

FIRST RECORD OF *CALLIANDRA SUBSPICATA* (FABACEAE) IN PARAÍBA STATE, BRAZIL

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Abstract. *Calliandra subspicata* (Fabaceae) hitherto had been reported from Pernambuco and Bahia, states of the Northeast Region of Brazil. Here we report this species from Paraíba state, the third state of this region. It was observed and collected at the Pico do Jabre State Park, a conservation unit situated at the residual massif of the Depression Sertaneja on the Borborema Plateau, which reaches an altitude of 1197 m. The identification was made on the basis of current literature. A morphological description, images, information about the area where the taxon was collected, and a key for identification of the species of *Calliandra* recorded in Paraíba state are provided.

Keywords: northeastern Brazil, diversity, Fabaceae

Fabaceae, in the order Fabales (APG IV, 2016), is the third largest family of angiosperms in the world. It is currently divided into six subfamilies: Caesalpinioideae, Cercidoideae, Detarioideae, Dialioideae, Duparquetioideae, and Papilionoideae (LPWG, 2017). This family has a cosmopolitan distribution and is found in a variety of habitats: from coastal plains and mountains to tropical forests and deserts, in equatorial regions and close to the poles (Queiroz, 2009; Hartmann et al., 2019). This family comprises approximately 20,000 species distributed in 727 genera (LPWG, 2017). In Brazil, Fabaceae includes the largest number of species of all flowering plants in Brazil, namely, 2854 species in 222 genera, and is associated with a variety of phytogeographic domains and environments (Flora do Brasil, 2020).

Calliandra is an important genus included in tribe Ingae and belonging to the Mimosoideae clade, subfamily Caesalpinioideae. *Calliandra* has a Neotropical distribution, and species are found in areas with strong climatic seasonality, such as seasonally dry tropical forests, savannas, and seasonal deciduous and semi-deciduous forests (Flora do Brasil, 2020). It encompasses ca. 132 species (Barneby, 1998; Souza, 2001; Renvoize, 1981).

Morphologically, species of *Calliandra* are shrubs or subshrubs, and rarely trees. The genus is recognized mainly by the shape of the inflorescences, glomeruli, or terminal pseudo-racemes, as well as by the androecium with monadelphous stamens, bipinnate leaves devoid of extra floral nectaries, and fruits of the typical legume type with thick margins and elastic dehiscence from the apex toward the base (Souza, 2007; Flora do Brasil, 2020).

Calliandra is commonly found throughout Brazil and is represented by 74 species, 46 of which are recorded from Chapada Diamantina, Bahia state (Northeast Region), the area with the highest diversity of this genus in the country (Souza et al., 2013; Flora do Brasil, 2020). A recent study revealed several Fabaceae in the Cariri region of Paraíba state (Rodrigues et al., 2020). However, no record of this genus was reported. Here we report the first record of *Calliandra subspicata* Benth. for Paraíba in a locality at relatively high altitude.

The species was found at the Pico do Jabre State Park (-7°15'11"S, -37°23'04"W), in a conservation unit located in the municipalities of Maturéia and Mãe d'Água (Fig. 1), metropolitan region of the municipality of Patos, Paraíba state, in northeastern Brazil (IBGE, 2017). Pico do Jabre State Park is part of the Borborema Plateau in the geotectonic zone of Teixeira, covering 500 ha and reaching a maximum elevation of 1197 m, the highest point in Paraíba state (Carvalho, 1982). The climate of this region is characterized as hot and dry, of the Bsh (hot, semi-arid) type, according to the Köppen classification (Francisco et al., 2015). However, because of the altitude and orography, Pico do Jabre has a wetter microclimate and mild temperatures, with rainfall records that vary from 800 to 1000 mm annually. This conservation unit is a high-altitude swamp with a remarkable mosaic of vegetation: it is possible to find the typical caatinga vegetation of northeastern Brazil (as opposed to Amazonian caatinga forest, an entirely different ecosystem), seasonal forest, and rupestrian vegetation in its various altitudinal levels, an exceptional area within the surrounding caatinga (Cunha and Silva-Júnior, 2018; Araújo et al., 2019).

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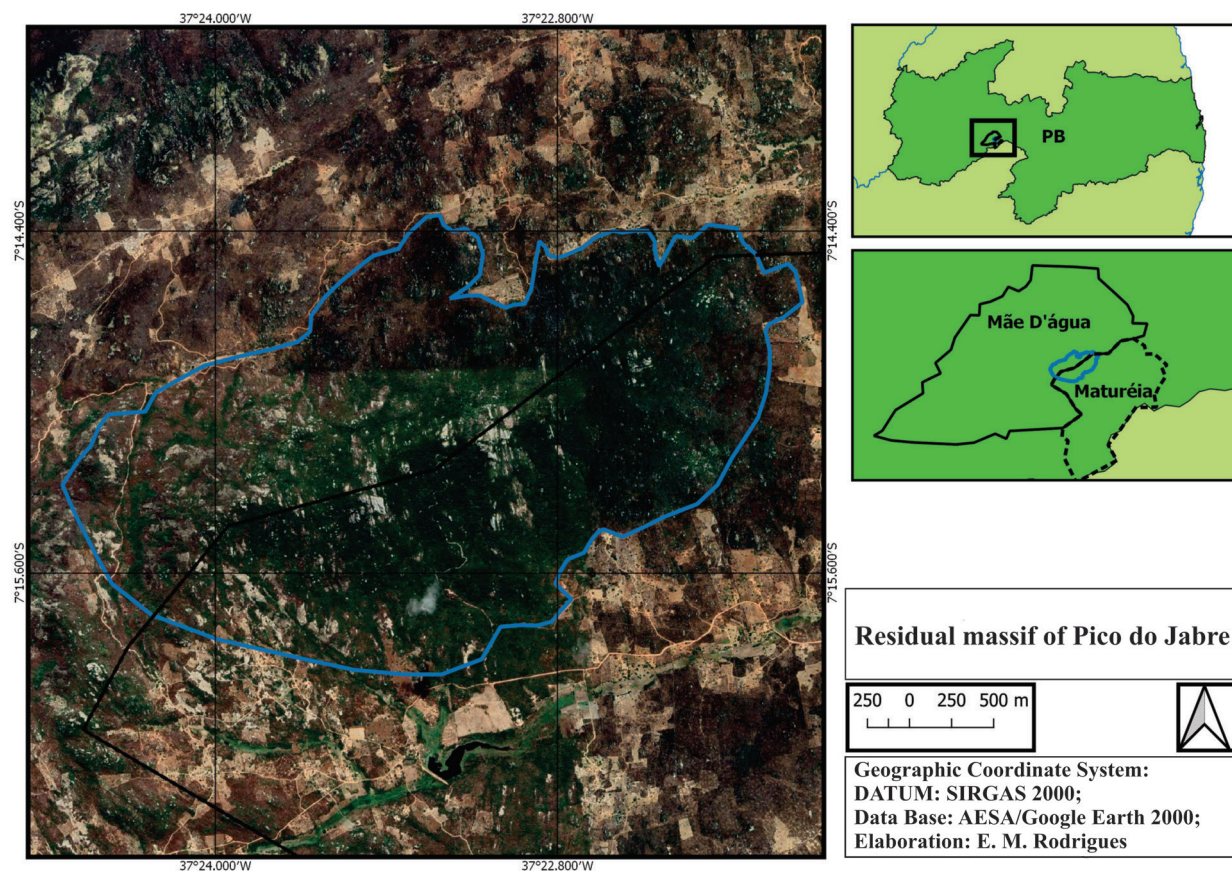


FIGURE 1. Location of the Pico do Jabre State Park (between the municipalities of Maturéia and Mãe d'Água), Paraíba state, northeastern Brazil.

DATA COLLECTION AND TAXONOMIC TREATMENT

Specimens of *Calliandra subspicata* were collected during monthly excursions from December 2018 to February 2020 while exploring the windward part of the massif. During field trips, fertile branches (with flowers) were obtained and the samples herborized according to the techniques used in taxonomic studies described by Peixoto and Maia (2013), using an air circulation oven at 50 C for a period of 24 to 48 hours. Herborization was carried out at the Botany Laboratory, Department of Biology, State University of Paraíba (UEPB), *Campus I*. The samples were incorporated into the collections of the Herbaria Manuel de Arruda Câmara (HACAM) and Lauro Pires-Xavier (JPB), in the State and Federal Universities of Paraíba (UEPB and UFPB), respectively.

We followed the Leguminosae Phylogeny Working Group (LPWG, 2017) in classifying the subfamilies, and

Queiroz (2009) and Souza et al. (2013) for genera and species classifications. Type of habit was defined on the basis of field observations. The morphological characterization of the species was based on the material obtained in the study area, consulting exsiccates incorporated into the Virtual Herbarium of the Flora and Fungi (Reflora). Acronyms follow Thiers (2020). The spelling of authors' names was based on Brummitt and Powell (1988). The descriptive terminologies of plant and reproductive structures were based on Hickey (1973), Radford et al. (1974), Rizzini (1977), Payne (1978), and Harris and Harris (2001). The type of inflorescence was based on Weberling (1992). The names were verified in Tropicos (2020). The species of *Calliandra* found in Paraíba state can be identified using the following key.

KEY TO *CALLIANDRA* SPECIES

- 1a. Leaves 2-foliolate; flowers sessile. *Calliandra brevipes*
- 1b. Leaves 4- to 8-foliolate; flowers pedicellate 2
- 2a. Leaves 4- to 6-foliolate; inflorescence a raceme. *C. subspicata*
- 2b. Leaves 7- to 8-foliolate; inflorescence an umbel *C. pedicellata*

Calliandra subspicata Benth., Trans. Linn. Soc. London 30(3): 556. 1875. TYPE: BRAZIL, *M. Wied s.n.* (Holotype: BR [BR0000005194421, photograph seen]). Fig. 2.

Distribution and habitat: the species is endemic to Brazil and is distributed in the Northeast Region (Bahia and Pernambuco); it is associated with the morphoclimatic domains of the Caatinga and Atlantic Forest (Tropicos, 2020), here representing a new record for Paraíba state. In the study area (Pico do Jabre State Park), it was found at an altitude of 1197 m (Fig. 1) on the Borborema Plateau of the massif, close to boulders in a stretch of Litolic Neosoils.

Phenology: found flowering in December 2018 and August 2019.

Additional specimens examined: BRAZIL. Bahia, Camacã, Rodovia Camacã, 09 May 2003, fl., fr., *E. Souza 109585* (CEPEC); Ilhéus, Cachoeira river bank, 08 July 1965, fr., *R. P. Belém et al. 1325* (CEPEC).

Shrub, erect, ca. 2 m high, cylindrical branches, striate, pubescent, unarmed. *Stipules* narrow-triangular to triangular, 1–12 × 2–4 mm. *Leaves* bipinnate, 4- to 6-bifoliolate, alternate, petiole 0.9–3.0 cm long, apex rounded-acute, margin entire, base truncate; chartaceous, adaxial surface

glabrous, abaxial surface puberulent. *Inflorescence* axillary, raceme, 7.2 × 2.2 cm. *Pedicellate* flowers, pentamerous, actinomorphic, monoclones, hypogynous, polistemonous; pedicel ca. 0.1 long; campanulate calyx 5 × 3 mm, lobes 5, ca. 1 mm long; tubular corolla, white, 6.5 × 7.0 mm, lobes 5.4 × 35.0 mm; stamens 30–35, isodynamous, monadelphous; filaments white with pinkish apex, 5–6 cm long; superior ovary, unicarpelar, unilocular, marginal placentation, pluriovulate. *Legume* 0.5–0.6 × 6.0–7.3 cm, linear, flat, seeds not seen.

Two other species of *Calliandra* (*C. brevipes* Benth. and *C. parvifolia* [Hook. & Arn.] Speg.) can be found in Paraíba state. These species are distinguished from *C. subspicata* mainly by the number of leaflets, the presence of pedicels, and the color of the filaments: *C. brevipes* has two pairs of leaflets, glomerulus-type inflorescence, and sessile flowers, versus leaves with 4–8 pairs of leaflets and flowers pedicellate in *C. parvifolia* and *C. subspicata*. The latter two species can be differentiated by the number of leaflets and the shape of the inflorescence: the former has leaves with 7–8 pairs of leaflets and umbellate inflorescences, whereas the latter has leaves with 4–6 pairs of leaflets and racemose inflorescences (see key above).

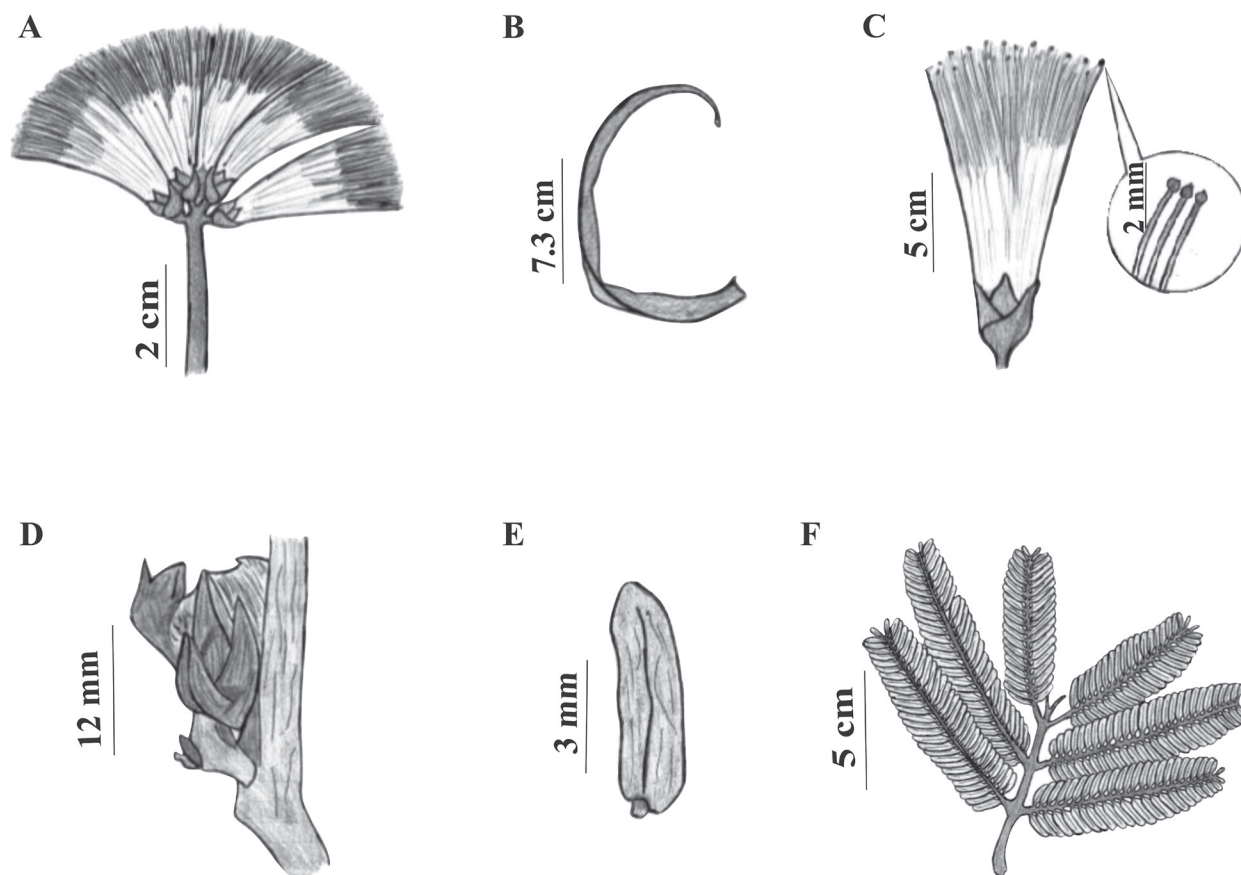


FIGURE 2. *Calliandra subspicata* Benth. A, inflorescence; B, fruit; C, flower; D, stipule; E, leaflet; F, leaf.

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