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First Record of a New Alien Economically Important Thrips *Dichromothrips corbetti* (Priesner, 1936) (Thysanoptera: Thripidae) in Slovakia – Short Communication

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Abstract

Masarovič R., Štefánik M., Zvaríková M., Sigmund J., Fedor P. (2017): First record of a new alien economically important thrips *Dichromothrips corbetti* (Priesner, 1936) (Thysanoptera: Thripidae) in Slovakia – short communication. Plant Protect. Sci., 53: 177–180.

The first record of vanda thrips (*Dichromothrips corbetti* [Priesner, 1936], Thysanoptera, Thripidae) in Slovakia is presented. An economically important pest with heavy infestations on flowers of *Phalaenopsis* orchids was recorded as introduced most probably from North African plantations. Potential infiltration of this exotic species into Central European glasshouses refers to the globalisation of trade in biological commodities.

Keywords: orchids; pest; *Phalaenopsis* spp.; vanda thrips

Exotic pests have recently become a serious problem in Europe with applied environmental, ecological and even economic consequences for natural ecosystems as well as urban and farmland areas, often as a synergy of actual climate change and biological commodity trade globalisation (HULME 2009). Approximately 12.5 billion EUR per year have been spent on biological invasions in the European Union for over the 20 past years (KETTUNEN *et al.* 2008). Most invertebrate introductions are considered to be accidental (PIMENTEL *et al.* 2000) with their highest rates occurring in the last 25 years (HULME *et al.* 2008). Undisputedly it is not surprising that even many Thysanoptera species have been secondarily distributed throughout the world (MOUND 1983) in accordance with their relatively small size which enables them to inhabit microhabitats within plants, often making the detection difficult (MEHLE & TRDAN 2012).

Approximately, 580 thrips species including pests with invasive and economic potential have been known in Europe (ZUR STRASSEN 2003) recently; however the species richness is significantly growing up due to a plenty of natural and human-induced phenomena (KARADJOVA & KRUMOV 2003; TRDAN *et al.* 2005; RODIKATIS *et al.* 2006; GOLDARAZENA 2011, etc.) supporting the infiltration of many non-native species, originally with tropical and subtropical distribution (JENSER & CZENZ 1988; PELIKÁN 1989, 1991; LEWIS 1997; COLLINS 1998; VIERBERGEN *et al.* 2006; FEDOR & VARGA 2007; VARGA & FEDOR 2008). These species continuously adapt to local climatic and ecological conditions and expand to other regions (MASAROVÍČ *et al.* 2014) even through zoochory (FEDOR *et al.* 2010). Biological invasions are thus expected to become one of the greatest problems in phytosanitary care (LODGE *et al.* 2006), where any

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detailed faunistic information, complex survey and monitoring may provide a key for effective control to reduce consequential economic losses (FEDOR *et al.* 2008, 2009, 2014; VARGA *et al.* 2010).

Vanda thrips (*Dichromothrips corbetti*) (Figure 1), one of the relatively new pests in Europe, was first described by PRIESNER (1936) as *Anaphothrips corbetti*. It is known as an economically important pest species, causing damage on decorative plants, especially orchid flowers, which suffer from silver and brown patches (MOUND 1976) and numerous punctures (SELJAK 2012) decreasing their aesthetic and commercial value (SZÉNÁSI & MARCZIKA 2011). It has been spread from South-Eastern Asia around the world, including Puerto Rico, Florida, Hawaii, India, Indonesia, Malaysia (West), Philippines, Singapore, Taiwan, Thailand, Australia (Northern Territory, Queensland), Fiji, French Polynesia, Samoa (ZUR STRASSEN 2003; EPPO 2016: <https://gd.eppo.int/taxon/ANAPCO/distribution> – last updated Sept 13, 2016). The centre of diversity of *Dichromothrips* species appeared to be the Malaysian Region (MOUND 1976; MEENA *et al.* 2011). Within Europe the species has been recorded only in the Netherlands (MANTEL & VRIE 1988), Belgium (Belgian Species List 2016), Hungary (SZÉNÁSI & MARCZIKA 2011), and Slovenia (absent, intercepted only) (SELJAK 2012).

MATERIAL AND METHODS

The thrips were recorded within a complex research on Thysanoptera diversity and their invasive potential in the Bratislava region (Slovakia). The specimens of *Dichromothrips corbetti* were sampled individually, using pincers and a brush as well as by shaking the flowers. AGA solution (84% of ethyl alcohol, 8.3% of glycerol, 8.3% of acetic acid) was used as a conservation liquid. Thrips were mounted according to the standard preparatory techniques used for thrips (SIERKA & FEDOR 2004; FEDOR *et al.* 2012) and determined according to MOUND (1976) and ZUR STRASSEN (2003). The material was deposited in the collections of the authors.

RESULTS AND DISCUSSION

Hundreds of specimens, especially adult females and larvae, were obtained on potted orchid (*Phalaenopsis* spp.) cultivars in two distant stores (first:



Figure 1. Visible injuries on *Phalaenopsis* orchid flowers caused by *Dichromothrips corbetti* (photo: M. Štefánik)

48°12'21.12"N, 17°01'15.14"E, 174 m a.s.l. and second: 48°09'40.73"N, 17°10'46.79"E, 132 m a.s.l.) of the retail chain with specialization in garden supplies in Bratislava on 12th and 16th September 2016. Almost each flower was visibly stippled, scared or showing silvering discoloration typical of thrips feeding (Figure 1). The infested plants were imported most probably from the northern part of the African region (personal communication).

Dichromothrips corbetti (Figure 2) is well distinguished by the dark body colour, yellow tarsi, and distal parts of tibiae, brown fore wings with pale base and two distal setae, eight segmented antennae

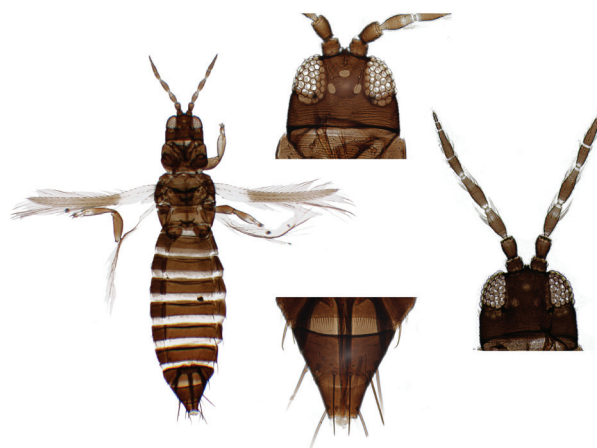


Figure 2. Adult of *Dichromothrips corbetti* (photo: M. Štefánik)

with long forked sensoria on segments III and IV. Interocellar setae arise outside of the ocellar triangle. Pronotum remains without any long noticeable setae. Pronotum and metanotum are characterised by visible transverse lines. Fenna is complete, spinula on mesonotum is present, metanotum spinula faints. Abdominal tergites are distinguished by many lateral transverse lines that are absent medially. Tergite VIII bears a well-developed and complete comb of setae on the posterior margin (MOUND 1976; ZUR STRASSEN 2003).

Dichromothrips corbettii feeds on juices of orchid flowers and belongs to the oligophagous specialists. It occurs mostly on *Ascocenda* spp., *Cattleya* spp., *Cymbidium* spp., *Dendrobium* spp., *Phalaenopsis* spp. and *Vanda* spp. cultivars (ZUR STRASSEN 2003; SELJAK 2012). All of these, except for *Cattleya*, are Old World genera. *Dichromothrips corbettii* represents the major pest of concern in China (REITZ *et al.* 2011). MORITZ (2006) considered vanda thrips to be an adaptable polyphagous species with the potential of spreading to Middle Europe. Although it belongs to the tropical species being able to survive mostly in greenhouses in temperate climate conditions, it can be a serious threat to large-scale production of orchid plants (SELJAK 2012).

Tropical orchids have become attractive decorative plants in Europe since the global trade in ornamental species appeared. In this regard, *Dichromothrips corbettii* was considered as a potential pest of orchid flowers, the most valuable parts of the plant. Vanda thrips spread easily from original plantations through European garden stores to local growers and consumers, leading to great damage to flowers. In artificially heated places, especially with insufficient pest control, the populations may survive for longer periods. Therefore, the careful phytosanitary monitoring of transported orchids supports the effective pest control for Central European countries.

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