

***Megastigmus transvaalensis* (Hymenoptera: Torymidae) on *Schinus polygamus* (Anacardiaceae): a new native host for this invasive seed-feeding species**

Megastigmus transvaalensis (Hymenoptera: Torymidae) en *Schinus polygamus* (Anacardiaceae): un nuevo huésped nativo para esta especie invasora que se alimenta de semillas

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RESUMEN

Este es el primer registro de la interacción entre *Megastigmus transvaalensis* y semillas de *Schinus polygamus*, un fruto nativo de América del Sur.

Palabras clave: Chalcidoidea, Chile, Megastigminae, semilla.

ABSTRACT

This is the first report of the interaction between the seed-feeding *M. transvaalensis* and *S. polygamus*, a native fruit from South America.

Key words: Chalcidoidea, Chile, Megastigminae, seed.

Schinus polygamus (Cav.) Cabr. (Sapindales: Anacardiaceae) is native to South America and there are reports of its occurrence in Argentina, Brazil, Peru, Uruguay and Chile (Dias *et al.*, 2013). In Chile it occurs between the regions of Atacama and Los Ríos, where is commonly known as “huingán”, “borocoi” or “boroco” (Hoffmann, 1998; Erazo *et al.*, 2006).

S. polygamus, often found in sclerophyllous forests, is a perennial shrub about 2.5 m tall, dioecious, its fruit is a globose drupe about 5 mm in diameter with color ranging from violet to black (Hoffmann, 1982, 1998). The trunks and branches of this plant are used as firewood by the native population and its fruit makes an alcoholic and non-fermented beverage, which has analgesic,

anti-inflammatory and antimicrobial properties (Hoffmann, 1998; Wilhelm, 1999; Erazo *et al.*, 2006). The analgesic and anti-inflammatory properties are associated with the presence of β -sitosterol, terpenoids, β -pinene and quercetin, while the antimicrobial activities are associated with essential oils, compounds α -pinene, α -phellandrene and limonene, identified in the fruit (Erazo *et al.*, 2006).

Many insects attack this plant, such as species of Cecidomyiidae (Diptera), Psylloidea (Hemiptera) and Cecidosidae (Lepidoptera), which induces the formation of galls (Dias *et al.*, 2013). *Megastigmus transvaalensis* (Hussey) (Hymenoptera: Torymidae, Megastigminae) is a seed-feeding species which was recorded for the first time in Chile by Pujade-Villar & Caicedo (2010).

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In this paper we report for the first time the interaction of *M. transvaalensis* with fruits of *S. polygamus*. The specimens of *M. transvaalensis* were obtained from fruits of *S. polygamus* collected in December 2011 in the “Ruta Antakari” sector (30°05’S, 70°43’W, 922 m above sea level), Elqui Province, Municipality of Vicuña, Coquimbo Region (Plate 1). Plants of *S. polygamus* and *S. molle* shared the same environment where specimens of *M. transvaalensis* were collected, which may favor the host succession.

Many species of *Megastigmus* Dalman can attack native seeds of Anacardiaceae and Pinaceae, and they are treated as quarantine pests in Chile (Resolution No. 792/07 of the Servicio Agrícola y Ganadero de Chile). There are 143 species of *Megastigmus* in the world (Noyes, 2013), of which about two thirds are phytophagous (Grissell & Prinsloo, 2001). *M. pistaciae* Walker, *M. rhusi* (Hussey), *M. thomsensi* (Hussey) and *M. transvaalensis* are associated with Anacardiaceae (Grissell & Prinsloo, 2001). *M. transvaalensis* is native to Africa and their larvae feed on Anacardiaceae seeds (Habeck *et al.*, 1989;

Scheffer & Grissell, 2003) such as *Rhus laevigata* L. and *R. angustifolia* L., indigenous trees of South Africa, and *S. molle* L. and *S. terebinthifolius* Raddi, from South America (Scheffer & Grissell, 2003).

Males of *M. transvaalensis* show great phenotypic variability in body length and coloration, and also a forewing with or without spots, of variable size, close to the stigma (Grissell & Prinsloo, 2001) (Plate 2).

M. transvaalensis is distributed through several regions of the world because *S. terebinthifolius*, one of its host plants, is used as an ornamental plant and its fruit is used as a condiment (see Noyes, 2013). Perioto (1997) stated that, in Brazil, seeds of *S. terebinthifolius* attacked by *Megastigmus* sp., later identified as *M. transvaalensis*, become infertile and Wheeler *et al.* (2001) in the United States, found that *M. transvaalensis* damaged about 75% of the seeds of *S. terebinthifolius* analyzed.

The presence of the *M. transvaalensis* in Chile is cause for concern because this wasp can affect the natural regeneration of South American species of Anacardiaceae, as *S. polygamus* for example, as reported by Pujade-Villar & Caicedo (2010).



Plate 1. A. Vicuña (Coquimbo), collection site of *Schinus polygamus* (Cav.) Cabr. and *Schinus molle* L. (Sapindales: Anacardiaceae). B. *S. polygamus* (red arrow). C. *S. molle* (red arrow). D. Exit orifice in fruits of *S. polygamus* (red arrow), recently emerged male (yellow arrow), and seed with exit orifice (black arrow).

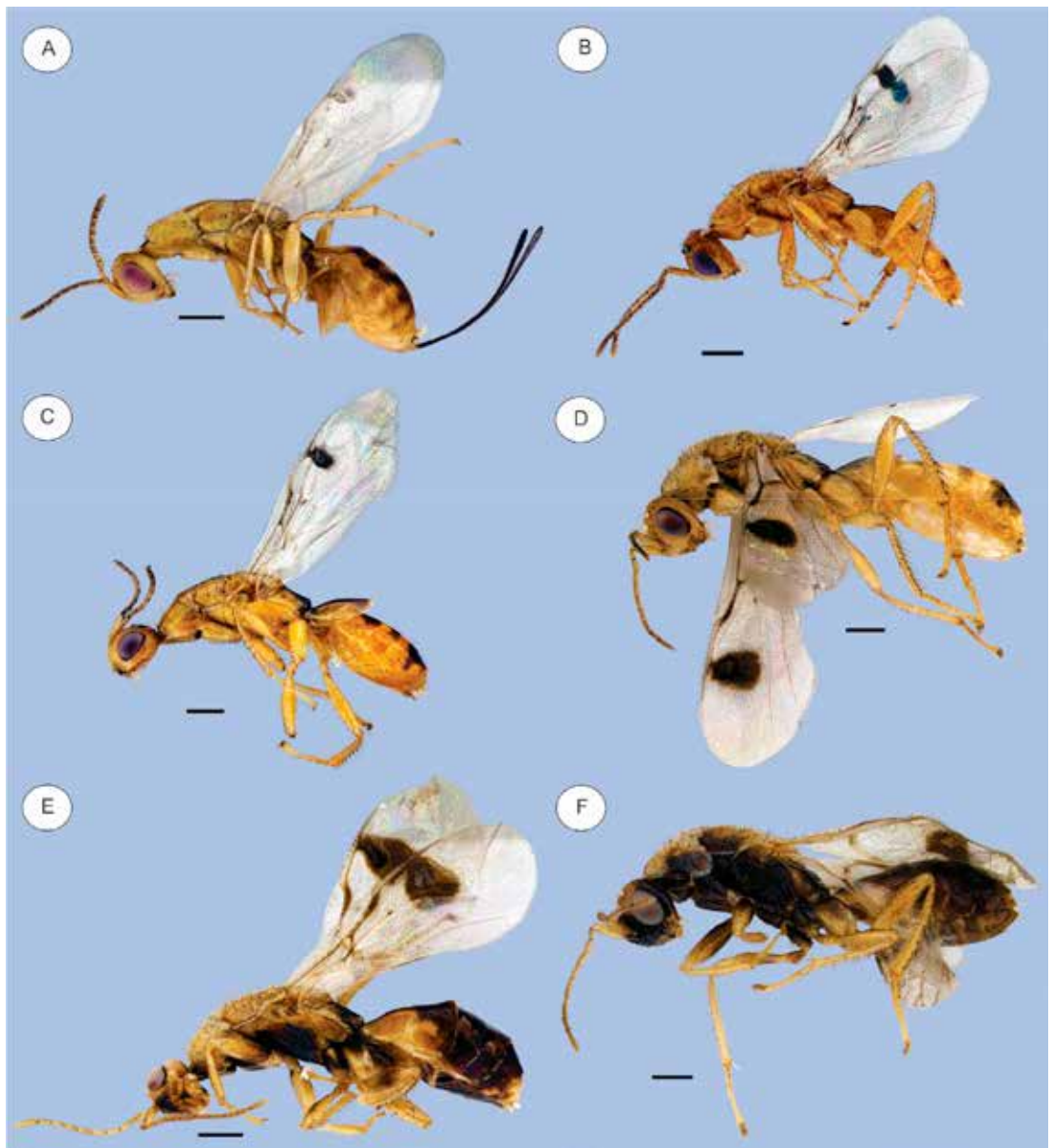


Plate 2. A. Female of *Megastigmus transvaalensis* (Hussey) (Torymidae: Megastigminae); B-F. Phenotypic variation in males of *M. transvaalensis*. Scale bar = 1,0 mm.

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