

Occurrence of the genus *Chiasmocleis* (Anura: Microhylidae) in the State of Alagoas, north-eastern Brazil, with a description of a new species

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Abstract

The range of the genus *Chiasmocleis* found in the south-eastern and southern parts of the Atlantic rainforest of eastern Brazil, is expanded to the north-eastern region. *Chiasmocleis alagoanus* sp. nov. is described from two localities in the State of Alagoas. It is characterized by: medium size (snout–vent length 25.5–27.8 mm in females, 22.7–23.4 mm in males); snout short, tip truncate in dorsal and rounded in lateral profile; hand and foot not webbed; fingers and toes without lateral dermal spines; dorsal and ventral surfaces of body and limbs smooth, without dermal spines; colour on dorsum uniformly dark brown; venter roughly marbled in dark brown and pale cream.

Key words: Anura, Microhylidae, *Chiasmocleis*, *Chiasmocleis alagoanus* sp. nov., north-eastern Brazil

INTRODUCTION

Several species groups or genera of Brazilian anurans were considered to be restricted to southern and south-eastern regions of the Atlantic rainforest. However, recent collections demonstrated the presence of these groups in north-eastern Brazil. Heyer (1988) described *Cycloramphus migueli* (Leptodactylidae) from the southern part of the State of Bahia, Carcerelli & Caramaschi (1992) described *Crossodactylus lutzorum* and *C. dantei* (Leptodactylidae) from southern Bahia and from Alagoas, respectively, and Pombal & Madureira (1997) described *Physalaemus caete* (Leptodactylidae) also from Alagoas.

The occurrence of the genus *Chiasmocleis* Méhely, 1904 in the Atlantic rainforest of eastern Brazil is also apparently restricted to the south-eastern and southern regions, in the states of Espírito Santo, Minas Gerais, Rio de Janeiro, São Paulo and Santa Catarina (Cruz, Caramaschi & Izecksohn, 1997). Five species are recognized: *C. leucosticta* (Boulenger, 1888), *C. schubarti*, Bokermann, 1952, *C. atlantica* Cruz, Caramaschi & Izecksohn, 1997, *C. capixaba* Cruz, Caramaschi & Izecksohn, 1997, and *C. carvalhoi* Cruz, Caramaschi & Izecksohn, 1997.

In this paper we report on the occurrence of the genus *Chiasmocleis* in north-eastern Brazil, and describe a new species.

MATERIALS AND METHODS

Type specimens are deposited in Museu Nacional, Rio de Janeiro, Rio de Janeiro, Brazil (MNRJ), and Museu de História Natural, Universidade Federal de Alagoas, Maceió, Alagoas, Brazil (MUFAL). Comparative material is listed in Cruz *et al.* (1997).

Measurements, in mm, are: SVL (snout–vent length); HL (head length); HW (head width); IND (internarial distance); END (eye–nostril distance); ED (eye diameter); UEW (upper eyelid width); IOD (interorbital distance); THL (thigh length); TL (tibia length); FL (foot length).

RESULTS

Chiasmocleis alagoanus sp. nov.

Holotype

MNRJ 21856, adult female, collected at Mata do Catolé, Municipality of Maceió (09°40'S, 35°43'W), State of Alagoas, Brazil, on 23 October 1995, by E. M. X. Freire.

Paratypes

MNRJ 21857, adult female, collected at the type-

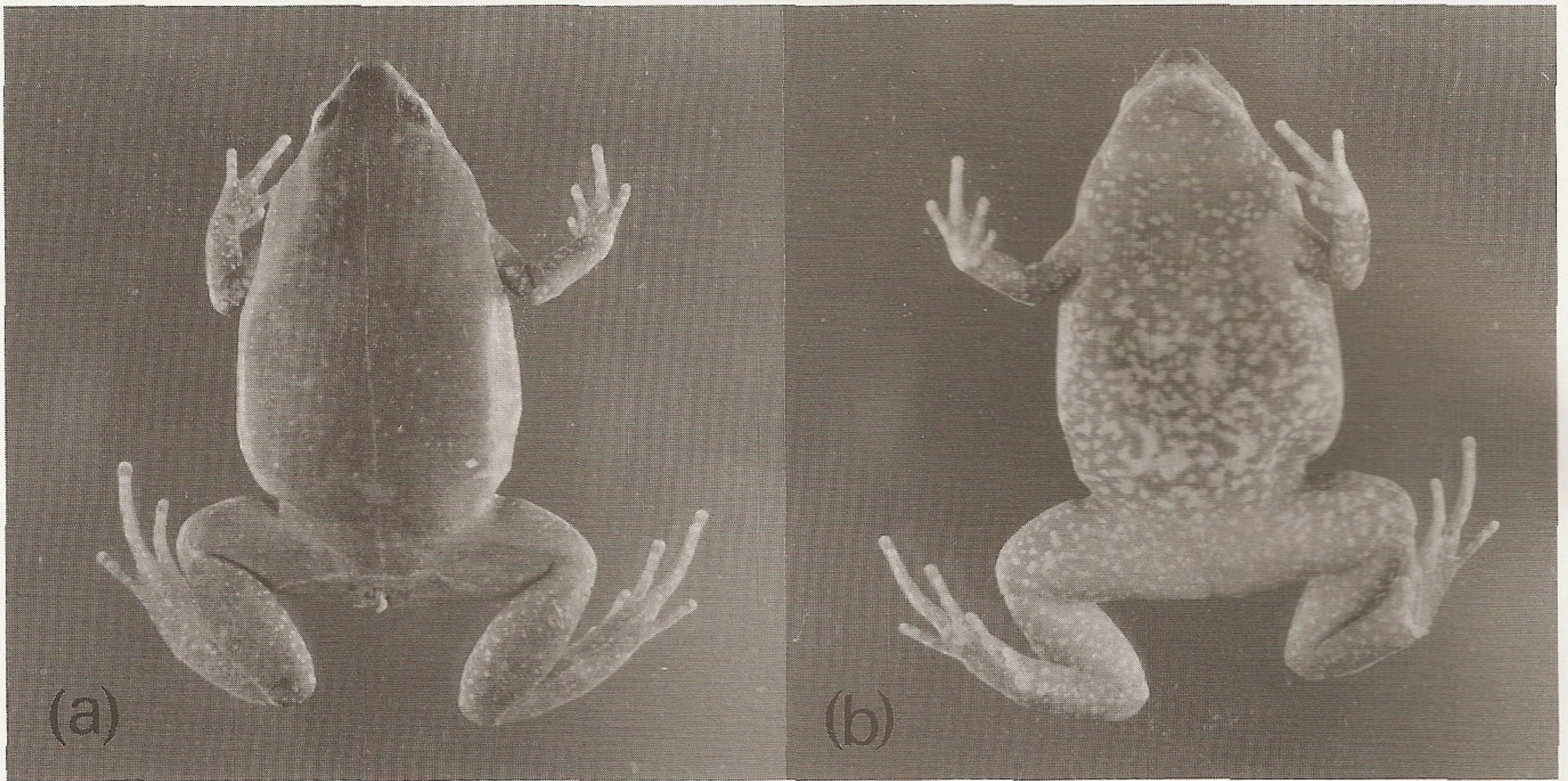


Fig. 1. Dorsal (a) and ventral (b) views of *Chiasmocleis alagoanus*, sp. nov. (MNRJ 21856, holotype).

locality, on 4 December 1996, by E. M. X. Freire *et al.*; MNRJ 21858, young female, collected at Mata do Cedro (09°31'S, 35°54'W), Municipality of Rio Largo, State of Alagoas, Brazil, on 12 September 1996, by E. M. X. Freire *et al.*; MNRJ 21859, adult male, collected at the same locality, on 29 November 1993, by E. M. X. Freire; MNRJ 21860–21862, two adult males and one adult female, collected at the same locality, on 24 February 1994, by E. M. X. Freire; MUFAL 1637, adult male, collected at the same locality, on 4 April 1994, by E. M. X. Freire; MUFAL 1638–1639, adult females, collected at the same locality, on 2 May 1994, by E. M. X. Freire.

Diagnosis

A medium-sized species of *Chiasmocleis*, diagnosed by the following combination of characters: (1) SVL 25.5–27.8 mm in females, 22.7–23.4 mm in males; (2) body trunk ovoid; (3) snout short, tip truncate in dorsal and rounded in lateral profile; (4) hand and foot not webbed; (5) fingers and toes lacking disks, slightly fringed; (6) fingers and toes without lateral dermal spines; (7) dorsal and ventral surfaces of body and limbs smooth, without dermal spines; (8) in preservative, colour on dorsum uniformly dark brown; (9) posterior sides of thighs with a vestigial light longitudinal line; (10) venter roughly marbled in dark brown and pale cream.

Description

Size medium for the genus; body trunk ovoid (Fig. 1); head short, approx. as broad as long; nostrils near the tip of snout, slightly protuberant, and directed laterally;

snout short, tip truncate in dorsal and rounded in lateral profile (Fig. 2a, b); internarial distance smaller than eye to nostril distance and eye diameter; eye diameter approx. equals eye to nostril distance; canthus rostralis only slightly marked; loreal region oblique, flat; lips not flared; eye small, only slightly protruding; upper eyelid width one-third of the interorbital space; interorbital area flat; cranial crests and occipital fold absent; postorbital fold present; tympanum absent; upper jaw projecting beyond lower; mandible with truncate, trilobed anterior margin; tongue large, ovoid; choanae small, rounded, widely separated; a small, subgular vocal sac present.

Arms slender, lacking tubercles and crests on forearm. Hand (Fig. 2c) not webbed in either sex; fingers lacking disks, slightly fringed; fingers lacking lateral dermal spines; length of fingers, $I < II < IV < III$; subarticular tubercles well developed, rounded; supernumerary tubercles absent; palmar tubercle large, divided in two parts; thenar tubercle small, rounded, at the base of finger I.

Legs short, robust; knee and heel lacking tubercles; tibial and tarsal ridges absent. Foot (Fig. 2d) only slightly webbed at the base of toes in each sex; toes lacking disks, slightly fringed; length of toes, $I < II < V < III < IV$; toes lacking lateral dermal spines; subarticular tubercles well developed, rounded; supernumerary tubercles absent; a small, rounded inner, but no outer, metatarsal tubercle. Thigh length approx. equals tibia length; knee and elbow widely separated when limbs are adpressed to sides of body; combined thigh and tibia length approx. 76% of snout–vent length in females, 78% in males; heels only touch when flexed legs held at right angles to body; foot length approx. 61% of snout–vent length in females, 62% in males.

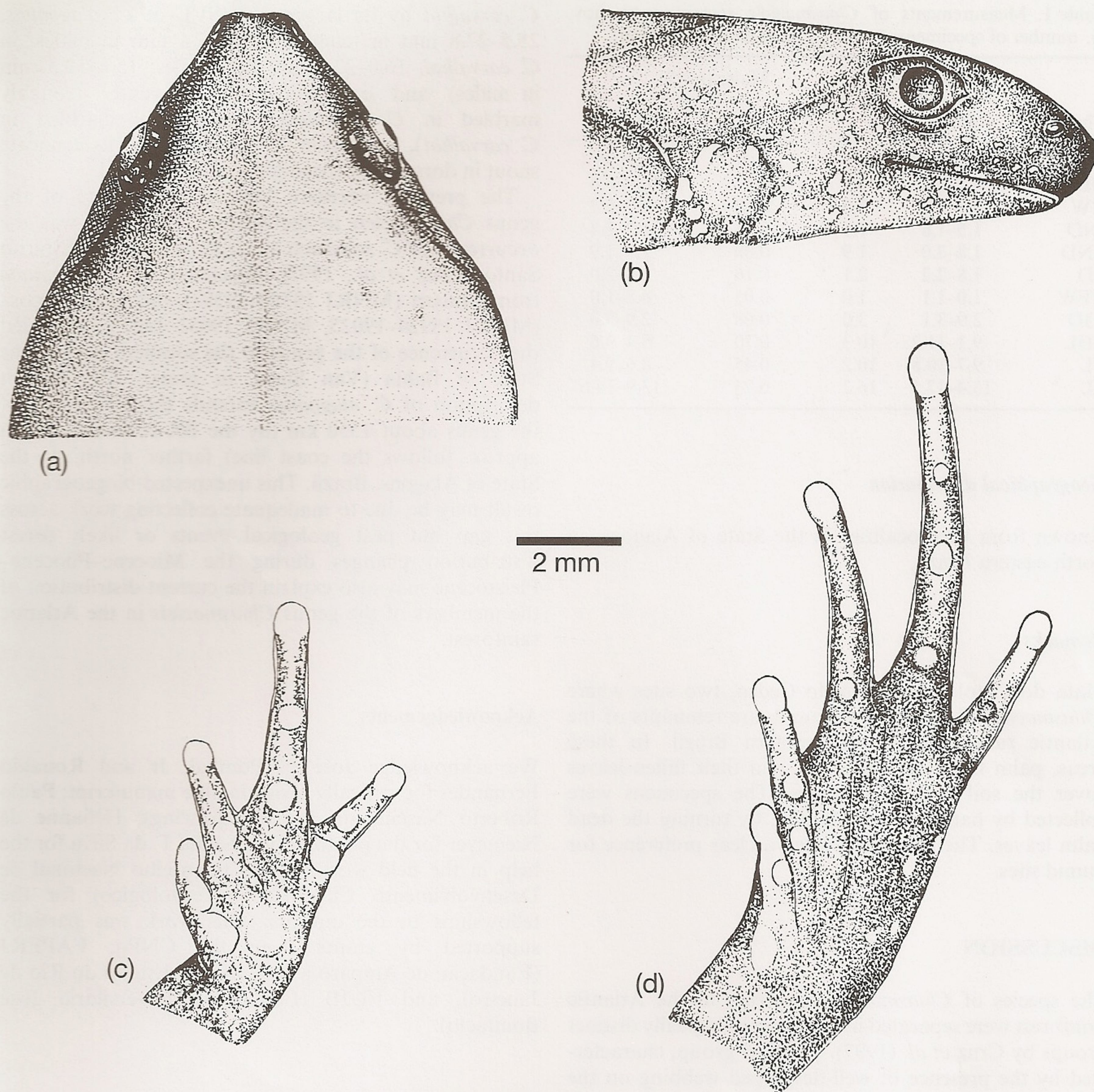


Fig. 2. *Chiasmocleis alagoanus*, sp. nov. (MNRJ 21856, holotype). Dorsal (a) and ventral (b) views of head; (c) hand; (d) foot.

Dorsal and ventral surfaces of body and limbs smooth, lacking dermal spines. Anal opening not modified, no para-anal tubercles or glands around anus.

In preservative (70% ETOH), colour on dorsum and dorsal surfaces of arms and legs, uniformly dark brown; a vestigial light longitudinal line on the posterior surfaces of thighs. Venter roughly marbled in dark brown and pale cream; male throat infuscated.

Measurements of holotype

SVL 25.5; HL 7.0; HW 7.0; IND 1.5; END 1.9; ED 2.2; UEW 1.0; IOD 3.0; THL 10.5; TL 10.0; FL 16.0.

Variation

Variation in measurements is presented in Table 1. In three specimens (33% of total), a light longitudinal mid-dorsal line is present.

Etymology

The specific name refers to the occurrence of the species as an inhabitant of the State of Alagoas, Brazil.

Table 1. Measurements of *Chiasmocleis alagoanus* sp. nov. (*n*, number of specimens; \bar{x} mean; SD, standard deviation)

Characters	Females (<i>n</i> = 6)		Males (<i>n</i> = 2)	
	Range	\bar{x}	SD	Range
SVL	22.5–27.8	26.8	0.92	22.7–23.4
HL	6.7–7.2	6.9	0.21	6.0–6.6
HW	6.9–7.2	7.0	0.12	6.0–6.2
IND	1.5–1.6	1.5	0.05	1.2–1.4
END	1.8–2.0	1.9	0.08	1.7–1.9
ED	1.8–2.2	2.1	0.16	1.8–2.0
UEW	1.0–1.1	1.0	0.05	0.8–1.0
IOD	2.9–3.1	3.0	0.08	2.9–3.0
THL	9.1–11.2	10.3	0.70	8.4–9.6
TL	9.7–10.8	10.2	0.45	8.6–9.4
FL	15.4–17.5	16.2	0.73	13.9–14.6

Geographical distribution

Known from two localities in the State of Alagoas, in north-eastern Brazil.

Remarks

Mata do Catolé and Mata do Cedro, two sites where *Chiasmocleis alagoanus* was found, are remnants of the Atlantic rainforest in north-eastern Brazil. In these areas, palm trees are abundant, and their fallen leaves cover the soil in several layers. The specimens were collected by hand, during the day, by turning the dead palm leaves. The animals showed a clear preference for humid sites.

DISCUSSION

The species of *Chiasmocleis* occurring in the Atlantic rainforest were separated in two morphologically distinct groups by Cruz *et al.* (1997). The first group, characterized by the presence of well-developed webbing on the feet, includes *C. capixaba* and *C. leucosticta*. The second, species with no or only a vestigial web on the feet, includes *C. atlantica*, *C. carvalhoi* and *C. schubarti*.

Chiasmocleis alagoanus is included in the second group. It is readily separated from all other species of this assemblage by the absence of dermal spines on the dorsal and ventral surfaces of the body and limbs, and on the lateral sides of fingers and toes. Additionally, the new species is separated from *C. atlantica*, *C. carvalhoi*, and *C. schubarti* by its shorter legs (sum of THL and TL, 76% of SVL in females, 78% in males of *C. alagoanus*; combined sum of THL and TL 78–82% of SVL in females, 82–87% in males of the other three species). Moreover, the new species is separated from *C. atlantica* by its shorter feet (FL 61% of SVL in females, 62% in males of *C. alagoanus*; FL 67% of SVL in females, 70% in males of *C. atlantica*), from

C. carvalhoi by its larger size (SVL of *C. alagoanus*, 25.5–27.8 mm in females, 22.7–23.4 mm in males; in *C. carvalhoi*, 16.0–22.5 mm in females, 15.5–18.3 mm in males) and colour pattern of venter (roughly marbled in *C. alagoanus*; only finely marbled in *C. carvalhoi*), and from *C. schubarti* by its truncate snout in dorsal view (rounded in *C. schubarti*).

The previous northern limit of occurrence of the genus *Chiasmocleis* in the Atlantic rainforest was the occurrence of *C. schubarti* at Linhares, State of Espírito Santo (Cruz *et al.*, 1997). Specimens of *C. capixaba* from Mucuri (MNRJ 19380–19381) and Nova Viçosa (MNRJ 18924–19025, MNRJ 19052–19273), extended the occurrence of the genus to the southern part of the State of Bahia (Van Sluys, in press). The present description of *C. alagoanus* extends the occurrence of the genus about 1550 km (by the BR-101 road, which approx. follows the coast line) farther north, to the State of Alagoas, Brazil. This unexpected biogeographic result may be due to inadequate collecting work across this gap but past geological events or likely forest distribution changes during the Miocene–Pliocene–Pleistocene may also explain the current distribution of the members of the genus *Chiasmocleis* in the Atlantic rainforest.

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