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Role of Mandible & its chaetotaxy for identification of species in the genus *Sesamia*.

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ABSTRACT

Chaetotaxy is very important for identification of any insect. It is the arrangement of macrochaetae towards body tergum as well as sternum surface of insect.

Chaetotaxy is infact receptor setae structure on the exoskeleton.

Cephalic region is very important for identification of insect with the help of bristles.

S.calamistis & *S.inferens* both belongs to family noctuidae of order Lepidoptera, a serious pest of standing sugarcane.

For their identification mandibles of mouth appendages have studied. In both insect pest, the mandible are heavy jaws used for biting & hinged with the epicranium in either side by two articular facet in between labrum & maxillo-labial hypopharyngeal complex.

In case of *S.inferens* the mandible articulate dorsally by an anterior semicircular epicondyle (EC) and ventrally through the elongated hypocondyle but in *S.calamistis* epicondyle is flat while hypocondyle is semicircular. In both mandibles these two points of the articulation received the apodemes of the abductor and adductor muscles respectively.

In *S.inferens* mandibles possess two incisors (IR), two flat molars (MR) & a single complicated internal tooth (IT) but in case of *S.calamistis*, incisors are three sharp rigid structures and two molars well developed prominent rounded structures but internal tooth absent.

In *S.inferens* there are two unequal sized setae in which MV_1 is large than MV_2 but in *S.calamistis* it is just opposite in shape and size.

In *S.inferens*, mandibular glands open by an opening OG but in *S.calamistis* OG is absent.

The nomenclature used for the setae of the larvae is that of Hinton (1946).

Keywords: *Setae, Chaetotaxy, Noctuidae, Bristle.*

INTRODUCTION

Mandibles are among the most fundamental and versatile mouthparts of insects. These are present in the cephalic region of insects on the ventral side of head capsule. These are paired, hardened (chitinous) structure that play a central role in food acquisition and processing. They function primarily on the basis of biting and chewing mechanism.

The structural characteristics of mandibles are closely related to their functional roles, thereby influencing feeding behaviour, ecological adaptation and evolutionary aspects also.

MATERIAL AND METHOD:

A stock culture of *S.inferens* and *S.calamistis* developed and maintained in laboratory. The successive stages of caterpillars preserved in a mixture of K.A.A.D (Kerosene, Acetic Acid, Absolute Alcohol, Dioxine) with ratio of 1:2:7:1 for 8 hours and then preserved in 70% alcohol.

The mandibular region of both have separated from head capsule and prepared slides of mandibles. The sketch diagram prepared with the help of camera lucida.

RESULT & DISCUSSION

The mandibular region, the chaetotaxy of mandible is very important for identification of these two selected species of *Sesamia*, the structure of mandible as well as chaetotaxy play a key role for identification of these two species of *Sesamia* as shown in table:

Table: Comparative study of Mandible & its association

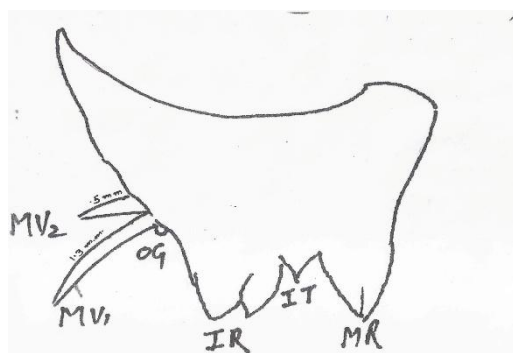
Mandibular character & its chaetotaxy	<i>S. inferens</i>	<i>S. calamistis</i>
Epicondyle	Semicircular	Flat
Hypocondyle	Elongated	Semicircular
Incisors (IR)	Two	Three
Molar (MR)	Two	Two
Internal tooth (IT)	One	Absent
Setae	MV ₁ > MV ₂	MV ₂ > MV ₁
Mandibular gland	Two Open by OG	Two OG absent

Epicondyle of *S.inferens* is semicircular while *S.calamistis* it is flat. The hypocondyle of *S.calamistis* is semicircular but in other one it is elongated. Internal tooth in *S. inferens* is single but in *S.calamistis* is absent. It shows evolutionary aspects.

Setae in both of them are two in numbers, in *S.inferens* MV₁ is larger than MV₂ but in *S.calamistis* just opposite in shape and size.

There are two mandibular glands laterodorsally in *S.inferens*, the gland opening (OG) is clearly seen but in *S.calamistis* it is not clear.

Sketch diagram of Mandibular region:



Mandible of *S.inferens*
Mandible of *S.calamistis*

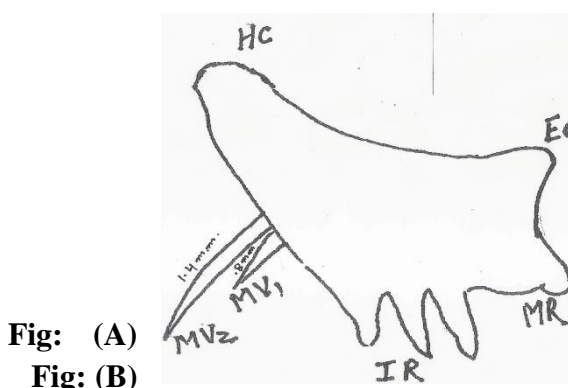


Fig: (A)
Fig: (B)

REMARK

The present study will play a very important role for identification of these two species of the genus *Sesamia* of same family noctuidae of order lepidoptera.

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