

Aleurocanthus Spiniferus (Quaintance) (Orange Spiny Whitefly, Osw) (Hemiptera, Aleyrodidae) an Alien Pest Invading Southern Italy

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ABSTRACT

The presence of *Aleurocanthus spiniferus* is reported in Apulia from April 2008. This polyphagous whitefly is now spreading northward and invading new territories. This paper refers about recently occupied areas detailing local and urban outbreaks and population density per host plant species. We use digital camera-equipped stereoscope and Cryo-SEM on the laboratory and direct observation on the field. We note the presence of *A. Spiniferus* in Puglia region and we depict the invasion of agricultural and urban areas. The overall behaviour and ecological preferences of the alien pest are discussed in view of its available means of control.

Keywords: *Aleurocanthus spiniferus*, OSW, Puglia, whitefly.

INTRODUCTION

Orange Spiny Whitefly *Aleurocanthus spiniferus* Quaintance (1903) originated in south-east Asia and has spread widely in tropical and subtropical Asia, spread to Australia, Africa and the Pacific Islands, following the main trade routes. The presence of this pest was also reported in Kenya and Tanzania (Newstead, 1911), Indonesia (Fletcher, 1919), Malaysia (Gater, 1924), India (Singh, 1931), Cambodia, Thailand (Takahashi, 1942), Japan, Marianas Islands, Mauritius (Moutia, 1955), Philippines (Peterson, 1955), Micronesia, Sri Lanka (Takahashi, 1956), Bangladesh (Alam *et al.*, 1965), Pakistan (Gentry, 1965), Hawaii, Sumatra (Weems, 1974) and South Africa (van den Berg *et al.*, 1990).

A. spiniferus reported for the first time in Europe in 2008, in Italy (Porcelli, 2008). OSW is a polyphagous insect, reported to infest 90

plant species of 38 plant families such as grapes (*Vitis vinifera*), guavas (*Psidium guajava*), pears (*Pyrus spp.*), persimmons (*Diospyros kaki*) and roses (*Rosa spp.*) but *Citrus* spp. are the main hosts of economic importance.

Orange Spiny Whitefly *Aleurocanthus spiniferus* directly affects the export of *Citrus* plants and fruits to other countries, thus posing a major threat for national and international trade from the Mediterranean area and the European producers. Because of the particular OSW adults black colour, it is easy to suspect its presence in the field. Starting from the areas known to have been invaded we checked for the presence of this pest starting from bordering orchards, fields and private gardens, park areas, avenues, ornamental and natural reserves to trace the actual pest-damaged territories.

MATERIALS AND METHODS

The inspection started from the city centre, namely from the main public park or garden, then we extended it to orchards and boundaries searching for infested plants. The specimens collected mainly came from young fully mature leaves from the basal part of the infested trees. On infested trees puparia and eggs can be easily collected on all the trees, and black adults can be spotted at the top twigs. Otherwise *A. spiniferus* is usually on the underside of the leaves. On lesser infested plants few individuals can be found scrutinizing the centre of the tree crown, in the shaded and sheltered leaves.

Notes and pictures were taken on the spot at the site and the infested materials were brought to the laboratory, secured in cello tape to prevent the escape of the pest.

Puparia were slide-mounted by quick-mounts method (Martin et al., 2000) or in Canada balsam following the suggestions of Pizza and Porcelli (1993) and Martin (1999). The black puparia were bleached with a cold mixture of 30-volume ammonia and 20-volume hydrogen peroxide (Martin, 1999; Anonymous, 2004). The identification demands adequate slide mounting of puparia and taxonomic skills, OSW being very similar to *Aleurocanthus woglumi* Ashby (Anonymous, 1997). Mounted specimens were identified following (Silvestri, 1928; Bink-Moenen, 1983; Kanmiya et al., 2011; Martin, 1987; 1999). The laboratory notes and the observations were taken by stereomicroscope, light compound microscope and Hitachi TM3000 low pressure SEM.

RESULTS AND DISCUSSION

By the end of 2009 OSW infested 68 of the 97 municipalities of Lecce district but the intensity of its infestation varied. In 2010 the pest infested 88 municipalities, except Diso, Guagnano, Melendugno, Novoli, Salice Salentino, Squinzano, Trepuzzi, Uggiano la Chiesa and Veglie. In 2011 OSW started to spread into the villages from the Adriatic coast and apparently Melendugno and Diso were not infested by it. In 2011 *A. spiniferus* was found on a *Citrus limon* in a private garden from San Pancrazio Salentino, a village in the Brindisi district.

OSW adults are able to fly downwind for a short distance (Meyerdink et al., 1979) and can

enter cars or stick on people for long-distance movement. They can also travel on infested plants and twig-decorated fruits. *Aleurocanthus* spp. was found on the leaves of infested plants that came from international trade. (Anonymous, 1997).

The spread of this pest has serious consequences; OSW represents a major threat to the environment because of the increasing pesticides distribution in response to massive infestations. Another negative aspect is the pest ability to infest wild plants, which are main pest reservoir in the area.

The plants are directly damaged through sap sucking and the consequent excretion of considerable amounts of honeydew that is promptly infected by sooty mold. The latter indirectly damages the plant affecting plant respiration and photosynthesis, thus reducing the quality and the quantity of the fruits, which are black-stained and untradeable.

The infestation of OSW results into the weakening of the trees, their defoliation and dieback of the branches. Plant death eventually follows.

CONCLUSION

Aleurocanthus spiniferus represents a real menace to Citrus crops, where the pest found the conditions for acclimation and invasion. Its fast spread is mostly due to the transport of infested host plants, therefore passive invader dispersion must be kept under control to regulate the pest.

The actual situation has negative ecological, social and economical drawbacks for the invaded area, but we shall expect that the entire Mediterranean region will be soon concerned with the same problem (Šimala & Masten Milek, 2013).

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