerine in the ratio of 9 : 1. The studies were made with the help of stereoscopic dissecting binocular from the glycerine mounts. The terminology proposed by Hinton (1946) has been followed.

RESULTS AND DISCUSSION

The hypognathous type of head capsule of the larva is heavily sclerotized and characterized by twenty one setae and eleven punctures on each half of the head capsule of *C cephalonica* (Figs. 1 — 3).

The clypeus (CLP) is trapezoidal without puncture and bears two setae C_1 and C_2, the former nearer to the epicondyle and the latter mesad to the former. The occurrence of both the setae has also been observed by Hinton (1946). Mathur (1954 & 1959), Mathur & Singh (1963), Farooqui & Singh (1973) and Goel & Kumar (1981) in lepidopterous larvae. However, besides these setae, an additional puncture Ca on the clypeus has been reported by Lawrence & Downey (1966) and Downey & Allyn (1979). The frons (FR) is a triangular sclerite and is beset with one seta F_1 and a puncture Fa. The same condition has also been depicted by workers like Azam & Ali (1965). Franzmann & Garrett (1980), Diakonoff & Arita (1981) and Goel & Kumar (1981) in different caterpillars. Contrary to this the presence of one more seta F_2 has also been described in *Stomopteryx palpilineella* (Chambers) by Valley & Wheeler (1976).

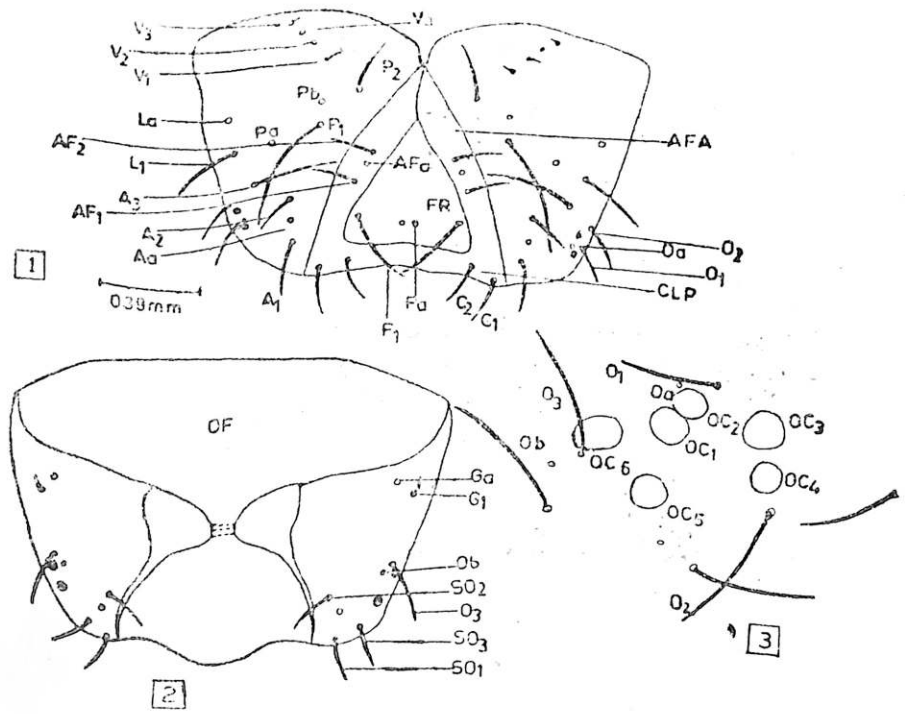

Fig. 1–3. 1. Dorsal view of the head capsule of last instar larva of *C. cephalonica* (Stainton). 2. Ventral view of the head capsule of last instar larva of *C. cephalonica* (Stainton). 3. Area showing the ocellar group of setae.

The adfrontal area (AFA) which is inverted V-shaped, has a distinct group of two adfrontal setae AF_1 and AF_2 and a puncture AFa. The puncture AFa lies more close to AF_2 than AF_1. This puncture has shown to be missing in *Clania crameri* West., *Stomopteryx palpilineella* (Chambers) and *Leptotes cassius theonus* Lucas by Farooqui & Singh (1973), Valley & Wheeler (1976) and Downey & Allyn (1979) respectively. But the condition found in *C. cephalonica* goes alongwith the observations made by Hinton (1946), Azam & Ali (1965), Franzmann & Garrett (1978), Yoshiyasu (1980), Diakonoff & Arita (1981) and Goel & Kumar (1981).

The anterodorsal group consists of three setae A_1, A_2 and A_3 besides a puncture Aa, all of them lie inbetween the adfrontal and ocellar areas. Out of three setae, the seta A_3 is longest and is located closer to OC_3. The puncture Aa is situated in the centre of A_1 and A_2 The occurrence of such an anterodorsal group has been described by many workers in different lepidopteran families. In contrast to this, the absence of seta A_3 has been reported by Lawrence & Downey (1966) and Downey & Allyn (1979) in Lycaenidae whereas, in *Clania crameri* West., an additional seta A_4 was described by Farooqui & Singh (1973). The posterodorsal group on the other hand, possesses two setae P_1 and P_2 and two punctures Pa and Pb. P_1 is the longest seta on the head of the larva. Both the setae of this group alongwith one of the punctures Pb form an arc, with the latter inbetween the former two. Two different arrangements of two setae and one puncture have been reported by Yoshiyasu (1980) and Diakonoff & Arita (1980) respectively. In *Diacrisia obliqua*, Goel & Kumar (1981) described two punctures Pa and Pb and five setae in the group.

Vertical group has three setae V_1, V_2 and V_3 and a puncture Va. All the three setae are in line with Va positioned in between V_2 and V_3. The lateral group is represented by a single seta L_1 and a puncture La, the occurrence of which has been universally recognised by Lawrence & Downey (1966) and Downey & Allyn (1979).

Similarly, the genal group also possessed only one seta G_1 and a puncture Ga. Hinton (1946) instead of one seta has described two setae G_1 and G_2 and a puncture Ga. While one seta G_1 and two punctures Ga and Gb have reported by Goel & Kumar (1981).

The ocellar group is characterized by the presence of three setae O_1, O_2 and O_3 and two punctures Oa and Ob. The puncture Ob lies near to ocelli OC_6, whereas, Oa is present adjacent to seta O_1. The puncture Ob has been found to be missing in many Pyralid larvae by Mathur (1954 & 1959), Mathur, & Singh (1963). Goel & Kumar (1981) have, however described this puncture near OC_5, whereas,

Hinton (1946) observed the presence of such a puncture between OC_3 and OC_4. Like the ocellar group, the subocellar area is also marked with three setae *i e.* SO_1, SO_2 and SO_3, but only one puncture SOa. The puncture is in line with SO_3 and SO_2 and is more closer to latter than the former.

ACKNOWLEDGEMENTS

The authors are thankful to Dr. S.S. Dhillon, Prof. & Head, Department of Zoology, Punjabi University, Patiala for providing necessary research facilities.

REFERENCES

AZAM, K. M. & ALI M. H 1965. Morphology of larva of *Dichocrocis punctiferalis* Guen., the castor shoot and capsule borer with special reference to its chaetotaxy *Indian J. Ent.* **27** : 423–431.

DIAKONOFF, A & ARITA, Y. 1981. The early stages of *Thaumatographa eremnotorna* with remarks on the status of Hilarographini (Lepidoptera : Torticoidea) *Ent Ber.* (Amst) **41** (4) : 56–60.

DOWNEY, J. C. & ALLYN, C A. JR. 1979. Morphology and biology of immature stages of *Leptotes cassius theonus* (Lucas) *Bull. Allyn. Mus.* **55** : 27.

FAROOQUI, T. N. A. & SINGH, K. M. 1973. Salient morphological features of mature larva of bagworm moth *Clania crameri* West (Lepidoptera : Psychidae). *Indian J. Ent* **35** : 264–270.

FRANZMANN, B. A. & GARRETT, R. 1978. Description of immature stages and adult genitalia of Banana Scab moth *Nacoleia octasema* (Pyralidae : Pyraustinae) from North Queensland. *Pac. Insects.* **19** : 45–51.

GOEL, S C & KUMAR, A 1981. Cephalic demarcations and chaetotaxy of larval *Diacrisia obliqua* (Wlk.) (Arctiidae) *Uttar Pradesh J. Zool.* **1** : 6–15.

HINTON, H. E. 1946 On the homology and nomenclature of setae of lepidopterous larvae with some notes on the phylogeny of lepidoptera. *Trans. R. ent Soc. Lond* **97** : 1–37.

LAWRENCE, D A. & DOWNEY, J. C. 1966. Morphology of immature stages of *Everes comyntas* Godart (Lycaenidae). *Jour. Res. Lepid.* **5** (2) : 61–96.

MATHUR, R. N. 1954. Immatur stages of Indian Lepidoptera No. 9. Pyralidae, subfamily Pyraustinae. *Ind. For. Rec.* **8** (11) : 241–265.

1959. Immature stages of Indian Lepidoptera No. 12 Pyralidae, subfamily Pyraustinae. *Ibid* **9** (10) : 183-210

MATHUR, R N. & SINGH, P. 1963. Immature stages of Indian Lepidoptera No. 13, Pyralidae, subfamily Pyraustinae. *Ibid* **10** (6) : 117–148.

SINGH, B. 1956. Some more Indian Geometrid larvae (Lepidoptera) with a note on the identity of components of various groups of setae. *Ibid.* **9** : 136–163.

VALLEY, K & WHEELER, A. G. 1976. Biology and immature stages of *Stomopteryx palpilineella* (Lepidoptera : Gelechiidae), a leaf miner and leaf tier of crownwetch. *Ann. ent. Soc. Am.* **69** (2) : 317–324.

YOSHIYASU, Y. 1980. Morphology of immature stages of *Marasmia latimarginalis* (Lepidoptera : Pyralidae). *Sci. Rep. Kyolo. Pre. Univ. Agric. No.* **32** : 51–55.