Taxonomy and systematics

*Ilyphagus gebruki* n. sp., an abyssal flabelligerid from the Eastern Pacific (Annelida: Sedentaria: Flabelligeridae)

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**Abstract**

The taxonomy of abyssal polychaetes is problematic because they are fragile and easily damaged during collection. *Ilyphagus* Chamberlin, 1919 is an abyssal flabelligerid annelid genus that includes 4 species; a new species from the Eastern Pacific is herein described: *I. gebruki* n. sp. This new species is diagnosed as having a cigar-shaped body, more than 5 times longer than wide, with long body papillae, branchial plate with 8 branchial filaments, notochaetae with articles progressively longer, and neurochaetae smooth. The species ranges from off the Aleutian Islands to the Peru-Chile Trench and was sampled in sediments distributed between 5,047 and 7,000 m depth.

**Keywords**: *Ilyphagus*; Abyssal; Eastern Pacific; Gonopodial papillae

**Resumen**

La taxonomía de los poliquetos abisales es problemática porque son frágiles y se dañan fácilmente durante la recolecta. *Ilyphagus* Chamberlin, 1919 es un género de anélidos flabelígéridos abisales que incluye 4 especies; se presenta la descripción de una nueva especie del Pacífico oriental: *I. gebruki* n. sp. La diagnóstico de esta especie nueva es que tiene el cuerpo en forma de puro, más de 5 veces más largo que ancho, con papilas corporales largas, placa branquial con 8 filamentos, notosetas con artículos progresivamente más largos, y neurosetas lisas. La distribución de la especie incluye desde la región de las Aleutianas hasta la fosa Perú-Chile y fue recolectada en sedimentos entre 5,047 y 7,000 m de profundidad.

**Palabras clave**: *Ilyphagus*; Abisal; Pacífico oriental; Papilas gonopodales
Introduction

The study of abyssal polychaetes is always problematic, because, besides the need for a high level of sophisticated equipment such as vessels and collecting machines, abyssal annelids are often delicate, and easily damaged during sampling, sorting or identification.

*Ilyphagus* Chamberlin, 1919 and *Bradabyssa* Hartman, 1967 include most abyssal flabelligerid species (Salazar-Vallejo, 2012, 2017, 2019). *Ilyphagus* comprises only 4 known species, all with fragile, thin body walls, and all recorded from abyssal depths. During the study of all specimens available for a revision of *Ilyphagus*, I came across an undescribed species from the Eastern Pacific; a similar specimen from the Northern Pacific was also detected, but the specimen was in suboptimal conditions. Consequently, I decided to postpone the description of the species, in order to have the chance to study some additional specimens in Russian collections. Unfortunately, none were available, despite the fact that Russian scientists have undertaken an impressive series of collecting expeditions all over the world (Mikhailov et al., 2002), especially the vessels belonging to the Shirshov Institute of Oceanology, including the Akademik Kurchatov (Neiman et al., 2017). More recently, German-Russian expeditions in the German R/V Sonne in the Northwestern Pacific have focused on the Kurile Kamchatka Trench (Brandt & Malyutina, 2012), and in the Okhotsk Sea (Malyutina et al., 2018). This delayed description is herein provided, aiming to encourage the study of abyssal flabelligerids, along with an updated key to species.

Material and methods

Twenty specimens were carefully cleaned of excessive sediment particles by gently brushing the body, and they were often immersed during a few seconds in a 1:1 white vinegar-70% ethanol solution to facilitate the removal of adsorbed materials. Chaetae were carefully removed, cleaned, and mounted in temporal glass slides for observing patterns of articulation. In one specimen, the anterior end was dissected to observe the anterior end and count the branchial filaments. Digital photos were compressed by using HeliconFocus. The material is deposited in the collections of El Colegio de la Frontera Sur, Chetumal, México (ECOSUR), the Museum of Natural History of Los Angeles County, Allan Hancock Foundation Polychaete Collection, Los Angeles, California, U.S.A. (LACM-AHF), and the Shirshov Institute of Oceanology, Russian Academy of Sciences, Moscow (SIORAS). The description is based mostly on the holotype with some comments on variation of the other specimens.

Results

Class Polychaeta Grube, 1850
Family Flabelligeridae de Saint-Joseph, 1894
*Ilyphagus* Chamberlin, 1919
*Ilyphagus gebruki* n. sp.

Figure 1

**Diagnosis.** *Ilyphagus* with body arenicoliform, more than 5 times longer than wide. Body papillae long. Branchial plate with 8 branchial filaments. Notochaetae with articles progressively longer; neurochaetae smooth.

**Description.** Holotype (SIORAS AK 294) without posterior end, whitish, some chaetae broken (Fig. 1A). Body arenicoliform, elongate, anteriorly rounded, tapered posteriorly (Fig. 1C); 52 mm long, 5 mm wide, cephalic cage broken (remaining chaetae 4 mm long), 30 chaetigers. Body papillae very dense; papillae filiform, cylindrical, slightly capitulate, with abundant fine sediment particles adherent on its basal and medial regions.

Anterior end not exposed in holotype; observed in a non-type specimen (LACM Sta. 69) (Fig. 1D). Cephalic hood short, margin smooth, longer dorsally. Prostomium distorted, without eyes. Caruncle not seen. Palps massive, contracted, longitudinally cleft, longer than branchiae; palp lobes reduced.

Branchiae cirriform, sessile on branchial plate, slightly projected, with 4 thick filaments per side, arranged in an irregular marginal row. Nephridial lobes not seen.

Cephalic cage chaetae mostly broken; complete size relationships with body length or width unknown. Chaetiger 1 involved in the cephalic cage; notochaetae of chaetiger 2 as long as body width. Chaetiger 1 with an unknown number of chaetae in dorsal bundle series; neurochaetae in short curved series, only 1-3 chaetae remaining.

Anterior dorsal margin of first chaetiger papillated, depressed in relation to nearby enlarged, projected notopodia; anterior chaetigers without especially long papillae. Chaetigers 1-3 of about the same length. Chaetal transition from cephalic cage to body chaetae abrupt; neurospines from chaetiger 4; chaetigers 1-3 with some transitional neurochaetae with long articles distally, articulated region progressively reduced from first to third chaetiger. Gonopodial lobes in chaetigers 5-6, as long as 1/3 segment length, short rounded, covered by thin integument, once removed dark brown (Fig. 1B). Parapodia lateral, low, long transverse lobes; median neuropodia ventrolateral. Noto- and neuropodia close to each other.

Median notochaetae arranged in short transverse rows; all multiarticulated capillaries, articles short basally,
progressively longer in medial and distal regions (Fig. 1E); 1-2 per ramus, as long as 2/3 body width. Neurochaetal spines from chaetiger 4, arranged in transverse series, 7-8 per ramus; each with very short anchylosed articles basally and medially, distally hyaline, tapered, smooth (Fig. 1F).

Posterior end missing in holotype; another complete specimen (SIORAS Vitjaz 6085) tapered posteriorly, pygidium with anus terminal, without anal cirri.

Variation. Complete specimens have 22-37 chaetigers; gonopodial papillae in chaetiger 5, or in chaetigers 5 and 6.

Taxonomic summary

Type locality. Off Trujillo, Peru, in 6,200-6,240 m.

Type material: Eastern Pacific Ocean. Holotype (SIORAS AK 294) and paratypes (SIORAS AK 294b and ECOSUR 000), R/V Akademik Kurchatov, Sta. 294 (08°23’ S, 81°00’ W), off Trujillo, Peru, 6,200-6,240 m, Sigsbee trawl, 31 Oct.-1 Nov. 1968 (paratypes 2 anterior fragments, damaged, 25/32 mm long, 4/4 mm wide, cephalic cage broken, remaining chaetae 3/3 mm long, 14/18 chaetigers; gonopodial lobes in chaetigers 5-6).

Additional material: Eastern Pacific Ocean. One specimen (LACM-AHF unnbumb.), complete, Peru Chile Trench Expedition, R/V Anton Bruun, Cruise II, Sta. 36 (05°43’ S, 82°01’ W), 5,047 m, Menzies trawl, 5 Oct. 1965 (47 mm long, 14 mm wide, cephalic cage broken, 23 chaetigers). Eight specimens (LACM-AHF unnbumb.), one without pygidium, another one regenerating the posterior end, others without posterior end, Peru Chile Trench Expedition, R/V Anton Bruun, Cruise II, Sta. 69 (06°19’ S, 81°49’ W), 5,750 m, Beam trawl, 9 Oct. 1965 (w/o pygidium 44 mm long, 3 mm wide, cephalic cage broken, 37 chaetigers, gonopodial papillae in chaetigers 5 and 6, black, digitate, visible after brushing sediment; regen.
Key to species of *Ilyphagus* Chamberlin, 1919 (modified from Salazar-Vallejo 2012).

1 Body short, about 3 times longer than wide.-----------------------------------------------2
   - Body cigar-shaped or arenicoliform, more than 5 times longer than wide.---------------3

2(1) Neurochaetae markedly hirsute subdistally (oblique fibers exposed); chaetiger 1 with 3-4 neurochaetae per side. .................................I. hirsutus Monro, 1937 Indian Ocean
   - Neurochaetae barely hirsute or smooth subdistally; chaetiger 1 with about 8 neurochaetae per side. ..............................................................I. bythincola Chamberlin, 1919 partim Eastern Pacific

3(1) Body velvety (papillae short); most neurochaetae smooth or barely hirsute. ..............4
   - Body pilose (papillae long); neurochaetae smooth and hirsute (by fracture), or smooth. 5

4(3) Chaetiger 1 with about 8 neurochaetae per side; about 40 branchial filaments. ..........I. bythincola Chamberlin, 1919 partim Eastern Pacific
   - Chaetiger 1 with 10-12 neurochaetae per side; about 16 branchial filaments. ...........I. wyvillei (M’Intosh, 1885) Antarctic
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References


