

TAXONOMIC STATUS OF THE GENERA *SYNAPTURA* CANTOR, 1850  
AND *EURYGLOSSA* KAUP, 1858 WITH DESCRIPTIONS OF SPECIES  
REFERABLE TO THESE OCCURRING IN SEAS OF INDIA

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ABSTRACT

Taxonomic status of the genera *Synaptura* Cantor and *Euryglossa* Kaup has been clarified. Descriptions of Indian species of these genera along with a key for their identification are given.

INTRODUCTION

A GREAT deal of confusion exists today regarding the taxonomic status of the Soleid fishes of the genera *Brachirus* Swainson, 1839, *Synaptura* Cantor, 1850 and *Euryglossa* Kaup, 1853 (Day, 1877; Norman, 1928; Weber and de Beaufort, 1929; Smith, 1940). The generic name *Brachirus* or *Brachyrus* was first used by Swainson in his *Natural History of Fishes* (pp. 71, 264) for a genus of scorpaenid fishes and again in the same work on page 303 for a genus of Soles. The name *Brachirus* is thus preoccupied Scorpaenidae and not available for use in Soleidae. Cantor (1849) recognising the name *Brachirus* as preoccupied suggested the name *Synaptura* as a substitute describing *commersoniana* and *zebra* under the proposed new genus. Following Cantor, Bleeker (1853, 1875) recognised the name *Synaptura* and described *commersoniana* as a sole species of *Synaptura* referring *heterolepis*, *macrolepis*, *sundaicus*, *pan*, *panoides* and *zebra* to *Brachirus*. The inclusion of species *heterolepis*, *macrolepis*, *sundaicus*, *pan*, *panoides* and *zebra* in *Brachirus* by Bleeker is inadmissible in so far as *Synaptura* was offered by Cantor

as a substitute name for *Brachirus*. However, in restricting the generic name *Synaptura* to the species *commersoniana*, Bleeker virtually designated *commersoniana* as the type of *Brachirus* Swainson, 1839 having mentioned *plagusia*, *orientalis*, *zebra*, *commersoni*, *jerreus* and *pan* under *Brachirus*, without indicating a type. Of these six species, *plagusia* is a species of *Symphurus* (Cynoglossidae), *zebra*, the type of *Zebrias* Jordan and Synder, 1900 and *jerreus* a species of *Solea*, *Solea jerreus* Cuvier.

Kaup (1858) erected the genus *Euryglossa* for *orientalis* which in his *Catalogue of British Museum*, Günther (1862 : 484) restricted as a subgenus of *Synaptura*, differentiating it from *Synaptura* *Sen. Str.* by the bifid nature of the nasal tube of the ocular side leaving *zebra*, *commersoniana* and *pan* in *Synaptura*. The bifid nature of the nasal tube is, however, considered only as an abnormality by Chabanaud (Norman, 1928).

*Synaptura* Cantor and *Euryglossa* Kaup are here recognised as valid genera suppressing *Brachirus* as pre-occupied. The definition of *Synaptura* and *Euryglossa* are briefly given in

the paper with keys to identification of the species and description of the species referable to these genera occurring in the seas of India.

## SYSTEMATIC ACCOUNT

*Synaptura* Cantor, 1850

*Brachyrus* Swainson, 1839. *Nat. Hist. Fishes*, 2: 303; (Type: *Solea commersonien* Cuvier) (= *Pleuronectes commersonien* Lacépède).

*Synaptura* Cantor, 1849. *J. Asiat. Soc. Bengal*, 18(2): 1204 (Substitute for *Brachirus* Swainson).

*Austroglossus* Regan, 1920. *Ann. Durban. Mus.*, 2: 205-222 (Type: *Synaptura pectoralis* Kaup).

*Trichobrachirus* Chabanaud, 1938. *Arch. Mus. nat. Hist. Paris*, 15 (6): 103 (Type: *Synaptura villosa* Weber).

**Diagnosis:** Body elongate, eyes separated by a scaly interspace. Snout with a bony prominence on it. Pectorals always well developed. Ventrals connected to anal fin.

**Description:** Body elongate gradually tapering posteriorly. Eyes small, separated by a scaly interspace. Snout only slightly hooked with a bony tubercle. Anterior nasal tube on both sides fleshy with a nasal valve at their tips, posterior nostril tubular. Mouth terminal, small, contorted.

Scales ctenoid on both sides, lateral line scales cycloid. Vertical fins scaled on their basal half; caudal on its 2/3rd part.

Mediolateral line, temporal commissure and cephalodorsal line well developed on ocular side. Lateral line system on blind side is highly well developed and associated with dermal flaps. There are as many as 9 temporal commissures.

Dorsal and anal fins confluent with caudal. Vertical fin rays branched. Caudal fin usually

with 12-14 rays. Pectorals well developed. Ventrals minute connected to each other and anal fin by a membrane. Vent median or slightly displaced on blind side. Genital papilla shorter than first anal ray situated at its base on blind side.

Pectorals with a well developed basipterygium consisting of coracoide and hypercoracoide. Each hypural bone consists of two thin plates. Epiural a single plate. Interneural spines associated with dorsal erisme ten in number. Inter haemal spines associated with anal erisme — six plus 1-2 pterygophores. Abdominal vertebrae 9.

Alimentary canal long forming three U-shaped tubules penetrating deeply into secondary body cavity upto haemal spine of 17th vertebra.

**Note on synonyms:** *Austroglossus* Regan and *Trichobrachirus* Chabanaud have been synonymised here with *Synaptura* Cantor. *Austroglossus* is characterised by an enormously developed pectoral as compared to that of *Synaptura*. The pectoral length is a very varying character amongst *Synaptura* and it is not considered necessary to separate a form with an elongated pectoral fin under a distinct genus. *Trichobrachirus* is characterised by Chabanaud (1938) by an elongated body and the minute structure of the pelvic fins. Both these characters fall within the normal range of variation met with in *Synaptura*.

## KEY TO SPECIES

1. No white spots on body; no tentacle between nostrils; right pectoral 5-6 in head length .. *Synaptura commersoniana* (Lacépède)

White spots on dorsal and ventral margin of body; a short tentacle in between nostrils; right pectoral 2.5-3.0 in head length.....  
.....*S. albomaculata* (Kaup)

## DESCRIPTION OF SPECIES

***Synaptura commersoniana* (Lacépède) 1802**

(Fig. 1)

*Pleuronectes commersonien* Lacépède, 1802, *Hist. Nat. Paris*, 3, Pl. 12, fig. 2 (No. *Pleuronectes commersonii* Lacépède, 1802, *Hist. Nat. Paris*, 4 : 599, 654). (Type loc : Mauritius).

*Brachirus commersoni* Swainson, 1839, *Nat. Hist. Fish*, 2 : 303. Norman, 1928, *Rec. Indian Mus.*, 30 : 178.

*Synaptura commersoniana* Cantor, 1850, *J. Asiat. Soc. Bengal*, 18 (2) : 1204. Bleeker, 1853, *Verh. Bat. Gen.*, 25, Bengal : 76. Günther, 1862, *Cat. Fish. Brit. Mus.*, 4 : 483. Bleeker, 1875, *All. Ichth.*, 6 : 18, Pleuron, pl. 4, fig. 3. Day, 1877, *Fish. India*, 2 : 428, pl. 94, fig. 1. Jenkins, 1910, *Mem. Indian Mus.*, 3 : 29. Weber and de Beaufort, 1929, *Fish Indo. Austr. Arch.*, 5 : 168.

Body elongate, broad anteriorly and tapering posteriorly. Both the contours equally arched. Snout slightly hooked, the tip reaches beyond the level of ventral margin of fixed eye. Eyes separated by a scaly interspace, shorter than eye diameter. Anterior nasal tube on ocular side short tubular with a minute valve at its tip ; when depressed posteriorly it reaches the base of stumpy posterior nostril. Anterior nostril on blind side short tubular encircled by the thick dermal flaps. Mouth subterminal, cleft reaching beyond the posterior  $\frac{1}{3}$ rd of fixed eye. Lips on both sides fleshy. Lower lip on ocular side with tentacles. Teeth in jaws minute, villiform, on blind side only. Scales on both sides ctenoid ; those on ocular side

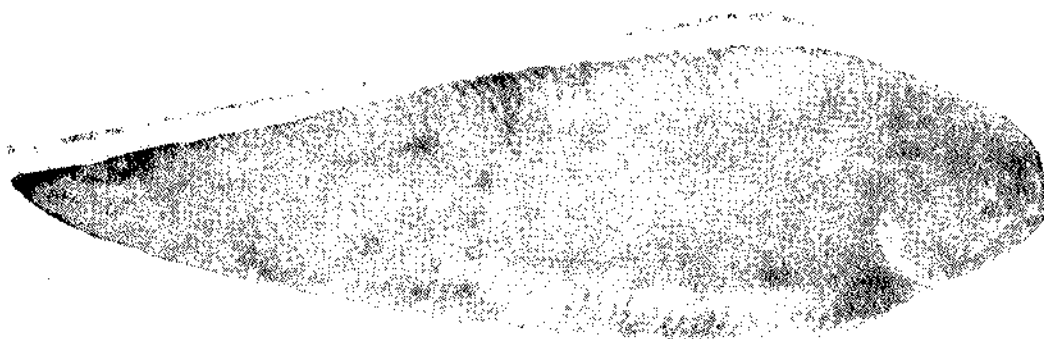


Fig. 1. *Synaptura commersoniana* (Lacépède).

*Synaptura commersoni* Jerdon, 1851, *Madras J. Lit. Sci.*, 17, No. 39 : 148.

*Salea russellii* Bleeker, 1851, *Nat. Tijdsch. Ned. Ind.*, 1 : 401. Bleeker, 1852, *Ver. Bat. Gen.*, 24, Pleuron, 15.

'*Jerree Potoo*' Russell, 1803, *Descr. Fish. Vizag.*, 1 : 55, pl. 70.

D. 72-81 ; A. 57-68 ; C. 12-14 ; PR. 6-8 ; P. 1-7 ; V. 2 ; L.L. 109-146. Vertebrae 9 | 32-35. In percentage of standard length, head 17.2-20.1 ; depth 22.7-33.3 ; snout 3.3-6.5 ; eye 2.3-3.6 ; inter-orbital distance 0.6-1.2 ; postorbital distance 9.0-12.2 ; snout to angle of mouth 6.0-7.3 and angle of mouth to gill opening 9.3-13.0.

with 10-11 marginal spinules and 8-10 basal grooves ; those on blind side weakly ctenoid with 2-3 marginal spinules and 8-10 basal grooves. Lateral line scales cycloid with 6-7 basal and lateral grooves. Dorsal and anal fins scaled on their basal half, caudal upto its basal  $\frac{2}{3}$ rd ; pectorals on their bases and ventrals naked. Scales on nape enlarged. Medio-lateral line, temporal commissure and cephalo-dorsal lines well developed on ocular side. In addition, there are rudimentary supra-orbital, pre-opercular and mandio-opercular lines. Lateral line system on blind side is well developed each line further branched into finer branches and associated with thicken-

ed dermal flaps and papillae. Opercular margin on both sides entire. Dorsal fin inserted, slightly behind the tip of snout above the anterior margin of body prominence, extending upto the base of caudal fin. Rays of vertical fins branched. Pectoral symmetrical with branched rays. Ventrals short, symmetrical with simple rays. Genital papilla short, on blind side at the base of first anal ray. Vent displaced on blind side.

*Colour* : In alcohol, brown. Vertical fins and pectoral on ocular side dark at their upper margins ; tips of vertical finrays white.

*Biological notes* : *Synaptura commersoniana* is known to grow upto 300 mm in S.L.

Z.S.I. 6835/2, 122 mm S.L., Waltair. Coll. Sudersan. One specimen, Z.S.I. 6836/2, 204 mm S.L., Kerala. Coll. P. K. Talwar & Party.

***Synaptura albomaculata* Kaup, 1858**  
(Fig. 2)

*Synaptura albomaculata* Kaup, 1858. *Arch. Naturgesch.*, 24 (1) : 96. (Type loc. Coromandel Coast, India) Günther, 1862. *Cat. Fish Brit. Mus.*, 4 : 483. Day, 1877. *Fish India*, 2 : 429, Pl. 93, fig. 5. Weber and de Beaufort, 1929. *Fish. Indo-Aust. Arch.*, 5 : 169.

*Brachirus albomaculatus* Norman, 1928. *Rec. Indian Mus.*, 30 : 179. de Silva, *Ceylon. J. Sci.*, 7 (2) : 194-195.

D. 72-80 ; A. 57-63 ; C. 17 ; Pr. 8-10 ; Pl. 7-8 ; V. 4 ; L. 1. III-134.

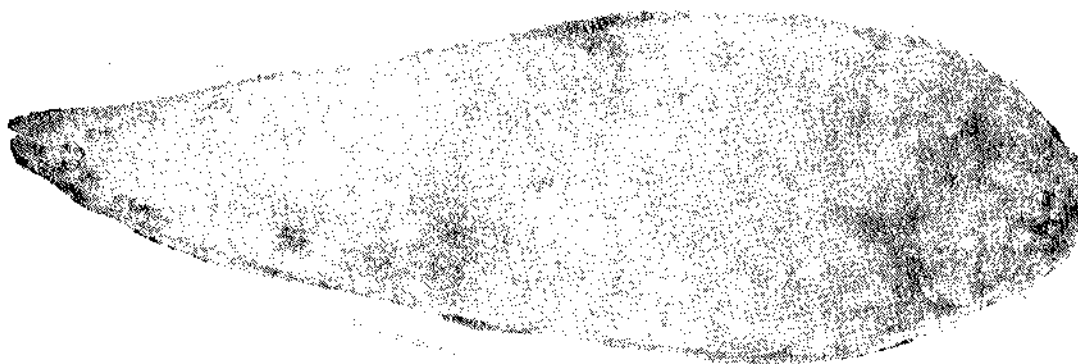


Fig. 2. *Synaptura albomaculata* Kaup.

*Distribution* : Coasts of India through Burma to Malaysian Archipelago.

*Material examined* : Two specimens, Z.S.I. 1647/2. 150, 165 mm S.L. Hooghly. One specimen, Z.S.I. 1150, 290 mm S.L. S. Canara, Coll. F. Day. Two specimens, Z.S.I. 13821 & 13822, 103, 121 mm S.L. Sandheads. Coll. G. Woodward. One specimen, Z.S.I. 1247/2, 77.0 mm S.L., Madras. Coll. A.G.K. Menon. One specimen, Z.S.I. F 2328/1, 214 mm S.L., Akyab Coast, Burma. Coll. 'Golden Crown'. One specimen, Z.S.I. 5085, 136.5 mm S.L. Sandhead. Coll. P.V. Fraser. One specimen.

In percentage of standard length, head length 17.8-20.3 ; depth 26.6-33.5 ; Snout 4.5-5.7 ; eye 2.3-3.5 ; interorbital space 0.8-1.7 ; post-orbital distance 9.8-12.7 ; Snout to angle of mouth 6.5-7.9 and angle of mouth to gill opening 10.3-11.5.

Body elongate, broad anteriorly and tapering posteriorly. Dorsal and ventral contours equally arched. Snout slightly hooked, the tip reaches beyond the level of ventral margin of lower eye. Eyes separated by a scaly interspace shorter than eye diameter. Anterior nasal

tube on ocular side, short, tubular, with a minute valve at its tip; when depressed posteriorly it reaches the base of stumpy posterior nostril. Both nostrils on blind side reduced and encircled by large number of thickened dermal flaps which are finely fringed. Mouth subterminal, cleft reaching posterior  $\frac{1}{3}$ rd of lower eye. Lips on both sides fleshy. Lower lip on ocular side with small tentaculates. Teeth in jaws minute villiform on blind side only. Scales on ocular side, ctenoid, small, rectangular, with 7-8 marginal spinules and 5-6 basal grooves. Scales on blind side smaller without any ctenia and 4-5 basal grooves. Lateral line-scales cycloid with 4-5 basal grooves. Scales on nape enlarged. Vertical fins other than caudal scaled at their basal half, caudal at its basal  $\frac{1}{3}$ rd, pectorals on their bases, ventrals naked. Mediolateral line, temporal commissure, a short cephalo-dorsal, supraorbital and mandio-opercular lines present on ocular side. On blind side, lateral-line system is well developed and associated with thickened dermal flaps which are finely fringed. There are as many as 7 temporal commissures. All the lateral lines are further branched finely to form a network. Dorsal fin inserted in the level of ventral margin of lower eye and extends upto the base of caudal. Vertical fins completely confluent with caudal. Rays of vertical fins branched. Pectorals more or less symmetrical, rays branched. Ventrals short symmetrical connected with each other and first anal ray with a short membrane, rays unbranched. Genital papilla short, at the base of first anal ray on blind side. Vent displaced on blind side.

**Colour :** In alcohol light brown with white spots in three rows, at the base of dorsal fin, anal fin and on the lateral line. Pectoral dark at its upper part unscaled part of vertical fins deep brown with white margin.

**Biological notes :** *Synaptura albomaculata* is known to grow up to 191 mm in S.L.

**Distribution :** Recorded from East Coast of India, from Madras through Andhra and

Orissa Coasts upto mouth of the river Hooghly. Also reported from Burma.

**Material examined :** Two specimens, Z.S.I. 1148 & 1149, 135-164 mm S.L., Madras and Canara. Coll. Dr. F. Day. Three specimens, Z.S.I. 12703, 115-213 mm S.L., Ganjam. Coll. Marine Survey. One specimen, Z.S.I. 9197, 113 mm S.L., Burma, Akyab Coast. Coll. W. de Courey. One specimen, Z.S.I. R 2357/2, 122 mm S.L., Madras. One specimen, Z.S.I. 1226/2, 191 mm S.L., Karaikkal Coast. Coll. A.G.K. Menon.

#### *Euryglossa* Kaup, 1853

*Euryglossa* Kaup, 1858. *Arch. Naturgesch.*, 27 (1): 99. (Type: *Pleuronectes orientalis* Bloch & Schneider).

*Anisochirus* Günther, 1862. *Cat. Fish. Brit. Mus.*, 4: 480 (Type: *Synaptura panoides* Bleeker).

*Brachirus* (in part) Norman, 1928. *Rec. Indian Mus.*, 30: 177.

*Heterobuglossus* Chabanaud, 1931. *Bull. Soc. Zool Fr.*, 56: 293 (Type: *Synaptura aspidos* Bleeker)

*Chabanaudetta* Whitley, 1951. *Austral. Zool.*, 6: 322 (Substitute for *Anisochirus* Günther, preoccupied by *Anisochirus* Westwood, 1832.

*Dexillus* Chabanaud, 1930. *Bull. Inst. Oceanogr. Monaco*, No. 555: 16 (Type: *Synaptura macrolepis* Bleeker).

**Diagnosis :** Body oblong. Eyes contiguous or separated by a scaly interspace. No bony prominence on snout. Pectoral of various sizes, well developed or secondarily reduced. Ventrals free from anal fin.

**Description :** Body oblong. Eyes small or of moderate size usually separated by a scaly interspace, sometimes contiguous (*E. macrolepis* Bleeker). Snout only slightly hooked, without any bony prominence on it. Anterior nasal tube on both sides fleshy, posterior nostril slitlike. Mouth terminal, small, contorted. Scales ctenoid on both sides, lateral line scales cycloid. Vertical fins nearly fully scaled. A

medio-lateral line, temporal commissure and mandio-opercular line usually present on ocular side; sometimes a cephalo-dorsal line and a number of temporal commissures present (*E. macrolepis* Bleeker). Lateral line system on blind side associated with dermal flaps or cutaneous fringes; each line is finely branched. There are as many as nine temporal commissures. Dorsal and anal completely confluent with caudal fin. Pectorals well developed or secondarily reduced. Ventrals symmetrical free from anal fin, that on the right side may be connected to genital papilla. Vent median or slightly displaced on blind side. Pectoral with a well developed basiptyerygium consisting of coracoide and hypercoracoide (*Euryglossa pan* and *E. orientalis*) or with extremely reduced basiptyerygium (*E. panoides* and *E. macrolepis*). First hypural consists of three thin plates, second and third with four plates each. Epiural single plate (*E. orientalis*). Interneural spines associated with dorsal erisme 5-6. Interhaemal spines associated with anal erisme 5+2. Abdominal vertebrae 8-9. Alimentary canal moderately long with two U-shaped tubules extending upto haemal spine of 15th vertebra.

*Note on synonyms:* *Heterobuglossus* Chabanaud, *Chabanaudetta* Whitley and *Dexillus* Chabanaud are synonymised with *Euryglossa* Kaup, all these four genera being characterised either by well developed pectorals or by a reduced or minute nature of these fins. Since there is a gradual gradation in the nature of the pectoral fin character it is considered necessary to keep them all in a single genus rather than separating them under a number of monotypic genera. While a well developed pectoral fin is present in *Euryglossa*, it is small in *Heterobuglossus*, minute in *Chabanaudetta* and *Dexillus* (Bleeker, 1872; Chabanaud, 1943; Whitley, 1931). In having an oblong body and in other characteristics they are similar to *Euryglossa*. The reduction in the size of the eyes covered over by a common membrane as in *Dexillus* is not considered as significant to be of generic nature in Soleoidea.

In forms living on the floor of the sea or burrowing in sand like *Cynoglossus* the reduction in the eye-size and even the complete covering of the eyes by a scaly sheath are often met with.

#### KEY TO SPECIES

1. Pectorals on both sides well developed
  - (a) Scales on nape and head enlarged; caudal 16-17....*E. pan* (Ham-Buch.)
  - (b) Scales on nape and head normal; caudal 18-20.....*E. orientalis* (Bloch & Schneider)
2. Pectoral on right side reduced with only 3 to 4 rays.
  - (a) Eyes separated by a scaly inter-space; a single temporal commissure on ocular side; scales small.....*E. panoides* (Bleeker)
  - (b) Eyes contiguous, engulfed by a common membrane; 5-6 temporal commissures on ocular side; scales larger.....*E. macrolepis* (Bleeker)

#### *Euryglossa orientalis* (Bloch & Schneider) 1801 (Fig. 3)

*Pleuronectes orientalis* Bloch & Schneider, 1801. *Syst. Ichth.*, 157. (Type loc: Tranquebar).

*Brachirus orientalis*: Swainson, 1839. *Nat. Hist. Fish.*, 2: 303. Norman, 1928. *Rec. Indian Mus.*, 30: 179. Munro, 1955. *Marine & Fresh water fish Ceylon*: 263. De Silva, 1956. *Ceylon J. Sci.*, 7 (2): 194. Abraham, *Bull. Mar. Biol. & Oceanogr. Kerala Univ.*, 1: 72-73. Pradhan, *J. Bomb. nat. Hist. Soc.*, 61 (2): 457.

*Euryglossa orientalis*: Kaup, 1858. *Arch. Naturgesch.*, 24: 99.

*Synaptura orientalis*: Günther, 1862. *Cat. Fish Brit. Mus.*, 4: 484. Day, 1877. *Fish. Ind.*, 2: 429. Jordan and Evermann, 1902. *Proc. U. S. Natn. Mus.*, 25: 366. Hora, 1923. *Mem. Ind. Mus.*, 5: 759. Weber and de Beaufort, 1929. *Fish. Indo-Austr. Archip.*, 5: 175.

basal and lateral grooves. Scales on blind side shorter with 7-9 marginal spinules and 8-10 basal grooves. Lateral line scales cycloid, long, rectangular with narrow upper end and 14-16 basal grooves. All the fins scaled on their basal groove. Scales on nape and head not enlarged. Medio-lateral line, temporal com-missure, cephalo-dorsal line, preopercular line and operculo-mandibular lines present on ocular side. Lateral line system on blind side associated with thickened dermal fringes. Only one temporal commissure. Chin fringed. Opercular margin entire. Dorsal fin inserted in the level of ventral margin of dorsal eye, opening 10.7-19.8. Body oblong, both the post-orbital distance 11.0-15.2; snout to angle of mouth 6.6-9.5 and angle of mouth in gill D. 59-73; A. 46-56; C. 18-20; P.R. 7-10; P.L. 6-10; V. 5. HL. 64-83. Vertebrae 8+26-27. In percentage of standard length, head length 20.7-25.9; depth 46.1-57.0; snout 5.3-8.5; eye 2.0-6.0; inter-orbital distance 1.8-3.6; post-orbital distance 11.0-15.2; snout to angle of mouth 6.6-9.5 and angle of mouth in gill opening 10.7-19.8. Body oblong, both the

*Solen foliaceus* Richardson, 1845. *Rep. Brit. Adv. Sci.*, 46: 279.  
*Solen pan* Bleeker, 1851. *Nat. Tijdschr. Ned. Indie*, 1: 410.  
*Syngnatus foliaceus* Günther, 1862. *Cat. Fish. Brit. Mus.*, 4: 484.

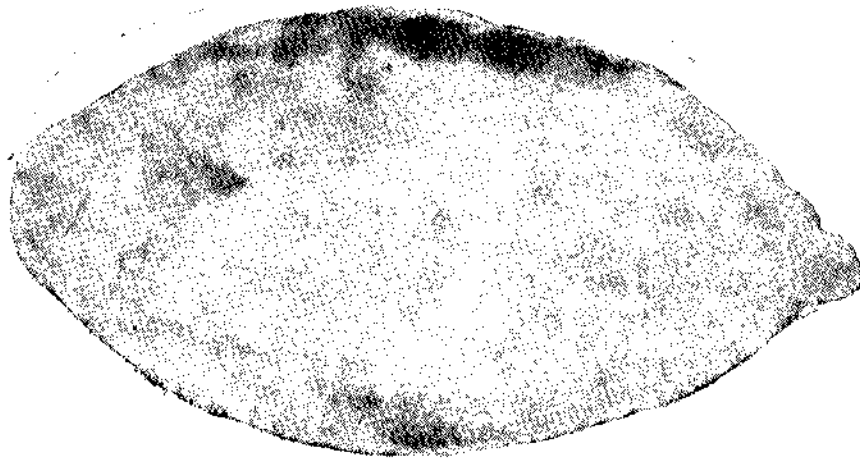


Fig. 3. *Euryglossa orientalis* (Bloch & Schneider).

contours equally arched. Snout slightly hooked, the tip reaches the level of ventral margin of fixed eye. Eyes moderate, separated by a scaly interspace. Anterior nasal tube on ocular side short with a minute valve at its tip, when depressed posteriorly it reaches the base of short posterior nostril. Nostrils on blind side short, ensheathed by thick dermal fringes. Mouth subterminal, cleft reaching anterior third -  $\frac{2}{3}$  of fixed eye. Lips on both sides fleshy. Teeth in jaws minute on blind side only. Scales on ocular side elongate, rectangular, crenoid with 10-11 short marginal spinules and 16-18 fins spotted.

*Colour*: In alcohol light brown or deep brown with dark blotches and lines. Pectoral on ocular side dark at its upper part. Vertical

of all the fins branched. Pectorals subsym-metrical, that on the blind side slightly shorter. Ventrals moderately developed, that on the blind side shorter. Both fins connected with each other but free from anal fin, that on the ocular side connected to genital papilla which is well developed. Vent slightly displaced on blind side.

*Biological notes:* *Euryglossa orientalis* is known to grow upto 210 mm in S.L. inhabiting sandy and muddy bottom.

*Distribution:* From Peesiat Gulf through the Malaysian Archipelago to China and Australia.

*Material examined:* Six specimens, Z.S.I. 1151-1156, 109-179 mm S.L., South Canara. Coll. F. Day. Two specimens, Z.S.I. F 103715/1, 149, 164 mm S.L., Singyora, S'am. Coll. Dr. Amundale. One specimen, Z.S.I. F 4172/4, 113.5 mm S.L., Trivandrum. Coll. F. Day.

80 mm S.L., Yanam. Coll. Dr. M. B. Rao and Party.

***Euryglossa pan* (Hamilton-Buchanan) 1822 (Fig. 4)**

*Pleuronectes pan* Hamilton-Buchanan, 1822. *Fish, Ganges*: 130, 373, pl. 24, fig. 42. (Type loc: Ganges Estuaries).

*Brachirus pan*: Swainson, 1839. *Nat. Fish.*, 2: 303. Bleeker, 1872. *Atl. Ichth.*, 6: 21. Norman, *Rec. Indian Mus.*, 30: 181.

*Synaptura pan* Günther, 1862. *Cat. Fish Brit. Mus.*, 4: 481. Day, 1877. *Fish India*, 2: 429. Weber & de Beaufort, 1929. *Indo-Austr. Archip.*, 5: 171.

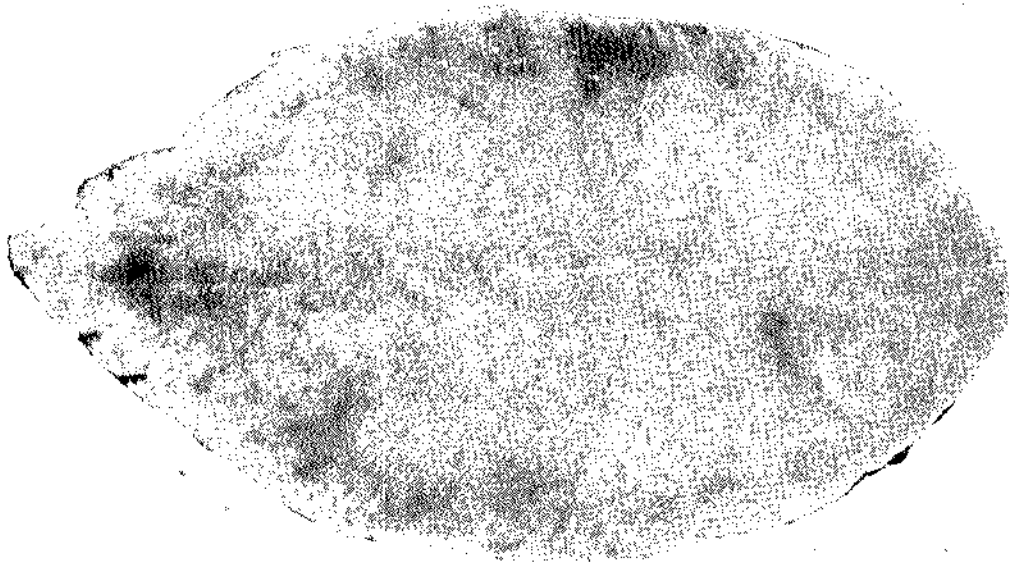


Fig. 4. *Euryglossa pan* (Hamilton)  $\times 2$ .

One specimen, Z.S.I. F 4186, 106 mm S.L. Quilon. Coll. Dr. F. Day. One specimen, Z.S.I. F 1841, 71 mm S.L., Karachi. Coll. Dr. F. Day. One specimen, Z.S.I. F 4517, 72 mm S.L., S. Canara. Coll. Dr. F. Day. One specimen, Z.S.I. 796, 106 mm S.L., Madras. Coll. Dr. F. Day. Two specimens, Z.S.I. F 1209/2, 96, 103 mm S.L., Cochin. Coll. Dr. A.G.K. Menon. Two specimens, Z.S.I. F 6839/2, 94, 96 mm S.L., Travancore. Coll. Dr. E. G. Silas. One specimen, Z.S.I. F 6838/2

D. 52-68; A. 40-49; C. 16-17. PR 5-7; P.L. 4-6; V. 4-5; LI. 67-85. In percentage of standard length, head 20.2-27.2; depth 39.4-54.1; snout 5.7-14.3; eye diameter 2.0-2.5; interorbital distance 1.3-3.2; post-orbital distance 10.1-16.2; snout to angle of mouth 7.1-12.1 and angle of mouth to gill opening 12.0-17.4. Body ovate, both the contours equally arched. Snout slightly hooked; the tip does not reach the level of ventral margin of eye. Eyes separated by a scaly interspace, shorter



than eye diameter. Anterior nostril on ocular side a short tube with a minute valve at its tip; when depressed posteriorly it does not reach the base of the short, stumpy posterior nostril. Nostrils on blind side tubular ensheathed by the dermal fringes. Mouth terminal, cleft reaches to anterior  $\frac{1}{3}$  to  $\frac{1}{2}$  of fixed eye. Lips on blind side fleshy, smooth on both the sides. Teeth in jaws, minute, villiform, on blind side only. Scales minute, rectangular, ensheathed in epidermis, ctenoid with 5-8 marginal spinules and 7 basal grooves. Scales on blind side comparatively small, without any or with one or two short marginal spinules and 4-5 basal grooves. Lateral line scales cycloid triangular, with 6-7 basal grooves. Scales on nape and head enlarged. All the fins scaled on ocular side. Vertical fins completely so. On blind side pectoral and ventral naked. Mediolateral line, temporal commissure, cephalodorsal line, supra-orbital line and operculomandibular line present on ocular side. Lateral line system on blind side well developed and associated with dermal flaps. There are 8-9 temporal commissures, opercular margin on blind side minutely ciliated, chin almost entire. Dorsal fin inserted slightly behind the tip of snout in the level of ventral margin of dorsal eye, extending upto the base of caudal fin. Vertical fins completely confluent with caudal. All the fins with branched rays. Pectorals asymmetrical, that on blind side short. Ventrals small united with each other but free from anal fin, that on the ocular side connected to the genital papilla, which is median in position or slightly on ocular side. Vent on blind side.

**Colour:** In alcohol, ocular sides brown with regular cloudy patches of dark brown in three rows, below the dorsal and anal fins and lateral line. Vertical fins spotted, pectoral dark at its upper part. Blind side white.

**Distribution:** Estuaries and tidal rivers of east coast of India, Burma and Malaysian Archipelago.

**Biological notes:** *Brachirus pan* is known to grow only upto 83.0 mm in S.L.

**Material examined:** Four specimens, Z.S.I. Cat. 456, 44-50 mm S.L., Calcutta. Coll. Dr. F. Day. One specimen, Z.S.I. Cat. 148, 33 mm S.L., Burma. Coll. Dr. F. Day. One specimen Z.S.I. 1496, 83 mm S.L., R. Hooghly. Thirteen specimens, Z.S.I. 13821-13841, 43-64 mm S.L., R. Hooghly at Santipur. One specimen, Z.S.I. F 1915/2, 61 mm S.L., Barrackpur. One specimen, Z.S.I. 543/2, 55 mm S.L., Pulta. One specimen, Z.S.I. 2097, 63 mm S.L., Nawabganj. Two specimens, Z.S.I. F 2091, 36, 38 mm S.L., Barrackpur.

### *Euryglossa panoides* (Bleeker) 1851

(Fig. 5)

*Synaptura panoides* Bleeker, 1851, *Nat. Tijdschr. Ned. Indie*, 2: 440. (Type loc: Bandjermassin, Borneo). Bleeker, 1852, *Verh. Bat. Gen.*, 24: 30. Günther, 1862, *Cat. Fish Brit. Mus.*, 4: 486. Weber and de Beaufort, 1929, *Fish. Indo-Aust. Arch.*, 5: 174.

*Brachirus panoides* Bleeker, 1872, *Atl. Ichth.*, 6: 21. Talwar and Chakrapani, 1966, *J. mar. biol. Ass. India*, 8 (1): 202.

D. 79; A. 61; C. 16; P.R. 3; P.L. 4; V. 4; Ll. 90; Vertebrae 9+33 = 42. In percentage of standard length, head length 17.9; depth 39.5; snout 4.3; eye 1.8; interorbital distance 2.1; postorbital distance 11.8; snout to angle of mouth 6.4 and angle of mouth to gill opening 10.8. Body oblong, both contours equally arched. Head small, snout slightly hooked, the tip reaches beyond the level of ventral margin of eye. Eyes separated by a scaly interspace, equal to or slightly greater than eye diameter. Anterior nostril on ocular side small, tubular with a minute valve at its tip, when depressed it reaches the base of a still shorter posterior nostril. Nostrils on blind side small tubular, encircled by dermal papillae. Mouth subterminal, cleft reaches beyond the posterior  $\frac{1}{3}$ rd of eye. Lips on both sides

fleshy, smooth. Teeth in jaws minute villiform on blind side only. Scales big, rectangular, ctenoid on both sides. On ocular side with 9-10 marginal spinules and 7 basal grooves. On blind side with 6-9 slightly shorter marginal spinules and 4 basal grooves. Lateral line scales cycloid, triangular with 3-4 basal grooves. Vertical fins almost completely scaly, paired fins partly so. Mediolateral line, temporal commissure, cephalodorsal line, supraorbital

*Distribution* : From east coast of India to Malaysian Archipelago.

*Biological note* : *Euryglossa panoides* is known to grow upto a length of 137 mm S.L.

*Material examined* : One specimen, Z.S.I. F 5013/2, 134 mm S.L., Puri Beach, Orissa. Coll. N. Annandale, 1909.

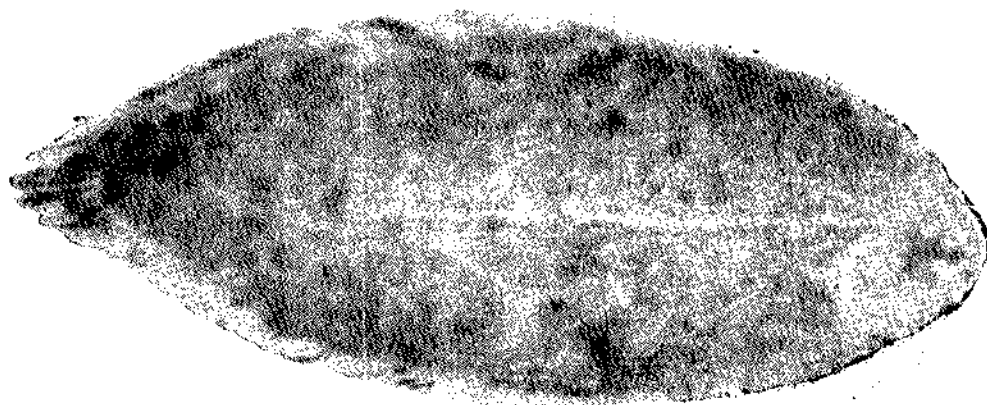


Fig. 5. *Euryglossa panoides* (Bleeker).

line and preopercular line present on ocular side. Lateral line system on blind side associated with dermal papillae. There is only a single temporal commissure. Opercular margin as well as chin entire. Dorsal fin inserted slightly behind the tip of snout in the level of ventral margin of dorsal eye, extending upto the base of caudal fin. Vertical fins completely confluent with caudal. All the fin rays branched. Pectorals minute asymmetrical, that on the blind side bigger and with more rays. Ventrals moderate connected to each other but free from anal fin, that on the ocular side connected to the small genital papilla situated at the base of first anal ray on ocular side. Vent on mid-lateral line.

*Colour* : In alcohol light brown with dark interrupted cross lines along the whole length of fish. Blind side pale whitish.

#### *Euryglossa macrolepis* (Bleeker) 1858

(Fig. 6)

*Synaptura macrolepis* Bleeker, 1858. *Act. Soc. Sci. Indo. Neerl.*, **5**: 7. (Type locality: Borneo).  
Günther, 1862. *Cat. Fish. Brit. Mus.*, **4**: 486.  
Weber and De Beaufort, 1921. *Fish. Indo-Austr. Arch.*, **5**: 171-172.

*Brachirus macrolepis* Bleeker, 1875. *Atl. Ichth.*, **6**: 70, pl. 5, fig. 3. Norman, 1928. *Rec. Indian Mus.*, **30**: 181.

D. 67 ; A. 50 ; C. 17 ; P.R. 3 ; P.L. 9 ; V. 4 ;  
Ll. 68 ; Vertebrae 9 + 31 = 40. In percentage of standard length, head 24.2, depth 44.9 ; snout 8.0 ; eye 1.4 ; postorbital distance 13.2 ; snout to angle of mouth 9.5 and angle of mouth to gill opening 16.1. Body oblong. Dorsal and ventral contours equally arched. Snout slightly hooked, the tip reaches far

beyond the level of ventral margin of fixed eye. Eyes very small, contiguous, engulfed in a single membrane, elevated. Anterior nasal tube on ocular side tubular, fleshy, posterior one short with a membranous flap. Both close together. Anterior nostril on blind side dilated non-tubular with a valve at its tip. Mouth sub-terminal, its cleft reaching anterior margin of the fixed eye. Lips fleshy, nonfringed.

with cutaneous fringes. Opercular margin on blind side simple. Dorsal fin inserted in the level of ventral margin of dorsal eye, extending upto the base of caudal fin. Rays of all the fins branched. Pectorals asymmetrical, that on the blind side slightly bigger. Ventrals, moderate, asymmetrical in position, that on the ocular side median in position and connected to anal fin. Genital papilla short

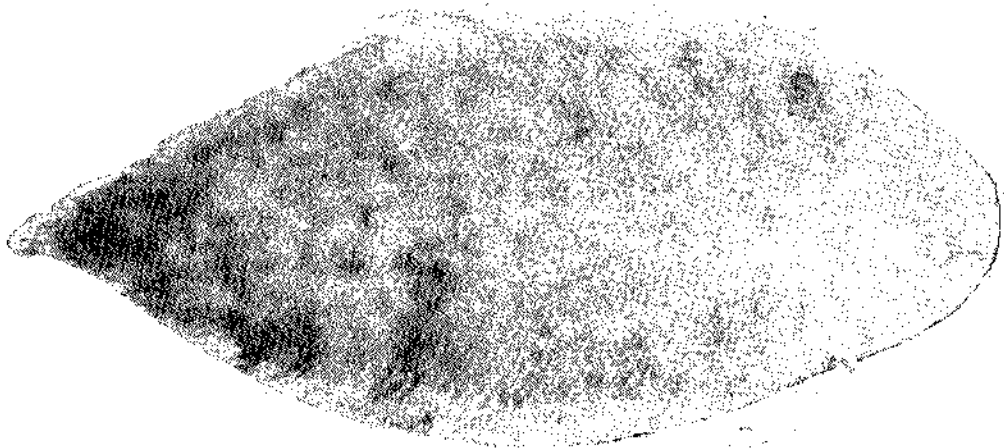


Fig. 6. *Euryglossa macrolepis* (Bleeker).

Teeth in jaws minute, villiform on blind side only. Scales big, rectangular, ctenoid, those on blind side slightly smaller with 10-11 marginal spinules and 9-10 basal grooves. Lateral line scales cycloid. Vertical fins scaled. Mediolateral line, cephalodorsal line, supraorbital, and 5-6 temporal commissures present on ocular side. There is also a pre-opercular and mandio-opercular line, all well developed. On blind side also the lateral line is well developed, creni line further branching finely. On both sides the lateral line system is associated

situated at the base of first anal ray on blind side. Vent on blind side.

*Colour* : In alcohol, uniform pale brown. Blind side crenish.

*Biological note* : *Euryglossa macrolepis* is known to grow upto 176 mm in S.L.

*Distribution* : East coast of India to Borneo.

*Material examined* : One specimen, B.M. (N.H.) 1934.7.1.11, 173 mm S.L., Kumari River Borneo. Coll. Hardenberg.

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