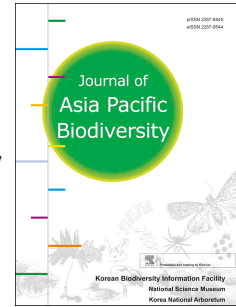


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**Three *Pseudoxyporus* Nakane and Sawada species
(Coleoptera: Staphylinidae) new to Korea**

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Running title: New Records of Korean *Pseudoxyporus*

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Abstract

A taxonomic study of Korean *Pseudoxyporus* Nakane and Sawada is presented. Among the recognized four species, three species are reported for the first time in Korea (*Pseudoxyporus cyanipennis* Kirschenblatt, *P. dybowskii* Solsky, and *P. melanocephalus* Kirschenblatt). Photographs of habitus and key to the species are provided.

Key words: mushroom, Oxyporinae, *Pseudoxyporus*, Staphylinidae, taxonomy

Introduction

The genus *Pseudoxyporus* Nakane and Sawada is known to be obligate inhabitants on fleshy mushrooms (Thayer 2005) and contains about 16 species in Palaearctic (Schülke and Smetana 2015).

Nakane and Sawada (1956) described a new genus *Pseudoxyporus* based on the structural differences in parameres of aedeagus and more cylindrical antennomeres compared to the genus *Oxyporus* Fabricius. But Campbell (1969), Hanley and Goodrich (1995), Hwang and Ahn (2000), and Herman (2001b) treated it as subgenus of *Oxyporus*. On the other hand, Shibata (1997), Herman (2001a), and Schülke and Smetana (2015) supported Nakane and Sawada (1956). In this paper, we followed Nakane and Sawada (1956)'s two genera system based on body shape, pronotum shape, and structures of antennomeres, phallotreme and parameres of aedeagus. Recently, Makranczy (2012) clearly pointed out the systematic problem of the genus *Pseudoxyporus*.

In this paper we report three additional species (*Pseudoxyporus cyanipennis* Kirschenblatt, *P. dybowski* Solsky, and *P. melanocephalus* Kirschenblatt) for the first time in Korea and revise incorrect Korean records of *Pseudoxyporus longipes* (Sharp). We also provide a key and photographs of the habitus.

Materials and methods

All specimens used for this study are deposited in the Chungnam

National University Insect Collection (CNUIC), Daejeon, Korea. The terms of taxonomic characters followed Campbell (1969) and Makranczy (2012).

Systematic accounts

Genus *Pseudoxyporus* Nakane and Sawada

Pseudoxyporus Nakane and Sawada 1956: 120; Herman 2001a: 13; Schülke and Smetana 2015: 797.

Oxyporus (*Pseudoxyporus*) Campbell 1969: 230; Newton et al 2001: 381.

Key to the species of Korean *Pseudoxyporus*

1. Elytra reddish brown with black apical part; phallotreme of aedeagus with a pair of eyelid-like covers ----- 2
- Elytra black with reddish brown humeral part; phallotreme of aedeagus without eyelid-like cover ----- 3
2. Apical margin of elytra with broader black band covering one third; abdomen brown with black apical three segments ----- *P. longipes*
- Apical margin of elytra with narrower black band covering one tenth; abdomen black --- *P. melanocephalus*
3. Head bicolor; pronotum without postero-lateral modification; elytra black with reddish brown mark only in humeral part; about six longitudinal punctate striae present but more or less loosely arranged on elytron -----
----- *P. cyanipennis*
- Head black; pronotum with postero-lateral elevation; elytra black with reddish

brown mark in humeral and apical part; about three longitudinally distinct punctate striae present on elytron ----- *P. dybowskii*

***Pseudoxyporus cyanipennis* (Kirschenblatt)**

(Figure 1)

Oxyporus cyanipennis Kirschenblatt, 1938: 528.

Pseudoxyporus cyanipennis: Shibata, 1997: 510; Schülke and Smetana, 2015: 797.

Oxyporus (Pseudoxyporus) cyanipennis: Herman, 2001b: 1977; Makranczy, 2012: 115.

Description. See Makranczy (2012). Additional characters from Korean specimens as follow: Length 6.5–8.0 mm, width 2.3–2.5 mm. Head with basal region light brown to reddish brown, apical region black; gula region reddish brown; antennomere 1 black, 2–11 light brown to dark brown; neck light brown to reddish brown; mandible black, maxilla and labium brown to black, apical part of labial palpomere 4 whitish yellow; pronotum and prosternum yellow to reddish brown; mesoventrite dark brown to black; middle part of metaventrite light brown to reddish brown, lateral part and metacoxal process black; coxae and trochanters light brown to reddish brown, base of femur light brown to brown and apical black, tibiae brown to black, tarsi light brown to reddish brown; abdomen III–VI light brown to reddish brown, VII–VIII black. Head oval; antennomeres 1–4, 11 elongate, 5–10 transverse; gula slightly narrow toward apex, gular suture almost closed at anterior margin; neck present; anterior margin of labrum M-shaped; mandible long and uncinated; maxillary

palpomeres long, palpomere 2 longest, 4 subulate; labial palpomere 4 triangular. Pronotum cylindrical, slightly convex, lateral margin S-shaped; mesocoxal cavities closed internally; metaventral process long and wide, apex rounded; elytron with irregular punctures, without epipleural ridge, punctures small and weak; relative ratio of metatarsi 1 to 5 = 2: 6: 3: 2: 6. Aedeagus with basal sac big and oval, median lobe cylindrical, straight, phallosome open at apical part; parameres very narrow and long, reaching at apical median lobe (see Makranczy 2012: Figures 5–8).

Materials examined. 4 exx, ex mushroom, Sangwonsa, Mt. Odaesan, Jinbu-myeon, Pyeongchang-gun, Gangwon Prov., KOREA, 15 ix 2001 (S.-J. Park); 1 ex, FIT, Sangwonsa, Mt. Odaesan, Jinbu-myeon, Pyeongchang-gun, Gangwon Prov., KOREA, 25 v–18 vi 2004, (S.-J. Park, S.-M. Choi, D.-H. Lee).

Distribution. Korea (new record), Japan, Russia (Far East).

***Pseudoxyporus dybowskii* Solsky**

(Figure 2)

Pseudoxyporus dybowskii Solsky, 1871: 242; Schülke and Smetana, 2015: 797.

Oxyporus (Pseudoxyporus) dybowskii: Herman, 2001b: 1978.

Description. See Makranczy (2012). Additional characters from Korean specimens as follow: Length 6.0–8.4 mm, width 2.2–2.5 mm. Head with gular region reddish brown to dark brown; antennomeres 1–4 brown to reddish brown, 5–11 dark brown; basal part of mandible dark brown to black, apical part reddish brown, maxilla and labium yellow to brown, apical part of labial

palpomere 4 whitish yellow; pronotum reddish brown, prosternum reddish brown to black; mesoventrite reddish brown, and metaventrite black; pro- and mesocoxae brown, metacoxae black, trochanters brown, tibiae reddish brown with dark brown apical region; abdomen III–V reddish brown, VI–VIII black. Head subquadrate; gula slightly narrow toward apex; anterior margin of labrum M-shaped; mandibles long and uncinated; maxillary palpomeres elongate and palpomere 2 longest, 4 subulate; labial palpomere 4 triangular. Pronotum cylindrical; mesocoxal cavities closed internally; metaventral process long and wide, apex rounded; elytron with epipleural ridge absent; relative ratio of metatarsi 1 to 5 = 2: 6: 3: 2: 6. Aedeagus with basal sac big and oval; median lobe of aedeagus cylindrical and long, lateral margin slightly curved, phallosome opened at apical part; parameres very narrow and long (see Makranczy 2012: Figures 9–12).

Materials examined. 1 ex, FIT, Sangwonsa, Mt. Odaesan, Jinbu-myeon, Pyeongchang-gun, Gangwon Prov., KOREA, 30 iv–4 vi 2001 (K.-J. Ahn, S.-J. Park, M.-S. Kim, M.-J. Jeon); 2 exx, FIT, Sangwonsa, Mt. Odaesan, Jinbu-myeon, Pyeongchang-gun, Gangwon Prov., KOREA 4 vi–22 vi 2001 (K.-J. Ahn, S.-J. Park, M.-S. Kim, M.-J. Jeon); 1 ex, FIT, Sangwonsa, Mt. Odaesan, Jinbu-myeon, Pyeongchang-gun, Gangwon Prov., KOREA, 22 vi–16 viii 2001 (S.-J. Park, C.-W. Shin); 1 ex, FIT, Sangwonsa, Mt. Odaesan, Jinbu-myeon, Pyeongchang-gun, Gangwon Prov., KOREA, 21 iv–18 v 2002 (S.-J. Park, C.-W. Shin); 1 ex, FIT, Sangwonsa, Mt. Odaesan, Jinbu-myeon, Pyeongchang-gun, Gangwon Prov., KOREA, 9 v–25 v 2004 (S.-J. Park, S.-M. Choi, D.-H. Lee); 2 exx, FIT, Sangwonsa, Mt. Odaesan, Jinbu-myeon, Pyeongchang-gun, Gangwon Prov., KOREA, 25 v–

18 vi 2004 (S.-J. Park, S.-M. Choi, D.-H. Lee).

Distribution. Korea (new record), Russia (East Siberia, Far East).

***Pseudoxyporus longipes* (Sharp)**

Oxyporus longipes Sharp, 1889: 409.

Pseudoxyporus longipes: Nakane and Sawada, 1956: 122; Yuh et al, 1985: 229; Kim et al, 1994: 140; Schülke and Smetana, 2015: 797.

Pseudoxyporus kurosawai Nakane and Sawada, 1956: 121.

Pseudoxyporus narumii Nakane and Sawada, 1956: 121.

Oxyporus (Pseudoxyporus) longipes: Hwang and Ahn, 2000: 200 (misidentification of *P. melanocephalus*); Cho and Ahn, 2001: 40 (misidentification of *P. melanocephalus*).

Distribution. Korea, China (Jilin), Japan.

Remarks. We cited this species from publications (Yuh et al 1985; Kim et al 1994). We also found that *P. longipes* previously recorded in Korea by Hwang and Ahn (2000) and Cho and Ahn (2001) was an incorrect identification of *P. melanocephalus*.

***Pseudoxyporus melanocephalus* (Kirschenblatt)**

(Figure 3)

Oxyporus melanocephalus Kirschenblatt, 1938: 529.

Oxyporus (Pseudoxyporus) melanocephalus: Herman, 2001b: 1985; Makranczy, 2012: 122.

Pseudoxyporus melanocephalus: Schülke and Smetana, 2015: 797.

Description. See Makranczy (2012). Additional characters from Korean specimens as follow: Length 8.0–10.2 mm, width 1.7–2.1 mm. Head black; antennomere 1 black, 2–4 reddish brown to dark brown, 5–11 bicolor, middle dark brown, outer yellow; labrum black, mandible black, maxilla and labium brown to black, neck reddish brown to dark brown; pronotum yellow to reddish brown; coxae brown to reddish brown; femur dark brown to black,, tarsi reddish brown; abdomen dark brown to black. Color pattern variable. Head subquadrate; antennomeres 1–4, 11 elongate, 5–6 as long as wide, 7–10 transverse; gular slightly narrow toward apex; anterior margin of labrum M-shaped; mandible slender, long and uncinated; maxillary palpomere 2 longest and slender, 4 subulate; labial palpomere 4 triangular. Pronotum cylindrical, widest at apical 1/4, transverse weak groove present at median region; mesocoxal cavities closed internally; elytron with about 3 rows of punctures and irregular punctures, epipleural ridge absent; metaepisternum and metepimeron without puncture; metaventral process long and wide, apex rounded. Aedeagus with basal sac big and circular; median lobe cylindrical, short and thick, slightly curved, phallosome opened apically; parameres very narrow and long (see Makranczy 2012: Figures. 13–16).

Materials examined. 2 exx, FIT, Mt. Odaesan, Jinbu-myeon, Pyeongchang-gun, Gangwon Prov., KOREA, 30 iv–4 vi 2001 (K.-J. Ahn, S.-J. Park, M.-S. Kim, M.-J. Jeon); 1 ex, FIT, Mt. Odaesan, Jinbu-myeon, Pyeongchang-gun, Gangwon Prov., KOREA, 4 vi–22 vi 2001 (K.-J. Ahn, S.-J. Park, M.-S. Kim, M.-J. Jeon); 5 exx, FIT, Mt. Odaesan, Jinbu-myeon, Pyeongchang-gun, Gangwon Prov., KOREA,

16 viii–15 ix 2001, (S.-J. Park, C.-W. Shin); 5 exx, FIT, Mt. Odaesan, Jinbu-myeon, Pyeongchang-gun, Gangwon Prov., KOREA, 15 ix–14 xi 2001 (K.-J. Ahn, C.-W. Shin); 1 ex., FIT, Mt. Odaesan, Jinbu-myeon, Pyeongchang-gun, Gangwon Prov., KOREA, 9–25 v 2004 (S.-J. Park, S.-M. Choi, D.-H. Lee).

Distribution. Korea (new record), Russia (Far East).

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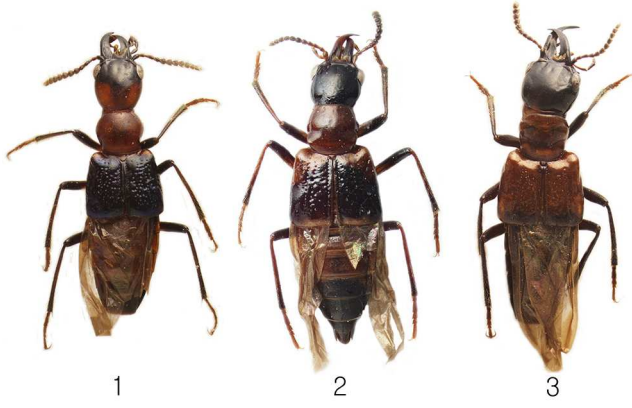
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Figure captions

Figures 1–3. Habitus: 1, *Pseudoxyporus cyanipennis* (Kirschenblatt), 7.5 mm; 2, *P. dybowskii* Solsky, 6.5 mm; 3, *P. melanocephalus* (Kirschenblatt), 9.2 mm.



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