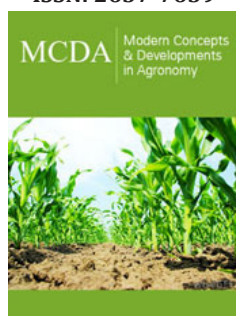


Dioscorea genus: A Possible Ally in the Sectors of Agriculture, Food Security and as a Source of Inputs for the Pharmaceutical Industry

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Abstract

Relevance: According to the State of World Food and Nutrition Security, more than 820 million people remain hungry and 2 million are moderately or severely food insecure. The search for new raw materials rich in nutrients and present in Brazilian biodiversity is a new challenge, considering that in the current menu, only 30 species are food sources for 95% of the world's population. It is expected that new advances in research and new cultivation technologies favor the agriculture of new species with potential use as food and input for the pharmaceutical industry. In this context, we consider that the *Dioscorea* genus with more than 150 native species, and with some species cultivated and used in food, can be better explored as new matrices rich in nutrients for consumption and as an input for the pharmaceutical industry. The cultivation of *Dioscorea* species, today is developed with outdated technologies and practiced by small farmers and consequently difficult to maintain production and a delicate harvest requiring new research and technologies to increase productivity and in post-harvest operations.

Objective: this review aims to provide data on native species of *Dioscorea*, as a possible ally in the search for efficiency in the agricultural sector; food safety and source of inputs for the pharmaceutical industry.

Methodology: it was based on data from scientific publications (2000 and 2020) collected in scientific databases using the keywords: Dioscoreaceae, *Dioscorea*; "igname"; "yam" and "cará".

Result: *Dioscorea* species native to Brazil have chemical diversity, richness of nutrients and other metabolites, justifying their potential use in food and input for the pharmaceutical industry and other possible applications, as we have shown.

Conclusion: New research approaches and new technologies applied to the study of native species in Brazil can generate knowledge in fighting hunger and in the search for target molecules that can be commercially exploited, promoting innovation in all sectors and environmental preservation as well as sustainable use.

Keywords: *Dioscorea*; Chemical composition; Pharmacological activities; "igname", "Cará", "Yam", Food

Introduction

From studies initially carried out by Brown in 1819, he identified the family Dioscoreaceae, with the name Dioscoreae. Currently according to Marbberley, 2008, the genus is composed of 850 species distributed in 8 genera, the vast majority belonging to the genus *Dioscorea*, with approximately 95% of the species.

The popular name "yam" or "cará" of several *Dioscorea* species possibly came from the translation of the word "yam" of American origin taken from the French and English colonies of Africa. As for the word yam, by reading the old Brazilian historical documents, it appears to be of indigenous origin. In the Portuguese language, the differentiation of the terms "igname" and "yam" occurs according to the space in which it is inserted, especially in the northeast of Brazil, there is a tendency for the term "igname" to be applied to the large tubers of *D. cayenensis* and the term yam to smaller tubers such as *D. alata* [1]. As written by Pedralli [2], it is estimated that between 150 and 200 species of *Dioscorea* occur in Brazil, the only genus of

the family present in all regions of the country. The main motivation for this review was based on preliminary research on the potential antioxidant effect of *Dioscorea dodecaneura* leaves collected from the Seedling Nucleus, of the Instituto do Meio Ambiente, SP.

The Northeast region, is the main producing region of “igname” (*Dioscorea* sp.), using predominantly family labor, with low technological levels, which harms the genus productivity, however, the cultivation of “igname” (*Dioscorea* sp.) has been growing in recent years [3]. “*Dioscorea cayennensis* Lam. and *D. alata* L. with the respective cultivars “da Costa” and “São Tomé” are the species most used in the food crops in Brazil. The first is grown in the Northeast and the second in the North, South and Center South, with São Paulo being the most important producing state [4]. With the increase in the world population, concentrated in urban centers and with access to technological advances, the less favored populations, especially those from less developed countries or regions, connect to these advances in an unequal way, showing the vulnerability of those who cannot keep up globalized growth, unrestrained capitalism and suffer from internal conflicts, due to the governmental instability of their countries, the climate change effects, which cause natural disasters, which will influence in the agricultural and industrial sectors, making it difficult to apply public policies to reduce differences.

Association of those factors, the emergence of new diseases, caused by hunger and environmental problems, such as the lack of ecological succession, due to rampant deforestation, the increase in pollution, caused by the burning of fossil fuels, among others and those that they focus on the current system of production of consumer goods and food, which is antagonistic to the development of food security and, consequently, to the increase in the diversity of raw materials for healthy eating, creating new social, economic, cultural and nutritional challenges, that will benefit health of the world population. According to The State of Food Security and Nutrition in the World, more than 820 million people are still hungry and 2 million people suffer from moderate or severe food insecurity view of the current demand for food security and the challenges to be faced, the introduction of new raw materials rich

in nutrients and present in Brazilian biodiversity is fundamental and necessary, considering that 75,000 species have potential use as edible plants and only 200 species have in the food menu, among which, only 30 species reach 95% of the world population’s [5]. The genus *Dioscorea* can become a great ally to this new self-sustainable and efficient front, based on the potential of their species and its varieties rich in the organic compounds with antioxidant and antimicrobial activities and nutrients with high food value.

However, there is still a scientific ineffectiveness in relation to cultural aspects, bromatological, phytochemical, biochemical, toxicological studies involving all parts of the plant (roots, tubers, leaves, stem and flowers) essential to effective use of these species. “There is an increasing intensification in the search for functional foods, among which the Liliatae family (monocotyledon) stands out, being the species *Dioscorea* sp of great interest.” (Brito et al, 2011).

Material and Methods

The methodology used in the construction of this review about the potential of the genus *Dioscorea* was based on data from scientific publications, dated between the years 2000 and 2020. The data were collected from the scientific bases: Scielo, Google Academico and the Periodicals (Portal CAPES). Where the following keywords were used: *Dioscorea*; Dioscoreaceae; yam, igname and cará. From the data obtained in the research, an inclusion and exclusion protocol were carried out in order to select and combine the relevant properties related in those reviews.

Result and Discussion

The *Dioscorea* genus

The genus is found in all Brazilian states, as shown in Figure1, having corresponding species in all biomes, in addition to being composed of annual species, which makes it a very important genus in the food, pharmacological and industrial áreas. The diversity of functions in which the genus can be classified, such as: food, nutritional source, bioactive, hormones, biofilm, paper industry, among others, stimulate and justify the need for knowledge of the species.

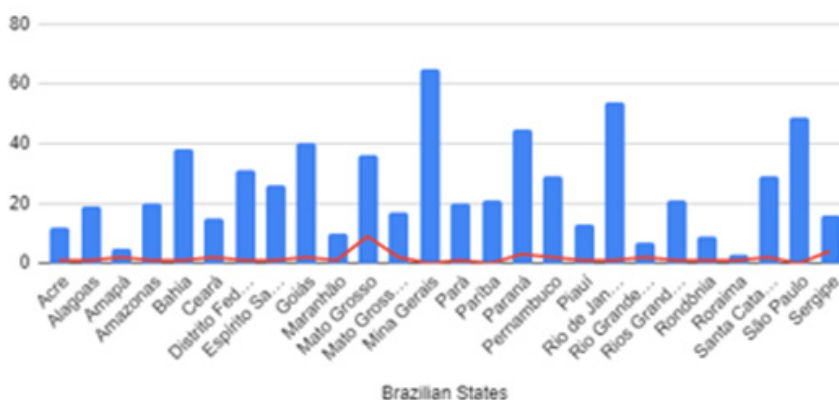


Figure 1: Confirmed occurrence and possible occurrence of the *Dioscorea* genus.

In general, *Dioscorea* genus is composed of creepers, dioecious or monoecious, tuber form or rhizomatous underground system and herbaceous stem. Alternating leaves, sometimes opposite, entire blade lobed, 3-11 primary ribs; petiole with basal geniculate sometimes turned into spines. Stem inflorescence raceme simple or with tops, panicle or ear; pistil spike inflorescence; angled, winged racquet; stalk sometimes almost sessile. Unisex, homoclamid flowers; trimer perigone, tube and sepals of variable length. Stemmed solitary flowers, in glomeruli or tops; stamens 3 or 6; staminodes 3 or absent. Sessile pistil flowers; staminodes 3, 6 or absent; free or pyramidal stylets; 3-locular ovary; ova 2 per locule. 3-winged capsule; seeds with a circular or posterior wing [6].

The differentiation between yam and ingame in Brazil is complex and varies from region to region, what is called yam in the Southeast is called ingame in the Northeast and vice versa. However, according to the horticultural definition of the species: the yam belongs to the genus *Dioscorea*, it is a climbing plant that, as it grows, emits branches, and its vegetable consumption product is a tuber, usually with large sizes. The cará, on the other hand, belongs to the genus *Colocasia esculenta*, composed of herbaceous plants.

Culture productivity

The *Dioscorea* genus is composed of plants of relevant importance for man and for the agricultural economy and the pharmaceutical industry. According to Mesquita [7] the main reason for the product of agricultural and industrial exploitation is the tuber, is due to its chemical and phytochemical composition, which showed expressive levels of essential nutrients for human life, such as: carbohydrates, essential amino acids, pro-vitamin A, pro-vitamin D, vitamins C and B complex, minerals (Ca, P and Fe). Therefore, the active organic compounds that relate these pharmacological effects, which guarantee its use in folk medicine and other with as an input in the synthesis of steroids hormones, as the cortisone. This *Dioscorea* genus has economic and social value in many areas where cultivation occurs. Some traditional ceremonies are celebrated with yam as the main food, as well as at the Yam Festival in parts of West Africa. Yam production and use is declining in many production areas due to maintenance that demands high demand and the delicate nature of the harvest. Smallholder farmers who produce most of the harvest need access to innovation, which would reduce labor and bring productivity at all levels (on the farm and post-harvest operations) [8].

Dioscorea species are neglected for lack of scientific information that can make their production efficient and profitable for small farmers, since they are the producers of the cultivars, in its majority. The species suffer from a lack of inputs such as: fertilizers, good quality seeds, advances in the breeding sector, which provide a decrease in the incidence of problems related to climate, diseases, pests, planting, post-harvest and with the scarcity of marketing that can enable product insertion for the industrial and family consumer market.

The profitable and commercially and culturally attractive production chain for small producers of the genus and for

possible new producers and new trade networks in general, is sustained from substantial information about the difficulties and potential of the same and the lack of information about the genus has numerous consequences that affect this production chain, as an example, one of the main limitations in the production of yams is anthracnose, attributed to the pathogen *Colletotrichum* (*Ascomycota*, *Glomerellaceae*, *Sordariomycetes*). Anthracnose of yam is characterized by causing damage to the foliage, initially small brown spots appear which then expand causing the complete darkening of the leaf blade. When the disease is very advanced, defoliation is complete. Anthracnose reduces the photosynthetic efficiency of yam plants, affecting yield [9].

Evaluation and chemical composition

The most studied approaches within the scientific community are the potential of starch in its composition and its applicability to other sources of starch; and the study of plant composition, bromatological, phytochemical and nutritional individual for each species in comparison with other species, with the tuber being taken as the main source of study.

In their studies Feijó et al. [10] obtained the character flour in experiments on laying birds, and the following values were obtained in its chemical composition, 95.54% dry matter, 2.65% protein gross; 2.69% Crude Fiber; 7.45% Fiber in Neutral Detergent; 3.64% Fiber in acid detergent; 3.2% of Mineral Matter; 86.6% of non-nitrogen extracts; 3730.73Kcal/kg of Gross Energy and EM 3489.81Kcal/kg the high levels of gross and metabolizable energy obtained characterizes it as an energetic food and with a potential substitute for corn in diets for pigs in the finishing phase. Corroborating the use to feed the flour of yams, Tavares [11], presented data that point the flour of yam-purple as a potential ingredient in the feeding of pigs in the finishing phase, presenting an available energy of 3360Kcal/g and good values in centesimal composition.

Within the compositional front of the study, the tuber is the main part of the plant used to discover food functions and possible sources of bioactives, in contrast, the number of studies based on the characterization of the other constituents of the plant is insufficient, which may be, this gap of information, one of the aspects that makes the production of this species forgotten among the production chains, hindering productive efficiency, the flow of production and its residues (leaves, stems and roots). According to Magalhães 2004, in a comparative study between the leaves and the tuber of *Dioscorea alata* presented the following results for 100g on dry basis, respectively, fibers (42.65%; 22.58%), proteins (17.52%; 8.28%) lipids (4.42%; 2.09%), carbohydrates (58.28%; 76.96%), phosphorus (22.08%; 0.63%), iron (8.83%; 4.00%), sodium (73.82%; 30.70%) and potassium (45.87% 65.90%). These data presented by Magalhães demonstrate the potential of the leaves of a species of *Dioscorea*, which may or may not correspond to other species, leading to the level of food waste that is treated as useless residue of the genus, but which may have social, cultural advantages and economical for small rural producers.

The research carried out by Souza Gomes, C.; Pacheco Ferreira, L.; dos Reis Nunes, C.; Teixeira Azevedo, F. (2014) covers the perspective of the post-harvest, of the forms of commercialization, characterization of the constituents of the tuber, and quantitatively, the differences in the physical-chemical composition of the yams (*Dioscorea* Sp.) In natura and after cooking process (15 minutes and 30 minutes), which obtained significant values, respectively, in the

percentage of: vitamin C (8.6 ± 0.01 ; 3.35 ± 0.01 ; 2.04 ± 0.01), soluble solids (7.5; 15; 15) and reducing sugars (0.42 ± 0.01 ; 0.69 ± 0.01 ; 0.57 ± 0.01). In addition to presenting antioxidant potential in all concentrations tested, there was no variation in the scavenging of free radicals in the fresh samples and there was variation in the samples that were cooked, as shown in graphic 2, done by the researchers (Figure 2).

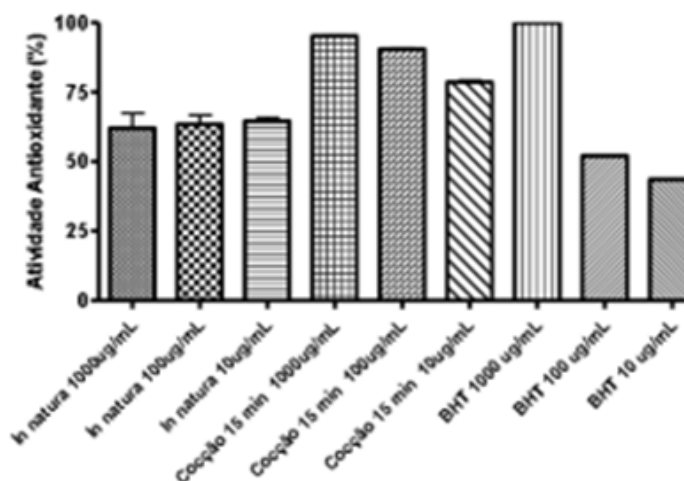


Figure 2: Percentage of antioxidant activity of the yam sample in natura and after cooking process for 15 minutes.

Potentialities of the *Dioscorea* genus

The growing demand by a portion of the population, in changing the “normal” consumption of all goods, involves the way you buy, defining you politically, socially, culturally and educationally, placing in the agenda how what is being acquired was generated, if there were and there are environmental impacts, if they are fostered by justice and equality, if it is organic, conventional, agroecological, if it was tested on animals, if it is produced from animals, among so many other struggles for changes. Which leads to the question: how to generate change from a consolidated system? and the answer to the question whether many “depend”, however the most promising path to be followed leads to the search for natural, organic products, with minimal environmental, cultural and social impact. Several plant species are unknown, or neglected, and these neglects may be hiding different paths for change, and the genus *Dioscorea* is a possible source of neglected innovation.

The association of certain cultures, such as yam, it’s commonly associated in a scenario of poverty, misery and low-income communities. This is opposed to the extent that this marginalization of the species (a plant that can be considered “orphans”) occurs, even in the face of so many contributions provided by them in maintaining life mainly in human health, food and source of biologically active metabolites. In addition, Brazil, into these species being neglected, threatened with extinction and ignorance, they are increasingly “forgotten” on the table of the rural and urban population [12].

The added value of secondary metabolites or natural products (PN) obtained from plants is increasingly important for the survival of living beings on the planet. However, thousands of native species existing in Brazilian biomes still do not have studies in related areas, such as Botany, Ecology, Physiology, Biochemistry, Chemistry of Natural Products and Agronomy and many other species have been studied, but still in an incipient way in these areas, which it generates ignorance and lack of information for producers, manufacturers of service goods, and consumers.

Dioscorea species have several beneficial properties, in particular, they exercise significant antioxidant activity and have the ability to reduce serum lipid levels in humans [13]. In the Amazon Region, the purple yam (*D. trifida*) can be consumed in different ways, just as its flour can be added in the development of breads, pies, cakes and porridges. However, research on this tuber is still scarce and consequently its nutritional properties are not known [14].

The genus *Dioscorea* is of great importance in the pharmaceutical sector for supplying diosgenin, a saponin, isolated for the first time in the genus *Dioscorea*, by Japanese researchers in 1936. The conversion of diosgenin into its steroidal sapogenin and later changed to progesterone occurred in 1940, and the first industrially exploited species were *D. composita* and *D. floribunda* [15]. Diosgenin is also an input for obtaining on an industrial scale in the production of steroidal drugs, including oral contraceptives, topical hormones, systemic corticosteroids, androgens, estrogens,

progesterone's, but its availability has been lower than the supply required by the pharmaceutical industry [16]. Hu et al. [17], isolated a saponin from the rhizome of *D. collettii* and tested the in vitro cytotoxicity in cancer cell lines, the saponin furostanol showed cytotoxic activity against acute human leukemia, besides presenting potential for colon cancer cure.

Studies carried out in China describe that the presence of physiologically active components such as polysaccharides, saponins and mucins in purple yam are used as antitussive, antidiarrheal and hypoglycemic, as they present satisfactory effects of the lyophilized powder product, and also act as a good anti-inflammatory natural (Miyoshi et al., 2011; Park et al., 2013).

The two species *Dioscorea alata* and *Dioscorea cayennensis* produce tubers, popularly known as yam or yam, respectively, they are the most well-known and cultivated species in traditional farmers' fields in several states in Brazil. Cultivation is widespread in the Amazon, as it is present in the diet of the local population, and its use associated with these tubers has a high nutritional value, due to the high concentrations of carbohydrates, proteins, phosphorus, calcium, iron and vitamins B1 and B2 [18]. According to Zárte et

al. [19], *Dioscorea alata* can be used by the food industry, because it has several characteristics and similarities with cassava and its starch, both in flavor and texture. According to Leonel et al. [20], among the species studied, *Dioscorea* sp. showed higher yield per area (6.1ton/ha) in starch production.

The raw tuber of *Dioscorea piperifolia* is considered to be toxic, but it becomes edible after being subjected to long cooking. Tuberculous rhizomes are also used in food after prolonged cooking. In folk medicine, leaves are used as an emollient. However, the biological potential of this species is nonexistent in the literature [15]. According to experiments carried out by Lopes [21], the extracts in hexane, dichloromethane (DCM), ethyl acetate (AcOEt), and n-butanol (n-But) from the leaves of *D. piperifolia*, when subjected to several tests using the agar diffusion, to evaluate the ability to inhibit the growth of pathogenic microorganisms, showed positive results, inhibiting the growth of *Escherichia coli* and *Cryptococcus neoformans* [22-32]. The results also showed that the relationship between the microbicide/micro biostatic effect of the extracts showed effects, except for *E. coli* butanol extract and methicillin-resistant *Staphylococcus aureus* (MRSA) in the extractions with DCM and AcOEt of the tubers [33-40] (Table 1).

Table 1: Species of the *Dioscorea* occurring in Brazil according to Flora do Brasil 2020.

Scientific and Popular Name	Origin, Possible Endemism and Occurrence in Brazil	Reference
<i>D. acanthogene</i> Rusby	Native. Endemic of Brazil. Confirmed occurrence: Bahia; Acre; Rondônia; Tocantins; Goiás; Mato Grosso; Mato Grosso do Sul; Minas Gerais.	Rusby, Bull. New York Bot. Gard., 6: 492, 1910.
<i>D. adenantha</i> Uline ex R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Minas Gerais.	Uline ex R. Knuth, Das Pflanzenreich IV, 43: 79, 1924.
<i>D. aesculifolia</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Mato Grosso do Sul; São Paulo.	Knuth, R., Pflanzenr. (Engler), IV, 43: 170, 1924
<i>D. alata</i> L.	Cultivada. Endemic to the Asian Continent. Confirmed occurrence: Amazonas; Rondônia; Roraima; Maranhão; Distrito Federal; Mato Grosso; Minas Gerais; Rio de Janeiro; São Paulo; Paraná. Possible occurrence: Acre; Amapá; Alagoas; Ceará	Linnaeus, C., Sp. Pl: 1033, 1753.
<i>D. amaranthoides</i> C.Presl	Native. Confirmed occurrence: Acre; Amazonas; Pará; Rondônia; Bahia; Distrito Federal; Goiás; Mato Grosso do Sul; Mato Grosso; Minas Gerais; São Paulo Possible occurrence: Amapá; Paraná.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 215, 1917.
<i>D. amazonum</i> Mart. ex Griseb.	Native. Confirmed occurrence: Acre; Amazonas; Amapá; Pará; Rondônia; Roraima; Mato Grosso.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 217, 1917.
<i>D. anomala</i> Griseb.	Native. Endemic of Brazil. Confirmed occurrence: Goiás; Minas Gerais.	Grisebach, A.H.R., Fl. bras., 3(1): 31, 1842. Ano??
<i>D. argyrogyna</i> Uline ex R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Mato Grosso.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 204, 1917.
<i>D. aspera</i> Humb. & Bonpl. ex Willd.	Native. Confirmed occurrence: Minas Gerais; Santa Catarina.	Humb. & Bonpl., Sp. Pl., 4: 794, 1806.
<i>D. asperula</i> Pedralli	Native. Endemic of Brazil. Confirmed occurrence: Distrito Federal; Goiás; Minas Gerais.	Pedralli., G., Napaea, 8: 29, 1992.
<i>D. bahiensis</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Bahia	Knuth, R., Pflanzenr. (Engler), IV, 43: 351, 1924.
<i>D. basiclavicaulis</i> Rizzini & A. Mattos	Native. Endemic of Brazil. Confirmed occurrence: Bahia; Espírito Santo; Minas Gerais	Rizzini, C.T. & Mattos-Filho, A., Revista Brasil. Biol., 46: 317, 1986.
<i>D. beecheyi</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Santa Catarina	Knuth, R., Pflanzenr. (Engler), IV, 43: 58, 1924.
<i>D. beyrichii</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Rio de Janeiro; Goiás	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 210, 1917.

<i>D. bradei</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Rio de Janeiro	Knuth, R., Repert. Spec. Nov. Regni Veg. Beih., 42: 177, 1937.
<i>D. bulbifera</i> L. Cará-da-árvore; Cará-moe-la; Cará-do-ar.	Naturalized. Endemic to Africa, Índia. Confirmed occurrence: Amazonas; Bahia; Ceará; Maranhão; Pernambuco; Mato Grosso do Sul; Minas Gerais; Rio de Janeiro; São Paulo; Paraná.	Linnaeus, C., Sp. Pl.: 1033, 1753.
<i>D. bulbotricha</i> Hand. - Mazz.	Native. Endemic of Brazil. Confirmed occurrence: São Paulo; Paraná; Santa Catarina	Handel-Mazzetti, H.R.E., Denkschr. Kaiserl. Akad. Wiss., Wien. Math.-Naturwiss. Kl., 79: 221, 1908.
<i>D. calcarea</i> R. Knuth	Native. Endemic unknown. Confirmed occurrence: Paraná.	Knuth, R., Pflanzenr. (Engler), IV, 43: 84, 1924.
<i>D. caldasensis</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Minas Gerais.	Knuth, R., Pflanzenr. (Engler), IV, 43: 112, 1924.
<i>D. campanulata</i> Uline ex R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Rio de Janeiro.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 189, 1917
<i>D. campestris</i> Griseb. Cará-casco-de-c avalo; Cará-do-campo.	Native. Endemic of Argentina. Confirmed occurrence: Pará; Alagoas; Bahia; Ceará; Paraíba; Pernambuco; Piauí; Rio Grande do Norte; Sergipe; Distrito Federal; Goiás; Mato Grosso do Sul; Mato Grosso; Espírito Santo; Minas Gerais; Rio de Janeiro; São Paulo; Paraná; Rio Grande do Sul; Santa Catarina.	Grisebach, A.H.R., Fl. bras., 3(1): 30, 1842
<i>D. campos-portoi</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Rio de Janeiro	Knuth, R., Repert. Spec. Nov. Regni Veg. Beih., 42: 176, 1937.
<i>D. cayennensis</i> Lam. Cará-da-costa; Inhame; Inhame-de-Pernambuco.	Cultivada. Endemic to Western Africa. Confirmed occurrence: Bahia; Ceará; Paraíba; Pernambuco; Minas Gerais; Rio de Janeiro.	Lamarck, J.-B., Encycl. Biol., 3: 233, 1789
<i>D. ceratandra</i> R. Knuth	Native. Endêmica of México. Confirmed occurrence: Tocantins; Distrito Federal; Goiás; Minas Gerais; Rio de Janeiro; São Paulo; Paraná; Santa Catarina. Possible occurrence: Ceará.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 207, 1917.
<i>D. chondrocarpa</i> Griseb. Cará-espinho; Cipó-jacaré; Inhame-de-espinho.	Native. Confirmed occurrence: Acre; Amazonas; Pará; Rondônia; Tocantins; Alagoas; Bahia; Paraíba; Distrito Federal; Goiás; Mato Grosso do Sul; Mato Grosso; Espírito Santo; Minas Gerais; Rio de Janeiro, São Paulo; Paraná; Rio Grande do Sul; Santa Catarina. Possible occurrence: Pernambuco; Sergipe.	Grisebach, A.H.R., Fl. bras., 3(1): 34, 1842.
<i>D. cienegensis</i> R. Knuth	Native. Confirmed occurrence: Paraná; Rio Grande do Sul.	Knuth, R., Notizbl. Bot. Gart. Berlin-Dahlem, 7: 200, 1917.
<i>D. cinnamomifolia</i> Hook. Cará-assu; Cará-de-índio; Cará-peluda.	Native. Endemic of Brazil. Confirmed occurrence: Alagoas; Bahia; Paraíba; Pernambuco; Distrito Federal; Goiás; Espírito Santo; Minas Gerais; Rio de Janeiro; São Paulo; Paraná; Santa Catarina. Possible occurrence: Rio Grande do Norte; Sergipe.	Hooker, Bot. Mag., 55: t. 2825, 1828.
<i>D. clausenii</i> Uline ex R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Goiás; Minas Gerais.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 215, 1917.
<i>D. commutata</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Santa Catarina.	Knuth, R., Pflanzenr. (Engler), IV, 43: 74, 1924.
<i>D. compacta</i> D. Araújo	Native. Endemic of Brazil. Confirmed occurrence: Tocantins.	Araújo, D., Antar; G.M. & Lombardi, J.A., Kew Bull., 71:27, 2016.
<i>D. contracta</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Minas Gerais.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 190, 1917.
<i>D. coronata</i> Hauman	Native. Confirmed occurrence: Paraíba; Pernambuco; Sergipe; Rio de Janeiro; São Paulo; Paraná; Rio Grande do Sul; Santa Catarina.	Hauman, L.L., Anales Mus. Nac. Hist. Nat. Buenos Aires, 27: 480, 1916
<i>D. corumbensis</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Tocantins; Maranhão; Distrito Federal; Goiás; Mato Grosso do Sul.	Knuth, R., Pflanzenr. (Engler), IV, 43: 241, 1924.
<i>D. crotalariifolia</i> Uline	Native. Confirmed occurrence: Amazonas; Pará; Amapá; Mato Grosso.	Uline, Nat. Pflanzenfam. [Engler & Prantl], Nachtr. 1: 85, 1897.
<i>D. curitybensis</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Paraná	Knuth, R., Pflanzenr. (Engler), IV, 43: 113, 1924.
<i>D. cuyabensis</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Mato Grosso.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 216, 1917.
<i>D. cynanchifolia</i> Griseb. Cará; Cará-roxa.	Native. Endemic of Brazil. Confirmed occurrence: Distrito Federal; Goiás; Espírito Santo; Minas Gerais; Rio de Janeiro; São Paulo.	Grisebach, A.H.R., Vidensk. Meddel. Dansk Natuhist. Foren. Kjøbenhavn, 1875: 156, 1875.
<i>D. debilis</i> Uline ex RD. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Bahia; Minas Gerais. Possible occurrence: Tocantins; Goiás.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 210, 1917.

<i>D. deflexa</i> Griseb.	Native. Endemic of Brazil. Confirmed occurrence: Minas Gerais. Possible occurrence: Mato Grosso.	Grisebach, A.H.R., Vidensk. Meddel. Dansk Natuhist. Foren. Kjøbenhavn, 1875: 157, 1875.
<i>D. delicata</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: São Paulo; Paraná; Santa Catarina.	Engler, H.G.A. (ed.), Pflanzenr. (Engler), IV, 43: 61, 1924.
<i>D. demourae</i> Uline ex R. Knuth	Native. Confirmed occurrence: Bahia; Pernambuco. Distrito Federal; Minas Gerais; Rio de Janeiro; São Paulo; Paraná; Rio Grande do Sul; Santa Catarina.	Knuth, R., (Notizbl. Bot. Gart. Berlin-Dahlem, 7: 199, 1917.
<i>D. diamantinensis</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Minas Gerais. Possible occurrence: Mato Grosso.	Knuth, R., Pflanzenr. (Engler), IV, 43: 231, 1924.
<i>D. dodecaneura</i> Vell. Cará-do-mato; Caratinga; Caratinga-roxa.	Native. Confirmed occurrence: Acre; Amazonas; Pará; Rondônia; Alagoas; Bahia; Ceará; Paraíba; Pernambuco; Piauí; Rio Grande do Norte; Sergipe; Distrito Federal; Goiás; Mato Grosso do Sul; Mato Grosso; Espírito Santo; Minas Gerais; Rio de Janeiro; São Paulo; Paraná; Rio Grande do Sul; Santa Catarina	Vellozo, J.M.C., Fl. Flumin. Icon., 10: t. 123, 1831.
<i>D. dumetosa</i> Uline ex R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Tocantins; Piauí; Mato Grosso.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 209, 1917.
<i>D. epistephioides</i> Taub.	Native. Endemic of Brazil. Confirmed occurrence: Goiás.	Taubert, Bot. Jahrb. Syst., 21: 425, 1896
<i>D. flabellispina</i> R. Couto & J. M. A. Braga	Native. Endemic of Brazil. Confirmed occurrence: Rio de Janeiro. Possible occurrence: Espírito Santo.	Couto, R. S., Lopes, R. C. & Braga, J. M. A., Phytotaxa, 231(1): 89-94, 2015.
<i>D. fodinarum</i> Kunth	Native. Endemic of Brazil. Confirmed occurrence: Bahia; Goiás; Mato Grosso; Minas Gerais; Rio de Janeiro; São Paulo.	Kunth, Enum. Pl. [Kunth], 5: 405, 1850
<i>D. fractiflexa</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Paraná.	Knuth, R., Pflanzenr. (Engler), IV, 43: 235, 1924.
<i>D. furcata</i> Griseb.	Native Confirmed occurrence: Paraná; Rio Grande do sul. Possible occurrence: Rio de Janeiro; Santa Catarina.	Grisebach, A., Fl. bras., 3(1): 45, 1842
<i>D. galiiflora</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Mato Grosso.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 538, 1921.
<i>D. glandulosa</i> (Griseb.) Kunth	Native. Confirmed occurrence: Amazonas; Pará; Tocantins; Alagoas; Bahia; Paraíba; Pernambuco; Piauí; Sergipe; Distrito Federal; Goiás; Mato Grosso do Sul; Mato Grosso; Espírito Santo; Minas Gerais; Rio de Janeiro; São Paulo; Paraná; Rio Grande do Sul; Santa Catarina	Kunth, Enum. Pl. [Kunth], 5: 352, 1850
<i>D. gracilicaulis</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Goiás; Mato Grosso.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 216, 1917.
<i>D. grandiflora</i> Mart. ex Griseb.	Native Confirmed occurrence: Pará; Goiás; Mato Grosso; Minas Gerais; São Paulo.	Griesebach, A.H.R., Fl. bras., 3(1): 28, 1842.
<i>D. grisebachii</i> Kunth	Native. Endemic of Brazil. Confirmed occurrence: Pará; Tocantins; Bahia Pernambuco; Piauí; Sergipe; Distrito Federal; Goiás; Espírito Santo; Minas Gerais; Rio de Janeiro; São Paulo; Paraná; Rio Grande do Sul; Santa Catarina.	Kunth, Enum. Pl. [Kunth], 5: 853, 1850
<i>D. hassleriana</i> Chodat Cará	Native. Endemic of Brazil. Confirmed occurrence: Bahia; Ceará; Paraíba; Pernambuco; Sergipe; Distrito Federal; Goiás; Mato Grosso do Sul; Mato Grosso; Minas Gerais; Rio de Janeiro; São Paulo; Paraná; Rio Grande do Sul.	Chodat, E., Bull. Herb. Boissier, II, 3: 1111, 1903.
<i>D. heptaneura</i> Vell.	Native. Endemic of Brazil Confirmed occurrence: Bahia; Minas Gerais; Rio de Janeiro.	C.A.W. Schwacke, 8419, B, (MG),
<i>D. huberi</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Pará. Possible occurrence: Amazonas; Mato Grosso.	Knuth, R., Repert. Spec. Nov. Regni Veg. Beih., 28: 87, 1930.
<i>D. itapirensis</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: São Paulo.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 190, 1917.
<i>D. itatiaiensis</i> R. Knuth	Native. Endemic of Brazil Confirmed occurrence: Rio de Janeiro.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7:212, 1917.
<i>D. kunthiana</i> Uline ex R.Knuth	Native. Endemic of Brazil. Confirmed occurrence: Bahia; Minas Gerais; São Paulo.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 211, 1917.
<i>D. lacerdae</i> Griseb.	Native. Endemic of Brazil. Confirmed occurrence: Pará Possible occurrence: Mato Grosso.	Grisebach, A., Fl. bras., 3(1): 31, 1842
<i>D. laxiflora</i> Mart. ex Griseb. Cará.	Native. Endemic of Brazil Confirmed occurrence: Acre; Amazonas; Pará; Alagoas; Bahia; Ceará; Paraíba; Pernambuco; Piauí; Sergipe; Distrito Federal; Goiás; Mato Grosso; Espírito Santo; Minas Gerais; Rio de Janeiro; São Paulo; Paraná; Rio Grande do Sul; Santa Catarina.	Grisebach, A., Fl. bras., 3(1): 32, 1842

<i>D. leptobotrys</i> Uline ex R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: São Paulo.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 218, 1917.
<i>D. leptostachya</i> Gardner Cará- amarelo	Native. Endemic of Brazil. Confirmed occurrence: Tocantins; Alagoas; Bahia; Ceará; Paraíba; Pernambuco; Piauí; Rio Grande do Norte; Sergipe; Distrito Federal; Mato Grosso; Espírito Santo; Minas Gerais; Rio de Janeiro; São Paulo.	Gardner, London J. Bot., 1: 534, 1842
<i>D. lindmanii</i> Uline ex R. Knuth	Native. Confirmed occurrence: Goiás; Mato Grosso.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 190, 1917.
<i>D. loefgrenii</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Minas Gerais.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 187, 1917.
<i>D. lundii</i> Uline ex R. Knuth	Native. Endemic of Brazil Confirmed occurrence: Rio de Janeiro; São Paulo.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 198, 1917.
<i>D. macrantha</i> Uline ex R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Santa Catarina.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 198, 1917.
<i>D. macrothyrso</i> Uline	Native. Endemic of Brazil. Confirmed occurrence: Bahia.	Uline, Nat. Pflanzenfam. [Engler & Prantl], Nachtr. 1: 87, 1897.
<i>D. Maianthemoide s</i> Uline ex R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Distrito Federal; Goiás; Minas Gerais.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 188, 1917.
<i>D. mantiqueirensis</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Espírito Santo.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 192, 1917.
<i>D. margarethia</i> G. M. Barroso et al.	Native. Endemic of Brazil. Confirmed occurrence: Rio de Janeiro.	Barroso, G.M. et al., Loefgrenia, 49: 2, 1970.
<i>D. marginata</i> Griseb.	Native. Confirmed occurrence: Amazonas; Pará; Tocantins; Alagoas; Bahia; Maranhão; Paraíba; Pernambuco; Distrito Federal; Goiás; Mato Grosso do Sul; Mato Grosso; Espírito Santo, Minas Gerais, Rio de Janeiro, São Paulo; Paraná.	Grisebach, A., Fl. bras., 3(1): 37, 1842
<i>D. martiana</i> Griseb.	Native. Endemic of Brazil. Confirmed occurrence: Ceará; Paraíba; Pernambuco; Mato Grosso; Rio de Janeiro; Paraná.	Grisebach, A., Fl. bras., 3(1): 44, 1842
<i>D. medusae</i> F. Fraga, R. Couto & J.M.A. Braga	Native. Confirmed occurrence: Espírito Santo.	
<i>D. megacarpa</i> Gleason	Native. Confirmed occurrence: Amazonas; Amapá; Pará; Bahia.	Gleason, Bull. Torrey Bot. Club, 52: 184, 1925
<i>D. melastomatifolia</i> Uline ex Prain	Native. Confirmed occurrence: Amazonas; Pará; Maranhão; Mato Grosso.	Prain, D., Bull. Misc. Inform. Kew, 1916: 194, 1916.
<i>D. microcephala</i> Uline	Native. Endemic of Brazil. Confirmed occurrence: Rio Grande do Sul.	Uline, Nat. Pflanzenfam. [Engler & Prantl], Nachtr. 1: 85, 1897.
<i>D. mollis</i> Kunth Dente-de-gato.	Native. Endemic of Brazil. Confirmed occurrence: Bahia; Espírito Santo; Minas Gerais; Rio de Janeiro; São Paulo. Possible occurrence: Distrito Federal; Goiás; Mato Grosso do Sul; Mato Grosso; Paraná; Rio Grande do Sul; Santa Catarina.	Kunth, Enum. Pl. [Kunth], 5: 369, 1850
<i>D. monadelpha</i> (Kunth) Griseb.	Native. Endemic of Brazil. Confirmed occurrence: Alagoas; Bahia; Paraíba; Pernambuco; Espírito Santo; Minas Gerais; Rio de Janeiro; São Paulo; Paraná; Rio Grande do Sul; Santa Catarina. Possible occurrence: Sergipe.	Grisebach, A., Vidensk. Meddel. Dansk Natuhist. oren. Kjøbenhavn, 1875: 164, 1875.
<i>D. mosqueirensis</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Pará	Knuth, R., Repert. Spec. Nov. Regni Veg. Beih., 29: 92, 1931.
<i>D. mucronata</i> Uline ex R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Ceará; Pernambuco.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 188, 1917.
<i>D. multiflora</i> Mart. ex Griseb. Inhame-de-espinho; Japecanga.	Native. Endemic of Argentina. Confirmed occurrence: Amazonas; Pará; Tocantins; Alagoas; Bahia; Ceará; Maranhão; Paraíba; Distrito Federal; Goiás; Mato Grosso do Sul; Mato Grosso; Espírito Santo; Minas Gerais; Rio de Janeiro; São Paulo; Paraná; Rio Grande do Sul; Santa Catarina. Possible occurrence: Pernambuco; Piauí; Rio Grande Do Norte; Sergipe.	Grisebach, A., Fl. bras., 3(1): 35, 1842
<i>D. multispicata</i> R. Knuth	Native. Confirmed occurrence: Minas Gerais.	Knuth, R., Meded. Bot. Mus. Herb. Rijks Univ. Utrecht, 29: 55, 1916.
<i>D. neblinensis</i> Maguire & Steyerl.	Native. Endemic of Brazil. Confirmed occurrence: Amazonas.	Maguire & Steyerl., Mem. New York Bot. Gard., 51: 108, 1989.
<i>D. nuda</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: São Paulo Possible occurrence: Mato Grosso.	Knuth, R., Pflanzenr. (Engler), IV, 43: 351, 1924.
<i>D. nutans</i> R.knuth	Native. Endemic of Brazil. Confirmed occurrence: Minas Gerais. Possible occurrence: Mato Grosso.	Knuth, R., Pflanzenr. (Engler), IV, 43: 182, 1924.

<i>D. olfersiana</i> Klotzsch ex Griseb. Cará-do-sapo	Native. Endemic of Brazil. Confirmed occurrence: Bahia; Pernambuco; Distrito Federal; Minas Gerais; Rio de Janeiro; São Paulo; Paraná; Santa Catarina.	Grisebach, A., Fl. bras., 3(1): 38, 1842
<i>D. oppositiflora</i> Griseb.	Native. Endemic of Brazil. Confirmed occurrence: Rio de Janeiro.	Grisebach, A., Fl. bras., 3(1): 46, 1842
<i>D. organensis</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Rio de Janeiro.	Engler, H.G.A. (ed.), Pflanzenr. (Engler), IV, 43: 106, 1924.
<i>D. orthogoneura</i> Uline ex Hochr.	Native. Confirmed occurrence: Tocantins; Bahia; Ceará; Maranhão; Pernambuco; Piauí; Rio Grande do Norte; Sergipe; Distrito Federal; Goiás; Mato Grosso do Sul; Mato Grosso; Minas Gerais.	Hochreutiner, B.P.G., Bull. New York Bot. Gard., 6: 267, 1910.
<i>D. ovata</i> Vell. Cará-de-pedra; Inhame-bravo	Native. Endemic of Brazil. Confirmed occurrence: Alagoas; Bahia; Ceará; Paraíba; Pernambuco; Piauí; Rio Grande do Norte; Sergipe; Distrito Federal; Goiás; Espírito Santo; Minas Gerais; Rio de Janeiro; São Paulo; Paraná; Rio Grande do Sul; Santa Catarina.	Vellozo, J.M.C., Fl. Flumin. Icon., 10: t. 117, 1831.
<i>D. pallidinervia</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Paraná.	Knuth, R., Pflanzenr. (Engler), IV, 43: 75, 1924.
<i>D. pedalis</i> (Uline ex R. Knuth) R. Couto & J. M. A. Braga	Native. Endemic of Brazil Confirmed occurrence: Rio de Janeiro.	Couto et al., Systematic Botany, Vol. 39(3), 2014.
<i>D. perdicum</i> Taub.	Native. Endemic of Brazil. Confirmed occurrence: Minas Gerais; Rio de Janeiro.	Taubert, Bot. Jahrb. Syst., 15(34): 13, 1892
<i>D. piauhyensis</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Piauí.	Knuth, R., Pflanzenr. (Engler), IV, 43: 64, 1924.
<i>D. pilosiuscula</i> Betero ex Spreng.	Native. Confirmed occurrence: Amazonas; Amapá; Pará.	Sprengel, Syst. Veg., 2: 152, 1982.
<i>D. piperifolia</i> Humb. & Bonpl. ex Willd. Cará; Cará-do-mato; Cosco-de-burro; Inhame-bravo.	Native. Confirmed occurrence: Acre; Amazonas; Pará; Rondônia; Tocantins; Alagoas; Bahia; Ceará; Maranhão; Paraíba; Pernambuco; Piauí; Sergipe; Distrito Federal; Goiás; Mato Grosso do Sul; Mato Grosso; Espírito Santo; Minas Gerais; Rio de Janeiro; São Paulo; Paraná; Rio Grande do Sul; Santa Catarina	Humb. & Bonpl., Sp. Pl., 4: 795, 1806.
<i>D. planistipulosa</i> Uline ex R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Bahia; Piauí; Rio de Janeiro; São Paulo.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 204, 1917.
<i>D. pohlii</i> Griseb.	Native. Endemic of Brazil. Confirmed occurrence: Acre; Maranhão; Goiás; Mato Grosso.	Grisebach, A., Fl. bras., 3(1): 35, 1842
<i>D. polygonoides</i> Humb. & Bonpl. ex Willd. caratinga-branca	Native. Confirmed occurrence: Tocantins; Alagoas; Bahia; Ceará; Paraíba; Pernambuco; Piauí; Rio Grande do Norte; Sergipe; Distrito Federal; Goiás; Mato Grosso; Espírito Santo; Minas Gerais; Rio de Janeiro; São Paulo; Paraná; Santa Catarina.	Humb. & Bonpl., Sp. Pl., 4: 795, 1806.
<i>D. psammophila</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Bahia.	Knuth, R., Repert. Spec. Nov. Regni Veg. Beih., 38: 120, 1935.
<i>D. pseudomacro capsa</i> G.M. Barroso et al.	Native. Endemic of Brazil. Confirmed occurrence: Rio de Janeiro.	Barroso, G.M. et al., Revista Brasil. Biol., 31: 309, 1971.
<i>D. pumilio</i> Griseb.	Native. Endemic of Brazil. Confirmed occurrence: Rio de Janeiro.	Grisebach, A., Vidensk. Meddel. Dansk Natuhist. Foren. Kjøbenhavn, 1875: 162, 1875.
<i>D. puncticulata</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Paraná.	Knuth, R., Pflanzenr. (Engler), IV, 43: 55, 1924.
<i>D. regnellii</i> Uline ex R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Minas Gerais; Rio de Janeiro; São Paulo. Possible occurrence: Mato Grosso; Santa Catarina.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 214, 1917.
<i>D. riedelii</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Mato Grosso.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 213, 1917.
<i>D. riparia</i> Kunth & M.R. Schomb.	Native. Endemic of Brazil. Confirmed occurrence: Acre; Amazonas; Goiás; Mato Grosso. Possible occurrence: Rondônia; Bahia.	Kunth, C.S., Enum. Pl. [Kunth], 5: 364, 1850.
<i>D. rumicoides</i> Griseb.	Native. Endemic of Brazil. Confirmed occurrence: Paraíba; Sergipe; Distrito Federal; Goiás; Mato Grosso; Minas Gerais; Rio de Janeiro; São Paulo; Paraná; Santa Catarina	Griesebach, A.H.R., Fl. bras., 3(1): 42, 1842.
<i>D. sabarensis</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Minas Gerais.	Knuth, R., Pflanzenr. (Engler), IV, 43: 241, 1924.
<i>D. sanpaulensis</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: São Paulo.	Knuth, R., Pflanzenr. (Engler), IV, 43: 57, 1924.

<i>D. santosensis</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: São Paulo.	Knuth, R., Repert. Spec. Nov. Regni Veg. Beih., 21: 77, 1925.
<i>D. scabra</i> Humb. & Bonpl. ex Willd. cará	Native. Endemic of Brazil. Confirmed occurrence: Bahia; Goiás; Mato Grosso; Espírito Santo; Minas Gerais; São Paulo; Paraná; Rio Grande do Sul; Santa Catarina. Possible occurrence: Pará; Maranhão; Mato Grosso do Sul.	Humb. & Bonpl., Sp. Pl., 4: 794, 1806.
<i>D. schwackei</i> Uline ex R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Minas Gerais.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 195, 1917.
<i>D. secunda</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: São Paulo.	Knuth, R., Pflanzenr. (Engler), IV, 43: 350, 1924.
<i>D. sellowiana</i> Uline ex R. Knuth	Native. Confirmed occurrence: São Paulo; Rio Grande do Sul	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 198, 1917.
<i>D. septemnervis</i> Vell.	Native. Endemic of Brazil. Confirmed occurrence: Rio de Janeiro.	Vellozo, J.M.C., Fl. Flumin. Icon., 10: 119, 1831.
<i>D. sincorensis</i> R.Knuth cará-de-pedra	Native. Endemic of Brazil. Confirmed occurrence: Alagoas; Bahia; Pernambuco; Distrito Federal; Goiás; Mato Grosso do Sul; Espírito Santo; Minas Gerais.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 186, 1917.
<i>D. sinuata</i> Vell. Cará-bravo Caratinga-brava	Native. Confirmed occurrence: Tocantins; Alagoas; Bahia; Paraíba; Pernambuco; Rio Grande do Norte; Sergipe; Distrito Federal; Goiás; Mato Grosso do Sul; Espírito Santo; Minas Gerais; Rio de Janeiro; São Paulo; Paraná; Rio Grande do Sul; Santa Catarina.	Vellozo, J.M.C., Fl. Flumin. Icon., 10: t. 129, 1831.
<i>D. sphaeroidea</i> R. Couto & J.M.A. Braga	Native. Endemic of Brazil. Confirmed occurrence: Rio de Janeiro.	Couto et al., Phytotaxa, Vol. 163 n.4: 229-234, 2014.
<i>D. stegelmanniana</i> R. Knuth	Native. Endemic of Brazil Confirmed occurrence: Amazonas; Pará; Rondônia; Roraima; Alagoas; Bahia; Pernambuco; Sergipe; Distrito Federal; Mato Grosso; Espírito Santo; Minas Gerais; Rio de Janeiro; São Paulo; Paraná.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 203, 1917.
<i>D. stellaris</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Minas Gerais; Rio de Janeiro.	Knuth, R., Pflanzenr. (Engler), IV, 43: 233, 1924.
<i>D. stenophylla</i> Uline ex R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Goiás; Minas Gerais. Possible occurrence: Mato Grosso.	Knuth, R., Nat. Pflanzenfam. [Engler & Prantl], Nachtr. 1: 84, 1897.
<i>D. subhastata</i> Vell. cará-re-dondo-chato	Native. Confirmed occurrence: Alagoas; Bahia; Ceará; Paraíba; Pernambuco; Sergipe; Espírito Santo; Minas Gerais; Rio de Janeiro; São Paulo; Paraná; Rio Grande do Sul; Santa Catarina.	Vellozo, J.M.C., Fl. Flumin. Icon., 10: t. 121, 1831.
<i>D. tauriglossum</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Alagoas; São Paulo	Knuth, R., Pflanzenr. (Engler), IV, 43: 350, 1924.
<i>D. tenuiphyllum</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Mato Grosso.	Knuth, R., Pflanzenr. (Engler), IV, 43: 76, 1924.
<i>D. ternata</i> Griseb.	Native. Endemic of Brazil. Confirmed occurrence: Distrito Federal; Goiás; Espírito Santo; Minas Gerais; Rio de Janeiro; Possible occurrence: Pará	Grisebach, A., Vidensk. Meddel. Dansk Natuhist. Foren. Kjøbenhavn, 1875: 158, 1875.
<i>D. therezopolensis</i> Uline ex R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Espírito Santo; Minas Gerais; Rio de Janeiro	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 211, 1917.
<i>D. torticaulis</i> R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: São Paulo	Knuth, R., Pflanzenr. (Engler), IV, 43: 351, 1924.
<i>D. trachyandra</i> Griseb.	Native. Endemic of Brazil. Confirmed occurrence: Goiás; Mato Grosso; Minas Gerais.	Grisebach, A., Vidensk. Meddel. Dansk Natuhist. Foren. Kjøbenhavn, 1875: 155, 1875
<i>D. traillii</i> R. Knuth	Native. Endemic of Brazil Confirmed occurrence: Amazonas	Knuth, R., Pflanzenr. (Engler), IV, 43: 75, 1924.
<i>D. trifida</i> L.f. Cará mimoso; Cará roxo; Cará bola; Cará rosado.	Native. Endemic of South America. Confirmed occurrence: Acre; Amazonas; Amapá; Pará; Rondônia; Tocantins; Maranhão; Paraíba; Pernambuco; Distrito Federal; Goiás; Mato Grosso do Sul; Mato Grosso; Minas Gerais. Possible occurrence: Roraima.	LINNÉ FILIUS, C., Suppl. Pl. 427, 1782.
<i>D. trifoliata</i> Kunth	Native. Confirmed occurrence: Acre	Kunth, C.S., Nov. Gen. Sp. Pl., 1: 275, 1816.
<i>D. trifurcata</i> Hauman	Native. Confirmed occurrence: Rio de Janeiro; Rio Grande do Sul.	Hauman, L.L., Anales Mus. Nac. Hist. Nat. Buenos Aires, 27: 482, 1916
<i>D. trilinguis</i> Griseb.	Native. Endemic of Brazil. Confirmed occurrence: Minas Gerais; Rio de Janeiro; São Paulo.	Grisebach, A., Vidensk. Meddel. Dansk Natuhist. Foren. Kjøbenhavn, 1875: 163, 1875.

<i>D. trisecta</i> Griseb.	Native. Endemic of Brazil. Confirmed occurrence: Alagoas; Pernambuco; Distrito Federal; Goiás; Minas Gerais; São Paulo; Paraná; Santa Catarina.	Grisebach, A., Vidensk. Meddel. Dansk Natuhist. Foren. Kjøbenhavn, 1875: 159, 1875.
<i>D. tubuliflora</i> Uline ex R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Santa Catarina.	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 189, 1917.
<i>D. tubulosa</i> Griseb.	Native. Endemic of Brazil. Confirmed occurrence: Minas Gerais.	Grisebach, A., Vidensk. Meddel. Dansk Natuhist. Foren. Kjøbenhavn, 1875: 154, 1875.
<i>D. warmingii</i> (Uline ex R. Knuth) R. Knuth	Native. Endemic of Brazil. Confirmed occurrence: Minas Gerais.	Knuth, Pflanzenr. (Engler), IV, 43: 355, 1924.
<i>D. wittiana</i> R. Knuth	Native. Confirmed occurrence: Acre	Knuth, R., Notizbl. Königl. Bot. Gart. Berlin, 7: 194, 1917.

Note: Corroborating the data in the text and in the table, it is possible to identify that the most cultivated species in Brazil do not originate in the country.

Conclusion

The genus *Dioscorea* has many species without any scientific knowledge in the topics covered in this review, especially in the nutritional area and in other related topics, highlighting the species that synthesize phytohormones (steroidal saponins), as defense and protection strategies interfering in the metamorphosis of the insects or those that synthesize metabolites, with specific functions in the defense against microorganisms (fungi, bacteria and insects), viruses and toxins, used in hunting and fishing by indigenous peoples. All the reported applications showed that the *Dioscorea* species is a supplier of input for food, for the synthesis of hormones or for pharmacological and microbiological studies.

These applications are validated and based on the knowledge generated in scientific research and published in the articles available in the period mentioned and that show the importance of this knowledge for the food, industrial and pharmaceutical sector in Brazil. This review presents a collection of scientific data regarding the lack of scientific data on all species of confirmed occurrence in the country and public political to encourage the use and consumption of these species, which makes the genus neglected, making it impossible or hindering the efficiency in self-sustainable agricultural production and, as a consequence, limits the transformations in value-added products, generated by this gap of need for new scientific research.

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