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## *Chrysocharis frigida* n. sp., a new Holarctic species of Entedoninae (Hymenoptera: Eulophidae)

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*Chrysocharis frigida* n. sp. is described and illustrated; its position in the genus and discrimination from similar species are discussed. The species occurs in northern latitudes or at high altitudes and is known from Canada, Italy, Norway, and Russia.

Key words: *Chrysocharis frigida*, new species, Eulophidae, Canada, Italy, Norway, Russia

### INTRODUCTION

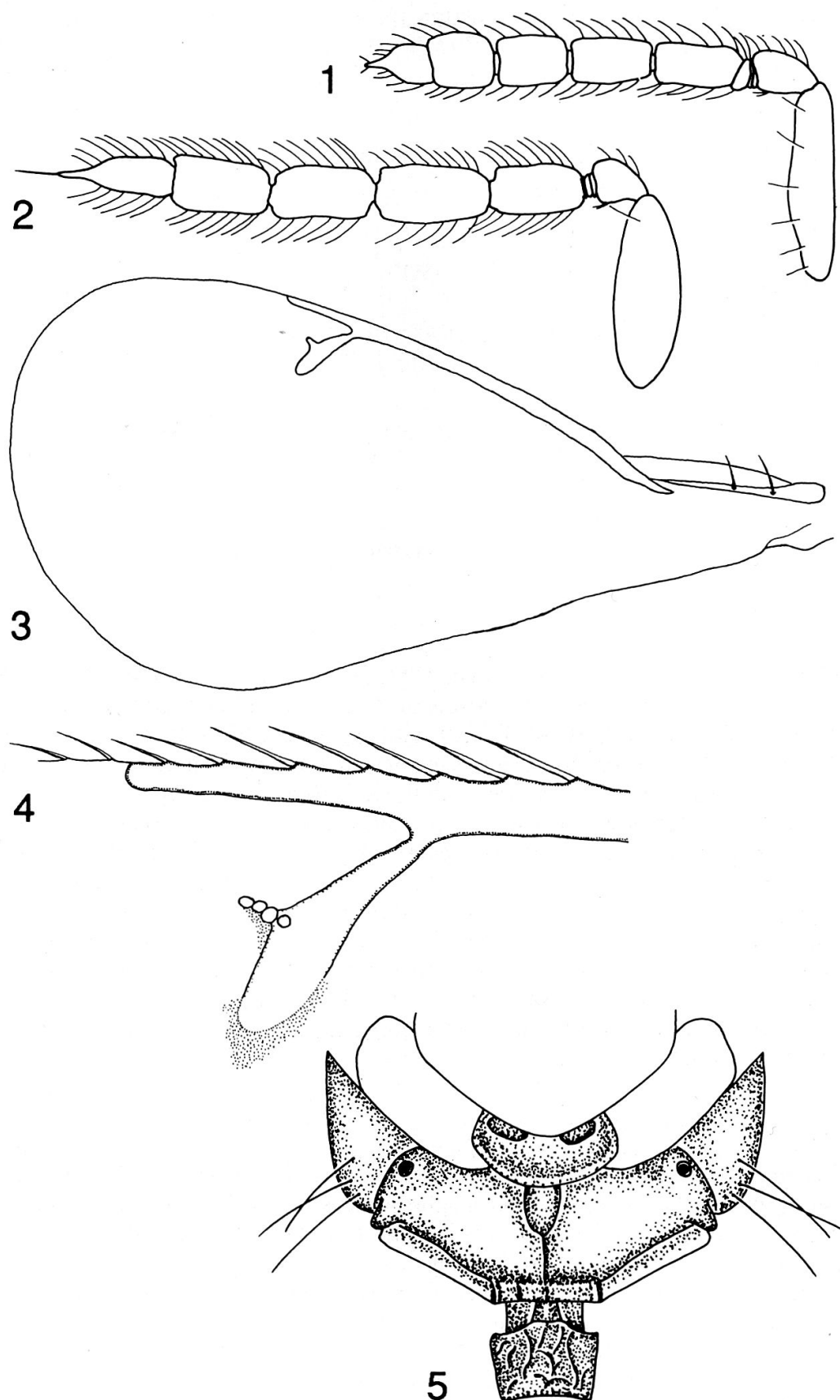
The genus *Chrysocharis* FÖRSTER, 1856, has its main distribution in the Holarctic region. In the most recent revisions of Palearctic and Nearctic species HANSSON (1985, 1987, 1995) lists 30 species with Holarctic, 37 with Nearctic, and 30 with Palearctic distribution. Most of the species are quite widespread. Hosts of about three quarters of the species have been identified so far. These mostly attack larvae and/or pupae of leafmining insects as primary endoparasitoids (HANSSON, 1985, 1987). Two species have been recovered from gall-midges (Diptera: Cecidomyiidae) (KAMIJO, 1981; HANSSON, 1987) and one species from gall-forming sawflies (Hymenoptera: Tenthredinidae) (ASKEW, 1995).

The species described below also has a wide, Holarctic distribution. However, its distribution pattern is remarkable for the genus, since specimens have so far been recovered from Northern parts of the region or at high altitude in the mountains only – a distribution pattern shared with the Palearctic species *C. arctica* (ERDÖS) (HANSSON, 1985).

### MATERIAL AND METHODS

Specimens were swept from grassland in high altitude (Italian Alps), or from the tundra in Northwest Russia during the joint Swedish-Russian tundra ecology expedition in summer of 1994. The collecting circumstances regarding specimens from Canada and Norway are not known.

Terminology and abbreviations of morphological terms follow HANSSON (1985), with changes and additions as suggested by HANSSON (1987, 1995). The description comprises all specimens listed below, not just the primary type. Holotype and paratypes have been deposited in the Canadian National Collection of Insects, Ottawa, Canada (CNC), the Lund University, Zoological Museum, Sweden (LUZM), the Institute for Plant Sciences/Applied Entomology, ETH, Zurich, Switzerland (ETHZ), and the Natural History Museum, Berne, Switzerland (NMBE).



Figs 1–5: *Chrysocharis frigida* n. sp.: Left antenna of female (1), of male (2); left forewing (3), stigmal and postmarginal veins (4), and propodeum of female (5).

## DESCRIPTION

*Chrysocharis frigida* n. spec.

Female: Head about 0.7x as high as wide. Mandibles bidentate. Entire antenna dark; flagellum (fig. 1) with the 2 apical segments fused; funicular segment I about 1.5x, II about 1.2x, and III about 1.1x as long as wide; length of scape about 0.7x as long as height of eye. Ratios height of eye/malar space/mouth opening about: 4.3–4.6/1.0/2.9–3.4. Frontal fork Y-shaped. Frons below fork golden-green, sometimes slightly bluish-tinged, reticulation with low and narrow septae and small meshes, with one row and a partial second row of setae along inner orbit of compound eye. Frons above fork metallic green to blue-green, reticulation with very low and narrow septae and small meshes. Vertex golden-green to metallic green, reticulation with very low and narrow septae and small meshes, sometimes slightly larger inside ocellar triangle. Ratios POL/OOL/POO: 3.7–5.7/1.7–3.0/1.0. Occipital margin behind ocellar triangle with a moderately high and sharp carina which reaches about to level of inner margin of compound eye. A moderately high and rather blunt carina along upper hind part of compound eye reaching slightly up onto the vertex.

Mesosoma about 1.6x as long as wide. Pronotum without transverse collar carina, reticulation with moderately high and narrow septae forming small meshes, hind margin with a broad smooth stripe. Mesoscutum golden-green to metallic bluish-green, reticulation on midlobe with moderately high and moderately wide septae and fairly large meshes, sidelobes with low and narrow septae and small meshes. Scutellum with 2 setae and similar colour and reticulation as midlobe of mesoscutum, about 1.2x as long as wide. Dorsellum golden-green, slightly impressed and with weak reticulation, about 0.6x as long as wide. Borderline between lower and upper mesepimeron curved. All coxae dark and metallic with rather strong reticulation, trochanters also dark. Femora dark except for tips, fore tibia predominantly dark infusate, mid and hind tibiae slightly infusate. All tarsi darkened, fore tarsi strongest. Wings hyaline, forewing (fig. 3) rounded with speculum closed below, about 2x as long as wide. Costal cell with an incomplete row of setae in basal part. Venation conspicuously darkened, almost brown, ratios length of marginal/postmarginal/stigmal veins: 4.2–5.2/1.0–1.4/1.0. Stigmal vein elongate and surrounded by a small dark spot (fig. 4). Propodeum (fig. 5) with same colour as mesoscutum, with weak reticulation and small meshes, with a weak to rather strong and complete median carina, callus with 3–5 setae, anteromedian part of propodeum raised into a triangular fovea bordered by a sharp edge. Petiolar foramen more or less semicircular, with no or only a very short “sloping roof” in upper part.

Metasoma with raised surface of petiolus strongly sculptured, shape more or less trapezoid, about 0.7x as long as wide. Ratio length of propodeum/length of raised surface of petiolus about 1.7. Gaster oval-shaped, in the middle more or less parallel-sided, about 1.4x as long as wide. Ratio length of thorax/length of gaster: 1.2–1.3.

Length of body: 1.5–1.9 mm.

Male: Antenna (fig. 2) with scape wider than in female, funicular segment I about 1.9x, II and III about 1.8x as long as wide; length of scape about 0.8x as long as height of eye. Ratios height of eye/malar space/mouth opening about 3.3/1.0/2.6.

Mesosoma with tibiae slightly paler than in female, fore tibia with outer side slightly darkened, mid and hind tibia yellow, tarsi yellow at base. Petiolar foramen with a moderately long "sloping roof" in upper half.

Metasoma with raised surface of petiolus as in female but slightly longer, about 0.8x as long as wide. Gaster gradually widening, about 1.7x as long as wide. Ratio length of thorax/length of gaster about: 1.3.

Length of body about: 1.7 mm.

Otherwise as in female.

Material examined: HOLOTYPE ♀ labelled "ITALY: Novara, Antronapiana, W Rifugio Andolla, 2300 m, 648.1/105.0, 6.viii.1992, leg. H. BAUR" in coll. LUZM.

Paratypes: 10 ♀♀, 2 ♂♂ with same label-data as holotype (5 ♀♀, 1 ♂ in LUZM, 4 ♀♀, 1 ♂ in NMBE, 1 ♀ in ETHZ); 1 ♀ "NORWAY: Maristuen, 15.viii.1952, leg A. SUNDHOLM" (LUZM); 1 ♀ "RUSSIA: Kanin Peninsula, 68° 20' N, 45° 54' E, site 26, 29–30.viii.1994, leg. C. HANSSON" (LUZM); 1 ♀ "CANADA: Quebec, Great Whale River, 8.viii.1959, leg. W. R. M. MASON" (CNC).

Etymology: The name *frigida* is from the Latin word for cold, referring to the seasonal temperatures in distribution areas of this species.

Biology: Unknown.

Remarks: Only two males of this new species have been recovered so far. One of the males is slide-mounted (NMBE) and the other is glued to a card (LUZM), which is why certain measurements have not been possible to get.

## DISCUSSION

*Chrysocharis frigida* belongs to the species-group of *C. pubicornis* (ZETTERSTEDT) as characterised by HANSSON (1985, 1987). In the key to Palearctic species (HANSSON, 1985) and in the newest key to Nearctic species (HANSSON, 1995), *C. frigida* runs to *C. polyzo* (WALKER). However, *C. frigida* has predominantly dark femora (most often completely pale in *C. polyzo*), an elongate stigmal vein which makes postmarginal vein only 1.0–1.4x as long as stigmal vein (about 2.6x in *C. polyzo*), petiole distinctly narrower than dorsellum (as wide or wider than dorsellum in *C. polyzo*). Through the low value of the ratio length of postmarginal vein/length of stigmal vein, *C. frigida* is also similar to *C. antoni* HANSSON, but differs in having one complete and one partial row of setae along inner margin of compound eyes (2–3 complete rows in *C. antoni*) and in the more or less trapezoid shape of raised surface of petiole (oval-shaped in *C. antoni*). *C. clarkae* (YOSHIMOTO) is a third species with which *C. frigida* might be confused. The propodeum, petiole, antennae, and dark legs of *C. clarkae* are similar to those of *C. frigida*, but *C. clarkae* has a weak occipital carina reaching only half way between lateral ocelli and eyes (strong and reaching about to level of inner margin of eye in *C. frigida*).

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## ZUSAMMENFASSUNG

*Chrysocharis frigida* n. sp. wird beschrieben und illustriert. Die Stellung in der Gattung und die Unterscheidung von ähnlichen Arten werden diskutiert. Die Art wurde in Kanada, Italien, Norwegen und Russland gesammelt. Die Fundorte befanden sich einerseits in nördlichen Breiten, andererseits in grossen Höhen in den Alpen.

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