



Redescription of *Bryocamptus* (*Bryocamptus*) *pirgos* Apostolov, 1969 (Copepoda: Harpacticoida: Canthocamptidae) from Strandzha Mountain, Bulgaria

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Abstract: *Bryocamptus* (*Bryocamptus*) *pirgos* Apostolov, 1969 is redescribed. The studied specimens originate from damp mosses of Mladezhka River in Strandzha Mountain, Bulgaria. Important taxonomic morphological details of female specimens of the species are presented, including the armature formula of the swimming legs, ornamentation of somites, length/width ratios of body and the mouthpart structures.

Key words: Bulgaria, damp mosses, freshwater, Harpacticoida, taxonomy

Introduction

Freshwater harpacticoids are one of the widespread groups of invertebrates, well studied in Bulgaria. For the territory of Bulgaria, 100 species of freshwater harpacticoids of four families and 18 genera have been reported (Apostolov 2010). One of the genera rich in species in the harpacticoid freshwater fauna of the country is the genus *Bryocamptus* with 25 species distributed in four subgenera (following Wells (2007)): *Bryocamptus* s. str. with four species, *Arcticocamptus* Chappuis, 1929 with eight species, *Limocamptus* Chappuis, 1929 with four species and *Rheocamptus* Borutzky, 1948 with two subgroups: *zschokkei* (with three species) and *pygmaeus* (with six species: Apostolov 2010).

Integument structures in different harpacticoid species have an important role in phylogenetic studies (Karanovic & Kim 2014). The fact that harpacticoids possess high intraspecific and intrapopulation variability should not be overlooked. The mouthparts should be considered as important microcharacters in the taxonomy of harpacticoids together with the structure of the somite integument, sensilla and pores, as well as the ornamentation of the swimming legs (Novikov et al. 2023).

Bryocamptus (*Bryocamptus*) *pirgos* Apostolov, 1969 was described from damp moss next to a spring in the coastal part of the city of Sozopol, located on the Bulgarian Southern Black Sea coast. Michailova-Neikova (1968) first reported the species as *Bryocamptus* sp. from sphagnum mosses in

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Western Stara Planina Mountains (Northern Bulgaria) at 1400 m. a.s.l. The initial description of *B. (B.) pirkos* was brief and the attached drawings were insufficient for clear differentiation of the species (Apostolov 1969). The main aim of this study is to redescribe the species and clarify its taxonomic position within the genus.

Materials and Methods

Two females were collected from damp mosses near the karstic sources of Mladezhka River (42°09'03.66" N, 27°21'26.25" E) at 843 m a.s.l., Strandzha Mountain, Southern Bulgaria using a hand-held net with mesh size 38 µm. Samples were fixed in the field in 4% formalin. In the laboratory, the specimens were sorted and transferred to 70% ethanol to which glycerine was added for long-term preservation. Observations and drawings were made based on whole and dissected specimens, using a microscope equipped with a drawing tube at a magnification of 400 and 1000 times. Before dissection, the habitus was drawn and the body length was measured. Total body length was measured from the tip of the rostrum to the posterior margin of the caudal rami (excluding caudal setae). Scales of illustrations are in µm. The studied specimens are stored in the scientific collection of the first author.

The descriptive terminology follows Huys & Boxshall (1991). Abbreviations used in the text and figure legends follow the conventional ones frequently used in the taxonomy of copepods: ae – aesthetasc; enp – endopod; exp – exopod; exp (enp) 1, 2, 3 – first, second, third exopodal (endopodal) segment; P₁–P₆ first to sixth legs. The terminology of Karanovic (2019, 2020) has been adopted for the names of some appendages: antennula (A₁), mandibula and maxillula (instead of antennule, mandibule and maxillule, correspondingly).

Results

Systematics

Subclass Copepoda H. Milne Edwards, 1840

Order Harpacticoida G. O. Sars, 1903

Family Canthocamptidae G. O. Sars, 1906

Genus *Bryocamptus* Chappuis, 1929

Subgenus *Bryocamptus* Chappuis, 1929

Bryocamptus (Bryocamptus) pirkos Apostolov, 1969

Bryocamptus (Rheocamptus) sp. - Michailova-Neikova, 1968: 144, Figs. 3-10.

Bryocamptus (Rheocamptus) pirkos n. sp. - Apostolov, 1969: 314, Figs. 9-14.

Examined material.

Neotype: adult female completely dissected on one slide.

Other material examined: one female preserved in 70% alcohol (for morphological observation).

Redescription

Female

Total body length, from tip of rostrum to posterior margin of caudal rami (excluding caudal setae), 0.50 mm. Body cylindrical in dorsal view, broadest at posterior margin of cephalothorax, tapering posteriorly, without clear distinction between urosome and prosome. Colour of preserved specimens yellowish. Naupliar eye not observed. Integument of all somites generally smooth, ornamented with sensilla, spinules, pores and large dorsal cuticular window. Body length/width ratio about 3.8; prosome about 1.2 times longer than urosome, narrowing slightly posteriorly. Body composed of prosome and urosome.

Prosome (Fig. 1A) comprising cephalothorax (cephalosome incorporating first pedigerous somite) and three free pedigerous somites, bearing P₂–P₄. Free pedigerous somites without pronounced lateral or dorsal expansions nor defined hyaline frills; hind and distal margins smooth. Cephalothorax (Fig. 1A) representing 21% of total body length, about 1.3 times as long as wide, widest at posterior end in dorsal view, tapering towards anterior end in dorsal and lateral views; with smooth distal margin with scattered sensilla (position and number of sensilla as in Fig. 1A), eight pairs of pores and small, medially constricted, integumental window mid-dorsally.

Rostrum (Fig. 1C) fused with cephalothorax, narrow, with rounded tip bearing two sensilla subdistally, surpasses distal end of first segment of A₁.

Second pedigerous somite (first free prosomite; Fig. 1A) with dorsal unpaired pore, lateral pair of sensilla dorsolaterally, transverse row of eight pairs of long sensilla along posterior margin.

Third pedigerous somite (second free prosomite; Fig. 1A) with dorsal unpaired pore, lateral pair of sensilla, a pair of sensilla in middle of prosomite, transverse row of eight pairs of long sensilla along posterior margin.

Fourth pedigerous somite (third free prosomite; Fig. 1A) slightly narrower and significantly shorter than preceding free prosomite with dorsal unpaired pore and a pair of sensilla in middle, six pairs of long sensilla along posterior margin.

Urosome (Figs. 1B, 2A) five-segmented, comprising P₅-bearing somite (fifth pedigerous somite),

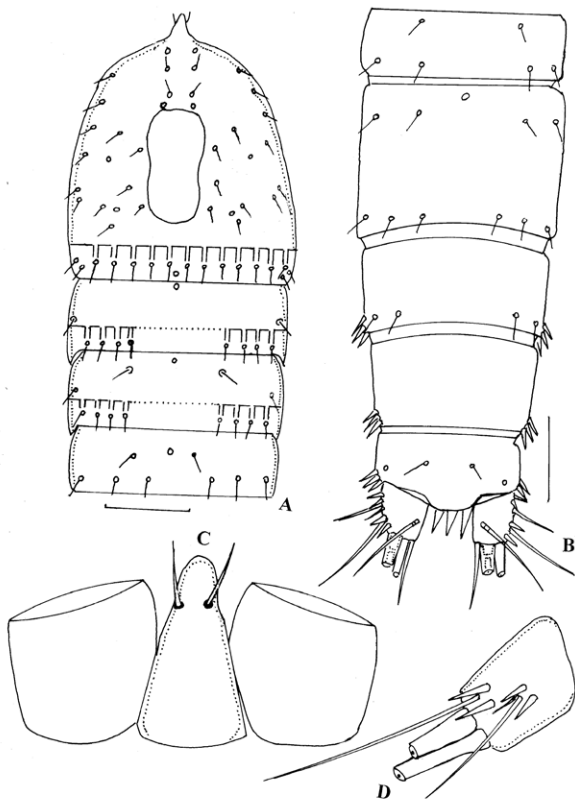


Fig. 1. *Bryocamptus (Bryocamptus) pirkos* ♀. A, Prosome, dorsal view; B, Urosome, dorsal view; C, Rostrum; D, Caudal rami, lateral view. Scale bars: 50 µm (A, B, D)

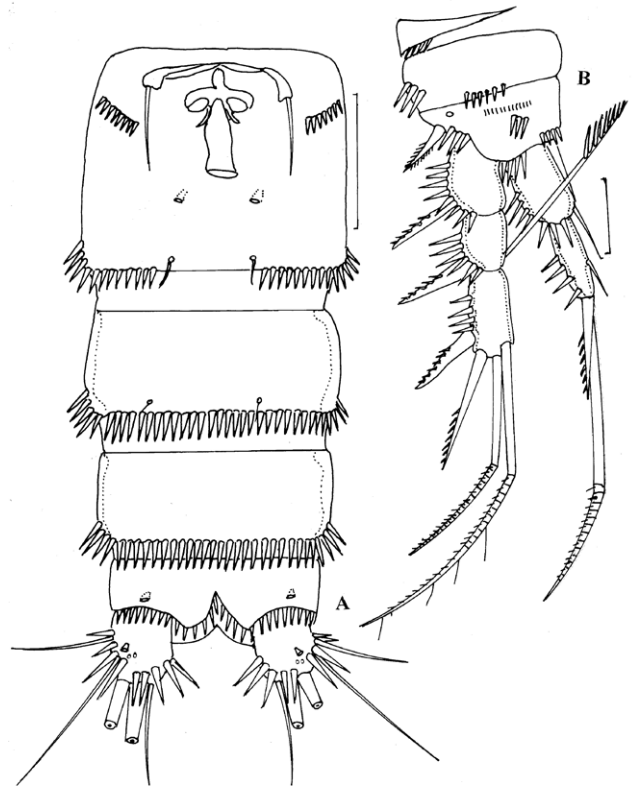


Fig. 2. *Bryocamptus (Bryocamptus) pirkos* ♀. A, Urosome and caudal rami, ventral view; B, First swimming leg. Scale bars: 50 µm (A), 25 µm (B)

genital double-somite (representing fused genital and first abdominal somite), two free urosomites and anal somite bearing caudal rami.

First urosomite (fifth pedigerous somite; Fig. 1B) about as long as third free prosomite, one pair of sensilla dorsolaterally and four pairs of sensilla along posterior margin dorsally.

Second urosomite (Fig. 1B) completely fused with third urosomite, forming genital double-somite dorsally and ventrally.

Genital double-somite (Fig. 1B, 2A) 1.3 times as long as wide in ventral view. Proximal part (second urosomite, genital somite) with dorsal and lateral surface without ornamentation, with one unpaired pore dorsally, four pairs of sensilla dorsolaterally. P_6 represented by a small plate located in proximal half of genital somite (second urosomite) ventrally; each rudimentary leg armed with one long naked seta and one row of spinules laterally. Distal part (third urosomite) with six pairs of sensilla dorsally and one pair of ventral pores, two sensilla ventrally, with interrupted row of spinules distally.

Fourth urosomite (Fig. 2A) slightly narrower and significantly shorter than preceding genital double-somite, four pairs of sensilla and several later-

ally placed spinules on dorsal side; with a pair of sensilla ventrally and a continuous row of large spinules on posterior margin.

Fifth (preanal) urosomite (Fig. 2A) narrower than preceding urosomite, without sensilla, with several lateral spinules dorsally and one continuous row of long spinules ventrally along posterior margin.

Anal (sixth) urosomite (Figs. 2A, 3A) with smooth dorsal surface, 0.7 times narrower than fifth urosomite, forked medially in posterior half, armed with transverse rows of strong spinules laterally, with two large dorsal sensilla, ventral pair of large pores, posterior row of large spinules at base of each caudal ramus. Anal operculum (Fig. 3A) narrow and convex, about 33% of somite's width, reaching posterior end of anal somite, with three spinules along distal margin.

Caudal rami (Figs. 1B, 2A, 3A) parallel, without modifications on dorsal surface; space between their bases about equal to twice the width of one ramus and three pairs of posterior ventral pores, two spinules at the base of median apical seta and three spinules on distal part of inner margin ventrally. Caudal rami armed with full complement of seven

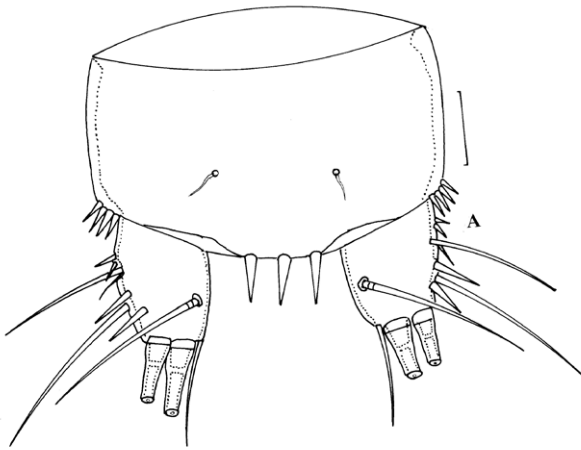


Fig. 3. *Bryocamptus (Bryocamptus) pirgos* ♀. A, Anal somite and caudal rami. Scale bars: 50 µm

elements: three lateral, three apical, one dorsal seta. Seta I small, short, smooth, (hardly visible), located close to base of seta II. Anterolateral distal seta II slender, smooth, about as long as ramus, with two small spinules at base. Seta III naked and slender, twice as long as ramus, situated at outer distal corner of ramus, flanked by dorsal spinules at its base. Seta IV unipinnate, with breaking plane in basal part, half as long as inner seta V. Principal apical seta V long, slightly less than half the body length, strong, bipinnate, with breaking plane with two spinules at base ventrally. Inner apical seta VI thin and smooth, about 0.6 times as long as ramus. Dorsal seta VII slender, smooth, about 2.6 times as long as ramus, located closer to inner edge of ramus, inserted in deep recess, triarticulate at base.

Antennula (Fig. 4A) eight-segmented, with aesthetasc on segments four and eight, respectively; aesthetasc on fourth segment reaching significantly beyond tip of segment eight and fused basally to slightly shorter seta; distal segment with acrothek consisting of aesthetasc and two setae, fused basally. Integument of segments smooth except for segment one. Armature formula: 1-[1], 2-[9], 3-[4], 4-[2 + ae], 5-[1], 6-[2], 7-[2], 8-[7 + ae], three lateral setae on segment eight biarticulate. Segment one with row of spinules on anterior margin; all setae slender and naked. First four segments broadest, last segment elongated, about three times as long as wide.

Antenna (Fig. 4B) with small coxa, without ornamentation. Allobasis 2.2 times as long as wide, with two naked abexopodal setae, one spinular row at base of second abexopodal seta. Free endopodal segment 3.5 times as long as wide, armed with lateral rows of big spinules, as well as two spinules of same size with one thin short seta between them;

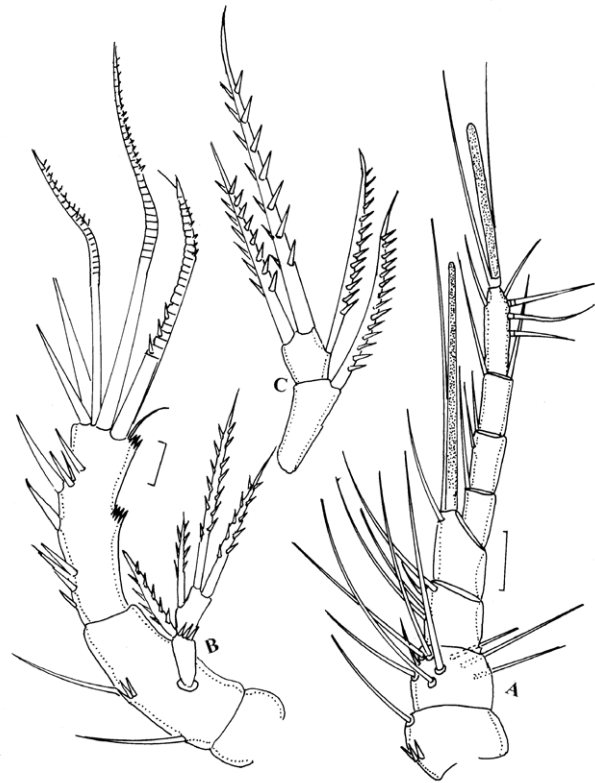


Fig. 4. *Bryocamptus (Bryocamptus) pirgos* ♀. A, Antennula; B, Antenna; C, Antennal exopod. Scale bars: 20 µm (A), 10 µm (B)

apically with six elements, comprising two pinnate spines and three geniculate setae (inner geniculate seta fused basally to one short seta), distally with two rows of spinules. Exopod (Fig. 4C) two-segmented: first segment cylindrical with one inner distal pinnate seta and row of spinules; second segment with one or two apical pinnate setae.

Mandibula (Fig. 5A) with knob on outer surface and well-developed gnathobase; cutting edge comprises five fused packs of small short teeth and one pinnate seta along distal margin; with strong spinules near base of palp. Palp one-segmented, cylindrical, three times as long as wide, with two apical naked setae of different length. Free endopodal segment 3.5 times as long as wide, armed with lateral rows of big spinules, as well as two spinules of same size between which thin short setae are located.

Maxillula (Fig. 5B) composed of praecoxa, coxa, basis with endopod and Exopod, completely fused with basis. Praecoxa large, without ornamentation; praecoxal arthrite medially with two rows of spinules, distally with six strong and one pinnate spine on distal inner margin. Coxa with cylindrical endite, unornamented, three times as long as wide, shorter than basis with one strong geniculate spine and one slender seta. Basis unornamented, 2.7 times

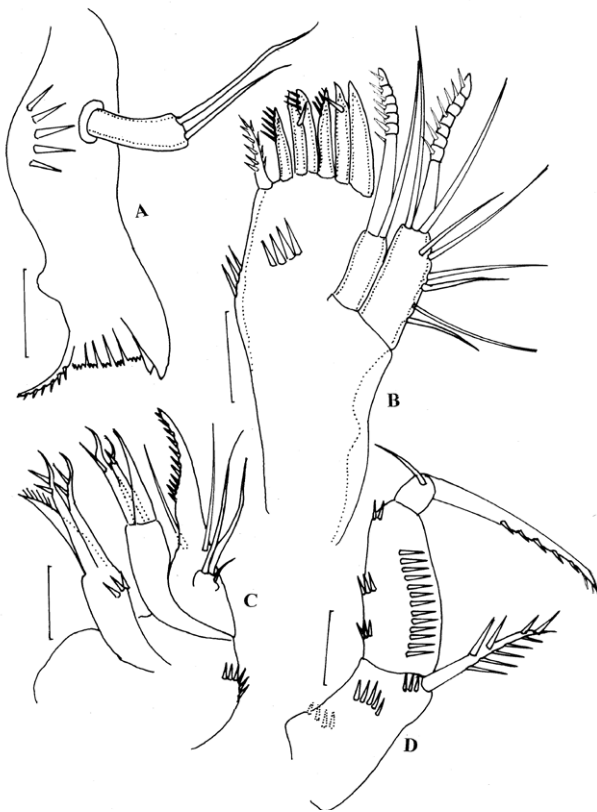


Fig. 5. *Bryocamptus (Bryocamptus) pirgos* ♀. A, Mandibula; B, Maxillula; C, Maxilla; D, Maxilliped. Scale bars: 50 µm (A, B), 10 µm (C), 25 µm (D)

as long as wide, longer by 0.6 than coxal endite, with two subdistal smooth setae, one strong and geniculate spine at base with two smooth and slender setae; basal spine subequal in length to coxal spine. Endopod and exopod completely fused with basis, each bearing two setal elements.

Maxilla (Fig. 5C) composed of large syncoxa, small basis and one-segmented endopod. Syncoxa with one row of spinules on outer margin, armed with two syncoxal cylindrical endites of different length, each bearing one spinulose spine and two pinnate setae. Basis produced into strong pinnate claw, flanked by two additional smooth setae: one on anterior and one on posterior surface; shorter than basal spine. Endopod a minute segment bearing one short and two well-developed naked setae distally.

Maxilliped (Fig. 5D) composed of syncoxa, basis and one-segmented endopod. Syncoxa two times as long as wide, with strong pinnate seta on distal inner corner and surface with spinular row as figured. Basis cylindrical, 2.4 times as long as wide, swollen in central part, with medial row of spinules, three rows of spinules along outer margin. Endopod minute, fused completely with apical claw-like spine, armed with one smooth and slender anterior

seta at base of apical spine; apical claw-like spine slightly curved and not reaching end of basis, armed with several spinules in distal half.

First swimming leg (Fig. 2B): praecoxa unarmed, ornamented with outer spinular row. Coxa rectangular, with frontal row of spinules; 2.5 times as wide as long; unarmed, ornamented with minute spinules near medial border between coxa and basis. Basis armed with one inner and one outer strong spine, with row of spinules at base of each spine and one cuticular pore on anterior surface: medial row of small spinules, row of spines along distal margin, between endopod and exopod. Exopod three-segmented, armed with single outer distal spine on first and second segments: exp-1 without inner seta; exp-2 with inner pectinate seta; exp-3 with two outer spines and two apical geniculate setae of different lengths. All exopodal segments ornamented with strong spinules along outer margin and subdistally. Endopod two-segmented, shorter than exopod, composed of two equally long segments, reaching middle of third exopodal segment: end-1 reaching middle of exp-2, with inner seta; end-2 narrower than end-1, with one inner seta, long apical geniculate seta and pinnate spine. Endopodal ornamentation consists of strong spinules along outer margin of first and second segments (Table 1).

Second swimming leg (Fig. 6A): praecoxal fold unarmed, ornamented only with posterior row of minute spinules. Coxa rectangular, armed with rows of spinules on anterior surface. Basis armed only with outer spine, ornamented with spinules at base and one cuticular pore near base of outer spine. Exopod three-segmented: exp-1 about 1.7 times as long as wide, with outer spinulose spine, strong spinules on outer margins, without inner seta, apically with frill; exp-2 also with strong spinules along outer margins, 0.8 times as shorter as first segment, with single inner pectinate seta, apically with frill; exp-3 elongated, 3.5 times as long as wide, with two outer spinulose spines, two apical setae, one inner pectinate seta and one cuticular pore on anterior surface. Endopod two-segmented: enp-1 short and squarish, with seta at inner edge; enp-2 elongated, with outer spinules, about 3.5 times as long as wide, exceeds distal margin of exp-2, armed with outer spinulose spine, two apical pinnate setae and one inner pectinate seta (Table 1).

Third swimming leg (Fig. 6B): praecoxa, coxa and basis similar to second swimming leg. Exopod three-segmented: exp-1 1.5 times as long as wide, with outer spinules and spinulose spine, with frill apically; exp-2 0.8 times as long as basal segment,

Table 1. Armature formula of female P₁–P₅ as follows. Arabic numerals represent setae, Roman numerals represent spines.

Leg	P ₁	P ₂	P ₃	P ₄	P ₅
Basis	I-I	I-0	I-0	I-0	1
Exopod	I-0; I-0; II,2,0	I-0; I-1; I, I,2,1	I-0; I-1; II,2,1	I-0; I-1; II,2,2	5
Endopod	0-1; I,1,1	0-1; I,2,1	0-1; I,2,2	0-0; I,2,1	5

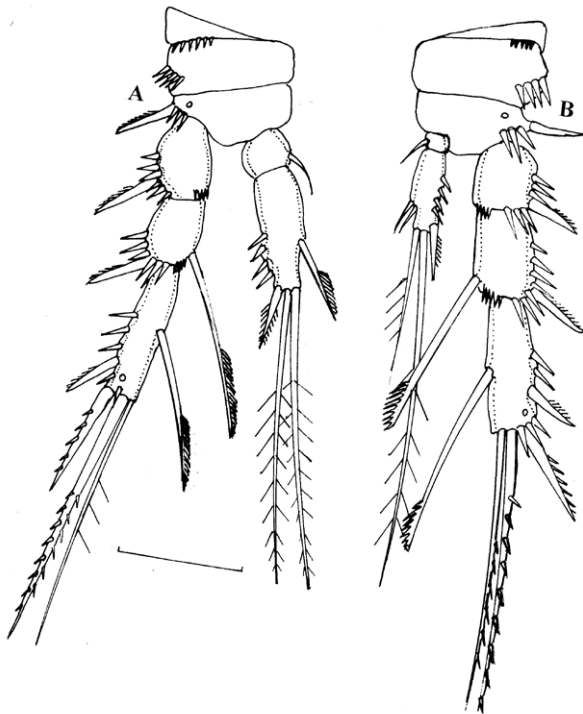


Fig. 6. *Bryocamptus (Bryocamptus) pirkos* ♀. A, Second swimming leg; B, Third swimming leg. Scale bars: 50 µm

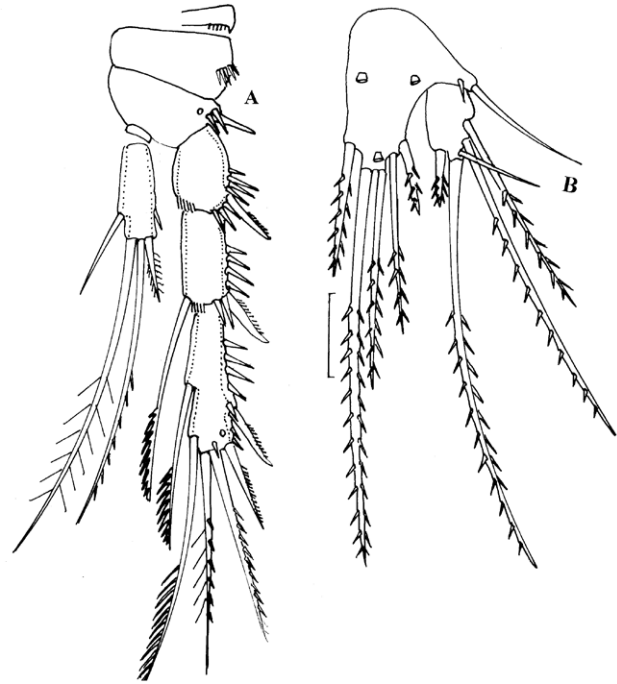


Fig. 7. *Bryocamptus (Bryocamptus) pirkos* ♀. A, Fourth swimming leg; B, Fifth leg. Scale bars: 50 µm

with outer spinulose spine and spinules, one inner pectinate seta, apically with frill; exp-3 elongated, 2.7 times as long as wide, armed with two outer spinulose spines, two apical setae and one inner pectinate seta, two outer spinules, row of spines at base of apical setae and pore at distal end. Endopod two-segmented, shorter than Exopod: enp-1 short and squarish, without ornamentation, armed with thin inner seta; enp-2 elongated, about 2.5 times as long as wide, exceeds distal margin of exp-2, with two short, naked inner setae, located very close, two apical pinnate setae, outer spinulose spine (Table 1).

Fourth swimming leg (Fig. 7A): praecoxa, coxa and basis as in third swimming leg. Exopod three-segmented: exp-1 and exp-2 as those of P₃; exp-3 with six elements: two outer spines, two distal setae and two inner pectinate setae, outer spinules, one pore at distal end. Endopod two-seg-

mented: enp-1 small, unarmed; enp-2 elongated, three times as long as wide, armed with four elements: one apical spine, two apical setae and one inner seta (Table 1).

Coxa rectangular, armed with rows of spinules on anterior surface.

Fifth swimming leg (Fig. 7B) composed of large baseoendopod, three times as long as wide, with outer basal smooth seta arising from relatively short setophore, unornamented, with three pores and ovoid exopod. Endopodal lobe exceeds end of exopodal segment, armed with five stout, spiniform elements; length ratio of endopodal setae, from inner side, 1:3:1.6:1.3:0.5. Exopod 1.7 times as long as maximum width, bearing five setae: inner short pinnate spine, long apical pinnate seta, naked subapical seta and two pinnate outer setae. Length ratio of exopodal setae, from inner side, 1:6.5:1.25:5:3.5 (Table 1).

Male**Unknown.****Bionomy**

Bryocamptus (B.) pirkos was first described from damp mosses south of the city of Sozopol, Bulgarian Southern Black Sea coast (Apostolov 1969). Later, the species was found in sphagnum mosses in the Petrohan peat bed in Western Stara Planina Mountains (Western Bulgaria) at 1400 m. a.s.l., water temperature 21°C, pH 5.5 - 6, dissolved oxygen in water 5 ml/L. Female specimens have an egg sac with 6 eggs. At the Petrohan peat, the species was found with the copepods *Arcticocamptus macedonicus* Petkovski, 1962 and *Attheyella (s. str.) crassa* (G.O. Sars, 1862). The composition of the biocenosis inhabiting the sphagnum tufts included species of Nematoda, Oligochaeta, Tardigrada, Hydracarina, Cladocera, Ostracoda, Collembola and larvae of Chironomidae (Michailova-Neikova 1968).

Distribution

At present, *B. (B.) pirkos* is known only from two different regions in Bulgaria: Strandzha Mountain (Southeastern Bulgaria) and Western Stara Planina Mountains (Western Bulgaria).

Discussion

Bryocamptus is a genus of copepods of family Canthocamptidae, first described by Chappuis (1929), for which there is no consensus among taxonomists regarding its subgeneric structure. A total of 118 species and subspecies are currently known within this genus (Boxshall & Halsey 2004). The genus is the most representative genus of freshwater harpacticoid copepods and species of *Bryocamptus* are commonly found in various freshwater bodies, detritus, moist leaves or mosses, springs, cave waters and mountainous temporary ponds.

Apostolov (1969) described *B. (B.) pirkos* based on two female specimens, which according to the attached drawings are asexually mature, probably fifth copepodite stage. There are some discrepancies between the text and the figures in the description of the species. For example, the number of segments of the exopod of the antenna is two according to the text but in the attached drawing (Apostolov 1969: Fig. 16) it is presented as one-segmented. In the text, the P_4 endopod is represented as two-segmented and in figure 30 as one-segmented. The first segment of P_4 endopod is short and difficult to see and it is possible that the author did not notice it. These weaknesses in the description of the species were corrected by Apostolov (2010: p.144). The mouthparts were

not considered in the initial description of the species. Considering the short and incomplete description of the species and the requirements of modern taxonomy to including microcharacters as they are an important element for species determination, the present publication makes a complete redescription of the species, thus revealing all the details in the morphology of the body.

Bryocamptus (B.) pirkos belongs to the *pygmaeus - typhlops* group (sensu Lang 1948) of subgenus *Bryocamptus* with three-segmented exopods of P_1-P_4 ; exp-2 with one inner seta, exp-3 with two outer spines; P_1-P_4 endopod two-segmented: P_1 enp-2 with three setae. The species was originally included in subgenus *Rheocamptus*. In this work, we adhere to the classification given by Wells (2007) and place our species in subgenus *Bryocamptus*.

Bryocamptus (B.) pirkos is similar to its congeners *B. (B.) stillae* Cottarelli, Spina & Grasso, 2012, *B. (B.) pygmaeus* (G. O. Sars, 1863), *B. (B.) typhlops* (Mrazek, 1894) and *B. (B.) weberi* (Kessler, 1914). *Bryocamptus (B.) pirkos* is most similar to *B. (B.) stillae* and share the following characters: an eight-segmented female antennula, a two-segmented antennary exopod, a P_5 baseopod and exopod with five setae (female), anal operculum with three spines, ornamentation of the prosome and urosome dorsally and ventrally, along the armature of the P_1-P_4 endopod, in the appearance of the caudal ramus. However, *B. (B.) pirkos* can be distinguished from *B. (B.) stillae* by several characteristics: (i) mandibula with large coxa and a row of spinules proximally at base of the palp in *B. (B.) pirkos* vs. without spinular row in *B. (B.) stillae*; (ii) number of setae on the endopod of maxilla (three in *B. (B.) pirkos* vs. two in *B. (B.) stillae*); (iii) number of setae on the endopod of maxillula (two in *B. (B.) pirkos* vs. one in *B. (B.) stillae*); (iv) number of setae on the coxal endite of maxillula (two, of which one strong geniculate spine in *B. (B.) pirkos* vs. one strong spine in *B. (B.) stillae*); (v) armature formula of P_2 enp-1 (inner seta in *B. (B.) pirkos* vs. absence in *B. (B.) stillae*); (vi) number of setae on the P_4 enp-2 (four in *B. (B.) pirkos* vs. three in *B. (B.) stillae*); (vii) number of spines on the inner edge of the caudal rami (three spines in *B. (B.) pirkos* vs. absent in *B. (B.) stillae*).

Bryocamptus (B.) pirkos resembles *B. (B.) pygmaeus* in the setal armature of P_1-P_2 , exopod P_3-P_4 and endopod of P_3 (female). The individuals from Strandzha Mt. are clearly distinguished from by *B. (B.) pygmaeus* based on several characters: (i) regarding the original description of *B. (B.) pygmaeus*, it differs in the armature of P_3 exp-3 which is 222, but 122 in *B. (B.) pirkos*; (ii) P_4 enp-2 with one in-

ner seta in *B. (B.) pirgos* vs. two inner setae in *B. (B.) pygmaeus*; (iii) ornamentation of the anal operculum: with three spines in *B. (B.) pirgos* vs. nine in *B. (B.) pygmaeus*; *B. (B.) pirgos* with five setae on P₅ baseopod and six setae in *B. (B.) pygmaeus*.

Bryocamptus (Bryocamptus) pirgos is similar to *B. (B.) typhlops* in terms of setal armature of P₁-P₄ exopods, the number of spines on the anal operculum, the armament of P₅. However, *B. (B.) pirgos* differs from *B. (B.) typhlops* in having (i) four setae on exopod of antenna; (ii) different endopodal segmentation of P₄: two-segmented vs. one in *B. (B.) typhlops*; (iii) a different number of setae on P₁ enp-1 and P₂ enp-1: one inner seta vs. such seta being absent in *B. (B.) typhlops*; (iv) one inner seta on P₃ enp-1 vs. being absent in *B. (B.) typhlops*; (v) different ornamentation of P₃ enp-2, (222 setae in *B. (B.) pirgos* vs. 021 in *B. (B.) typhlops*); (vi) different ornamentation and size of the caudal rami.

The armament of the urosome, exopod P₁, P₂, P₄ and P₅ swimming leg of *B. (B.) pirgos* are similar to those of *B. (B.) weberi* (Kessler). The two species differ in (i) the number of setae on P₁ enp-1: one seta in *B. (B.) pirgos* vs. no seta in *B. (B.) weberi*; (ii) P₂ enp-1 with one internal seta in *B. (B.) pirgos*, which is absent in *B. (B.) weberi*; (iii) P₂ enp-2 armed with 121 setae in *B. (B.) pirgos* vs. 022 in *B. (B.) weberi*; (iv) the setal formula of P₃ exp-3: 122 in *B. (B.) pirgos* vs. 022 in *B. (B.) weberi*; (v) the armament of P₄ enp-2 with 121 setae in *B. (B.) pirgos* vs. 020 in *B. (B.) weberi*.

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