

***Anphira junki* n.sp. (Isopoda, Cymothoidae) a gill chamber
parasite of *Triportheus albus* and *T. flavus* (Pisces) in the
Brazilian Amazon ***

by

C.S. de Araujo** & V.E. Thatcher***

Dr. Cleusa Suzana de Araujo, Instituto Nacional de Pesquisas da Amazônia, CPBA,
Caixa Postal 478, 69011-090 Manaus/AM, Brazil; e-mail: isopoda@horizon.com.br

Dr. Vernon E. Thatcher, Departamento de Zoologia, Universidade Federal do Paraná,
Caixa Postal 19020, 81531-990 Curitiba/PR, Brazil; e-mail: thatcher@uol.com.br

(Accepted for publication: April, 2003).

Abstract

Anphira junki n.sp. (Isopoda, Cymothoidae) from the gill cavities of the fishes *Triportheus albus* and *T. flavus* is described. This parasite was found at various sites near Manaus in the Brazilian State of Amazonas. The new species differs from the other two species known for the genus in the form of the body, which is twisted posteriorly. Also, the dactyls are much longer, the cephalon is less depressed and the rami of the uropods are less acute.

Keywords: **Fish parasite, cymothoid, isopod, Amazon, Brazil.**

Resumo

Anphira junki n.sp. (Isopoda, Cymothoidae) é descrita da cavidade branquial dos peixes, *Triportheus albus* e *T. flavus*. Este parasita foi encontrada em vários lugares pertos ao Manaus, Amazonas, Brasil. A nova espécie distingue-se das outras duas conhecidas para o gênero na forma do corpo, o qual é torcido posteriormente. Também, os dátilos são bem mais compridos, o cefalon é menos virado para abaixo e os ramos dos urópodos são menos agudos.

Introduction

According to TRILLES (1991), there are some 334 species of cymothoids in 42 genera parasitizing fish worldwide. THATCHER (2000) reported that 45 of these occur in South America. In Brazil, some 30 species are known including both marine and

*Dedicated to Prof. Dr. Wolfgang J. Junk on the occasion of his 60th anniversary.

** Correspondence concerning this paper should be sent to the senior author: Dr. Cleusa Suzana Araujo, Condomínio Jauaperi, Bloco D1, Apto. 301, Parque Dez, 69055-110 Manaus/AM, Brazil.

*** Senior Professor, UFPR, and Research fellow of the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), Brasília, Brazil.

freshwater forms and of these, 20 species are exclusively freshwater (SARTOR 1981). The present new species brings to 11 the number known from Amazonia. The genus *Anphira* was proposed by THATCHER (1993) for the species *A. branchialis* from the upper branchial cavity of Amazonian piranhas (Serrasalminidae). Later, the same author described a second species in the genus from the fish *Ossubtus xinguense* found in Pará State Brazil. The present paper describes the third species of this genus.

Material and methods

A total of 476 *Triportheus albus* and 184 *T. flavus* from sites near Manaus, Amazonas, Brazil, were examined. The cymothoid parasites were removed from the gill chambers and processed following the recommendations of THATCHER & CARVALHO (1988) and indexes of parasitism are expressed according to the method of BUSH et al. (1997).

Type specimens were deposited in the Invertebrate Collections of the Instituto Nacional de Pesquisas da Amazônia (INPA) Manaus and the Zoological Museum of the Universidade de São Paulo (MZUSP).

Systematic section

Isopoda

Cymothoidae

Anphira THATCHER, 1993

Anphira junki n.sp. (Figs. 1-24)

Hosts: *Triportheus albus* COPE, 1872 and *T. flavus* COPE, 1871.

Site: Dorsal part of branchial chamber.

Localities: Catalão Lake, at the mouth of the Negro River near Manaus, Amazonas, Brazil, and Lago Grande, Amazonas River, Monte Alegre, Pará, Brazil.

Intensity: 1-2 parasites per fish.

Prevalence: 4.5 % in *Triportheus albus* and 2.6 % in *T. flavus*.

Etymology: The specific name is in honor of Prof. Dr. Wolfgang J. Junk of the Max-Planck-Institute for Limnology at Ploen, Germany in recognition of his extensive contributions to our knowledge of Amazonian aquatic limnology and ecology.

Material examined: Catalão Lake, Solimões River, 14.IV.2000, *Triportheus albus*, 1 female, Holotype (INPA 927); Lago do Padre, Catalão, Solimões River, 9.V.2000, *Triportheus albus*, 1 male, 1 female, with the host, Paratypes (INPA 928); Catalão Lake, Solimões River, 6.XII.2000, *Triportheus albus*, 1 female Paratype (INPA 929); Catalão Lake, Solimões River, 1.X.2000, *Triportheus flavus*, 1 male and 1 female, Paratypes (INPA 930); Catalão Lake, Solimões River, 3.II.200, 1 female, Paratype (MZUSP 14.584); Catalão Lake, Solimões River, 3.II.2000, *Triportheus albus*, 1 male, Paratype (MZUSP 14.585); Lago Grande, Amazonas River, VIII.1982, *Triportheus albus* (INPA 10170), 1 male, 1 female (INPA 931); Lago Grande, Amazonas River, 1.VII.1982, *Triportheus flavus* (INPA 10598), 1 male, 1 juvenile (INPA 932); Catalão Lake, Solimões River, 1.X.2000, 1 male, 1 female (INPA 933); Catalão Lake, Solimões River, 1.I.2000, *Triportheus albus*, 1 male, 1 female (INPA 934); Catalão Lake, Solimões River, 1.III.2000, *Triportheus albus*, 1 male, 1 female (INPA 935); Catalão Lake, Solimões River, 1.IV.2000, *Triportheus albus*, 1 male, 1 female (INPA 936); Catalão Lake, Solimões River, 9.V.2000, 1 male, 1 female (INPA 937).

Species diagnosis (measurements of 10 females and 7 males in Table 1): Female (Figs. 1-2): Body asymmetrical, posterior part twisted as much as 45 degrees between

6th and 7th pereonites; pereon convex with greatest height at level of pereonites 4 and 5; color variable from translucent white on the extremities to dark yellowish grey dorsally (color jaune 250-314 in SÉGUY, 1936).

Cephalon not deeply immersed in pereonite 1, depressed downward, mouth ventral. Antennule with 8 articles (Fig. 3); antenna subcylindrical with 9 articles (Fig. 4). Mouthparts (Figs. 5-7 & 10): mandible flattened, pediform, without incisor; palp subequal in length to mandible, composed of 3 articles with delicate terminal spines. Maxillule with 5 recurved spines, 3 being terminal and 2 subterminal. Maxilla bilobed with a small spine on each lobe. Maxilliped robust, with 2 lateral lobes and a small palp which terminates in 2 small recurved spines.

Pereon: widest at level of pereonites 3-4; highest at level of pereonite 4; pereonite 1 longer than others, 7 very short; coxal plates wide, present on all 7 pereonites, 1st and 7th smaller than others. Pereopods (Figs. 12-18): elongate, dactyls long and slender, longer than propodus in 1-6 and shorter in 7; most pereopods with pigmentation and spines on carpus and propodus.

Pleon twisted laterally (Figs. 1-2); pleopods bilaminar, simple, with appendix masculinum on 2nd (Figs. 19-23); 1st pleonite partially immersed in pereonite 7. Pleotelson wide and delicate, with basal pigmentation. Uropods (Fig. 24) extending to posterior margin of pleotelson or a little beyond, rami with rounded extremities, exopod slightly longer than endopod.

Male (Fig. 2) similar to female but smaller less twisted posteriorly and not as convex. Appendix masculinum on 2nd pleopod more pointed than that of female. Maxilliped (Fig. 9) elongate, slender, without lateral lobes and lateral setae.

Fecundity: Between 30 and 78 eggs were found in the marsupia. As for the annual reproductive cycle, eggs and larvae were present in the marsupia from January to April; from May to October, about 20 % of females had eggs and those captured in November and December had larvae.

Discussion

Anphira junki n.sp. is the only species of cymothoid known in which the pleon is twisted 45 degrees in the adult female. This condition doubtless results from growing in a confined space, namely the dorsal part of the branchial chamber. The new species differs from the two known for the genus in a number of other features. The 1st and 7th coxal plates are smaller than the others in the new species. In *A. branchialis* THATCHER, 1993, the 1st plate is longer than the others and in *A. xinguensis* THATCHER, 1995, the 1st is smaller than the 7th. Additionally, the pereopods and dactyls are longer in the new species and the rami of the uropods are more rounded and less pointed. *Anphira junki* n.sp. is only known from species of *Triportheus* while the other two species occur in piranhas and pacus (Serrasalminidae).

References

- BUSH, A.O., LAFFERTY, K.D., LOTZ, J.M. & A.W. SHOSTAK (1997): Parasitology meets ecology on its own terms. MARGOLIS et al. revisited. - Jour. Parasit. **83**: 575-583.
- SARTOR, S.M. (1981): Isópodes parasitas de peixes marinhos (Flabellifera, Cymothoidae) na plataforma continental brasileira, entre as latitudes de 22°27'00"S e 29°21'00"S, incluindo a biologia de *Cymothoa* sp. - M.Sc.-thesis, Instituto Oceanográfico de São Paulo, Brazil.
- SÉGUY, E. (1936): Code Universel des Couleurs. - Libraire pour les Sciences naturelles, Paris.

- THATCHER, V.E. (1993): *Anphira branchialis* gen. et sp. nov. (Crustacea, Isopoda, Cymothoidae) a gill cavity parasite of piranhas (*Serrasalmus* spp.) in the Brazilian Amazon. - *Acta Amazonica* **23**(2/3): 297-307.
- THATCHER, V.E. (1995): *Anphira xinguensis* sp.n. (Isopoda, Cymothoidae) a gill chamber parasite of an Amazonian fish, *Ossubtus xinguense* JÉGU, 1992. - *Amazoniana* **13**(3/4): 293-303.
- THATCHER, V.E. (2000): The isopod parasites of South American fishes. - In: SALGADO-MALDONADO, G., ALDRETE, A.N.G. & V.M. VIDAL-MARTINEZ (eds.): 193-226. *Metazoan Parasites in the Neotropics: A systematic and ecological perspective*. Inst. Biol. Universidad Nacional Autónoma de México.
- THATCHER, V.E. & M.L. CARVALHO (1988): *Artystone minima* n.sp. (Isopoda, Cymothoidae) a body cavity parasite of the pencil fish (*Nannostomys beckfordi* GUENTHER) from the Brazilian Amazon. - *Amazoniana* **10**(3): 255-265.
- TRILLES, J.P. (1991): Catalogue mondial des Cymothoidae. - Kotor, Yugoslavia. *Studia Marina*: **21/22**(1-2): 5-288.

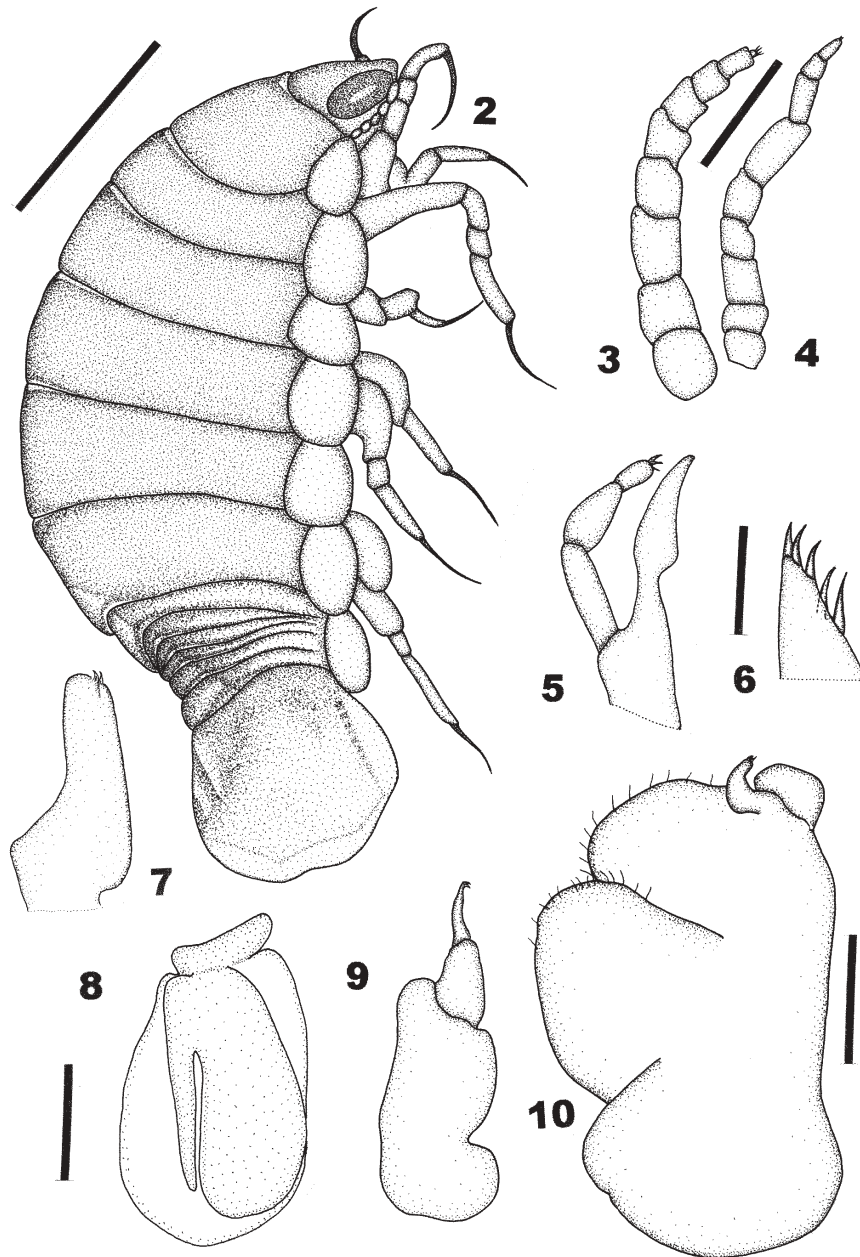
Table 1: Measurements (mm) of 10 females and 7 males of *Anphira junki* n.sp.

	Range	Mean	SV	CV
Females				
Body length	6.89-9.10	8.27	0.71	9
Body width	3.43-5.14	4.46	0.51	12
Pleotelson length	1.66-2.69	1.98	0.34	17
Pleotelson width	1.96-3.25	2.70	0.37	14
Males				
Body length	5.65-6.86	6.47	0.40	6
Body width	2.84-3.38	3.09	0.19	6
Pleotelson length	1.27-2.05	1.64	0.23	14
Pleotelson width	1.71-2.54	2.12	0.27	13

SV = Standard Variation; CV = Coefficient of Variation



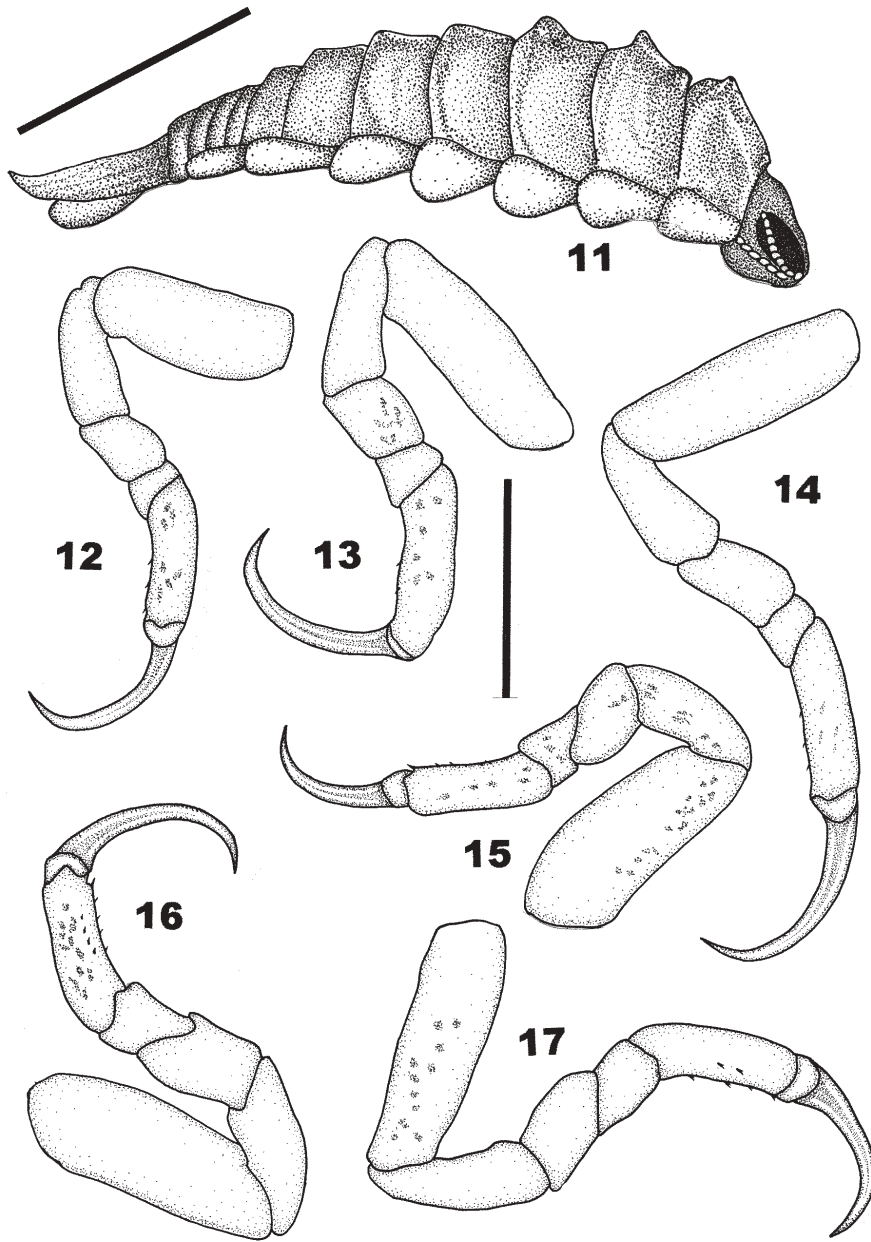
Fig. 1:
Amphira junki n.sp.
Female, dorso-lateral view; scale = 2000 μ m.



Figs. 2-10:

Amphira junki n.sp.

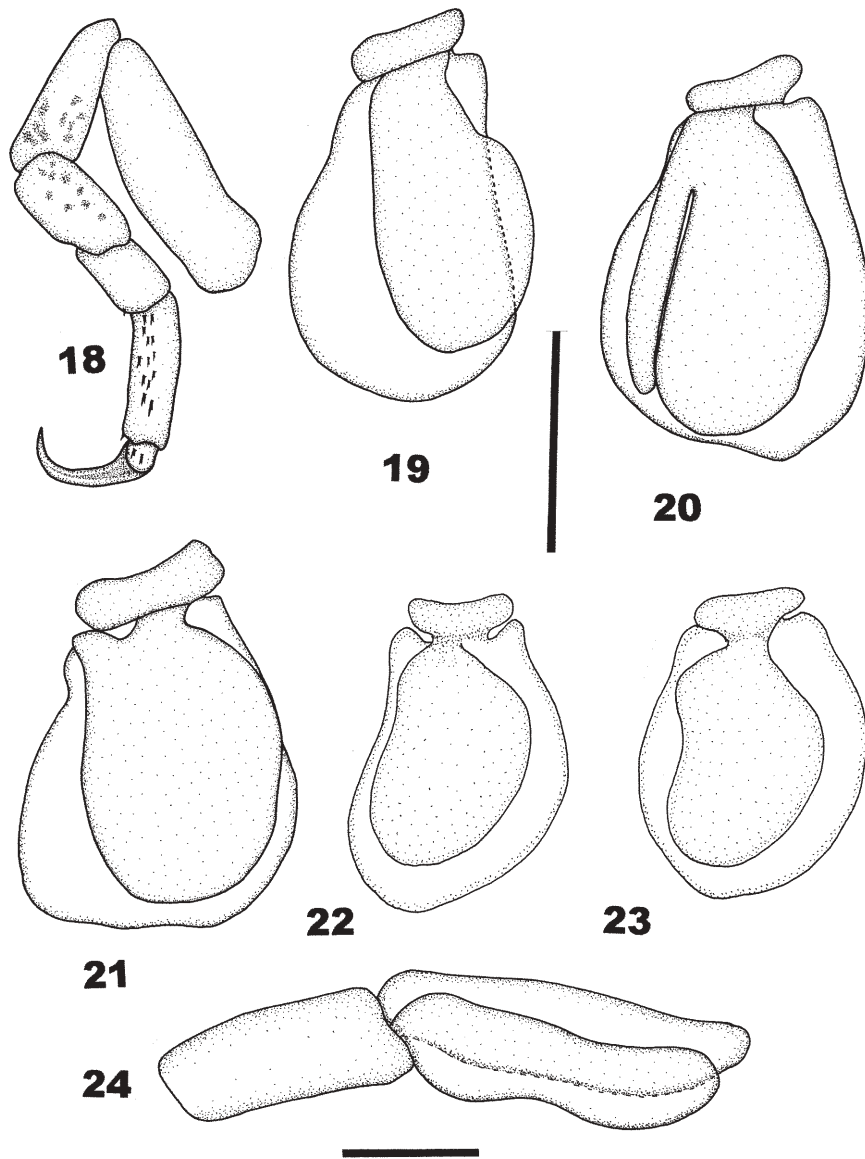
2: Female, dorso-lateral view; scale = 2000 μ m. 3: Female antennule; scale = 500 μ m. 4: Female antenna; scale = 500 μ m. 5: Female mandible and palp. 6: Female maxillule (tip). 7: Female maxilla. Scales for 5-7 = 100 μ m. 8: Male 2nd pleopod; scale = 1000 μ m. 9: Male maxilliped; scale = 100 μ m. 10: Female maxilliped; scale = 500 μ m.



Figs. 11-17:

Amphira junki n.sp.

11: Male, lateral view. 11-17: Female pereopods 1-6; both scales = 2000 μ m.



Figs. 18-24:

Anphira junki n.sp.

18: Female pereopod 7. 19-23: Female pleopods 1-5. Scales for 18-23 = 2000 μ m. 24: Female uropod; scale = 500 μ m.