

Short communication. Phytoseiid mites (Acari: Phytoseiidae) from apple trees in Río Negro, Argentina

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Abstract

The presence of phytoseiid mites was determined in two unsprayed apple orchards at Cinco Saltos and Cipolletti, Río Negro Province, Argentina. Twenty apple trees were chosen in each orchard and a sample of 10 leaves per tree was taken at seven different sampling dates. *Neoseiulus californicus* (McGregor), *Euseius fructicolus* (Gonzalez & Schuster) and *Paraseiulus talbii* Athias-Henriot were found at Cinco Saltos, and *Proprioseiopsis messor* (Wainstein), *N. californicus* and *Metaseiulus camelliae* (Chant & Yoshida-Shaul) at Cipolletti. Of these species, only *N. californicus* has previously been reported from the Alto Valle del Río Negro region. *Proprioseiopsis messor* and *Paraseiulus talbii* are reported for the first time in South America and on the American Continent respectively.

Key words: biological control, *Euseius fructicolus*, *Metaseiulus camelliae*, *Neoseiulus californicus*, *Paraseiulus talbi*, predatory mites, *Proprioseiopsis messor*.

Resumen

Nota corta. Especies de ácaros fitoseidos (Acari: Phytoseiidae) en manzanos de Río Negro, Argentina

Se llevó a cabo un estudio para determinar la presencia de ácaros fitoseidos en dos plantaciones de manzanos no tratadas con plaguicidas, localizadas en Cinco Saltos y Cipolletti, Provincia de Río Negro, Argentina. Se seleccionaron 20 árboles en cada huerto y se tomó una muestra de 10 hojas por árbol en siete diferentes fechas de muestreo. *Neoseiulus californicus* (McGregor), *Euseius fructicolus* (Gonzalez & Schuster) y *Paraseiulus talbii* Athias-Henriot fueron las especies identificadas en Cinco Saltos. *Proprioseiopsis messor* (Wainstein), *N. californicus* y *Metaseiulus camelliae* (Chant & Yoshida-Shaul) fueron identificadas en Cipolletti. De las especies recolectadas solamente había sido mencionada previamente *N. californicus* en la región del Alto Valle del Río Negro. *P. messor* y *P. talbii* constituyen nuevas citas para América del Sur y el continente americano, respectivamente.

Palabras clave: ácaros depredadores, control biológico, *Euseius fructicolus*, *Metaseiulus camelliae*, *Neoseiulus californicus*, *Paraseiulus talbi*, *Proprioseiopsis messor*.

Phytoseiid mites are major biological control agents of phytophagous mites in pip fruit crops worldwide (McMurtry and Croft, 1997; Gerson *et al.*, 2003). This paper reports the presence of phytoseiids in two 30 year-old apple (*Malus domestica* Borkh, cv. Red

Delicious) orchards at Cinco Saltos (38° 56' S, 67° 59'W, alt: 285 m) and Cipolletti (38° 57' S 67° 59'W, alt: 265 m), Río Negro Province, Argentina. The orchards had not been sprayed or fertilised for the five growing seasons prior to the study, nor were they so treated during the study period itself.

To assess the phytoseiid population over the growing season, 20 trees were selected in each orchard and a sample of 10 leaves taken from each on Nov/20/02,

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Dec/05/02, Dec/18/02, Jan/15/03, Jan/30/03 and Feb/15/03 (samples 1 to 6). At the Cinco Saltos orchard an additional sample was taken on March/25/03 (sample 7).

Leaf samples were randomly taken at mid canopy height while walking around each tree. These leaves were kept in waxed paper bags in a refrigerator at a temperature of $5 \pm 1^\circ\text{C}$ until inspection (within three days). Mites were removed from the leaves with a camel hair brush under a dissecting microscope, kept in 5 ml vials containing 70% alcohol, and mounted in Hoyer's medium on microscope slides. The identification of the specimens was performed at the *Escola Superior de Agricultura «Luiz de Queirós» (ESALQ), Universidade de São Paulo*, where voucher specimens are kept in its reference collection.

At Cinco Saltos, the collected species were *Neoseiulus californicus* (McGregor) ($n = 47$), *Euseius fructicolus* (Gonzalez & Schuster) ($n = 34$) and *Paraseiulus talbii* Athias-Henriot ($n = 65$). Between 44 and 65% of these specimens were collected in March 2003. At Cipolletti, the collected species were *N. californicus* ($n = 127$), *Metaseiulus camelliae* (Chant & Yoshida-Shaul) ($n = 10$), and *Proprioseiopsis messor* (Wainstein) ($n = 1$). Nearly 54% of the specimens were collected in January 2003.

Neoseiulus californicus is the most widespread and best-known phytoseiid species. It has been reported in the Mediterranean and North, Central and South America, and on occasions it has been recorded in Asia. This species has been extensively used to control pest mites in many parts of the world (Gerson *et al.*, 2003). *Paraseiulus talbii* has also been reported several times on fruit crops in Europe, Eurasia and North Africa, *E. fructicolus* has been reported in North, Central and South America, and *M. camelliae* has been reported from southern Brazil and Uruguay. *Proprioseiopsis messor* has been reported on several different plants and in soil (Moraes *et al.*, 1986, 2004). This paper is the first to report the latter species in South America, and *P. talbii* is reported for the first time on the American Continent.

After analysing the integrated pest management of phytophagous mites in Spanish apple crops, Costa

Comelles *et al.* (1994) indicated that different species might be present in different regions, and that local mite fauna should be studied, the effects of pesticides assessed, and the spontaneous appearance of local species encouraged. The results of the present work contribute to the fulfilment of these suggestions since only two phytoseiid species - *N. californicus* (Cichón *et al.*, 1996) and *Mesoseiulus longipes* (Evans) (Müther, 1998) - have previously been identified in the Alto Valle de Río Negro region.

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