Review of the genus Opazon Haliday, 1857 (Hymenoptera: Diapriidae: Belytinae) in the fauna of Russia

Обзор рода Opazon Haliday, 1857 (Hymenoptera: Diapriidae: Belytinae) в фауне России

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Introduction

The genus Opazon Haliday, 1857 includes small (1.5–2.5 mm) diapriid wasps from the tribe Pantolytini (Hymenoptera: Diapriidae: Belytinae). Biology and hosts of these parasitoids are still unknown. Only five species of the genus are known in the World fauna, four of which, Opazon apertum (Kieffer, 1908), O. incrassatum (Thomson, 1859), O. parvulum (Haliday, 1857) and O. frigidum Macek, 1977, were described from the Palaearctic region, and one, O. conicum (Ashmead, 1893) from the Nearctic region [Johnson, 1992; Macek, 1995]. In the key to Diapriidae of the USSR M. Kozlov [1978] recorded two species of Opazon in the fauna of Russia, O. apertum from Ural and O. parvulum from the European part. J. Macek [1995] in his revision of the Palaearctic Opazon species proposed some new synonyms, useful key and diagnosis for the all valid species. Moreover he recorded O. frigidum for Russian fauna from Yamal Peninsula (this is the type-locality of the species) [Macek, 1995].

During our study of material from the many localities in Russia and several neighboring countries, we have researched all known Palaearctic species, analyzed and estimated morphological variations and proposed original illustrate key to the Palaearctic species. The new key proposed here is adapted for determination Opazon species in the Eastern Palaearctic fauna (center and east of the European part of Russia, Ural, Siberia and Far East).

Material and methods

This work is based on the insect collection of the Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia (ZIN), the Zoological Museum of the Moscow State University, Moscow, Russia (ZMUM), the National Museum, Prague, Czech Republic (NMPC) and the National History Museum, University of Tartu, Tartu, Estonia (TUZ). Material for this study was collected by yellow pan traps and by net sweeping. Morphological terminology and abbreviations follow Nàumann [1982], Masner, García [2002], Yoder [2004] and Yoder et al., [2010]. The measurements mostly follow Yoder [2004] but the measurements of venation are used here after Chemyreva and Kolyada [2019a, b].

New distribution records are marked with an asterisk (*). The general distribution of species follows Nixon [1957] and Macek [1995]. The genus Opazon can be recognized in the Palaearctic fauna using the generic key by Nixon [1957], Kozlov [1978] and Macek [1989].
Results

Genus Opazon Haliday, 1857


DIAGNOSIS. Small parasitoids (1.7–3.0 mm); pale brown to black. Head in frontal view with genae converging towards mouthparts; mouthparts hypognathous; mandibles beak-like, bidentate; clypeus strongly convex, higher than its width; labrum triangular; tentorial pits situated in deep depression; antennal shelf prominent, toruli close to each other. Female antenna 15-segmented, incrassate apically; male antenna 14-segmented with cylindrical antennomers and A3 mostly modified. Mesosoma usually a little higher than wide; pronotum with prominent prontal shoulders, with sharp and distinct epomia; prontal pits absent, epomia not interrupted; prontal collar sculptured, often with distinct transversal keel; mesonotum convex with complete and deep notauli; propodeum slightly transverse with simple median keel; plicae distinct throughout and weakly projecting posteriorly. Venation with radial cell closed or partly open apically (Figs 14–15); veins C, Sc, marginal, postmarginal, stigma, radial and basal veins tubular; marginal vein longer than radial cell and distance from marginal vein to basal vein. Petiole subcylindrical, a little longer than wide, finely sculptured; T2 with five deep and short grooves at base; S2 without any prominences anteriorly; female metasoma fusiform, compressed at posterior third, with pygidium extended and down curved; hypopygium enlarged, surmounting epipygium at sides; ovipositor long, as long as metasoma without petiole; gonapophyses slender.

RELATIONSHIPS. The genus Opazon belongs to Pantomyina subtribes and closely related to the genus Pantolyta Foerster, 1856, differing from it mainly by distinctly beak-like shape of mandibles. Moreover, the male genitalia of Opazon have apex of volsella fused with digitus, in difference from Pantolyta where volsella is free.

KEY TO PALAEARCTIC SPECIES OF Opazon Haliday

1. A1 with weakly prominent lamellae in both sex (Figs 3, 4), slender, more than 6.0 times as long as wide in female and 5.0 in male. Mandibles 0.60–0.75 times as long as pleurostomal distance (Figs 1–2). Head in frontal view as height as wide (Figs 3–4); temples in dorsal view short (Fig. 16) .......................................................................  2

— A1 with strongly prominent lamellae in both sexes (Figs 1, 2), robust, 3.6–4.5 times as long as wide in female (Figs 1–2) and 3.2–3.8 in male (Figs 9–10). Mandibles 0.82–1.20 times as long as pleurostomal distance (Figs 1–2). Head in frontal view and temples in dorsal view elongate (Figs 1–2, 16, 18) ........................................................  3

2. A11 and A12 in females as wide as long to elongate; female antenna slender (Fig. 7); A3 in males unmodified, straight (Fig. 12) .......... Opazon parvulum (Haliday, 1857)

— A11 and A12 in females distinctly transverse; female antenna stout (Fig. 6); A3 in males modified, strongly emarginate (Fig. 11) .......... Opazon incrassatum (Thomson, 1859)

3. Eyes prominent or outline of head in dorsal view. Mandible very long, longer than pleurostomal distance (Fig. 1) ................................. Opazon apertum (Kieffer, 1908)

— Eyes not prominent or outline of head in dorsal view (Fig. 18). Mandible about as long as pleurostomal distance to weakly shorter (Fig. 2) ................................................................. Opazon frigidum (Haliday, 1857)

REMARK. Some difficulties in separation of Opazon parvulum and Opazon frigidum females are present. The females both...
Figs 5–8. *Opazon* spp., female antennae: 5 — *O. apertum*; 6 — *O. frigidum*; 7 — *O. parvulum*; 8 — *O. incrassatum*. Scale bars: 0.2 mm.

Рис. 5–8. *Opazon* spp., антенны самок: 5 — *O. apertum*; 6 — *O. frigidum*; 7 — *O. parvulum*; 8 — *O. incrassatum*. Масштаб: 0,2 мм.

Figs 9–12. *Opazon* spp., male antennae: 9 — *O. apertum*; 10 — *O. incrassatum*; 11 — *O. frigidum*; 12 — *O. parvulum*. Scale bars: 0.2 mm (9, 12), 0.5 mm (11, 12).

Рис. 9–12. *Opazon* spp., антенны самцов: 9 — *O. apertum*; 10 — *O. incrassatum*; 11 — *O. frigidum*; 12 — *O. parvulum*. Масштаб: 0,2 мм (9, 12), 0,5 мм (11, 12).
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Figs 13–19. *Opazon* spp.: 13–14 — *O. frigidum*; 15, 18 — *O. incrassatum*; 16, 19 — *O. parvulum*; 17 — *O. apertum*; 13–15, 17, 19 — lateral habitus; 16, 18 — head in dorsal view. Scale bars: 0.2 mm (16, 18), 1.0 mm (13–15, 17, 19).

species can be recognized in the Western Palaearctic fauna (Europe and west of the European part of Russia) using the key suggested by Macek [1995], but in the Eastern fauna (center and east of the European part of Russia, Ural, Siberia and Far East) the species better determined by using characters described in the key above.

1. **Opazon apertum** (Kieffer, 1908)
   
   **Figs 1, 5, 9, 17.**
   
   *Rhynchosipus apertus* Kieffer, 1908.
   
   **Opazon apertum** Chemyreva, 2019: 37 (erratum).
   
   **MATERIAL EXAMINED.** Lithuania, 1♂; 3 ♂♂ ZIN (ZIN); vicinity of Vilnius, 17.VI.1971, V. Tobias leg. *Estonia* 2 ♂♂ (TUZ); Paulekia 58.2571°N 26.9326°E, YPT, 15.VI.2017, V. Soon leg.; 2 ♂♂ (ZIN); Vöru. Russia: ♂ Leningradskaya Area, Ladoga Lake Station, 13.VI.1983, S. Belokobylskij leg.; 5 ♂♂, 109 ♂♂ (ZIN, ZMUM); Moscow Area, Moscow City, Krylatskoe, Rublevskiy forest, 1–12.V.2010, V. Kolodya leg.
   
   **VARIATIONS.** Radial cell well developed (close or open at apex) to strongly reduced to transparent point.
   
   **DISTRIBUTION.** England, Germany, Italy, Poland, Czech Republic, Austria, *Lithuania, *Estonia, Russia (*European part, Ural*).

2. **Opazon incrassatum** (Thomson, 1859)
   
   **Figs 2, 8, 10, 15, 18.**
   
   *Belyta* (Opazon) incrassata Thomson, 1859.
   
   
   **VARIATIONS.** No distinct variation of the morphological characters was found in the studied specimens.
   
   **DISTRIBUTION.** England, Germany, Italy, Poland, Czech Republic, Austria, *Lithuania, *Estonia, Russia (*European part, Ural*).

3. **Opazon frigidum** Macek, 1995
   
   **Figs 3, 6, 11, 13, 14.**
   
   
   
   **DISTRIBUTION.** England, Finland, Sweden, Germany, Poland, Czech Republic, Austria, *Lithuania, *Estonia, Russia (*European part, Ural*).

4. **Opazon parvulum** (Haliday, 1857)
   
   **Figs 4, 7, 12, 16, 19.**
   
   
   **VARIATIONS.** Body dark brown to pale brown; radial vein partially obliterated to distinct at apex, 0.50–0.83 times as long as marginal vein; mandibles 0.6–0.7 times as long as pleurostomal distance. Females prepupaly morphic (Figs 13, 14). Female A4–A7 as long as wide to weakly transverse.
   

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References


