VIII the European Congress of Entomology, on September 17-22, 2006, Supplementary Abstract Book-2, PVPP-77 (Poster Number) Poster Presentation, p.27, Izmir, Turkey.

Rapublic of Turkey
Ministry of Environment and Forestry

GEOGRAPHICAL DISTRIBUTION OF *CINARA CEDRI*, *CINARA (CEDROBIUM) LAPORTEI (HOMO.;APHIDIDAE)* AND NEWLY DISCOVERED A PARASITOID OF *CINARA CEDRI*, *PAUESIA (PAUESIA) ANATOLICA* (HYM.;BRACONIDAE) IN TURKEY

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Cinara cedri, Cinara (Cedrobium) laportei (Homoptera ; Aphididae)
Pauesia (Pauesia) anatolica (Hymenoptera : Braconidae)

Introduction

There are four species of *Cedrus* genus in the world. These species are *Cedrus libani* A. Rich, *Cedrus brevifolia* Henry, *Cedrus atlantica* Manetti and *Cedrus deodora* Loud. They are distributed as follows in the world: *Cedrus libani* found in Turkey (223,918 ha), in Lebanon (2,200 ha), and in Syria (400 ha), *Cedrus brevifolia* found only in Cyprus (810 ha), *Cedrus atlantica* found in Morocco (140,000 ha) and Algeria (27,000 ha), and *Cedrus deodora* found on the western Himalayas (500,000 ha) (1,2,3,4). *Cedrus libani* is a native important tree species of Taurus Mountains in Turkey. The largest native forest of *C.libani* in the world has been found and distributed in southern Turkey. The Cedar tree is used plantation areas, recreation and park areas in Turkey. Aphids are an economically important group of insects. They usually live in colonies in the host plants and use to pierce stems, leaves, root and other tender plant parts which suck to sap of host plants. Their attacks on plants cause serious damage by robbing the sap of plant, toxic action of their salivary secretions, thus causing of growth-stunting, deformation on leaves, stems or roots and acting as a vector of viruses which cause many diseases of plants (5,6,7)
Two aphids was called on *Cedrus* sp. in Turkey. This aphids are ***Cinar cedri*** Mimeur 1936 and ***Cinara (Cedrobium) laportei*** Remaudiere,1954 (Homotera; Aphididae).

<u>***Cinar cedri*** **Mimeur 1936 (Homoptera; Aphididae):**</u> *C. cedri* dark gray in color and body length reach up 3.8 mm. They live in compact colonies on the twigs branches and trunks of *C. libani* (Figure 1 Development of *C. cedri* takes place on the twigs, branches and trunks of the cedar trees. It sucks to sap of the trees. In general, *C.cedri* is not harmful to cedar trees only signs of damage are due to the development of sooty mold. However in some trees and single ones, *C.cedri* can cause the dropping of needles during rose populations. For the first time damages of *C.cedri* observed in plantations locatedin in the Mediterranean regions of Turkey last year. Therefore their attacks on the plants was cause dried the twigs, branches and trunks of some cedar trees (Figure-2)

Figure-1

Figure-2

Figure-1 Coloni of *Cinara cedri*
Figure-2 Damage of *Cinara cedri*

C.cedri has been reported from the countries which are **Algeria** (8), **Argentina** (9), **Belgium** (10), **Chile** (11,12), **Denmark** (13), **England** (14), **France** (9,15), **Hungary** (16), **Iran** (9), **Israel** (17), **Italy** (9,13,18),**Lebanon** (3), **Morocco** (5,9,18), **Serbia and Montenegro** (19), **Spain** (9,13,20,21) **Sweden** (15) and **Syria** (22). Host of *C.cedri* include *Cedrus atlantica, C. libani, C.deodara, Pinus* sp. A parasitoid of *C.cedri*, *Pauesia* sp.was first reported from the natural distribution area of *C.libani* in Turkey in 2001 (7). In 2002 *Pauesia* (*Pauesia*) *anatolica* was obtained from mummies of *C. cedri* in southern Anatolia in Turkey (Figure-3). It was a new recorded and described in 2005. The situation of *P.* (*P.*) *anatolica* with respect to *C. cedri* may be considered to be similar. The strict aphid-parasitoid relationships indicate the possibility of another biological control project in the countries of southern Europe and the Mediterranean Basin (13).

Figure-3 Parasitized Mummy of *Cinara cedri by Pauesia (Pauesia) anatolica* and exit hole of *Pauesia (Pauesia) anatolica*

<u>***Cinara (Cedrobium) laportei*** **Remaudiere,1954 (Homoptera; Aphididae):**</u>
Apterae are broadly oval and dorsovventrally flattened, pale brown and grey with a narrow pale spinal stripe from head to anterior abdomen. Body length 1,5-2,0 mm. They live at the base of needles or on the needles and suck to sap of ceder trees. Its feeding on the needles will cause the dropping of most or all needles on the attacked twigs. On single trees and following a heavy attack, all needles could drop which could lead to the death of the ceder trees because *C. laportei* is more serious than that of *C.cedri. Cinara (Cedrobium) laportei* has been reported from the countries which are **Algeria** (8,9), **France** (15), **India** (9), **Israel** (17), **Italy** (18), **Lebanon** (3), **Morocco** (4,9), **South Africa** (23) and ***Spain*** (20,21). Host of *Cinara (Cedrobium) laportei* include *Cedrus libani, C.deodara, Pinus* sp. In 1977 a parasitoid of *C.(Cedrobium) laportei*, *Pauesia cedrobii* were found for the first time in Morocco and it was described then. But up to last year parasitoid of *C.cedri* was not found in natural forest of *Cedar* sp. in the world. In 2002 for the first time a parasitoid of *C. cedri, Pauesia (Pauesia) anatolica* Michelena, Assael & Mendel, 2005 (Hymenoptera : Braconidae) were collected to parasitized colonies of *C. cedri* from native areas of *C. libani* in southern Turkey and it was described in 2005. In this poster paper detailed a map of geographical distribution of *C.laportei, C. cedri* and newly discovered a parasitoid of *C. cedri*, *Pauesia* (*Pauesia*) *anatolica* in Turkey were given

Material and Methods

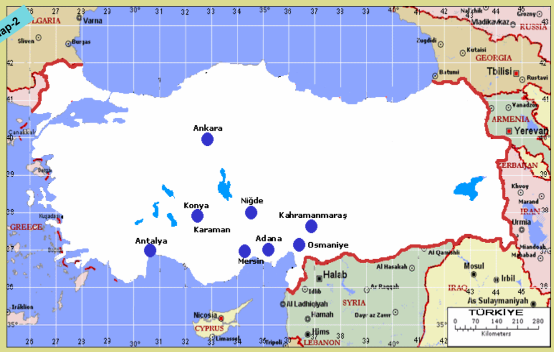
Samples of *Cinara cedri, C.(C.) laportei* and *Pauesia anatolica* were collected between 2002 and 2006 from the natural distribution area, plantation areas, recreation, park and gardens of *Cedrus libani* in Adana, Ankara, Karaman, Mersin, Niğde, Osmaniye which is located the Mediterranean and the central Anatolia regions of Turkey. However details were taken from the literature (5,6,7,18,24,25,26,27,28,29) for other regions of Turkey. Pieces of *C.libani* with aphid colonies were gently cut with scissors and placed in plastic cages to obtain parasitoid adults in the laboratory. Some of the collected aphids was preserved in 70% ethanol for subsequent identification. The emerging parasitoids were transferred with a fine brush into Eppendorf tubes containing 0% ethanol. The identified of *Cinar cedri* and *Cinara (Cedrobium) laportei* were according to Covassi and Binazzi 1974(18); Blackman and Eastop 1994(9); Remaudière and Remaudière 1997(30). The identified of *Pauesia anatolica* was according to Michelena *et.* al. 2005. The collected aphids and parasitoid specimens are deposited in the laboratory of Mersin Regional Forest Directorate

Results

1. **Geographical distribution of *Cinar cedri* (Map-1) and It's a Parazitoid, *Pauesia* (*Pauesia*) *anatolica* (Map-2) in Turkey**

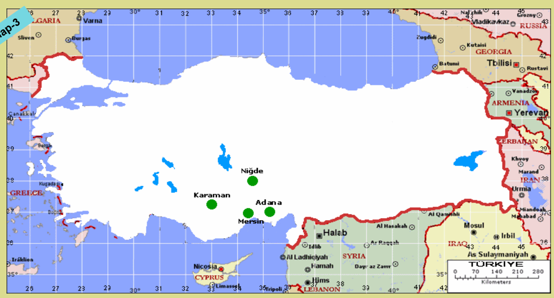
Map-1

Map-2



2. **Geographical distribution of *Cinara (Cedrobium) laportei* Remaudière,1954 in Turkey (Map-3)**

Map-3



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