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Original Research Article

New Host Record and Genitalia Based Study of *Diaphorina Citri* Kuwayama (Hemiptera: Liviidae)

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Abstract

Psyllid species, *Diaphorina citri* Kuwayama, 1907 is reported for the first time on a new host plant, *Murraya* sp. from different areas of Rawalpindi and Islamabad. Details regarding synonyms, description of characters with photographs and field observations are provided to facilitate readers of this document.

Keywords: *Diaphorina citri*, Asian citrus psyllid, New host, genitalia.

Introduction

Asian citrus psyllid (ACP), Diaphorina citri Kuwayama (Hemiptera: Liviidae), a serious pest of citrus crop being vector of Huanglongbing (HLB) causing citrus greening is known from various Asian countries like Afghanistan, Indian subcontinent, Japan, Taiwan, Hong Kong, China and few other parts of the world (Boykin et al., 2012). It is a vector of citrus greening disease in many parts of the world (Gottwald, 2010; Grafton-Cardwell et al., 2013; Hall et al., 2013). It is also reported from Pakistan as a serious pest of citrus (Mahmood, et al., 2014).

Lot of work on biological parameters of ACP has been done in various parts of the world on different host plants (Martini et al., 2014; Paris et al., 2015). Mathur (1975) mentioned it on different host plants including Murraya koenigii and from India and Japan as an alternate host. Paris et al (2016) proved that host plant induces morphometric variations in D. citri. Lashkari et al. (2015) provided morphometric comparisons of D. citri (Hemiptera: Liviidae) recorded from Iran, USA and Pakistan. In the present study presence of D. citri on M. paniculata is studied by conducting field surveys in different localities of Rawalpindi and Islamabad.

Materials and Methods

Male and female psyllids were collected from leaves of Murraya with the help of mouth aspirator during 2015- 2016 (August-September). Adults were preserved in 75 % alcohol and identified under Labomed Sterioscope following Mathur (1975). Dissection of male and female genitalia was done under dissection microscope. Genitalia of each specimen was pulled out using alcohol and dissecting needles. After adding one drop of glycerin, pictures of male and female genitalia were captured using Nikon SMZ 1500 microscope system. Measurements were also done using stage and ocular micrometer.

Results and Discussion

***Diaphorina citri* Kuwayama-1907**

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Material examined:
Rawalpindi (Ayub Park), 28-vii-16, 3♀ and 2♂; Islamabad (Pir Sohawa), 8-ix-2016, 4♀ and 16♂; Rawalpindi (Taxilla), 28-vi-16, 14♀ and 8♂;

Host plant: Murraya sp.

Description of Male Genitalia:
Male genital segment smaller than abdomen and sparsely pubescent; Anal valve elongate- flasked-shaped, about 0.38mm long, attenuate above, anterior margin almost straight, posterior margin broadly rounded, broadest at basal half; Parameres 0.30 mm long, slender and slightly smaller than anal valve, subacute at tip ending in strong tooth at its extremity; Mesal and marginal setae longer, a group of simple setae present in apical region; Hypandrium simple and of usual shape, bearing small scattered setae in apical region; Aedeagus small with outer arm much smaller than basal and basal arm looped and striated.

Description of Female Genitalia:
Female genital segment short, small and pubescent; Dorsal plate about 0.65mm long, slightly longer than ventral, wedge shaped, broad basally and gradually narrowed caudally, with a clear area near base and having an elliptic circum-anal ring, composed of a double row of pores. Its posterior region armed with minute peg like setae along with rows of short bristles; Ventral plate slightly shorter than dorsal valve, boat-shaped, acutely pointed at apex, with a prominent ventral bulge in middle; Ovipositor acutely pointed.

Comments

Genital characters were compared with published description of Mathur (1975) and was found to be similar. This species is reported for the first time on a new host *Murraya sp*. However it is already known to attack various citrus species. Adult male and females were found at underside of leaves, mostly during the months of August to November. Immatures were also recorded during August-September. Various species of coccinellid beetles, syrphid fliess and spiders were observed as natural enemies of ACP. Different ant species like of genera *Tapinoma* and *Lepisiota* were also found to be foragers of honey dew secreted by ACP.

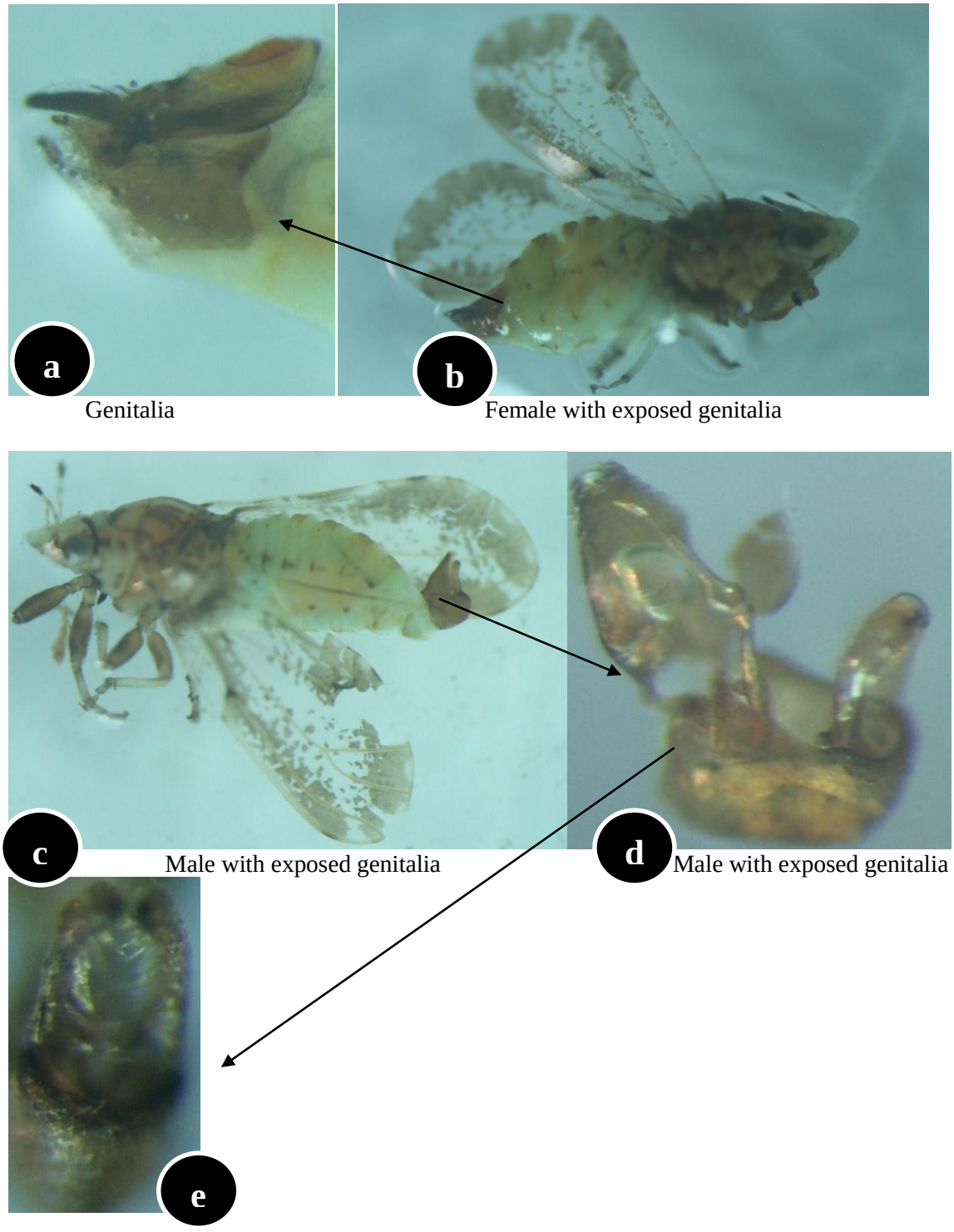

Fig.1: Male and female genitalia of *Diaphorina citri* Kuwayama; a. Female genitalia; b. Female with exposed genitalia; c. Male with exposed genitalia; d. Male genitalia e. Parameres

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