

Original Paper

The genus *Ipomoea* (Convolvulaceae) in the state of Rio Grande do Norte, Brazil

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Abstract

Ipomoea has a cosmopolitan distribution, being more diverse in the tropics. It is the largest genus of Convolvulaceae, containing about 700 species, with more than a half occurring in the Americas. Approximately 150 species occur in Brazil, of which 80 are found in the Northeast region. The state of Rio Grande do Norte is considered one of the least floristically known in Brazil. This study was based on field expeditions and analysis of specimens from the herbaria. Thirty-three species were found, with eight new records for the study area: *Ipomoea chiquitensis*, *I. cynanchifolia*, *I. goyazensis*, *I. grandifolia*, *I. magna*, *I. queirozii*, *I. ramosissima* and *I. syringifolia*. An identification key, genus and species descriptions, illustrations and distribution maps are presented.

Key words: *Caatinga*, Flora of Brazil, taxonomy, vines.

Resumo

Ipomoea apresenta distribuição cosmopolita, sendo mais diversa nos trópicos. É o maior gênero de Convolvulaceae, com ca. 700 espécies, das quais mais da metade ocorre nas Américas. É representado no Brasil por aproximadamente 150 espécies, das quais 80 estão presentes na região Nordeste. O estado do Rio Grande do Norte é considerado um dos estados com amostragem florística mais subestimada no Brasil. Este estudo foi feito com base em expedições de campo e análise de materiais de herbários. Foram encontradas 33 espécies, das quais oito são novos registros para a área de estudo: *Ipomoea chiquitensis*, *I. cynanchifolia*, *I. goyazensis*, *I. grandifolia*, *I. magna*, *I. queirozii*, *I. ramosissima* e *I. syringifolia*. São apresentados uma chave de identificação, descrições do gênero e das espécies, ilustrações e mapas de distribuição.

Palavras-chave: *Caatinga*, Flora do Brasil, taxonomia, trepadeiras.

Introduction

Ipomoea L. is the largest genus in Convolvulaceae, comprising approximately 700 species. It is morphologically recognized by a combination of reproductive characters: echinate and panthoporate pollen grains and flowers with 2–3 lobed, biglobosestigmas. It has a cosmopolitan distribution, being more diverse in the tropics, with more than half of the species occurring in the Americas (Austin & Huamán 1996; Austin

et al. 2015). Around 150 species occur in Brazil, distributed in all regions and phytogeographical domains, with the largest diversity in the Southeast, Central-West, and Northeast regions, mainly in the Cerrado, Atlantic Forest, and Amazon phytogeographical domains (Simão-Bianchini *et al.* 2020). They are predominantly climbing plants, usually found on roadsides, forest edges, swamps, and savannas (Wood & Scotland 2017a). Many species are considered polymorphic, such as *I.*

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bahiensis Willd., *I. batatas* (L.) Lam., *I. grandifolia* (Dammer) O'Donell, *I. nil* (L.) Roth, *I. purpurea* (L.) Roth, *I. hederifolia* (L.) and *I. ramosissima* (Poir.) Choisy (Simão-Bianchini 1998).

Several species of *Ipomoea* have economic and ecological importance, with *Ipomoea batatas* (sweet-potato), being the most important worldwide (Judd *et al.* 2009; Simão-Bianchini 1998). The leaves of *Ipomoea aquatica* Forsk, known as water spinach, are used in Southeastern, Southern and Eastern Asian cuisine and medicine (DeFilippis & Krupnick 2018; Hoehne 1922). Several species are grown as ornamentals worldwide (Souza & Lorenzi 2012). *Ipomoea imperati* (Vahl) Griseb. and *I. pes-caprae* (L.) R.Br. play an important ecological role as coastal sand dune fixers (Simão-Bianchini 1998; Souza & Lorenzi 2012). Sampaio (2005) listed 24 species of *Ipomoea* from the Northeast region of Brazil as potentially having economic importance, 20 of which were reported as apicultural, seven as ornamental, and five as medicinal.

In addition to appearing in floristic inventories from different regions of Brazil, the genus was the target of taxonomic studies by Simão-Bianchini (1998), covering species from the Southeast region; Ferreira & Miotto (2009), who studied the genus in the South region; Vasconcelos (2015) studied the species occurring in the state of Bahia; Wood & Scotland (2017b) investigated Amazonian representatives, Silva & Melo (2019) who studied the genus in Agreste mesorregion of Paraíba state; and Costa *et al.* (2021) investigated *Ipomoea* in the Mata da Pimenteira State Park, Pernambuco state.

The state of Rio Grande do Norte (RN) is notoriously rich in Convolvulaceae, with 79 species recorded to the moment, which corresponds to 33% of the species of the family in the Northeast and 18% of them in Brazil (Simão-Bianchini *et al.* 2020). In this context, Rio Grande do Norte has great potential for studies in Convolvulaceae, as it is considered one of the least floristically sampled states in Brazil (Magalhães *et al.* 2014). One evidence is the rediscovery of *Ipomoea macedoi* Hoehne in the state of RN, during fieldwork related to the present inventory (Marinho *et al.* 2017), after being listed as Critically Endangered and possibly extinct (Ministério do Meio Ambiente 2018; Simão-Bianchini *et al.* 2013). Recently, Versieux *et al.* (2017) published 71 new occurrences of species from different families in the state of RN, none of them belonging to Convolvulaceae, another fact denoting the importance of the present work.

Our work aims to conduct an inventory of the genus *Ipomoea* in the state of RN, update collection records and provide tools for species identification, such as an identification key, illustrations, descriptions, and comments on taxonomy and distribution; in addition to indicating areas of higher species richness and of conservation priority in the state.

Material and Methods

The state of RN is located in the Northeast region of Brazil, between the coordinates 05°47'40"S and 35°12'40"W (Fig. 1). It is located close to the Equator, giving it specific climatic characteristics, such as dry summers and intense sunlight during most of the year. It has an extension of 52,810.7 km² and occupies 3.41% of the area of the Northeast region and about 0.62% of the national territory. The state is located in the Atlantic Forest, Caatinga and Cerrado phytogeographical domains, and the main vegetation types are montane forests, ciliary forest with carnaúba palms (*Copernicia prunifera* (Mill.) H.E.Moore), coastal and sand dune vegetation, and mangroves.

The Caatinga comprises 80% of the vegetation cover in the state, being located in the semi-arid portion of RN. The Atlantic Forest occurs in remnants on the eastern coast of the state, where the constant rainfall and humidity promote denser vegetation cover, including non-deciduous forests. The Cerrado occurs in the eastern coast plateaus locally known as "tabuleiros", in fragments often associated with restinga and Caatinga vegetation, with the most extensive areas found in Southeast RN, in Canguaretama, Baía Formosa, Tibau do Sul and Pedro Velho and in the Northeast portion, close to Touros.

The montane vegetation called "brejos de altitude" occur in mountainous regions of Borborema Potiguar, consisting of a diverse ecosystem with dense arboreal layer. The ciliary forest with carnaúba palms, also called "mata de galeria", is composed mainly of said palm trees and occurs in humid lowlands and in the floodplains of the Apodi-Mossoró and Piranhas-Açu rivers. Sand dunes occur throughout the coast, from Tibau to Baía Formosa, and their vegetation consists essentially of low-lying species, resistant to moisture, scarce nutrients, and intense evapotranspiration. Mangroves occur along the coast, in transition zones between terrestrial and marine environments, in narrow and discontinuous strips, accompanying salt marshes or in low-density riverside forests (Governo do estado do Rio Grande do Norte 2014).

From February to November of 2016, field expeditions were carried out to locations belonging to 23 municipalities in the study area: Apodi, Barcelona, Campo Redondo, Canguaretama, Caraúbas, Ceará Mirim, Extremoz, Felipe Guerra, Governador Dix-Sept Rosado, Jucurutu, Macaíba, Martins, Monte das Gameleiras, Mossoró, Passa e Fica, Patu, Portalegre, Pureza, Ruy Barbosa, Santa Cruz, Santo Antônio, Serra de São Bento and Touros. The field collection areas were selected based on the following criteria: 1- absence of previous fieldwork; and 2- regions with greater richness of Convolvulaceae in the state. The collected material was processed according to the methodology proposed by Mori *et al.* (1989), and Bridson & Forman (1998). The specimens were deposited in the herbarium PEUFR, and duplicates were donated to the herbaria UFRN, MOSS, RN, NY, and K.

The herbaria EAC, HUEFS, IPA, MOSS, R, RN, UFRN, and VIES were visited, allowing the analysis of 399 specimens. Identifications were made by consulting the specific literature (Simão-Bianchini 1998; Wood *et al.* 2015, 2017a,b; Wood & Scotland 2017a), and comparison with type

specimens, using the online platforms JSTOR and REFLORA. The terminology proposed by Radford *et al.* (1974) and Harris & Harris (2001) was adopted for descriptions. Only native and naturalized species were included in the taxonomic treatment, while exotic and cultivated species were mentioned separately, as suggested by Moro *et al.* (2012). Only representative materials were morphologically examined.

The following characters were selected to distinguish species, as they are less variable interspecifically than other polymorphic traits: habit; branchlet indument; venation and division of the leaf blade; pedicel morphology and size; calyx morphology; corolla size, color, shape and indument; shape and indument of ovary, fruit and seeds.

The species were classified into rarity categories based on the number of locations where they occur. Species that occur in up to five locations are considered “rare”, “occasional” when found in up to 20 locations, and “frequent” when collected in more than 20 locations. The software DIVA-GIS was used to prepare the richness map (Fig. 1). Geographic coordinates belonging to records of all

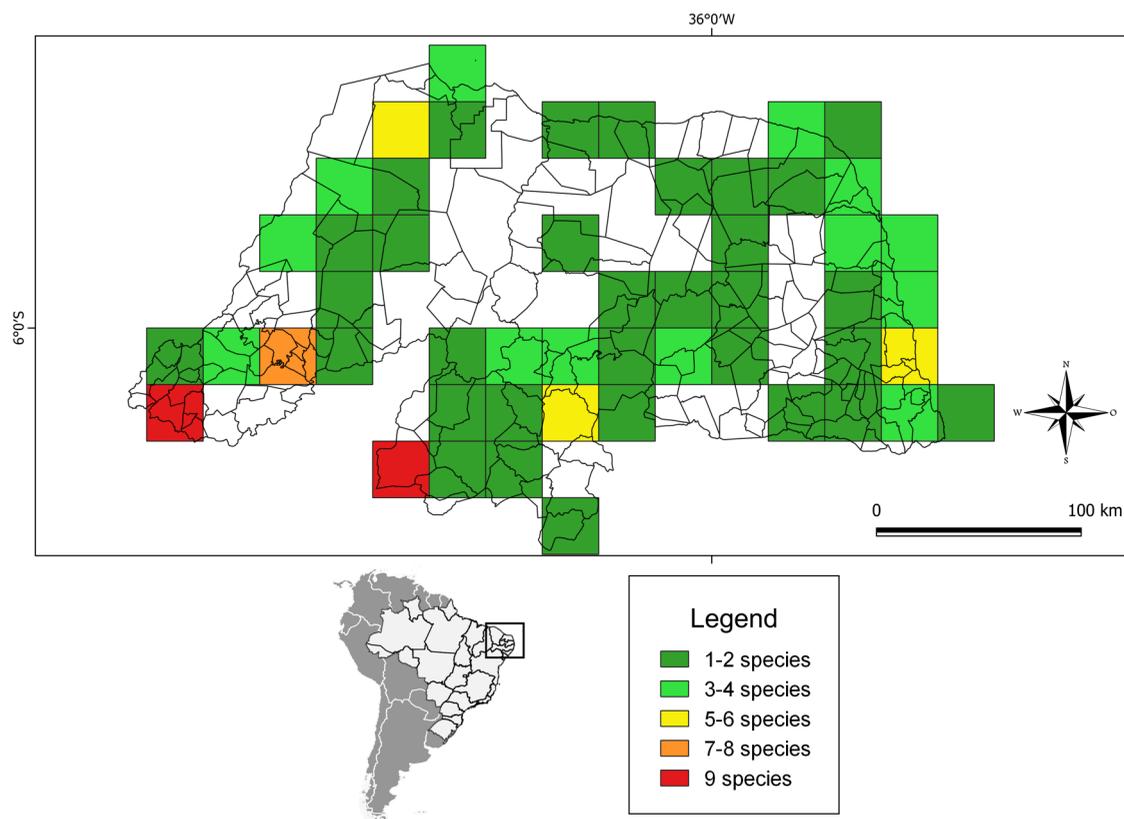


Figure 1 – Diversity of *Ipomoea* in Rio Grande do Norte state, by Grid.

species were included in a database and organized in a Microsoft Office Excel spreadsheet, organized by species. A shapefile of the state of RN and the spreadsheet were imported into DIVA-GIS, and a diversity analysis was carried out based on the number of species per cell, with a 0.2×0.2 cell size, using the “points by grid” tool.

Results and Discussion

In this study, we registered 33 species of *Ipomoea* in RN (Figs. 2-5), seven of which are new records for the state: *Ipomoea cynanchifolia*, *I. goyazensis*, *I. grandifolia*, *I. magna*, *I. queirozii*, *I. ramosissima* and *I. syringifolia*. Although Simão-Bianchini *et al.* (2020) cites 35 species of the genus for RN, some taxa were misidentified, others underwent recent nomenclatural changes, and others were not found in the field or in herbaria. *Ipomoea philomega* (Vell.) Horse, *I. sericophylla* Meisn., *I. setifera* Poir and *I. triloba* L. were identified as erroneous identifications. The species *Turbina cordata* (Choisy) D. F. Austin & Staples was recently combined in *Ipomoea*, with the name *I. sericosepala* J. R. I. Wood & Scotland (Wood *et al.* 2015). *Ipomoea wrightii* A. Gray was also synonymized, as *I. heptaphylla* Sweet (Wood *et al.* 2015). The taxa *Ipomoea alba* L., *I. batatoides* Choisy, *I. cairica* (L.) Sweet, *I. indica* (Burm.) Merr. were not found in the field or in the analyzed collections. *Ipomoea horsfalliae* Hook is a cultivated exotic species, and was found only in residential gardens, and therefore not included in the taxonomic treatment.

Among the species treated in this study, *I. bahiensis* Willd., *I. blanchetii* Choisy, *I. brasiliana* (Mart. ex Choisy) Meisn., *I. macedoi* Hoehne, *I. magna* Sim.-Bianch. & J.R.I. Wood, *I. marcellia* Meisn., *I. queirozii* J.R.I. Wood & L.V. Vascon., *I. rosea* Choisy, *I. subincana* Choisy Meisn. and *I. tenera* Meisn. are endemic to Brazil, with *I. marcellia*, *I. rosea* and *I. tenera* occurring only in the Northeast region. *Ipomoea marcellia* and *I. tenera* are restricted to the Caatinga phytogeographical domain. *Ipomoea macedoi* is considered rare, occurring in only two localities in RN besides the type locality in the state of Minas Gerais (Simão-Bianchini *et al.* 2020). *Ipomoea batatas* (L.) Lam., *I. muricata* (L.) Jacq., *I. nil* (L.) Roth, and *I. parasitica* (Kunth) G. Don are considered naturalized according to Simão-Bianchini *et al.* (2020) and were included in the taxonomic treatment. The following species occur within conservation units: *I. asarifolia*, *I. bahiensis*, *I. blanchetii*, *I. brasiliana*,

I. cynanchifolia, *I. goyazensis*, *I. grandifolia*, *I. hederifolia*, *I. heptaphylla*, *I. imperati*, *I. incarnata*, *I. longeramosa*, *I. muricata*, *I. pes-caprae*, *I. ramosissima*, *I. rosea*, *I. syringifolia*, and *I. tenera*. Most species (29) occur in the Caatinga phytogeographical domain.

The areas of greatest species richness are in the municipality of Mossoró and in the montane region of Martins and Portalegre (Fig. 1). In Mossoró, the high richness is attributed to the field work effort resulting from the presence of the MOSS herbarium, which is the oldest in the state and has been conducting field expeditions since 1972. In Mossoró, four species considered rare in RN were found: *Ipomoea cynanchifolia*, *I. heptaphylla*, *I. muricata* and *I. ramosissima*. The last two were collected in the Mossoró mountain range, which is the highest elevation in the municipality (250 m) and has a peculiar flora, which reinforces the importance of conserving this area (Sousa 2015). The Martins and Portalegre mountain range region is located on Planalto da Borborema and are two of the highest elevations in the state (Governo do Rio Grande do Norte 2014). Seven rare species are registered in the area: *Ipomoea chiquitensis*, *I. subincana*, *I. parasitica*, *I. grandifolia*, *I. setosa*, *I. megapotamica* and *I. magna*.

Other regions that stand out for the high number of *Ipomoea* species are located in the municipality of Serra Negra do Norte, in Santa Cruz/Campo Redondo, and in the metropolitan region of Natal. In Serra Negra do Norte the collections are concentrated in the federal conservation unit Seridó Ecological Station, inserted in the Caatinga phytogeographical domain and target of a notorious collection effort over the years, being the study area of several botanical works (Amorim *et al.* 2005; Ferreira *et al.* 2009; Moreira *et al.* 2021). Santa Cruz and Campo Redondo are also covered by the caatinga and have received several field expeditions in the last decades. Important conservation units are located in the metropolitan region of Natal, belonging to the Atlantic Forest and Cerrado phytogeographical domains, one of the reasons for the high diversity of the genus there: State Park Dunas de Natal (Natal), Municipal Natural Park Dom Nivaldo Monte (Natal) and Environmental Protection Area Jenipabu (Extremoz/Natal). The UFRN herbarium, one of the largest in the state, is also located in Natal, which has promoted extensive collections in the metropolitan region of this municipality, contributing to its high richness.

Ipomoea Linnaeus, Species Plantarum: 159, 1753.
Lectotype: (designated by Verdcourt, 1963):
Ipomoea pes-tigridis Linnaeus.

Figs. 2; 3; 4; 5

Vines herbaceous or woody, stoloniferous herbs or rarely shrubs; latex usually present. Branchlets striate, often fistulose smooth, muricate in few species, glabrous or with simple trichomes in different indument. *Leaves* alternate, without stipules (pseudo-stipules in *I. quamoclit*), commonly petiolate, rarely sessile, sometimes heterophyllous; simple or compound, entire or 3–5 lobed (pinnatisect in *I. quamoclit*), cordate, deltoid, elliptic, hastate, linear, oblong, ovate or reniform, the base cordate, hastate, attenuate, truncate, rounded or cuneate, the apex acuminate, acute, rounded, caudate, emarginate or obtuse, usually mucronate and rarely apiculate; texture chartaceous, membranaceous or coriaceous; green, usually discolorous; venation brochidromous, actinodromous, camptodromous, palinactinodromous, pinnate or hypodromous. *Flowers* showy, delicate, ephemeral, typically diurnal, rarely nocturnal; pedicellate, solitary or grouped in cymes or thyrses,

axillary and/or terminal, long or short pedunculate, 2–8-flowers, bracteoles present, caducous. *Calyx* 5 sepals, free, equal or not, the two outer sepals usually equal and different from the two inner ones, the intermediate usually asymmetric, half of them similar to the inner and half similar to the outer sepals; the inner ones usually with scarious margin. *Corolla* usually pink to lilac, and less frequently red, blue, yellow, or white; commonly infundibuliform, rarely hypocrateriform or campanulate; with or without indument. *Stamens* 5, unequal, included or exerted, with trichomes at the base of filaments, anthers elliptical, lanceolate, ovate, linear or sagittate; pollen pantoporate, echinate. Pistil commonly included, rarely exerted, nectar disk basal, annular, lobate, usually glabrous, rarely with indumentum, ovary conical, ovate, or spherical, glabrous, or rarely hirsute hirsutous, style single, rarely apically divided, often persistent, stigma biglobose. *Capsule* usually dehiscent, rarely indehiscent; spherical, elliptical, or fusiform, s; glabrous, hirsutous, or velutinous, rarely with trichomes only on apex. *Seeds* 1–6, usually smooth, rarely rugose, glabrous, velutinous, tomentose or with long and soft trichomes.

Identification key to species of *Ipomoea* found in the state of Rio Grande do North, Brazil

1. Internodes muricate or setose.
 2. Internodes setose 30. *Ipomoea setosa*
 - 2'. Internodes muricate.
 3. Sepals with a subapical rostrum; corolla hipocrateriform 21. *Ipomoea muricata*
 - 3'. Sepals smooth; corolla infundibuliform 23. *Ipomoea parasitica*
- 1'. Internodes smooth or verrucose with prickles.
 4. Leaf blades composed.
 5. Pedicels spiral resembling a tendril, sepals verrucose at the base 13. *Ipomoea heptaphylla*
 - 5'. Pedicels straight, sepals with subapical rostrum or ridged at the base.
 6. Leaflets 3 28. *Ipomoea rosea*
 - 6'. Leaflets 5 33. *Ipomoea tenera*
 - 4'. Leaf blade simple.
 7. Leaf blade deeply lobed, pinnatifid.
 8. Leaf blade pinnatifid, pseudo-stipules similar to leaves present 25. *Ipomoea quamoclit*
 - 8'. Leaf blade deeply 3–5-lobed, pseudo-stipules absent 16. *Ipomoea longerramosa*
 - 7'. Leaf blades mostly entire or 3-lobed.
 9. Internodes tomentose, pubescent, pilose, hirsute, velutinous, glabrescent.
 10. Outer sepals with glands at the base.
 11. Outer sepals with the apex rounded; corolla infundibuliform; ovary pubescent 7. *Ipomoea carnea subsp. fistulosa*

- 11'. Outer sepals with the apex rounded; corolla campanulate, ovary glabrous.....
20. *Ipomoea megapotamica*
- 10'. Outer sepals without glands.
12. Outer sepals sericeous or hirsute.
13. Outer sepals hirsute, long acuminate22. *Ipomoea nil*
- 13'. Outer sepals sericeous, acute to obtuse.
14. Stamens and style exerted.....19. *Ipomoea marcellia*
- 14'. Stamens and style inserted.
15. Ovary pilose, style apically divided29. *Ipomoea sericosepala*
- 15'. Ovary glabrous, style entire31. *Ipomoea subincana*
- 12'. Outer sepals glabrous, glabrescent or ciliate.
16. Outer sepals with the veins conspicuous.
17. Outer sepals ciliate, oblong, ovate or elliptical; ovary hirsute.
18. Outer sepals oblong, with the apex caudate9. *Ipomoea cynanchifolia*
- 18'. Outer sepals ovate to elliptical, with the apex acute or acuminate.....
11. *Ipomoea grandifolia*
- 17'. Outer sepals glabrous, broadly ovate; ovary glabrous17. *Ipomoea macedoi*
- 16'. Outer sepals with the veins inconspicuous.
19. Leaf blade pubescent; outer sepal lanceolate8. *Ipomoea chiquitensis*
- 19'. Leaf blade villose or tomentose; outer sepals ovate or obovate.
20. Outer sepals 1.1–1.2 × 1.4–1.8; corola 8–10 × 6–7 cm.....
6. *Ipomoea brasiliana*
- 20'. Outer sepals 1.3 × 1.8–2 cm; corola > 12 cm long.....18. *Ipomoea magna*
- 9'. Internodes mostly glabrous, or with trichomes restrict to the axils.
21. Corolla hypocrateriform, stamens exerted.....12. *Ipomoea hederifolia*
- 21'. Corolla infundibuliform or campanulate, stamens included.
22. Outer sepals with the veins conspicuous.....15. *Ipomoea incarnata*
- 22'. Outer sepals with the veins inconspicuous.
23. Leaf blade linear.....26. *Ipomoea queirozii*
- 23'. Leaf blade cordiform, deltoid, reniform, hastate, sagittate, ovate or narrow-oblong.
24. Outer sepals verrucose or with a subapical rostrum.
25. Outer sepals with subapical rostrum, verrucose.....3. *Ipomoea bahiensis*
- 25'. Outer sepals verrucose1. *Ipomoea acanthocarpa*
- 24'. Outer sepals smooth.
26. Outer sepals with the apex acuminate or cirrose.
27. Outer sepals lanceolate; ovary hirsute4. *Ipomoea batatas*
- 27'. Outer sepals ovate or elliptical; ovary glabrous.
28. Leaf blade narrow-oblong14. *Ipomoea imperati*
- 28'. Leaf blade cordiform, ovate27. *Ipomoea ramosissima*
- 26'. Outer sepals with the apex rounded.
29. Outer sepals shorter than the inner ones.....2. *Ipomoea asarifolia*
- 29'. Outer sepals subequal to the inner ones.
30. Corolla campanulate.
31. Leaf blade entire to 3-lobed; corolla bright lillac.....
5. *Ipomoea blanchetii*
- 31'. Leaf blade entire; corolla white with the mesopetal area green
32. *Ipomoea syringifolia*
- 30'. Corolla infundibuliform.
32. Leaf blade cordiform10. *Ipomoea goyazensis*
- 32'. Leaf blade oblong to ovate24. *Ipomoea pes-caprae*

1. *Ipomoea acanthocarpa* (Choisy) Asch. & Schweinf. (1867:277). Figs. 2a-b

Vines, latex not observed, internodes 4.9–12 cm long, smooth, glabrous. Leaves simple, petiole 1–6.3 cm long, pseudo-stipules absent, leaf blade chartaceous, 2–7.2 × 1.5–6.5 cm, entire to 3-lobed, cordiform, sagittate, or ovate, base cordate to hastate with basal teeth, apex acute, mucronate, discolorous, green *in vivo*, glabrous; venation actinodromous. Monochasium axillary, 1–3 flowers; pedicel 0.4–1.4 cm long, straight, bracteoles persistent, ca. 0.1 cm long, lanceolate, glabrous. Flowers diurnal, buds fusiform sepals subequal, glands absent, verrucose at the base, the outer ones 0.4–0.5 × 0.6–0.8 cm, ovate, margin scarious, base truncate, apex rounded, mucronate, glabrous, the inner ones 0.6 × 0.8 cm, oblong, margin scarious, base rounded, apex rounded, mucronate, glabrous; veins inconspicuous; corolla pink with darker tube, infundibuliform, 3–3.5 × 2–3 cm, glabrous; stamens included, 0 anthers ca. 0.1 cm long pistil included, style entire, ovary glabrous. Capsule dehiscent, ovoid, 0.7 × 1.3 cm, glabrous. Seeds 4, 0.3 × 0.4 cm long, elliptical, blackish, tomentose.

Selected material: Jucurutu, RPPN Stoessel de Brito, 06°02'02.0"S, 37°01'13.1"W, 8.I.2008, fl. and fr., *A.A. Roque* 393 (UFRN, PEUFR).

Ipomoea acanthocarpa occurs disjointly in Africa and in the Americas, in Peru, Ecuador, Guiana and in Northern and Northeastern Brazil (Wood *et al.* 2015). In Brazil, it is found in the Amazon, Caatinga and Atlantic Forest domains, and is associated to anthropized areas, and caatinga, ombrophilous forest and restinga vegetation (Simão-Bianchini *et al.* 2020). It is occasionally found in the state of RN, and collected in the Caatinga domain, in anthropized areas, roadsides, and natural vegetation areas. The species was found with flowers and fruits in May and June, and with flowers from January to August.

It is similar to *Ipomoea chiquitensis*, being distinguished by the slightly more robust size, corolla up to 3 cm long, and verrucose calyx base, while *I. chiquitensis* is slender, has a smaller corolla (up to 2 cm long), and non-verrucose calyx base.

2. *Ipomoea asarifolia* (Desr.) Roem. & Schult., Syst. Veg., ed. 15 bis 4: 251 (1819). Fig. 3a-b

Herbs stoloniferous, latex present, internodes 1–9 cm long, smooth, glabrous. Leaves simple, petiole 2–5 cm long, pseudo-stipules absent, leaf blade chartaceous 2.8–8.5 × 2–4.5 cm, entire,

reniform, deltoid, cordiform or oblong, base cordate, apex obtuse, rounded, rarely emarginate, discolor, glabrous; venation brochidodromous. Dichasium terminal, 2–8 flowers; pedicel 1–1.4 cm long, straight, bracteoles caducous, ca 0.2 cm long, lanceolate, glabrous. Flowers diurnal, buds fusiform; sepals unequal, glands absent, smooth, the outer ones 0.3–0.4 × 0.4–0.6 cm, oblong, entire, base rounded, apex rounded, glabrous, the inner ones 0.5–0.7 × 0.1–1.2 cm, identical in shape, glabrous; veins inconspicuous; corolla pink to purple, infundibuliform, 6–8.5 × 5–6 cm, glabrous; stamens included, anthers ca. 0.4 cm long; pistil included, style entire, ovary glabrous. Capsule dehiscent, spherical, 0.5–0.8 × 0.5–1 cm, glabrous. Seeds 4, 0.3 × 0.4 cm, ovoid, blackish, glabrous.

Selected material: Macaiba, reserva do assentamento José Coelho, 05°85'83,3"S, 35°35'39"W, 16.VI.2004, fl. and fr., *R.T. Queiroz* 72 (UFRN, HUEFS, JPB).

Ipomoea asarifolia has pantropical distribution (Austin & Huamán 1996; Simão-Bianchini 1998), and in Brazil occurs in the North, Northeast, Central-West and Southeast regions, and in the Amazon, Caatinga and Atlantic Forest phytogeographical domains, in anthropized areas, caatinga, “campo de várzea”, ciliary forest or “mata de galeria”, and “restinga” vegetations (Simão-Bianchini *et al.* 2020). It is frequent in RN and registered in the Atlantic Forest and Caatinga. It is one of the more common species of the family in the study area, usually being found in anthropized and waterlogged areas. It was collected with flowers and fruits in May and June, and with flowers from September to January.

It is morphologically similar to *Ipomoea pes-caprae*, which occurs exclusively in beach areas and is distinguished by the usually reniform leaves, with obtuse to rounded apex, and inner calyx bigger than the outer, while in *I. pes-caprae* the leaves are oblong to ovate, with apex rounded to emarginate, and subequal calyx.

3. *Ipomoea bahiensis* Willd. in J.J.Roemer & J.A.Schultes, Syst. Veg., ed. 15 bis 4: 789 (1819).

Fig. 5a

Vines, latex present, internodes 3.8–15 cm long, smooth, glabrous. Leaves simple, petiole 1.1–6.3 cm long, pseudo-stipules absent, leaf blade membranaceous, 2–5.4 × 1.9–6 cm, entire, cordiform to sagittate, base cordate to sagittate, apex acuminate, mucronate, discolorous, green *in vivo*, glabrous abaxially, adaxial surface with sparse trichomes, venation camptodromous. Dichasium

axillary and terminal, 1–9 flowers; pedicel 0.4–1 cm long, straight, bracteoles caducous, ca 0.4 cm long, linear, glabrous. Flowers diurnal, buds fusiform; sepals equal, glands absent, the outer ones

with a subapical rostrum and verrucose at the base, 0.4×0.6 cm, ovate, margin scarious, base rounded, apex rounded, glabrous; veins inconspicuous; corolla lilac with a darker tube, infundibuliform,

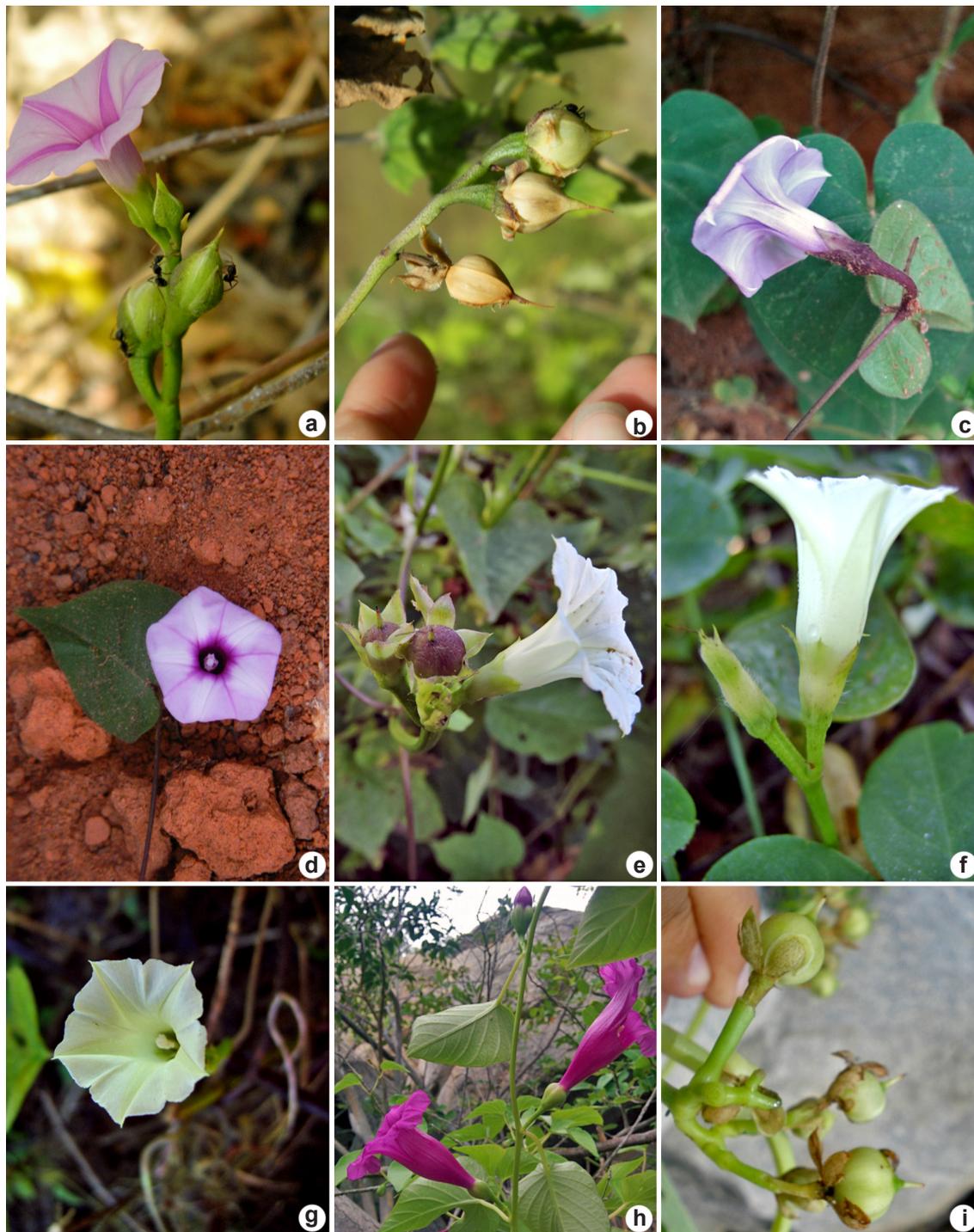


Figure 2 – a-i. Representatives of *Ipomoea* from the state of Rio Grande do Norte – a-b. *Ipomoea acanthocarpa*; c-d. *Ipomoea chiquitensis*; e-g. *Ipomoea cynanchifolia*; h. *Ipomoea blanchetii*; i. *Ipomoea goyazensis*.

3.5–4 × 3–3.5 cm, glabrous; stamens included, anthers ca 0.3 cm long; pistil included, style entire, ovary glabrous. Capsule dehiscent, spherical, 0.5–0.7 × 0.5–0.7 cm, glabrous. Seeds 3, elliptical, 0.3–0.4 × 0.5–0.6 cm, brown, tomentose.

Selected material: São Vicente, próximo ao açude, no caminho para Serra de Santana, 06°11'53"S, 36°41'37"W, fl. and fr., *J.L. Costa-Lima et al. 214* (UFRN, HUEFS).

Ipomoea bahiensis is endemic to Brazil, and widely distributed in the country, being absent only in the South region. It occurs in the Amazon, Caatinga, Cerrado, and Atlantic Forest phytogeographical domains, mainly in cerrado, caatinga, sand dunes, “restingas”, road margins, pastures, and agricultural land (Simão-Bianchini 1998; Simão-Bianchini *et al.* 2020). It is common in the study area, found both in the Caatinga and Atlantic Forest, in preserved areas, farms, roadsides, dunes, “restingas”, and anthropized areas. It was collected with flowers from April to November and with fruits in April and from June to November.

The subapical rostrum is a rare character in the genus. In the species studied here, it is present only in *I. bahiensis*, *I. hederifolia*, *I. muricata*, and *I. rosea*. It is distinct from *I. rosea* by the simple leaves, which are compound 3-foliolate in the latter. It differs from the others by the infundibuliform corolla, while *I. hederifolia* and *I. muricata* have hypocrateriform corolla.

4. *Ipomoea batatas* (L.) Lam., Tabl. Encycl. 1: 465 (1793).

Herbs stoloniferous, latex not observed, internodes 2–4 cm long, smooth, glabrous. Leaves simple, petiole 2.5–13 cm long, pseudo-stipules absent, leaf blade chartaceous, 2.8–8.5 × 2–4.5 cm, entire, hastate, base hastate, apex mucronate, acute or acuminate, discolorous, glabrous; venation palinactinodromous. Thyrses axillary, 3–4 flowers; pedicel 0.8–2 cm long, straight, bracteoles not seen. Flowers diurnal, buds fusiform; sepals equal in size, glands absent, smooth, 0.2–0.4 × 1.1–1.3 cm, the outer ones lanceolate, margin entire, base truncate, apex cirrose, with trichomes in the margin, the inner ones oblong, margin scarios, base truncate, apex cirrose, both glabrous; veins inconspicuous; corolla pink, infundibuliform, ca. 3.5 cm long, glabrous; pistil included, style entire, ovary hirsute. Capsule dehiscent, spherical, 0.5 × 0.5 cm, glabrous. Seeds 2, 0.3 × 0.4 cm, ovoid, blackish, glabrous.

Selected material: Venha ver, Serra de São José, 06°20'4"S, 38°28'15"W, alt. 805 m, 4.VIII.2010, fl. and fr., *A.A. Roque 827* (UFRN).

Ipomoea batatas is widely distributed around the world through cultivation, being commonly found in agricultural and anthropized areas (Austin & Huamán 1996; Simão-Bianchini 1998; Wood *et al.* 2015). It occurs in all regions, states and phytogeographical domains in Brazil, in anthropized areas (Simão-Bianchini *et al.* 2020). It is rare in RN and was found in the Caatinga phytogeographical domain, in anthropized and agricultural areas. It was registered with flowers and fruits in August.

It is similar to *Ipomoea cynanchifolia* and *I. grandifolia* by the presence of a hirsute ovary, but differs by the stoloniferous habit, hastate leaves, and flowers ca. 3.5 cm long, while the others are vines with cordiform to trilobed leaves, and flowers up to 2 cm long.

5. *Ipomoea blanchetii* Choisy in A.P. de Candolle, Prodr. 9: 387 (1845). Figs. 2h

Vines latex not observed, internodes 1.8–12.5 cm long, smooth, glabrous. Leaves simple, petiole 3.8–9.7 cm long, pseudo-stipules absent, leaf blades 6.5–9.0 × 6.4–9 cm chartaceous, entire or 3-lobed, ovate, base cordate with rounded auricle, apex acute, mucronate, discolorous, glabrous; venation brochidodromous. Dichasium axillary, up to 7 flowers; pedicel 1–2 cm long, straight, bracteoles not seen. Flowers diurnal, buds elliptical; sepals subequal, glands absent, smooth, the outer ones 0.4–0.5 × 0.9–1 cm, ovate to obovate, scarios, base truncate, apex rounded, the inner ones 0.5–0.7 × 0.9–1 cm, obovate, scarios, base truncate, apex rounded, glabrous; veins inconspicuous; corolla bright lilac, campanulate, 4–5 cm long, glabrous; stamens included, anthers 0.3–0.5 cm long; pistil included, style entire, ovarious glabrous. Capsule dehiscent, spherical, 0.9 × 0.9 cm, glabrous. Seed not seen.

Selected material: Jucurutu, Serra do Estreito, 06°12'41"S, 37°01'56"W, alt. 478 m, 14.IV.2017, fl. and fr., *E.O. Moura et al. 1034* (RN).

Ipomoea blanchetii is endemic to Brazil, found in all regions and phytogeographical domains (Simão-Bianchini *et al.* 2020). It is rare in the study area, where it was collected in Caatinga area, next to a rock outcrop. It was registered with flowers and fruits in April.

It is similar to *Ipomoea goyazensis* and can be distinguished by the entire leaf margin (vs. dentate) and brochidodromous venation (vs. actinodromous).

6. *Ipomoea brasiliana* (Mart. ex Choisy) Meisn. in C.F.P. von Martius & auct. suc. (eds.), *Fl. bras.* 7: 261 (1869). Fig. 3e-f

Vines, latex white, internodes 0.9–12 cm long, smooth, velutinous. Leaves simple, petiole 1.5–5 cm, pseudo-stipules absent, leaf blade chartaceous, 2.8–8.3 × 2.3–7.5 cm, entire, cordiform to reniform, base cordate, apex acute to obtuse, mucronate, discolorous, villose abaxially, tomentose adaxially; venation camptodromous. Dichasium axillary or terminal, up to 4 flowers, pedicel 0.3–1.7 cm long, straight, bracteoles caduceous, 0.9–1.1 × 2.2–2.5 cm, concave, elliptical, glabrescent. Flowers diurnal, buds elliptical; sepals subequal, glands absent, smooth, the outer ones 1.1–1.2 × 1.4–1.8, ovate or obovate, entire, base truncate, apex acute, glabrous to glabrescent, the inner ones 0.7–0.9 × 1.1–1.9 cm, oblong, scarious, base truncate, apex obtuse to retus, glabrous; veins inconspicuous; corolla pink or lilac, infundibuliform, 8–10 × 6–7 cm, glabrous; stamens included, anthers 0.2–0.5 cm pistil included, style entire, ovary glabrous. Capsule dehiscent, spherical to elliptical, 0.9–1.3 × 1–1.2 cm, glabrous. Seeds 4, 0.7 × 0.8–1 cm, elliptical, blackish, glabrous.

Selected material: Natal, Parque Estadual Dunas de Natal, 17.VIII.2010, fl. and fr., A.M. Marinho & J.L. Costa-Lima 136 (UFRN, PEUFR).

Ipomoea brasiliana is endemic to Brazil, occurring in the Northeast, Central-West, and Southeast regions, in the Caatinga and Cerrado (Simão-Bianchini *et al.* 2020). It is frequent in Caatinga areas (Buri 2009; Buri *et al.* 2013; Simão-Bianchini 1998), but in the study area it was also found in Atlantic Forest areas, usually under the canopy of trees and shrubs. Found with flowers from February to August and fruits in August and September.

Among the species treated in this study, it is morphologically similar to *Ipomoea subincana* and *I. magna*, due to the habit and the cordiform and tomentose leaves, with dense abaxial indument and prominent veins, and calyx with similar shape and proportion. It can be distinguished from *I. subincana* by the glabrous calyx and inflorescence with up to four flowers, while in *I. subincana* the calyx are sericeous and the inflorescence can have up to 15 flowers. It differs from *I. magna* by the villose abaxial surface of the leaf, corolla 8–10 × 6–7 cm, and glabrous seeds, while *I. magna* has tomentose abaxial surface, corolla ca. 13 cm long and seeds with long trichomes.

7. *Ipomoea carnea* subsp. *fistulosa* (Mart. ex Choisy) D.F. Austin, *Taxon* 26: 237 (1977).

Shrubs erect, latex present, internode 2.5–4 cm long, smooth, puberulent. Leaves simple, petiole 2.5–6.5 cm long, pseudo-stipules absent, leaf blade chartaceous, 6–7 × 14–15 cm, entire, elongate-ovate, base cordate, apex caudate concolor. puberulent t on both surfaces; venation camptodromous. Dichasium axillary or terminal, 3 to 10 flowers; pedicel 1–2 cm long, straight, bracteoles not seen. Flowers diurnal, buds elliptical; sepals equal, with a pair of glands at the base, smooth, 0.7 × 0.6–0.7 cm, widely ovate, scarious, base truncate apex rounded, puberulent; veins inconspicuous; corolla pink, infundibuliform, ca. 7 cm long, puberulent outside stamens included, anthers ca 0.5 cm long pistil included, style entire, ovary pubescent. Fruits not seen.

Selected material: Natal, terreno baldio na Avenida João Medeiros Filho, sentido Jenipabu, ca. 1 km após a rotatória, 05°44'41"S, 35°13'12"W, alt. 4 m, 7.V.2011, fl., J.G. Jardim 5984 (UFRN).

This subspecies has a pantropical distribution and is found in all Brazilian phytogeographical domains and regions. It is commonly found in anthropized areas, lowlands and “restingas” (Simão-Bianchini *et al.* 2020; Wood *et al.* 2015). It is occasional in RN, where it occurs in the Caatinga and Atlantic Forest, associated with waterlogged areas, or grown as an ornamental plant. Flowering from April to October.

It is similar to *Ipomoea megapotamica*, which is a vine, as both have glands on the calyx base. *Ipomoea carnea* subsp. *fistulosa* and *I. queirozii* are the only two shrubby species in the study area, but are easily distinguished. *Ipomoea carnea* subsp. *fistulosa* has long-petiolate, elongate-ovate leaves, with cordate base, and corolla with indument, while *I. queirozii* has subsessile, linear leaves, with cuneate base and glabrous corolla.

8. *Ipomoea chiquitensis* J.R.I. Wood & Scotland, *Kew Bull.* 70(3)-31: 18 (2015). Figs. 2c-d

Vines slender, latex not observed, internodes 12–15 cm long, smooth, glabrescent. Leaves simple, petiole 0.2–3 cm long, pseudo-stipules absent, leaf blade chartaceous, 1.7–6 × 2.7–6.5 cm, entire, cordiform, base cordate, toothed, apex acuminate, mucronate, concolor, pubescent; venation brochidromous. Monochasium helicoid, axillary, 1–3 flowers, pedicel 0.2–0.7 cm long, straight, bracteoles persistent, 0.3–0.5 cm long lanceolate, glabrous. Flowers diurnal, buds

fusiform; sepals subequal, glands absent, smooth, the outer ones 0.2×0.6 cm, lanceolate, entire, base truncate, apex acute to acuminate, pilose, the inner ones $0.2 \times 0.4\text{--}0.5$ cm, lanceolate,

scarious, base truncate, apex acute, glabrous; veins inconspicuous; corolla light-pink, tube darker, infundibuliform, 1.7–2 cm long, glabrous; stamens included, anthers ca. 0.1 cm long pistil

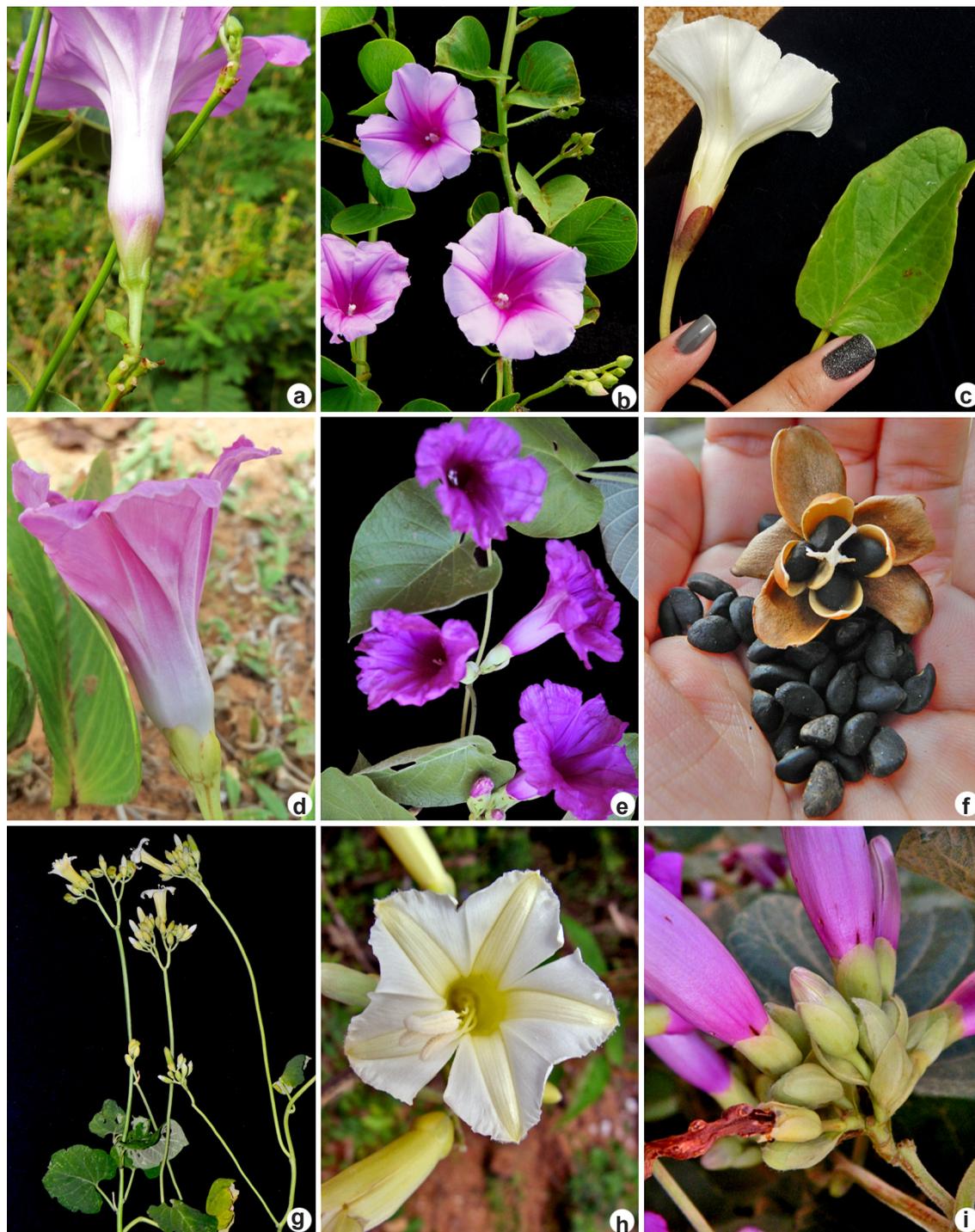


Figure 3 – a-i. Representatives of *Ipomoea* from the state of Rio Grande do Norte (cont.) – a-b. *Ipomoea asarifolia*; c. *Ipomoea imperati*; d. *Ipomoea pes-caprae*; e-f. *Ipomoea brasiliiana*; g-h. *Ipomoea marcellia*; i. *Ipomoea subincana*.

included, style entire, ovary glabrous. Capsule dehiscent, oblong, ca. 0.5 cm long. Seeds not observed.

Selected material: Ceará Mirim, fazenda Diamante, 05°35'18"S, 35°25'10"W, alt. 55 m, 11.VII.2016, fl. and fr., G.S. Garcia & L.M.G. Gonçalves 254 (UFRN).

Ipomoea chiquitensis also occurs in Santa Cruz (Bolivia) and in Brazil, in the states of Ceará and Piauí. (Sousa-Santos *et al.* 2018; Wood *et al.* 2015; Wood *et al.* 2017a; Simão-Bianchini *et al.* 2020). It is considered rare in RN, found on sandy soil in Atlantic Forest areas, in clearings and round margins. Found with flowers in April and July.

The species can be confused with *Ipomoea acanthocarpa*, as both are herbaceous vines with cordiform leaves and infundibuliform, short (up to 3.5 cm long), pink corollas. *I. chiquitensis* differs by the smaller size, the short-pedicellate (0.2–0.7 cm long) flowers, and very small corolla (1.7–2 cm long). *Ipomoea acanthocarpa* is more robust, with flowers with pedicel 0.4–1.4 cm long, and corolla 3–3.5 cm long.

9. *Ipomoea cynanchifolia* Meisn. in C.F.P. von Martius & auct. suc. (eds.), *Fl. bras.* 7: 274 (1869). Figs. 2e-g

Vines slender, sometimes prostrate, latex not observed; internode 6–11 cm long, smooth, hirsute. Leaves simple, petiole 2–4 cm long, pseudo-stipules absent, leaf blade chartaceous, 3.7–5 × 3.4–5.5 cm, entire to 3-lobed, cordiform, ovate, base cordate, toothed, apex acuminate mucronate, concolor, trichomes sparse restrict to the vein, ciliate; venation brochidodromous. Dichasium umbelliform, axillary, 2–5 flowers, pedicel 2.4–8 cm, straight, bracteoles persistent, 0.3–0.7 cm long, lanceolate, hirsute; sepals subequal, glands absent, smooth, the outer ones 0.2–0.3 × 0.8–1 cm, elliptical, entire, base rounded, ciliate, apex caudate, the inner ones 0.4–0.5 × 0.7–1 cm, oblong, scarious, base rounded, apex caudate, ciliate 3–5 veins conspicuous corolla pink, tube darker, infundibuliform, 1.5–2 cm long, glabrous; stamens included, anthers ca. 0.3 cm long; pistil included, style entire, ovary hirsute. Capsule dehiscent, spherical, ca. 1.2 cm long, hirsute. Seeds not observed.

Selected material: Caicó, Rod. RN-288, sentido Caicó - São José do Seridó, 23.V.2009, fl. and fr., J.L. Costa-Lima & A.A. Roque 143 (UFRN).

Ipomoea cynanchifolia occurs in Bolivia, Guiana, and Brazil, but its distribution is probably

underestimated (Wood *et al.* 2015). In Brazil, it occurs in the North, Northeast, Central-West, and Southeast regions, in the Amazon, Caatinga, Cerrado, and Atlantic Forest phytogeographical domains, being common in anthropized areas (Simão-Bianchini *et al.* 2020). It is rare in RN, where it was collected in anthropized areas in the Caatinga. Found with flowers in May, June and October, and fruits in June and October.

It is morphologically close to *Ipomoea ramosissima*, being distinguished by the capsule, which is ovoid and hirsute in *I. cynanchifolia* and compressed and glabrous in *I. ramosissima*. It is also similar to *Ipomoea grandifolia*, differing mainly by the smooth branchlets, ciliate leaf margin, and brochidodromous venation, while *I. grandifolia* leaves have entire non-ciliate margins and palinactinodromous venation.

10. *Ipomoea goyazensis* Gardner, Hooker's Icon. Pl. 5: t. 479 (1842). Figs. 2i

Vines slender, latex present, internode ca. 11 cm long, smooth, glabrous. Leaves entire, petiole 11.5–11.7 cm long, pseudo-stipules absent, leaf blade chartaceous, 12.5–13.3 × 11.5 cm, entire, cordiform, base cordate, apex acute, concolor, glabrous; venation actinodromous. Dichasium axillary, up to 7 flowers, pedicel 1–2 cm long, straight, bracteoles not seen; sepals subequal, glands absent, smooth, the outer ones 0.4 × 0.7–0.8 cm, ovate, entire, base truncate, apex rounded, the inner ones 0.6 × 0.8 cm, obovate, scarious, base truncate, apex rounded, glabrous; veins inconspicuous. Corolla, stamens and pistil not seen. Capsule dehiscent, spherical or elliptical 0.8 × 1–1.2 cm, glabrous. Seeds 6, ca. 0.7 cm long blackish, with long, smooth trichomes.

Selected material: Jucurutu, RPPN Stoessel de Brito, Serra do Estreito, 06°12'54"S, 37°02'04"W, alt. 235 m, 5.VI.2008, fr., A.A. Roque 616 (UFRN, PEUFR).

Ipomoea goyazensis occurs in the Amazon and Cerrado phytogeographical domains, with records in Bolivia (Velasco), and in Brazil (Central-West, North, Northeast and Southeast regions) (Simão-Bianchini *et al.* 2020; Simão-Bianchini 1998; Wood & Scotland 2017a). The species is rare in the study area, being collected in only one location, in rock outcrops in Caatinga. Found with fruits only in June.

The species is similar to *Ipomoea blanchetii* but differs by the characters discussed under the comments for that species.

11. *Ipomoea grandifolia* (Dammer) O'Donell, Arq. Mus. Paranaense 9: 222 (1952).

Vines slender, latex not observed, internodes 10–40 cm long, smooth, pilose. Leaves simple, petiole 4.5–15 cm long, pseudo-stipules absent, leaf blade chartaceous, 6–11.5 × 6–10 cm, entire to 3-trilobed, cordiform, base cordate, often with a teeth, apex acute or acuminate, mucronate, discolor, both surfaces glabrous, with sparse trichomes in the central vein; venation palinactinodromous. Dichasium axillary, 3–7 flowers, pedicel ca. 0.6 cm long, straight, bracteoles 0.4–0.7 cm long, linear, ciliate sepals subequal, glands absent, smooth, the outer ones 0.3–0.4 × 0.7–1 cm, ovate to elliptical, entire, base rounded, apex acuminate or acute, ciliate, the inner ones 0.4–0.5 × 0.8–0.9 cm, ovate, entire, base rounded, apex acuminate, ciliate; veins conspicuous; corolla white, infundibuliform, 1.5–2 cm long, glabrous; stamens included, anthers ca. 0.1 cm long; pistil included, style entire, ovary hirsute. Capsule dehiscent, spherical, 0.7–0.8 × 0.7–0.8 cm, hirsute. Seeds not observed.

Selected material: Serrinha dos Pintos, 06°7'16"S, 37°56'25"W, 29.VI.2006, fl. and fr., *R.T. Queiroz 1035* (UFRN, HUEFS).

Ipomoea grandifolia is found in South America, in Argentina, Paraguay, Bolivia and Brazil (Wood *et al.* 2015). In Brazil it is distributed in the Amazon, Caatinga, Cerrado, Atlantic Forest and Pantanal domains, and in anthropized areas, carrasco, cerrado, ciliary forest, ombrophilous forest, and restinga vegetation (Simão-Bianchini *et al.* 2020). It is rare in RN, where it was found in high elevation areas in the Caatinga. It was collected with flowers in May and June and with fruits in May.

It is similar to *Ipomoea cynanchifolia* and differs by the characters discussed under comments for that species.

12. *Ipomoea hederifolia* L., Syst. Nat. ed. 10, 2: 925 (1759). Fig. 5h

Vines slender, latex not observed, internodes 2–14 cm long, smooth, glabrous with few trichomes restricted to the axile. Leaves simple, petiole 2.5–7 cm long, pseudo-stipules absent, leaf blade membranaceous, 3.2–9.2 × 3–9 cm, 3-lobed, cordiform, base cordate with dentate auricle, apex acuminate, mucronate, discolors, both surfaces glabrous; venation brochidodromous. Monochasium helicoid, axillary and terminal, 3–10 flowers, pedicel 0.3–0.7 cm long, straight, glabrous, bracteoles not seen; sepals subequal, glands absent, with a subapical rostrum, the outer ones 0.2 × 0.3 cm, oblong, entire,

base truncate, apex rounded, glabrous, the inner ones 0.2 × 0.3 cm, oblong, scarious, base truncate, apex rounded, glabrous; veins inconspicuous; corolla red, hypocrateriform, 3.7 × 4.3 cm, glabrous; stamens exserted, anthers ca. 0.3 cm long; pistil exserted, style entire, ovary glabrous. Capsule dehiscent, spherical, 3–5 × 3–5 cm, glabrous. Seeds 4, 0.3–0.4 cm, blackish, velutinous.

Selected material: Natal, bairro de Capim Macio, 05°47'42"S, 35°12'34"W, alt. 30 m, 14.VI.1997, fl. and fr., *J.C.O. Mattos 03* (MOSS).

Ipomoea hederifolia is a native species, common on tropical and subtropical America (Simão-Bianchini 1998; Wood *et al.* 2015). It is widely distributed in Brazil, occurring in the Amazon, Caatinga, Cerrado, and Atlantic Forest phytogeographical domains (Simão-Bianchini *et al.* 2020). It is occasional in the study area, being found in Caatinga and Atlantic Forest areas, usually in anthropized areas and restingas. It was collected with flowers and fruits in May, June, August, October, and November.

It is similar to *Ipomoea quamoclit*, due to the red, hypocrateriform corolla and exserted stamens and style. However, it is easily distinguished from that species, as *I. quamoclit* has pinnatifid leaves with pseudo-stipules (*vs.* leaves entire without pseudo-stipules).

13. *Ipomoea heptaphylla* Sweet, Hort. Brit., ed. 2: 372 (1830). Figs. 4a-c

Vines slender, latex not observed, internodes 4–10.5 cm long, smooth, glabrous. Leaves compound, palmatisect, petiole 1.5–4.3 cm long, pseudo-stipules absent, leaf blade membranaceous, leaflets 5, sessile, 0.3–1.5 × 1.3–5 cm, entire, base attenuate, apex acuminate, rounded or apiculate, discolor, adaxial surface darker, both surfaces glabrous; venation camptodromous. Flowers solitary, axillary and terminal, pedicel 0.5–2 cm long, spiral resembling a tendril, glabrous; sepals subequal, glands absent, verrucose at the base, the outer ones ca. 0.2 × 0.5 cm, ovate, scarious, base truncate, apex apiculate, glabrous, the inner ones 0.2–0.3 × 0.4–0.6 cm, oblong, scarious, base truncate, apex rounded, mucronate, glabrous; veins inconspicuous; corolla white or pinkish, lilac or purplish-brown, infundibuliform, 1.5–2.5 cm, glabrous; stamens included, anthers ca. 0.1 cm long; pistil included ovary glabrous. Capsule dehiscent, spherical, 0.7–0.8 × 0.7–0.8 cm, glabrous. Seeds 4, ca. 0.6 cm long, whitish, tomentose.

Selected material: Serra Negra do Norte, Estação Ecológica do Seridó, 06°34'45"S, 37°15'3"W, alt. 220 m, 23.V.2006, fl. and fr., *R.T. Queiroz 904* (UFRN, HUEFS).

Ipomoea heptaphylla is widely distributed from southern United States to southern Argentina, usually in flooded areas (Simão-Bianchini 1998; Wood *et al.* 2015). In Brazil, it occurs in the

Caatinga, Cerrado and Atlantic Forest, usually in anthropized areas, and in caatinga and cerrado vegetation (Simão-Bianchini *et al.* 2020). It is rare in RN, where it is found in sandy soils associated



Figure 4 – a-i. Representatives of *Ipomoea* from the state of Rio Grande do Norte (cont.) – a-c. *Ipomoea heptaphylla*; d-e. *Ipomoea longiramosa*; f-g. *Ipomoea syringifolia*; h. *Ipomoea nil* (L.) Roth; i. *Ipomoea macedoi*.

to flooded areas in the Caatinga. It was registered with flowers and fruits from April to June and September.

It is similar to *Ipomoea tenera*, differing by the spiral pedicel and outer sepals verrucate instead of ridged.

14. *Ipomoea imperati* (Vahl) Griseb., Cat. Pl. Cub.: 203 (1866). Figs. 3c

Herbs stoloniferous, latex white, internode 4–9.2 cm long, smooth, glabrous. Leaves simple, petiole 1.2–4.0 cm long, pseudo-stipules absent, leaf blades coriaceous, 1.5–3.2 × 2.2–6.6 cm, entire, narrow-oblong, base truncate, margin entire, apex emarginate, concolor, glabrous; venation camptodromous. Flowers solitary, axillary and terminal, pedicels 4–6.5 cm long, straight, glabrous; sepals subequal, glands absent, smooth, the outer ones 0.6 × 1.2–1.5 cm, ovate, entire, base truncate, apex acuminate, mucronate, the inner ones 0.5–0.7 × 1.6–1.8 cm, identical in shape, glabrous; veins inconspicuous; corolla white with the inner portion of the tube yellow, infundibuliform, 4–5 cm long, glabrous; stamens included, anthers 0.4–0.5 cm long; pistil included, style entire, ovary glabrous. Fruits not observed.

Selected material: Nisia floresta, praia de Búzios, 06°00'32"S, 35°06'25"W, 7.V.2011, fl., *E.O. Moura et al.* 4 (UFRN, HUEFS).

Ipomoea imperati occurs in Asia, Europe, and the Americas (Ferreira & Miotto 2009; Simão-Bianchini 1998). In Brazil, it is found in the Amazon and Atlantic Forest, in the coast, acting as a dune fixer on beaches and restingas (Simão-Bianchini *et al.* 2020). It is rare in the study area, and was collected on the beach in the Atlantic Forest phytogeographical domain. Flowering in May, June, and September.

Together with *Ipomoea pes-caprae* are the only species that occur exclusively in beach sand in RN. They can be easily distinguished by the narrow-oblong leaves, with emarginate apex and white corolla with the inner portion of the tube white, while *I. pes-caprae* has oblong to ovate leaves, and the corolla is pink or lilac.

15. *Ipomoea incarnata* (Vahl) Choisy in A.P. de Candolle, Prodr. 9: 360 (1845). Figs. 5b

Vines slender, latex white internodes 6–7.2 cm long, smooth, glabrous. Leaves simple, petiole 1.4–5 cm long, pseudo-stipules absent, leaf blades membranaceous, 1.6–5.3 × 3.4–8.5 cm, entire, cordiform to deltoid, base cordate, with a rounded

auricle, apex acuminate, mucronate, concolor, glabrous; venation camptodromous. Dichasium axillary, 1–8 flowers, pedicel 0.4–1 cm long, straight, bracteoles persistent, 0.2–0.4 × 0.8–1.2 cm, elliptical, glabrous sepals subequal, glands absent, smooth, the outer ones 1.8–2.1 cm, elliptical, scarious, base rounded, apex acute, mucronate, glabrous, the inner 0.5–0.7 × 1.8 cm, identical in shape, glabrous; veins conspicuous; corolla pink, infundibuliform, 6–9 × 7 cm, glabrous; stamens included, anthers 0.4–0.6 cm long; pistil included, style entire, ovary glabrous. Capsule dehiscent, elliptic, 0.7 × 1.3 cm, glabrous. Seeds 4, ca. 0.6 cm long, narrow-elliptical, blackish, tomentose.

Selected material: Portalegre, 06°01'26"S, 37°59'16"W, fl. and fr., *D.F.A. Carvalho* 1 (MOSS).

Ipomoea incarnata has a disjoint distribution in arid regions of South America, in Brazil, Bolivia, Colombia, Ecuador, Peru, and Venezuela (Austin & Huáman 1996; Wood *et al.* 2015). In Brazil, it is registered in the Caatinga and Atlantic Forest, from Ceará to Minas Gerais (Simão-Bianchini *et al.* 2020). It is frequent in the study area, where it was collected in the Caatinga and Atlantic Forest phytogeographical domains, in agricultural and anthropized areas, roadsides, and in coastal areas. It was registered with fruits in March, May, August, and November, and with flowers from March to September and in November.

It is easily distinguished from other species by the elliptical calyx with acute apex and conspicuous parallel veins.

16. *Ipomoea longeramosa* Choisy in A.P. de Candolle, Prodr. 9: 384 (1845). Figs. 4d-e

Vine slender, latex not observed, internodes 4–10.5 cm long, smooth, glabrous. Leaves simple, petiole 1.8–2.5 cm long, pseudo-stipules absent, leaf blades membranaceous, 0.4–1.5 × 0.3–3.9 cm, deeply 5–7 lobed, lobes ovate to narrowly ovate, base slightly cordate, apex acute or rounded, mucronate, concolor, glabrous; venation actinodromous. Monochasium axillary, 1–2 flowers, pedicel 0.6–1.7 cm long, straight bracteoles persistent, 0.1–0.2 cm long, linear, glabrous; sepals subequal, glands absent, smooth, the outer ones 0.2 × 0.5–0.6 cm, elliptical, scarious, base truncate, apex mucronate, pilose, the inner ones slightly longer 0.3–0.4 × 0.7–1 cm, identical in shape, glabrous, veins inconspicuous; corolla yellow or green with vinaceous tube, infundibuliform, 1.8–3 × 1.5–3 cm long, glabrous; stamens included, anthers ca 0.1 cm long pistil included, style entire, ovary

glabrous. Capsule dehiscent, spherical, $0.2 \times 0.5\text{--}0.6$ cm, glabrous. Seeds 2, $0.2\text{--}0.3 \times 0.5$ cm, elliptical, black, glabrous.

Selected material: Jucurutu, RPPN Stoessel de Brito, $06^{\circ}02'02''\text{S}$, $37^{\circ}01'13''\text{W}$, 31.V.2008, fl. and fr., *A.A. Roque 535* (UFRN, PEUFR).



Figure 5 – a-i. Representatives of *Ipomoea* from the state of Rio Grande do Norte (cont.) – a. *Ipomoea bahiensis*; b. *Ipomoea incarnata*; c-d. *Ipomoea rosea*; e. *Ipomoea megapotamica*; f-g. *Ipomoea sericosepala*; h. *Ipomoea hederifolia*; i. *Ipomoea quamoclit*.

Ipomoea longeramosa occurs in Brazil and Venezuela (Austin & Huáman 1996). It is recorded in all Brazilian regions, except the South, in the Cerrado and Caatinga phytogeographical domains (Simão-Bianchini *et al.* 2020). It is occasional in RN, where it is found mainly in Caatinga; it was registered in the Atlantic Forest only in the city of Natal. It was collected on roadsides, agricultural, and anthropized areas. Flowering from March to August, fruits from May to August, flower buds in April.

It is easily distinguished from other species in the study area by the deeply palmatilobed leaves and yellow corolla with vinaceous tube.

17. *Ipomoea macedoi* Hoehne, Arq. Bot. Estado São Paulo, n.s., f.m., 2: 110 (1950). Fig. 4i

Vines slender, latex absent, internodes 3–11 cm long, smooth, pilose. Leaves simple, petiole 1.3–8 cm long, pseudo-stipules absent, leaf blades chartaceous, 1.3–9 × 2.2–7 cm, entire to 3-lobed, ovate-cordate or deltoid, e base cordate to hastate, apex acuminate, mucronate, concolor, glabrous adaxially, abaxial surface with trichomes only over the veins; venation brochidodromous. Monochasium axillary, 1–2 flowers, pedicels 2.2–7 cm long, straight, bracteoles persistent, 1 × 0.1 cm, elliptical, pilose. Flowers diurnal, buds fusiform; sepals unequal, glands absent, smooth, the outer ones 1.5–2.5 × 0.7–1 cm, broadly ovate, entire or with 1–3 basal teeth in each side, base cordate, apex acuminate, glabrous, the inner ones 1 × 0.3 cm, elliptical, scarios, base cuneate, apex acuminate, pilose; veins conspicuous; corolla light pink with darker mesopetal area, tube vinaceous, infundibuliform, 4–5 × 2–3 cm, glabrous; stamens included, anthers ca. 3.5 cm long; pistil included, style entire, ovary glabrous. Fruits not observed.

Selected material: Felipe Guerra, Cachoeira do Roncador, 05°34'31"S, 37°40'44"W, 41 m, 27.V.2015, fl., *E.C. Tomaz et al.* 50 (UFRN).

Ipomoea macedoi is a rare species endemic to Brazil, found in only three localities in Minas Gerais and RN, in Cerrado and Caatinga, associated to flooded areas (Simão-Bianchini *et al.* 2020; Marinho *et al.* 2017; Simao-Bianchini 1998). It was registered with flowers in February, and fruits from April to June.

It differs from other species in this study by the outer calyx with cordate base, larger than the inner. It is morphologically close to *Ipomoea pantanalensis* J.R.I. Wood & Scotland, which does not occur in the study area. It differs by the outer

calyx, which is ovate-deltoid with a truncate base in *I. pantanalensis*.

18. *Ipomoea magna* Sim.-Bianch. & J.R.I. Wood, Kew Bull. 72(1)-8: 18 (2017).

Vines latex white, internode 7–8 cm long, smooth, tomentose. Leaves simple, petiole 10–15 cm, pseudo-stipules absent, leaf blades membranaceous, 16.4–20.5 × 16.5–18 cm, entire, slightly undulate, ovate to cordate, base cordate, apex acute, discolor, tomentose abaxially, rough-tomentose adaxially, venation brochidodromous. Dichasium axillary, up to 4 flowers, pedicel 1.7–2.7 cm long, straight, bracteoles caducous, not seen. Flowers diurnal, buds fusiform; calyx subequal, glands absent, smooth, the outer ones 1.3 × 1.8–2 cm, ovate, entire, base truncate, apex acute or obtuse, glabrous to glabrescent, the inner ones 1.3–1.5 × 2 cm, ovate to obovate, base truncate, scarios, apex obtuse, glabrous to glabrescent; veins inconspicuous; corolla light pink, infundibuliform, ca. 13 cm long, glabrous; stamens included, anthers ca. 0.7 cm; pistil included, style entire, ovary glabrous. Capsule dehiscent, elliptical, 1.3–1.5 × 1.5–2 cm, glabrous. Seeds 4, 0.5 × 0.8 cm, ellipsoid, black, with long and soft white trichomes.

Selected material: Martins, propriedade de Seu Clesinho, 06°03'55"S, 37°56'14"W, alt. 711 m, 28.V.2011, fl. and fr., *A.A. Roque & J.L. Costa-Lima 1151* (UFRN, RB).

Ipomoea magna is endemic to Brazil, with distribution restricted to the states of Bahia, Ceará, Goiás, Minas Gerais, Pernambuco, RN and São Paulo, being commonly found in Caatinga areas, and sometimes in “mata seca” or at the edge of “tropical forest” on sandy soil at elevations of 500–800 m. (Simão-Bianchini *et al.* 2020; Wood *et al.* 2017b). It is rare in RN, being found in only one locality in elevations between 711–720 m, which are among the highest in the state. Flowering from April to May and fruiting in May.

See *I. braziliana* for taxonomic comments.

19. *Ipomoea marcellia* Meisn. in C.F.P. von Martius & auct. suc. (eds.), *Fl. bras.* 7: 257 (1869).

Figs. 3g-h

Vines, latex white, internode 10–15 cm long, smooth, tomentose, sometimes glabrescent. Leaves simple, petiole 3–9 cm long, pseudo-stipules absent, leaf blade chartaceous, 7.7–15.5 × 8–17.5 cm, entire, ovate, cordiform, base cordate, apex acute, mucronate, discolor, tomentose abaxially,

trichomes denser on veins, tomentose adaxially; venation palinactinodromous. Dichasium axillary, 3–13 flowers, pedicel 0.2–1 cm long, straight, bracteoles caducous, ca. 1 cm long, convex, oblong, base cuneate, apex obtuse, velutinous. Flowers nocturnal, buds elliptica; 1 sepals equal, glands absent, smooth, 1–1.2 × 0.6–0.7 cm, ovate, entire, base truncate, apex obtuse, sericeous; veins inconspicuous. corolla white, mesopetal area yellow, infundibuliform, 4.5–7 cm long sericeous; stamens exserted, anthers 0.9–1 cm long, elliptical; pistil exserted, style entire, ovary glabrous. Capsule dehiscent, spherical, ca. 1.3 cm long, velutinous. Seeds 4, 0.3 × 0.5 cm, ellipsoid, black, trichomes white, long and smooth, concentrated at the apex.

Selected material: Equador, área para instalação do Complexo Eólico Santapape, 06°51'36"S, 36°40'26"W, 14.VIII.2015, fl. and fr., V.F. Sousa *et al.* 48 (UFRN).

Ipomoea marcellia is endemic to Northeastern Brazil, distributed from Ceará to Bahia, endemic to the Caatinga (Buril 2009; Buril *et al.* 2013; Delgado-Jr. *et al.* 2014; Simão-Bianchini *et al.* 2020). It is occasional in the study area, where it was collected in Caatinga, commonly in roadsides. It was found with flowers from February to August, and fruits in August.

It differs from other species in this study by the flowers with nocturnal anthesis, white corolla with yellow, sericeous mesopetal area.

20. *Ipomoea megapotamica* Choisy in A.P. de Candolle, *Prodr.* 9: 375 (1845). Figs. 5e

Vines, latex white, internodes 1–8 cm long, smooth, pubescent. Leaves simple, petiole 0.9–3 cm long, pseudo-stipules absent, leaf blade chartaceous, 3.3–6 × 3.7–6.9 cm, entire, ovate, base cordate, truncate or rounded, apex acuminate, discolor sericeous, venation actinodromous. Dichasium axillary, up to 9 flowers, pedicel 0.3–0.5 cm long, straight, bracteoles not seen. Flowers diurnal, buds fusiform; sepals subequal, glands present at the base, smooth, the outer ones 0.4–0.5 × 0.7 cm, ovate, entire, base truncate apex acute, sericeous, the inner ones 0.5 × 0.6 cm, ovate, scarious, base truncate, apex acute, sericeous; veins inconspicuous; corolla pink or lilac, campanulate, 4.3–4.7 cm long, sericeous; stamens included, anthers ca. 0.4 cm long; pistil included, style entire, ovary glabrous. Fruits not observed.

Selected material: Coronel João Pessoa, 06°16'2"S, 38°27'13"W, alt. 418 m, 19.IV.2015, fl., E.O. Moura *et al.* 362 (UFRN, PEUFR).

Ipomoea megapotamica occurs in Argentina, Venezuela, Bolivia, Paraguay, and Brazil (Simão-Bianchini 1998; Wood *et al.* 2015). It is found in all regions in Brazil, usually in caatinga, cerrado and ciliary forests (Simão-Bianchini *et al.* 2020). It is rare in RN, where it was collected in the Caatinga phytogeographical domain, around the highest elevations of the state. Collected with flowers in April.

See the taxonomic comments for *Ipomoea carnea* subsp. *fistulosa*.

21. *Ipomoea muricata* (L.) Jacq., *Pl. Hort. Schoenbr.* 3: 40 (1798).

Vine, latex not observed, internode ca. 10 cm long, muricate, glabrous. Leaves simple, petiole 7.5–11 cm long, pseudo-stipules absent, leaf blade chartaceous, 10–11 × 6–10 cm, entire, cordiform, base cordate, apex acuminate, concolor, glabrous abaxially, adaxial surface pilose, venation actinodromous. Dichasium axillary, up to 3 flowers, pedicel 1.2–2.5 cm, straight, bracteoles not seen. Flowers diurnal, buds fusiform; sepals subequal, glands absent, with a subapical rostrum, the outer ones 0.3–0.4 × 0.7–0.8 cm, ovate, entire, base truncate, apex acute, glabrous, the inner ones 0.6 × 1 cm, identical in shape veins inconspicuous; corolla pink, hypocrateriform, 6–8 cm long, glabrous; stamens included, anthers ca. 0.3 cm long; pistil included, style entire, ovary glabrous. Fruits not observed.

Selected material: Serra Negra do Norte, Estação Ecológica do Seridó, 06°34'48"S, 37°14'56"W, alt. 190 m, 7.VII.2006, fl., R.T. Queiroz 1070 (UFRN, SP).

Ipomoea muricata is widespread in the tropics, but not abundant (Wood *et al.* 2015). In the Americas it occurs in Argentina, Brazil, Ecuador, Mexico, Peru, United States and Venezuela (Austin & Huáman 1996; Austin *et al.* 2015). In Brazil, it is usually found in disturbed environments (Simão-Bianchini *et al.* 2020). It is rare in RN, where it was collected in the Caatinga, in only two localities: Mossoró and Serra Negra do Norte. According to herbarium specimen labels, it was found in sandy soil close to a stream, and in the Serra Mossoró. Collected with flowers in July and November.

It is similar to *Ipomoea parasitica* due to the cordiform leaves and muricate branchlets but differs by the hypocrateriform corolla (*vs.* infundibuliform) and keeled calyx with subapical rostrum (*vs.* calyx without evident projections). According to Simão-Bianchini (1998), the flowers from this species have nocturnal anthesis.

22. *Ipomoea nil* (L.) Roth, Catal. Bot. 1: 36 (1797). Fig. 4h

Vines slender, latex white, internodes 8–19 cm long, smooth, hirsute. Leaves simple, petiole 1.5–5.5 cm long, pseudo-stipules absent, leaf blade membranaceous, 4–12 × 3.9–12 cm, 3-lobed, cordiform, base cordate, apex acuminate, mucronate, discolor, hirsute; venation actinodromous. Dichasium axillary and terminal, up to 3 flowers, pedicel 2.2–6.5 cm long, straight, bracteoles persistent, 0.5–1.5 cm long, linear, hirsute. Sepal equal, glands absent, smooth, 0.2–0.5 × 1–5 cm, lanceolate, base truncate, apex long acuminate, hirsute; veins inconspicuous; corolla blue, with white tube, infundibuliform, 3–5 × 5.5–6.4 cm, glabrous; stamens included, anthers 0.1–0.2 cm long; pistil included, style entire, ovary ovoid, glabrous. Capsule dehiscent, spherical, 1–1.5 × 1.1–1.5 cm, glabrous. Seeds 6, 0.4 × 0.5–0.6 cm, oblong, blackish, velutinous.

Selected material: Jucurutu, RPPN Stoessel de Brito, -6.03389S, -37.0203W, 31.V.2008, fl. and fr., *A.A. Roque 546* (UFRN, PEUFR).

Ipomoea nil is native of tropical America and naturalized in the pantropical region, occurring as a weed in disturbed environments (Simão-Bianchini 1998; Wood *et al.* 2015). In Brazil the species is widely distributed in the Amazon, Caatinga, Cerrado and Atlantic Forest (Simão-Bianchini *et al.* 2020). It is frequent in RN, where it was found in Caatinga and Atlantic Forest, always in anthropized areas. It was collected with flowers from April to June and from August to October, and with fruits in May and August.

It is easily distinguished from other species in this study by the long acuminate, hirsute calyx.

23. *Ipomoea parasitica* (Kunth) G. Don, Gen. Hist. 4: 275 (1837).

Vines, latex white, internode 8–20 cm long, muricate, pilose. Leaves simple, petiole 5–15 cm long, pseudo-stipules absent, leaf blade membranaceous, 4–23.5 × 4–15 cm, entire, cordiform, base cordate, apex acuminate, concolor, glabrous abaxially, trichomes sparse on the vein, sparsely pilose adaxially; venation brochidodromous. Dichasium axillary, 3–4 flowers, pedicel ca. 1 cm, straight, thickened sepals subequal, glands absent, smooth, the outer ones 0.4 × 0.7 cm, ovate, entire, base truncate, apex rounded, mucronate, the inner ones 0.5 × 0.7 cm, ovate, scarious, base truncate, apex rounded, mucronate, veins inconspicuous; corolla blue with a yellow

tube, infundibuliform, 5–5.5 cm long, externally pilose; stamens included, anthers ca. 0.5 cm long pistil included, style entire, ovary glabrous. Capsule dehiscent, fusiform, with apical spine, 0.7–1.5 × 1.8–2.5 cm, glabrous. Seeds 4, 0.6–1.2 cm long, black, glabrous.

Selected material: Luíz Gomes, Caitutu, 16.VI.1980, fl. and fr., *O.F. Oliveira 1068* (MOSS).

Ipomoea parasitica is widely distributed in the Americas, from southern Mexico to Bolivia, being uncommon in South America (Austin & Huáman 1996; Wood *et al.* 2015). It is native from Central America and northern South America and is cultivated and subspontaneous in Brazil (Simão-Bianchini 1998). In Brazil, it is naturalized and occurs in anthropized areas in the Caatinga and Cerrado (Simão-Bianchini *et al.* 2020). It is rare in the study area and was found in anthropized areas in the Caatinga. Collected with flowers from April to August and with fruits from May to June.

See taxonomic comments for *I. muricata*.

24. *Ipomoea pes-caprae* (L.) R.Br. in J.H. Tuckey, Narr. Exped. Zaire: 477 (1818). Fig. 3d

Herbs stoloniferous, latex white, internode 4–10 cm long, smooth, glabrous. Leaves simple, petiole 1.7–6 cm long, pseudo-stipules absent, leaf blade coriaceous, 3.2–9.7 × 3–9.5 cm, entire, oblong to ovate, base rounded, truncate to cordate, apex rounded to emarginate, concolor, glabrous; venation actinodromous. Dichasium axillary and terminal, up to 15 flowers, pedicel 1–4 cm long, straight, bracteoles caducous, not observed. Flowers diurnal, buds elliptical; 1 sepals subequal, glands absent, smooth, the outer ones 0.6–0.9 × 0.6–0.9 cm, ovate to elliptical, entire, base truncate, apex rounded, mucronate, the inner ones 0.7–1.1 × 0.7–1 cm, ovate to oblong, scarious, base truncate, apex retuse, mucronate; veins inconspicuous; corolla pink or lilac, infundibuliform, 4.5–6 × 5.5–8 cm, glabrous; stamens included, anthers ca. 0.2 cm long; pistil included, style entire, ovary glabrous. Capsule dehiscent, spherical, 0.8–1 × 0.8–1 cm, glabrous. Seeds 2, 0.3–0.5 × 0.3–0.5 cm, elliptical, flattened, black, glabrous.

Selected material: Torros, 11.VI.2016, fl. and fr., *E.O. Moura et al. 834* (UFRN).

Ipomoea pes-caprae is pantropical, occurring in coastal areas in all continents and in almost all islands (Simão-Bianchini 1998). It occurs along the whole Brazilian coast, in restinga vegetation (Simão-Bianchini *et al.* 2020). It is occasional in RN and found in the coast in Caatinga areas,

always on the beach, in sand dunes and restingas. Flowering almost all year round.

See the taxonomic comments in the description for *I. asarifolia*.

25. *Ipomoea quamoclit* L., Sp. Pl.: 159 (1753).

Fig. 5i

Vines slender, latex not observed, internodes 2–8.2 cm long, verrucose, with prickles, glabrous. Leaves simple, petiole 1–2.9 cm long, with two pseudo-stipules similar to leaves, leaf blade membranaceous, 1.9–4.6 × 2–5.6 cm, pinnatifid, 11 to 16 linear segments, opposed or alternate, ovate or elliptic, mucronate, concolor, glabrous; venation pinnate. Cyme dichasial, axillary, and terminal, up to 2 flowers, pedicel 2.9–9.1 cm long, straight, bracteoles not seen. Flowers diurnal, buds elliptical; calyx subequal, glands absent, smooth, the outer ones ca. 0.2 × 0.4 cm, oblong or elliptical, base truncate, apex rounded, mucronate, the inner ones 0.2–0.4 × 0.5 cm, equal in shape; veins inconspicuous; corolla red, hypocrateriform, 2.8–3.2 cm long, glabrous; stamens exerted, anthers ca. 0.1 cm long; istil exerted, style entire, ovary glabrous. Capsule dehiscent, spherical, ca. 0.5 × 0.5 cm, glabrous. Seeds 4, 0.2 × 0.4 cm, elliptical, black, glabrous.

Selected material: Campo Redondo, 06°14'29"S, 36°10'57"W, 3.VI.2007, fl. and fr., *A.M. Marinho 50* (UFRN).

Ipomoea quamoclit is widely distributed in the tropical and subtropical Americas, and is widely cultivated as ornamental (Austin & Huáman 1996; Simão-Bianchini 1998). In Brazil it occurs in anthropized areas, high altitude grasslands, campos rupestres, cerrado, restingas and Amazonian savannas (Simão-Bianchini *et al.* 2020). It is occasional in RN, occurring in Caatinga. It was found as an ornamental plant, and in roadsides and anthropized areas. Collected with flowers from May to July, and with fruits in June and July.

This species can be easily recognized by its pinnatifid leaves with pseudostipules, and red, hypocrateriform flowers.

26. *Ipomoea queirozii* J.R.I. Wood & L.V. Vascon., Kew Bull. 72(1)-8: 13 (2017).

Subshrubs erect, latex not observed, internode 1–5 cm long, smooth, glabrous. Leaves simple, petiole 0.3–0.6 cm long, pseudo-stipules absent, leaf blade chartaceous, 7.5–11.5 × 0.8–1.4 cm, entire, linear, becoming shorter at the apex of branchlets, base cuneate, apex acuminate, concolor,

glabrous; venation actinodromous. Dichasium terminal, up to 3 flowers, pedicel 0.9–1.3 cm long, straight, bracts not seen. Flowers diurnal, buds fusiform; calyx subequal, glands absent, smooth, the outer ones 0.9–1 × 0.4–0.5 cm, ovate, entire, base truncate, apex obtuse mucronate, the inner ones 0.5–0.7 × 1–1.1 cm, ovate, scarious, base truncate, apex obtuse, mucronate, glabrous veins inconspicuous; corolla purple with darker tube, infundibuliform, 9–10 × 7–8 cm, glabrous; stamens included, anthers ca. 0.7 cm long pistil included, style entire, ovary glabrous. Fruits not observed.

Selected material: Apodi, entre o riacho das cabras and o sítio do poço, 27.IV.1980, fl., *O.F. de Oliveira 567* (MOSS).

Ipomoea queirozii is endemic to Brazil, with distribution restricted to the states of Bahia and Tocantins, in Cerrado areas (Wood *et al.* 2017a; Simão-Bianchini *et al.* 2020). It is rare in RN, where it was collected in one locality (Apodi) in the Caatinga. Collected with flowers in April.

See the taxonomic comments in the description of *Ipomoea carnea* subsp. *fistulosa*.

27. *Ipomoea ramosissima* (Poir.) Choisy in A.P. de Candolle, Prodr. 9: 377 (1845).

Vines slender, latex not observed, internodes 4–7 cm long, smooth, glabrous. Leaves simple, petiole 0.7–4.1 cm long, pseudo-stipules absent leaf blade membranaceous, 1.3–3.8 × 2.3–5.2 cm, entire to 3-lobed, cordiform, ovate, base cordate, auricle rounded, apex acuminate, mucronate, concolor, ciliate, glabrescent abaxially, glabrous adaxially; venation brochidodromous. Dichasium umbelliform, axillary and terminal, 2–4 flowers, pedicel 0.5–1 cm long, straight, bracteoles persistent, 0.1–0.2 cm long, lanceolate, glabrous. Flowers diurnal, buds fusiform; sepals equal, glands absent, smooth, 0.2 × 0.4 cm, elliptical, scarious, base cuneate, apex acuminate, glabrous; veins inconspicuous; corolla pink, infundibuliform, 1.5–1.7 × 1.5–1.8 cm, glabrous; stamens included, anthers ca 0.1 cm long; pistil included, style entire, ovary glabrous, Capsule dehiscent, compressed, ca. 0.2 × 0.2 cm, glabrous. Seeds not seen.

Selected material: Mossoró, Serra Mossoró, 05°11'15"S, 37°20'39"W, 6.X.1973, fl. and fr., *O.F. de Oliveira 463* (MOSS).

Ipomoea ramosissima is widely distributed in tropical America, and common in restingas, agricultural and anthropized areas (Simão-Bianchini 1998; Simão-Bianchini *et al.* 2020). It occurs in the whole country in Brazil. It is rare in

RN and collected in Caatinga areas. Collected with flowers in May, June, August and October, and fruits in October.

See the taxonomic comments in the description of *Ipomoea cynanchifolia*.

28. *Ipomoea rosea* Choisy in A.P. de Candolle, Prodr. 9: 384 (1845). Figs. 5c-d

Vines slender, latex white, internodes 1.2–5.3 cm long, smooth, glabrous. Leaves compound, 3-foliolate, petiole 0.4–2.5 cm long, leaf blade chartaceous, leaflets 3, 1–1.3 × 0.4–3.8 cm, entire, elliptical to lanceolate, base cuneate, apex acute, mucronate, concolor, glabrous; venation hypodromous. Dichasium axillary and terminal, up to 4 flowers, pedicel 0.2–0.6 cm long, straight, bracteoles ca. 0.3 cm long, lanceolate, caducous. Flowers diurnal, buds fusiform; calyx subequal, glands absent, with a subapical rostrum, the outer ones 0.2–0.3 × 0.6–0.7 cm, ovate to oblong, entire, base truncate, apex rounded, glabrous, the inner 0.3–0.5 × 0.3–0.7 cm, identical in shape; veins inconspicuous; corolla pink, infundibuliform, ca. 5–6 cm long, glabrous; stamens included, anthers 0.3–0.4 cm long; pistil included, style entire, ovary glabrous. Capsule dehiscent, spherical, 0.5–0.8 × 0.5–0.8 cm, glabrous. Seeds 4, 0.2–0.4 × 0.4 cm, black, smooth, trichomes white, long and soft from the apex downwards.

Selected material: Extremoz, APA Jenipabu, 28.VIII.2010, fl. and fr., *A.M. Marinho 112* (UFRN).

Ipomoea rosea is endemic to the Brazilian Northeast, occurring from Piauí to Bahia, and common in the Caatinga, Cerrado, and Atlantic Forest (Simão-Bianchini *et al.* 2020). It is occasional in the study area, occurring in sand dunes, restingas, and roadsides in the Caatinga and Atlantic Forest. Collected with flowers in January, from May to September, and with fruits in August.

It is easily distinguished from other species of *Ipomoea* in the study area by the compound, 3-foliolate leaves and calyx with subapical rostrum.

29. *Ipomoea sericosepala* J.R.I. Wood & Scotland, Kew Bull. 70(3)-31: 21 (2015). Figs. 5f-g

Vines, latex white, internode 2–14 cm long, smooth, tomentose while herbaceous, glabrous when woody. Leaves simple, petiole 1.5–8.5 cm long, pseudo-stipules absent, leaf blade chartaceous, 3.7–13 × 4.5–11 cm, entire, cordiform, ovate, base cordate, auricle rounded, apex acute, discolor, dark-green adaxially and whitish or silver-green abaxially, tomentose abaxially with silver

trichomes, glabrous or glabrescent adaxially with trichomes restricted to the veins. Thyrses axillary and terminal, 2–9 flowers, pedicel 0.7–1.9 cm long, straight, bracteoles caduceous, not seen. Flowers diurnal, buds fusiform sepals subequal, glands absent, smooth, the outer ones 0.6–0.8 × 1.5–1.6 cm, oblong to obovate, entire, base truncate, apex acute to obtuse, mucronate, sericeous, the inner ones 0.7–0.8 × 1.4–1.5 cm, obovate to elliptical, scarious, base truncate, apex obtuse, mucronate, trichomes denser in the center; veins inconspicuous; corolla pink, infundibuliform, 6–8 × 4.5 cm, tomentose stamens included, anthers 0.5–0.6 cm long; pistil included, style apically divided, ovary pilose. Capsule indehiscent, fusiform, 0.4–0.7 × 0.9–2 cm, glabrous, trichomes whitish at the apex. Seeds 1, 0.6 × 1 cm, ovoid, blackish, sericeous.

Selected material: Santa Cruz, estrada para Lajes Pintadas, 06°10'32"W, 36°03'49"S, 3.VIII.2011, fl. and fr., *A.A. Roque et al. 1222* (UFRN, RB).

Ipomoea sericosepala occurs in Brazil and Bolivia (Wood *et al.* 2015). In Brazil it is distributed in all regions, in the Amazon, Caatinga, Cerrado and Atlantic Forest phytogeographical domains (Simão-Bianchini *et al.* 2020). It is occasional in the study area, occurring in the Caatinga, and found in roadsides and mountains in the highest elevations of the state. Collected with flowers from February to May and in August, and fruits in March, June, and August.

It can be distinguished from other species in the study area for being the only one with branched, hairy style, and one-seeded, indehiscent capsule.

30. *Ipomoea setosa* Ker Gawl., Bot. Reg. 4: t. 335 (1819).

Vines, latex not observed, internodes 3.2–25 cm long, setose. Leaves simple, petiole 1.7–10.5 cm long, pseudo-stipules absent, leaf blade membranaceous, 6.8–26.6 × 7.7–18.4 cm, 3–5 lobed, ovate, base cordate, toothed, apex of lobe acuminate, mucronate, discolor glabrous; venation brochidromous. Dichasium axillary, 2–6 flowers, pedicel 2.5–18.6 cm long, straight, bracteoles not observed. Flowers diurnal, buds fusiform; calyx subequal, glands absent, smooth, the outer ones ca. 0.5–0.6 × 1 cm, ovate, entire, base rounded, apex rounded, apiculate, the inner ones 0.6–0.7 × 1 cm, equal in shape; veins inconspicuous; corolla light pink, white or purple, infundibuliform, ca. 5.3 cm long, glabrous; stamens included, anthers 0.3–0.4 cm long; pistil included, style entire, ovary glabrous. Capsule spherical, 1–1.5 × 1, 1.5 cm, glabrous.

Seeds 4, 0.6–0.7 × 0.7 cm, black, pubescent with trichomes restricted to one of the margins.

Selected material: Campo Redondo, fazenda Giromão, 06°14'29"S, 36°10'57"W, fl. and fr., 5.VIII.2009, *A.A. Roque 952* (UFRN).

Ipomoea setosa is widely distributed in the Americas, but is rare in tropical North America (Wood *et al.* 2015). In Brazil it occurs in the Northeast, Southeast and Central-West regions, in the Caatinga, Cerrado and Atlantic Forest phytogeographical domains (Simão-Bianchini *et al.* 2020). It is rare in RN and collected in agricultural areas in the Caatinga. Registered with flowers from April to August, and fruits in August.

It is easily distinguished from other species by the green, hirsute branchlets with vinaceous trichomes.

30. *Ipomoea subincana* (Choisy) Meisn. in C.F.P. von Martius & auct. suc. (eds.), *Fl. bras.* 7: 259 (1869). Figs. 3i

Vine, latex white internodes 1.8–18.4 cm long, smooth, tomentose. Leaves simple, petiole 2.3–6 cm long, pseudo-stipules absent, leaf blade chartaceous, 2.2–10.7 × 3.5–10.2 cm, entire, cordiform, base cordate, apex acute to obtuse, mucronate discolor, tomentose; venation actinodromous. Dichasium axillary, up to 15 flowers, pedicel 0.7–0.9 cm long, straight, bracteoles caduceous, not seen. Flowers diurnal, buds fusiform; sepals equal, glands absent, smooth, 0.7–0.8 × 1–1.1 cm, elliptical, entire, apex obtuse, sericeous; veins inconspicuous; corolla light pink, infundibuliform, ca 6 cm long, pubescent; stamens included, anthers ca. 0.6 cm; pistil included, style entire, ovary glabrous. Fruits not observed.

Selected material: Lagoa Nova, 06°04'11"S, 36°32'17"W, fl., 30.V.2012, *A.A. Roque & E.O. Moura 1386* (UFRN).

Ipomoea subincana is endemic to Brazil, occurring in the Caatinga and Cerrado in the Northeast and Southeast regions (Simão-Bianchini *et al.* 2020). It is rare in RN, being found only in the two highest elevations in the state (Lagoa Nova and Portalegre), in the Caatinga. Collected with flowers in April and May.

See taxonomic comments for *I. brasiliana*.

31. *Ipomoea syringifolia* Meisn. in C.F.P. von Martius & auct. suc. (eds.), *Fl. bras.* 7: 270 (1869). Figs. 4f-g

Vines, latex not observed, internodes 3–10 cm long, smooth, glabrous. Leaves simple, petiole

2–3.5 cm long, pseudo-stipules absent, leaf blade chartaceous, 3.6–5.5 × 3.3–6.5, entire, ovate, base cordate, apex acuminate, concolor, glabrous; venation actinodromous. Thyrses axillary, up to 3 flowers, pedicel 0.7–0.8 cm long, straight, bracteoles not observed. Flowers diurnal, buds fusiform; sepals subequal, glands absent, smooth, outer ones 0.4 × 0.5 cm, ovate, entire, base rounded, apex rounded, the inner ones 0.5 × 0.5 cm, obovate, scarious, base rounded, apex rounded, glabrous, veins inconspicuous; corolla white, with the mesopetal area green, campanulate, ca. 2.5 cm long, glabrous; stamens included, anthers ca 0.2 cm long; pistil included, style entire, ovary glabrous. Capsule dehiscent, ellipsoid, 0.5 cm long, glabrous. Seeds 4, ca. 0.4 cm, black, villose.

Selected material: Espírito Santo, APA Piquiri-Una, 06°23'14"S, 35°16'33"W, fl. and fr., 21.VIII.2016, *G.S. Garcia 309* (UFRN).

Ipomoea syringifolia occurs in Brazil, Argentina, and Paraguay (Austin & Huáman 1996; Simão-Bianchini 1998; Simão-Bianchini *et al.* 2020). In Brazil, it is found in the Cerrado and Atlantic Forest, usually in ciliary forests and ombrophilous forests. It is rare in the study area, where only one population is known, in the Atlantic Forest area. Collected with flowers and fruits in August.

It is easily distinguished from other species in the study area by the white, campanulate corolla with outer and inner mesopetal area green.

32. *Ipomoea tenera* Meisn. in C.F.P. von Martius & auct. suc. (eds.), *Fl. bras.* 7: 289 (1869).

Vine, latex not observed, internodes 2.3–10 cm long, smooth, glabrous. Leaves compound, petiole 0.7–3.5 cm long, pseudo-stipules absent, leaflets chartaceous, leaflets 5, 0.1–0.4 × 0.7–4.2 cm, base attenuate, apex acute, mucronate glabrous; venation pinnate. Flowers solitary, axillary, pedicel 0.4–0.9 cm long, straight, bracteoles not seen. Flowers diurnal, buds fusiform; calyx subequal, glands absent, ridged at the base, the outer ones 0.4 × 0.7 cm, ovate, entire, base rounded, apex acuminate, glabrous, the inner ones 0.1–0.2 × 0.7 cm, ovate, scarious, base rounded, apex acuminate, glabrous; veins inconspicuous; corolla pink with darker tube, infundibuliform, ca. 0.6 × 2 cm, glabrous; stamens included, anthers ca. 0.3 cm; pistil included, style entire, ovary glabrous. Capsule dehiscent, spherical, 0.8 × 0.7 cm, glabrous. Seed not observed.

Selected material: Serra Negra do Norte, Estação Ecológica do Seridó, 06°36'20"S, 37°15'24"W, fl. and fr., 14.V.2005, *R.T. Queiroz 327* (UFRN).

Ipomoea tenera is endemic to the Caatinga, registered in Bahia, Ceará, Paraíba, Pernambuco and RN (Simão-Bianchini *et al.* 2020). It is rare in RN, with only one population collected in the region of Seridó (Caatinga), close to a stream. Collected with flowers and fruits in May.

See taxonomic comments for *Ipomoea heptaphylla*.

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References

- Amorim IL, Sampaio EVSB & Araújo EL (2005) Flora e estrutura da vegetação arbustivo-arbórea de uma área de caatinga do Seridó, RN, Brasil. *Acta Botanica Brasílica* 19: 615-623.
- Ascherson PFA & Schweinfurth GA (1867) *Beitr. Fl. Aethiop.*, 277.
- Austin DF & Huáman Z (1996) A synopsis of *Ipomoea* (Convolvulaceae) in the Americas. *Taxon* 45: 3-38.
- Austin DF, Staples GW & Simão-Bianchini R (2015) A synopsis of *Ipomoea* (Convolvulaceae) in the Americas: further corrections, changes, and additions. *Taxon* 64: 625-633.
- Bridson D & Forman L (1998) *International Herbarium Handbook*. 3rd ed. Royal Botanic Gardens, Kew. 334p.
- Buril MT (2009) Convolvulaceae. In: Alves M, Araújo MF, Maciel JR & Martins S (eds.) *Flora de Mirandiba*. Associação Plantas do Nordeste, Recife. Pp. 121-134.
- Buril MT, Delgado G, Barbosa MRV & Alves M (2013) Convolvulaceae da Região do Cariri Paraibano. *Revista Nordestina de Biologia* 21: 3-26.
- Costa RS, Matos SS, Rossine Y, Santos D, Buril MT & Melo AL (2021) The genus *Ipomoea* (Convolvulaceae) in the Mata da Pimenteira State Park, semiarid region of Brazil. *Rodriguésia* 72: 1-16. *FapUNIFESP (SciELO)*. <<http://dx.doi.org/10.1590/2175-7860202172084>>. Available at <<https://www.scielo.br/j/rod/a/YH8XK5SCcPL5GJ6RPhrWQS/?lang=en>>. Access on 3 March 2022.
- Defilipps RA & Krupnick GA (2018) The medicinal plants of Myanmar. *Phytokeys* 102: 1-341.
- Delgado-Júnior GC, Buril MT & Alves M (2014) Convolvulaceae do Parque Nacional do Catimbau, Pernambuco, Brazil. *Rodriguésia* 65: 425-442.
- Ferreira PPA & Miotto STS (2009) Sinopse das espécies de *Ipomoea* L. (Convolvulaceae) ocorrentes no Rio Grande do Sul, Brazil. *Revista Brasileira de Biociências* 7: 440-453.
- Ferreira CGT, Oliveira RC, Valls JFM & Loiola MIB (2009) Poaceae da Estação Ecológica do Seridó, Rio Grande do Norte, Brasil. *Hoehnea* 36: 679-707. *FapUNIFESP (SciELO)*. <<http://dx.doi.org/10.1590/s2236-89062009000400008>>. Available at <<https://www.scielo.br/j/hoehnea/a/GvkpyNcHdgGkWh35BwW9Q/abstract/?lang=pt>>. Access on 3 March 2022.
- Gardner G (1842) *Icones Plantarum*, 5.
- Governo do Estado do Rio Grande do Norte (2014) Perfil do Rio Grande do Norte, Natal. 197p. Available at <<http://adcon.rn.gov.br/ACERVO/seplan/DOC/DOC000000000129527.PDF>>. Access on 30 January 2017.
- Harris JG & Harris MW (2001) *Plant identification terminology*. 2nd ed. Spring Lake Publishing, Spring Lake. 110p.
- Hoehne FC (1950) *Arq. Bot. Estado São Paulo* 2: 110.
- Hoehne FC (1922) Convolvuláceas dos Herbários: Horto "Osvaldo Cruz", Museu Paulista and Comissão Rondon. *Memórias do Instituto Butantan, Seção Botânica*: 5-83, 19.
- Judd WS, Campbell CS, Kellogg EA, Stevens PF & Donoghue MJ (2009) *Sistemática vegetal: um enfoque filogenético*. 3a ed. Artmed, Porto Alegre. 612p.
- Magalhães R, Versieux LM & Calvente A (2014) *Aechmea muricata* (Arruda) L.B. Sm. (Bromeliaceae: Bromelioideae): a new record of a threatened species for Rio Grande do North, Northeastern, Brazil. *CheckList* 10: 434-435.
- Marinho AM, Delgado-Júnior GC & Buril MT (2017) The rediscovery of *Ipomoea macedoi* (Convolvulaceae). *Phytotaxa* 302: 71-76.
- Ministério do Meio Ambiente (2008) Lista oficial de Espécies da Flora Brasileira Ameaçada de Extinção, Brazil. Instrução normativa nº 6 de 23 de Setembro de 2008. Available at <https://dados.gov.br/dataset/portaria_443>. Access in December 2021.
- Moreira FGL, Moreira VP, Nascimento MB, Paula LFA, Dias RL & Carvalho FA (2021) Climbing

- plants from Seridó Ecological Station: diversity, interactive key and five new records from Rio Grande do Norte state, Brazil. *Rodriguésia* 72: 1-14. FapUNIFESP (SciELO). <<http://dx.doi.org/10.1590/2175-7860202172075>>. Available at <<https://www.scielo.br/j/rod/a/DDgfrFPvDxvmBQ6jB99xcF/?lang=en>>. Access on 3 March 2022.
- Mori SA, Mattos-Silva LA, Lisboa G & Coradin L (1989) Manual de manejo do herbário fanerogâmico. Centro de Pesquisas do Cacau, Ilhéus. 97p.
- Moro MF, Souza VC, Oliveira-Filho AT, Queiroz LP, Fraga CN, Rodal MJN, Araújo FS & Martins FR (2012) Alienígenas na sala de aula: o que fazer com as espécies exóticas em trabalhos de taxonomia, florística and fitossociologia? *Acta Botanica Brasílica* 26: 991-999.
- Radford AE, Dickison WC, Massey JR & Bell CR (1974) *Vascular plant systematics*. Harper & Row, New York. 891p.
- Sampaio EVSB (2005) Espécies da flora nordestina de importância econômica potencial. Associação Plantas do Nordeste, Recife. 331p.
- Simão-Bianchini R (1998) *Ipomoea* L. (Convolvulaceae) no Southeast of Brazil. Tese de Doutorado. Universidade de São Paulo, São Paulo. 476p.
- Simão-Bianchini R, Ferreira PPA & Vasconcelos LV (2020) *Ipomoea*. In *Flora do Brasil 2020*. Jardim botânico do Rio de Janeiro. Available at <<http://reflora.jbrj.gov.br/reflora/floradobrasil/FB7021>>. Access on 18 March 2022.
- Simão-Bianchini R, Filho LAFS, Prieto PV, Monteiro NP, Pessoa SVA, Kutschenko DC & Messina T (2013) Convolvulaceae. In: Martinelli G & Moraes MA (eds.) *Livro Vermelho da Flora do Brazil*. Andrea Jakobsson - Instituto de Pesquisas Jardim Botânico do Rio de Janeiro, Rio de Janeiro. Pp. 460-465.
- Sousa LOF (2015) Herbário Dárdano de Andrade Lima, Rio Grande do Norte (MOSS). *Unisantia Bioscience* 4: 169-172.
- Sousa-Santos FD, Carolino-Júnior GD, Buri MT (2018) New records of *Ipomoea chiquitensis* (Convolvulaceae) from the Brazilian northeast. *Revista Mexicana de Biodiversidad* 89: 954/3-960.
- Souza V & Lorenzi H (2012) Botânica sistemática. Guia ilustrado para identificação das famílias de fanerógamas nativas and exóticas no Brazil, baseado em APGIII. Escola Superior de Agricultura Luiz de Queiroz, Universidade de São Paulo, Nova Odessa. 768p.
- Vasconcelos LV (2015) Estudos taxonômicos and caracterização físico-química das *Ipomoea* L. (Convolvulaceae) no semiárido do estado da Bahia. Dissertação de Mestrado. Universidade Estadual de Feira de Santana, Feira de Santana. 219p.
- Versieux LM, Dávila N, Delgado-Júnior GC, Sousa VF, Moura EO, Filgueiras T, Alves MV, Carvalho E, Piotto D, Forzza RC, Calvente A & Jardim JG (2017) Integrative research identifies 71 new plant species records in the state of Rio Grande do North (Brazil) and enhances a small herbarium collection during a funding shortage. *PhytoKeys* 86: 43-74.
- Wood JRI, Carine MA, Harris D, Wilkin P, Williams B & Scotland RW (2015) *Ipomoea* (Convolvulaceae) in Bolivia. *Kew Bull* 70: 1-124.
- Wood JRI & Scotland RW (2017a) Misapplied names, synonyms, and new species of *Ipomoea* (Convolvulaceae) from South America. *Kew Bulletin* 72: 9.
- Wood JRI & Scotland RW (2017b) Notes on *Ipomoea* (Convolvulaceae) from the Amazonian periphery. *Kew Bulletin* 72: 1-18.
- Wood JRI, Buri MT & Scotland RW (2017a) Remarkable disjunctions in *Ipomoea* species (Convolvulaceae) from NE Brazil and Central America and their taxonomic implications. *Kew Bulletin* 72: 44.
- Wood JRI, Vasconcelos LV, Simão-Bianchini R & Scotland RW (2017b) New species of *Ipomoea* (Convolvulaceae) from Bahia. *Kew Bulletin* 72: 8.

Examined material list

Alves AS 30 (03), 35 (16). Alves MSD 01 (02). Azevedo CAS 07 (02). Barros LFC 01 (02). Bezerra MAL 15 (13). Calaça MK 59 (16). Callado I 07 (24). Carvalho DFA 01 (15). Colla F 02(02), 04 (02), 06 (02), 23 (03), 31 (24). Colla FEP 11 (07), 12 (07). Colla P 25 (22), 33 (16). Cosme K 17 (02). MOSS 14303 (15). Costa CCA 68 (22). Costa MDS 01 (15). Costa RA *et al.* 28 (02). Costa-Lima JL 24 (28), 185 (06). Costa-Lima JL *et al.* 137 (22), 140 (01), 141 (16), 142 (25), 143 (09), 149 (03), 214 (03), 220 (16), 323 (06), 459 (06), 534 (03). Cortinho JR & Azevedo JP (07). Dantas A *et al.* 113 (06), 124 (03), 206 (07), 216 (16). Dantas AMA 01 (09), 02 (01), 03 (09). Dantas DC 18 (03). Ernesto Sobrinho F 16 (03), 98 (15), 159 (22), 178 (22), 180 (29), 249 (15). Eugênio C 33 (03). Fernandes A 50 (03), 68 (22), 112(16). Ferreira Neto M 15 (22). Ferreira MTS 10 (24). Filho ABL 542 (12). Freire DAC 01 (15). Garcia GS *et al.* 246 (28), 252 (06), 254 (08), 309 (32), 413 (03), 414 (15). 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