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A new species of *Neoseiulus* Hughes (Acari: Phytoseiidae) from São Paulo State, Brazil

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ABSTRACT — A new species *Neoseiulus jeca* n. sp. is described in this paper based on specimens collected on *Cecropia* sp. in the Atlantic Forest area of São Paulo State, Brazil. *Neoseiulus jeca* n. sp. is the third species included in the *peruanus* species group. This species group has been registered only in South America and Africa.

KEYWORDS — Amblyseiinae; Atlantic Forest; diversity; hotspot

INTRODUCTION

Phytoseiidae (Acari: Mesostigmata) are plant dwelling mites broadly found on cultivated and wild plants. Some species in this family have been extensively used for the control of mite and insect pests (Gerson *et al.*, 2003; McMurtry *et al.*, 2013, 2015). Despite the great number of described species (more than 2700; Demite *et al.*, 2014, 2015), many species of this family are unknown, mainly in natural environments of tropical regions (e.g. Lofego *et al.*, 2011b; Moraes *et al.*, 2004; Tixier *et al.*, 2012).

The Atlantic Forest biome occupied most of the extensive Brazilian coast, reaching in some places deep inland to reach northeastern Argentina and eastern Paraguay, extending from Rio Grande do Norte to Rio Grande do Sul states, over an area of approximately 1,100,100 km² in Brazil. This biome is considered as a "biodiversity hotspot", i.e., a world priority conservation area due a great concentration of endemic species subjected to strong anthropic pressure (Myers *et al.*, 2000), and have been highlighted in discovery of new species and genera of phytoseiids; only in the last fifteen years were 27 new species and four new genera described from this biome from São Paulo State (Gondim Jr. and Moraes, 2001; Zacarias and Moraes, 2001; Zacarias *et al.*, 2002; Moraes *et al.*, 2003; Lofego and Feres, 2006; Demite *et al.*, 2007, 2008a, b, 2011; Tixier and Kreiter, 2009; Lofego *et al.*, 2011a, b; Moraes *et al.*, 2013; Barbosa *et al.*, 2014). In this paper a new species of phytoseiid mite is described, discovered during collections conducted in Atlantic Forest areas of State of São Paulo, Brazil.

MATERIALS AND METHODS

Specimens of the new species described here were mounted in Hoyer’s medium and examined under phase contrast microscopy. The classification system used is that of Chant and McMurtry (2007).
Dorsal and ventral setal nomenclature used in this paper is that of Rowell et al., (1978) and Chant and Yoshida-Shaul (1991) respectively. Measurements were done with the use of a graduated eyepiece. All measurements are given in micrometers. Holotype measurements are shown in bold type followed by their mean and range in parentheses. Illustrations were made using a drawing tube attached to the microscope.

**TAXONOMY**

**Neoseiulus jeca n. sp.**

(Figure 1)

Diagnosis — Females with dorsal shield reticulate, except for a area next to Z4, setae Z4 and Z5 serrate; length of almost all dorsal setae sequelae; peritreme extending anteriorly to j1; ventral shields smooth; ventrianal shield much longer than wide with a slight waist; calyx of spermatheca cup-shaped and atrium inconspicuous.


Venter — Sternal shield with three pairs of setae and two pairs of lyrifissures; distances between st1-st3 60 60 (60 – 61), st2-st2 67 67 (65 – 67); st4 on metasternal plate; Genital shield smooth; distance between st5-st5 65 62 (61 – 65). Ventrianal shield constricted at level of JV2; smooth; 102 106 (102 – 113) long, 68 70 (68 – 71) wide at level of ZV2 and 55 57 (55 – 58) wide at level of anus; with three pairs of pre-anal setae (JV1, JV2 and ZV2) and a pair of minute pores postero-mesad of JV2. Four pairs of opisthogastric setae on unsclerotized cuticle (JV4, JV5, ZV1 and ZV3). Seta JV5 37 38 (36 – 40). All ventral setae smooth. Two metapodal plates visible.

Peritreme — Extending anteriorly to j1.

Spermatheca — Calyx cup-shaped 10 10 (9 – 10) long, atrium inconspicuous.

Chelicera — Movable digit 27 28 (27 – 29) long, with two teeth in addition to apical tooth; fixed digit 29 29 (28 – 30), with 11 10 – 11 teeth in addition to apical tooth. *Pilus dentilis* not visible.


Type deposition — Holotype female and three paratypes female: Natividade da Serra (21°21’28’S; 45°17’33”W), São Paulo State, Brazil, on *Cecropia* sp. (Cecropiaceae), July 26, 2008, P.R. Demite and A.C. Lofego collectors, deposited at Departamento de Zoologia e Botânica, UNESP – Universidade Estadual Paulista, São José do Rio Preto, SP, Brazil; One paratype female, same locality, host, data and collectors as holotype, deposited at Departamento de Entomologia e Acarologia, Universidade de São Paulo, Escola Superior de Agricultura “Luiz de Queiroz” (ESALQ/USP), Piracicaba, SP, Brazil.

Etymology — The specific name refers to character "Jeca Tatu" created by the Brazilian writer Monteiro Lobato (1882-1948). This character, one of the most important of this writer, lived in rural areas of the region where this species was found.

Remarks — This new species belongs to *peruanus* species group (Chant and McMurtry, 2003) which is characterized mainly by having almost all dorsal setae approximately sequelae; the fixed digit of chelicerae with more than seven small teeth and movable digit bidentate; ventrianal shield much longer than wide with a slight waist, with three pairs of preanal setae arranged in a triangular pattern, and with a pair of minute pores posterior and mesad of setae JV2. This group was previously represented by two species, *Neoseiulus peruanus* (El-Banhawy, 1979) and *Neoseiulus irungus* (El-Banhawy and Knapp, 2011), with register
FIGURE 1: Neoseiulus jeca n. sp. Female: A – Dorsal shield; B – Ventral idiosoma; C – Chelicera; D – Spermatheca; E – Genu, tibia and basitarsus of leg IV
in South America and Africa, respectively. The new species differs from both by having ventri-
anal shield smooth and calyx of spermatheca cup-
shaped. N. peruanus and N. irungus has a striated
ventrianal shield and a trumpet-shaped and bell-
shaped calyx, respectively.

Nothing is known about biology or ecology of this new species.

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