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Description of a new species of *Neoparaphytoseius* Chant and McMurtry (Acari: Mesostigmata: Phytoseiidae) from Peru, with a redefinition of the genus

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Abstract

Neoparaphytoseius charapa n. sp. is described, based on the morphology of adult females and males collected on *Inga edulis* (Mart.) (Fabaceae) in northeastern Peru. *Neoparaphytoseius* Chant & McMurtry is redefined on the basis of the new species and re-examination of its type species *N. sooretamus* Chant & McMurtry.

Key words: taxonomy, biological control, predator, *Neoparaphytoseius*

Introduction

Phytoseiid mites have been extensively used for the biological control of pest arthropods (Gerson *et al*., 2003; McMurtry *et al*., 2013). Given their practical importance, surveys have been conducted in different parts of the world in search of more beneficial species.

A new phytoseiid was recently found in a survey conducted in northeastern Peru. It agrees with most of the characteristics mentioned in the original description of *Neoparaphytoseius* Chant & McMurtry, 2003, a monospecific genus whose sole member, *Amblyseius sooretamus* El-Banhawy, 1984, has been reported only from Brazil. It was included in the Kampimodromini Kolodochka, mostly because of the following attributes: some dorsal idiosomal setae thickened and serrate, some dorsal setae set on tubercules; spermathecal calyx cup-shaped; dorsum lacking seta *S4* and all the other setae that are only sporadically found in phytoseiids (*J3*, *J4* and *Z2*, *Z3*). Within this tribe, it was placed in the subtribe Paraphytoseiina, which is separated from other Kampimodromini by the absence of *Z2* (distinguishing it from Typhloseiellina), by supposedly having a deep incision in the lateral margin of the dorsal shield at the level of *s4* (distinguishing it from Kampimodromina), as well as by having three stout, sharp-tipped macrosetae on leg IV (distinguishing it from Typhloseiellina and Kampimodromina). In addition, setae *j4-j6*, *J2*, *z5* and *Z1* minute in this subtribe, and the fixed cheliceral digit is multidentate. It was mentioned as distinct from other species of the same subtribe by not having a pore associated with *z5*, although in another part of the text, the authors (Chant & McMurtry, 2003: 216) refer to possible variations in relation to the presence of this pore between specimens of *N. sooretamus*.

We here describe a new species of *Neoparaphytoseius* and modify the definition of the genus to accommodate the new species, as well as according to characteristics observed in type specimens of *N. sooretamus* and in additional specimens from different parts of Brazil.

Materials and Methods

Specimens of the new species were collected in the field, transferred to 70% ethanol and mounted in Hoyer's medium for examination under phase contrast (Leica, DMLB) and interference contrast (Nikon, Eclipse 80i)

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& Lofego, 2011); Bahia state—Itabuna (14º47' S, 39º16' W), Presidente Tancredo Neves (13°27′ S, 39°25′ W); Salvador (12°58' S, 38°30' W) (Fiaboe *et al*., 2007); Pernambuco state—Cabo de Santo Agostinho (08º17' S, 35º02' W); Ribeirão (08°30' S, 35°22' W) (Fiaboe *et al*., 2007); Paraiba state—João Pessoa (07°24' S, 34°57' W) (Furtado *et al*., 2005); São Paulo state—Pariquera-Açu (24°36' S, 47°53' W) (Zacarias & Moraes, 2001; Moraes *et al*. 2013).

Redefinition of *Neoparaphytoseius*

Based on the examination of specimens considered in this study, *Neoparaphytoseius* can be redefined as follows: dorsal shield about twice as long as wide, smooth or mostly areolate, with a shallow notch near *r3*, bearing the following setae: *j1*, *j3–j6*, *J2*, *J5*, *z2*, *z4*, *z5*, *Z1*, *Z4*, *Z5*, *s4*, *S2*, *S5*; setae *j3*, *s4*, *Z4* and *Z5* stout and serrate, other setae variable; *j3*, *Z4*, *Z5* and *s4* set on tubercles, which are more pronounced for *Z4* and *Z5*. Distinctly from most other phytoseiids, *s4* set anteriad of insertion of *j5* (also observed in species of other genera, as *Iphiseioides*, *Maunaseius*, *Paraphytoseius*, *Phytoseiulus*, *Proprioseius*, and some species of *Amblyseius* Berlese and *Proprioseiopsis*). Setae *r3* and *R1* on unsclerotised cuticle in adult females and on dorsal shield in adult males. Sternal shield with three pairs of setae. Ventrianal shield vase-shaped, with shallow lateral concavity, to sub-pentagonal, with three pairs of setae and a pair of pores posteromesad of *JV2*. Two pairs of metapodal shields. Peritreme reaching base of *j1*. Fixed cheliceral digit multidentate; movable digit with three teeth. Calyx of spermatheca cup-shaped or funnel-shaped. Tíbia and tarsus of leg IV with thickened macrosetae; genu of leg IV with or without a thickened macroseta; other legs without macrosetae. Chaetotaxy of genu and tibia: genua: I—2, 2/1, 2/1, 2 or 2, 2/2, 2/1, 2; II– 2, 2/1, 2/0, 1; III—1, 2/1, 2/0, 1; IV—1, 2/1, 2/0, 1; tibiae: I—2, 2/1, 2/1 ,2 or 2, 2/2, 2/1 ,2; II—1, 1/1, 2/1, 1; III—1, 1/1, 2/1, 1; IV—1, 1/1, 2/0, 1. Spermadactyl L-shaped.

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References

Chant, D.A. & McMurtry, J.A. (2003) A review of the subfamily Amblyseiinae Muma (Acari: Phytoseiidae): Part II. The tribe Kampimodromini Kolodochka. *International Journal of Acarology*, 29, 179–224. http://dx.doi.org/10.1080/01647950308684331

Chant, D.A. & McMurtry, J.A. (2007) *Illustrated Keys and Diagnoses for the Genera and Subgenera of the Phytoseiidae of the World (Acari: Mesostigmata)*. Indira Publishing House, West Bloomfield, USA. pp. 219.

Chant, D.A. & Yoshida-Shaul, E. (1991) Adult ventral setal patterns in the family Phytoseiidae (Acari: Gamasina). *International Journal of Acarology*, 17, 187–199. http://dx.doi.org/10.1080/01647959108683906

El-Banhawy, E.M. (1984) Description of some phytoseiid mites from Brazil (Acarina: Phytoseiidae). *Acarologia*, 25, 125–144.

Fiaboe, K.K.M., Gondim, M.G.C. Jr., Moraes, G.J. de, Ogol, C.K.P.O & Knapp, M. (2007) Surveys for natural enemies of the tomato red spider mite *Tetranychus evansi* (Acari: Tetranychidae) in northeastern and southeastern Brazil. *Zootaxa*, 1395, 33–58.

Furtado, I.P., Kreiter, S., Moraes, G.J. de, Tixier, M.S., Flechtmann, C.H.W. & Knapp, M. (2005) Plant mites (Acari) from northeastern Brazil, with descriptions of two new species of the family Phytoseiidae (Mesostigmata). *Acarologia*, 45, 131–143.

Gerson, U., Smiley, R.L. & Ochoa, R. (2003) *Mites (Acari) for Pest Control*. Blackwell Science, Oxford, pp. 539.

McMurtry, J.A., Moraes, G.J. de & Sourassou, N.F. (2013) Revision of the lifestyles of phytoseiid mites (Acari: Phytoseiidae) and implications for biological control strategies. *Systematic & Applied Acarology,* 18, 297–320. http://dx.doi.org/10.11158/saa.18.4.1

Moraes, G.J. de, Barbosa, M.F. de C. & Castro, T.M.M.G. de (2013) Phytoseiidae (Acari: Mesostigmata) from natural ecosystems in the state of São Paulo, Brazil. *Zootaxa*, 3700 (3), 301–347. http://dx.doi.org/10.11646/zootaxa.3700.3.1

Moraes, G.J. de, McMurtry, J.A. & Denmark, H.A. (1986) *A Catalog of the Mite Family Phytoseiidae: References to Taxonomy, Synonymy, Distribution and Habitat.* Embrapa - DDT, Brasilia, Brazil, pp. 353.

Moraes, G.J. de, McMurtry, J.A., Denmark, H.A. & Campos, C.B. (2004) A revised catalog of the mite family Phytoseiidae. *Zootaxa*, 434, 1–494.

Rezende, J.M. & Lofego, A.C. (2011) Phytoseiidae (Acari: Mesostigmata) on plants of the central region of the Brazilian Cerrado. *Acarologia*, 51, 449–463.
http://dx.doi.org/10.1051/acarologia/20102027

Rowell, H.J., Chant, D.A. & Hansell, R.I.C. (1978) The determination of setal homologies and setal patterns on the dorsal shield in the family Phytoseiidae (Acari: Mesostigmata). *The Canadian Entomologist*, 110, 859–876.
http://dx.doi.org/10.4039/ent110859-8

Zacarias, M.S. & Moraes, G.J. de (2001) Phytoseiid mites (Acari) associated with rubber trees and other euphorbiaceous plants in southeastern Brazil. *Neotropical Entomology*, 30, 579–586.
http://dx.doi.org/10.1590/s1519-566x2001000400011