

M.B. KAYDAN, S. ÜLGENTÜRK, S.TOROS, F. KOZÁR

Scale insects (Homoptera: Coccoidea) of natural and agriculture areas in Kapadokya, Turkey

Abstract - Wild and cultivated plants were surveyed in the Kapadokya region of Turkey in 1999, and samples of 23 species were collected. Eleven species new to the Turkish Scale insect fauna were recorded, namely: *Phenacoccus pumilus* Kiritchenko, *Phenacoccus hordei* (Lindemann), *Atrococcus paludinus* (Green), *Heliooccus raditicola* Goux, *Phenacoccus bicerarius* Borchsenius, *Rhizopulvinaria spinifera* Borchsenius, *Scytia craniumequinum* Kiritchenko, *Pulvinaria terrestris* Borchsenius, *Acanthopulvinaria orientalis* (Nassonov), *Duplachionaspis noaeae* (Hall) and *Eriococcus thymi* (Schrank).

Key words: Coccoidea, Scale insect, Kapadokya, Turkey.

INTRODUCTION

The scale insect fauna of Turkey was studied in some detail by several researchers, e.g., Bodenheimer (1949, 1953), Soylu (1976), Çanakçıoğlu (1977), Kozár *et al.* (1979), Düzgüneş (1982), Yaşar (1990), Yaşar (1995), Ülgentürk and Toros (1996), Uygun *et al.* (1998), Ülgentürk *et al.* (2001), and Kaydan *et al.* (2001). Kozár & Drozdjak (1986) reported that there were some 430 scale insect species in the Mediterranean subregion of the Palaearctic region. According to Öncüler *et al.* (2001), 187 scale insect species have been identified from Turkey so far. The Kapadokya region, where our studies were conducted, is in middle of Turkey. The area belongs to the city provinces of Nevşehir, Aksaray, Niğde, Kayseri, and Kırşehir. The smaller rocky region of Kapadokya surrounds the villages of Uçhisar, Göreme, Avanos, Ürgüp, Derinkuyu, Kaymaklı, and Ihlara. Characteristic of this region are fairy chimney rocks and tufa soils. The climate is continental, with cold and snowy winters and hot, dry summers. The area is generally covered by steppe vegetation at an elevation of 800-1000 m. The variety of conditions in the region allows the presence of a large number of scale insect species. Several studies on the Coccoidea fauna have been conducted in this region (Bodenheimer, 1949, 1953; Düzgüneş, 1982; Ülgentürk & Toros, 1999; Uygun *et al.*, 1998). The goal of our work was to continue these studies on different plant species and to collect more faunistic information.

MATERIALS AND METHODS

Samples were collected between 06-09.11.1999 in and around the Kapadokya region of Turkey (Figure 1.), from more than 16 plant species belonging to ten families. Dry and slide-mounted material of the scale insect species were deposited at the Plant Protection Department of the Agriculture Faculty of Ankara University, Ankara, Turkey.

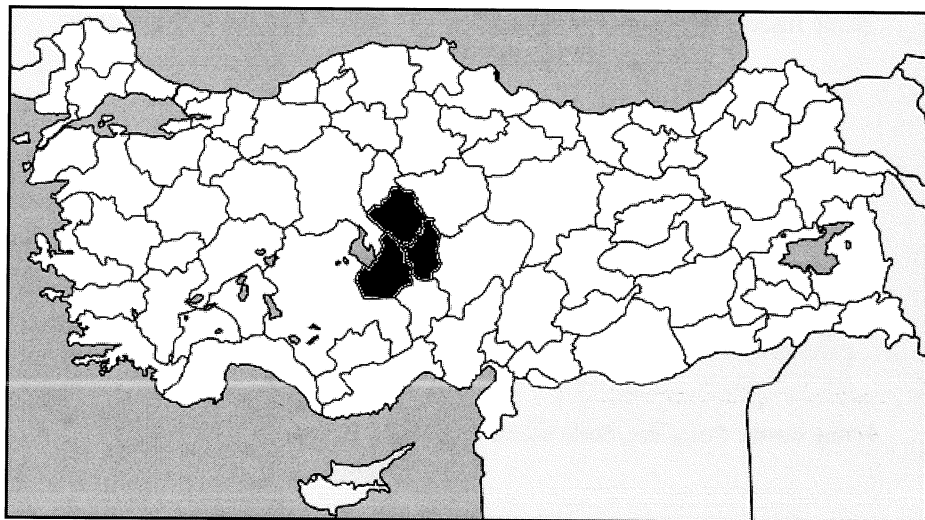


Fig. 1 - The Kapadokya region of Turkey (in black).

RESULTS AND DISCUSSION

Twenty-three species of scale insect (see list of species) were identified from the Kapadokyan region: 9 species of Coccidae, 8 Pseudococcidae, 4 Diaspididae and 2 Eriococcidae. Eleven of them were new records for the Turkish fauna, namely: *Phenacoccus pumilus* Kiritchenko, *Phenacoccus hordei* (Lindemann), *Heliococcus radicolica* Goux, *Phenacoccus bicerarius* Borchsenius, *Atrococcus paludinus* (Green), *Scytia craniumequinum* Kiritchenko, *Pulvinaria terrestris* Borchsenius, *Rhizopulvinaria spinifera* Borchsenius, *Acanthopulvinaria orientalis* (Nassonov), *Duplachionaspis noaeae* (Hall) and *Eriococcus thymi* (Schränk). Most of the species are of Palaearctic origin; three of them are cosmopolitan in distribution (*Lepidosaphes ulmi* (Linnaeus), *Parthenolecanium corni* (Bouchè) and *Eriopeltis festucae* (Fonscolombe)). Even in such a small study we found 11 species new to the Turkish fauna. This indicates that more extensive studies of the Turkish Coccoidea fauna are needed.

LIST OF SPECIES RECORDED

Pseudococcidae

- Atrococcus achilleae* (Kiritschenko); Ankara-Nevşehir, on Compositae, 06.11.1999.
Atrococcus paludinus (Green); Ihlara, on *Taericum* sp., 06.11.1999.
Dysmicoccus multivorus (Kiritschenko); Ankara-Nevşehir, on unknown host, 06.11.1999.
Heliococcus radicolica Goux; Güzelyurt, on *Dianthus* sp., 07.11.1999.
Phenacoccus hordei? (Lindemann); Güzelyurt, on *Cynodon dactylon*, 07.11.1999.
Phenacoccus pumilus Kiritschenko; Güzelyurt, on unknown host, 07.11.1999.
Phenacoccus tergrigiorianae Borchsenius & Ter-Grigorian; Güzelyurt, on *Scabiosa* sp. 07.11.1999.
Trionymus aberrans Goux; Ürgüp, on *Triticum* sp., 07.11.1999; Göreme, on *Agropyron repens*, 07.11.1999, Güzelyurt, on *Triticum* sp., 07.11.1999; Ihlara, on *Agropyron* sp., 06.11.1999; Ihlara, on *Triticum* sp., 06.11.1999; Ankara-Nevşehir, on *Triticum* sp., 06.11.1999.

Eriococcidae

- Eriococcus agropyri* Borchsenius; Güzelyurt, on *Scabiosa* sp., 07.11.1999.
Eriococcus thymi (Schränk); Ankara-Nevşehir, on unknown host, 06.11.1999.

Coccidae

- Acanthopulvinaria orientalis* (Nassonov); Uçhisar castle, on unknown host, 07.11.1999.
Eriopeltis festucae (Fonscolombe); Ihlara, on *Agropyron* sp., *Noena* sp., 06.11.1999; Göreme, on *Agropyron* sp, 07.11.1999;
Lecanopsis turcica (Bodenheimer); Göreme, on *Agropyron* sp, 07.11.1999
Parthenolecanium corni (Bouche); Göreme, on *Robinia pseudoacacia*, 07.11.1999;
Zelve, on *Robinia pseudoacacia*, *Amygdalus* sp., 07.11.1999.
Pulvinaria terrestris (Borchsenius); Uçhisar castle, on *Crateagus* sp., 07.11.1999.
Rhizopulvinaria artemisiae (Signoret); Ankara-Nevşehir, on *Taericum polium*, 06.11.1999; Ankara-Nevşehir, on *Artemisia* sp., 06.11.1999; Uçhisar castle, on unknown host, 07.11.1999, Ürgüp, on unknown host, 07.11.1999.
Rhizopulvinaria spinifera Borchsenius; Ankara-Nevşehir, on *Dianthus* sp., 06.11.1999; Göreme, Unknown, 07.11.1999; Güzelyurt, on *Dianthus* sp., 07.11.1999.
Rhodococcus perornatus (Cockerell&Parrot); Ihlara, on *Rosa* sp. 06.11.1999.
Scytia craniumequinum Kiritschenko; Ihlara, on *Agropyron* sp., *Festuca* sp., 06.11.1999; Zelve, on *Festuca* sp., 07.11.1999.

Diaspididae

- Chionaspis salicis* (Linnaeus); Ihlara, on *Salix* sp., 06.11.1999.
Duplachionaspis noaeae (Hall); Uçhisar castle, on unknown host, 07.11.1999.
Lepidosaphes ulmi (Linnaeus); Zelve, on *Juglans regia*, 07.11.1999.
Melanaspis inopinata (Leonardi); Ihlara, on *Prunus* sp., 06.11.1999.

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DR. M.BORA KAYDAN - Ankara University, Faculty of Agriculture, Plant Protection Department, 06610 Dypkapy, Ankara, Turkey. E-mail: bkaydan@hotmail.com.

PROF. SELMA ÜLGENTÜRK - Ankara University, Faculty of Agriculture, Plant Protection Department, 06610 Dypkapy, Ankara, Turkey.

PROF. DR. S. TOROS - Ankara University, Faculty of Agriculture, Plant Protection Department, 06610 Dypkapy, Ankara, Turkey.

DR. F. KOZÁR - Plant Protection Institute, Hungarian Academy of Sciences P.O Box 102, Budapest H-1525 Hungary. E-mail: h24o6koz@ella.hu

