



RESEARCH ARTICLE

Status of mango wilt vector, *Hypocryphalus mangiferae* in India

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ABSTRACT: In order to assess the status of *Hypocryphalus mangiferae* associated with wilt affected trees, the survey was conducted in different districts of Uttar Pradesh and Uttarakhand during the year 2012 to 2015. Among the orchards surveyed, presence of the wilt was observed in 20 orchards, in which 31 plants were infected by wilt pathogen in association of bark beetle. Two types of bark beetles were collected from the wilted mango trees, which were identified as *Hypocryphalus mangiferae* and *Sinoxylon* sp. The *H. mangiferae* was found in majority of the cases. Observations indicated that wilt was caused by underground infection at the locations where the beetle association is not found with the wilted trees. On the other hand in case of aerial infection of *Ceratocystis* causing whole tree wilt or branch drying, bark beetle was invariably associated. In such cases evidences are that the disease was transmitted due to infestation of the beetles.

Key words: Mango, Bark beetles, *Hypocryphalus mangiferae*, wilt, vector

Mango (*Mangifera indica* L.) is the world's fifth most important fruit crop. In India, it is cultivated over an area of 2.16 million hectares with production of 18.43 million tonnes (NHB, 2014). Diseases affect every part of mango tree (Ploetz and Prakash, 1997). A large number of pathogenic fungi and bacteria have been found associated with grafts, trees and fruits of mango. In India, mango wilt was first observed in western Uttar Pradesh (Misra, 2006) but recently, its incidence was also observed in Bihar and Tamil Nadu. *Ceratocystis* species complex has been considered as most destructive pathogens of mango in association with infestations of the wood-boring scolytid beetle *Hypocryphalus mangiferae* Stebbing (Coleoptera: Scolytidae), which is also considered to spread the pathogen (Van Wyk *et al.*, 2007). In order to assess the status of *H. mangiferae* associated with wilt affected trees, the survey was conducted in different districts of Uttar Pradesh and Uttarakhand during the year 2012 to 2015.

MATERIALS AND METHODS

Surveys for assessing status of *H. mangiferae* associated with wilt was conducted in different mango growing areas of Uttar Pradesh and Uttarakhand during 2012 and 2015. In survey, 20 trees in 8-10 orchards were critically observed for symptoms associated with wilt and decline diseases. Surveys were also carried out to cover distant districts (Allahabad, Jyotibaphule Nagar, Aligarh, Badaun, Barielly, Bijnor, Bulandshahar, Dehradun, Etah, Ghaziabad, Hathras, Haridwar, Kannauj, Lakhimpur Kheri, Mainpuri, Meerut, Moradabad, Muzaffarnagar, Rampur, Saharanpur and Shahjahanpur) during flowering (April) and fruit harvesting (July) season. During survey, data regarding incidence of the decline and wilt was recorded and

critical observation of wilted trees was done for recording of symptoms.

RESULTS AND DISCUSSION

During the survey eight districts of Uttar Pradesh and Uttarakhand was covered. Among the mango orchards surveyed, presence of the wilt was observed in 20 orchards, in which 31 plants were infected by wilt pathogen in association of bark beetle (Table 1). Two types of bark beetles were collected from the wilted mango trees, which were identified as *Hypocryphalus mangiferae* and *Sinoxylon* sp (Fig. 1). The *H. mangiferae* was found in majority of the cases. Similar studies were also conducted in Pakistan where in different mango orchards were surveyed in Multan region and 20 percent of the trees had died due to wilt disease and four different bark beetle species were collected and identified from wilted tree (Masood *et al.*, 2008; Saeed *et al.*, 2009). Among four different bark beetle species *H. mangiferae* was frequently observed (Masood *et al.*, 2008). Besides Pakistan, Al-Adawi *et al.* (2003) reported that 60% of the trees of mango were infected in the parts of Al Batinah region of Oman and are also associated with bark beetles. Observations indicated that wilt was caused by underground infection at the locations where the beetle association is not found with the wilted trees. On the other hand in case of aerial infection causing whole tree wilt or branch drying, bark beetle was invariably associated. In such cases evidences are that the disease was transmitted due to infestation of the beetles. The first initial visible symptoms of this disease include gummosis from the bark, bark splitting, streaking and vascular discoloration beneath the gummosis. The leaves of the trees wither out but remain attached with the dying tree (Masood *et al.*, 2010). The small pinhole of bark beetle and its irregular

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