Anphira branchialis GEN. ET SP. NOV. (CRUSTACEA, ISOPODA, CYMOTHOIDAE) A GILL CAVITY PARASITE OF PIRANHAS (Serrasalmus SPP.) IN THE BRAZILIAN AMAZON

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ABSTRACT — Anphira branchialis gen. et sp. nov. (Crustacea, Isopoda, Cymothoidea) is described from the dorsal areas of the gill chambers of three species of piranhas (Serrasalmus spp.). The fishes were caught in rivers near Manaus, Amazonas State and on Maracá Island, Federal Territory of Roraima, Brazil. The new genus and species is characterized by having large, flat corial plates on all 7 percentes. These plates usually extend beyond the margins of the following segments and the 7th ones extend nearly to the pleotelson and cover the lateral margins of the pleonites. The mandible of this species is rounded, “foot shaped” and without incisor. The mandibular palp is short and stout. The maxillulae have 3 terminal and 2 subter- minal spines. The pleopods are simple lamellar structures with rounded tips. Evidence is pre- sented that these parasites feed on gill filaments.

Key words: Isopod, Cymothoid, Parasite, Piranha, Amazon.

Anphira branchialis gen. et sp. nov. (Crustacea, Isopoda, Cymothoidea) Um Parasita da Cavidade Branquial de Piranhas (Serrasalmus spp.) na Amazônia Brasileira.

RESUMO — Anphira branchialis gen. et sp. nov. (Crustacea, Isopoda, Cymothoidea) aqui descrito é proveniente das áreas dorsais das cavidades branquiais de três espécies de piranhas (Serrasalmus spp.). Os peixes foram capturados em rios nas conexas de Manaus, Estado do Amazonas e na Ilha de Maracá, no Território Federal de Roraima, Brasil. O novo gênero e espécie caracterizam-se por ter placas corais grandes e achadas em todos os 7 percentes. Cada uma das placas geralmente ultrapassa a margem do segmento seguinte e as últimas estendem-se quase até o pleotelson, cobrindo as margens laterais dos pleonites. A mandíbula desta espécie é arredondada, em "forma de pé" e carece de incisíc. O palpo mandibular é curto e forte. As maxilíulas têm três espinhos terminais e dois subterminais. É apresentada evidência sugerindo que estes parasitas comem filamentos branquiais de seus hospedeiros.

Palavras-chave: Isopode, Cymothoidea, Parasita, Piranha, Amazônia

INTRODUCTION

Species of the fish genus Serrasalmus, commonly called piranhas, are widely known for their vorac- ity. They feed on other fishes, crusta- ceans, insects and other living prey. Our studies show that at least four gen- era of cymothoid isopods occur in pir- ranhas. One of these, Astianara magnifica has already been described by THATCHER (1988). An additional species is described in the present work and the other two are under study.

MATERIAL AND METHODS

The methods used were similar to those explained in THATCHER & CARVALHO (1988).

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Isopoda
Cymothoidea
ANPHIRA gen. nov.

Generic diagnosis
Female. Body avoid in dorsal view, about 1.8 times longer than wide; dorsum of peron highly convex, asymmetrical. Cephalon immersed in peronite 1, rotated downward, from margin rounded. Pleon not abruptly narrower than peron. pleonite 1 slightly immersed in peronite 7; all pleonites produced laterally. Mouthparts: mandible rounded, "foot-shaped", without incisor, palp stout, maxillate with 3 terminal and 2 subterminal recurved spines. Peronites 2-6 subequal, 1 longer and 7 shorter than others. Coxae flattened, plate-like, present on all 7 peronites, produced posteriorly to or beyond anterior margin of subsequent peronite. Pleopods short, 2-6 subequal in length, 1 shorter and 7 longer than others. Uropods slender: rami pointed, subequal. Pleopods lamellate with rounded extermities. Pteronotum not keeled, rounded posteriorly. Type species: Anphira branchialis sp. nov.

Anphira branchialis sp. nov. (Figs. 1-28)

Hosts: Serrasalmus spilopleura (Kner), S. nattereri (Kner), Serrasalmus sp.

Site: Dorsal part of gill chamber.

Material Examined: 1 male & 1 female from S. nattereri, 17 April 87; Lago Calado (near Manaus); col. P. Pecki. 1 male & 1 female from S. spilopleura; 25 Feb. 86; Lago da Rea (near Manaus); col. E. Fereira. 1 male from Serrasalmus sp.; no date, Ilha de Maracá, Roraima; col. M. Jégé. 3 males from S. na

S. nattereri; no date, vicinity of Manaus. 1 female (no date) from S. nattereri, Manaus.


Paratypes: 1 female and 7 males at INPA (INPA-44446); 1 female and 1 male at the United States National Museum, Smithsonian Institution, Washington, D.C.

Etymology: The generic name is an allusion of the common name of the host fish, “puncha.” The species name is in reference to the gill chamber site within which this species inhabits.

Species diagnosis: (based on 3 females and 4 males; measurements in Table 1). Female (Figs. 1-28, body: about 1.8 times longer than wide; widest at peronite 4, peron convex, peaked or humped dorsally; color varies from nearly white to dark brown, melanophores small. Cephalon immersed in peronite 1, rotated ventrally, frontal margin rounded, eyes prominent. Antennules and antennae (Figs. 15,16) subequal in length, antennules slightly compressed, of 8 articles, antennae subbilobed, of 9 articles. Mouthparts (Figs. 10,14,17) labrum projecting ventrally, not folding under mandibles; mandibles blunt, rounded, "foot-shaped", without incisor; labium with lobe attached to m-
Anphira branchialis gen. et sp. nov. (Crustacea, ... 299

Both sexes parasitic in the dorsal regions of the gill chambers of piranhas.

**DISCUSSION**

**Anphira** gen. nov. can be distinguished from the other genera of Cymothoidae by the presence of large, overlapping coxal plates on all 7 pericranes. Normally, coxal plates do not occur on the first pericrane of this family. RICHARDSON (1905) referred to these structures as “epimera” and considered their absence from the first segment to be an important familial characteristic. BRUSCA (1981) stated that, “these plates generally remain largely free from their respective pericranal segment, only first being fused.” He goes on to say, “in at least some species, (e.g. *Indusa marinata* Richardson, 1904) fusion of the first dorsal coxal plate with its pericrane is incomplete.” According to the description of *I. marinata* in BRUSCA’s paper, the coxal plates are small and do not reach the posterior margins of their own pericranes.

**Mothonya Costa,** 1851, and *Irosa Schiodte & Meinert,* 1884, (considered to be synonyms by MONOD, 1971) are marine genera that inhabit the branchial chambers of their hosts and have plate-like dorsal extensions of the coxae. The species of these genera have only six such plates, however.

This new cymothoid probably feeds on gill filament epithelium and...

*Anphira branchialis* gen. et sp. nov. (Crustacea, ...
Figures 7-8. *Asaphra brachyderis* gen. et sp. nov. in gill chambers of *Serrasalmus* sp. 7. Male in right gill cavity. 8. Femur in left gill chamber of same *Asaphra* (interoperyl removed). Scale = 10 mm.

*Anphira branchialis* gen. et sp. nov. (Crustacea, ...
Scales: 21, 22: 500 μ; 23-27 2 mm.

*Anphira branchialis* gen. et sp. nov. (Crustacea, ...
Figures 27-28. - Gill of *D. transalpinus* sp. damaged by *Daphnia branchialis* gen. et sp. nov. 27. Shortened filaments and epithelial tumours. 28. Aberrant and fused filaments. Scale = 2 mm.
blood cells of its host and therefore should be considered pathogenic. Figs. 7 & 8 show that the isopods occupy cavities in the gill chambers that were formerly occupied by gill filaments. Figs. 27 & 28 illustrate gill damage caused by this parasite, including tumoral growths, filament fusion and filament loss. Such extensive loss of gill filaments doubtless affects the respiratory capacity and metabolic efficiency of the host fish.

Literature Cited


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