UC Riverside

Journal of Citrus Pathology

Title

Brachygastra mellifica (Hymenoptera: Vespidae): Predation preference and feeding behavior on Diaphorina citri (Hemiptera: Psyllidae) in Mexico

Permalink

https://escholarship.org/uc/item/6d16q50h

Journal

Journal of Citrus Pathology, 1(1)

Authors

Reyes-Rosas, M. A. Loera-Gallardo, J. López-Arroyo, J. I. et al.

Publication Date

2014

DOI

10.5070/C411025095

Copyright Information

Copyright 2014 by the author(s). This work is made available under the terms of a Creative Commons Attribution License, available at https://creativecommons.org/licenses/by/4.0/

6.19 P

Brachygastra mellifica (Hymenoptera: Vespidae): Predation preference and feeding behavior on Diaphorina citri (Hemiptera: Psyllidae) in Mexico

Reyes-Rosas, M.A.¹, Loera-Gallardo, J.¹, López-Arroyo, J.I.², and Buck, M.³

In previous field studies in Northern Mexico, we found the wasp *Brachygastra mellifica* (Say 1837) (Hymenoptera: Vespidae) preying voraciously the Asian citrus psyllid (ACP), Diaphorina citri Kuwayama (Hemiptera: Psyllidae), the vector of the bacteria Ca. Liberibacter spp., the putative agent of Huanglongbing, one of the most devastating citrus disease in the world. As in Mexico, the ACP management considers the use of pest biological control, the availability of potential agents for the control of the vector remains as a priority. The objective of this study was to determine the predation preference of the wasp for the different developmental stages of D. citri. During 2011-2012, we performed experiments in field where we exposed manually to the predator new citrus flushes infested by eggs and diverse ACP nymphal instars. The predation behavior was recorded in videos and posteriorly analyzed in the lab. Other observations on its feeding attack were made directly on infested flushes in the trees, during the foraging activity of the wasp. Results indicated that B. mellifica preferred for predation 4th and 5th instar nymphs, and posteriorly 2nd and 3rd instars. Due to their size and position in the flush, eggs and first instar nymphs were practically discriminated by the wasp. Occasionally, B. mellifica consumed D. citri adults. This predator represents a potential agent for natural control of D. citri in the North of Mexico, and South of the USA, mainly through conservation strategies of beneficial insects.

¹Instituto Nacional Investigaciones Forestales, Agrícolas y Pecuarias (INIFAP), Centro de Investigación Regional Noreste (CIRNE), Campo Experimental Río Bravo, Río Bravo, Tamaulipas, México

²INIFAP-CIRNE, Campo Experimental General Terán, Nuevo León, México

³Invertebrate Zoology, Royal Alberta Museum, 12845-102nd Avenue, Edmonton, Alberta, Canada