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New record of Fabaceae (Caesalpinioideae) for Brazil: *Dimorphandra davisii* Sprague & Sandwith

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ABSTRACT

The study presents the first occurrence of *Dimorphandra davisii* Sprague & Sandwith from Brazil, a species previously known only in Guyana and Venezuela. After examining the INPA and NY herbarium collections, it was verified that the species was collected in 1986 and occurs in the municipality of Presidente Figueiredo, in the state of Amazonas, but never registered for the Brazilian flora. The record of the species increases the floristic data of the Brazilian Amazon and contributes to the better knowledge of *Dimorphandra* in Brazil.

Keywords: Caesalpinieae; Distribution of species; Amazon Rainforest; Taxonomy.

Novo registro de Fabaceae (Caesalpinioideae) para o Brasil: *Dimorphandra davisii* Sprague & Sandwith

RESUMO

O estudo apresenta a primeira ocorrência de *Dimorphandra davisii* Sprague & Sandwith do Brasil, uma espécie conhecida apenas na Guiana e Venezuela. Depois de examinar as coleções dos herbários INPA e NY, verificou-se que a espécie foi coletada em 1986 e ocorre no município de Presidente Figueiredo, no estado do Amazonas, mas nunca registrada para a flora brasileira. O registro da espécie aumenta os dados florísticos da Amazônia brasileira e contribui para o melhor conhecimento de *Dimorphandra* no Brasil.

Palavras-chave: Caesalpinieae, Distribuição de espécies, Floresta Amazônica, Taxonomia.

The genus *Dimorphandra* belongs to the family Fabaceae, subfamily Caesalpinioideae, described by Schott in 1827, type species *Dimorphandra exaltata* Schott (SILVA, 1986). In the infrageneric classification, it presents three subgenera: *Dimorphandra*, *Phaneropsia* and *Pocillum* (BENTHAM, 1840; TAUBERT, 1894). It is considered a neotropical genus with 26 described species of which 22 occur in Brazil (SILVA, 1986; BFG, 2015).

All species of the genus are woody, small to very large trees (3-50 m), having as main morphological characteristics bipinate leaves with alternate leaflets, and the androceutic system having five alternating epipetal stamens and five staminodes (SILVA, 1986; SOUZA et al., 2017).

Dimorphandra is distributed in tropical forests of the New World, occurring mainly in Brazil and in neighbouring Bolivia, Colombia, Guyana, Peru and Venezuela (SILVA, 1986; MATOS, 2015). In Brazil, it occur in the Amazon, Caatinga, Atlantic Forest and Cerrado, with some species having very restricted distributions such as *D. campina-ranum* Ducke and *D. urubuensis* Ducke in the Amazon, and *D. wilsonii* Rizzini in the Cerrado, so they can be considered as endemic to these phytogeographic domains while other species such as *D. gardneriana* Tul. and *D. mollis* Benth., have ample distributions (SILVA, 1986; MATOS, 2015; BFG, 2015).

Sandwith (1932) proposed four new entities of *Dimorphandra* including *D. davisii* Sprague & Sandwith, a species then known only in Guyana and Venezuela at altitudes ranging from 130 to 1000 m, inhabiting savannas and rain forests on slopes, near riverbanks and waterfalls, on white sand soils (BERNARDI, 1957; SILVA, 1986; BFG, 2015). *D. davisii* has a generally smooth, finely scaly, or only slightly roughened bark, and the leaflets usually covered by a thin layer of white wax, being the main characteristic of the species (SANDWITH, 1932; SILVA, 1986).

The sampling of new occurrences is quite evident in the genus, since very little has been studied about the geographic distribution of the group, since 1986 when the last classification was proposed until the present work, many new collections of *Dimorphandra* have been made leading to an imprecise estimation of the current geographical distribution of many species. Through a project of revision of the genus, with consultations to several collections of herbariums, the first occurrence of *D. davisii* in Brazil was obtained. This work provides the first record of the species in a locality of the State of Amazonas, northern region of the country.

Dimorphandra collections from the herbariums INPA and NY (the acronyms follow THIERS, 2017) were analyzed, during the taxonomic revision project of the group. In the process of evaluation of the botanical material, the recognition of *D. davisii* was obtained, composing the herbarium collection, from a single collection in 1986. For the correct certification of the identification of the species, specific literatures such as monographs and references on the genus were analyzed (DUCKE, 1925, SANDWITH, 1932; SILVA, 1986), comparisons were also made with herbarium samples, as well as with images of the type specimens.

Morphological descriptions of the species were elaborated using the terminology Radford et al. (1974); Rizzini (1977); Stearn (1985); Harris and Harris (2001) and Barroso et al. (1999), in addition to specific terms obtained in generic reviews of Ducke (1925) and Silva (1986). An occurrence map of the species in South America was generated using the QGIS 2.18 Las Palmas software based on the collection data sampled in Silva (1986).

Dimorphandra davisii Sprague & Sandwith, Kew Bull. 1932: 400. 1932. Figure 1

Species Typus: Guiana. "Mazaruni-Kuribrong Divide, between Camp 9 and 10. White sand hill," nov 1926 (fl), Davis 895 (holótipo, K; isótipo, NY; fototípo, GH, NY, S, US). Synonyms: *Dimorphandra mari* Pittier, name cited as synonym in Bemardi, Est. Bot. Pluv. del Rio Apacara, region de Uriman 63: 46-48. 1957.

Tree, to 15 m in height and 25 cm in diameter, often dominant in the area of its occurrence; bark cracked, grayish; dense, open crown, and the extremity of the branches glabrescent, lenticelated. Leaves 2-pinched, petiolate, 25 cm in length, with 2 pairs of opposing pinna; petiole sparsely pubescent, 4.5-5 cm long; 1,5-3 cm long primary petiole; pinasse with 2-4 pairs of alternate petiolate leaflets; leaflets eliptic, 4-6 cm long by 2.5-3.5 cm wide, petiolate, carotenoids to subcartaceos, discolored, brilliant, glabrous with a thin layer of white cerifera substance on the upper face, on the lower cinereo-puberulent; base rounded to faint, slightly obtuse; apex shortly acute-acuminate, and entire margin, secondary petiole 2-4 cm long. Secondary veins about 12 prominulous pairs on the upper face, at the lower prominent. Flower absent. Fruit of the legume type straight to the slightly recurved, dark red to brown, oblong, 10-15 cm long by 2.5-3 cm wide, woody and elastically dehiscent, narrow base, spurred; apex acuminate; 1 mm in length.

Specimens examined: BRAZIL: Amazonas: Presidente Figueiredo. Lat: 1°55 '30" S – Long. 59° 24'47" W, 17/VII/1986, fr., C. A. C. Ferreira, E Fiuza and W. W. Thomas *7599* (INPA140986) (NY01161220[fr]) (NY01161626[fol]) US3331089, MO3245227.

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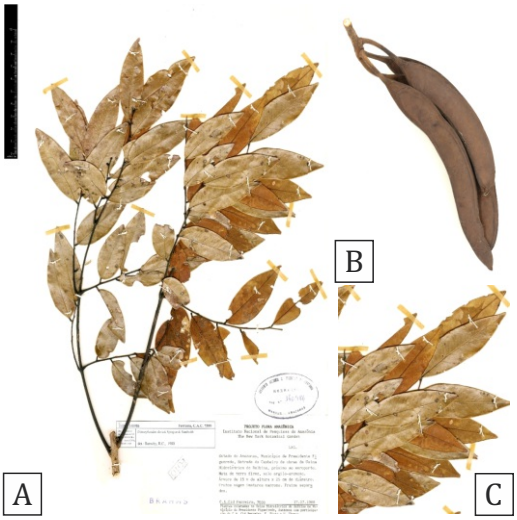

Figure 1. *Dimorphandra davisii*. A. Exsicata of the Material Examined. B. Fruits. C. Discolored leaflets with a layer of white **wax** on the upper surfasse. / **Figura 1**. *Dimorphandra davisii*. A. Exsicata do Material Examinado. B. Frutos. C. Folíolos discolores com camada de substancia cerifera branca na face superior.

This new record of *Dimorphandra davisii* in Brazil, is from the municipality of Presidente Figueiredo-AM, on the road to the construction site of the Balbina Hydroelectric Plant, near the airport (Fig. 2). It was collected during an expedition of Projeto Flora Amazônia (PFA), in collaboration between the National Amazon Research Institute (INPA) and the New York Botanical Garden of in 1986 (financed by CNPq and NSF). Duplicates of these collections from these expeditions were divided equally between NY and INPA, who distributed the duplicates. Rupert Barneby identified the specimen as *D. davisii* in 1990, and the NY, MO and US specimens bear this identification. The mounted INPA specimen continued unidentified until 2011, when the identification was repatriated through photography of the PFA collectors books in NY, made during another collaborative project, again financed by CNPq and NSF. The locations of the duplicates distributed by INPA have not been established, but there should present be at least two other Brasilian herbaria.

Dimorphandra davisii was originally placed in the *Pocillum* section and was moved to the *Phaneropsia* section according to Amshoff (1939), who considered its placement in the section *Pocillum* (by SANDWITH, 1932) erroneous because it was based on sterile characters because the fruits were then unknown, but when available, indicated a better placement in the *Phaneropsia* section, which Silva (1986) followed in his review of the genus.

The vegetation of the site of collection is characterized by a physiognomy of Mata de Terra Firme with clay-sandy soil. According to Silva and Silva (2008), the vegetation cover of the municipality of Presidente Figueiredo is mainly made up of dense ombrophilous forest of terra firme and although the region has undergone a great exploration the vegetation is still largely constituted by natural forests, with few areas disturbed by anthropic action (ELETRONORTE/IBAMA, 1996). In the area of the Balbina Hydroelectric Plant where the species was collected, the vegetation was destroyed with track tractors, to leave the area as sterile as possible, to minimize eutrophication, but generating a strong anthropization (FEARNSIDE, 2015).

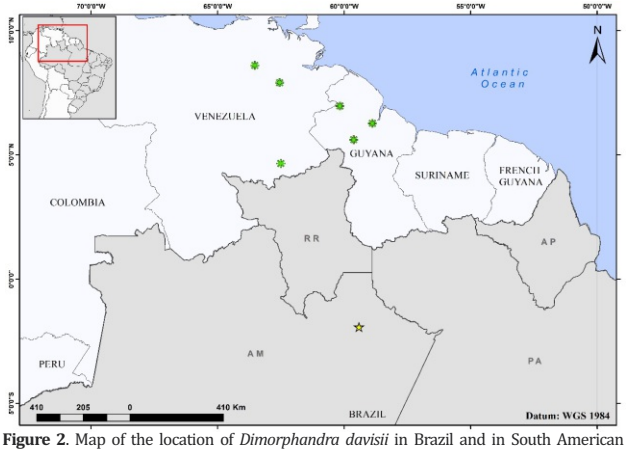

Figure 2. Map of the location of *Dimorphandra davisii* in Brazil and in South American countries. Datum used WGS 1984. / **Figura 2.** Mapa da localização de *Dimorphandra davisii* no Brasil e em países da América do Sul. Datum usou WGS 1984.

Collected for the first time in Guyana, *Dimorphandra davisii* was later found in Venezuela, where apparently judging from available material seems to be more frequent, with very peculiar individual characters, not showing any affinity with another species of the genus (SILVA, 1986).

The collection data contribute to increase the knowledge of the phenology of the species, where the fruiting was recorded only in the months of January, May and November according to Silva (1986), and the month of July is now added. Phenological data also indicate that the period of flowering of the species is recorded in January, April, May, August, September, October and November, not occurring in July month that the species was collected, justifying the absence of flowers in the material, according to Bernardi (1957) cites that the natural reproduction of *D. davisii* by seeds is abundant and the seedling is easily recognizable by its young red leaves.

The work records the occurrence of *D. davisii* for Brazil, but it is possible to notice how much the information of geographic distributions is scarce and need to be evidenced and updated. According to Amador et al. (2013) and Luize et al. (2015) biogeographic information on how the Amazonian plants are distributed are important because they show knowledge gaps in the occurrence and distribution of species for these environments.

Although *D. davisii* occurs in other countries and is now registered in the Brazilian Amazon, the new occurrence of the species reinforces the need for more collections in Brazil, especially in relation to the Amazonian biome, which has a very low sampling of collections and deficits knowledge of plant diversity.

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