

Short Communication

Preliminary report of the Cleptoparasitic Bees of the genus *Coelioxys* (Hymenoptera: Megachilidae) from Bhutan

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Abstract

Coelioxys Latreille is the globally distributed cleptoparasitic bees of the genus *Megachile* Latreille. This is the least studied group of bees and certainly the first report from Bhutan. This paper reports four *Coelioxys* species, *C. basalis* Smith, 1875, *C. decipiens* Spinola, 1838, *C. confusus* Smith, 1875 and *C. sexmaculatus* Cameron, 1897. This is only the preliminary report and more species are expected to occur in Bhutan.

Keywords: *Coelioxys*, bee, cleptoparasitic, *Megachilidae*, *Hymenoptera*, Bhutan.

Coelioxys Latreille is a genus of the bee tribe Megachilini cleptoparasitic to the genus *Megachile* Latreille (Michener, 2007). Host bee collects pollen and store for their off-springs but cleptoparasitic bees steal from the host larva. The cleptoparasitic bees parasitize on different families of bee like Apidae, Halictidae and Megachilidae but Apidae has the most genera of cleptoparasites (few genera are *Nomada*, *Oreoparasites*, *Neoparra*, *Neoparasites*, *Paranomada*), Megachilidae with three (*Coelioxys*, *Dioxys* and *Stelis*) and Halictidae with two genera (*Sphecodes* and *Temnosoma*) (Wilson & Carril, 2016). *Coelioxys* Latreille are generally cleptoparasitic on *Megachile* Latreille but *Trachusa* (Anthidiini) and *Hoplitis* (*Anthocopa*) (Osmiini) also serve as the hosts in the rare cases (Michener, 2007).

Genus *Coelioxys* Latreille is a diverse taxon differing from other genera of Megachilidae by having two cubital cells on forewing and lateral tooth on posterior margin of scutellum (Bingham, 1897). Females have posteriorly tapering abdomen often acutely pointed while males are multispinose, strong white stripes across the abdomen, black thorax and often red legs or abdomen (Gupta, 1993; Michener, 2007; Wilson & Carril, 2016). It is divide into 8 subgenera, *Orientocoelioxys* (2 species), *Nigrocoelioxys* (8 species), *Boreocoelioxys* (1 species), *Xerocoelioxys* (2 species), *Coelioxys* (4 species), *Tropicocoelioxys* (4 species), *Schizocoelioxys* (4 species) and *Glyptocoelioxys* (2 species), in North-Western India by Gupta, (1993) which is strictly based on Mitchell (1973). Bingham (1897) reported 10 *Coelioxys* species from Indian subcontinent however Gupta (1993) reported 27 species within the 8 subgenera. Iran has 18 species of *Coelioxys* (Nadimi, Talebi & Fathiopour, 2013) and Japan recorded 10 species (Nagase, 2006).

Materials and Methods

This paper is based on the series of specimens collected during the inventory of Hymenoptera from 2014-2017, in Bhutan. The specimens are deposited in Sherubtse College Museum. The identifications were done using compound microscope and photographs were taken using the 40 mm micro lens.

Systematic accounts

Coelioxys (Torridapis) basalis Smith, 1875

Diagnosis: Female: Scutellum with strong triangular, lateral downward-bent tooth; ventral & dorsal apical plates acute; dorsal apical plate with fine median longitudinal carina on apical half; ventral plate projected beyond dorsal plate; margin of clypeus with fulvous pubescence; body black with snow-white pubescence including T1-T5; legs with thin white piles; wings hyaline at base, apical half dark fuscous with purple effulgence.

Materials examined: 05.x.2015, 1 female, Serbithang, Thimphu (N27°25'13" & E89°39'05", 2331m), coll. Wim Klein; 10.viii.2016, 1 female, Taba, Thimphu (N27°31'02" & E89°38'79", 2379m), coll. Tshering Nidup & Wim Klein.
Distribution: India, Burma, Tanasserim (Bingham, 1897).



Figure 1: *Coelioxys (Torridapis) basalis* (female)

Coelioxys (Schizocoelioxys) decipiens Spinola, 1838

Diagnosis: Female: Scutellum with strong triangular, lateral sharp teeth; dorsal plate of apical segment apically pointed with sharp carina down the middle; ventral plate spoon-shaped & apically rounded, projected far beyond dorsal plate; body black covered with snow-white pubescence including T1-T5 apically; wings hyaline at base, apical half sub-fuscous.

Materials examined: 18.viii.2016, 1 female, Yadi, Monggar (N27°17'15" & E91°22'15", 1514m), coll. Phurpa Dorji & Wim Klein; 18.viii.2016, 1 female, Wakpogang, Monggar (N27°15'25" & E91°16'21", 1896m), coll. Phurpa Dorji & Wim Klein;
Distribution: India, Burma, Tanasserim, Iran and Palearctic region till USA (Bingham, 1897; Gupta, 1993; Nadimi, Talebi & Fathiopour, 2013).



Figure 2: *Coelioxys (Schizocoelioxys) decipiens* (Female)

Coelioxys (Negrocoelioxys) confusus Smith, 1875

Diagnosis: Female: Lateral tooth sharp & acute; abdomen sharply conical & attenuated apically; dorsal plate of apical segment sharply acute, medially carinate towards apex; ventral plate projected beyond dorsal plate; black; thin white pubescence on clypeus, face, cheeks, thorax laterally & legs; wings hyaline at base, dark fuscous beyond I cubital cell. Male: similar to female but apical segment with 6 tooth; V tergite with sharp lateral tooth.

Materials examined: 05.x.2015, 1 male, Serbithang, Thimphu (N27°25'13" & E89°39'05", 2331m), coll. Wim Klein; 09.viii.2016, 1 male, Paro (N27°27'15" & E89°25'23", 2298m), coll. Tshering Nidup & Wim Klein; 12.x.2015, 1 female, Damphu, Tsirang (N27°01'18" & E90°07'16", 1441m), coll. Tshering Nidup & Wim Klein; 05.viii.2016, 1 female, Phuntsholing, Chhukha (N25°52'35" & E89°02'51", 213m), coll. Tshering Nidup & Wim Klein. Distribution: India, Burma, Tanasserim, Sri Lanka (Bingham, 1897; Gupta, 1993).

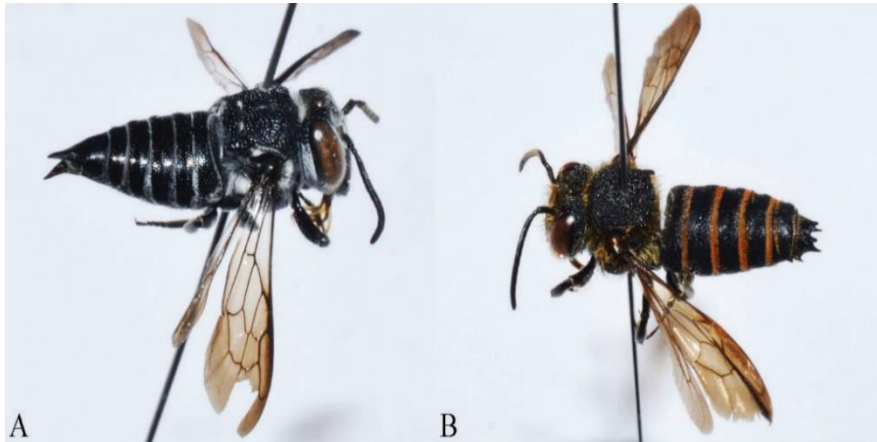


Figure 3: *Coelioxys (Negrocoelioxys) confuses* (A-female, B-male)

Coelioxys (Negrocoelioxys) sexmaculatus Cameron, 1897

Diagnosis: Female: Apical segment with medial carina thickening towards apex; scutellar spines stout; tarsi with short golden pubescence; black with white pubescence including margins of sternite; wings hyaline at base, fuscous at apex.

Materials examined: 09.viii.2016, 2 female, Paro (N27°27'15" & E89°25'23", 2298m), coll. Tshering Nidup & Wim Klein; 19.viii.2016, 1 female, Bumdeling, Trashi Yangtse (N27°39'32" & E91°27'07", 1900m), coll. Phurpa Dorji & Wim Klein.

Distribution: India (Bingham, 1897; Gupta, 1993).



Figure 4: *Coelioxys (Negrocoelioxys) sexmaculatus* (Female)

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About the Author

Tshering Nidup studied BSc. Life Science in Sherubtse College and MSc. Ecology in Prince of Songkla University, Southern Thailand. He currently works in Sherubtse College as an Associate Lecturer in Zoology, Department of Environment & Life Sciences. His enthusiasm in the field of Biodiversity and Taxonomy led to several publications ranging from Amphibia to Hymenoptera. Systematics of Amphibia and Hymenoptera (Bees & Wasps) is his passion in Life.