

Bunchosia apiculata (Malpighiaceae): A new occurrence for Paraíba state, Northeastern Brazil

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ABSTRACT – *Bunchosia apiculata* Huber (Malpighiaceae): a new occurrence for Paraíba state, Northeast Brazil. *Bunchosia* is a Neotropical genus with about 75 species, of which 11 are known from Brazil, and one, *B. pernambucana* W.R. Anderson registered for Paraíba state. Here, we present the first record of *B. apiculata* for Paraíba, expanding its occurrence 364 km further towards the northeastern from the nearest record. This species was previously known from the states of Amapá, Pará, Ceará, Maranhão and Piauí. This paper provides a description of this species, comments on geographic distribution and habitat, photographs and conservation status. Additionally, we present a map and diagnostic key to the five species of *Bunchosia* from Northeast Brazil.

Keywords: agreste region, Borborema plateau, floristic survey, seasonally tropical dry Forest

RESUMO – *Bunchosia apiculata* Huber (Malpighiaceae): uma nova ocorrência para o estado da Paraíba, Nordeste do Brasil. *Bunchosia* é um gênero neotropical que inclui ca. 75 espécies, das quais 11 são conhecidas do Brasil, e uma, *B. pernambucana* W.R. Anderson, registrada para o estado da Paraíba. Neste trabalho, apresentamos o primeiro registro de *B. apiculata* para a Paraíba, expandindo sua ocorrência 364 km mais para o nordeste a partir do registro mais próximo. Esta espécie era anteriormente conhecida dos estados do Amapá, Pará, Ceará, Maranhão e Piauí. Fornecemos uma descrição da espécie, comentários sobre distribuição geográfica e habitat, imagens e status de conservação. Adicionalmente, apresentamos um mapa e uma chave diagnóstica para as cinco espécies de *Bunchosia* do Nordeste do Brasil.

Palavras-chave: Agreste, Planalto da Borborema, levantamento florístico, floresta tropical sazonalmente seca

INTRODUCTION

Bunchosia Kunth due to the similarity of its species, has been considered taxonomically one of the most difficult genus within Malpighiaceae (Anderson 1978, 1998, Anderson 2014). Comprises ca. 75 species of shrubs and trees found distributed in Seasonally Tropical Dry Forests and in tropical rainforests, from Mexico and the Caribbean to southeastern Brazil and Argentina (Anderson *et al.* 2006, Anderson & Anderson 2015). In Brazil, the genus is represented by eleven species, of which seven of these reach the Atlantic Rainforest domain (Anderson *et al.* 2006, Almeida & Amorim 2014, Almeida & Mamede 2014, BFG 2015, Silva & Almeida 2015, Almeida *et al.* 2016). In Paraíba, there is only the record of *Bunchosia pernambucana* W.R. Anderson, which also grows in Alagoas, Bahia, Paraíba, Pernambuco and Sergipe states (BFG 2015, Almeida & Pellegrini 2016).

Bunchosia is characterized by trees to small trees or shrubs; leaves opposite, coriaceous, chartaceous or

membranous; stipules small, epipetiolar, abaxially glandular (two or several glands). Inflorescence axillary or terminal; peduncles 2-bracteolate; bracteoles often bearing 1–2 abaxial glands; flowers pedicellate, chasmogamous, zygomorphic with yellow flowers; sepals 5, ovate or elliptic; petals unguiculate, yellow or whitish, margin erose, fimbriate to glandular-fimbriate; stamens 10, glabrous; gynoecium 2–3, free, styles 2–3, free to connate, stigmas apical, capitate. Drupes 2–3-locular, yellow, orange, or reddish when mature; pyrenes free at maturity; seed enclosed in a cartilaginous endocarp with reticulate venation (Macbride 1950, Cuatrecasas & Croat 1980 Gutiérrez 2010, Anderson & Anderson 2015, Almeida & Pellegrini 2016).

Aiming to contribute to the knowledge and distribution of Malpighiaceae from Paraíba, this paper documents the first record of *Bunchosia apiculata* Huber in the semi-arid region of the state, increasing for two the number of *Bunchosia* species known for the state and extending the distribution this species to northeastern from the nearest record.

MATERIAL AND METHODS

Specimens were collected in Horto Florestal Olho D'Água da Bica (6°29'06"S, 36°09'24"W), located south of the slope of the Cuité Plateau belonging to Federal University of Campina Grande (UFCG), in Cuité municipality, central north region of Paraíba. The fragment has ca. 80 hectares and is mainly shrub-arboreal and covered vegetation of Caatinga. According to Köppen's classification (1948), the climate type is characterized as BSh, hot and semi-arid, with two distinct seasons, a rainy season from February to June and a pronounced dry season between July and January.

Specimens were identified consulting the protologue and specialized literature on the *Bunchosia* (Huber 1901, Anderson *et al.* 2006, Almeida *et al.* 2015, Almeida & Pellegrini 2016, Almeida *et al.* 2016) and confirmed by specialist and comparing images using the GBIF (2018) and REFLOA (2018), online databases, in order to confirm identification. Morphological description presented in this work was made from the material collected. Information about distribution and conservation of the species was gathered from the literature and from specimen labels. The specimens collected on our expedition were deposited in the herbarium HCES and duplicates sent to UFRN.

The name of the author of the species is based on The International Plant Name Index (IPNI 2017). Descriptive terminology follows Radford *et al.* (1974) and Gonçalves & Lorenzi (2011). The Extent of Occurrence (EOO) and Area of Occupancy (AOO) were calculated using the Geospatial Conservation Assessment Tool GeoCAT (Bachman *et al.* 2011). The conservation status of taxa was assessed following the IUCN (2017) criteria.

RESULTS AND DISCUSSION

Bunchosia apiculata Huber, Bull. Herb. Boissier, sér. 2, 1: 308. 1901.

Lectotype (designated by Almeida & Pellegrini 2016): BRAZIL. Ceará, Fortaleza, 08 September 1897, J. E. Huber & E. Goeldi 13 (MG).

Fig. 1.

Shrubs 2–5 m tall; older stems glabrous, the youngest glabrescent with the advent of secondary growth. Leaves mostly straight, opposite; stipules epipetiolar, triangular, sericeous, 1–1.5 mm long; petioles 0.5–1 cm long, sericeous, glabrescent at age, eglandular; blade 5–15 × 3.5–6 cm, elliptic to broadly elliptic, chartaceous, brochidodromous, cuneate at the base, flat margins, acute to apiculate at the apex, adaxial and abaxially glabrous, bearing 2 glands abaxially on each side near the base of midvein. Inflorescence an axillary pseudoraceme, 1 per leaf axil, 5.5–10 cm long, 4–14-flowered, flowers mostly decussate; bracts 1–1.4 mm long, triangular, glabrous, ciliate margins, acute apex; peduncles 1.5–4 mm long,

sparsely sericeous to glabrescent; bracteoles 2–3 mm long, triangular, glabrous, ciliate margins, acute at the apex, one of the pair usually bearing a abaxial gland, 0.8–1 mm diam. Flowers 1.5–2 cm diam.; pedicels 0.5–0.8 cm long, sericeous; floral buds 3.8–8 × 3–5 mm; sepals 1.8–2 × 1.3–1.5 mm, ovate to triangular, apex obtuse, ciliate margin, glabrous, bi-glandular, glands 3–3.3 mm long; petals yellow, glabrous, margins erose; lateral petals spreading, claw 2.5–3 × 0.8–1 mm, limb 5–7 × 3–5 mm, orbicular and deeply concave, posterior petal erect, claw 4–5 × 0.8–1 mm, limb 3–4 × 3–3.5 mm, orbicular, shallowly concave; stamens 10, glabrous, filaments of stamens opposing the sepals 1.8–2 mm long, filaments of stamens opposing the petals 1.3–1.5 mm long, anthers 1.3–1.5 × 0.5–0.8 mm; gynoecium 2-carpellate, glabrous, ovary 3 mm long, ovoid, styles 2 mm long, free. Drupes 1.3–1.5 × 0.8–1 cm, ellipsoid to ovoid, 2-lobed, green becoming orange to reddish when mature, glabrous, granulate, sometimes apiculate due to persistent styles; pyrenes 1.3–1.5 × 0.5–0.7 cm, green, smooth. Seeds not seen.

Specimens examined: BRAZIL. PARAÍBA: Cuité: Sítio Olho D'Água da Bica, 15.III.2017, fr., V. F. Sousa 480 (UFRN); *ibid.*, 24.II.2018, fl. and immat. fr., V. F. Sousa 565 (HCES); *ibid.*, 27.III.2018, fl. and fr., V. F. Sousa 624 (HCES).

Bunchosia apiculata is distributed in Suriname, French Guyana and Brazil (Amapá, Pará, Maranhão, Piauí and Ceará states), where it grows in coastal plains forest (restinga), semi-deciduous and ombrophilous forests (Almeida & Pellegrini 2016). A recent study listing the *Bunchosia* species from Atlantic Forest (Almeida & Pellegrini 2016) do not include *B. apiculata* for Paraíba state. The collections of *B. apiculata* from Cuité municipality in Caatinga vegetation represent the first record for Paraíba state (Fig. 2, here we show the distribution of other *Bunchosia* species in Northeast Brazil), extending its distribution range nearly 364 km further towards the northeastern from the nearest record, in Quixadá municipality, Ceará state.

Specimens were collected during the region's rainy season, with individuals flowering and fruiting between March and May. In study area, it inhabiting associated to the sandy-stony soil, occurring among other species, such as *Neocalyptrocalyx longifolium* (Mart.) Cornejo & Iltis (Capparaceae), *Thryallis longifolia* Mart. (Malpighiaceae), *Cissus verticillata* (L.) Nicolson & C. E. Jarvis (Vitaceae), *Syagrus cearensis* Noblick (Arecaceae), *Hymenaea courbaril* L. (Fabaceae) and *Prockia crucis* P. Browne ex L. (Salicaceae).

Bunchosia apiculata is easily recognized in field by its glabrous leaves, 2 glands in side abaxial of leaf blade near the base of midrib, one of the pair bracteoles with a single discoid abaxial gland, orbicular, concave and erose limb petals, gynoecium and bicarpellate drupes, and free styles.

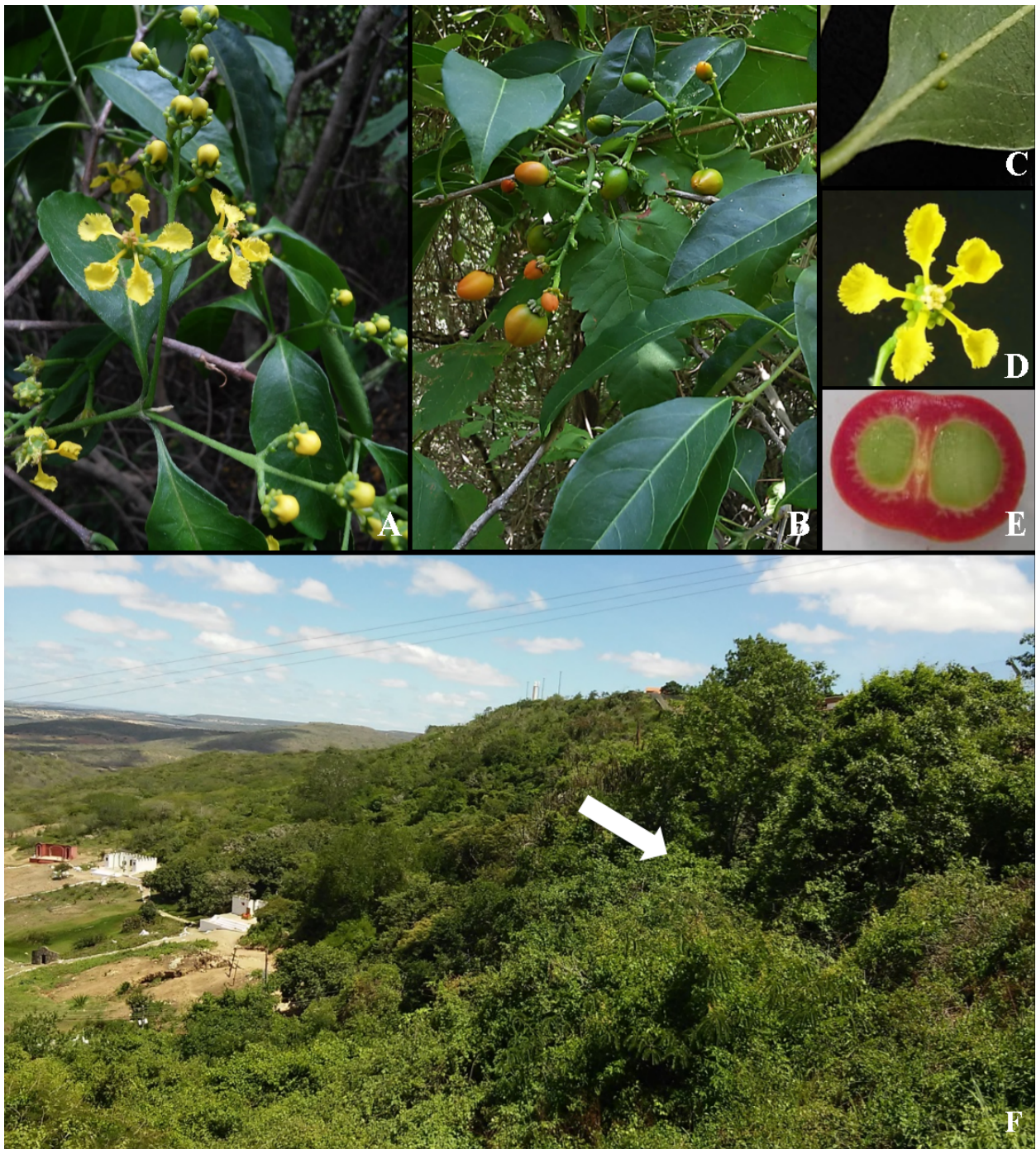


Figure 1. *Bunchosia apiculata* Huber. **A.** floral branch, showing flower buds and flowers; **B.** branch with immature fruits; **C.** abaxial side of the leaf, showing the two glands near the midvein; **D.** petals – limb margins non glandular-fimbriate; **E.** transverse section near base of 2-carpellate fruit; **F.** habitat. Photograph by V. F. Sousa.

It resembles to *B. itacarensis* Anderson due ciliate margin sepals, glabrous and yellow petals, glabrous stamens, bicarpellate gynoecium and free styles. However, it differs of *B. apiculata* by the presence of densely sericeous ovary, shorter styles (1.4 mm long), much longer leaves and coriaceous (14–21 cm long) and acuminate apex, branched inflorescence, shorter bracteoles (ca. 1 mm long), longer stipules (2–3 mm long) and depressed-globose and wall

smooth fruits. Furthermore, *B. itacarensis* has a restricted distribution to the state of Bahia (Almeida & Pellegrini 2016) while *B. apiculata* presents a wider distribution in Brazil (Amapá, Pará, Maranhão, Piauí, Ceará and Paraíba states).

Regarding to conservation status, following IUCN (2017) this species should be classified as Endangered - EN category [B2ab (i, ii, iii)]. Although its extent of occurrence

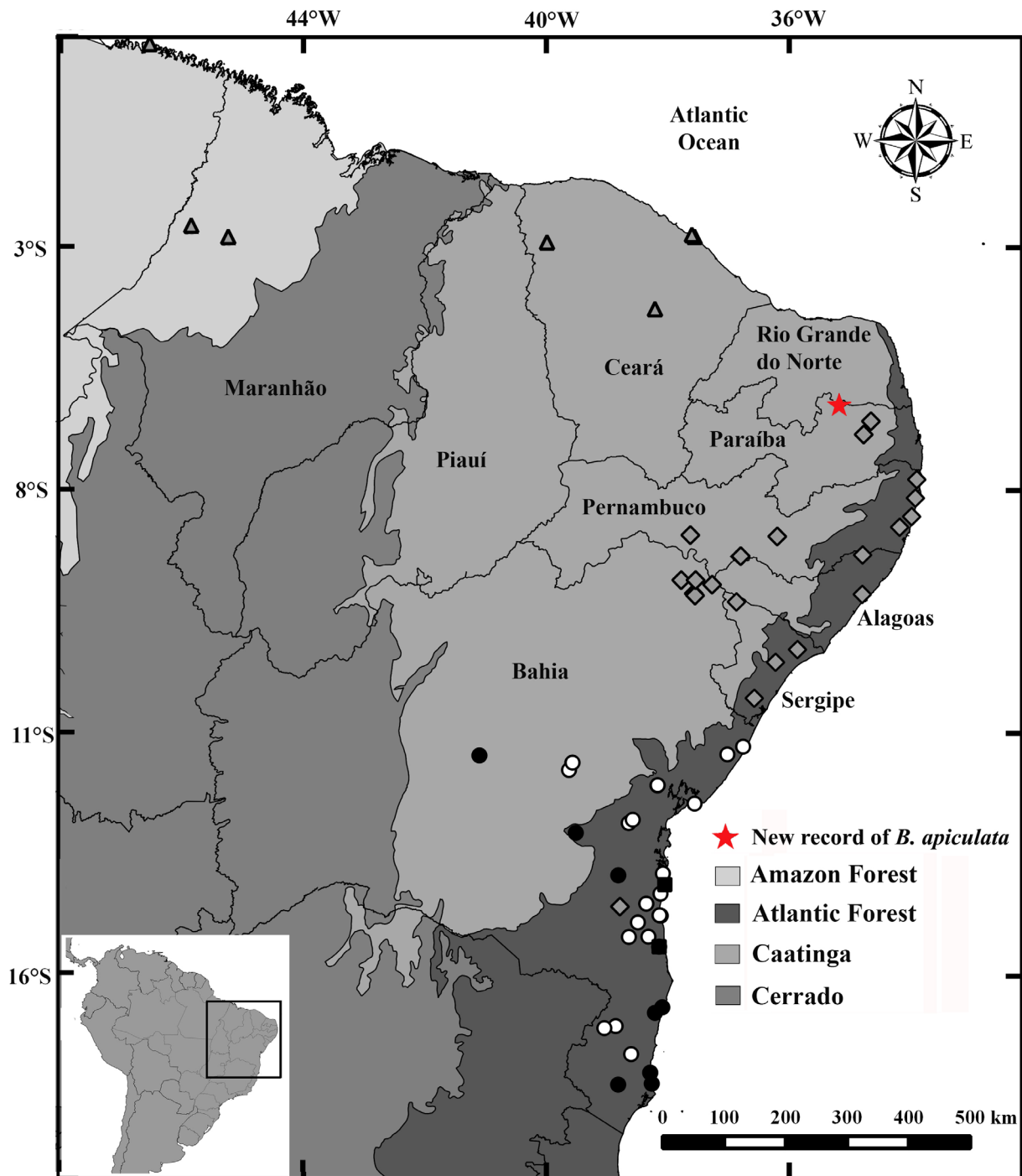


Figure 2. Distribution map of *Bunchosia apiculata*, including other *Bunchosia* species that occur in Northeast Brazil. ○ *B. acuminata*; △ *B. apiculata*; ■ *B. itacarensis*; ● *B. macilenta*; ◇ *B. pernambucana*; ★ new record of *B. apiculata*.

(EOO) is broad (1.113.164 km²), but its area of occupancy (AOO) is only 52 km². The ongoing degradation of both Caatinga and Atlantic Forest caused by intensity of human activities, such as, agriculture based on slash and burn, the extraction of vegetable products for purposes energy and extensive livestock farming, is decreasing the density and vegetation cover (Sousa *et al.* 2016), and threatening the flora of this ecosystems, especially the species that

have restricted distribution. In Northeastern region of Brazil, there are no records that *B. apiculata* occurs in protected areas and, possibly their population levels will be compromised in the future. The present paper increases the number of known species of *Bunchosia* in Paraíba state for two and contributes to the knowledge of Malpighiaceae species in the state. Below, a key to distinguish *Bunchosia* species from Northeast is provided.

Key to species of *Bunchosia* reported from Northeast (modified from Almeida & Pellegrini 2016)

1. Leaf blade with alternate secondary veins; petal margin erose; gynoecium and drupes 2-carpellate 2
1. Leaf blade with opposite secondary veins; petal margin glandular-fimbriate; gynoecium and drupes 3-carpellate 3
 2. Leaf blade elliptic to ovate, chartaceous, apex apiculate; inflorescence simple, bracts shorter than the bracteoles; ovary glabrous *B. apiculata*
 2. Leaf blade broadly elliptic, coriaceous, apex acuminate; inflorescence branched, bracts longer than the bracteoles; ovary densely sericeous *B. itacarensis*
3. Styles completely or ½ connate *B. pernambucana*
3. Styles distinct or only connate at base 4
 4. Leaf blade with (2–) 4–8 abaxial glands near the midvein, either on or near the lateral veins; inflorescences 4–8-flowered; stamens with filaments in 3 lengths, posterior stamens shorter than the anterior; styles longer than the ovary *B. macilentia*
 4. Leaf blade with 2 abaxial glands near the midvein, either on or near the lateral veins; inflorescences with 12–22–(30)-flowered; stamens with filaments in 2 lengths, long stamens alternating with short; styles the same length or shorter than the ovary *B. acuminata*

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