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### Title

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### **Morphological characterization of *Hirsutella citriformis* Speare Mexican isolates and evaluation against *Diaphorina citri* Kuwayama (Hemiptera: Psyllidae)**

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*Diaphorina citri*, the vector of the pathogen causing Huanglongbing, has been found infected by the entomopathogenic fungus *Hirsutella citriformis* Speare in the Mexican citrus industry. The objective of this study was to characterize morphologically eight *H. citriformis* isolates and evaluate their potential for the control of *D. citri* adults. The fungal isolates were obtained from citrus groves located in the Mexican states of Campeche, Chiapas, Colima, Quintana Roo, San Luis Potosí, Tabasco, Veracruz, and Yucatán. The fungi showed mycelium composed by delicate hyphae measuring 1.18-1.88- $\mu\text{m}$  in diameter; phialides 30.7-40.9  $\mu\text{m}$  in length and neck length of 24.7-35.8  $\mu\text{m}$ . Conidia measured 5.83-5.92  $\mu\text{m}$  in length and 1.43-1.99 in diameter. The mucilaginous layer was 7.83-8.12 X 5.86-5.99  $\mu\text{m}$ . The morphological characterization indicated that the isolates were related to *H. citriformis*. The experiments for the evaluation of pathogenicity were conducted under controlled conditions (25 $\pm$ 2°C, 76 $\pm$ 4% RH and 16:8 h L:D). Insects were inoculated by contact with sporulated cultures of the isolates. For each *H. citriformis* isolate, 15 adults of *D. citri* received the spores of the fungus. The results showed that mortality of the psyllids by the fungus began six days after inoculation; occurrence of the first *H. citriformis* sennemata in the *D. citri* specimens was observed 10 days after inoculation. In the first bioassay, the final record of survivorship was performed 27 days after the beginning of the experiments; the mean rate of mortality was 98 and 70% for the Tabasco, and San Luis Potosi *H. citriformis* isolates, respectively.