

## BIOLOGICAL CONTROL OF *Raoiella indica* (ACARI: TENUIPALPIDAE) IN THE CARIBBEAN: POTENTIAL AND CHALLENGES

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The Red Palm Mite (RPM), *Raoiella indica* (Acari: Tenuipalpidae), is a polyphagous pest that attacks different crops and ornamental plants. It was reported in the Caribbean region in 2004 and is currently a widely distributed pest on most of the Caribbean islands. It was also observed in Venezuela, Florida, and Mexico and more recently in Brazil and Colombia. Within the pest management strategies, biological control is considered a sustainable control method, with the potential to regulate *R. indica* populations on a large scale. Evaluations were carried out in Trinidad and Tobago, Antigua and Barbuda, Saint Kitts and Nevis, and Dominica, in order to evaluate the population dynamics of *R. indica* and the natural enemies present in each country. In the Nariva Swamp and surrounding areas in Trinidad, *Amblyseius largoensis* (Acari: Phytoseiidae) was the most frequent predator on coconut trees. Other predators reported were two phytoseiid species: *Amblyseius anacardii* and *Leonseius* sp. (Acari: Phytoseiidae), and a species of Cecidomyiidae (larvae) (Insecta: Diptera), which were reported as being associated with RPM populations on the Moriche palm and in several cases were observed feeding on RPM. Of these predators, densities of the phytoseiid *Leonseius* sp. were most abundant and positively related to the densities of the red palm mite. Different pathogens isolated from the red palm-mite colonies were evaluated. Of particular interest were the four isolates identified by molecular fingerprinting. Three of these were identified as *Simplicillium* sp. and could represent a not described taxon, being reported as pathogenic to mites. The fourth isolate was identified as a possible mite specific strain of *Penicillium* sp., similar to a species described as *Paecilomyces parvisporus*. These four isolates represent potential for future evaluation as bio-pesticides. Further studies are needed to find answers and solutions to some of the challenges encountered in the use, multiplication and commercialization of biological control agents, aiming to get a higher use of biological control at the field level. The results obtained from the different evaluations show the potential for the use of biological control in the management of the Red Palm Mite in the Caribbean.

**Keywords:** *Raoiella indica*, biological control, predatory mites, pathogens.

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