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ON ADDITIONAL TAXONOMIC CHARACTERS OF *SOMILEPTES GONGOTA* (HAMILTON) WITH FEATURES OF THE YOUNG FROM INDIA (COBITIDAE)

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(With 4 Text-figures)

INTRODUCTION

Somileptes was described by Swainson (1839) with *Cobitis gongota* Hamilton as its type-species. The taxonomy and description of *Somileptes gongota* (Hamilton) have been in confusion till Mukerji (1932) clearly described and figured the genus and the species. The description of *S. gongota* has so far been based on adult specimens (98.5-132 mm total length) and young specimens of this species have never been described. Recently, one adult specimen (92 mm total length) of this species has been collected from Moradabad district and a young one (33 mm total length) from Pilibhit district, Uttar Pradesh and it has been observed that the young example does not agree with the morphometric descriptions of this species given so far. In the absence of characters of the young examples in the description of the species, it it is difficult, therefore, to identify young examples. It has been, thus, thought appropriate to give the morphometric ratios of the young of this species and compare it with those of the adult.

Further, while making a review of the genera of Cobitinae and Botiinae, Nalbant (1963) had no material of the genus *Somileptes* and he reproduced the description of Day (1878) which did not clearly describe the particular features of this species such as the details of the subdorsal scale, the suborbital spine, the swim-bladder capsule etc. which have been given weightage in the study of inter-relationship of genera of these subfamilies by Nalbant (1963). It is proposed here to describe these features of *S. gongota* also in order to facilitate any future study of inter-relationships of the genera of the subfamily Cobitinae. These features of this species were not also described by Mukerji (1932) who redescribed the species and this fact was not recorded by Nalbant (1963).

Observations

The material of *S. gongota*, studied here, has been collected from the following localities.

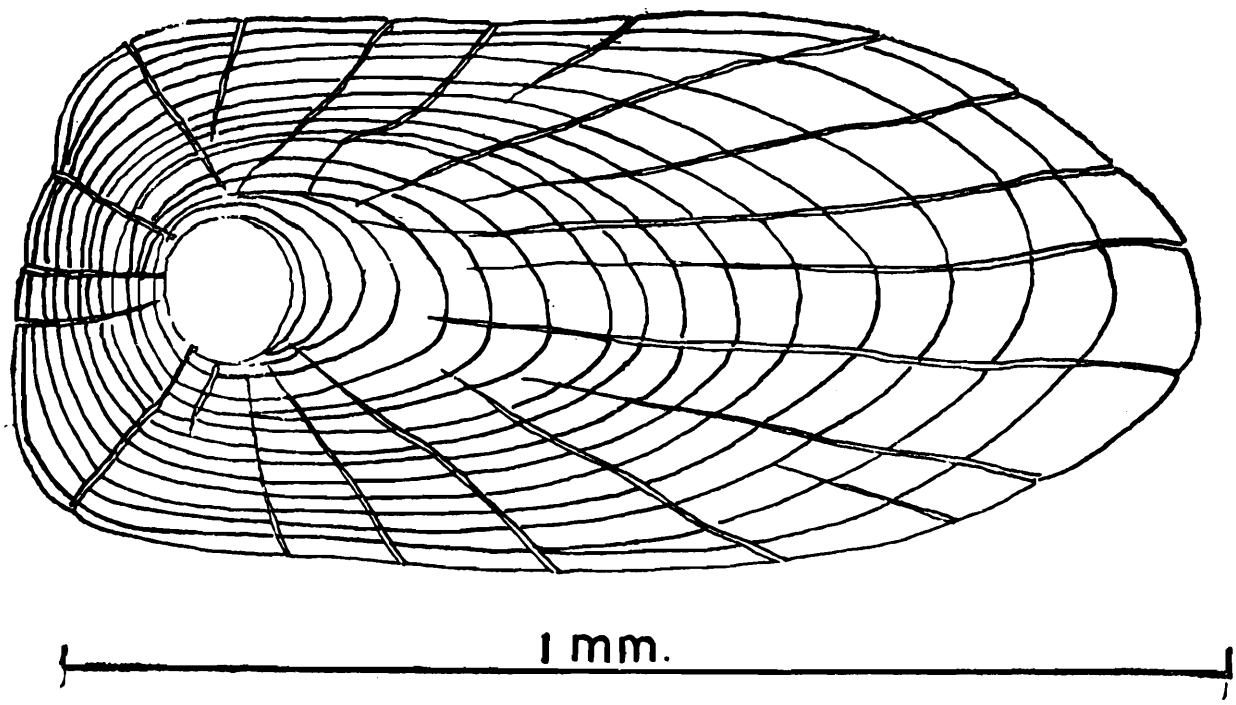
1. A young example (33 mm total length) from Bamrauli Canal, near village Bilsanda, district Pilibhit, Uttar Pradesh, 25.10.1973, A. Husain.

B. III, D. III/6, P. I/9, V. I/6, A. II/5, C. 15.

2. An adult female (92 mm total length), Sot Nadi near village Bhawanipur, Sambhal—Chandausi Road, district Moradabad, Uttar Pradesh, 5.3.1973, A. Husain.

B. III, D. III/9, P. I/9, V. I/6, A. IV/5, C. 15.

The morphology of the young specimen of *S. gongota* is quite different from that of the adult and the trenchant points of difference are given below.



Text-fig. 1. Subdorsal scale of *Somileptes gongota* (Hamilton)

The head is comparatively longer in the young, 3.20 in standard length (3.95-4.05 in adult). The characteristically high head is acquired only in the adult stage which in the young is low. Similarly, the depth of the body is also low in the young 8.92 times in total length (7.85-8.60 times in adult). The interorbital width is reduced, 4.00 times in eye diameter (2.33-3.20 times in adult), the eyes are enlarged, 4.25 times in head length (5.25-6.00 times in adult) and the snout is reduced (2.83 times in head length, 2.2-2.38 times in adult) in the young stage. The fins are comparatively longer in the young. The distance between the bases of the pectoral and the ventral fins is smaller in the young than

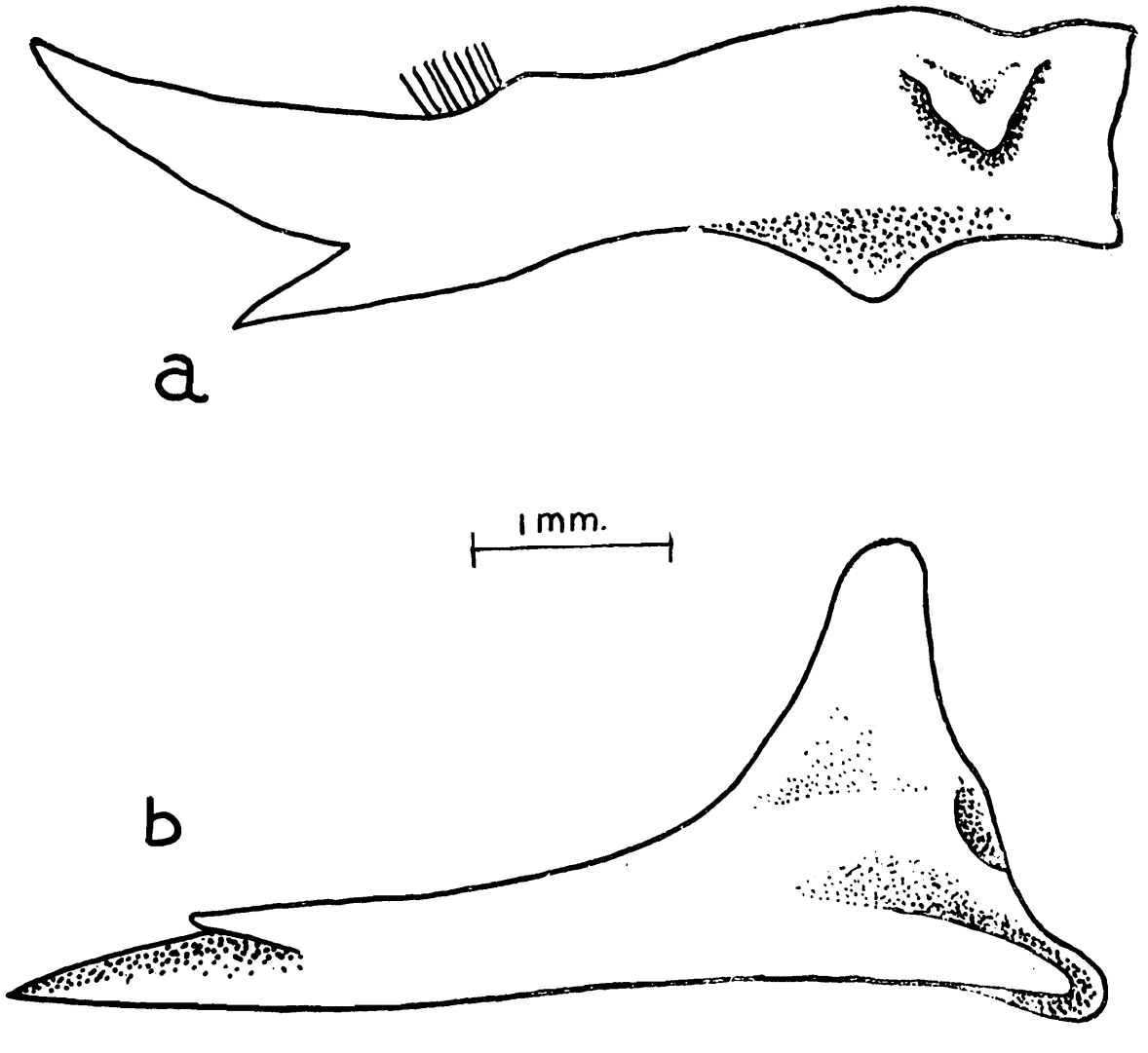
in the adult, 6.0 times in total length (4.42-4.84 times in the adult). The morphometry of the young specimen from Pilibhit district and the adult from Moradabad and Deoria districts (Uttar Pradesh) and Siliguri (West Bengal) has been compared.

The taxonomically important characters of *S. gongota* are given below :

(1) Scales (Text-fig. 1) :

The scales of the body are cycloid and imbricately arranged. In *S. gongota*, the subdorsal scales are elongated and tapering towards the apical region. The focal area is eccentric and narrow. There are 25-27 radial canals in the scales (both complete and incomplete). The circuli are close to each other and are densely packed towards the base while they are widely apart towards the apical region. These scales resemble those of *Leptobotia* Bleeker (Nalbant, 1963 : Pl. IV, fig. 1).

(2) The suborbital spine (Text-fig. 2 a, b) :

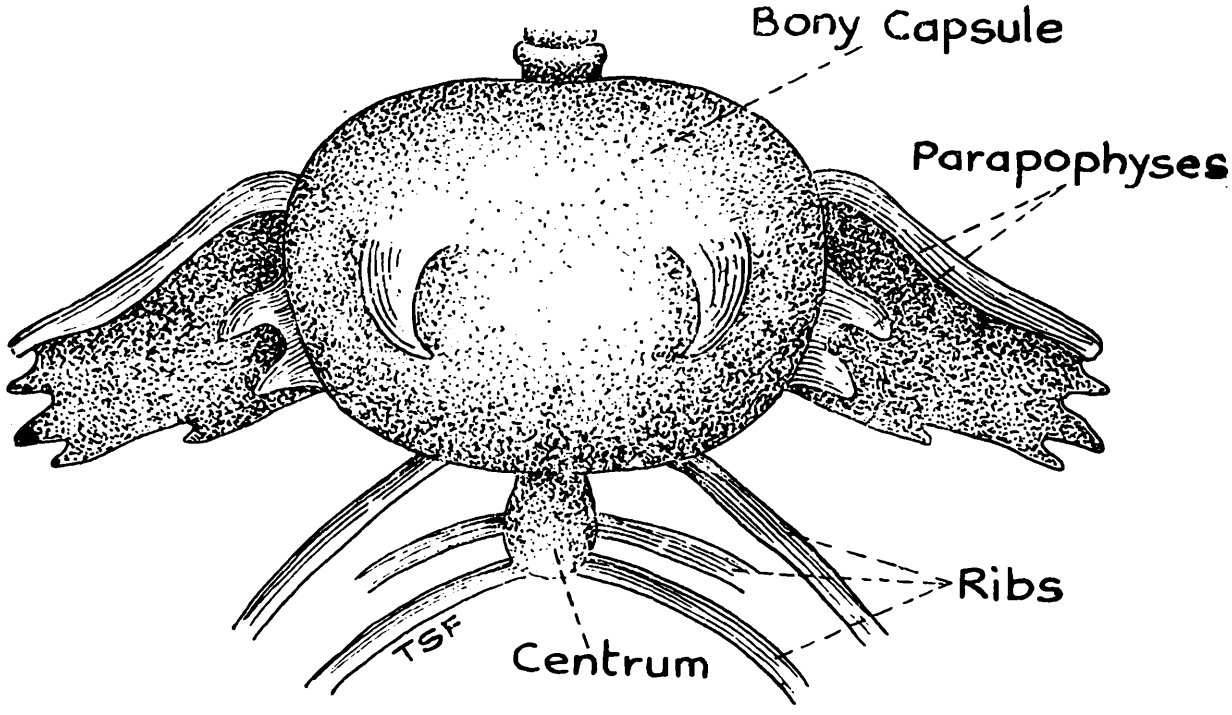


Text-fig. 2. a. Dorsal view of the lateral ethmoid, showing a bifid suborbital spine. of *S. gongota*.

b. Lateral view of the same.

The suborbital spine is of the usual cobitinous type. It is straight and slightly curved. The spine articulates antero-medially with the palatine bone through latero-rostralis process. The medio-rostralis process is very prominent and articulates with the orbitosphenoid of the skull. Opposite the medio-rostralis process, there is a small lateral process. Similarly, there is a small medial process. Both these processes give attachment to the muscles which control the outward and inward movements of the spine. The tip of the spine has two prongs, the medial is nearly three times longer than the lateral prong. These prongs are slightly curved and pointed at the tip. The suborbital spine of this species resembles that of *Acanthophthalmus* van Hasselt.

(3) Swim-bladder capsule (Text-fig. 3) :



Text-fig. 3. Swim-bladder capsule of *S. gongota*.

The anterior chamber of the swim-bladder is completely enclosed in a bony capsule. The bony capsule is globular in shape and resembles type II under Cobitinae of Nalbant (1963). From each side of the bony capsule, emerge dorsal posterior and ventro-posterior processes. There are lateral openings of the bony capsule. The Weberian apparatus is a modification of the first four vertebrae. There is a posterior opening in the capsule for maintaining a connection between the anterior and the posterior chambers of the swim-bladder. The posterior chamber of the swim-bladder is a small diverticulum.

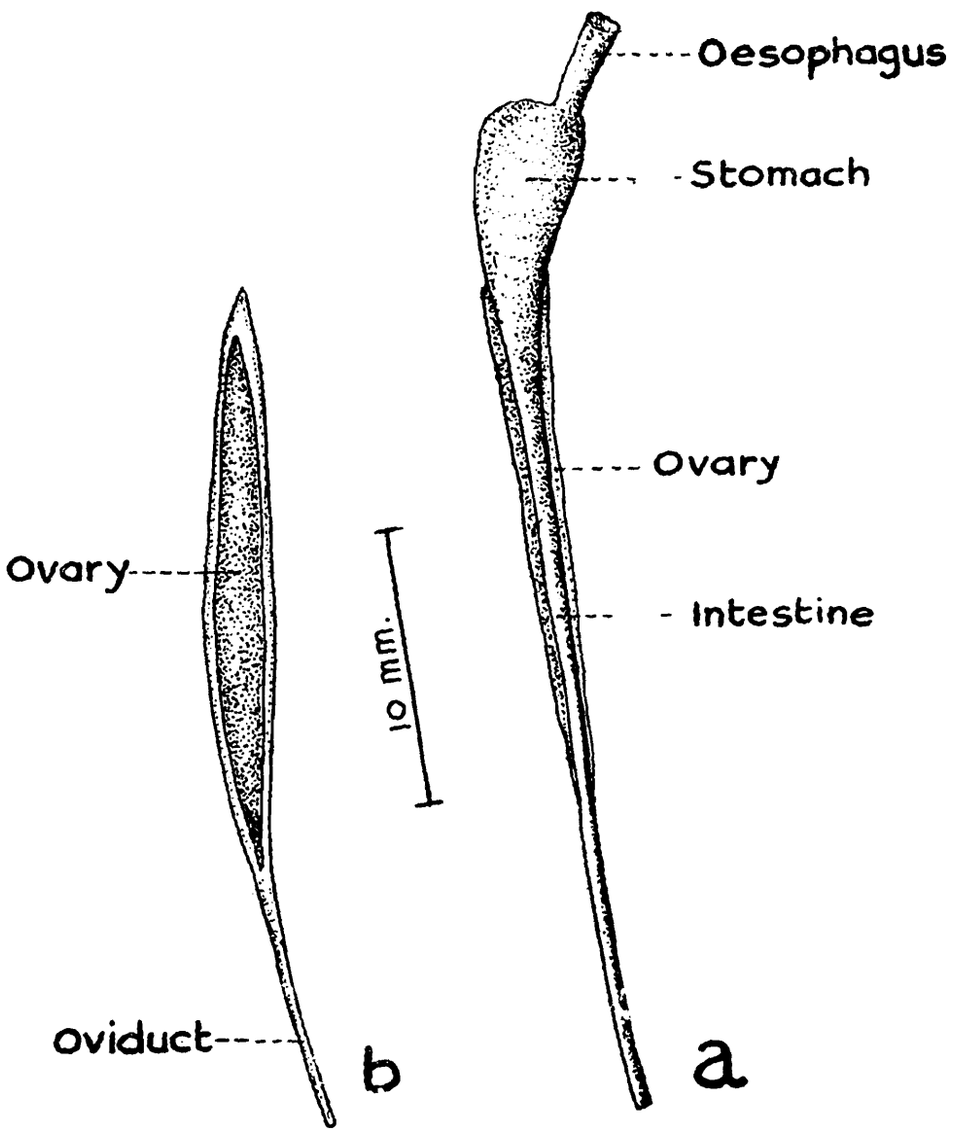
(4) Alimentary canal (Text-fig. 4a) :

The alimentary canal (from oesophagus to anal aparture) is a straight tube. The oesophagus is very small and enters into a bulbous stomach.

The stomach narrows down posteriorly into the intestine. The length of the alimentary canal is contained 2.3 times in the total length of the body in the adult specimen. The straight and the short nature of the alimentary canal suggests a carnivorous mode of feeding of this fish.

(5) Ovary (Text-fig. 4 b) :

The ovaries have fused into a single elongated spindle-shaped structure which envelope nearly half of the length of the alimentary



Text-fig. 4. a. Alimentary canal and the ovary of *S. gongota.*
b. Ovary of *S. gongota.*

canal in its middle portion. The fused ovary continues posteriorly into a single oviduct which opens behind the anal aparture. The fusion of the ovary into a single mass and the presence of a single oviduct are remarkable features of this fish.

The oocytes in the specimen captured in the month of March are in a quiescent stage and probably, this fish breeds in the coming months of monsoon.

General osteological features :

The osteocranium of *S. gongota* has been studied by Ramaswami (1953) and the salient features recorded by him are the following :

(a) The supraethmoid is present as a slight enlargement and not much developed.

(b) There is a large lateral process from the maxilla extending laterally to the pre-ethmoid in addition to the other processes.

(c) Supraoccipital has projecting processes.

(d) The pharyngeal processes of the basioccipital are fenestrated.

(e) The subtemporal fossa is quite distinct.

(f) There are many large orifices in the metapterygoid.

(g) The hyomandibuler shows a prominent spine leterally at its middle.

Distribution : *Somileptes gongota* (Hamilton) has been so far recorded from rivers of Northern Bengal towards the mountains (Hamilton, 1822), Assam and Khasi hills (Day, 1878, 1889), Terai and Duars North Bengal (Shaw and Shebbeare, 1938), Choti Gandak river, Deoria District, Uttar Pradesh (Srivastava, 1968) and Pilibhit district, Uttar Pradesh (Motwani and Saigal, 1974). The record of an adult female example from Moradabad district extends the range of distribution of this species further westwards. The present record of a young specimen from Pilibhit district confirms that of Motwani and Saigal (1974).

The mention of Orissa, Beerbhoon and Lower Bengal in the distribution of *S. gongota* by Day (1878, 1879) has been objected to by Mukerji (1932).

Relationship with other genera of Cobitinae :

Nalbant (1963) has given generic distinctions of the known genera of the subfamily Cobitinae. Among the allied genera, *Somileptes* Swainson differs from *Acanthophthalmus* Van Hasselt and *Niwaella* Nalbant in the size of head, shape of the body, caudal peduncle and relative position of fins. From the genus *Acanthopsis* Van Hasselt, it differs in the shape of caudal fin and a small focal area of the subdorsal scales. From *Acanthopsoides* Fowler, the present genus differs in the dorsal being placed behind the ventrals and nearer the base of the caudal fin, complete lateral line and focal area of the sub-dorsal scales very small.

It differs from *Enobarbichthys* Whitley (*Madrasia* Nalbant=*Jerdonia* Day) in the small dorsal fin and from *Lepidocephalus* Bleeker in having relatively large and naked head, narrow caudal peduncle, complete lateral line and the colouration of body. *Paralepidocephalus* Tchang differs from *Somileptes* in the complete absence of scales on the body, *Eucirrhichthys* Perugia in the elongated anguilliform body and the position of dorsal fin while *Neoeucirrhychthys* Banarescu and Nalbant differs from all other cobitids in having no barbels and peculier shape of the mouth. For the key generic characters of *Somileptes* in relation to other genera of Cobitinae, a reference may be made to Tilak and Husain (1981).

Taxonomic remarks :

Beavan (1877) had a drawing of a fish from the base of Khasia hills and he included it under *S. gongota* although he observed 8 barbels and the origin of the dorsal fin well behind the ventrals in that specimen. The origin of dorsal fin in *S. gongota* lies above the hinder ray or opposite the inner ray of the ventral fin (Guenther, 1868 ; Beavan, 1877 ; Day, 1878, 1889 ; Mukerji, 1932 : Pl. XV, fig. 1 ; Srivastava, 1968) and there are only six barbels (Day, 1878, 1889 ; Mukerji, 1932, Srivastava, 1968). Therefore, the inclusion of a specimen with 8 barbels and dorsal well behind the ventrals under *S. gongota* by Beavan (1877) is incorrect.

In the present material, the origin of the dorsal fin also lies behind that of the ventral fins and opposite the base of the innermost ventral ray. There are 6 barbels which are very small, the longest is shorter than the diameter of eye. There are two rostral, two maxillary and two maxillo-mandibular barbels. The mental lobe is well developed and folded without any trace of barbel-like structures on it. There is no mention of the mental lobe in this fish by earlier workers (Beavan, 1877 ; Day, 1878, 1889 ; Mukerji, 1932, Srivastava, 1968).

The pharyngeal bone with 10 slender teeth is more or less a triangular bone and is somewhat higher than that shown by Mukerji (1932 : Pl. XV. fig. 4).

SUMMARY

The morphology of *Somileptes gongota* (Hamilton) is based on adult specimens. Recently, it has been observed that the young ones of this species differ markedly from the adult. A record of the characters of the young of this species has been made here. For study of interrelationships among genera of Cobitidae, the information on the general

morphological characters of *S. gongota* has not been complete. This information about the fish, particularly the features of the scale, the suborbital spine, the alimentary canal, the ovary, the swim-bladder capsule etc. has been provided here. The range of distribution of this species has been extended here further westwards upto Moradabad district, Uttar Pradesh.

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