



ARTÍCULO:

Description of a new species of *Tityus* (Scorpiones, Buthidae) from Serra da Jurema in the State of Bahia, Brazil

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DESCRIPTION OF A NEW SPECIES OF *TITYUS* (SCORPIONES, BUTHIDAE) FROM SERRA DA JUREMA IN THE STATE OF BAHIA, BRAZIL

Wilson R. Lourenço

Abstract

Tityus melici sp. n., belonging to the *Tityus bahiensis* species group is described on the base of one male and 7 females and 2 juvenile specimens collected in the region of the Serra da Jurema, state of Bahia, Brazil. Comments on the taxonomic position of the new species and on aspects of the environmental characteristics of the Caatinga formation are also added. An identification key of the species belonging to the *Tityus bahiensis* group distributed in the Caatinga formation is provided.

Key words: Scorpiones, Buthidae, *Tityus*, new species, Brazil, Serra da Jurema, Cerrados, Caatingas.

Taxonomy: *Tityus melici* sp. n.

Descripción de una nueva especie de *Tityus* (Scorpiones, Buthidae) de la Serra da Jurema, en el Estado de Bahía, Brasil

Resumen

Se describe *Tityus melici* sp. n., perteneciente al grupo de especies de *Tityus bahiensis*, en base a un macho, dos hembras y cuatro especímenes juveniles colectados en la región de Serra da Jurema, en el Estado de Bahía, en Brasil. Son comentados la posición taxonómica de la nueva especie y aspectos relacionados con las características ecológicas de la formación Caatinga. Se incluye una clave de identificación de las especies pertenecientes al grupo *Tityus bahiensis* presentes en la formación Caatinga.

Palabras clave: Scorpiones, Buthidae, *Tityus*, nueva especie, Brasil, Serra da Jurema, Cerrados, Caatingas.

Taxonomía: *Tityus melici* sp. n.

Introduction

Tityus species which inhabit the Caatinga formation of North-East Brazil and belong to the *Tityus bahiensis* species group (as defined by Lourenço, 2002), are few in number and have been the subject of only some taxonomic studies in the last 20 years. Noteworthy among these species are: *Tityus anneae* Lourenço, 1997, *Tityus kuryi* Lourenço, 1997, *Tityus lamottei* Lourenço, 1981, *Tityus martinpaechi* Lourenço, 2001, *Tityus neglectus* Mello-Leitão 1932 and *Tityus stigmurus* (Thorell 1876) (Lourenço, 1981, 1997a,b, 2001; Lourenço & Eickstedt, 1988).

In some biogeographical contributions, a few patterns of distribution and differentiation have been synthesised (Lourenço, 1986, 1990, 1994), and it was assumed that the *Tityus* species living in the Caatinga were not precisely known. Several regions within the Caatinga formation of North-East Brazil remained without any intensive survey, and only some areas near to the coastal regions have been intensively surveyed mainly in connection with scorpionism (Lourenço & Cloudsley-Thompson, 1996; Lourenço *et al.*, 1996). This is the case in particular for the states of Bahia and Pernambuco.

The recent discovery and description of new *Tityus* species from the Caatingas formations of North-East Brazil (Lourenço, 1981, 1997a,b, 2001) attests, however, that the inventory work is far from being complete. In the present paper a new species, *Tityus melici* sp. n., belonging to the *Tityus bahiensis* species group, is described from one male and 7 females and 4 juvenile specimens collected in the region of the Serra da Jurema, State of Bahia, Brazil. The Serra da Jurema region can be included in the Southern range of the Caatinga formation, in a transitional area between the Caatinga and Cerrado formations (Eiten, 1974, 1978, 1982; Hueck, 1966). The taxonomic position of the new species, and aspects of the environmental characteristics of the type locality are discussed.

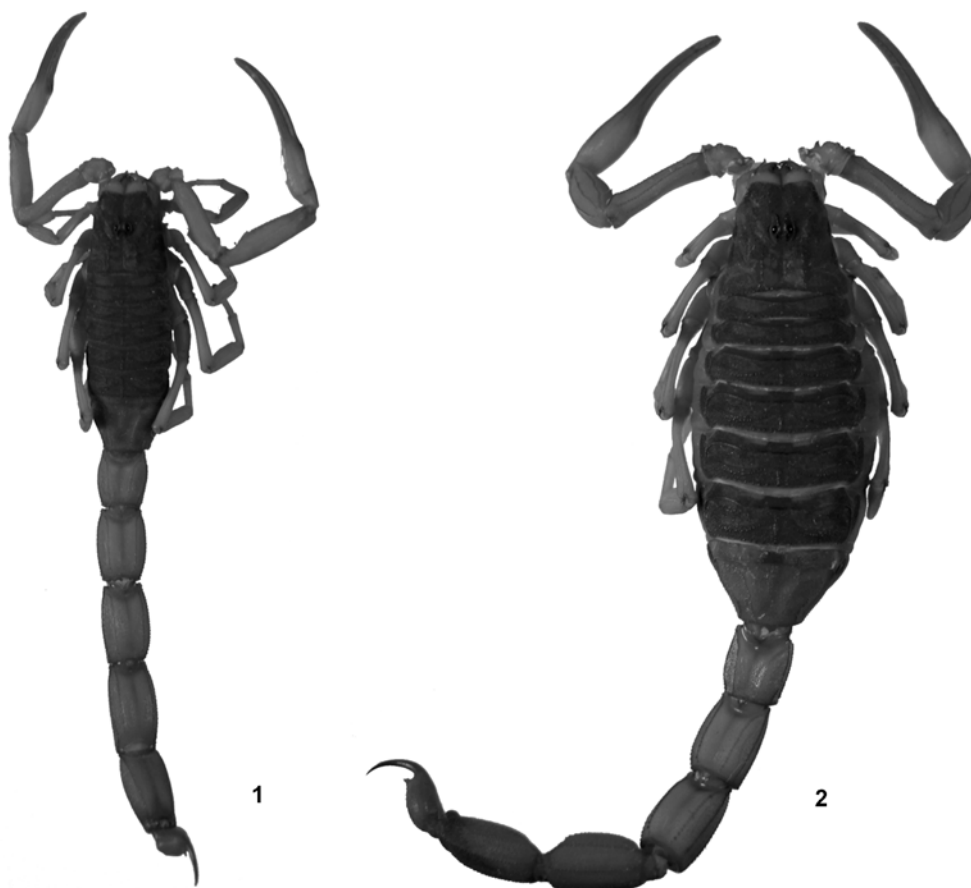


Fig. 1-2. *Tityus melici* sp. n., male holotype and female paratype, dorsal aspects.

Results

Tityus melici sp. n.

Fig. 1-10

TYPE MATERIAL: Brazil, State of Bahia, Serra da Jurema region (Caatinga formation), 1 male holotype, and 7 females and 4 juveniles paratypes 17-19/IX/1975 (W.R. Lourenço leg.), deposited in the Museu Nacional, Rio de Janeiro. One paratype deposited in the Muséum National d'Histoire Naturelle, Paris and two paratypes in the Muséum d'Histoire Naturelle, Genève.

ETYMOLOGY: Patronym in honor of Antonio Melic, Editor of the "Revista Ibérica de Aracnología" for his contribution to the diffusion of arachnological studies.

DIAGNOSIS: Scorpion of medium size, with 55 to 65 mm of total length. Coloration yellowish, with the carapace and tergites blackish brown. Granulation moderate to strong throughout the body. Fixed and movable fingers of pedipalps with 15/17 rows of granules. All carinae complete. Pectinal teeth count 25-27 in males and 22-26 in females.

DESCRIPTION: Based on male holotype and one female paratype.

Coloration. Basically yellowish. Prosoma: carapace blackish brown in the anterior and lateral regions; the anterior region with an inverted triangular blackish spot stretching from the median eyes to the lateral eyes; regions behind the ocular tubercle and lateral eyes yellowish; eyes strongly marked with black pigment. Mesosoma: tergites I-VI blackish brown; tergite VII yellowish. Metasoma: segments I to IV yellowish; V reddish yellow; one longitudinal strip is present between ventral carinae of segments I-IV; on segment V the strip covers all the distal half. Vesicle: yellowish; extremity of aculeus darker than vesicle. Venter yellowish; a white lustrous triangular spot is present on sternite III. Chelicerae yellowish without any variegated dark pigmentation; fingers reddish. Pedipalps and legs yellowish without any diffuse spots.

Morphology. Carapace moderately to strongly granular; anterior margin with a median concavity. Anterior median superciliary and posterior median carinae moderately developed. All furrows moderately deep. Median ocular tubercle anterior to the center of the carapace. Three pairs of lateral eyes. Sternum triangular. Mesosoma: tergites moderately to strongly granular. Median carina strong on all tergites. Tergite VII penta-

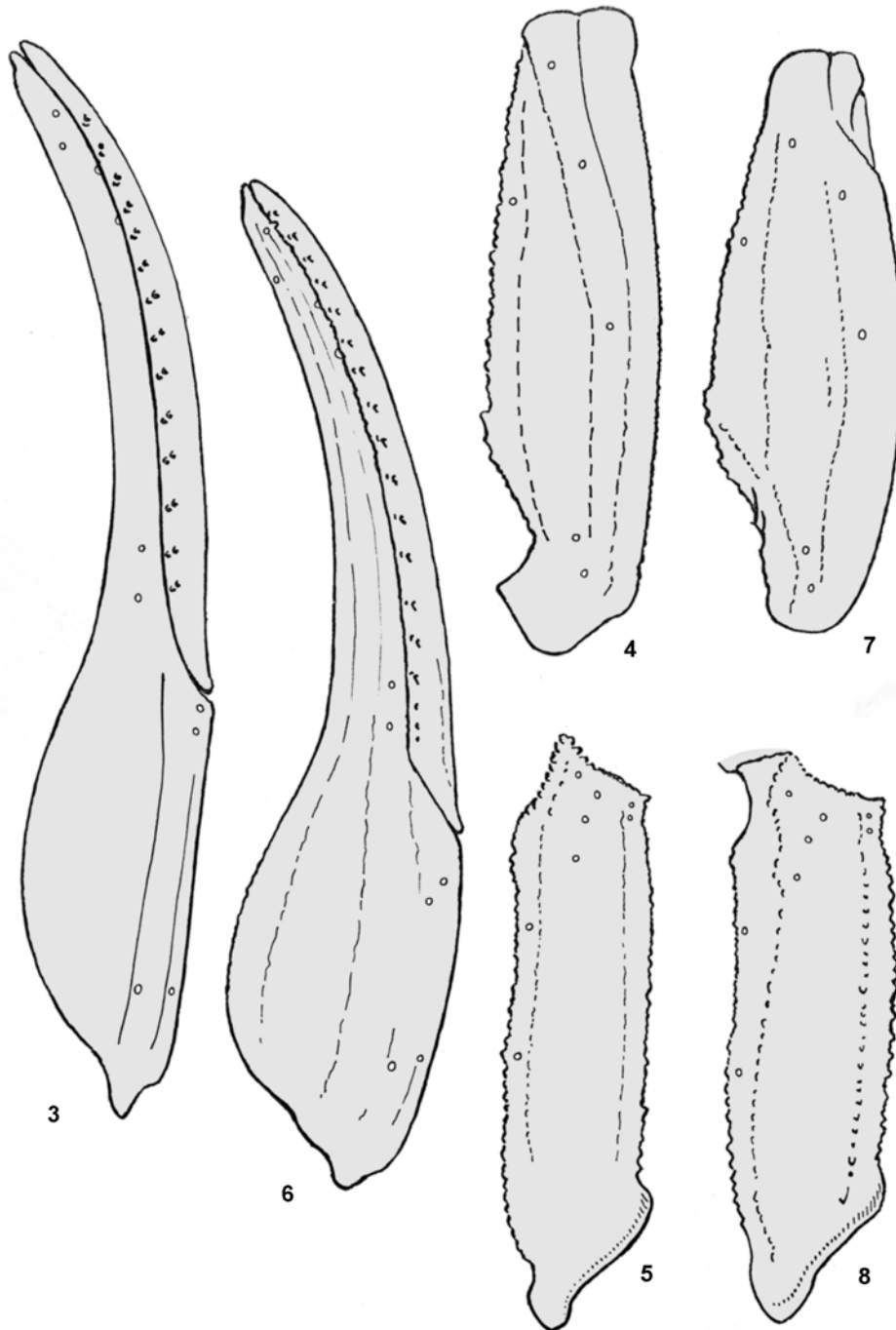


Fig. 3-8. *Tityus melici* sp. n. Trichobothrial pattern of pedipalp. **3-5:** Male holotype. **3:** Chela, dorso-external aspect. **4:** Patella, dorsal aspect. **5:** Femur, dorsal aspect. **6-8:** Idem, female paratype.

carinate. Venter: genital operculum wider than long. Pectines: pectinal teeth count 25-27 (male) – 25-26 (female); basal middle lamellae of the pectines not dilated in both sexes. Sternites with a fine granulation and with elongate stigmata; VI without keels; VII with 4 moderately developed carinae. Metasoma: segments I-II with 10 carinae; segments III-IV with 8 carinae; segment V with 5 carinae. Intercarinal spaces moderately to weakly granular. Telson with vestigial granulation on ventral and lateral surfaces and with a long and strongly curved aculeus; subaculear tooth strong and

spinoid, with two dorsal teeth. Cheliceral dentition characteristic of the family Buthidae; ventral teeth on movable finger reduced (cf. Vachon, 1963); ventral aspect of both fingers and of manus densely covered with long setae. Pedipalps: femur pentacarinat; patella with 7 carinae; chela with 9 carinae; all carinae moderately to strongly developed; entire surface weakly granular. Fixed and movable fingers with 15/17 oblique rows of granules. Trichobothriotaxy; orthobothriotaxy A- α -alpha (Vachon, 1974, 1975). Legs: tarsus with numerous short fine setae ventrally.

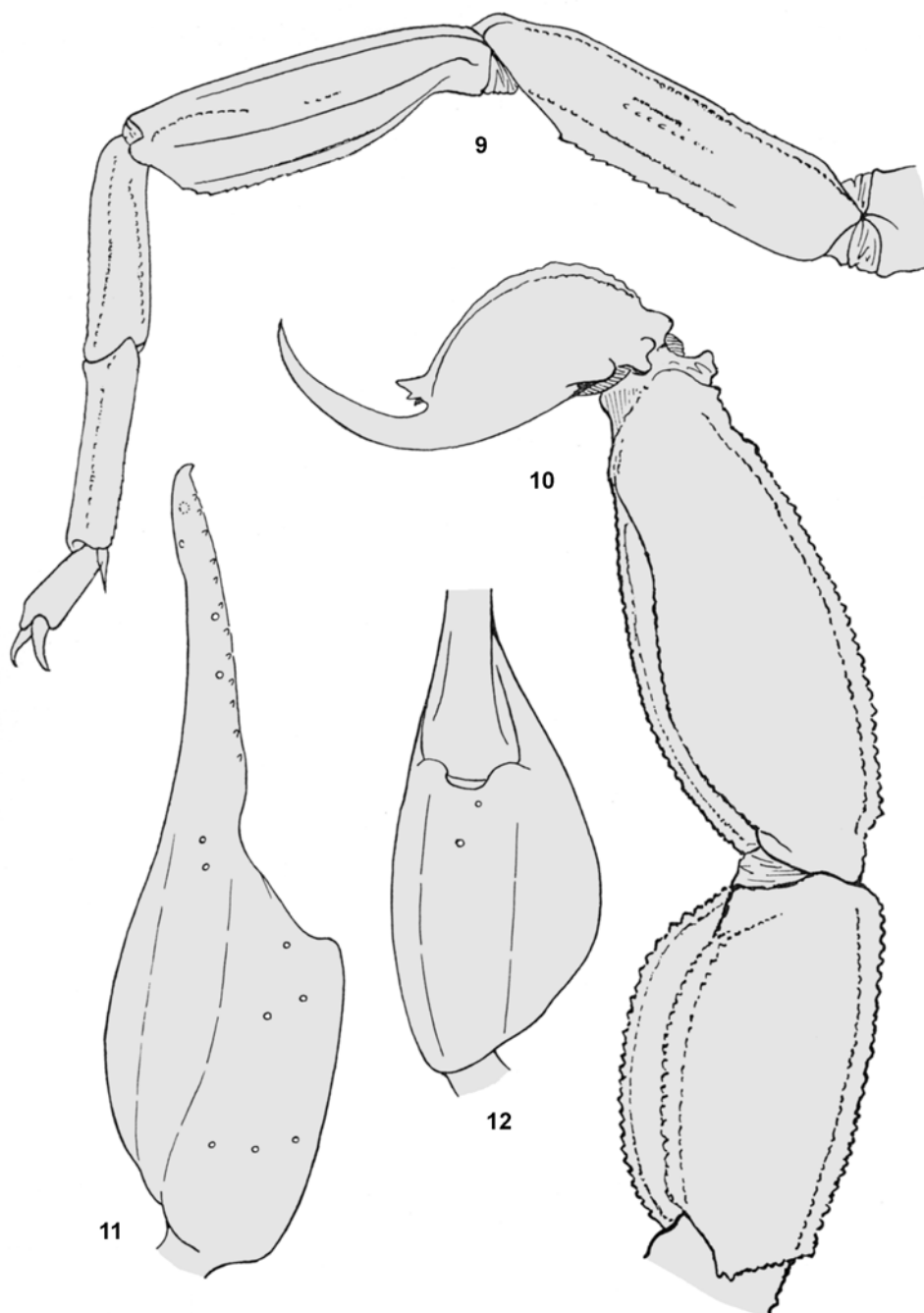


Fig. 9-10. *Tityus melici* sp. n. Female paratype. **9:** Leg IV. **10:** Metasomal segment IV-V and telson, lateral aspect.
Fig. 11-12. *Tityus blaseri* (male). Tibia, dorso-external and ventral aspects.

Relationships

The new species *T. melici* sp. n. belongs to the *Tityus bahiensis* species group. In its general coloration pattern the new species shows affinities with *Tityus blaseri* Mello-Leitão from Chapada dos Veadeiros in the State of Goiás (see Lourenço, Knox & Magalhães, 1997). This last species is known from localities in between 1000 and 1200 m altitude in the Cerrado formations of Central Brazil. The two species can, however, be readily distinguished by a totally different sexual

dimorphism. In males of *Tityus melici* sp. n. the tibia and chela of pedipalps are longer and slender than those of females, whereas in males of *T. blaseri* pedipalp chela is about twice wider than those of females. The new species can also be easily distinguished from *Tityus serrulatus* Lutz & Mello, found in some localities in the State of Bahia, since it lacks posterior spinoid granules on the dorsal carinae of the metasoma (Lourenço, 2002).

Key to the species of the group *Tityus bahiensis* inhabiting Caatinga formation

- 1 Metasomal segments III and IV with 1 to 5 granules modified as spines 2
 – Metasomal segments III and IV without granules modified as spines 6
- 2 Spinoid granules of metasomal segments III and IV strong; coloration dark reddish *T. kuryi*
 – Spinoid granules of metasomal segments III and IV moderate to weak; coloration yellowish 3
- 3 One or three longitudinal dark stripes over tergites 4
 – Confluent spots over tergites 5
- 4 One longitudinal stripe over tergites *T. stigmurus*
 – Three longitudinal stripes over tergites *T. martinpaechi*
- 5 Pedipalps and legs without spots *T. serrulatus*
 – Pedipalps and legs with distinct spots *T. lamottei*
- 6 Basal middle lamellae of female pectines dilated 7
 – Basal middle lamellae of female pectines not dilated *T. melici* sp. n.
- 7 Telson with a short moderately curved aculeus and a pear like shape; metasomal segments IV, V and telson blackish *T. neglectus*
 – Telson with a long curved aculeus and a round shape; coloration yellowish or reddish; blackish regions never present *T. anneau*

Environmental characteristics of the Caatinga formation

The Serra da Jurema is part of the Caatinga formation of North-East Brazil (Fig. 13). According to Eiten (1974), in the Caatinga region (n.e. Brazil), the yearly average temperature is 24-26°C (to 20°C av. On mountain tops); the yearly average rainfall is 300-1000 mm with 7-10 months of strong dry season, the rainfall irregular, lacking in some years. Semidesert vegetation on fertile, neutral to slightly alkaline, usually shallow soil which dries out completely in the dry season. Spiny shrubs and low trees, low cacti, tree cacti and terrestrial bromelias. Several gradients of vegetation are observed such as: a. Deciduous xerophytic low thorn forest (arboreal Caatinga). b. Deciduous xerophytic closed thorn scrub, or closed thorn scrub with scattered overtopping low trees. c. Semideciduous xerophytic closed scrub. d. Deciduous xerophytic open thorn scrub. e. Deciduous xerophytic scrub savanna with shortgrass layer. Rock outcrop with scattered low shrubs, cacti and bromelias in soil pockets and crevices. f. Carnauba palm groves (*Copernicia prunifera*); these tree palms occur along intermittent water courses in N-W part of Caatinga region. The most common form is b.

The eastern edge of the Caatinga region, although still deciduous, is of a moister type for there is more rain. This part of the Caatinga region is called “agreste”. The southern half of the eastern edge of the Caatinga region is separated from the coastal forest by a narrow N-S continuous ecotone of low to midtall deciduous mesophytic broadleaf forest called “mata de cipó”.

Table I

Morphometric values (in mm) of the male holotype and female paratype of *Tityus melici* sp. n.

	<i>Tityus melici</i> sp. n.	
	holotype	paratype
Total length	53.8	60.1
Carapace:		
length	6.4	7.8
anterior width	4.5	5.4
posterior width	6.6	8.6
Metasomal segment I:		
length	4.3	4.9
width	4.2	5.0
Metasomal segment V:		
length	7.6	8.2
width	3.8	4.5
depth	3.5	4.0
Vesicle:		
width	2.6	3.1
depth	2.3	2.7
Pedipalp:		
Femur length	8.1	8.2
Femur width	1.8	2.3
Patella length	8.6	8.8
Patella width	2.3	3.3
Chela length	14.1	14.8
Chela width	2.2	3.2
Chela depth	2.0	3.0
Movable finger:		
length	8.7	9.8

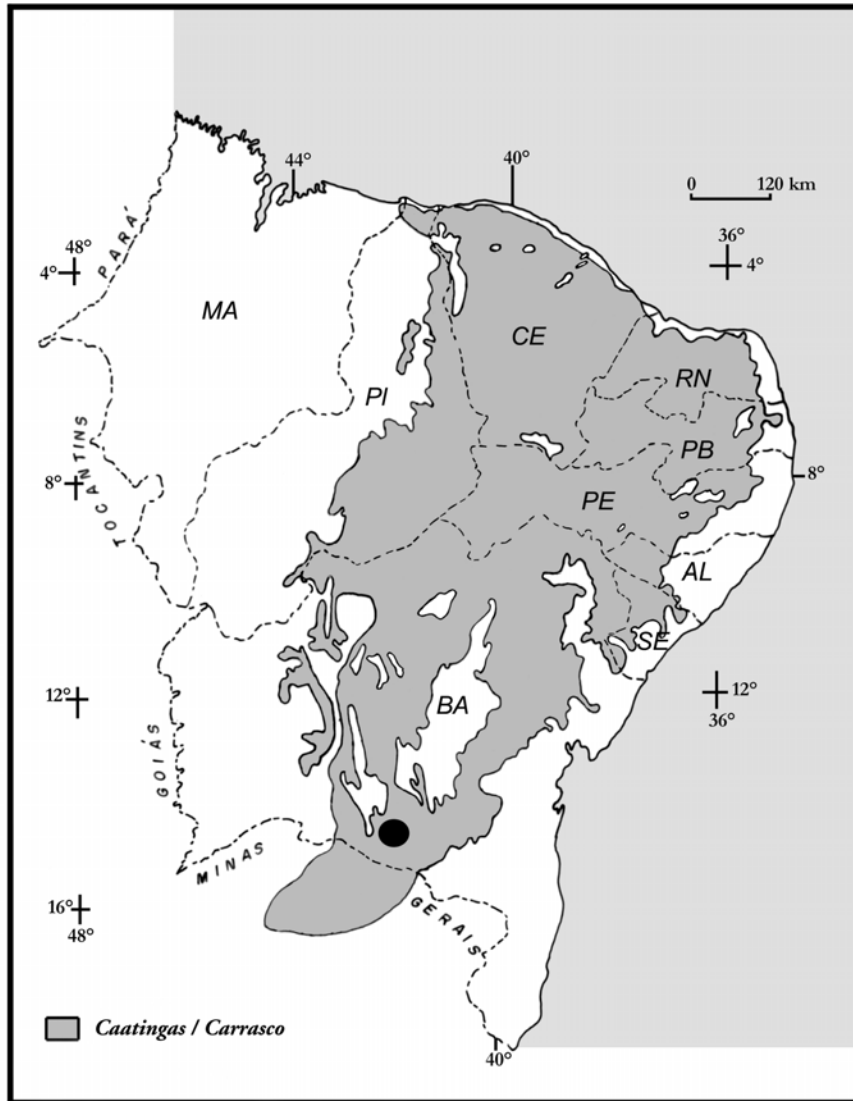


Fig. 13. Map of the North-East region of Brazil showing the distribution of the Caatinga formation, and the type locality of the new species (●).

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