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Olfactometer Response of Red Palm Weevil (Rhynchophorus ferrugineus) (Coleoptera: Curculionidae) and Its Biology for the Evaluation of Resistance in the Commercially Grown Date Palm (Phoenix dactylifera L.) Cultivars in Pakistan

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Abstract : Date palms (P. dactylifera L.) are prominent in the Kingdom of Saudi Arabia (KSA), Iran, UAE, and Iraq, as well as Algeria, Egypt, and Pakistan. Insect pests' attacks on different palm cultivars adversely affected their production in the last few decades. Pakistan ranked sixth for date production around the world. The most commercially grown cultivars are Aseel, Dhaki, Falsi, Karbalai, Mozawati, Jan Swore, Kohra, Hillawi, Kohra, and Begum Jhangi. Red palm weevils are considered as hazardous insect pests responsible for economic loss in palm orchards. This research work depicts the infestation of red palm weevils in eleven different palm cultivars (Hillawi, Mozawati, Kechanr, Aseel, Shamrani, Khudravi, Dhaki, Zeri, Kobra, Zaidi, Denda), which frequently grow in different regions of Pakistan through Y-shaped olfactometer analysis. In addition, the level of both antixenosis and antibiosis was spotted by examining the various parameters such as %age lure of weevils of mature females, general count of laid eggs in addition to their activeness. Furthermore, obtained results depicted that a positive contact was established with minimum antixenotic consequence revealed by a cultivar, “Hillawi” among most hold of RPW adults (22.32%), number of eggs laid (16.66%) and egg hatching (84.66%), while other cultivars, including Mozawati, Aseel, Kechanr, Shamrani, Khudravi, Dhaki, Zeri, and Zaidi, exhibited a greater level of antixenosis. Moreover, “Hillawi” documented the maximum number of eggs, while Kechanr, Mozawati, Aseel Kobra, and Denda showed minimum attraction by red palm weevils. Maximum red palm weevils were attracted in an olfactometer assay of sugarcane varieties.

Keywords : P. dactylifera, R. ferrugineus, olfactometer, antixenosis
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