

First Report of *Raoiella indica* (Acari: Tenuipalpidae) in Colombia

Authors: Carrillo, Daniel, Navia, Denise, Ferragut, Francisco, and Peña, Jorge E.

Source: Florida Entomologist, 94(2) : 370-371

Published By: Florida Entomological Society

URL: <https://doi.org/10.1653/024.094.0241>

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

FIRST REPORT OF *RAOIELLA INDICA* (ACARI: TENUIPALPIDAE) IN COLOMBIA

DANIEL CARRILLO¹*, DENISE NAVIA², FRANCISCO FERRAGUT³ AND JORGE E. PEÑA¹

¹University of Florida, Department of Entomology and Nematology, Tropical Research and Education Center, Homestead, FL 33031

²Lab de Quarentena Vegetal, Embrapa Recursos Genéticos e Biotecnologia, Parque Estação Biológica, final W5 Norte, CP 02372, 70770-900 Brasília, DF, Brasil

³Instituto Agroforestal Mediterráneo, Universidad Politécnica de Valencia, Camino de Vera, s/n 46022, Valencia, Spain

*Author for correspondence; E-mail: dancar@ufl.edu

Raoiella indica Hirst (Acari: Tenuipalpidae), the red palm mite, is a phytophagous mite that recently invaded the Western Hemisphere. This mite was first detected in Martinique (Flechtmann & Etienne 2004) and it rapidly spread to multiple islands of the Caribbean [St. Lucia and Dominica (Kane et al. 2005), Guadeloupe and Saint Martin (Etienne & Flechtmann 2006), Puerto Rico and Culebra Island (Rodrigues et al. 2007), and Cuba (de la Torre et al. 2010) among other islands]. In 2007, the mite was found in West Palm Beach, Florida (FDACS 2007), and in the state of Sucre, Venezuela (Vásquez et al. 2008), and more recently, reported in the northern state of Roraima in Brazil (Marsaro Jr. et al. 2009), and Isla Mujeres and Cancun, Mexico (NAPPO 2009).

In January 2010, high populations of *R. indica* were found attacking coconut (*Cocos nucifera* L.), banana (*Musa acuminata* Colla) and heliconia (*Heliconia* sp.) plants in the Tayrona National Park located in the Colombian Caribbean littoral, near the city of Santa Marta, Magdalena. The presence of multigenerational colonies and exuvia was confirmed in 18 coconut palms, 4 heliconias and multiple banana plants located near the coast in the northern part of the park (11°18'44"N 73°56'04"W). In further surveys *R. indica* infestations were detected in commercial coconut and banana groves in June 2010 at Los Naranjos, Magdalena (11°17'49"N -73°53'49"W), approximately 6 km East of the Tayrona Park along the coast. In this locality the predatory mite *Amblyseius largoensis* Muma (Acari: Phytoseiidae) was found showing a conspicuous red coloration of the alimentary tract indicating recent feeding on *R. indica*. Previous studies indicated that populations of *A. largoensis* increased in numbers after the arrival of *R. indica* to Florida and some areas in the Neotropics (Peña et al. 2009; Carrillo et al. 2010).

Raoiella indica and *A. largoensis* specimens were collected (70% ethanol) and subsequently slide mounted, identified, and deposited in the collections of the Laboratory of Plant Quarantine

reference collection, Embrapa Genetic Resources and Biotechnology, Brasília, Brazil, and the Laboratory of Acarology from the Instituto Agroforestal Mediterráneo, Universidad Politécnica of Valencia, Spain.

The experienced negative effects of *R. indica* on coconut production in the Caribbean, where yield reduction has been estimated in over 50% at some locations (CARDI 2010), indicate the importance of adopting regulatory and other control measures in areas of recent invasion. The establishment of chemical practices needed to allow movement of host plant material, and continuous surveying (pre and post-invasion) using sentinel sites, have been adopted to prevent *R. indica*'s rapid dissemination in Florida (Roda et al. 2008). An integrated approach combining all available control tactics should be adopted and natural enemies identified for managing this species (Peña et al. 2009; Carrillo et al. 2010). In addition, studies are needed to determine the potential host plant range of *R. indica* in Colombia and the rest of the Neotropical region. Strict sanitary measures and other management tactics should be implemented to minimize the damage caused by *R. indica* in Colombia and other countries in South and Central America.

SUMMARY

In January 2010, high populations of *Raoiella indica* were reported for the first time in Colombia attacking coconut, banana, and heliconia plants in the Tayrona National Park. The predatory mite, *Amblyseius largoensis*, was found associated with *R. indica* in Los Naranjos, Magdalena. Strict sanitary strategies and other management tactics should be implemented to minimize the damage caused by *R. indica* in the Americas.

REFERENCES CITED

CARDI (CARIBBEAN AGRICULTURAL RESEARCH AND DEVELOPMENT INSTITUTE). 2010. Natural Resource

- Management, Invasive Species. 2010. Available via DIALOG <http://www.cardi.org/default.asp?id=46>. (Accessed July 12, 2010).
- CARRILLO, D., PEÑA, J. E., HOY, M. A., AND FRANK, J. H. 2010. Development and Reproduction of *Amblyseius largoensis* (Acari: Phytoseiidae) feeding on pollen, *Raoiella indica* (Acari: Tenuipalpidae), and other micro-arthropods inhabiting coconuts in Florida, USA. *Exp. Appl. Acarol.* 52(2): 119-129.
- DE LA TORRE, P. E., SUÁRES, A., AND IRIS, A. 2010. Presencia del acaro *Raoiella indica* Hirst (Acari: Tenuipalpidae) en Cuba. *Rev. Protección Veg.* 25: 1-4.
- ETIENNE, J., AND FLECHTMANN, C. H. W. 2006. First record of *Raoiella indica* (Hirst, 1924) (Acari: Tenuipalpidae) in Guadeloupe and Saint Martin, West Indies. *Int. J. Acarol.* 32: 331-332.
- FDACS. 2007. Red palm mite infestation identified in palm gardens, *In* Florida Department of Agriculture and Consumer Services. Available via DIALOG. http://www.doacs.state.fl.us/press/2007/12052007_2.html. (Accessed July 12 2010).
- FLECHTMANN, C. H. W., AND ETIENNE, J. 2004. The red palm mite, *Raoiella indica* Hirst, a threat to palms in the Americas (Acari: Prostigmata: Tenuipalpidae). *Syst. Appl. Acarol.* 9: 109-110.
- KANE, E. C., OCHOA, R., MATHURIN, G., AND ERBE, E. F. 2005. *Raoiella indica* Hirst (Acari: Tenuipalpidae): an island-hopping mite pest in the Caribbean. Available via DIALOG. http://www.sel.barc.usda.gov/acari/PDF/Raoiella_indica-Kane_et_al.pdf. (Accessed July 12, 2010).
- MARSARO JR., A.L., NAVIA D., GONDIM JR., M. G. C., SILVA, F.R., AND DE MORAES, G. J. 2009. Chegou ao Brasil - o ácaro vermelho das palmeiras *Raoiella indica*. *Cultivar, Hortaliças e Frutas*, 57: 31.
- NAPPO (NORTH AMERICAN PLANT PROTECTION ORGANIZATION). 2009. Detection of the red palm mite (*Raoiella indica*) in Cancun and Isla Mujeres, Quintana Roo, Mexico. Available via DIALOG: <http://www.pestalert.org/oprDetail.cfm?oprID=406> (Accessed December 30, 2010).
- PEÑA, J. E., RODRIGUES, J. C. V., RODA, A., CARRILLO, D., AND OSBORNE, L. S. 2009. Predator-prey dynamics and strategies for control of the red palm mite (*Raoiella indica*) (Acari: Tenuipalpidae) in areas of invasion in the Neotropics. *Proc. 2nd Meeting IOBC/WPRS, Work Group Integrated Control of Plant Feeding Mites*. Florence, Italy 9-12 March 2009, pp. 69-79.
- RODA, A., DOWLING, A., WELBOURN, C., PEÑA, J. E., RODRIGUES, J. C. V., HOY, M. A., OCHOA, R., DUNCAN, R. A., AND DE CHI, W. 2008. Red palm mite situation in the Caribbean and Florida. *Proc. Carib. Food Crops Soc.* 44(1): 80-87.
- RODRIGUES, J. C. V., OCHOA, R., AND KANE, E. C. 2007. First report of *Raoiella indica* Hirst (Acari: Tenuipalpidae) and its damage to coconut palms in Puerto Rico and Culebra Island. *Int. J. Acarol.* 33: 3-5.
- VÁSQUEZ, C., QUIRÓS DE G, G. M., APONTE, O., AND SANDOVAL, D. M. F. 2008. First report of *Raoiella indica* Hirst (Acari: Tenuipalpidae) in South America. *Neotrop. Entomol.* 37: 739-740.