Scientific Papers. Series A. Agronomy, Vol. LVIII, 2015
ISSN 2285-5785; ISSN CD-ROM 2285-5793; ISSN Online 2285-5807; ISSN-L 2285-5785

A NEW HOST *Myagrum perfoliatum* L. RECORD FOR *Melanobaris dalmatina* (H. BRISOUT, 1870) (COLEOPTERA: CURCULIONIDAE) FROM TURKEY

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Abstract

This study was conducted to determine the natural enemies associated with Bird's-eye cress (Myagrum perfoliatum L.), an important weed in wheat and lentil fields in the Diyarbakır Province (Turkey) in 2012. Infected bird's-eye cress samples were collected from wheat and lentil growing areas and were taken to the laboratory to culture. Melanobaris dalmatina adults were obtained from the cultured bird's-eye cress samples. This is the first record of M. dalmatina for Diyarbakır province and the second record for Turkey. Though few weeds have been reported as a host of *M. dalmatina*, this is the first record of *M. perfoliatum* as a host of the *M. dalmatina* in the world.

Key words: *Melanobaris dalmatina*, *Myagrum perfoliatum*, biological control, Diyarbakır, new host Turkey.

INTRODUCTION

Insects can control weeds by feeding on seeds, flowers, leaves, stems, roots, or combinations of these, or by transmitting plant pathogens. There are some very tough weeds on the prairies. They compete with valuable crop and forage plants and threaten many native plant species. Many of these weeds have been very expensive and difficult, if not impossible, to control with more traditional methods. In some instances, the chemicals used for control are non-selective compounds, which will also damage non-target plants and may leach out of sandy or gravelly soils, or compounds that give top growth control only. In addition, because of leaching, chemicals cannot be used on weeds that grow close to bodies of water.

Biological control covers two key concepts: the deliberate use of a weed's "natural enemies" to suppress its population and the use of these live organisms to maintain this lower population density. A weed's natural enemies may be arthropods (insects, mites and their relatives), bacteria or fungi. These "control agents" feed upon or cause disease in the weed, thereby limiting its growth, reproduction and spread.

Weeds have traditionally been considered totally unwanted plants that reduce yields by directly competing with crops or by harboring insect pests and plant diseases. Certain weeds, however, can be regarded as important components of agroecosystems, which can complement existing insect pest management systems. Outbreaks of some insect pests are more likely to occur in weed-free than in weed-diversified crop systems. Moreover, crop fields with a dense weed cover and high diversity usually have more beneficial insects than do weed-free fields. Plants commonly considered weeds in many situations are considered desirable wild plants in this case.

Worldwide, the *Curculionidae* (Weevils) is one of the largest families of the order Coleoptera, including many species on various host plants and represented by 4600 genera and 51000 species (Alonso-Zarazaga and Lyal, 1999; Oberprieler et al., 2007). This family is abundant and rich in species also in the fauna of Turkey.

This variation is due to biology of the weevils. They are not specialized for a specific plant species even for a definite part in a given plant. Any of the plant species may also host for a number of weevils at the same time. For example, as some weevils may feed on stems, others may damage roots, flowers, fruits and leaves. Also, life periods of the weevils on the same plant species may be different. This fact is of great importance regarding the biological control of the weed.

MATERIALS AND METHODS

This study was conducted in the wheat and lentil growing areas of the Department of Plant

Protection, Faculty of Agriculture, Dicle University, Diyarbakir, Turkey (latitude 37°53 N, longitude 40°16 E, altitude 680 m above sea level). Infected bird's-eye cress samples were collected from wheat and lentil growing areas and were taken to the laboratory to culture. Larvae of the *Melanobaris dalmatina* were collected from *Myagrum perfoliatum* during 16-17 May 2012, and were brought to the laboratory for rearing.

The larvae were reared in boxes containing peach branches from the same field at a temperature of 26±1°C, relative humidity of 65±5%, and illumination of 3500 lux for 16 hours per day. The boxes were checked daily. Host plant was placed in separate petri dishes containing moistened cotton until the adults weevils emerged.

Host plant was sent for confirmation of identification to Prof. Dr. A. Selçuk Ertekin and *Melanobaris dalmatina* identification were done by Prof Dr. Osman Sert.

Figure 1. *Myagrum perfoliatum* L

RESULTS AND DISCUSSIONS

This root-mining weevil is recorded from bird's-eye cress (Figures 1, 2, and 3) (*Myagrum perfoliatum*) in Turkey. As a result of this study, we obtained 49 adults of *Melanobaris dalmatina* (Figure 4) from one host plant *M. perfoliatum.*

Figure 2. *Myagrum perfoliatum* L.

***Melanobaris dalmatina* (H. Brisout, 1870)**
Order: *Coleoptera*
Family: *Curculionidae*
General Distribution: Recorded in Austria, Croatia, French mainland, Italian mainland, Poland, Russia Central, Russia South, Ukraine, Near East (Asian Turkey, Caucasian Russian republics, Georgia, Armenia, Azerbaidjan, Lebanon, Syria, Israel, Jordan, Sinai Peninsula (Egypt), Arabian peninsula, Iran, Iraq) (Anonymous, 2015).
Distribution in Turkey: In Turkey *M. dalmatina* was recorded for the first time in 1975 at Kula, Manisa, in western Turkey (Lodos et al., 1978). After forty years the *M. dalmatina* was recorded in the Diyarbakır Province in southeastern Turkey at a relatively high population level. It seems that the area of distribution of *M. dalmatina* have been extended to East.

Figure 3. *Myagrum perfoliatum* L.

Figure 4. *Melanobaris dalmatina*, adults

Host plant: *Myagrum perfoliatum* new record for *Melanobaris dalmatina.*

Recorded host pest: *Melanobaris* sp. *near semistriata* (Col., Curculionidae) In no-choice tests conducted with 16 test plant species, larvae were found in eight species (*Barbarea orthoceras*, *Erysimum asperum*, *Lepidium densiflorum*, *L. lasiocarpum*, *L. oblongum*, *Reseda lutea*, *Schoenocrambe linifolia* and *Stanleya pinnata*) apart from the control, *L. draba.* Larval survival on test plants was much lower than on *L. draba* and in most cases none of the larvae were able to complete development. Under single-choice conditions, *L. draba* was always preferred. Detailed results will be presented in the Annual Report (Anonymous, 2008).

First of all, there is a need for more comprehensive studies attempting to determine the distribution area and host plants of *M. dalmatina* in the region. These studies will reveal whether *M. dalmatina* can be used as a biological control agent of *M. perfoliatum* or not.

ACKNOWLEDGMENTS

The authors thank Prof. Dr. A. Selçuk Ertekin from the Dicle University, Faculty of Science, Department of Biology Diyarbakır / Turkey, for identification of the host plant and Prof. Dr. Osman Sert, Hacettepe University, Faculty of Science, Department of Biology Ankara/Turkey for the identification of the *Melanobaris dalmatina.*

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