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## NEW OCCURRENCE OF *Prestonia bahiensis* MÜLL. ARG. (APOCYNACEAE) FOR THE VEGETATION OF THE STATE UNIVERSITY OF MARANHÃO, BRAZIL

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### ABSTRACT

The study records the first occurrence of *Prestonia bahiensis* Müll. Arg., for the State of Maranhão/Brazil vegetation. *Prestonia bahiensis* is an endemic species and native of Brazil, with distribution restricted to Northeast and Southeast region. Are provided diagnosis, taxonomic comments, data about occurrence of environmental, geographical distribution and images of the species. With addition of new records are known three species of *Prestonia* for the State of Maranhão: *P. bahiensis*, *P. coalita* (Vell.) Woodson and *P. erecta* (Malme) J. F. Morales. Thus, the study contributed for the knowledge of species and of the genus for the Maranhão and Brazil.

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### INTRODUCTION

The family Apocynaceae Juss. belong order Gentianales Juss. ex Bercht. and J. Presl, with more of 75 genera and 5000 species in the world (Endress, 2004; Rapini, 2012; Fernandes et al., 2018), distributed for the tropical, subtropical and seasoned regions. Are recognized five subfamilies: Rauvolfioideae and Apocynoideae of traditional Apocynaceae and Periplocoideae, Semacomoideae and Asclepiadoideae of traditional Asclepiadaceae (Endress et al., 2014). Apocynaceae is clearly monophyletic, recognized for the presence of latex, leaves usually opposite with colleters in base or in over of veins central and petiole

(intra and interpetiolar, anthers adnates or not in head of style forming a gynostegium and apex of gynoecium modified in a head style quite developed (Endress and Bruyns, 2000; Endress et al., 2014). Diverse species of family have important compounds chemicals for the medicine, above all in latex that is used for diverse traditional communities (Endress et al., 2014). In Brazil the family Apocynaceae is distributed in 783 species, 78 genera, 10 subspecies and 24 varieties. In the Cerrado biome there are 297 accepted names and in the Caatinga 139. In the Northeast it has 264 accepted names, and for Maranhão 71 (Koch et al., 2015). Circumscribed in the subfamily Apocynoideae Burnett, in the tribe Echiteae, Subtribe Prestoniinae, is the genus *Prestonia* R. Br Neotropical, widely distributed from Mexico to Argentina, to the Caribbean islands, which has geographic center of endemism in Brazil (Woodson, 1936, Endress and Bruyns,

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2000, Morales, 2004, Endress *et al.*, 2014). *Prestonia* was originally described by Brown (1811), who delimited it by the presence of a hippocrepiform corolla, with an undivided faire ring and semi-exserted, sagittarian anthers adhering to the stigmatic apex. It has as species type *P. tomentosa* R. Br. whose description is based on collection from Rio de Janeiro, collected by Josephus Banks (Rio and Kinoshita, 2005). For the world are recognized about 60 species of *Prestonia*, and in Brazil, 23 species, with nine endemic species, such as *P. amazonica* (Benth. Ex Müll. Arg.) J. F. Macbr., *P. bahiensis* Müll. Arg., *P. denticulata* (Vell.) Woodson, *P. didyma* (Vell.) Woodson [including *P. Perplex* Woodson], *P. dusenii* (Malme) Woodson, *P. macroneura* (Müll. Arg.) Woodson and *P. solanifolia* (Müll. Arg.) Woodson (Woodson, 1936; Morales, 2004; Rio and Kinoshita, 2005; Koch *et al.*, 2015). Changes nomenclatures important was proposals recently in *Prestonia* (Morales, 1999, 2006, 2007), and any of the names utilized traditionally in floristics survey and cited in herbarium materials are, current, synonyms (Farinaccio and Simões, 2018). Woodson (1936), based on the presence of suprastemal appendages, aspect of the fauce ring and lacinia calyx, inclusion of anthers and corolla pilosity, divided the genus into four sections: *Acutifoliae* (9spp), *Annular* (32spp), *Coalitea* (four species) and *Tomentosae* (15spp). In the *Annulares* section is *P. bahiensis* Müll. Arg. a native and endemic species of Brazil, with few associated information and its distribution presenting gaps. The objective of the study was to record the occurrence of *Prestonia bahiensis* species in the State of Maranhão, to contribute with the geographic distribution of the species and to reinforce the knowledge of the flora of Maranhão and Brazil.

## MATERIAL AND METHODS

The records of species was realized although of field collect in Caxias/Maranhão city, during botanical expedition in the moths from January to February of 2019, according to collects procedures suggested by Rotta *et al.* (2008). For species determination, were utilized specialized bibliographies, as: Rio and Kinoshita (2005); *Flora Brasiliensis* of Martius (1860) and comparison with exsiccates by queries to the herbaria images K, MO, NY and RB, acronyms according to Thiers (2018). The scientific name and authors of the species were conferred according to the List of Species of Flora of Brazil. The terminology used to describe the species according to Rio and Kinoshita, (2005). Additional to the description following, geographic distribution updated to Brazil and Maranhão, with the elaboration of map of distribution of the species through software Qgis 2.0, phytogeographic domains and physiognomies of occurrence, according to Flora of Brazil 2020 and *Species Link* (<http://www.splink.org.br>) (CRIA, 2019). Were elaborated additional comments about species delimitation and affinities with other taxa. After identification of the material, the samples were incorporated into the Herbarium Prof. Aluizio Bittencourt (HABIT) at State University of Maranhão UEMA.

## RESULTS AND DISCUSSION

*Prestonia bahiensis* Müll. Arg., *Flora Brasiliensis* 6 (1): 164. 1860. Type: Brazil, Lagoa Santa, Warming s/n (C; photo type F). Fig. 1 e 2 Liane/fickle/climbing with stem ferruginous-tomentose. Simple leaves, opposite with petiole 7-9 mm, indumentums ferruginous-tomentose, presents colleters

nodulation. Lamina with 4-12 x 2-10 cm ovate to oblong-elliptic, cartacea, discolor, acuminate apex, obtuse base to rounded, whole margin, camptodromous vein, adaxial face hispid ferruginous, abaxial face brown velutinous. Inflorescence umbelliform 5-30 flora; peduncle of 7-20 mm legth and pedicel with 6-10 mm legth., ferruginous tomentose. Flower 2-2,5 cm leght, calyx with sepals 8-15 mm, foliaceous, ovate-lanceolates, acuminate, dense-hispid, yellow corolla; fauce with calose ring conspicuous, stamens inserted in the upper third of the corolla tube; Anthers with 5.5-6 mm compr., apices reaching fauce ring, 5 adnate fillet the corolla with 5-6 mm; basifixed, longitudinal dehiscence; ovary ca 1,5 mm; papillate the glabrous, head of the stylet 1-1,5 mm., nectaries, lobate concrescents, bigger than the ovary. Fruit not observed. The specimens of *P. bahiensis* was collected on 05/11/2019, with flowers in a fragment of vegetation located in the vicinity of the Campus of the State University of Maranhão/UEMA, at Center of Higher Studies of Caxias/CESC (Figure 2). The species can be found in Cerrado, Caatinga and Atlantic Forest formations, in the physiognomies of Cerrado (*lato sensu*), Gallery Forest and Semidecidual Seasonal Forest. In the research, the collection site is characterized by anthropogenic secondary vegetation, evidencing the species as tolerant. Resende *et al.* (2013) affirms that environments with considered degrees of disturbance, present a high specific richness, mainly of invasive species, that however, when the degrees of environmental alterations increase, they diminish the number of these species.

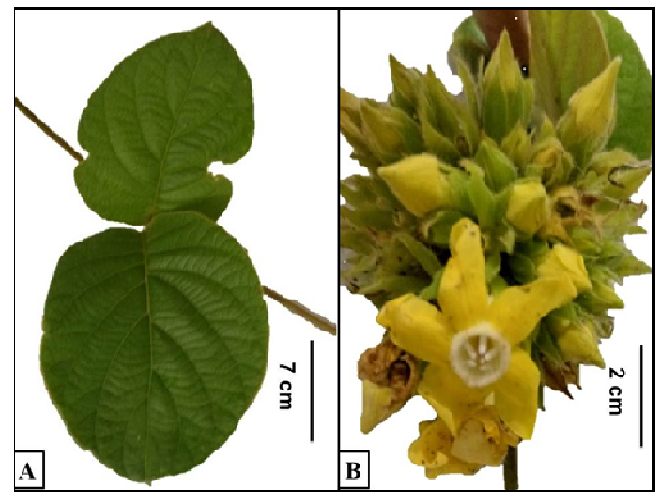


Figure 1. *Prestonia bahiensis*. A. branch with opposite leaves. B. Branch with inflorescence (Showing flower details). Source: Nascimento, J.M. 2019

In Brazil *P. bahiensis* occurs in the Northeast and Southeast regions, in the states of Espírito Santo, Minas Gerais, São Paulo, Bahia, Piauí, Ceará, Paraíba, Pernambuco and Alagoas, and now Maranhão. According to Rio and Kinoshita, 2005 the species is rare and had not yet been collected in São Paulo, possibly extinct in this state. In Minas Gerais it occurs with some frequency, but it is more common in Bahia, with some punctual collections in the other States of Brazil. As for taxonomic affinities, it can be easily confused with *Prestonia tomentosa*, but it is distinguished by the bright aspect of the dress, mainly on the abaxial side of the leaves and by the calycine colleters, only an opposite to each lacinia, deeply lacerated at the apex. In Maranhão beyond of *P. bahiensis*, the species *P. coalita* (Vell.) Woodson and *P. erecta* (Malme) J.F. Morales.

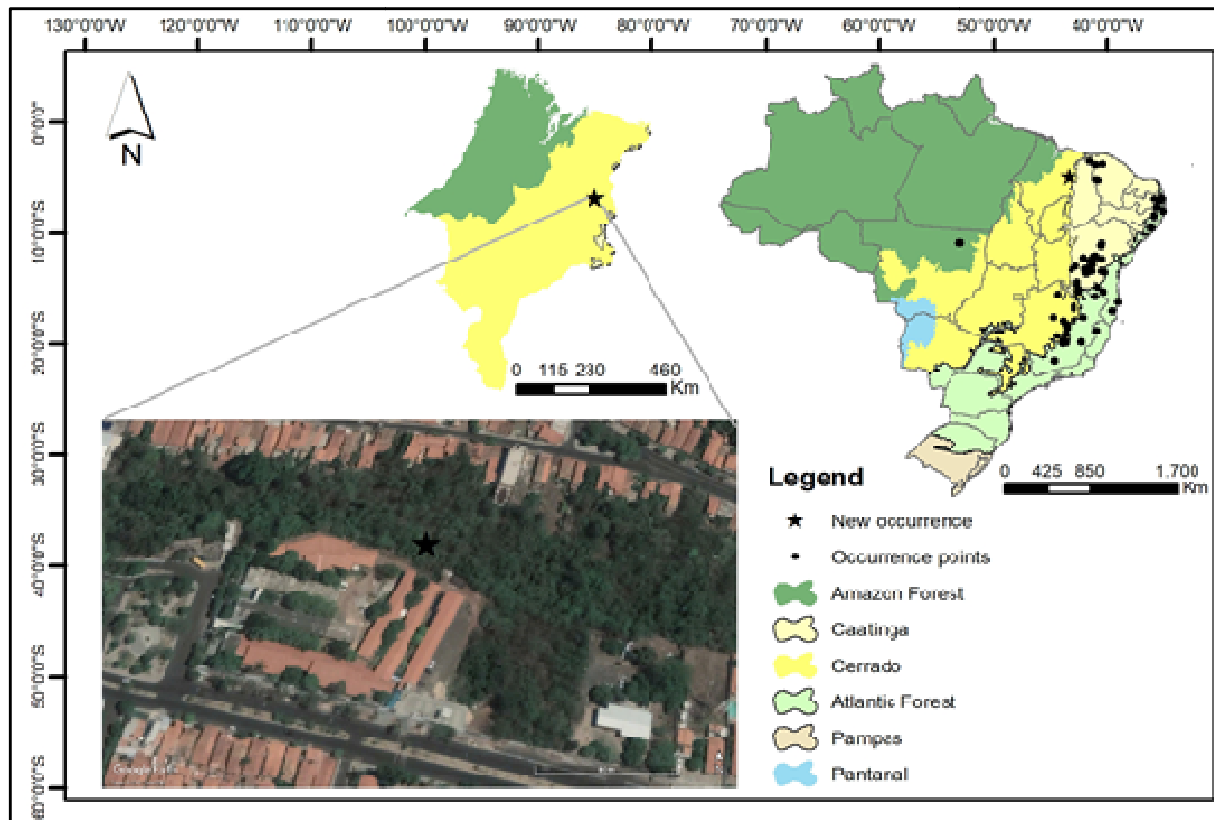


Figure 2. Map of distribution of *Prestonia bahiensis* Müll. Arg and collection location in Caxias/Maranhão, Brasil

The species are differentiated of *P. bahiensis* from the following diagnostic characters: corolla without suprastaminal appendages or with inconspicuous appendages in *P. coalita*, while *P. bahiensis* presents suprastaminal appendages, and subshrub habit, erect with corolla of lilac coloration in *P. erecta*, while *P. bahiensis* is a fickle liane with a yellow corolla (Rio and Kinoshita, 2005). There is no phylogeny that can include all the *Prestonia* species until now was elaborated, being unrecognized the phylogenetic position of *P. bahiensis*, but inferred that the genus is monophyletic, where in phylogeny published de Pugliesi and Rapini (2015) for the Apocynaceae (*P. mexicana* A. DC. and *P. lagoensis* (Müll.Arg.) Woodson in which they formed a clade closely related to species of the genus *Macropharynx* Rusby, *Peltastes* Woodson and *Teminadenia* Miers. As the phenology of the species its flowering is recorded from october to april, and fruiting from January to april.

### Conclusion

With the study, *Prestonia bahiensis* is the third species of the genus registered for the state of Maranhão, serving as the basis for the increase of the number of species of the genus and family Apocynaceae beyond of the registry, relevant information about the species was made available, mainly on the taxonomy, which added knowledge to the group. The geographic distribution data of the species were updated to Brazil, which contributed to the knowledge of the biodiversity and conservation of the species. Finally, greater collection efforts are encouraged in the state of Maranhão, especially for new rate records.

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