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PLANT MITES (ACARI) FROM NORTHEASTERN BRAZIL, WITH DESCRIPTIONS OF TWO NEW SPECIES OF THE FAMILY PHYTOSEIIDAE (MESOSTIGMATA)

BY I. P. FURTADO 1, S. KREITER2, G. J. DE MORAES 3, M.-S. TIXIER 2, C. H. W. FLECHTMANN 3, M. KNAPP 4

(Accepted November 2004)

SUMMARY: A survey of natural enemies of the tomato red spider mite (Tetranychus evansi Baker & Pritchard) was conducted in October 2002 in parts of northeastern Brazil on solanaceous plants. Samples on other plant species near the solanaceous plants were also collected. T. evansi has been reported from different parts of the world and has been most recently reported from Africa and southern Europe. This paper refers to twenty species of Phytoseiidae, at least five species of Tetranychidae and one species of Tenuipalpidae collected in the survey. Two new for science phytoseiid species are described in this paper as Amblyseius leai Tixier & Kreiter, n. sp. and Neoseiulus barreti Kreiter, n. sp. The predominant phytoseiid species collected in this survey were Paraphytoseius multidentatus Swirski & Shechter and Phytoseius guianensis De Leon.

INTRODUCTION

The tomato red spider mite (Tetranychus evansi Baker & Pritchard) was originally described from the Mauritius Island and was subsequently found in several other countries around the world (Baker & Pritchard, 1960; Moraes et al., 1987). Most recently, it has also been collected in parts of Africa (Knapp et al., 2003), where it has caused considerable damage to tomatoes, and in southern Europe (Ferragut & Escudero, 1999), where damage is now being assessed. This mite seems to infest mostly solana-
logy (ICIPE), Escola Superior de Agricultura Luiz de Queiroz/Universidade de São Paulo (ESALQ/USP) and Ecole Nationale Supérieure Agronomique de Montpellier (ENSA.M). The objective of the work reported in this paper was to search for prospective natural enemies of T. evansi on solanaceous plants examined in a survey in parts of northeastern Brazil.

**Material and Methods**

The survey was conducted in October 2002 in areas of the States of Pernambuco, Paraíba, Rio Grande do Norte and Ceará. The collections were done along a route between the cities of Recife (Pernambuco) and Crato (Ceará), with stops programmed for ca. every 50 km, where native and cultivated solanaceous plants were examined. Part of the leaves was examined directly in the field using hand lenses and part was taken for examination under a dissecting microscope. Mites were collected directly on leaves with a brush in 70% ethyl alcohol and later mounted in Hoyer's medium for identification.

Geographic coordinates of each site were recorded with a Garmin e-Trex Summit GPS (Garmin International Inc., Olathe, Kansas, USA).

The setal nomenclature used in this paper is that of Rowell et al. (1978) for dorsal and Chant & Yoshida-Shaul (1991) for ventral idiosomal setae.

The generic classification of Chant & McMurtry (1994) is used for the Typhlodrominae and Phytoseiinae and of Chant & McMurtry (2003a, b) for Amblyseiinae Neoseiulini and Kampimodromini and the generic acceptance of Moraes et al. (2004) for all other tribes of Amblyseiinae.

Adenotaxy and poroidotaxy terminology is that of Athias-Henriot (1975). All measurements are given in micrometers.

Specimens of each species are deposited in the mite collections of ESALQ/USP and of ENSA.M/INRA.

**Results and Discussion**

A total of 354 mites were collected in this survey, on 27 plant species. The species found are subsequently listed, with the respective taxonomic information as well as information on the plant species on which they were found and the collection sites.

**Phytoseiidae**

*Amblyseius largoensis* (Muma)


Specimens examined. *Rio Grande do Norte*: Santa Maria, 103 m altitude, 5°51' S, 35°37' W, on Anacardiaceae.

*Amblyseius leai* Tixier & Kreiter, n. sp. (Figs. 1-5)

Female (2 specimens measured). *Dorsum* (Fig. 1). Dorsal shield smooth with a median line on the anterior part, 335-337 long, 210-220 wide; Seventeen pairs of dorsal setae, two sub-lateral setae, no visible solenostomes. The measurements of setae of 2 adult females are: j1 30, j3 48-50, j4 8, j5 5, j6 5, j2 5-7, J5 8, z2 and z4 10-12, z5 5, Z1 8-10, Z4 80-92, Z5 175-187, s4 88-90, S2 8-10, S4 and S5 8, r3 20-22, R1 8. All setae smooth except for Z4 and Z5 which are lightly serrated.

*Peritreme* (Fig. 1). Extending to j1.

*Venter* (Fig. 2). Sternal shield with 3 pairs of setae. Distances between setae St1-St3 55-65, St2-St2 70-75, St5-St5 65-70. Seta ST4 on a small metasternal shield with a pore. With 1 visible pair of metapodal shields. Length of primary metapodal plate 20, width 8. Ventrianal shield 112-115 long, 62-82 wide at level of ZV2 and 68-72 wide at level of anus; with 3 pairs of preanal setae (JV1, JV2, ZV2) and a pair of large preanal pores. Remaining opisthogastric setae (JV4, JV5 and ZV1) on soft membrane. JV5 57-67.

*Legs* (Fig. 3). Genu II bearing 8 setae: 2-2/0,2/1-1). Macronematae of the following lengths: SgeI 35, SgeII 32-35, SgeIII 37-40, StIII 28, SgeIV 70-75, StIV 40-45, StIV 58-68.

*Chelicera* (Fig. 4). Movable digit 30 long, with 3 teeth; fixed digit 27, with 12 teeth.

*Spermatheca* (Fig. 5). Calyx cup-shaped, 9 long and 8 in diameter near vesicle; atrium and minor duct distinct.
Male: Unknown.

Remarks: This species is similar to *Amblyseius andersoni* (Chant, 1957) from which it differs by the more parallel margins of the ventrianal shield near ZV2, by having 12 rather than 8 teeth on the fixed digit of the chelicera, by the longer Z4 and slightly shorter Z5 setae.

Type material: Holotype female from Viçosa, State of Ceará, 752 m altitude, 3°35′ S, 41°06′ W, on *Urtica* sp., deposited at Departamento de Entomologia, Fitopatologia e Zoologia Agrícola, ESALQ/USP, 13418-900 Piracicaba-SP, Brazil; female paratype from Goianinha, Rio Grande do Norte, 92 m altitude, 6°28′ S, 35°06′ W, on *Solanum* sp.3, deposited at Laboratoire d’Acarologie, ENSA.M/INRA, Montpellier cedex 01, France.

*Etymology:* This species is named *leai* as it is dedicated to Léa, daughter of Marie-Stéphane Tixier.

*Amblyseius lynnae* McMurtry & Moraes

*Amblyseius lynnae* McMurtry & Moraes, 1989; Moraes et al., 1991.

Specimens examined. Ceará: Viçosa, 775 m altitude, 3°34′ S, 41°05′ W, on *Solanum* sp.2.

*Amblyseius operculatus* De Leon


Specimens examined. Ceará: Tiangüá, 705 m altitude, 3°04′ S, 40°58′ W, on *Solanum* sp.1; Viçosa, 775 m altitude, 3°34′ S, 41°05′ W, on *Solanum* sp.2.
**Euseius alatus** De Leon


Specimens examined. **Ceará**: Itapajé, 52 m altitude, 3°40’ S, 39°06’ W, on **Terminalia catappa**; Tiangüá, 800 m altitude, 3°43’ S, 40°59’ W, on **Euphorbia pulcherima** and **Hibiscus** sp. **Rio Grande do Norte**: Santa Maria, 103 m altitude, 5°51’ S, 35°37’ W, on **Anacardium occidentale**.

**Euseius citrifolius** **DENMARK & MUMA**


Specimens examined. **Ceará**: Sobral, 126 m altitude, 3°41’ S, 40°21’ W, on **Annona** sp. **Rio Grande do Norte**: Mossoró, 44 m altitude, 4°56’ S, 37°24’ W, on **Anacardium occidentale**; Natal, 100 m altitude, 6°07’ S, 35°13’ W, on **Solamum paniculatum**.

**Euseius concordis** (Chant)


Specimens examined. **Ceará**: Cascavel, 22 m altitude, 4°34’ S, 37°44’ W, on **Ricinus communis**; Cascavel, 51 m altitude, 4°09’ S, 38°14’ W, on **Ricinus communis**; Itapajé, 52 m altitude, 3°40’ S, 39°06’ W, on **Anacardium occidentale** and **Terminalia catappa**; Sobral, 126 m altitude, 3°41’ S, 40°21’ W, on **Annona** sp.; Tiangüá, 216 m altitude, 3°09’ S, 40°55’ W, on _A. occidentale_. **Rio Grande do Norte**: Mossoró, 44 m altitude, 4°56’ S, 37°24’ W, on _A. occidentale_ and _R. communis_; Natal, 100 m altitude, 6°07’ S, 35°13’ W, on **Solamum paniculatum**.

Associated mite species: _Mononychellus tanajoa_ (Bondar) and _Tetranychus neocaledonicus_ (Andrê) (Tetranychidae).

**Amblyseius tamatavensis** Blommers


Specimens examined. **Ceará**: Viçosa, 794 m altitude, 3°34’ S, 41°06’ W, on _Passiflora edulis_.

Associated mite species: _Mononychellus tanajoa_ and _Tetranychus_ sp. (Tetranychidae).
Euseius ho (De Leon)


Specimens examined. *Ceará*: Viçosa, 794 m altitude, 3°34′ S, 41°06′ W, on a Leguminosae.

**Amblyseius (Typhlodromalus) sibelius** De Leon, 1962; *Euseius sibelius*, Muma et al., 1970; Feres & Moraes, 1998; *Euseius subalatus*, De Leon, 1965 (synonymy according to Muma et al., 1970).

Specimens examined. *Ceará*: Aracati, 28 m altitude, 4°20′ S, 37°58′ W, on *Solanum* sp.3; Barbalha, 699 m altitude, 7°18′ S, 39°23′ W, on *Triumfetta* sp.

Neoparaphytoseius sooretamus (El-Benhawy)

*Amblyseius* *sooretamus* El-Benhawy, 1984; *Neoparaphytoseius sooretamus*, Chant & McMurtry, 2003b.

Specimens examined. *Paraiba*: João Pessoa, 25 m altitude, 7°24′ S, 34°57′ W, on *Solanum* sp.2.

**Neoseiulus barreti** Kreiter, n. sp. (Figs. 6-9)

Female (2 specimens measured).

Peritreme (Fig. 6). Extending almost to the level of j1.

Venter (Fig. 7). All shields lightly sclerotized. Ster nal shield with 3 pairs of setae. Distances between setae St1-St3 53-55, St2-St2 63, St5-St5 60. Seta ST4 on a small metatarsal shield with a pore. With two pairs of metapodal shields, one small and short, one longer and larger. Length of primary metapodal plate 17-22, width 5. Ventrianal shield 95-103 long, 73 wide at level of ZV2 and 63-68 at the level of anus; with 3 pairs of preanal setae (JV1, JV2, ZV2) and a pair of large preanal pores. Remaining opisthogastric setae (JV3, JV4, JV5 and ZV1) on soft membrane. One pair of small platelets on the surrounding membrane of the ventrianal shield. JV5 35-42.

Legs (Fig. 8). Genu II with 7 setate (2-2/0,2/0,1). Three thick lightly knobbed macrosetae on the leg IV with the following lengths: SgeIV 15-20, StIIV 15-17, StIV 27-32. No macrosetae on other legs.

Chelicera. With two teeth on the fixed digit and no distinguishable tooth on the movable digit.

Spermatheca (Fig. 9). Calyx trumpet-shaped, 18 long, 5 in diameter medially, 12 in diameter near vesicle; atrium and minor duct distinct.

Male: Unknown.

Diagnosis: This species differs from Neoseiulus neoaularescens (Moraes & Masa, 1988) by the longer dorsal shield setae, especially j3, J2, z4, z5, Z1 and R1, by the shorter macrosetae on genu and tarsus of leg IV and by the shape of the spermatheca without a constricted cervix and a bifid atrium.

Type material: Holotype female from Itapajé, 52 m altitude, 3°41' S, 39°06' W, on Solanum paniculatum, deposited at Departamento de Entomologia, Fitopatología e Zoologia Agrícola, ESALQ/USP, 13418-900 Piracicaba-SP, Brazil; female paratype, same data as holotype, deposited at Laboratoire d’Acarologie, ENSA.M/INRA, 34060 Montpellier cedex 01, France.

Etymology: This species was named in honor of Daniel Barret, a student of Serge Kreiter, who has greatly contributed to the knowledge of the plant phytoseiid mites relationships.

Neoseiulus idaeus Denmark & Muma


Specimens examined. Ceará: Tiangüá, 800 m altitude, 3°43' S, 40°59' W, on Erythrina indica.

Associated mite species: Tetranychus neocalendonicus (André) (Tetranychidae).


Specimens examined. Ceará: Viçosa, 752 m altitude, 3°35' S, 41°06' W, on Triumfetta sp. and Urtica sp.

Paraphytoseius multidentatus Swirski & Shechter


Specimens examined. Ceará: Tiangüá, 941 m altitude, 3°58' S, 40°52' W, Solanum paniculatum; Tiangüá, 794 m altitude, 3°35' S, 41°06' W, Solanum paniculatum; Viçosa, 775 m altitude, 3°34' S,
41°05' W, on a Leguminoseae and Solanum sp.2; Ibiapina, 752 m, 3°35' S, 41°06' W, on Solanum sp.2 and Urtica sp. Paraiba: Joao Pessoa, 25 m altitude, 7°24' S, 34°57' W, on Solanum sp.3. Pernambuco: Goiana, 83 m altitude, 7°36' S, 34°58' W, on Solanum sp.3. Rio Grande do Norte: Goianinha, 92 m altitude, 6°28' S, 35°06' W, on Solanum and S. paniculatum; Natal, 100 m altitude, 6°07' S, 35°13' W, on S. paniculatum and Solanum sp.3.

Associated mite species: Mononychellus tanajoa (Bondar) (Tetranychidae).

Phytoseiulus macropilis (Banks)

Laelaps macropilis Banks, 1906; Hypoaspis macroplus, Banks, 1915; Phytoseiulus macropilis, Muma et al., 1970; McMurtry, 1983; Denmark & Schicha, 1983; Kreiter & Moraes, 1997; Phytoseiulus chantii, Ehara, 1966 (synonymy according to Denmark & Muma, 1973); Phytoseiulus speyeri Evans, 1952 (synonymy according to Kennett, 1958).

Specimens examined. Ceara: Tiangüa, 941 m altitude, 3°58' S, 40°52' W, on Solanum paniculatum; Tiangüa, 800 m altitude, 3°43' S, 40°59' W Hibiscus sp; Tiangüa, 758 m altitude, 3°44' S, 41° W, on Solanum sp.

Associated mite species: Mononychellus tanajoa (Bondar), Tetranychus evansi, T. desertorum (Tetranychidae).

Typhlodromalus aripo De Leon


Specimens examined. Ceara: Viçosa, 775 m altitude, 3°34' S, 41°05' W, on Convolvulaceae; Viçosa, 794 m altitude, 3°34' S, 41°06' W, on Solanum paniculatum; Viçosa, 752 m altitude, 3°35' S, 41°06' W, on Urtica sp. Paraiba: Joao Pessoa, 25 m altitude, 7°24' S, 34°57' W, on Solanum sp.3. Rio Grande do Norte: Goianinha, 92 m altitude, 6°28' S, 35°06' W, on S. paniculatum.

Typhlodromalus peregrinus (Muma)


Specimens examined. Paraiba: Joao Pessoa, 25 m altitude, 7°24' S, 34°57' W, on Solanum sp.3, Ceara: Mamanguape and 210 m altitude, 6°44' S, 35°07' W, on Solanum sp.3. Pernambuco: Goiana, 83 m altitude, 7°36' S, 34°58' W, on Solanum sp.2. Rio Grande do Norte: Goianinha, 92 m altitude, 6°28' S, 35°06' W, on Solanum paniculatum and Solanum sp.3.

Associated mite species: Mononychellus tanajoa (Bondar) (Tetranychidae).

Phytoseiulus guianensis De Leon


Specimens examined. Ceara: Aracati, 28 m altitude, 4°20' S, 37°58' W, on Solanum paniculatum and Solanum sp.3; Fortaleza, 43 m altitude, 3°53' S, 38°25' W, on S. paniculatum; Viçosa, 752 m altitude, 3°35' S, 41°06' W, on Solanum americanum; Ubajara, 941 m, 3°58' S, 40°52' W, on Solanum sp.1 and S. paniculatum; near Ibiapina, 916 m, 3°52' S, 40°54' W, on S. paniculatum and Solanum sp.2. Pernambuco: Recife, 26 m altitude, 8°00' S, 34°56' W, on S. paniculatum, Rio Grande do Norte: Macaiba, 100 m altitude, 6°07' S, 35°13' W, on S. paniculatum; Santa Maria, 51 m altitude, 5°52' S, 35°19' W, on S. paniculatum; Mossorô, 103 m altitude, 5°51' S, 35°37' W, on S. paniculatum near Mossorô, 28 m altitude, 4°20' S, 37°58' W, on S. paniculatum near Mossorô, 21 m altitude, 4°31' S, 37°47' W, on S. paniculatum.

Associated mite species: Tetranychus sp. and Mononychellus tanajoa (Bondar) (Tetranychidae), Brevipalpus phoenicus (Geijskes) (Tenuipalpidae).

Typhlodromina subtropica Muma & Denmark

Typhlodromina subtropica Muma & Denmark, 1969; Muma et al., 1970; Chant & Yoshida-Shaul, 1983; Moraes & McMurtry, 1983.
Specimens examined. *Pernambuco*: Goiana, 83 m altitude, 7°36′ S, 34°58′ W, on *Solanum* sp.3.

**Tetranychidae**

*Mononychellus tanajoa* (Bondar)


Specimens examined. *Pernambuco*: Goiana, 83 m altitude, 7°36′ S, 34°58′ W, on *Solanum* sp. *Ceará*: Aracati, 28 m altitude, 4°20′ S, 37°58′ W, on *Solanum paniculatum*; Itapajé, 52 m altitude, 3°41′ S, 39°06′ W, on *Anacardium occidentale*; Tiangüá, 216 m altitude, 3°09′ S, 40°55′ W, on *S. paniculatum*; Gotia, 758 m altitude, 3°04′ S, 40°58′ W, on *Solanum* sp.; Viçosa, 794 m altitude, 3°34′ S, 41°06′ W, on *Passiflora edulis*; *S. paniculatum* and *Solanum* sp.: Barbalha, 699 m altitude, 7°18′ S, 39°23′ W, on *Manihot* esculenta.

*Mononychellus* sp.


Specimens examined. *Rio Grande do Norte*: Mossoró, 21 m altitude, 4°31′ S, 37°47′ W, on *Solanum paniculatum*.

**Oligonychus** sp.

*Oligonychus* Berlese, 1886

Specimens examined. A few females in *Ceará*: Macaiba, 51 m altitude, 5°52′ S, 35°19′ W, on *Solanum paniculatum*.

*Tetranychus* prob. *abacae* Baker & Pritchard


Specimens examined. A few females of a *Tetranychus*, most likely *T. abacae*, in *Ceará*: Guaraciaba do Norte, 940 m altitude, 4°08′ S, 46°47′ W, on *Musa paradisiaca*.

*Tetranychus desertorum* Banks

*Tetranychus desertorum* Banks, 1900.

Specimens examined. *Ceará*: Ibiapina, 941 m altitude, 3°58′ S, 40°52′ W, on *Solanum paniculatum*.

**Tetranychus evansi** Baker & Pritchard


Specimens examined. *Rio Grande do Norte*: Mossoró, 21 m altitude, 4°31′ S, 37°47′ W, on *Solanum paniculatum*. *Ceará*: Tiangüá, 758 m altitude, 3°44′ S, 41°00′ W, on *S. grandiflorum* and *Solanum* sp.; Viçosa, 794 m altitude, 3°34′ S, 41°06′ W, on *Lantana* sp.; Guaraciaba do Norte, 940 m altitude, 4°08′ S, 46°47′ W, on *Lycopersicon esculentum*; Barbalha, 699 m altitude, 7°18′ S, 39°23′ W, on *S. paniculatum*.

*Tetranychus neocaledonicus* André

*Tetranychus neocaledonicus* André, 1933.

Specimens examined. *Ceará*: Cascavel, 51 m altitude, 4°09′ S, 38°14′ W, on *Ricinus communis*; Tiangüá, 800 m altitude, 3°43′ S, 40°59′ W, on *Erythrina* sp.

*Tetranychus* sp.

*Tetranychus Dufour*, 1832

Specimens examined. *Pernambuco*: Recife, 26 m altitude, 8°00′ S, 34°56′ W, on *Solanum paniculatum* and *Solanum* sp.; *Rio Grande do Norte*: Natal, 100 m altitude, 6°07′ S, 35°13′ W, on *Solanum* sp.3. *Ceará*: Aracati, 28 m altitude, 4°02′ S, 37°58′ W, on *Solanum* sp.3; Cascavel, 51 m altitude, 4°09′ S, 38°14′ W, on *S. paniculatum*; Itapajé, 52 m altitude, 3°41′ S, 39°06′ W, on *S. paniculatum*; Tiangüá, 758 m altitude, 3°44′ S, 41°00′ W, on *S. paniculatum*; Viçosa, 794 m, 3°34′ S, 41°06′ W, on *Passiflora edulis* and *Solanum* sp.2.

**Tenuipalpidae**

*Brevipalpus phoenicis* (Geijskes)

*Tenuipalpus phoenicis* Geijskes, 1939; *Brevipalpus phoenicis* (Geijskes) Sayed, 1946.

Specimens examined. *Pernambuco*: Recife, 26 m altitude, 8°00′ S, 34°56′ W, on *Solanum paniculatum*. *Rio Grande do Norte*: Santa Maria, 103 m altitude, 5°51′ S, 35°37′ W, on *S. Paniculatum*. Cearámirim, 111 m altitude, 5°43′ S, 35°29′ W, on *S. paniculatum*; *Ceará*: Aracati, 28 m altitude, 4°02′ S, 37°58′ W, on *S. phoe-
**Remarks**

The main emphasis in this study was to examine solanaceous plants, on which *T. evansi* and its natural enemies were expected to be most probably found. Unfortunately the diversity of this plant group in the region where the study was conducted was low. Some effort was dedicated to search for those mites on commercial plantations of tomatoes and other solanaceous plants but none were found probably because of the heavy usage of pesticides on those crops.

Within the family Phytoseiidae, Amblyseinae was by far the most diverse group in this study. Eighteen of the species found belong to this subfamily, while just three species belong to the subfamily Phytoseiinae and one, to the subfamily Typhlodrominae. Nevertheless, one of the two most ubiquitous and abundant species collected, namely *P. guianensis*, belongs to the subfamily Phytoseiinae. Only *P. multidentatus*, of the subfamily Amblyseinae, was about as ubiquitous and abundant as *P. guianensis*. This is apparently related to the fact that the most common plant species sampled in this study was *Solanum paniculatum*. Despite belonging to different subfamilies, *P. guianensis* and *P. multidentatus* are morphologically very similar in some respects, as the names of the genera indicate. The morphological similarity between *Phytoseius* and *Paraphytoseius* and its possible relation to ecological convergence was discussed by Beard & Walter (1996). One of the characteristics they share is the elongate idiosoma, which seems to turn them well adapted to living on hairy leaves.

The very common occurrence of *P. guianensis* and *P. multidentatus* on solanaceous plants in northeastern Brazil, although not always in association with *T. evansi*, has suggested that those should be the first species to be considered in detailed laboratory studies as to their effect on *T. evansi*. Such studies are presently been conducted. However, preliminary results are not encouraging in relation to their effectiveness as predators of *T. evansi*. It seems that *P. guianensis* and *P. multidentatus* could be feeding on other organisms co-occurring with *T. evansi* on *S. paniculatum* and other solanaceous species. It should not be concluded however that effective natural enemies of *T. evansi* are not found in the visited area. It is possible that some of the less common species may be more promising than *P. guianensis* and *P. multidentatus*. In addition, the results here reported were obtained from a single, though extensive, survey. It is conceivable that surveys conducted at different periods could show the predominance of other, more promising species of natural enemies of *T. evansi*.

Most of the species were collected on Solanaceous plants without any phytophagous mites, especially *T. evansi* which was very difficult to find within the investigated area. *T. evansi* was encountered in different geographical localities on solanaceous plants as *S. paniculatum*, *S. grandiflorum*, Lycopersicon esculentum and *Solanum* sp. Its occurrence on Lantana sp. could be accidental; it could conceivably have moved to that plant from nearby severely infested solanaceous plants. Neoparaphytoseius sooretama, *A. largoensis*, *A. leai*, *A. lynnae*, *A. operculus*, *E. citrifolius*, *E. ho*, *E. sibeltius*, *N. barrettii*, *N. tunus*, *T. aripo* and *T. tropica* were found on plants without phytophagous mites. The other ones were collected at least once on plants with phytophagous mites and *P. macropilis* was the only one species found in a *T. evansi* colony.
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<td>Amblyseius largoensis</td>
<td>103</td>
<td>5,51</td>
<td>35,37</td>
<td>Anacardium occidentale</td>
<td>1</td>
<td>Phytoseiulus macropilis + Phytoseius sp. + Mononychellus tanajoa + Tetranychus sp. + Tetranychus desertorum</td>
</tr>
<tr>
<td>Amblyseius lynnae</td>
<td>775</td>
<td>3,4</td>
<td>41,05</td>
<td>Solanum sp.2</td>
<td>3</td>
<td>Mononychellus tanajoa + Brevipalpus sp.</td>
</tr>
<tr>
<td>Amblyseius operculatus</td>
<td>705</td>
<td>3,04</td>
<td>40,58</td>
<td>Solanum sp.1</td>
<td>1</td>
<td>Phytoseiulus macropilis + Phytoseius sp. + Mononychellus tanajoa + Tetranychus sp. + Tetranychus desertorum</td>
</tr>
<tr>
<td>Euseius alatus</td>
<td>103</td>
<td>5,51</td>
<td>35,37</td>
<td>Anacardium occidentale</td>
<td>4</td>
<td>Tetranychus sp. + Phytoseiulus macropilis + Phytoseius sp. + Mononychellus tanajoa + Brevipalpus sp.</td>
</tr>
<tr>
<td>Euseius citrifolius</td>
<td>44</td>
<td>4,56</td>
<td>37,24</td>
<td>Anacardium occidentale</td>
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</tr>
<tr>
<td>Euseius concords</td>
<td>216</td>
<td>3,39</td>
<td>40,55</td>
<td>Anacardium occidentale</td>
<td>1</td>
<td>Tetranychus sp. + Phytoseiulus macropilis + Phytoseius sp. + Mononychellus tanajoa + Brevipalpus sp.</td>
</tr>
<tr>
<td>Euseius ho</td>
<td>794</td>
<td>3,34</td>
<td>41,06</td>
<td>Leguminosae</td>
<td>2</td>
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</tr>
<tr>
<td>Euseius sibelius</td>
<td>28</td>
<td>4,2</td>
<td>37,58</td>
<td>Solanum paniculatum</td>
<td>1</td>
<td>Mononychellus tanajoa + Brevipalpus phoenicis</td>
</tr>
<tr>
<td>Neoseiulus barreti</td>
<td>52</td>
<td>3,4</td>
<td>39,06</td>
<td>Solanum paniculatum</td>
<td>1</td>
<td>Phytoseiulus macropilis + Phytoseius sp. + Mononychellus tanajoa + Tetranychus sp. + Tetranychus desertorum</td>
</tr>
<tr>
<td>Neoseiulus idaeus</td>
<td>800</td>
<td>3,43</td>
<td>40,59</td>
<td>Erythrina indica</td>
<td>7</td>
<td>Phytoseiulus macropilis + Phytoseius sp. + Mononychellus tanajoa + Tetranychus sp. + Tetranychus desertorum</td>
</tr>
<tr>
<td>Paraphytoseius multidentatus</td>
<td>775</td>
<td>3,34</td>
<td>41,05</td>
<td>Leguminosae</td>
<td>15</td>
<td>Phytoseiulus macropilis + Phytoseius sp. + Mononychellus tanajoa + Brevipalpus sp.</td>
</tr>
<tr>
<td>Phytoseius guianensis</td>
<td>752</td>
<td>3,35</td>
<td>41,06</td>
<td>Solanum sp.</td>
<td>1</td>
<td>Phytoseiulus macropilis + Phytoseius sp. + Mononychellus tanajoa + Tetranychus sp. + Tetranychus desertorum</td>
</tr>
</tbody>
</table>

Table 1. List of Phytoseiid mites, localities coordinates, host plants and densities in a survey made in Northeast of Brazil in 2002.
This predatory mite was also observed with *M. tanajoa* and *T. desertorum*.

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