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First Record of the Cottony Cushion Scale *Icerya purchasi* (Hemiptera, Monophlebidae) in Slovakia – Short Communication

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Abstract

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Damage by the cottony cushion scale *Icerya purchasi* (Hemiptera: Coccoidea: Monophlebidae: Iceryini) was found on *Rosmarinus officinalis* at the locality Suchohrad in Slovakia. *Icerya purchasi* is a cosmopolitan plant pest of warmer climates. In Central Europe it is a pest of glasshouses. It is the first observation of the cottony cushion scale (at least short-term) occurrence in the outdoor conditions in Slovakia.

Keywords: *Icerya purchasi*; Coccoidea; insect pest; Monophlebidae

The cottony cushion scale, *Icerya purchasi* Maskell, 1878 (Hemiptera: Coccoidea: Monophlebidae: Iceryini) is a cosmopolitan plant pest native to Australia and possibly New Zealand, known on over 200 different plant species (Caltagirone & Doutt 1989; Causton 2001). It has been introduced into other parts of the world through global trade. For example, it was introduced to California (USA) on *Acacia* plants around 1868 or 1869, and within roughly a decade was it causing damage to citrus groves in southern California (Ebeling 1959). The cottony cushion scale is cosmopolitan throughout the warmer regions of the world, but its outdoor populations appear to be naturally spreading northwards perhaps as a consequence of global warming. In 1999, a severe infestation was reported in the Jardin des Plantes, Paris and it has also recently been found breeding outdoors in London (Watson & Malumphy 2004; FAO 2008). In Hungary and the Czech Republic *I. purchasi* is considered as an insect pest of glasshouses (Hlavjenková & Šefrová 2007; Kozár *et al.* 2013), from where it can escape outdoors and survive in favourable conditions even in colder climates.

The cottony cushion scale can be distinguished easily from other scale insects. The mature females (actually parthenogenetic) have bright orange-red, yellow, or brown bodies (Ebeling 1959). The body is partially or entirely covered with yellowish or white wax. The most conspicuous feature is the large fluted ovisac, which is frequently 2 to 2.5 times longer than the body. The ovisac contains about 1000 red eggs (Gossard 1901). Depending on the temperature, eggs hatch within a few days or up to two months. The newly hatched nymphs are bright red with dark antennae and thin brown legs. The antennae are six segmented. This is the primary dispersal stage, and can be windblown to new locations, crawl to nearby plants, or possibly use other animals as vectors. After three molts, the adult female begins to lay eggs and secrete the conspicuous ovisac. As the ovisac is formed, the scale abdomen becomes more tilted until the scale appears to be standing on its head

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(Ebeling 1959). Dense scale populations damage plant health, and the honey dew excreted by *I. purchasi* stimulates growth of sooty mold on leaves and stems, disfiguring plants. Because the honey dew is a rich carbohydrate source, it is highly attractive to invasive ant species (e.g. *Camponotus conspicuus zonatus* Emery, *Solenopsis geminata* (Fabricius), and *Monomorium floricola* (Jerdon) – all Hymenoptera: Formicidae), which tend *I. purchasi* colonies to harvest the sugar (Hoddle 2011).

Over the last 120 years, *Rodolia cardinalis* (Mulsant) (Coleoptera: Coccinellidae) has successfully suppressed *I. purchasi* populations in many countries (Caltagirone & Doutt 1989). Colonisation trials were also conducted with the parasitic fly *Cryptochetum iceryae* Williston (Diptera: Cryptochetidae) collected in southern California (Mendel & Blumberg 1991). Both of these natural enemies can be extremely effective in the control of the cottony cushion scale because of their short generation time (4–6 weeks) and host specificity, attacking only the cottony cushion scale (Grafton-Cardwell *et al.* 2003).

MATERIAL AND METHODS

We found 6 adult females of *Icerya purchasi* in August 2015 on a potted *Rosmarinus officinalis* in a private garden in Suchohrad (48°24'14"N, 16°51'31"E, faunistic square No. 7567c). The potted plant was purchased from a local nursery in spring 2015. The locality Suchohrad is situated in the Záhorie lowland (146 m a.s.l.), with a typical lowland climate (climatic region T4), which is characterised as warm, moderately dry with mild winter with a long term (1961–1990) mean annual temperature of 9.2°C and annual mean precipitation of 550–600 mm. The long term average temperature (1961–1990) in January is –1.2°C. The average annual number of frosty days is 108 days (Miklós 2003). We identified the adult females with the help of Identification guide to species of the scale insect tribe Iceryini (Coccoidea: Monophlebidae) by Unruh and Gullan (2008). The level of damage was evaluated according to the count of adult female individuals on the host plant.

RESULTS AND DISCUSSION

The cottony cushion scale has a wide range of host plants. We found it on *Rosmarinus officinalis*. We came

Figure 1. Adult females of the cottony cushion scale (*Icerya purchasi*), with growing ovisacs on the branch of *Rosmarinus officinalis*

to similar findings as Papadopoulou and Chrysohoides (2012) in Greece and Ben-Dov (2011–2012) in Israel. The host plant *Rosmarinus officinalis* was purchased from a local nursery, which kept the potted plants in a cold bed during the winter 2014/2015. In August 2015 we found totally 6 adult females on the whole host plant. The damage on the host plant was minimal and the cottony cushion scale was detected only after the white ovisacs appeared. After identification of the cottony cushion scale, the infested plant was destroyed. It is not known whether the species would be able to survive the winter in the external environment in the area. Therefore, this record should be considered as the first, at least short-term occurrence of this species in outdoor conditions in Slovakia.

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