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New records of *Psilophrys parvulus* and its host *Kermes bacciformis* from Turkey

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Abstract: During 2007-2008 survey conducted on the Turkey oak (*Quercus cerris*) in Isparta province *Psilophrys parvulus* (Hymenoptera: Chalcidoidea, Encyrtidae) and its host *Kermes bacciformis* (Hemiptera: Coccoidea, Kermesidae) represent new species records for Turkey. Previously, *P. parvulus* was known only from Italy where it was first recorded. The emergence behavior of this parasitoid differs from that of most scale insect parasitoids emerging from the anal opening of its host rather than chewing a hole in the scale insect's test to emerge.

Key words: Encyrtidae, Kermesidae, new record, distribution, *Psilophrys parvulus*, *Kermes bacciformis*, Turkey Oaks

Türkiye için yeni kayıtlar; parasitoid *Psilophrys parvulus* ve konukçusu *Kermes bacciformis*

Özet: Isparta bölgesinde bulunan meşe (*Quercus cerris*) alanlarında 2007 – 2008 yıllarında yapılan sörveylerde parasitoid *Psilophrys parvulus* (Hymenoptera: Chalcidoidea) ve konukçu *Kermes bacciformis* (Hemiptera: Coccoidea) saptanmıştır. Söz konusu bu türler Türkiye faunası için yeni kayıt niteliğinde olup, dünyada varlığı ilk kez İtalya'dan bildirilmiştir. Parasitoid ergin dönemine ulaştığında konukçusunun abdomeninden bir delik açarak çıkmaktadır.

Anahtar sözcükler: Encyrtidae, Kermesidae, Yeni kayıt, Dağılım, *Psilophrys parvulus*, *Kermes bacciformis*, Türkiye meşeleri

Species of *Kermes* (Hemiptera: Kermesidae) are specialist sap-feeders on species of *Quercus* and can be economically important at high population densities. On the other hand, these insects can be important for honey bees for honey production. Among the most important natural enemies of

Kermes species are encyrtids within the genus *Psilophrys* (Japoshvili, 2005; Japoshvili and Noyes, 2006). However, there are some *Blastothrix* species that also parasitize *Kermes* spp. (Trjapitzin, 1989; Japoshvili and Karaca, 2003). Species of the genus *Psilophrys* are endoparasitoid and koinobiont

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parasitoids of *Kermes*. Undoubtedly, these parasitoids have an important effect on populations of the scale species.

Our studies were conducted from August 2006 to the end of June 2007 in Kovada National Park (Isparta Province) where Turkey oak's (*Quercus cerris* L.) natural forest is under government protection. *Kermes*-infested branches (10 cm long) were collected from the forest bimonthly taken to the laboratory, placed into glass bottles covered with fine mesh netting, and maintained at room temperature and humidity until parasitoid emergence. Slide preparation of *Kermes* specimens for identification involved using the methodology of Kosztarab and Kozar (1988). Species identifications were made using the keys and plates of Balachowsky (1950). Preparation of the encyrtids for identification was carried out following the methodology of Noyes (2007).

The finding and identification of *Kermes bacciformis* Leonardi and its parasitoid, *Psilophrys parvulus* Guerrieri and Viggiani, represent a new record for the Turkish insect fauna. Prior to this study, *Kermes bacciformis* was recorded from Austria, France, Hungary, Italy, Morocco, Poland, and Spain (ScaleNet, 2007). From branch samples collected on

June 6, 2007, the density of *Kermes* specimens per branch averaged 1-2 individuals. This scale insect was present on all examined trees, 5 female and 8 male specimens of *Psilophrys parvulus*, emerged on June 14, 2007. The species is gregarious parasitoid. From the material collected on June 20, 2007, parasitoids emergence of 184 female and 39 male specimens began immediately.

This species previously was recorded only from Italy where it was described from the same host (Guerrieri and Viggiani, 1991). No information on this species has been recorded since our investigation. An interesting observation is that, before our studies, emergence of all other known parasitoids was known from the exit holes made on the host's body; however, our observations revealed *Psilophrys parvulus* emerged from *Kermes bacciformis* through the anal orifice. Parasitoid exit holes were not observed. Voucher specimens of *Kermes* and *Psilophrys* were placed in the Museums of Agricultural Faculty of Suleyman Demirel University (Isparta, Turkey) and at the Institute of Zoology (Tbilisi, Georgia).

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