

This short description was prepared in the framework of the EU FP7 project DROPSA - Strategies to develop effective, innovative and practical approaches to protect major European fruit crops from pests and pathogens (grant agreement no. 613678). This pest was listed in the DROPSA alert lists for orange and mandarin, and *Vitis* fruit.

Zaprionus indianus (Diptera: Drosophilidae)

Fruit pathway: Yes, as eggs or larvae. Eggs are laid on eggs in unripe fruits (possibly referring mostly to figs, Pires et al., 2008). Larvae in fruit. *Z. indianus* adults were successfully reared out of table grapes sampled in the field (van Timmeren and Isaacs 2014). There is an uncertainty on whether it attacks undamaged fruit on a number of host species (see Damage). However, it has been intercepted in the EU, incl. on *Citrus*, *Diospyros kaki*, *Mangifera indica*, *Psidium guajava*. Consequently, it was considered as possibly associated with table grapes and Citrus in trade.

Other pathways: plants for planting with fruit.

Hosts: Highly polyphagous, 74 hosts species in 31 families, including *Citrus*(EPPO GD), *Vitis* (Al-Jboory and Katbeh-Bader 2012; van Timmeren and Isaacs 2014), *Ficus carica*, *Phoenix dactylifera*, *Psidium guajava* (EPPO GD), *Malphigia emarginata*, *Punica granatum*, *Eriobotrya japonica*, *Dimocarpus longan* (Renkema et al., 2013), *Actinidia*, *Phoenix dactylifera*, *Ziziphus*, *Musa* (Al-Jboory and Katbeh-Bader, 2012), *Annona glabra*, *Anacardium occidentale*, *Citrofortunella microcarpa*, *Citrus sinensis*, *Citrus aurantium*, *Citrus × paradisi*, *Fortunella* (van der Linde et al., 2006). It has adapted to new host species. In the USA and Canada where it was introduced recently, adults were trapped in a number of crops whose host status is not yet known, such as: *Prunus persica*, *Vaccinium* (as blueberry), *Rubus idaeus* (as raspberry), *Rubus* (as blackberry) *Fragaria* (as strawberry), *Prunus* (as plums, cherry), *Solanum lycopersicum* (Pennsylvania, Joshi et al., 2014; Canada, Renkema et al., 2013; van Timmeren and Isaacs, 2014).

Distribution: *Africa:* Benin, Cape Verde, Congo, Cote d'Ivoire, Egypt, Kenya, Madagascar, Malawi, Mauritius, Morocco, Mozambique, Niger, Nigeria, Reunion, Sao Tome & Principe, Seychelles, South Africa, Tanzania, Madeira (Portugal), Islas Canarias (Spain) (EPPO GD), Cameroon, Comoros, Gabon, Guinea, Senegal, Sudan (CABI CPC). *Asia:* India, Iran, Israel, Saudi Arabia (EPPO GD), Lebanon (2009; Moussa, 2009), Jordan (Al-Jboory and Katbeh-Bader, 2012), Iraq, Nepal, Oman, Pakistan (Al T'Oma and van der Linde, 2010), United Arab Emirates (CABI CPC); also unpublished report for Azerbaijan (Al T'Oma and van der Linde, 2010). *South America:* Argentina, Brazil (1998), Uruguay (EPPO GD); Van der Linde (2013) also maps records for Ecuador, Peru; unpublished record for Venezuela mentioned in Al T'Oma and van der Linde (2010); *North America:* Canada (Ontario, Quebec, first records; uncertainty if can overwinter and will establish; Renkema et al., 2013); Mexico (2002); USA (2005) (first Arizona, California, Florida, Virginia, then spread North, to e.g. Michigan, New York; Joshi et al., 2014, CABI CPC); Central America: Panama (2003); Caribbean: unpublished reports for Cayman Isl. cited in Al T'Oma et al. (2010).

Europe: uncertain record: Spain (mainland: Carles-Tolrá, 2009). No confirmation could be found, and this was considered with an uncertainty. Unreliable records : Italy and Austria (EPPO GD).

Damage: *Z. indianus* is often associated with damaged or fallen rotting fruit, but it is able to invade figs (Renkema et al., 2013), *Malphigia emarginata* and *Dimocarpus longan* (Steck, 2005). There are also records of infestation of tree-ripened *Punica granatum* and *Eriobotrya japonica* (Renkema et al. 2013). In Brazil, it caused 40% losses of fig harvest when it was introduced (Mattos Machado et al. 2005). It is reported to infest ripened peaches in Brazil (Joshi et al. 2014) and some authors (e.g. van der Linde et al. 2006) report substantial losses in *Citrus* (oranges), peach and fig in Brazil (based on Santos 2003; the original publication could not be consulted). Crop damage is also reported in grapevine in Virginia (Markow et al., 2014 citing others). For grapevine in Michigan, it is still unclear whether it will become a pest or will attack only damaged fruit (van Timmeren and Isaacs 2014). Unless the impact on grape industry is not yet known, it is assumed as a `potentially destructive` grape pest (Werle et al. 2013). For *Vaccinium* in Mississippi, it is still uncertain whether it will damage blueberry in the field, although it is a possible concern in packing houses (Werle et al., 2012). For

grapevine in Michigan, it is still unclear whether it will become a pest or will attack only damaged fruit (van Timmeren and Isaacs, 2014).

Other information: Intercepted in the EU on fruits of *Citrus aurantium*, *Citrus paradisi*, *Diospyros kaki* (no host record), *Mangifera indica*, *Psidium guajava*, and on *Passiflora edulis* (commodity not specified) (Dropsa review, using Europhyt data). *Z. indianus* is ecologically versatile. In Brazil, a single introduction in 1998, was followed by rapid spread (Mattos-Machado et al., 2005), and subsequent spread within South and North America.

Recorded impact: High (on another crop)	Intercepted: Yes	Spreading/invasive: Yes
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