

## A New Species of the Genus *Tetramorium* (Hymenoptera: Formicidae) From Chamela, Jalisco, Mexico

by

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### ABSTRACT

A new ant species of the genus *Tetramorium* from Chamela, Jalisco, Mexico is described. It is in the *tortuosum* group and differs from any other species (*T. bicolorum* Vásquez-Bolaños 2007; *T. hispidum* (Wheeler 1915); *T. mexicanum* Bolton 1979; *T. placidum* Bolton 1979 and *T. spinosum* (Pergande 1896)) as it has the smallest: head width, from 0.58 to 0.68 mm and a maximum total length of 2.8 mm. This species is distinguished from *T. placidum* by the rugulose dorsal surface of the petiole and the sparse pilosity on the dorsal surface of the alitrunk. The type locality and the known distribution is Tropical Dry Forest at an altitude of 180 meters above sea level. Only workers from this species were examined.

Keywords: Chamela, new species, *Tetramorium*, Tropical dry forest.

### INTRODUCTION

In the Tetramoriini tribe of the subfamily Myrmicinae is the genus *Tetramorium* Mayr 1855. This genus comprises about 459 species worldwide (Bolton *et al.* 2006). In the Americas there are twelve species recorded, in which seven species are introduced by humans and belong to different groups. The other five species are native and belong to the *tortuosum* group: *T. bicolorum* Vásquez-Bolaños 2007; *T. hispidum* (Wheeler 1915); *T. mexicanum* Bolton 1979; *T. placidum* Bolton 1979 and *T. spinosum* (Pergande 1896). Ant species of the *tortuosum* group can be distinguished from the invasive group because the former have antennae with 11 segments, while the introduced

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species have 12 antennal segments (Bolton 1979). Four of the native species are distributed in Mexico and only *T. hispidum* is found in the southern U.S. (Vásquez-Bolaños 2007).

The ant species of the *tortuosum* group are distributed in rainforests and temperate forests of high altitude from Mexico and U.S. (Bolton 1979; Vásquez-Bolaños 2007). The species described here is the first report of this genus from Tropical Dry Forest (TDF).

## METHODS

### Study sites

Specimens of the undescribed taxon were collected in one TDF remnant on the Pacific coast of Jalisco state, Mexico, into the region of Chamela. The landscape consists of low hills (50–180 m elevation) with steep convex slopes dominated by TDF. The climate is highly seasonal with a pronounced dry season. Precipitation averages 746 mm, distributed mostly from June to October, on average annually, about 31% of the total annual precipitation falls in September. Mean temperature is approximately 25°C, with a less than 5°C difference between the coolest and warmest months (García-Oliva *et al.* 1995, 2002). Individual workers were sampled by epigeaic pitfall traps baited with sardine and honey, which remained in the field for 48 hours. These workers were preserved in 70% alcohol and transported to the laboratory.

### Entomological Collections

Specimens for this study will be deposited in the following institutions:  
CPDC: Centro de Pesquisas do Cacau, Comissão do Plano de Lavoura, Ilhéus, Bahia, Brazil.

CZUG: Centro de Estudios en Zoología de la Universidad de Guadalajara, Guadalajara, Jalisco, Mexico.

IEXA: Instituto de Ecología, Xalapa, Veracruz, Mexico.

LEC: Laboratório de Ecologia de Comunidades, Viçosa, Minas Gerais, Brazil.

LESM: Laboratório de Ecología y Sistemática de Microartrópodos de la UNAM, D.F., Mexico.

MIZA: Instituto de Zoología Agrícola, Facultad de Agronomía, Universidad Central de Venezuela, Maracay, Venezuela.

MLEB: Laboratory for Environmental Biology, Centennial Museum, University of Texas, El Paso, Texas, USA.

MZSP: Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil.

NHM: Natural History Museum of Los Angeles, Los Angeles, USA.

### **Morphology and measurements**

Examination and measurement of specimens were completed at 21x magnification using a Carl Zeiss Stemi SV6 light stereomicroscope. All measurements are given in millimeters. Photographs of specimens were obtained using a Sony camera in the HD video mode mounted on a Zeiss Jena microscope. An HD FH video was recorded and frames with different depths of photos were extracted. The overlap of photos was assembled with CombineZM program. Scanning electron micrographs were taken using a LEO EVO 40 XVP Scanning Electron Microscope (SEM). Morphological terminology adopted was modified from Bolton (1979). Anatomical abbreviations are as follows:

TL: Total length: the total length from the head, excluding the mandibles, to the gastral apex.

HL: Head Length: the length of the head proper, excluding the mandibles; measured in full-face view from the midpoint of the anterior clypeal margin to a line drawn across the posterior margin of cephalic lobes.

HW : Head Width: the maximum measurable width of the head in full-face view.

SL: Scape Length: the maximum length of the antennal scape excluding the condylar bulb.

CI: Cephalic Index:  $(HW \times 100) / HL$ .

SI: Scape Index:  $(SL \times 100) / HW$ .

PW: Pronotal Width: the maximum width of the pronotum in dorsal view, measured as the distance between the tips of the lateral pronotal spines.

WL: Weber 's length: length of mesosoma, diagonally from the most anterior corner of pronotum to the posteroventral corner of mesosoma

## TAXONOMY

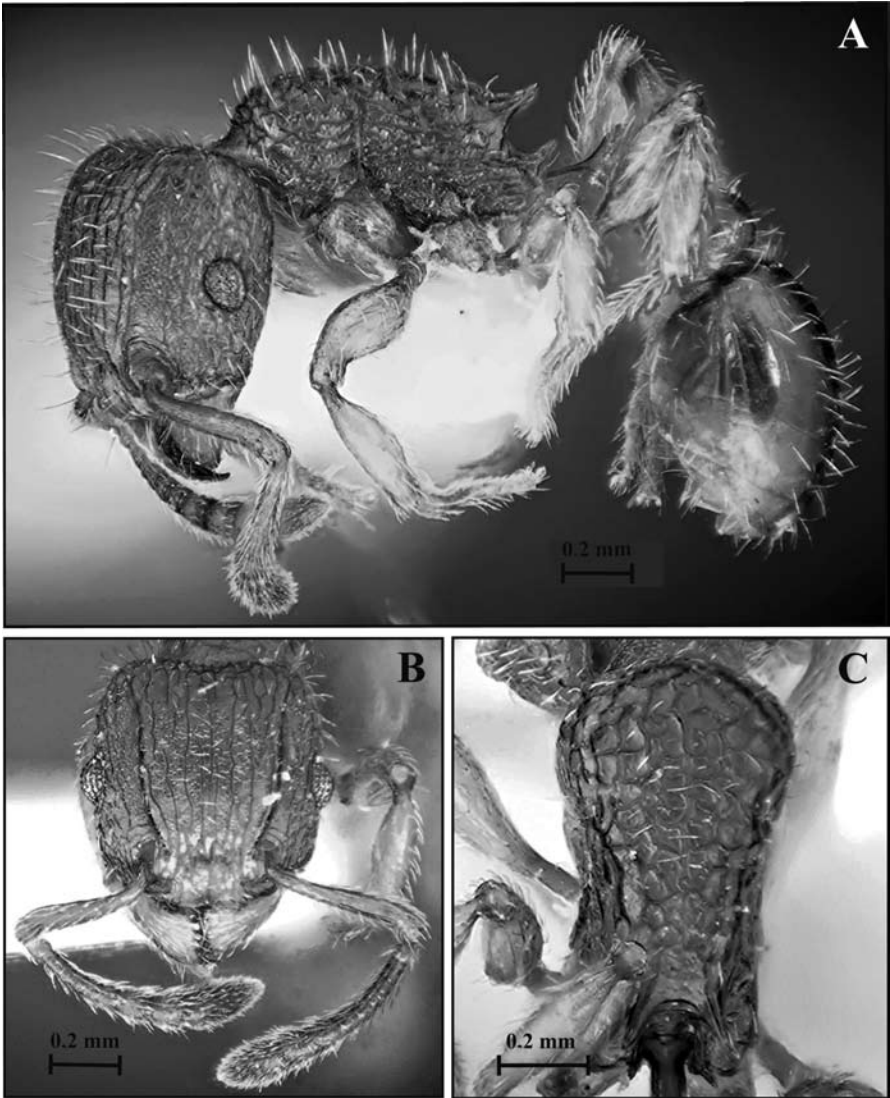
*Tetramorium azcatlontlium* sp. n.  
(Figs. 1 and 2)

Fig. 1. *Tetramorium azcatlontlium*, n. sp. Automontage pictures, paratype worker. A. Body in lateral view. B. Head in full face view. C. Mesosoma in dorsal view.

**Type material:** Holotype worker, Mexico: Jalisco, La Huerta municipally, Cuixmala farm, epigeaic pitfall trap, 19°24'297"N 104°58'968"W, TDF, 180 m of altitude, 18 October 2009, Marques, T. col., deposited in CZUG.

Paratypes: 15 workers, Mexico: Jalisco, La Huerta municipally, Cuixmala farm, epigeaic pitfall trap, 19°24'297"N 104°58'968"W, TDF, 180 m of altitude, 18 October 2009, Marques, T. col., deposited in CPDC (1), CZUG (7), IEXA (1), LEC (1), LESM (1), MIZA (1), MLEB (1), MZSP (1), NHM (1).

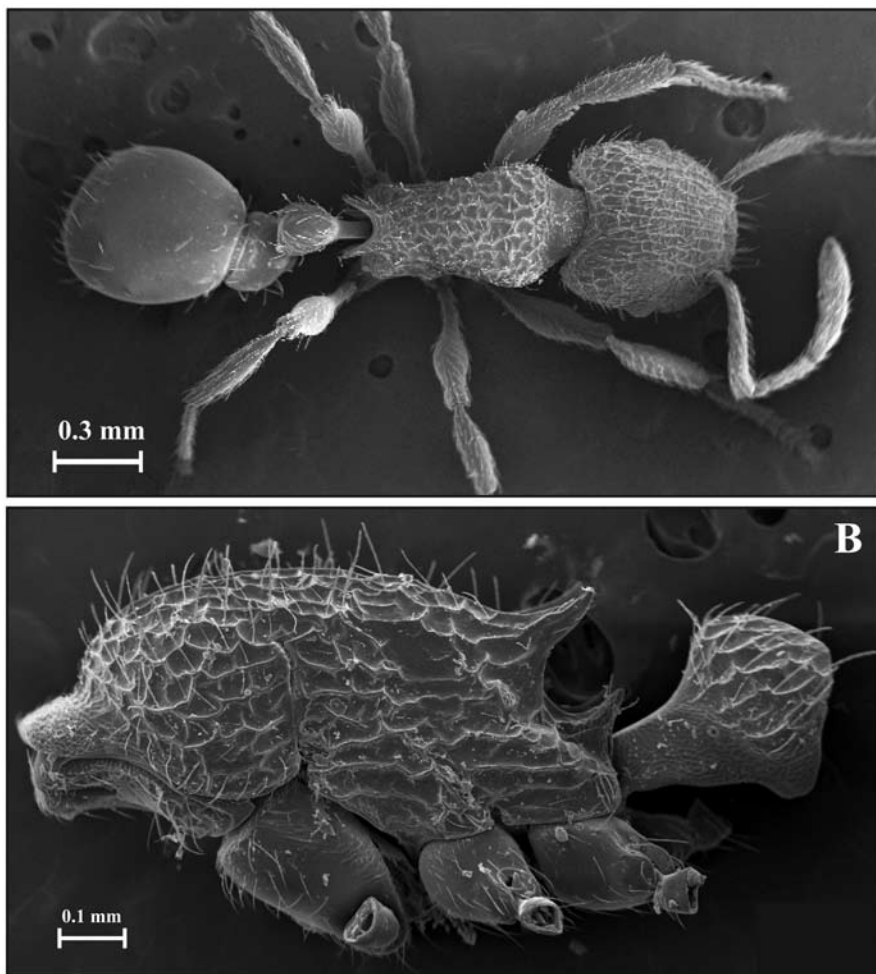


Fig. 2. *Tetramorium azcatliontium*, n. sp. SEM pictures, paratype worker. A. Body in dorsal view. B. Mesosoma and propodeum in lateral view.

**Worker measurements.** Holotype. Measurements (mm): TL 2.74, HL 0.70, HW 0.64, CI 91.4, SL 0.56, SI 87.5, PW 0.52, WL 0.84.

Paratype workers. Measurements (mm): TL 2.4-2.8, HL 0.62-0.76, HW 0.58-0.68, CI 82.9-97.1, SL 0.48-0.56, SI 82.4-93.3, PW 0.42-0.50, WL 0.76-0.80, (15 measured).

**Description.** Mandibles triangular with longitudinal fine striations and 7 teeth on the masticatory border. Frontal carina extending beyond posterior margin of eye. The eyes are smaller than 25% of head length, diameter of 0.12 mm. The propodeal spines short, triangular, not reaching the node of the petiole. Head in dorsal view, longitudinal striate; mesosoma and petiole finely reticulated; postpetiole without ornamentation; first gastral tergite without punctuation. In dorsal view, the pilosity of the body is sparse, short, thin and standing, the same diameter of eyes. The pilosity of scape and tibiae is shorter than diameter of the respective appendage. head, mesosoma, petiole, postpetiole and gaster uniform reddish-brown.

Gyne and male. Unknown.

**Range.** This species is known to occur only in the type locality, in the region of Chamela, Jalisco, Mexico.

**Etymology.** The specific name is a junction from Nahuatl words “azcatl,” meaning ant, and “tontli,” small. This name alludes to the trait that most differentiates this species from any other *Tetramorium tortuosum* group. Nahuatl is the language spoken in Central Mexico since at least the seventh century C.E and was the language of the Aztecs.

**Comments.** The identification of the new species is easy; *T. azcatltontlium* is smaller than any other species of the *tortuosum* group from America. While *T. placidum*, the smallest of the group, have HW 0.66-0.72 mm and TL 3.4 mm, *T. azcatltontlium* has HW 0.58-0.68 mm and TL 2.8 mm. Unlike *T. placidum*, the new species have short, triangular and standing propodeal spines; rugolose dorsal surface of the petiole; and sparse pilosity in dorsal surface of alitrunk. Moreover, *T. azcatltontlium* habitat is a tropical ecosystem at an altitude of 180 m above sea.

**Ecological comments.** This new species is the first species of genus *Tetramorium tortuosum* group to be collected in the TDF at low altitude. This forest is one of the most extensive and important tropical vegetation types in Mexico (Janzen 1988; Sanchez-Azofeifa *et al.* 2009; Portillo-Quintero

& Sánchez-Azofeita 2010), the discovery of a new ant species reinforces the biotic importance of this region and the TDF of Mexico as well, an abundant source of recent information on ant biodiversity and other important biological features (Gove *et al.* 2005; Quesada *et al.* 2009).

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