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Authors: Rodrigues, Jose Carlos V., and Antony, Lucille M. K.

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FIRST REPORT OF *RAOIELLA INDICA* (ACARI: TENUIPALPIDAE) IN AMAZONAS STATE, BRAZIL

JOSE CARLOS V. RODRIGUES[1,3] AND LUCILLE M. K. ANTONY[2,3]
[1]University of Puerto Rico, Jardim Botanico Sur, San Juan, PR 00926-1118, USA

[2]Departamento de Ecologia - Instituto Nacional de Pesquisas da Amazônia, Av. Efigênio Sales 2239, 69060-020, Manaus, AM, Brazil

[3]Centro de Energia, Meio Ambiente e Biodiversidade, Av. Carvalho Leal, 1777 – 69065 - Manaus, AM – Brazil

Raoiella indica Hirst is an invasive species that was first reported in the Neotropical region in 2004 by Flechtmann & Etienne (2004). Since its initial spread throughout the Caribbean islands, causing devastating impacts to local coconut and banana crops (Rodrigues et al. (2007), this mite has been quickly approaching large areas of banana and coconut palm plantations in Central and South America. Navia et al. (2011) reported the occurrence of *Raoiella* in Jul 2009 in urban areas of Boa Vista in the state of Roraima, Brazil. Brazilian Ministry of Agriculture authorities established quarantine measures restricting the movement of plant material and products (banana and coconut fruits) from infested areas to other states. Navia et al. (2011) also reported a social impact caused by the embargo on banana exportation by local small growers to the state of Amazonas. Moreover, a substantial increase in banana and plantain prices occurred in the state of Amazonas because fruit had to be imported from distant regions (Lima 2009).

On 2 Aug 2011 we observed plants showing characteristic red palm mite feeding damage, and associated to them we observed the infested plants. The infested plants were in a newly established landscape area in urban Manaus (3° 6' S 60° 1' W). Manaus is located 662 km in a straight line south of Boa Vista, where the mite was first detected in Brazil. The route, BR 174, which connects both cities, puts them apart by 785 km. The pest had not been detected during preliminary inspections conducted in coconut plants growing between the cities of Manaus and Presidente Figueiredo (107 km north of Manaus).

Severe symptoms observed in young coconut plants (*Cocos nucifera* L.) were associated with colonies of mites found feeding on abaxial leaf surfaces. Large colonies with high numbers of eggs and all mobile stages were present. Considering the size of the colonies and the extent of damage on leaves compared with observations by the senior author in controlled experiments in the Caribbean, the initial infestation probably had occurred 4 to 6 months ago, i.e., between Jan and Mar 2011. Additional hosts for the mite in urban settings were Dwarf Royal Palm (*Veitchia merrillii* (Becc.) H. E. Moore and Fishtail Palm Tree (*Caryota mitis* Lour. at). The point 3º 7' S 59º 96' W represents a radius of at least 5 km between localities where *R. indica* has been found in urban Manaus.

The mites were observed in the first wk of Aug 2011, which corresponds to the beginning of the dry season. As the dry season progresses, it is very likely that populations will increase and quickly disperse, especially considering that they were found on 2 of the exotic species commonly used in home gardens and landscaping. The mites were collected, slide-mounted and identified using a stereomicroscope (10-40 ×). Voucher specimens were deposited at the Embrapa-Cenargen arthropod collection in Brasília, DF.

Chemical control alternatives will require extra labor and cost (Rodrigues & Peña 2011). Banana plants growing intercropped with coconut palms are especially susceptible to mite infestation and their protection through the use of 'Cavendish' type banana plants genetically resistant to the mite was recently demonstrated (Rodrigues & Irish 2011). 'Cavendish' type banana plants are triploid *Musa acuminata*, the standard for the dessert banana export industry. It is urgent to develop sustainable biological control alternatives before the pest reaches major coconut palm and banana plantations.

SUMMARY

The occurrence of *Raoiella indica* Hirst, the red palm mite, found infesting coconut plants in Aug 2011, is reported for the first time in the urban area of Manaus, state of Amazonas, central region of the Amazon Basin. Additional hosts found infested were Dwarf Royal Palm, *Veitchia merrillii* (Becc.) H. E.Moore and Fishtail Palm Tree, *Caryota mitis* Lour. Despite quarantine efforts this mite has become established in the Southern Hemisphere in the Americas. The mite presents an imminent threat to coconut palm and banana plantations, as well as natural trees, located in the Northeast and Central regions of Brazil.

RESUMO

O tenuipalpídeo *Raoiella indica* Hirst, ácaro vermelho das palmas, foi observado infestando palmas de coqueiro pela primeira vez na área ur-

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bana de Manaus, Amazonas. O ácaro também foi observado em palma real anã, *Veitchia merrillii* (Becc.) H. E. Moore e palma cauda de peixe, *Caryota mitis* Lour. A despeito dos esforços de quarentena *Raoiella* se tornou estabelecido no hemisfério sul, nas Américas. A praga é uma ameaça iminente aos cultivos de palma de coco e banana, da mesma forma que espécies nativas, localizadas nas regiões central e nordeste do Brasil.

References Cited

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: 109-1104.

LIMA, J. 2009. Abastecimento preocupa. A banana prata está cada dia mais escassa em Manaus. Jornal A Critica, Manaus 12 de agosto de 2009). Acessed: Aug 12 2011. http://www.acritica.com.br/content/not-detail.asp?materia_id=150534

NAVIA, D., MARSARO, JR., A. L., SILVA, F. R. DA, GONDIM, JR., M. G. C., AND MORAES, G. J. DE. 2011. First report of the red palm mite, *Raoiella indica* Hirst (Acari: Tenuipalpidae), in Brazil. Neotrop. Entomol. 40(3): 409-411.

RODRIGUES, J. C. V., OCHOA, R., AND KANE, E. 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.

RODRIGUES, J. C. V., AND IRISH, B. M. 2011. Effect of coconut palm proximities and *Musa* spp. germplasm resistance to colonization by *Raoiella indica* Hirst (Acari: Tenuipalpidae) Exp. Appl. Acarol. (In press).

RODRIGUES, J. C. V., AND PEÑA, J. E. 2011. Chemical control of the red palm mite. Exp. Appl. Acarol. (In press).

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