

**DAMAGE OF *SCOLYTUS RUGULOSUS* (MULLER, 1818)
(COLEOPTERA: CURCULIONIDAE, SCOLYTINAE)
IN THE APRICOT FRUITS**

İnanç Özgen* , Oğuzhan Sarıkaya and Hayat Çiçek*****

* Dicle University Plant Protection Department, Diyarbakır, TURKEY. E-mail: inancoz@hotmail.com

** Süleyman Demirel University, Faculty of Forestry, Isparta, TURKEY.

*** Directorate of Food, Agriculture and Animal Husbandry, Malatya, TURKEY.

[Özgen, İ., Sarıkaya, O. & Çiçek, H. 2012. Damage of *Scolytus rugulosus* (Müller, 1818) (Coleoptera: Curculionidae, Scolytinae) in the apricot fruits. Munis Entomology & Zoology, 7 (2): 1185-1187]

ABSTRACT: In this study was carried out to determine of pest of *Scolytus rugulosus* (Müller, 1818) (Coleoptera: Curculionidae, Scolytinae) in the two apricot orchards in Malatya (Darende) province of Turkey. In the study has been determined to fed to entering in hollow parts of connect to talk of fruit and by forming grooves on the tip about 2-3 cm in the ripening period of *S. rugulosus*. The species have been especially created to damage on Kaabaşı and Hacıhaliloglu varieties. In the analysis from damaged fruit samples have been determined to between % 13 to %16 in firstly and secondly orchards in 2009 year, between % 18 to % 20 in firstly and secondly orchards in 2010 years about of damaged fruit ratios. With this study was firstly determined to feeding on apricot fruits of *S. rugulosus*.

KEY WORDS: *Scolytus rugulosus*, Malatya, Apricot, Fruit, Damage.

Stone fruit crops as well as other cultures are affected by many pests and diseases. If no precaution is taken, the weak, infected trees dries at the end of the pests harm. A large part of the bark beetle insects spend their lives in floem of woody plants. As a result of feeding through vascular bundles the plant shows recession and from the beginning of thin to thick branches drying since the pest feeds with the nutrient elements. Larvae feeds under the bark in the trunk, opens galleries during feeding, which causes the deformation of the vascular bundles. Branches with no sufficient nutrients due to pest damage show drying. Harmful individuals transmitted also to the young branches. They completely dry the damaged trees, within 2-3 years.

The physiological disorders resulting from hot and dry summers, temperate or arid winters, long-lasting summer droughts lead to epidemic outbreaks. The annual number of offspring in some species may increase due to climatic conditions. In parallel, the increase in the severity of the damage can be observed (Can, 2005).

S. rugulosus are bark beetles, which causes significant losses on stone fruit trees (Tezcan & Civelek, 1996).

The *S. rugulosus* adults are dark brown and black color and the sizes 1.4 to 3.2 mm. This species shows dissemination on *Prunus bucharica*, *P. domestica*, *P. insititia*, *P. spinosa*, *Pyrus communis*, *Malus pumila*, *M. sylvestris*, *Mespulis germanica*, *Padellus mahalep*, *Padus avium*, *persica vulgaris*, *Rosa spp.*, *Sorbus aria*, *S. aucuparia*, *S. torminalis*, *Cotoneaster multiflora*, *Crataegus spp.*, *Laurocerasus officinalis*, *Amelanchier ovalis*, *Amygdalus communis*, *Armeniaca vulgaris*, *Cerasus avium*, *C. vulgaris*, *Rhamnus spp.* and on *Taxus baccata* species in Europe, West Siberia, Anatolia and North Africa (Pfeffer, 1995).

Tilia tomentosa, and *Crataegus sp.* have been identified in our country Turkey, Adana, Amasya, Ankara, Antalya, Balıkesir, Bursa, Denizli, Istanbul,

Izmir, Kahramanmaras, Malatya, Manisa, Mersin, Mugla, Nigde, Osmaniye and Trabzon, where the plantation regions of *Prunus armeniaca*, *P. avium*, *P. cerasus*, *P. domestica*, *P. dulcis*, *P. persica*, *P. spinosa*, *Pyrus communis*, *Malus domestica*, *Cydonia oblonga*, *Sorbus*, *Acer platanoides*, *A. undulatum* (Selmi, 2011).

This study was carried out to reveal the harm status of *S. rugulosus*'s fruit damage previously observed only on thin and thick branches of apricot within 2009-2010 years.

MATERIALS AND METHODS

The study was carried out between 2009-2010 years in 2 apricot orchards located in the Ilca village of Darende town of Malatya province. *Scolytus rugulosus*'s damage situations have been observed by following the phenology period of apricot fruit and branches (thin and thick. The visual (naked eye) examination was done in the whole period of fruit ripening and fruit harvest time and investigations were also maintained by stereobinocular in the laboratory. Both the orchard, 400 fruits each being 10 per year for 100 fruit were examined. The inner parts of fruits delivered to the laboratory were investigated by cutting with lancet. Investigated orchards of Kaaabaşı and Hacıhaliloğlu apricot cultivars were 15-20 years. Orchards of old were around 5 years.

RESULTS AND DISCUSSION

In a study on biology of *S. rugulosus* (Mueller) it has been reported that cherry trees in Kemalpaşa (Izmir) where the pest showing severe population spends the winter in mature larvae. It maintains pre-pupae and pupae from the beginning of April through the period. At the beginning of April-May, the first adults begin to appear in nature. Adults are entry mostly into the tissues through the bulbs (Tezcan & Civelek, 1996).

Adults of the pest are observed in nature, the period covering the months of May to November. In particular, during May and June to the middle of the period are intensively observed. Adult emergence was intensive in July and September. In the study, *S. rugulosus* infection ratios were 67.5% in Malatya, Elazığ, 54%, 70.5% in Mardin, Adiyaman and 70% in Diyarbakir, and 63% in the Southeastern Anatolia and Eastern Anatolia. In the same study, it has also been reported that *S. rugulosus* offsprings for 3times and spends whole winter of the year under the bark, bark and wood tissue as mature larval in Southeastern Anatolia Region.

In the study region, *S. rugulosus* adults were detected in the last week of April until the middle of November. Maximum emergence was in May and July - October (Kaplan, 1998). But *S. rugulosus* species have been identified in the apricot orchards in different stages during the observations.

S. rugulosus generally damages to parts of the wood and bark of trees and opens the eye holes in the roots of the trees by entering of the adults. Mostly weak trees are affected by secondary pests attacking trees and trees dries within 2-3 years (Anonymus, 2009). This is the first study that *S. rugulosus*'s damage has been identified on fruits. Species of fruit trees, Species of fruit trees infects pit which is near the fruit and close to sap and progress until the kernel in the ripening of apricot fruit. It feeds on the tip of the kernel by creating holes nearly 2-3 cm (Fig. 1). Study was conducted in the last week of May, injurence indications were observed in the harvest time and continued until the middle of June. Somewhere off the beaten track is connected to the damaged fruits and fruit

decay occurred at a place where the fruit stalk rot decreased with time. This injuncture is quite different than other forms of damage in terms of pest behavior. The same damage to orchards was repeated between 2009-2010. Trunks did not encounter with any damage in the orchards, only fruits suffered from injuncture. An analysis conducted on damaged fruit in 2009, both from orchards; 13% damaged fruit in orchard fruit ratio from 16% in 2010, the 1st Rate of 18% of damaged fruit in the orchard, fruit from the orchards, 20% has been damaged.

As a result, *S. rugulosus* known as the secondary harmful is very interesting in terms of feeding behavior, causing fruit damage on apricot. Further studies will be important on apricot breeding, feeding behavior of this pest, and to manage this pest considering damage examinations in this province.

LITERATURE CITED

Can, P. 2005. The one assesment on bark beetles problems (Coleoptera, Scolytidae) which was seeing in forest in the Turkey at he last years. Forest and Hunting Magazine, No :2005-4, 4-11.

Kaplan, C. 1998. The investigations about the Scolytidae (Coleoptera: Scolytidae) which harmful on stone fruits in their species, pest situation and distribution areas. Master seminar notes. 13 p.

Pfeffer, A. 1995. Zentral und westpaläarktische Borken und Kernkäfer. Naturhistorisches Museum Basel, p. 310.

Selmi, E. 2011. Scolytidae of Turkey. <http://www.orman.istanbul.edu.tr/node/10552>. Access Date: 25.07.2011.

Tezcan, S. & Civelek H. S. 1996. Investigations on the biology and damage of *Scolytus rugulosus* (Müller, 1818) (Coleoptera: Scolytidae) in cherry orchards of Kemalpaşa (İzmir) district of Turkey. III Turkish national congress of Entomology, 24-28 september, 1996, Ankara, 135-141 s.

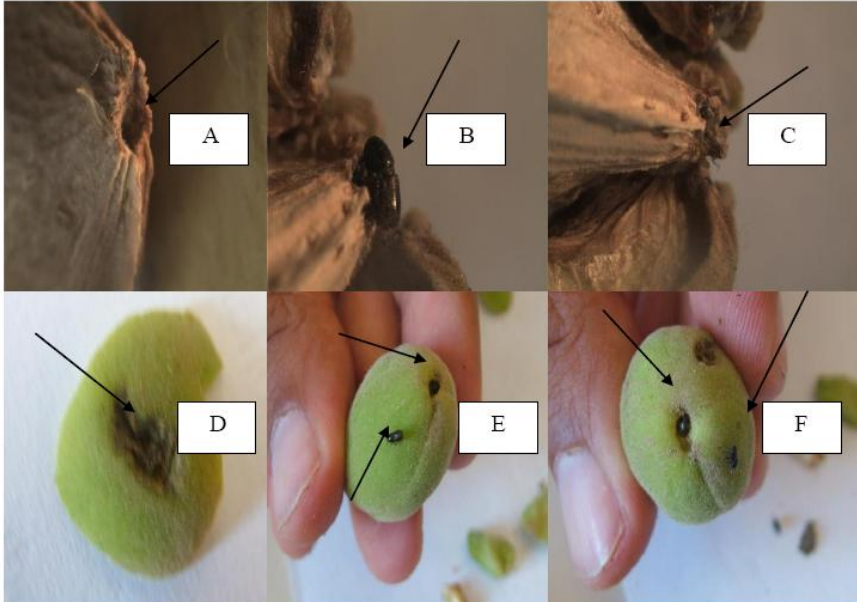


Figure 1. *Scolytus rugulosus* (Mueller) 's Apricot fruit loss (A: *S. rugulosus* fruit entry hole, B: *S. rugulosus* instant feeding, A: The feeding residues of the kernel entrance, D: Fruit on the damage, E: The emergence of *S. rugulosus* adults from fruit F: the instant emergence).