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Management strategy of *Raoiella indica* Hirst (Acari: Tenuipalpidae) in Cuba*

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Abstract

The Red Palm Mite (RPM), *Raoiella indica* Hirst, has been reported to attack several plant species in the Americas, mainly palm and banana species. High population levels of this mite have been found damaging coconut and banana in Cuba. The objectives of this work were to estimate the potential of *R. indica* as a pest in Cuba and to evaluate the effectiveness of Dicofol and *Bacillus thuringiensis* for its control. The following activities were conducted to meet the first objective: a) evaluation of its host range; b) comparison of its biotic potential on coconut and banana leaves; and c) determination of its population dynamics on banana (*Musa acuminata* Colla Cavendish subgroup). To meet the second objective, a study was conducted to determine the effect of the chemical acaricide Dicofol and line 13 of *Bacillus thuringiensis* (LBt-13) in the control of RPM. Twenty one plant species were found as host, of which 11 are Arecaceae, three Musaceae, two Heliconiaceae, two Zingiberaceae, one Strelitziaceae and two Cycadaceae. *Mycrocycas calocoma* (Miq.) A.D.C and *Cycas* sp. are reported as new hosts for this mite. The immature phase was completed in about the same time on coconut and banana leaves, respectively 31.4 ± 3.3 and 33.4 ± 4.8 days, 26.3 ± 1.3°C, 75 ± 4% relative humidity and 14:10 daily photophase. Female oviposition period, longevity and total oviposition were higher on coconut than on banana. RPM population levels tended to increase in months with low rainfall and to decrease in months with high rainfall. The predator *Amblyseius largoensis* (Muma) (Phytoseiidae) was the only predator found associated with RPM. In general, there was a correspondence between prey and predator population trends. Dicofol caused total mortality of *R. indica*, whereas no mortality was observed with *B. thuringiensis*. Dicofol can still be used under particular situations in Cuba, e.g. in nurseries, but its widespread use is not recommended. Further studies are required to evaluate the actual impact of *A. largoensis* as a control agent of *R. indica*, and about its possible practical application by growers, using mass produced specimens.

Key words: Biology, control, pest management.

Introduction

From the first report of the red palm mite (RPM), *Raoiella indica* Hirst (Acari: Tenuipalpidae), in the Caribbean area (Etienne & Fletchmann, 2004), a surveillance mechanism for its early detection in Cuba was established. In 2008, it was found in the eastern part of Cuba, in Guantanamo and Santiago de Cuba, first on coconut (*Cocos nucifera* L.) and later on banana, arecanut (*Areca catechu* L.) and other ornamental palms (De la Torre *et al*., 2010).

Despite the fact that coconut is not an important crop in Cuba, there are many areas devoted to its production in Guantanamo, and it is very widely used as ornamental on most of the island. Banana is widely cultivated in Cuba, where production reaches over 280,000 tons a year (Statistics National Office, 2008). In addition, different species of palms are grown as ornamental plants in

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