Short communication

Scale insects (Hemiptera, Coccomorpha) of Ficus carica L. (Moraceae), with a new record from Iran

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Iran is ranked as the world third largest fig producer after Egypt and Turkey, with 52000 hectares of fig orchards and an estimated production of 88000 tons of figs a year as Iranian Estahban region is the largest dried fig producer in the world (FAO, 2008). About 77 species of scale insects within the families Diaspididae, Pseudococcidae and Coccidae have been known to attack Ficus carica across the world (Garcia et al., 2017), but little is known about the scale insects associated with fig in Iran. A total of 12 species of insect pests have been recorded to infest F. carica in Iran, including the scale insect species Lepidosaphes conchiformis (Gmelin), Aonidiella orientalis (Newstead) (Diaspididae), Planococcus citri (Risso) (Pseudococcidae) and Ceroplastes rusci (Linnaeus) (Coccidae) (Anonymous, 2010). Moghaddam (2013a) listed eight scale insects and the recently introduced mealybug species Paracoccus ficus (Moghaddam, 2014) which is thought to attack the figs in Iran (Moghaddam and Esfandiari, 2014).

Material examined. Hormozgan province, Bandar-Abbas, Geno, 4 adult ♀ ♂, 24.ii.2006, 1834 m., 27°24′32.9″N 56°11′27.1″E, leg. S. Manzari & A. Haj-Esmailian; Kohgilouyeh & Boryerahmad province, Dehdasht, Choram, 4 adult ♀ ♂, 17.iv.2008, 715 m., 30°43′15.7″N 50°44′44.8″E; Lorestan province, Pol-e Dokhtar, 7 adult ♀ ♂, 21.iv.2002, 33°08′06.3″N 47°44′19.3″E, leg. M. Javad-zadeh; Sistan & Balouchestan province, Sarbaz, 1 adult ♀, 12.viii.2002, 26°58′45.2″N 61°21′18.3″E, leg. Y. Achak.

Distribution. C. rusci occurs in 56 countries in Afrotropical, Nearctic, Neotropical and Oriental, Palaearctic regions (Garcia et al., 2017).

Coccus hesperidum Linnaeus

Material examined. Fars province, Shiraz, Bam National Park, 3 adult ♀ ♂, 23.ix.1996, 29°14′24.0″N 52°34′00.1″E, leg. M. Moghaddam.

Distribution. C. hesperidum occurs in 140 countries in Afrotropical, Australasian, Nearctic, Neotropical, Oriental and Palaearctic regions (Garcia et al., 2017).

Pulvinaria vitis (Linnaeus)

Material examined. Esfahan province, Nain, Khour, Arousan, 3 adult ♀ ♂, 11.iv.2010, 1024 m., 34°07′53.3″N 55°06′39.0″E, leg. M. Moghaddam.

Distribution. P. vitis occurs in 52 countries in Australasian, Nearctic and Palaearctic regions (Garcia et al., 2017).

Material examined. Fars province, Shiraz, Persopolis, 14 adult ♀ ♂, 29°41′24.0″N 52°34′00.1″E; Qazvin province, Qazvin, 3 adult ♀ ♂, 36°15′21.1″N 50°00′24.4″E, leg. G. Farahbakhsh; Kerman province,
Kerman, Sirch, 5 adult ♀♂, 7.vi.1950, 30°12'33.4"N 57°34'03.2"E; Shahdad, 18 adult ♀♂, 25.v.1950, 30°15'15.8"N 57°28'15.0"E; Khorasan -e Razavi province, Gonabad, 2 adult ♀♂, 34°20'02.2"N 58°39'43.4"E; Sistan & Balouchestan province, Khash, Taftan, 2 adult ♀♂, 24.v.1955, 28°16'19.7"N 61°33'29.5"E, leg. G. Farahbaksh.

Distribution. L. conchiformis occurs in 52 countries in Australasian, Nearctic and Palaearctic regions (Garcia et al., 2017).

Lopholeucaspis japonica (Cockerell)


Distribution. L. japonica occurs in 20 countries in Afrotropical, Australasian, Nearctic, Neotropical and Palaearctic regions (Garcia et al., 2017).

Parlatoriopepsis longispina (Newstead)

Material examined. Kerman province, Kerman, Shahdad, 3 adult ♀♂, 15.vii.1950, 30°15'15.8"N 57°28'15.0"E, leg. M. Sarkissian.

Distribution. P. longispina occurs in nine countries in Palaearctic region (Garcia et al., 2017).

Suturaspis davatchii (Balachowsky & Kaussari)


Distribution. S. davatchii occurs in three countries in Palaearctic region (Garcia et al., 2017).

(Family Pseudococcidae)

Ferrisia virgata (Cockerell)


Distribution. F. virgata occurs in 96 countries in Afrotropical, Australasian, Nearctic, Neotropical, Oriental and Palaearctic regions (Garcia et al., 2017).

Paracoccus ficus Moghaddam


Distribution. P. ficus is known only from Iran (Moghaddam & Esfandiari, 2014).

Planococcus citri (Risso)

Material examined. Tehran province, Rey, 2 adult ♀♂, 19.vi.2006, 35°38'46.0"N 51°27'25.4"E.

Distribution. P. citri occurs in 114 countries in Afrotropical, Australasian, Nearctic, Neotropical, Oriental and Palaearctic regions (Garcia et al., 2017).

Planococcus ficus (Signoret)

Material examined. Elborz province, Karaj, Rajai-shahr, 3 adult ♀♂, 11.i.2003, 35°52'08.8"N 50°58'34.0"E, leg. Rastegar; Fars province, Shiraz, Bajgah, 1 adult ♀, 9.vi.2014, 29°39'47.7"N 52°33'14.5"E, leg. M. Esfandiari.

Distribution. P. ficus occurs in 43 countries in Nearctic, Neotropical, Oriental and Palaearctic regions (Garcia et al., 2017).

Pseudococcus viburni (Signoret)

Material examined. Mazandaran province, Ramsar, 2 adult ♀♂, 36°54'02.4"N 50°40'31.0"E, leg. M. Moradi.

Distribution. P. viburni occurs in 57 countries in Afrotropical, Australasian, Nearctic, Neotropical, Oriental and Palaearctic regions (Garcia et al., 2017).

Diaspidiotus braunschvigi (Rung) (Figs. 1, 2)

Aspidiotus braunschvigi Rung, 1936. D. braunschvigi was mistakenly identified as D. lenticularis Lindinger in the checklist of Iranian scale insects (Moghaddam, 2013). Therefore, the Iranian record of D. lenticularis Lindinger is nullified.

Material examined. Iran, Fars province, Estahban, 15 adult ♀♂, 1987, 29°13'N, 54°06'E, on Ficus carica (Moraceae), leg. Fazeli; Estahban, 7 adult ♀♂, 27.viii.2016, leg. H. Faghhi.

Diagnosis. D. braunschvigi was originally described by Rung (1936) based on the available specimens from Morocco on Ficus carica. This species and Diaspidiotus zonatus (Frauenfeld) are closely related, although D. zonatus differs in having pygidium rounded, median lobes parallel or slightly convergent and third
lobes reduced to a blunt prominence. D. zonatus attacks Juglans regia (Juglandaceae) and Quercus sp. (Fagaceae) in Iran (Moghaddam, 2013). Acute pygidium occurs in both Iranian specimens of D. braunschvigi and D. zonatus.

Some variations which exist between Iranian specimens of D. braunschvigi and the original description by Balachowsky (1950) are as follows (character states in brackets are from Balachowsky): (i) pygidium acute (not acute); (ii) median plates absent (present); (iii) 1 plate present between segments VII and VIII (2 plates); (v) paraphyses well developed (small, but distinct) (Fig 2).

This species has been recorded on dry fig trees in Fars province, Estahaban since 1987. In recent years, a severe and prolonged drought has persisted in this area forcing the fig farmers to abandon the traditional rain-fed harvests and manually irrigate their fig orchards leading to climatic changes and severity of infestation of fig trees by D. braunschvigi. This species occurs on leaves, twigs and fruits of fig.

**Distribution.** D. braunschvigi has been recorded from Morocco (Rung, 1937) and the U.S.A (Ferris, 1942).

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**Fig. 1. Diaspidiotus braunschvigi (Rung)**
Fig. 2. *Diaspidiotus braunschvigi*, microscopic characters of adult female.
References


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