Material and Methods

The specimens of *D. suzukii* were accidentally captured in the traps, which were basically set to catch the tephritid olive fruit flies, *Bactrocera oleae* (Gmelin). The locality data are as follows: Iran: Qazvin province, Tarom-sofla, Ghoushchi village, 356m., September 24-October 16, 2015, 49º16´00˝N 36º42´08˝E, olive groves, hydrolyzed protein-baited traps, leg. A.A. Keyhanian. The specimens are preserved at the Hayk Mirzayans Insect Museum (HMIM), Tehran, Iran.

A Tale of Two Drosophilid Invasions of Iran

Over a span of seven years, two exotic drosophilid pests have invaded Iran. The first invasion occurred in 2008 when the African fig flies, *Zaprionus indianus* Gupta, were collected in an orange orchard in southern Iran. The introduction was largely blamed on the authorities who mistakenly issued quarantine clearance for the importation of tons of orange fruits unaware of the fact that the exporting country, Egypt, had been announced contaminated by the drosophilid pest (Parchami-Araghi and Mohammadi-Khorramabadi, 2009; Yassin and Abou-Youssef, 2004). Since 2008, *Z. indianus* has been effectively widening its range across the country, seriously threatening the domestic fruit production through attacking various fruits, especially fig. But the second invasion, by *D. suzukii*, is believed to be the result of nonstandard control of the land border with Pakistan, the only country bordering Iran known to be the home of the spotted wing drosophila (Amin Ud Din *et al*., 2005). There are no existing records of the species *D. suzukii* in other of Iran's neighboring countries. Iran and Pakistan share a porous and long border (ca. 1000 km), which is heavily frequented by traffickers on either side. This area is affected by poverty and high unemployment rate due to prolonged drought and infrastructural deficiencies. By taking advantage of these issues, smugglers trade in various commodities including agricultural products. Therefore, the highest likelihood is that the infested smuggled fruits from Pakistan have been responsible for the introduction of *D. suzukii* to Iran.

Conclusion

The Iranian fruit farming has been suffering huge economic losses from the polyphagous tephritid *Ceratitis capitata* (Wiedemann), known as Mediterranean fruit fly, for decades. The species *C. capitata*, *D. suzukii*, and *Z. indianus* have overlapping host ranges that might create high level of interspecific competitions among them and with other associated monophagous tephritid fruit pests. Although the females of the species *Z. indianus* are not capable of inserting their eggs under the skin of fruits, they preferably infest fruits at ripening stage (with thin skin) or opportunistically attack the fruits that have been wounded by other pests, including *C. capitata* and *D. suzukii*, enhancing the damage on the harvest. Even though the trapped spotted wing drosophilas have been collected in olive orchards, their possible damages on olive fruits remain uncertain until further detailed studies on the ecology of *D. suzukii* in the region. To date olive fruit has not been recorded as a host for spotted wing drosophila.

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Olive infestation with *Zaprionus indianus* Gupta (Dip.: Drosophilidae) in northern Iran: a new host record and threat to world olive production.

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We here report olive fruit (*Olea europaea*) as a new host record for the polyphagous African fig fly, *Zaprionus indianus* Gupta, from olive plantations on the southern slopes of Elburz Mountains, Iran. The collecting site is located in the province of Qazvin, Tarom-sofla, Ghoushchi village, 356 m., 49º16´00˝N 036º42´08˝E. Olive is one of the most economically important fruits in Iran and many countries including those that are already known to be home of the African fig fly. Although the existing list of host records for *Z. indianus* includes as many as 74 fruits in 31 plant families (van der Linde *et al*., 2006), olive was never observed to be infested by this drosophilid pest. Olive groves cover an estimated 104,680 hectares (258,670 acres) of Iran's land with an annual production of nearly 102,000 tons of olive fruit (MAJ, 2013). The dominant olive cultivars grown in this region are Zard, Mari, Dezfuli, and Shengeh, which are dual-purpose cultivars preferred for both oil production and eating as table olives. We collected the infested fallen olive fruit from the floor of the orchards and placed in the net-covered jars for the emergence of the adult flies. The emerged flies were later identified as *Z. indianus* and the monophagous tephritid olive fruit fly *Bactrocera oleae* (Gmelin). It is believed that *B. oleae* (primary pest), by causing damage on the skin of olive fruit, encourages the oviposition of the females of the secondary pest, African fig fly. Therefore, the olive groves where contaminated by the both fly species are more likely to be infested by *Z. indianus*. Since its discovery in 2008 (Parchami-Araghi and Mohammadi-Khorramabadi, 2009), the species *Z. indianus* has reportedly attacked a number of fruits including fig, olive, orange, peach, persimmon, and pomegranate in Iran.

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Drosophilidae of Bettadapura hill of Mysuru District (Karnataka, India).

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Drosophila has been used as a model organism for research for almost a century and thousands of scientists around the world work on it. It has richly contributed to our understanding of the pattern of eco-distribution, biodiversity (Guru Prasad *et al.*, 2010), and altitudinal variation (Guru Prasad *et al.*, 2006). The *Drosophila* species are observed in any ecosystem, from considerable altitudes to sea level, and in equatorial as well as in temperate zones (Throckmorton, 1975). The Drosophilidae family is composed by 65 genera and more than 3500 described species that occur all over the world (Bachli, 1998). The early studies on *Drosophila* in India were mainly with taxonomy. From 1970 onwards studies in other fields have also been initiated such as biodiversity. Significant progress has been made in the field of taxonomy and biodiversity of family Drosophilidae in South India. However, there are a few areas of south India, especially south Karnataka, which are not explored to analyse the fauna of *Drosophila species*. To fill up this gap at least partially, hence the present study has been undertaken in Bettadapura hill south eastern Karnataka, India, to study *Drosophila* fauna.

In the present study the *Drosophila* fauna was collected from two different altitudes (500 m and 1200 m) of Bettadapura hill (12.29°N, 75.65°E), in August 2015 which is situated in Mysuru district, of south eastern Karnataka, south India, almost near to Western Ghats. Collections were made using regular bottle trapping and banana bait methods. In bottle trapping method regular banana baits in quarter pint 250 ml milk bottles sprayed with yeast were tied to the twigs of trees at two and half feet above the ground in cool shaded