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REVIEW OF PALEARCTIC ORMYRIDAE (HYMENOPTERA, CHALCIDOIDEA), WITH DESCRIPTION OF TWO NEW SPECIES

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Обзор палеарктических видов семейства Ormyridae (Hymenoptera, Chalcidoidea) с описанием двух новых видов. Зерова М. Д., Серогина Л. Я. — Приведена таблица для определения палеарктических видов рода *Ormyrus* Westwood. Описаны *Ormyrus ermolenkoi* Zerova, sp. n. с Курильских островов (о. Кунашир) и *O. ibaraki* Zerova, sp. n. с Японских островов (о. Хонсю). Оба новых вида относятся к группе *orientalis*. Установлена синонимия: *Ormyrus tschami* Doğanlar, 1991 = *O. graciosus hermonicus* Zerova, 2003, syn. n.

Ключевые слова: Hymenoptera, Ormyridae, обзор, новые виды, Курилы, Япония.

Review of Palearctic Ormyridae (Hymenoptera, Chalcidoidea), with Description of Two New Species. Zerova M. D., Seryogina L. Ya. — A key to all Palearctic species of the genus *Ormyrus* Westwood is provided. *Ormyrus ermolenkoi* Zerova, sp. n. from Kuril Islands (Kunashir) and *O. ibaraki* Zerova, sp. n. from Japan (Honshu Island) are described; both species belong to the *orientalis* species group. The following synonymy is established: *Ormyrus tschami* Doğanlar, 1991 = *O. graciosus hermonicus* Zerova, 2003, syn. n.

Key words: Hymenoptera, Ormyridae, review, new taxa, Kuril Islands, Japan.

Introduction

The family Ormyridae is represented by three genera, *Ormyrus* Westwood, *Ormyrulus* Bouček and *Eubeckerella* Narendran. However, in the Palearctic Region, only one genus *Ormyrus* is recorded. It is the largest and the most widespread genus of the family. Several generic names have been proposed in this group, all based on the number of anelli and partly on the sculpture of the gaster (e. g., Doğanlar, 1991 b). As they do not form any evident natural groups, only the genus *Ormyrus* is generally recognized (Bouček, 1988; Bouček et al., 1981; Askew, 1994; Narendran, 1999). We assigned palearctic species of the *Ormyrus* to two species groups: *diffinis* group (female gaster without dorsal median keel) and *orientalis* species group (female gaster with dorsal median keel) (Зерова, Серогина, 1998). All *Ormyrus* species have associations with insect galls, whereas their larvae are solitary and ectophagous, although Askew (1994) noted the larvae can develop as secondary parasitoids that in some cases. The hosts of *Ormyrus* species are mainly Hymenoptera (Cynipidae) and Diptera (Cecidomyiidae, Tephritidae, Agromyzidae) (Askew, 1994; Зерова, 1985). Ormyridae are more numerous in the Tropics, compared with temperate areas, and especially in arid regions. Narendran (1999) listed 62 species for Indo-Australian fauna. Except one species of the genus *Ormyrulus* and one of *Eubeckerella*, all species belong to the genus *Ormyrus*. In the Palearctic Region, we recognize now 34 species of the *Ormyrus*.

Abbreviations T1–T7 are used in the key for the gasteral tergites 1–7, correspondingly.

Material and methods

The main material examined in this study, including the types of new species, is deposited in collection of the Schmalhausen Institute of Zoology, National Academy of Sciences of Ukraine, Kyiv (SIZK); the type specimen of *Ormyrus orientalis* was received for examination from the Natural History Museum, London (BMNH); *O. hungaricus* Erdős and *O. speculifer* Erdős from the Hungarian Museum of Natural History, Budapest, (HMNH); the specimens of *O. capsalis* Askew, *O. cupreus* Askew and *O. monegricus* Askew from the personal collection of Dr. R. Askew. *O. longicornis* Bouček (paratype) from the Zoological Institute, St. Petersburg. Other species (*O. ardahanensis* Doğanlar, *O. kazovaensis* Doğanlar, *O. bingoelensis* Doğanlar, *O. tschami* Doğanlar, *O. destephani* Mayr, *O. diffinis* Fonscolombe, *O. graciosus* Förster, *O. papaveris* Perris, *O. wachtli* Mayr, *O. nitidulus* Fabricius, *O. rufimanus* Mayr, *O. pomaceus*

Geoffroy) are known from original descriptions and our recent material. The type specimen of *O. salmanticus* Nieves-Aldrey was examined as scanning electron microphoto kindly sent by Dr. Nieves-Aldrey.

Key to Palearctic species of the genus *Ormyrus*

Таблица для определения палеарктических видов рода *Ormyrus*

- 1 (48). Female gaster dorsally without longitudinal median carina (fig. 2, 7; 4, 10). Number of anelli varies from 1 to 4.
- 2 (5). Body yellowish brown or orange.
- 3 (4). Body orange; fore wing infumate. Antenna with 3 anelli; ♀ 1.99 mm. Algeria. *O. oranensis* Erdős, 1964
- 4 (3). Body brownish yellow with green tinge on vertex. Antenna with 2 anelli, first funicular segment shorter than the second. Gastral tergites with thin reticulation (fig. 1, 1, 2). ♀, ♂ 1.9 mm. In galls of *Xestophanes potentillae* (Retzius) on *Potentilla impolita*. Europe. *O. destefanii* Mayr, 1904
- 5 (2). Body green, dark green, bluish green or black with metallic reflection.
- 6 (15). Gastral tergites dorsally in both sexes with yellow or yellowish brown spots.
- 7 (8). Antenna with 2 anelli. Epipygium up turned, two times longer than the T6. Gaster of female S-like curved with pale yellow spot on T2–T4 and small elongate yellow spot on epipygium; rest part of gaster and also head and mesosoma green; sculpture of gaster light alveolate, with meshes of irregular shape, sparse pubescence recognizable only on T5 and T6 tergites (fig. 1, 3–5). ♀ about 4 mm. In galls of *Stefaniola gigas* (Marikovskiy) on *Haloxylon persicum*. Kazakhstan. *O. zoae* Zerova, 2005
- 8 (7). Antenna with 3 or 4 anelli.
- 9 (10). Metasoma of female 3 times as long as mesosoma in lateral view; apex of the gaster elongate and uplifted; epipygium 1.5 times longer than T6; sculpture of the gaster light, alutaceous. Antenna with 3 anelli. Head and mesosoma green, gaster basally and apically green-brown. Spots on T3–5 yellow (fig. 1, 6–8). ♀ 1.7–2.25; ♂ 1.1–1.3 mm. Ex *Haplodiplosis palpata* (Marikovskiy) on *Anabasis aphylla*. Kazakhstan. *O. lanatus* Zerova, 1985
- 10 (9). Metasoma of female more than 3 times as long as mesosoma in lateral view.
- 11 (12). Spot on gaster rather pale, nearly white; rest of body green; gaster (lateral view) at least 2 times longer than mesosoma, with large shallow pits on the alutaceous background. Antennae inserted somewhat lower than middle of face, with three very small, flattened anelli, first funicular segment notably shorter than following ones, nearly as long as last anellus (fig. 1, 9–11). ♀ 2.2 mm. In galls of a gall midge on *Haloxylon persicum*. Turkmenistan. *O. halimodendri* Zerova, 1985
- 12 (11). Spot on gaster brownish. Antennae inserted notably lower than middle of face.
- 13 (14). Antenna with 4 distinctly separate anelli. Body dark green, spots on T2–T3 brownish yellow; sculpture of gaster shallow, alutaceous. Gaster with sparse short pale pubescence; epipygium short, as long as T6 (fig. 2, 1–3). ♀ 1.5, ♂ 1.6 mm; ♂ 0.8–1.0 mm. Israel. *O. aridus* Zerova, 2005
- 14 (13). Antenna with 3 anelli. Body dark green, spot on gaster brownish; sculpture on T2–T4 alveolate, on T5–T7 alutaceous. Each tergum, except first, with row of comparatively long setae, virtually encircling tergites. Apex of the gaster narrowed, metasoma somewhat more than twice longer than mesosoma (fig. 2, 4–6). ♀ 1.5–1.75 mm; ♂ 1.0 mm. In galls of Cecidomyiidae on *Anabasis salsa*. Kazakhstan. *O. parvulus* Zerova, 1985
- 15 (6). Gastral tergites dorsally without yellow spots in both sexes.
- 16 (21). Antennal flagellum with 1 anellus.
- 17 (18). First gastral tergum (♀) smooth and shining. First funicular segment notably smaller than following ones, but much larger than the anellus and bears sensillae and pubescence; body green. T3–T6 with homogeneous fine sparse punctation, almost without pubescence (fig. 2, 7–10). ♀ 2.6 mm. In galls of *Aulacidea subterminalis* Niblett on *Hieracium pilosella*. Spain. *O. salmanticus* Nieves-Aldrey, 1984 (see also couplet 25) *
- 18 (17). Basal tergum of gaster with punctation. First funicular segment as long as following ones.
- 19 (20). Metasoma of female 1.5 times as long as head plus mesosoma combined; epipygium (in lateral view) shorter than broad; T3–T5 closely punctate, with some round tubercles, T6 with punctation. Body bright green (fig. 2, 11–13). ♀ 2.8–4.3 mm; ♂ 2.5–3.0 mm. In galls of many species of Tephritidae (*Urophora* spp.) and Cynipidae (usually *Aylax* spp.) in flower heads of Asteraceae. *O. gratiosus* (Förster, 1860)

* Nieves-Aldrey (1984) noted that this species has two anelli, but the second anellus is near flagellar segments and bears sensillae.

- 20 (19). Metasoma of female twice as long as head plus mesosoma combined; epipygium longer than broad (in lateral view). T3–T6 with the same structure as in *O. gratiosus*. Body bright green. ♀ 2.8–3.8 mm; ♂ 1.5–2.0 mm. Associated with herbaceous plants. *O. tschami* Doğanlar, 1991
- 21 (16). Antennal flagellum with 2 or 3 anelli.
- 22 (41). Antennal flagellum with 2 anelli.
- 23 (26). Basal tergite of gaster smooth and shining in female.
- 24 (25). Both anelli transverse, ♀ 2.07 mm. Hungary. *O. speculifer* Erdős, 1946
- 25 (24). Only first anellus transverse, the second is like a small funicular segment. ♀ 2.6 mm. *O. salmanticus* Nieves-Aldrey, 1984 (see also couplet 17)
- 26 (23). Basal tergite of gaster distinctly reticulate in female.
- 27 (30). Gaster with distinctly up-turned epipygium.
- 28 (29). Ovipositor strongly exerted, extending beyond apex of epipygium for a distance equal to half of hind tarsus. Body brownish-green; fore wing with hairs on lower surface of speculum and on cubital vein below speculum (fig. 3, 1–3). ♀ 2.5–3.5 mm, ♂ 1.8–2.8 mm. In galls of *Aylax papaveris* Perris in seed capsule of *Papaver* spp. Europe. *O. papaveris* (Perris, 1840)
- 29 (28). Ovipositor strongly extending beyond apex of epipygium for a distance equal to one-third of hind tarsus. Body, especially gaster violet; speculum of fore wing almost bare (fig. 3, 4–6). ♀ 3.0–3.5 mm, ♂ 1.7 mm. Parasite of *Urophora repeteki* (Munro) in flower heads of *Cousinia hamadae*. Uzbekistan. *O. bucharicus* Zerova, 1985
- 30 (27). Gaster with non-turned epipygium.
- 31 (34). Female flagellum strongly expanded distally; club much broader than flagellum.
- 32 (33). First two funicular segments distinctly transverse, 3th and 4th weakly transverse, 5th and 6th nearly quadrate. Body green, sculpture of gaster with smoothed reticulated sculpture, with unclear fine, weakly noticeable pits (fig. 3, 7–9). ♀ 2 mm. In galls on *Haloxylon* sp. Turkmenistan. *O. laccatus* Zerova, 1985
- 33(32). All funicular segments transverse. Body black with metallic tint. Gasteral dorsum punctate all over. ♀ 4.7–2.1 mm. Associated with herbaceous plants. Turkey. *O. kazovaensis* Doğanlar, 1991
- 34 (31). Flagellum of female slightly expanded distally, club as broad as distal flagellar segments.
- 35 (36). Length of pedicel plus flagellum as long (♀) or longer (♂) than breadth of head; funicle segments subquadrate (♀) or slightly longer than broad (♂). Body dark green; gasteral tergites with fine reticulation (fig. 3, 10–12). ♀ 2.7–3.5 mm, ♂ 2.4–3 mm. Europe, Minor Asia (Turkey). *O. longicornis* Bouček, 1970
- 36 (35). Length of pedicel plus flagellum shorter than breadth of head; funicle segments transverse
- 37 (38). Postmarginal vein about 0.5 times as long as marginal vein. Speculum of fore wing partly closed by some hairs along cubital hairline. ♀ 2 mm, ♂ 1.7 mm. Turkey. Associated with herbaceous plants. *O. yeschilirmaka* Doğanlar, 1991
- 38 (37). Postmarginal vein at most 0.33 times as long as marginal vein.
- 39 (40). Fore wing with at least distal half of basal cell closed below by hairs on cubital vein; speculum closed by hairs on upper surface. Body dark green with violet and reddish reflection. T3–T5 with doubled punctation: larger basally, finer distally (fig. 4, 1–3). ♀ 1.8–3 mm; ♂ 1.5–2.5 mm. Parasite of *Neaylax salviae* (Giraud) and *Phanacis centaureae* Förster. Europe; Minor and Central Asia. *O. wachtli* Mayr, 1904
- 40 (39). Fore wing with speculum open below. Head and mesosoma dark green to weakly bluish green, metasoma very dark brown with bluish green reflections. T3–T5 evenly punctured, T5 with a row of larger rounded pits distally (fig. 4, 4, 5). ♀ 1.9–2.2 mm; ♂ 1.3–1.4 mm. In galls of *Aylax minor* Hartig in seed capsules of *Papaver* sp. Spain. *O. capsalis* Askew, 1994
- 41 (22). Antennal flagellum with 3 anelli.
- 42 (43). Anterior margin of clypeus bilobed. Gaster 1.7 times as long as rest of body. T3–T5 with transverse rows of foveae. Head and mesosoma dark green with blue-green to weakly bluish green reflections, gaster light brown dorsally, with metallic reflection (fig. 4, 6). ♀ 2.0–2.2 mm, ♂ 1.3–1.8 mm. In galls of *Stefaniola salsolae* (Tavares) on *Gypsophila* sp. Spain. *O. monegricus* Askew, 1994
- 43 (42). Anterior margin of clypeus straight.
- 44 (45). T4 and T5 with one row of deep foveae basally. Gaster 1.15 times as long as head and mesosoma combined. Body black with metallic reflection. ♀ 2.8–3.8 mm; ♂ 1.5–2.0 mm. Associated with grasses on pastures. *O. ardahanensis* Doğanlar, 1991
- 45 (44). All gastral tergites without rows of deep foveae. Body dark green.
- 46 (47). Flagellum of female notably narrowed basally, first funicular segment small, somewhat larger than the last (3rd) anellus; metasoma weakly longer than mesosoma; gasteral tergites with light fine

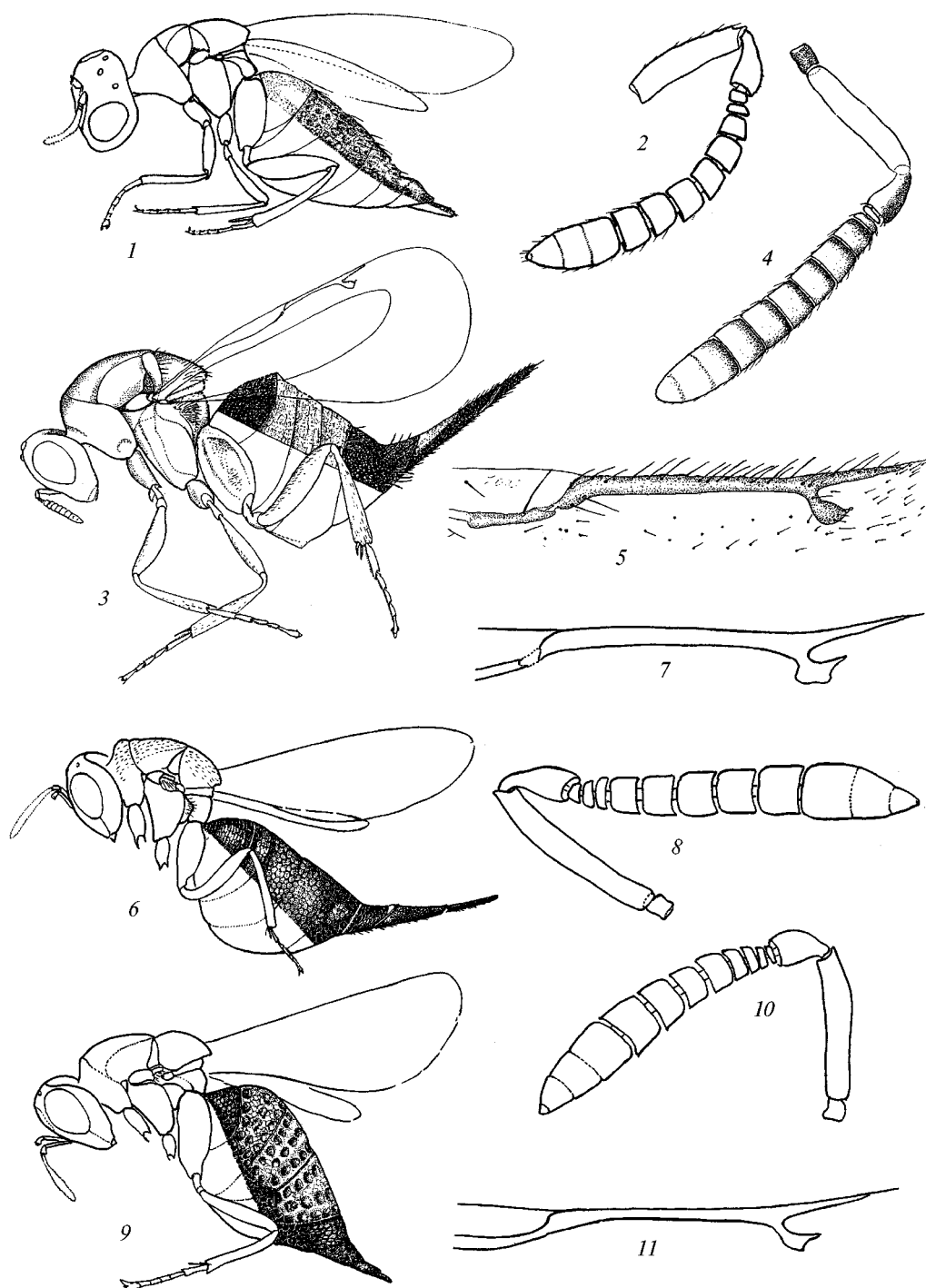


Fig. 1. *Ormyrus destefanii* (1, 2): 1 – female, lateral view; 2 – antenna, female; *O. zoeae* (3–5): 3 – female, lateral view; 4 – antenna, female; 5 – forewing venation; *O. lanatus* (6–8): 6 – female, lateral view; 7 – forewing venation; 8 – antenna, female; *O. halimodendri* (9–11): 9 – female, lateral view; 10 – antenna, female; 11 – forewing venation.

Рис. 1. *Ormyrus destefanii* (1, 2): 1 – самка, вид сбоку; 2 – усик самки; *O. zoeae* (3–5): 3 – самка, вид сбоку; 4 – усик самки; 5 – жилкование переднего крыла; *O. lanatus* (6–8): 6 – самка, вид сбоку; 7 – жилкование переднего крыла; 8 – усик самки; *O. halimodendri* (9–11): 9 – самка, вид сбоку; 10 – усик самки; 11 – жилкование переднего крыла.

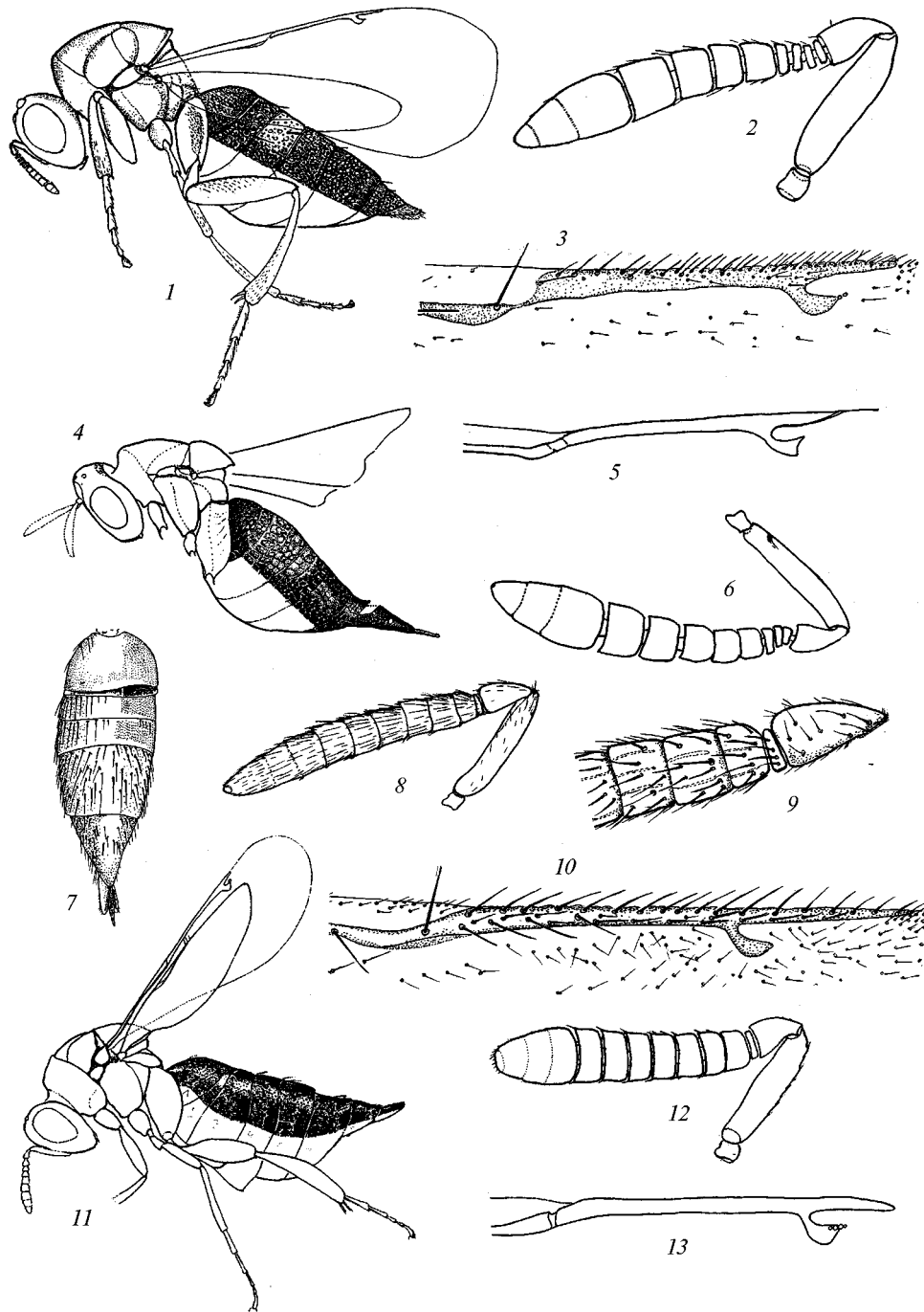


Fig. 2. *Ormyrus aridus* (1–3): 1 – female, lateral view; 2 – antenna, female; 3 – forewing venation; *O. parvulus* (4–6): 4 – female, lateral view; 5 – forewing venation; 6 – antenna, female; *O. salmanticus* (7–10): 7 – metasoma from above; 8, 9 – antenna, female; 10 – forewing venation; *O. graciosus* (11–13): 11 – female, lateral view; 12 – antenna, female; 13 – forewing venation (fig. 7–10 redrawn from Nieves-Aldrey).

Рис. 2. *Ormyrus aridus* (1–3): 1 – самка, вид сбоку; 2 – усик самки; 3 – жилкование переднего крыла; *O. parvulus* (4–6): 4 – самка, вид сбоку; 5 – жилкование переднего крыла; 6 – усик самки; *O. salmanticus* (7–10): 7 – метасома, сверху; 8, 9 – усик самки; 10 – жилкование переднего крыла; *O. graciosus* (11–13): 11 – самка, вид сбоку; 12 – усик самки; 13 – жилкование переднего крыла (автор позиций 7–10 – Nieves-Aldrey).

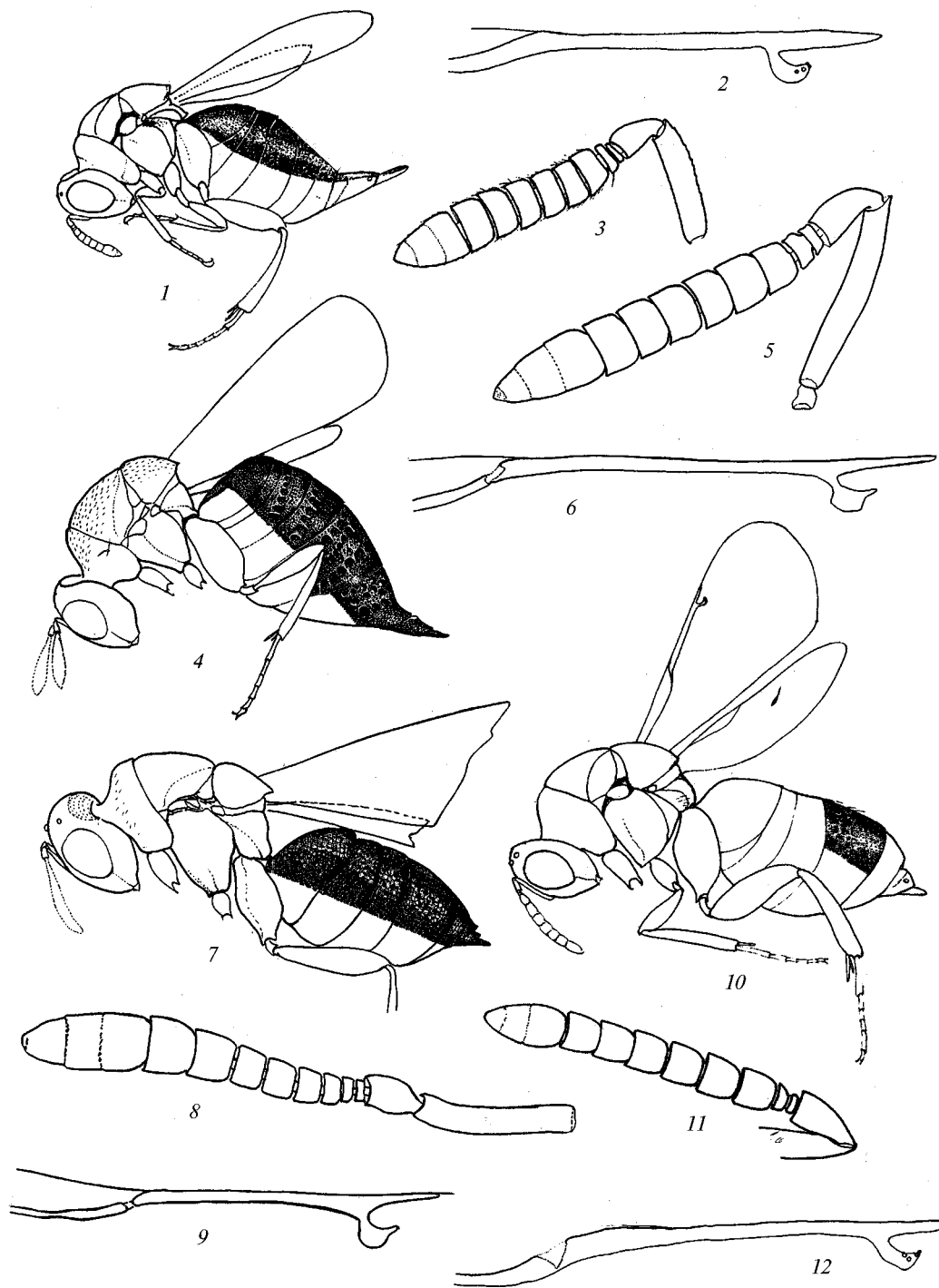


Fig. 3. *Ormyrus papaveris* (1–3): 1 – female, lateral view; 2 – forewing venation; 3 – antenna, female; *O. bucharicus* (4–6): 4 – female, lateral view; 5 – antenna, female; 6 – forewing venation; *O. laccatus* (7–9): 7 – female, lateral view; 8 – antenna, female; 9 – forewing venation; *O. longicornis* (10–12): 10 – female, lateral view; 11 – antenna, female; 12 – forewing venation.

Рис. 3. *Ormyrus papaveris* (1–3): 1 – самка, вид сбоку; 2 – жилкование переднего крыла; 3 – усик самки; *O. bucharicus* (4–6): 4 – самка, вид сбоку; 5 – усик самки; 6 – жилкование переднего крыла; *O. laccatus* (7–9): 7 – самка, вид сбоку; 8 – усик самки; 9 – жилкование переднего крыла; *O. longicornis* (10–12): 10 – самка, вид сбоку; 11 – усик самки; 12 – жилкование переднего крыла.

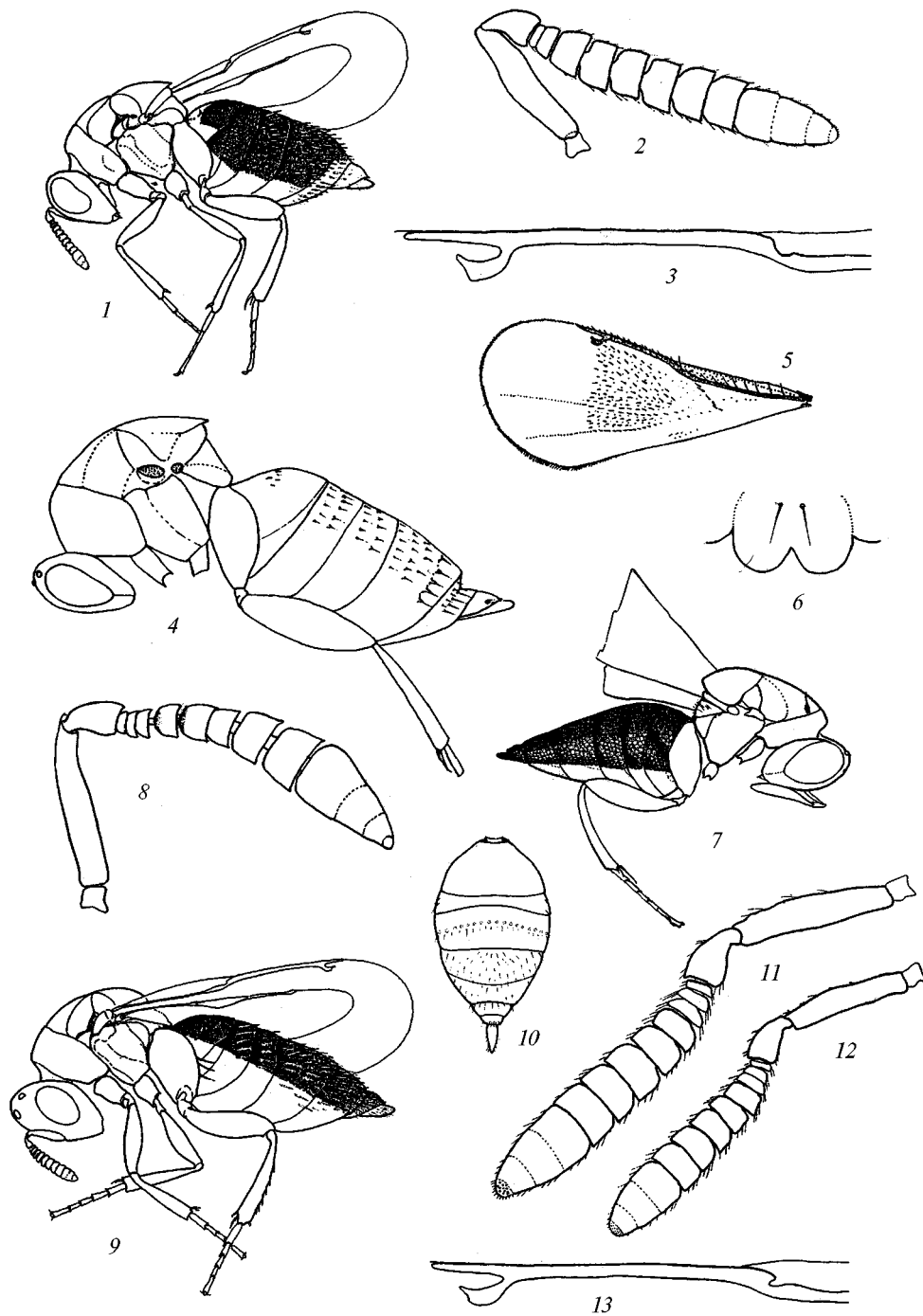


Fig. 4. *Ormyrus wachtli* (1–3): 1 – female, lateral view; 2 – antenna, female; 3 – forewing venation; *O. capsalis* (4, 5): 4 – female, lateral view; 5 – forewing; 6 – *O. monegricus*, anterior margin of clypeus; *O. similis* (7, 8): 7 – female, lateral view; 8 – antenna, female; *O. diffinis* (9–13): 9 – female, lateral view; 10 – metasoma from above; 11 – antenna, female; 12 – antenna, male; 13 – forewing venation (fig. 4–5 redrawn from Askew, 1994).

Рис. 4. *Ormyrus wachtli* (1–3): 1 – самка, вид сбоку; 2 – усик самки; 3 – жилкование переднего крыла; *O. capsalis* (4, 5): 4 – самка, вид сбоку; 5 – переднее крыло; 6 – *O. monegricus*, внешний край наличника; *O. similis* (7, 8): 7 – самка, вид сбоку; 8 – усик самки; *O. diffinis* (9–13): 9 – самка, вид сбоку; 10 – метасома, сверху; 11 – усик самки; 12 – усик самца; 13 – жилкование переднего крыла (позиции 4–5 по: Askew, 1994).

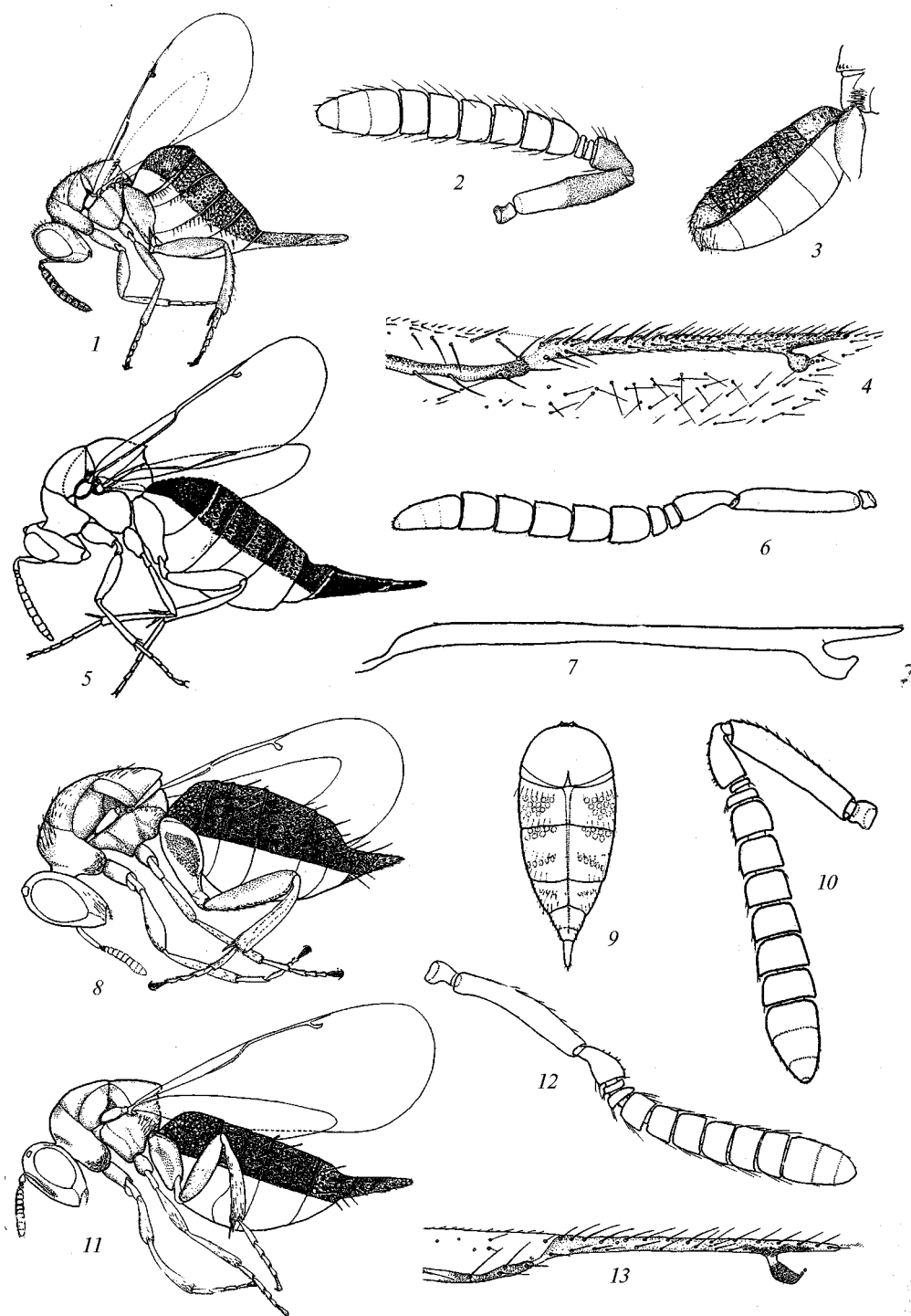


Fig. 5. *Ormyrus desertus* (1-4): 1 - female, lateral view; 2 - antenna, female; 3 - metasoma, male, lateral view; 4 - forewing venation; *O. nitidulus* (5-7): 5 - female, lateral view; 6 - antenna, female; 7 - forewing venation; *O. orientalis* (8-10): 8 - female, lateral view; 9 - metasoma, from above; 10 - antenna, female; *O. discolor* (11-13): 11 - female, lateral view; 12 - antenna, female; 13 - forewing venation.

Рис. 5. *Ormyrus desertus* (1-4): 1 - самка, вид сбоку; 2 - усик самки; 3 - метасома самца, вид сбоку; 4 - жилкование переднего крыла; *O. nitidulus* (5-7): 5 - самка, вид сбоку; 6 - усик самки; 7 - жилкование переднего крыла; *O. orientalis* (8-10): 8 - самка, вид сбоку; 9 - метасома сверху; 10 - усик самки; *O. discolor* (11-13): 11 - самка, вид сбоку; 12 - усик самки; 13 - жилкование переднего крыла.

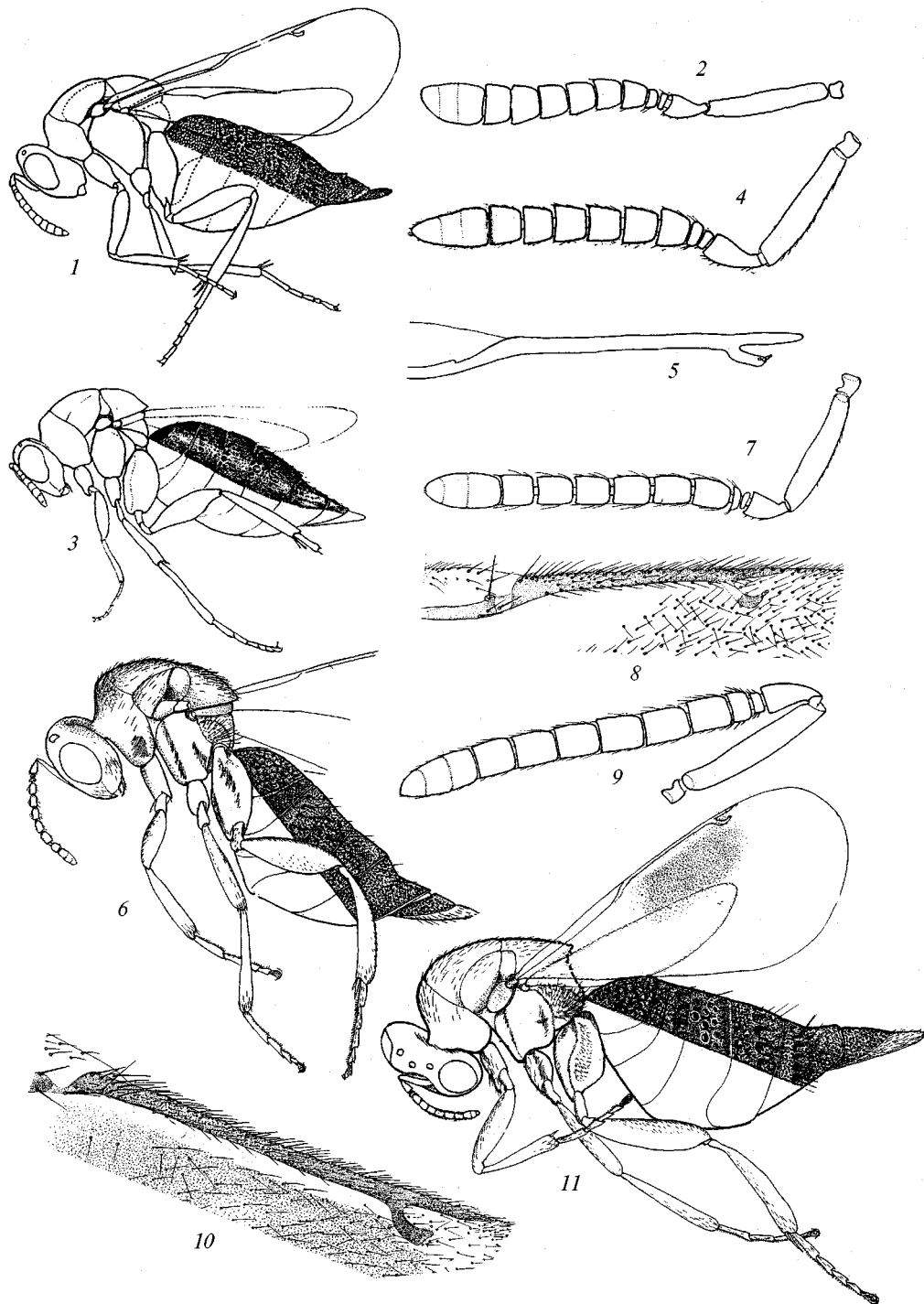


Fig. 6. *Ormyrus pomaceus* (1, 2): 1 – female, lateral view; 2 – antenna, female; *O. rufimanus* (3–5): 3 – female; lateral view; 4 – forewing venation; 5 – antenna, female; *O. ibaraki* (6–8): 6 – female, lateral view; 7 – antenna, female; 8 – forewing venation; *O. ermolenkoi* (9–11): 9 – antenna, female; 10 – forewing venation; 11 – female, lateral view.

Рис. 6. *Ormyrus pomaceus* (1, 2): 1 – самка, вид сбоку; 2 – усик самки; *O. rufimanus* (3–5): 3 – самка, вид сбоку; 4 – жилкование переднего крыла; 5 – усик самки; *O. ibaraki* (6–8): 6 – самка, вид сбоку; 7 – усик самки; 8 – жилкование переднего крыла; *O. ermolenkoi* (9–11): 9 – антенна самки; 10 – жилкование переднего крыла; 11 – самка, вид сбоку.

- sculpture dorsally (fig. 4, 7, 8). ♀ 2 mm. In galls of *Stefaniola gigas* (Marikovsky) on *Haloxylon* sp. Uzbekistan. *O. similis* Zerova, 1985
- 47 (46). Flagellum of female not narrowed basally, the first funicular segment notably larger than the last (3rd) anellus; metasoma 1.7 times longer than mesosoma; gasteral tergites with homogeneous alveolate sculpture dorsally; sculpture the most distinct on T5 (fig. 4, 9–13). ♀ 1.2–2.7 mm, ♂ 1.1–2.0 mm. Parasite of *Aylax* and *Xestophanes* gall wasps. Europe, Minor and Central Asia. *O. diffinis* (Fonscolombe, 1832)
- 48 (1). Female gaster with longitudinal median carina (fig. 5, 9). Flagellum of female with 2 anelli.
- 49 (52). Epipygium notably up-lifted and rather elongate, longer than the gasteral T6.
- 50 (51). Body not more than 3 mm. Funicular segments transverse. First gasteral tergite with alutaceous sculpture, T3–T6 with dense fine sculpture, with rows of elongate white hairs, epipygium with dense alveolate sculpture, gaster of male with a sharp lateral carina (fig. 5, 1–4). Parasite of gall midges (Cecidomyiidae) in galls on *Suaeda monoica*. ♀ 1.9–2.4, ♂ 1.2–1.6 mm. Saudi Arabia. *O. desertus* Zerova et Dawah, 2003
- 51 (50). Body generally 4.5–5.0 mm, occasionally, 3 mm. Funicular segments longer than broad. First gastral tergum smooth and shining anteriorly, with fine alveolate sculpture posteriorly; T3–T5 with doubled punctation, its meshes larger anteriorly, but finer posteriorly, T6 with dense punctation, epipygium finely punctured. Gaster of male with a lateral carina. (fig. 5, 5–7). Parasite of *Andricus*, *Cynips*, *Biorhiza* and other gall wasps (Cynipidae) associated with *Quercus*. Widespread in western Palearctics. *O. nitidulus* (Fabricius, 1804)
- 52 (49). Epipygium weakly up-lifted, not longer than gasteral T6.
- 53 (54). Anterior margin of clypeus bilobed. Body dark, almost black, with coppery reflections. T1 with alutaceous sculpture, T4–T5 with transverse rows of deep punctures. Head and mesosoma dark green with blue-green to weakly bluish green reflections, gaster light brown dorsally, with metallic reflection finely grooved centrally, the first tergite alutaceously sculptured, T4 and T5 with transverse rows of deep punctures anteriorly. ♀ 2.1–3.0 mm. In galls of *Eurytoma gallephedrae* Askew, on *Ephedra nebrodensis*. Spain. *O. cupreus* Askew, 1998
- 54 (53). Anterior margin of clypeus straight.
- 55 (58). All funicular segments transverse.
- 56 (57). Metasoma of female 1.7–1.8 times as long as mesosoma, with sharp dorsal carina. T1 light finely reticulate, T2–T5 deeply alveolate, especially anteriorly. T6 evenly punctured; epipygium short, shining, not longer than its basal height. Postmarginal vein slightly more than twice as long as stigmal (fig. 5, 8–10). ♀ 2.2–3.5 mm, generally 3 mm; ♂ 2–3 mm. Parasite of many gall wasps in flower heads of Asteraceae, and also some gall midges (*Lasioptera eryngii* Vallot). Palearctic and Oriental Regions. *O. orientalis* Walker, 1871
- 57 (56). Metasoma of female about 3 times longer than mesosoma, sculpture of T1–T6 as in *O. orientalis*, but weakly smoothed. Epipygium elongate, shining, longer than its basal height. Postmarginal vein 1.8 times longer than stigmal (fig. 5, 11–13). ♀ 4.2–4.1 mm; ♂ 2.1–3 mm. Israel. *O. discolor* Zerova, 2005
- 58 (55). At least first three funicular segments longer than broad or quadrate.
- 59 (64). First four funicular segments slightly longer than broad or (*O. rufimanus*) quadrate.
- 60 (61). T1 distinctly reticulate, T2–T6 with double puncture: larger anteriorly, finer posteriorly. Longitudinal dorsal keel on gaster smoothed. Fore tibiae greenish-brown (fig. 6, 1–2). ♀ 1.5–4.5 mm, often about 3 mm; ♂ 1–3 mm. Parasite of many *Biorhiza*, *Andricus* and *Neuroterus* gall wasps on oak trees. Palearctic and Oriental Regions. *O. pomaceus* Geoffroy, 1785
- 61 (60). T1 smooth and shiny in its anterior third; rest part with smoothed light puncture.
- 62 (63). T2–T5 with relatively large, but not very deep alveolate sculpture. Fore tibiae reddish-yellow, mid and hind mostly brown, with greenish tint (fig. 6, 3–5). ♀ 1.6–4 mm, often about 3 mm; ♂ 1.5–3 mm. Parasite of gall wasp *Diastrophus rubi* Bouché, Europe. *O. rufimanus* Mayr, 1904
- 63 (62). T2–T5 with double puncture: larger anteriorly, finer posteriorly. Longitudinal dorsal keel on gaster smoothed. Fore and mid femora, and also tibiae and tarsi of all legs bright yellow. ♀ 2–2.2 mm; ♂ 1.2–2 mm. Parasite of *Dryocosmus*, *Neuroterus*, *Trichogolma* gall wasps on *Quercus serrata*. Japan, Korea. *O. flavitibialis* Yasumatsu & Kamijo, 1979
- 64 (59). All funicular segments longer than broad, but the 6th segment slightly longer than broad, almost quadrate.
- 65 (68). Body more than 5 (6–7) mm long.
- 66 (67). Fore wings darkened below marginal vein. Body bright blue-green; occiput with deep alveolate sculpture. T1 and T2 with distinct but sparse punctation, T3–T5 with fine puncture anteriorly and posteriorly, and widely alveolate medially, T6 widely alveolate anteriorly and finely alveolate posteriorly. Epipygium finely alveolate; its length exceeds its basal height (fig. 6, 9–11). Associated with oak trees. Kuril Islands (Shikotan). *O. ermolenkoi* Zerova, sp. n.

- 67 (66). Fore wings hyaline. Body black with metallic bluish green reflection. Gaster slightly less than twice as long as head plus mesosoma combined; T1 with distinct reticulation, T3—T5 with a row of longitudinal tubercles. Epipygium long, about 1.8 times as long as height (lateral view); ovipositor about two-third as long as epipygium dorsally. ♀ 6.0—6.5 mm. In cynipid galls on *Quercus* sp. Turkey. *O. bingoliensis* Doğanlar, 1991
- 68 (65). Body less than 5 (about 3—4) mm long. Fore wings hyaline. Body bright green. T1 smooth and shiny in anterior half, more alveolate in posterior part, T3—T5 with dense, distinct puncture and a row of shallow but large alveoli medially especially on T3 and T4; T6 with punctures larger in basal part of tergite; epipygium with same punctation as distal part of T6; epipygium as long as its basal height (fig. 6, 6—8). Ex cynipid galls on *Quercus* sp. Japan (Honshu). *O. ibaraki* Zerova, sp. n.

Description of new species

Ormyrus ermolenkoi Zerova, sp. n.

Material. Holotype ♀, Kuril Islands, Kunashir, on *Quercus*, 07—08.1989 (Ermolenko). Paratype ♀, same label data as in the holotype.

Female. Length 6.0—6.4 mm (holotype 6.4 mm). Bright metallic green, partly with golden reflection, especially on occiput, sides of pronotum, fore and mid femora; scutellum with violaceous reflection, tibia reddish brown with yellow basal and distal parts, tarsi yellow, antenna dark brown overall, wings infumate. Tip of ovipositor dark brown.

Head from above almost as wide, as pronotum, width to length 55 : 23; POL to OOL as 13 : 3; occipital carina situated close to occipital foramen; vertex deep punctured. Head (in frontal view) wider than its height in ratio 55 : 37, eyes bare, gena two times shorter than longitudinal eye diameter (12 : 25); external clypeus margin almost straight. Lower face with dense cross-striation, upper part with longitudinal striation, gena finely but distinctly striate. Antenna inserted much below than the middle of face, scape thin and long; pedicellum dorsally nearly twice as long as broad (17 : 7); first anellus thin, small, second nearly twice as broad as long (9 : 5), flagellum thin, all flagellar segments longer than broad; clava not wider than flagellum, as long as two previous flagellar segments.

Mesosoma distinctly bent in profile, pronotum almost three times as wide as long, pronotum and mesoscutum transversely and finely reticulated, scutellum anteriorly cross-striated in middle, almost bare, posteriorly with some striae arranged concentrically, apex of scutellum with broad punctured border some emarginated in middle. Propodeum longitudinally striate. Forewing with large light brown infumation in center of wing discus (under the marginal vein); speculum and basal cell with a few hairs on upper side; marginal vein very long; marginal, postmarginal and radial veins as 11 : 2.7 : 1.7; stigma narrow, strongly elongated along wing length. Hind coxa on the inner side polished, on the external side with fine punctation.

Metasoma twice as long as mesosoma (65 : 30); gaster with distinct longitudinal median keel from tergites 2 to 5; tergite 1 with deep basal foveae, distinctly reticulated, second tergite some shorter than third tergite, with fine but distinct punctation; tergite 3 distinctly shorter than tergite 4, the latter shorter than tergite 5, tergites 3—6 with one row of oval foveolae in middle of each tergite, but posterior portion of tergite 6 with dense punctation; the tergite 6 long, 1.5 times longer than tergite 5; epipygium slightly shorter than tergite 6, with fine punctation on the basal half, ovipositor as long as epipygium.

Male unknown.

Comparative remarks. *Ormyrus ermolenkoi* sp. n. is similar to *O. bingoliensis* Doğanlar differing by infumated fore wings and sculpture of T3—T6, which have only one transverse row of oval foveolae (3 rows in *O. bingoliensis*) and distinctly shorter ovipositor.

Biology. Associated with *Quercus*.

Etymology. This species is named in honor of Dr. Valery M. Ermolenko, who collected the type series.

Table 1. Host-Parasite list of Palearctic species of *Ormyrus*Таблица 1. Хозяинно-паразитические связи палеарктических видов рода *Ormyrus*

Parasite	Host	Plant	Reference
<i>diffinis</i> species group			
<i>O. ardahanensis</i> Doğanlar, 1991	—	Associated with herbaceous plants	Doğanlar, 1991 b
<i>O. aridus</i> Zerova, 2005	—	Associated with herbaceous plants	Зерова и др., 2005
<i>O. bucharicus</i> Zerova, 1985	<i>Urophora repeteki</i> (Munro) (Tephritidae)	<i>Cousinia hamadae</i> Juz. (Asteraceae)	Зерова, 1985
<i>O. capsalis</i> Askew, 1994	<i>Aylax minor</i> Hartig (Cynipidae)	Seed capsule of <i>Papaver</i> spp. (Papaveraceae)	Askew, 1994
<i>O. destefanii</i> Mayr, 1904	<i>Xestophanes potentillae</i> (Retzius in De Geer) (Cynipidae)	<i>Potentilla impolita</i> Wahlenb. (Rosaceae)	Зерова, Серегина, 1998
<i>O. diffinis</i> (Fonscolombe, 1832)	<i>Aylax</i> spp., <i>Xestophanes</i> spp. (Cynipidae) and other insects	Many species of Asteraceae and Rosaceae (Potentilla)	Зерова, Серегина, 1998
<i>O. graciosus</i> (Förster, 1860)	<i>Aylax</i> spp., <i>Aulacidea</i> spp., <i>Isocolus</i> spp., (Cynipidae), <i>Urophora</i> spp., <i>Terebellia</i> spp. (Tephritidae)	Flower heads of various Asteraceae	Зерова, Серегина, 1998
<i>O. halimodendri</i> Zerova, 1985	Cecidomyiidae gen. sp.	<i>Haloxylon persicum</i> Bunge ex Boiss. et Buhse (Chenopodiaceae)	Зерова, 1985
<i>O. kazovaensis</i> Doğanlar, 1991	—	Associated with herbaceous plants	Doğanlar, 1991
<i>O. laccatus</i> Zerova, 1985	Cecidomyiidae gen. sp.	<i>Haloxylon</i> sp. (Chenopodiaceae)	Зерова, 1985
<i>O. lanatus</i> Zerova, 1985	<i>Haplodiplosis palpata</i> (Marikovsky) (Cecidomyiidae)	<i>Anabasis aphylla</i> L. (Chenopodiaceae)	Зерова, 1985
<i>O. longicornis</i> Bouček, 1970	—	Associated with herbaceous plants	Bouček, 1970
<i>O. monegricus</i> Askew, 1994	<i>Gypsophila</i> sp., <i>Stefaniola salsolae</i> (Tavares) (Cecidomyiidae)	<i>Salsola</i> sp. (Chenopodiaceae)	Askew, 1994
<i>O. oranensis</i> Erdös, 1964	—	—	Erdös, 1964
<i>O. papaveris</i> (Perris, 1840)	<i>Aylax papaveris</i> Perris (Cynipidae)	<i>Papaver</i> spp. (Papaveraceae)	Зерова, Серегина, 1998
<i>O. parvulus</i> Zerova, 1985	Cecidomyiidae gen. sp.	<i>Anabasis salsa</i> C. A. Mey Benth. ex Volvens (Chenopodiaceae)	Зерова, 1985
<i>O. salmanticus</i> Nieves-Aldrey, 1984	<i>Aulacidea subterminalis</i> Niblett (Cynipidae)	<i>Hieracium pilosella</i> L. (Asteraceae)	Nieves-Aldrey, 1984
<i>O. similis</i> Zerova, 1985	<i>Stefaniola gigas</i> (Marikovsky) (Cecidomyiidae)	<i>Haloxylon</i> sp.	Зерова, 1985
<i>O. speculifer</i> Erdös, 1946	—	Associated with herbaceous plants	Erdös, 1946
<i>O. tschami</i> Doğanlar, 1991 (= <i>O. graciosus hermonicus</i> Zerova, 2003, syn. n)	—	Associated with herbaceous plants	Doğanlar, 1991 b
<i>O. wachtli</i> Mayr, 1904	<i>Neaylax salviae</i> (Giraud), <i>Phanacis centaureae</i> Förster and some other species of Cynipidae	<i>Salvia</i> spp. (Lamiaceae), <i>Centaurea</i> spp. (Asteraceae)	Зерова, Серегина, 1998
<i>O. yeschilirmaka</i> Doğanlar, 1991	—	Associated with herbaceous plants	Doğanlar, 1991 b

Continued of table 1

Parasite	Host	Plant	Reference
<i>O. zoae</i> Zerova, 2005	<i>Stefaniola gigas</i> (Marikovsky) (Cecidomyiidae)	<i>Haloxylon persicum</i>	Зерова, 2005
orientalis group			
<i>O. bingoliensis</i> Doğanlar, 1991	Associated with Cynipidae gen. sp.	<i>Quercus</i> spp. (Fagaceae)	<i>O. bingoliensis</i> Doğanlar, 1991 a
<i>O. cupreus</i> Askew, 1998	<i>Eurytoma gallephedrae</i> Askew (Eurytomidae)	<i>Ephedra nebrodensis</i> Tineo ex Guss. (Ephedraceae)	Askew, 1998
<i>O. desertus</i> Zerova et Dawah, 2003	Cecidomyiidae gen. sp.	<i>Suaeda monoica</i> Forssk. ex J. F. Gmel. (Chenopodiaceae)	Зерова и др., 2003
<i>O. discolor</i> Zerova, 2005	—	Assoated with herbaceous plants	Зерова, 2005
<i>O. ermolenkoi</i> Zerova, sp. n.	—	Associated with <i>Quercus</i> spp.	
<i>O. flavitibialis</i> Yasumatsu & Kamijo, 1979	<i>Dryocosmus</i> spp., <i>Neuroterus</i> spp., <i>Trichogalma</i> spp. (Cynipidae)	<i>Quercus serrata</i> Siebold. & Zucc.	Yasumatsu, Kamijo, 1979
<i>O. ibaraki</i> Zerova, sp. n.	Cynipidae gen. sp.	<i>Quercus</i> spp.	
<i>O. nitidulus</i> (Fabricius, 1804) (= <i>tubulosus</i> Fonscolombe)	<i>Adleria</i> spp., <i>Andricus</i> spp., <i>Biorhiza pallida</i> Olivier, <i>Cynips longiventris</i> Hartig	<i>Quercus</i> spp.	Зерова, Серегина, 1998
<i>O. orientalis</i> Walker, 1871 (= <i>hungaricus</i> Erdős)	Many species of Cynipidae and Cecidomyiidae (<i>Lasioptera eryngii</i> Vallot) in flower heads of Asteraceae and different galls	Flower heads of Asteraceae, different galls on herbaceous plants	Зерова, Серегина, 1998
<i>O. pomaceus</i> Geoffroy, 1785 (= <i>O. punctiger</i> Westwood)	<i>Andricus</i> spp., <i>Biorhiza pallida</i> , <i>Cynips disticha</i> Hartig, <i>Diplolepis divisa</i> Hartig, <i>Neuroterus quercusbaccarum</i> (Linnaeus) (Cynipidae)	<i>Quercus</i> spp.	Зерова, Серегина, 1998
<i>O. rufimanus</i> Mayr, 1904	<i>Diastrophus rubi</i> Bouché, <i>D. mayri</i> Reinhard, <i>Xestophanes potentillae</i>	<i>Rubus</i> , <i>Rosa</i> , <i>Potentilla</i> (Rosaceae)	Зерова, Серегина, 1998

***Ormyrus ibaraki* Zerova, sp. n.**

Material. Holotype ♀, Japan, Honshu Island, Ibaraki, Pref. Isukuba-city, Sakuragayjka, In galls on oak *Quercus* sp., 14.04.1997 (Fursov). Paratypes: ♀, ♂, with the same labels as the holotype; ♀, Japan, Honshu Island, Ibaraki Pref., Tsukuba-city, Sakuragayjka, in galls on *Quercus* sp., 4.04.1997 (Fursov); ♀, 2 ♂, Japan, Honshu Island, Ibaraki Pref., Tsukuba-city, Hanara, 25.04.1997 (Fursov).

Female. Length 2.5–4.3 mm (holotype 4.0 mm). Bright metallic green, partly with bronze and golden reflection, especially on vertex, sides of pronotum and lateral part of gasteral tergites. All coxae and hind femora bright green, fore and mid tibia testaceous, hind tibia brown in the middle, yellow in basal and distal parts, tarsi yellow; antenna brown, wings hyaline, venation yellowish brown. Head from above slightly broader than pronotum, twice as broad as long (55 : 23), temple much shorter than height of eye, POL almost three times longer than OOL (17 : 6), occipital carina distinct, sharp. Head in frontal view wider than height in ratio 65 : 45; eyes bare, gena half as long as vertical eye diameter (15 : 30); external clypeus margin almost straight. Face with dense rugose striation, lower face with slightly raised semicircular striae. Antenna inserted some higher than the middle of face; scape as long as three first funicular segments, pedicellus dorsally equal in length with first funicular segment; 1–5 funicular segments distinct longer than width the 6th a little longer than width almost square, clava some wider than funicle. Both anelli very short, flat, especially the first.

Mesosoma in lateral view strongly convex, in dorsal view pronotum 2.25 times as broad as long, pronotum, mesoscutum and scutellum finely but not very densely cross-striate, apex of scutellum with punctured rim, in exact dorsal view extending beyond posterior margin of propodeum. Mesopleuron smooth, bare. Propodeum medially with some thin striae, laterally with longitudinal reticulation. Hind coxa with thin punctation, forewing densely pubescent speculum large, bare, extends on dorsal surface to stigmal vein; basal cell with 3—4 bristles on dorsal surface. Marginal, postmarginal and radial veins as 65 : 15 : 13; postmarginal vein shorter than in other Palearctic species.

Metasoma with gaster fully twice as long as mesosoma with distinct median keel from tergite 1 to tergite 5. Tergite 1 with small basal foveae, in the middle fine punctate, in distal part smooth; the second tergite very short, tergites 3 to 5 each with punctured basal part with vertical row of oval foveolae, tergite 6 with dense punctation, especially on basal part of tergite; tergites 3 and 4 equal in length, tergite 5 slightly longer than tergite 4; tergite 6 longest, epipygium laterally 1, 4 times as long as tergite 6; ovipositor shortly exerted.

Male. Length 2—2.2 mm. Bluish green with red and golden reflections, gaster not ridged laterally. Tergites 3—5 dorsally with deep punctation.

Comparative remarks. The new species is similar to *O. bingoelensis* Doğanlar, differing by shorter postmarginal vein and bright green color.

Biology. Associated with *Quercus* spp. in Japan.

Etymology. The species name is a noun in apposition and refers to the type locality.

Ormyrus tschami Doğanlar, 1991

O. gratiosus hermonicus Zerova, 2003, **syn. n.**

Remarks. Comparison of the types of *O. gratiosus hermonicus* with the description of *O. tschami* shows no essential distinctions between them. We therefore consider these names synonyms.

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