

A NEW CYMOTHOID ISOPOD, *GLOSSOBIUS HEMIRAMPHI*, FROM  
THE MOUTH OF THE BALLYHOO, *HEMIRAMPUS BRASILIENSIS*  
(LINNAEUS) (EXOCOETIDAE), IN THE CARIBBEAN SEA

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INTRODUCTION

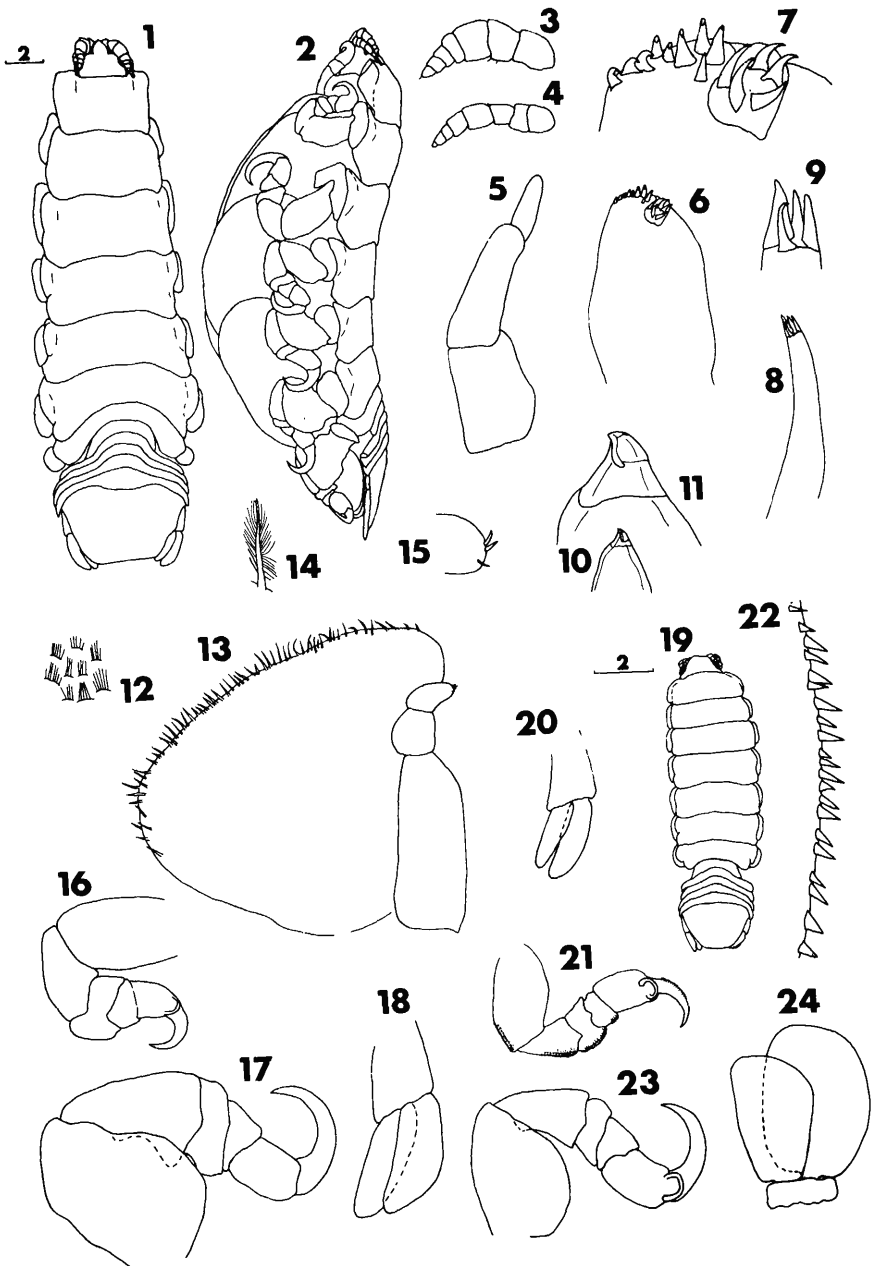
Berkeley & Houde (1978) reported an isopod in the mouth of Ballyhoo, *Hemiramphus brasiliensis* (Linnaeus) from Florida. The isopod, proved a new species of *Glossobius*, and is described here from specimens collected from the same host in Puerto Rico. The fish were obtained with a monofilament gill net and held for six hours in individual plastic bags under refrigeration. The methods used for examination of the isopods are similar to those described by Williams & Williams (1980, 1981). All measurements are in mm. In the generic assignment we follow Bowman (1978).

***Glossobius hemiramphi* sp. n.** (figs. 1-26)

Synonym. *Ceratothoa impressa* (Say), sensu Berkeley & Houde, 1978.

Specimens examined. — 35 isopods from 18 specimens of *Hemiramphus brasiliensis* (Linnaeus), 116 to 216 (mean 192.6) in standard length, taken one mile off shore of Guanica Bay, La Maruca Reef, Puerto Rico, 17°56.5'N 66°54.4'W (6 February 1981). Holotype (female), USNM 213532; allotype (associated male), USNM 213533; 8 paratypes, USNM 213534-213541; 23 paratypes in authors' collection.

Occurrence on the host. — The female occurred on the tongue of the host and occupied the area between gill arches of the fish; the male attached inside the mouth of the host on the 2nd and 3rd gill arches of one side, being situated ventral to the female (fig. 25). Thirty-two specimens of isopods were in male-female pairs, in addition we found 1 juvenile-female combination, 1 single female; no transitionals were collected.



Figs. 1-24. *Glossobius hemiramphi* sp. n. 1-18, gravid female. 1, dorsal view (holotype); 2, lateral view (holotype); 3, antennae 1; 4, antenna 2; 5, mandibular palp; 6, maxilla 2; 7, apex of maxilla 2; 8, maxilla 1; 9, apex of maxilla 1; 10, mandible; 11, apex of mandible; 12, scales on maxilla 2; 13, maxilliped; 14, seta of maxilliped; 15, apex of palp, maxilliped; 16, pereopod 1; 17, pereopod 7; 18, uropod. Antennae, uropod, pereopods 10 $\times$ ; mouth parts, 41 $\times$ ; enlargements of mouth parts, except spines and scales 138 $\times$ ; spines and scales 420 $\times$ . 19-24, male. 19, dorsal view (allotype); 20, uropod; 21, pereopod 1; 22, spines of pereopod 1; 23, pereopod 7; 24, pleopod 2. Pereopods, pleopod, uropod 19 $\times$ .

Distribution. — This isopod has also been reported from the type host in south Florida (Berkeley & Houde, 1978; Berkeley, pers. comm.), in Jamaica (Dr. Guy Harvey, pers. comm.), and in many locations in the West Indies (Dr. Thomas E. Bowman, pers. comm.). It probably occurs on this host throughout south Florida and the West Indies.

Life-cycle. — Six life cycle stages and the sexes encountered in the present study are listed in table I.

Host specificity. — The species has not been found in specimens of the balao, *Hemiramphus balao* Lesueur, and the halfbeak, *Hyporhamphus unifasciatus* (Ranzani), examined in the present study. Berkeley & Houde (1978) did not find this parasite in their examinations of balao.

TABLE I

Number, size, and development of *Glossobius hemiramphi* sp. n.

Number	Description	Length, mean (mm)	Width, mean (mm)
801*)	Spherical to subspherical embryos	0.96-1.03, 1.01	0.87-0.99, 0.91
534-586*)	Manca larvae with eyes, antennae, and 6 pereopods formed	2.47-2.55, 2.52	0.91-1.03, 0.97
1	Juvenile	5.5	2.0
16	Males	9.0-12.0, 10.4	3.0- 4.0, 3.6
10	Females lacking oostegites	26.0-33.0, 28.3	7.5-10.0, 8.6
8	Females with oostegites	23.5-32.0, 29.1	7.0-10.0, 9.1

\*) Brood pouch reproduction.

Description of female. — The measurements are given in table I. The length-width ratio of females with oostegites is 2.80 to 3.63, mean 3.21; that of females lacking oostegites is 3.00 to 3.75, mean 3.32.

Cephalon, pereonite 1 and antennae dark gray; pereonites 2 to 4 and pereopods 1 to 4 mottled gray and yellowish white; remainder of isopod yellowish white.

Cephalon  $\frac{2}{5}$  to  $1\frac{1}{3}$  times wider than long, triangular in shape, median anterior margin acutely projected forward. Eyes small, semilunate. Antenna 1 of 7 articles, dorsoventrally flattened, contiguous at bases. Antenna 2 of 7 or 8 articles reaching beyond distal end of antenna 1 and reaching anterior margin of pereonite 1. First (proximal) article of mandibular palp expanded. Incisor process of mandible slightly recurved. Maxilla 1 with 1 large and 3 smaller recurved apical spines. Distal lobes of maxilla 2 with 5 and 9 recurved spines, respectively (arranged as shown in fig. 7). Distal segment of maxilliped palp with 2 small slender spines and 1 seta.

Pereonite 1 longest, pereonite 6 widest. Pereonites decrease in length from anterior to posterior with pereonites 2 to 5 subequal (pereonite 3 sometimes slightly longer than pereonite 2); pereonite 7 very much shorter than other



Fig. 25. *Glossobius hemiramphi* sp. n. in the mouth of a ballyhoo, *Hemiramphus brasiliensis* (Linnaeus). Upper figure, female in frontal view. Lower figure, female and male in lateral view; opercular flap and side of mouth removed to expose the isopods.

pereonites. Anterolateral corners of pereonite 1 produced laterally and anteriorly to form shoulders (fig. 1). Posterolateral corners of pereonites 1 to 5 obtusely rounded, those of pereonites 6 and 7 acute. Pereonite 7 not overlapping any pleonite. Coxae of pereonites 2 to 4 not enlarged or produced, those of pereonites 5 and 6 subtriangular in lateral aspect, that of pereonite 7

Williams, 1981) are actually counter-shaded so as to appear of a uniform colour in the water column. *Glossobius hemiramphi* is in some ways intermediate between the host-enclosed, lightly pigmented and the host-exposed, heavily pigmented isopods. The structure of the upper jaw and mouth in the ballyhoo allows the anterior part of the isopod to be routinely exposed (fig. 25). The heavily pigmented portion of this isopod seems to correspond to the externally exposed part. The pigmentation of *G. hemiramphi* might be of benefit to parasitized ballyhoo by making the host less visible to prey and predator species, and would be of indirect benefit to the isopod through increased success of the host.

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#### SUMARIO

El nuevo isópodo difiere de *Glossobius impressa* (Say) en que: (1) tiene 7-8 segmentos en la antena; (2) los pereonites 4 y 5 son aproximadamente de la misma longitud; (3) el pereonite 7 no se extiende sobre los pleonites; (4) el pleon es mas ancho que el telson; (5) los urópodos se extienden mas allá del telson. Los oostegites de *G. hemiramphi* se forman en una sola muda. La parte anterior expuesta de este isópodo está densamente pigmentada, distinto a la mayoría de los isópodos que habitan la cavidad bucal. La pigmentación puede servirle de camuflaje al isópodo en huéspedes infestados.

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