

Clytrini (Insecta: Coleoptera: Chrysomelidae) as occasional leaf feeders on avocado and plum trees in Southern Spain

Clytrini (Insecta: Coleoptera: Chrysomelidae) como consumidores ocasionales de hojas de aguacate y ciruelo en el sur de España

Chrysomelidae is one of the largest families of the order Coleoptera, with some 37,000 known species in the world (JOLIVET & HAWKESWOOD, 1995; REID & BEATSON, 2013). As its common name indicates, leaf beetles have phytophagous habits, and their species are more or less specialized according to their different host plants, ranging from monophagous, to polyphagous (BIONDI, 1996; BIONDI *et al.*, 2013). Chrysomelidae are well-known crop pests. In Spanish crops, the most remarkable species are the potato beetle (*Leptinotarsa decemlineata* (Say)), the sugarbeet beetle (*Chaetocnema tibialis* (Illiger), *Cassida vittata* Villers)), the cabbage flea beetle (*Psylliodes chrysocephalus* (Linnaeus), *Phyllotreta* spp.), the grapevine flea beetle (*Altica ampelophaga* (Guérin-Méneville)), the alfalfa leaf beetle (*Colaspidema barbarum* (Fabricius)) and the thistle leaf beetle (*Sphaeroderma rubidum* Graëlls and *Cassida deflorata* Suffrian), to name but some (DOMÍNGUEZ GARCÍA-TEJERO, 1955, 1963; IGLESIAS *et al.*, 1999; GARCÍA-MARÍ & FERRAGUT, 2002). In this paper we report four species of Chrysomelidae tribe Clytrini as occasional feeders on avocado and plum tree fruits in Southern Spain.

The avocado (*Persea americana*, Lauraceae) is native to Mexico and Central America, but today it is also cultivated in a large part of America, parts of Eastern Asia (Indonesia, China) and Western Asia (Israel), Africa (Kenya, Rwanda, Congo, South Africa, Cameroon) and Europe (Spain). A number of xylophagous, seminivorous and phytophagous insects have been recorded on the avocado (WAITE & MARTÍNEZ-BARRENA, 2002; WYSOKI *et al.*, 2002; RIPA & LARRAL, 2008). But few members of the Chrysomelidae family are considered to be avocado pests (OTANES & KARGANILLA, 1940; FAY & DEFAVERI, 1990; ERICHSEN & SCHOEMAN, 1993; ERICHSEN *et al.*, 1993; BEDFORD, 1998; WAITE & MARTÍNEZ-BARRENA, 2002; CLARK *et al.*, 2004).

Prunus domestica belongs to the Rosaceae family, as do many of the more valuable fruit trees. The origin of the species is Asia Minor, Caucasus and Iran, but it is currently grown in all temperate countries throughout the world. Amongst plum tree insect pests are listed aphids, scale insects, moths, sawflies, weevils and bark beetles (HILL, 2008). With reference to leaf beetles, as early as 1935, the clytrine *Labidostomis lusitanica* was mentioned as a pest of plum trees in Zaragoza (NW Spain) (MINISTERIO DE AGRICULTURA, 1935).

Leaf beetles on the avocado (*Persea americana* Mill.)

Our observations of the avocado in Southern Spain (Málaga province) have included two phytophagous species of the Clytrini tribe:



Fig. 1. *Labidostomis lusitanica* feeding on *Persea americana* cv. Hass.

Fig. 1. *Labidostomis lusitanica* alimentándose de *Persea americana* cv. Hass.

Labidostomis lusitanica (Germar) (figure 1): Málaga, Churriana, Finca experimental IFAPA, 13/May/2013, several specimens feeding on young leaves of *Persea americana* cv. Hass. This is a polyphagous species which in Spain has been recorded as a pest of the grapevine (*Vitis vinifera*, Vitaceae) and plum tree (*Prunus* sp. Rosaceae) (DOMÍNGUEZ GARCÍA-TEJERO, 1963). Moreover, it has been also recorded in the Iberian Peninsula on *Quercus* sp. (Fagaceae), *Salix* sp., *Populus* sp. (Salicaceae), *Rumex* sp. (Poligonaceae), in May and June (PETITPIERRE, 2000). This species is distributed throughout Western Mediterranean countries (REGALIN & MEDVEDEV, 2010), being very common in spring meadows in Spain.

Tituboea sexmaculata (Fabricius) (figure 2): Málaga, Algarrobo-costa, 24/May/2013, two specimens feeding on young leaves of *Persea americana* cv. Hass. It is a polyphagous species, recorded in the Iberian Peninsula on *Quercus* spp., *Vitis vinifera*, *Centaurea* spp. (Asteraceae), *Sambucus* spp. (Caprifoliaceae), in May and June (PETITPIERRE, 2000). It is distributed throughout Western and Eastern Mediterranean countries as far as Iran (REGALIN & MEDVEDEV, 2010). In Spain, it is a common species in spring meadows.



Fig. 2. *Tituboea sexmaculata* feeding on *Persea americana* cv. Hass.

Fig. 2. *Tituboea sexmaculata* alimentándose de *Persea americana* cv. Hass.

Leaf beetles on Plum tree (*Prunus domestica* L.)

Our observations include two additional species which attack the plum tree:

Lachnaia variolosa (Linnaeus): Málaga, Casarabonela, Huerta Nueva, 2/June/2013, D. López-Trujillo leg., one female feeding on young leaves of the plum tree. It usually feeds on *Pistacia lentiscus* (Anacardiaceae) both in Southern Spain and in North African countries (BALACHOWSKI, 1963; J.M. Vela, personal obs.), but has been also observed attacking young leaves of *Prunus dulcis* (almond), *Quercus faginea* and *Q. coccifera* (J.M. Vela, personal obs.). It is found throughout Southern Spain and in the North of both Morocco and Algeria (REGALIN & MEDVEDEV, 2010). It is frequently to be found in the coastal scrubs of Southern Spain.

Lachnaia paradoxa (Olivier): Málaga, Casarabonela, Huerta Nueva, 2/June/2013, D. López-Trujillo leg., two males feeding on young leaves of the plum tree. It is a very polyphagous species, feeding on *Rubus* and *Rosa* spp. (Rosaceae), *Quercus rotundifolia* and *Q. coccifera*, *Populus* spp., *Mimosa* spp. (Fabaceae), *Pistacia lentiscus* (PETITPIERRE, 2000). It is restricted to Mediterranean areas reaching the Eastern Pyrenees in the North, and stretching as far as Egypt in the East (REGALIN & MEDVEDEV, 2010). It is a common species in Central and Southern Spain, frequently found in scrubs and spring meadows.

The Clytrini tribe is a cosmopolitan group, with 947 known species worldwide (ERBER, 1988). They have recorded on about 37 plant families (JOLIVET, 1988). In the Iberian Peninsula, 51 species have been found (PETITPIERRE, 2000). Being of polyphagous habits, the adults' choice of food plant depends on the availability of the plants and on the leaf succulence and age (JOLIVET, 1988). Whilst adults choose flowers, buds, very young leaves and pollen (JOLIVET & HAWKESWOOD, 1995), the larvae live in or in the vicinity of ant nests (SELMAN, 1988) and feed on organic decays (ERBER, 1988; LESAGE & STIEFEL, 1996) or molds (SLOSSER, 2003). Our observations have shown that Clytrini attacks on avocado and plum trees are rather infrequent, probably depending on the temporary shortage of other resources in the area, and are of short duration, as stated by BALACHOWSKY (1963) for other Clytrini species. Therefore, the presence of the clytrine species on these fruit trees cannot be considered as a pest. Finally, the species *Lachnaia variolosa* usually feeds on *Pistacia lentiscus*, and BALACHOWSKY (1963) stated that it might become a pest of cultivated *Pistacia* if this plant were extensively cultivated in North Africa or South Europe; so, the growing surfaces currently available to the culture of

Pistacia vera in Central and Southern Spain could be affected by this leaf beetle at some time in the future.

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