

New Records of Endoparasitoid *Bassus* Fabricius, 1804 (Hymenoptera: Braconidae: Agathidinae) Species from Turkey

Özlem Çetin Erdoğan^{*,1} and Ahmet Beyarslan¹

Six *Bassus* species were recorded for the first time in Turkey: *B. calculator* (Fabricius, 1798), *B. cingulipes* (Nees, 1814), *B. conspicuus* (Wesmael, 1837), *B. graecus* Achterberg, 1992, *B. rugulosus* (Nees, 1834) and *B. zaykovi* (Nixon, 1986). By adding these new records, the number of *Bassus* species in Turkey has been raised from seven to 13. Distribution and known hosts are given.

KEY WORDS: Braconidae; Agathidinae; *Bassus*; new record; distribution; Turkey.

Species of *Bassus* Fabricius, 1804 are solitary koinobiont endoparasitoids of moderately concealed lepidopteran larvae (Tortricidae, Gelechiidae, Scythrididae, Tineidae, Coleophoridae and Blastobasidae), evidently using their long ovipositors to probe for hosts in their grass-ridden feeding tunnels, mines or retreats. They attack the host early in its life, usually in the first or second instar, and the minute egg is placed either inside or attached to a ganglion of the ventral nerve chain or sometimes one of the lateral lobes of the protocerebrum (5).

The European species of the genus *Bassus* were revised recently by Nixon (4) under the generic name *Microdus* Nees, 1814 (jun. Syn. of *Bassus*). The Palearctic species of the same genus were revised and keyed by Simbolotti and van Achterberg (6). The authors reported a total of 22 species, three of which were described as new to science.

To date, a total of 100 species of *Bassus* have been reported in the world and 30 species are found in the Palearctic region (7). Although some studies have been conducted by various local and foreign scientists on the species of *Bassus* occurring in Turkey, this genus is not well known in Turkish fauna. Up to now seven species have been recorded from Turkey, one of which was described as new to science from western Turkey (1-4,8).

Adult specimens were collected from different localities in Turkey between 1995 and 2003. Sweeping nets and light traps were used to obtain samples on grass-type plants. The specimens were then pinned and labeled according to taxonomic rules and regulations. The specimens are deposited in the collection of the Zoological Museum of the Department of Biology, Trakya University.

Six species within genus *Bassus* were identified (Table 1), all of them new records for fauna of Turkey. The host records of Nixon (4) for *Bassus* are used in this paper. All known *Bassus* species in Turkey are keyed.

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¹Dept. of Biology, Faculty of Arts and Science, Trakya University, 22030 Edirne, Turkey. *Corresponding author [e-mail: cetinozlem@hotmail.com].

TABLE 1. Records of *Bassus* spp. in Turkey

| Species | Locality | Habitat | Date | Hosts |
|--------------------------------------|----------------------------------|---|---------------------------|--|
| <i>Bassus calculator</i> (Fabricius) | Bartın- Çamlık | <i>Rubus fruticosus</i> L. Gramineae Umbelliferae | 30.vi.2001 | Parasitoid of Tineidae in bracket fungi or dead wood: <i>Morophaga boleti</i> (Fabricius) and probably also <i>Triaxomera parasitella</i> (Hübner). |
| <i>Bassus cingulipes</i> (Nees) | Bolu-Aladağ | <i>Dryopteris</i> sp. <i>Lamium</i> sp. Boraginacea Labiatae Umbelliferae | 27.vii.2001 | Parasitoid of Coleophoridae and Gelechiidae on herbs (<i>Coleophora frischella</i> (Linnaeus) on <i>Trifolium</i> spp. and <i>Coryocolum fraternella</i> Douglas, respectively) |
| <i>Bassus conspicuus</i> (Wesmael) | Bolu-Mengen- Kıyaslar Uşak | <i>Euphorbia</i> sp. Asteraceae | 28.vi.2001 15.vii.1995 | Parasitoid of Tortricidae: <i>Cydia pomonella</i> (Linnaeus), <i>Pammene regiana</i> (Zeller) and <i>Rhopobota ustomaculana</i> (Curtis) |
| <i>Bassus graecus</i> Achterberg | Samsun- Havza- Mismiliagaç | <i>Urtica</i> sp. <i>Rubus fruticosus</i> L. Gramineae | 02.vii.2003 | Unknown |
| <i>Bassus rugulosus</i> (Nees) | Van | Gramineae Umbelliferae | 22.vii.1998 | Parasitoid of Blastobasidae: <i>Blastobasis lignea</i> Walsingham |
| <i>Bassus zaykovi</i> (Nixon) | Kütahya-Emet | Asteraceae | 24.vii.1997 | Unknown |

Keys to Identification of *Bassus* spp. from Turkey

1. Tarsal claws without basal lobe; hind femur dark brown or blackish; first metasomal tergite (partly) coarsely (rugose-) striate; scutellum finely rugulose medioposteriorly . . . *B. calculator* (Fabricius, 1798)
 - Tarsal claws with basal lobe; hind femur yellowish-brown; first metasomal tergite finely sculptured; scutellum largely smooth medioposteriorly, except for subposterior depression 2
2. Vein r-m of fore wing absent; length of first tergite about twice its apical width and nearly completely granulate *B. armeniacus* (Telenga, 1955)
 - Vein r-m of fore wing present; length of first tergite 1.0–1.2 times its apical width and its surface sparsely and finely striate 3
3. Sculpture of metasoma nearly or completely restricted to first tergite, only occasionally some vague sculpture present mainly near the curved transverse groove 4
 - Metasomal sculpture extended to second and third tergites, but sculpture sometimes only distinctly developed in anterior half of second tergite 10
4. Area between antennal sockets triangular, and at most with a shallow groove; about

apical half of hind tibia infusate, remainder of tibia whitish and with infusate patch sub-basally; hind femur blackish or infusate; vein SR1 of fore wing nearly always strongly curved towards pterostigma; metasoma usually entirely black *B. cingulipes* (Nees, 1814)

- Area between antennal sockets with median groove or wide median depression; hind tibia usually without whitish parts or dark sub-basal patch and usually largely yellowish-brown and infusate, apical part usually less than half of tibia; hind femur usually yellowish-brown, if largely infusate (*B. nugax*) then area between antennal sockets with pair of acute crests; vein SR1 of fore wing and color of metasoma variable 5

5. Crests of area between antennal sockets acute, medially nearly flat, with only a shallow and wide depression which may be connected dorsally to a blunt keel directed towards anterior ocellus; vein SR1 of fore wing usually slightly curved; vein M+CU of hind wing longer than vein 1-M 6

- Crests of area between antennal sockets convex dorsally, this area with a narrow median groove, and no distinct keel present; vein SR1 of fore wing straight, or strongly curved, exceptionally slightly curved; vein M+CU of hind wing variable 7

6. Ovipositor sheath longer than body and 1.4–1.6 times fore wing; head in frontal view distinctly elongate; length of fore wing 3.5–4.5 mm and body usually longer than 5 mm; crests of area between antennal sockets strong; metasoma usually largely brownish or brownish black, with second tergite partly reddish-brown *B. linguarius* (Nees, 1814)

- Ovipositor sheath as long as body and 0.8–1.1 times fore wing; head in frontal view less elongate; length of fore wing 2.0–3.7 mm, and of body 2.8–3.5 mm; crests of area between antennal sockets usually comparatively weak; metasoma usually black *B. nugax* (Reinhard, 1867)

7. Hind margin of head, in lateral view, distinctly concave near lower level of eyes; head in frontal view elongate; wing membrane distinctly infusate *B. zaykovi* (Nixon, 1986)

- Hind margin of head, in lateral view, usually slightly concave near lower level of eyes; head in frontal view transverse; wing membrane subhyaline 8

8. Vein SR1 of fore wing straight; inner rims of antennal sockets rather widely separated; medioposterior depression of scutellum comparatively shallow and undivided, at most crenulated *B. tumidulus* (Nees, 1814)

- Vein SR1 of fore wing frequently strongly curved, but occasionally less so; inner rims of antennal sockets comparatively close to each other; medio-posterior depression of scutellum usually deep and divided into two parts 9

9. Prepectal carina comparatively thick and partly situated behind level of apices of fore coxae. Length of mesosoma 1.4 times its height. Mesoscutum finely punc-

tuat. Notauli distinct with fine micro-crenulation. Precoxal sulcus distinctly impressed, narrow and fine crenulae. Propodeum with some areolation. Mesosternal sulcus sculptured *B. conspicuus* (Wesmael, 1837)

- Prepectal carina absent. Length of mesosoma 1.75 times its height. Mesoscutum smooth. Notauli and precoxal sulcus absent. Propodeum without areolation. Mesosternal sulcus shallow and smooth *B. beyarslani* Erdoğan, 2005

10. Sculpture of metasoma distinctly developed beyond second metasomal suture, resulting in a distinctly sculptured third tergite 11

- Sculpture of metasoma ending abruptly at second suture or in front of it; if sculpture occasionally extends beyond second suture, then it is obsolescent and sparse 12

11. Apical 0.4 of hind tibia infuscate; ovipositor sheath as long as fore wing or longer; first tergite comparatively elongate, with its carinae further separated from each other and scarcely developed; metasoma largely rugulose and granulate . *B. rugulosus* (Nees, 1834)

- Apical 0.2 of hind tibia infuscate, or less; ovipositor sheath never longer than fore wing; first tergite rather robust; its dorsal carinae somewhat closer to each other and stronger; metasoma regularly and densely striate *B. rufipes* (Nees, 1814)

12. Vein SR1 of fore wing distinctly curved; vein 1-M of fore wing distinctly bent, light brown and its surroundings sparsely setose, hind femur largely infuscate; hind tibia infuscate only apically *B. graecus* Achterberg, 1992

- Vein SR1 of fore wing straight; vein 1-M of fore wing evenly curved, dark brown and its surroundings normally setose; hind femur infuscate; apical third of hind tibia dark brown *B. dimidiator* (Nees, 1834)

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