

A New Record of *Encyrtoscelio apterus* (Szelényi)
from Korea (Hymenoptera, Scelionidae)*

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Abstract: In this paper a curious micro-hymenopteron, *Encyrtoscelio apterus* (Szelényi), is recorded from Korea for the first time. The redescription of this species is given.

A curious micro-hymenopteron, *Encyrtoscelio apterus* (Szelényi, 1941), is a single Palearctic species of the genus *Encyrtoscelio* Dodd, 1914. Up to the present this species has been recorded from Europe and Africa. In 1979, I was able to collect this species from Korea, which is the first discovery from East Asia. The genus *Encyrtoscelio* belongs to the tribe Grionini of the family Scelionidae and is composed of three species at present: *E. mirissimus* Dodd, 1914, from Australia; *E. turneri* Waterston, 1927, from South Africa, and *E. apterus*. This genus is distinguishable from allied genera by the following remarkable characters: Mandible strongly elongated, nearly 1/2 of head height; vertex much prolonged anteriorly and broadened, so that head triangular in lateral view; wings either entirely absent or fully developed at least in *E. apterus*, and when present, fore wing broadly rounded with many long distal fringes bending forward (Kozlov, 1963).

Encyrtoscelio apterus (Szelényi, 1941)

(Figs. 1-4)

Pachyscelidris aptera Szelényi, 1941. Zool. Anz., 134: 164. Hungary.

Encyrtoscelio masrensis Priesner, 1951. Bull. Inst. Fouad 1 du Désert, 1: 125. Egypt.

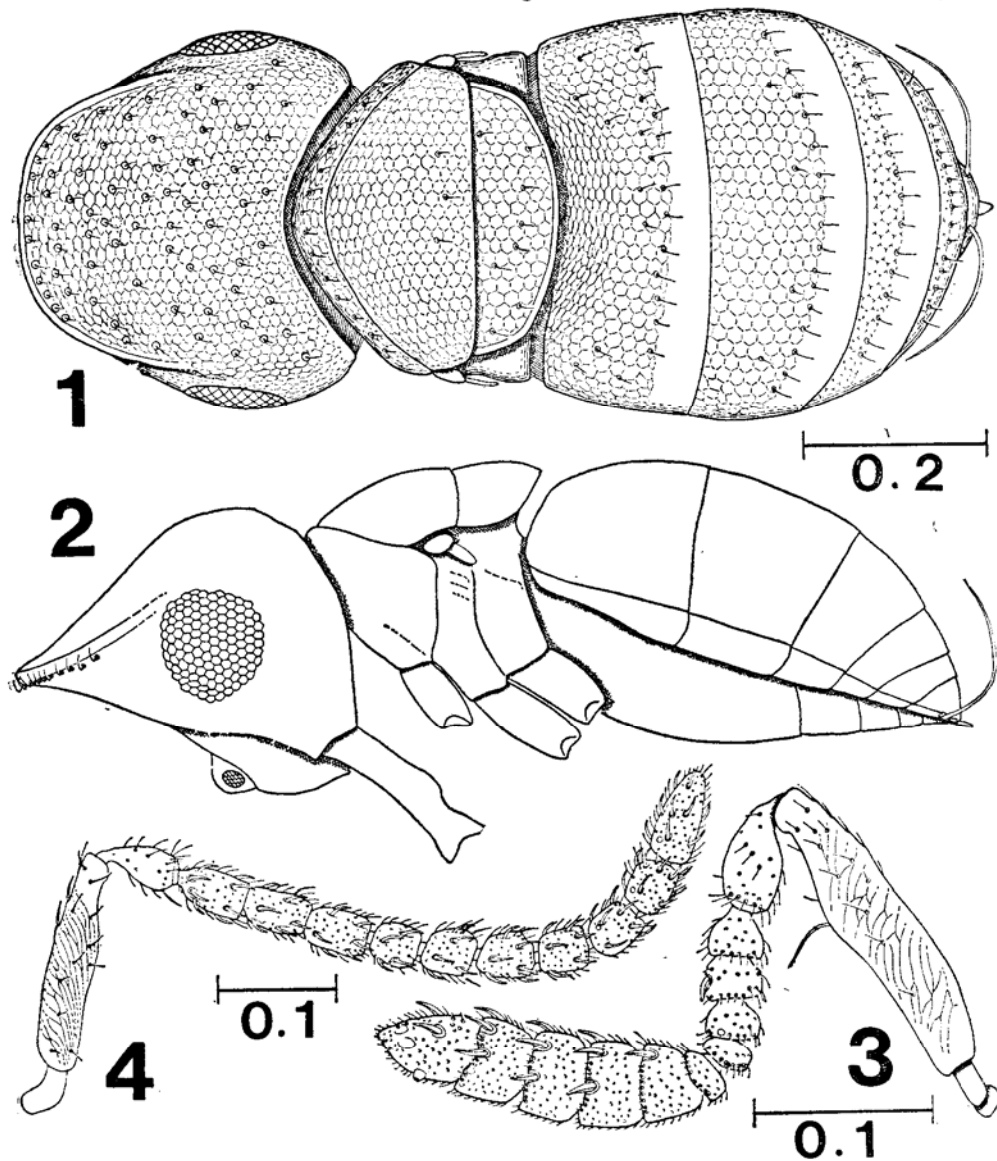
Pachyscelidris aptera: Masner, 1956. Acta Faun. Ent. Mus. Nat. Pragae, 1: 111.

Encyrtoscelio apterus: Kozlov, 1963. Ent. Obz., 42: 662.

Encyrtoscelio apterus: Fabritius, 1965. Ent. Abh. Mus. Tierk. Dresden, 31: 261.

Encyrtoscelio apterus: Bin, 1979. Boll. Lab. Ent. Agraria F. Silvestri, 36: 3.

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Figs. 1—4. *Encyrtoscelio apterus* (Szelényi, 1941). 1 and 2. ♀, body in dorsal and lateral views. 3. ♀, antenna. 4. ♂, antenna. (Scale in mm)

Dodd (1914) established the genus *Encyrtoscelio* from Australia for a new species, *E. mirissimus*, which was based on the winged female. On the other hand, Szelényi (1941) proposed the genus *Pachyscelidris* from Hungary for a new species, *P. aptera*, which was based on the apterous material. Kozlov (1963), however, discovered the winged female of *P. aptera* from the Black Sea area, and he found out that the genus *Pachyscelidris* is synonymous with the genus *Encyrtoscelio*. In addition, Fabritius (1965) says that *Encyrtoscelio masrensis* Priesner, 1951, is the winged female of *E. apterus*.

Redescription based on the Korean material.

Female. (Apterous type). Length 0.98–1.11mm. Color: black; mandible reddish brown; antennal club and legs yellowish brown except all coxae; tegula, antennal scape and funicle yellow; rudiment of fore wing hyaline.

Head large, semicircular in dorsal view, 1.3 x as broad as long, slightly longer than thorax; vertex much prolonged anteriorly and broadened, coriarius, sparsely punctate accompanied with a single hair; ocelli indistinct or nearly absent; head nearly right-angled triangular in lateral view, slightly higher than long; temple $1/4 \times$ ^{as high} as head; eye small, almost circular, 0.4 x as high as head; mandible strongly elongated, slightly over $1/2$ of head high, as long as scape, with some long hairs and its apical portion with two terminal, one posterior and one inner teeth. Antenna 12-segmented, arises from frontal process; scape slender, faintly coriarius, with sparse setae and a long seta in the middle; pedicel oval, longer than following 2 segments together; first 3 funicle segments small, conical; 4th and 5th funicle segments the smallest, transverse; club 5-segmented, as long as but stouter than scape; club segments transverse except subconical terminal segment, densely covered with short setae and with some scattered, stout, sensorial setae (15 μ m).

Thorax short, 1.3 x as broad as long, and as high as long; pronotum narrow in dorsal view, but broad and triangular in lateral view; mesonotum coriarius with sparse hairs; mesoscutum pentagonal, flattened, 2 x as broad as long, 0.6 x as long as thorax; scutellum transverse, flattened, more than 3 x as broad as long, slightly more than $1/2$ as long as mesoscutum, protruding over metanotum; tegula small; rudiment of fore wing nearly 0.8 x as long as scutellum; metanotum and propodeum short, covered by scutellum and invisible from above except lateral portions; hind wing absent; mesopleuron and metapleuron short, with some horizontal weak striae. Legs slender, normal.

Abdomen large, campanulate, slightly narrower than long and slightly more than $1/2$ as thick as long, 1.8 x as long as thorax, 1.3 x as broad as thorax; relative length of each tergite to whole abdominal length, from 1st to 4th segment, 0.24, 0.36, 0.20, 0.08; 1st tergite broadly concaved on anteromedian area; each tergite coriarius with sparse setae on basal $2/3$ and smooth on distal $1/3$; last tergite with a pair of long, curved, bristles which are more than $1/3$ as long as abdomen.

Male. Very similar to female except as follows. Length 0.93–1.05mm. Color: black; mandible yellowish brown; antenna blackish brown; all femora and tibiae blackish brown medially, brown basally and distally; all trochanters and tarsi brown.

Head shorter than in female, 1.6 x as broad as long, 0.85 x as long as thorax; vertex more convex than in female; ocelli indistinct or distinct, when distinct, they are arranged in a regular triangle and POL 0.36 x as broad as head; head higher than in female; temple $1/3$ as high as ^Yhead; mandible shorter than scape. Antenna far longer than in female, without club; first 3 flagellar segments long, cylindrical, as long as pedicel respectively; 4th to 9th flagellar segments as long as broad, the terminal one longer than broad, subconical; each flagellar segment covered with sparse long setae and with some scattered, stout, sensorial setae.

Scutellum slightly longer than in female, less than 3 x as broad as long, $2/3$ x as long as ^{mesoscutum.} Abdomen shorter than in female, as broad as long, 1.5 x as long as thorax; relative length of each tergite to whole abdominal length, from 1st to 4th segment, 0.34, 0.33, 0.15, 0.09.

Specimens examined. 3♀, 8♂♂, (apterous type), Mt. Sudo-san (alt. 500m), Kyungsang-pookdo, Korea, 27–31. v. 1979, K. Yamagishi leg. (by the yellow pan traps).

Biology. In Europe, the host of *E. apterus* is said to be the egg of *Cydnus aterrimus* Foerster (Heteroptera, Cydnidae) living on the sand dunes (Bin, 1979). In Korea, its host is unknown, but many individuals of a cydnid bug, *Macroscytus japonensis* Scott, are collected together with *E. apterus* by the pan traps. Hence, it is very probable that the host of *E. apterus* is the egg of *M. japonensis* in Korea. The habitat in Korea was a forest mainly composed of *Abies holophylla* and of *Quercus* spp. on the granitic sandy soil.

Bin (1979) stated that *E. apterus* probably hibernates in the adult stage like its host, *Cydnus aterrimus*, and that *E. apterus* probably has two generations a year, although the eggs of *C. aterrimus* are found only from spring to late summer in the sandy soil.

Distribution. Europe, Africa, East Asia.

Remarks. I think there is no significant difference between *Encrscelio mirissimus* Dodd, 1914 and *E. apterus* (Szelényi, 1941), as far as the descriptions are concerned. Further detailed studies are expected on the two species.

Discussion

Bin (1979) thought that the triangular head and the extremely elongated mandible of *E. apterus* are used for digging to search the host eggs which were deposited in the sandy soil. However, I think that *E. apterus* does not dig in the sandy soil but pushes its way through the sand grains by using its head. Several species of Scelionidae and Mymaridae (Eubroncinae) have also such a triangular head. I think that in *E. apterus* the absolute length of its mandible is too short to deal with a sand grain, although it has a relatively long mandible. Thus its long mandible does not seem to be suited for digging. This wasp may have a habit of phoresy.

On the other hand, it is also very hard to understand that why the wings are completely absent or sometimes fully developed in *E. apterus*. The winged male has not been recorded in the world. The female are either winged or apterous. I do not think that all apterous specimens once shed their wings. Interestingly, a pupa of the apterous female drawn by Bin (1979) shows only the rudiment of fore wing instead of fully developed one.

After all, the morphology of *E. apterus* in relation to its biology is still in mystery, and many problems are left behind to be understood.

The specimens of *Encyrtoscelio apterus* from Korea are preserved in Entomological Laboratory, Kyushu University, Fukuoka, Japan and in Entomological Laboratory, College of Liberal Arts and Science, Kyungpook National University, Taegu, Korea.

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