



Angiosperm diversity in a Lowland Semideciduous Seasonal Forest in Pernambuco State, Brazil

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Abstract: Angiosperm species growing in a fragment of Lowland Semideciduous Seasonal Forest in the Tapacurá Ecological Station (TES) in Pernambuco State (Brazil) were surveyed. Botanical collections to compose a species list were undertaken and these species identified by comparisons with specimens deposited in the HST, PEUFR and IPA herbaria, in addition to online database queries. A total of 479 species were identified, belonging to 81 families and 285 genera. The families with the largest numbers of species were Fabaceae (68), Rubiaceae (25), Malvaceae (20), Myrtaceae (20), Cyperaceae (19), Poaceae (19), Bromeliaceae (18), Euphorbiaceae (17), Asteraceae (16), and Sapindaceae (14), which together accounted for 49.27% of the total number of species. Great similarity was observed between our results and surveys of other lowland forests in northeastern Brazil, with the families Fabaceae, Rubiaceae, and Myrtaceae having the greatest species richness. This study added 44 new occurrences for Pernambuco State, demonstrating the richness and abundance of TES taxa and the importance of their conservation to the regional flora.

Keywords: Atlantic Forest; Conservation; Flora; Tapacurá.

Diversidade de Angiospermas de uma Floresta Estacional Semidecidual de Terras Baixas em Pernambuco, Brasil

Resumo: Angiospermas da Estação Ecológica de Tapacurá (EET), localizada em um fragmento de Floresta Estacional Semidecidual de Terras Baixas, Floresta Atlântica, foram analisadas. Coletas botânicas foram realizadas para compor uma lista de espécies e essas espécies identificadas por comparação com espécimes depositados nos herbários HST, PEUFR e IPA, além de consultas a banco de dados online. Um total de 479 espécies foram identificadas, pertencentes a 81 famílias e 285 gêneros. As famílias mais ricas foram Fabaceae (68), Rubiaceae (25), Malvaceae (20), Myrtaceae (20), Cyperaceae (19), Poaceae (19), Bromeliaceae (18), Euphorbiaceae (17), Asteraceae (16) e Sapindaceae (14), que juntas representaram 49,27% do número total de espécies. Grande semelhança foi observada entre nossos resultados e levantamentos de outras florestas de várzea no nordeste do Brasil, com as famílias Fabaceae, Rubiaceae e Myrtaceae apresentando a maior riqueza de espécies. Este estudo adicionou 44 novas ocorrências para o Estado de Pernambuco, demonstrando a riqueza e abundância dos táxons de TES e a importância de sua conservação para a flora regional.

Palavras-chave: Mata Atlântica; Conservação; Flora; Tapacurá.

Introduction

Seasonal Semideciduous Forest is a vegetation type of the Atlantic Forest that extends since the south of Rio Grande do Norte state until the north of Rio de Janeiro, as well as important disjunctions also occur in interior depressions such as those of the Pantanal in Mato Grosso state (IBGE 1992). The forests there are exposed to two climatic regimes: a tropical regime with a period of intense rainfall that can reach ≤ 1600 mm/year, followed by severe drought (a dry period that extends for approximately six months with a total precipitation ≤ 100 mm); and a more subtropical regime with a dry period with cooler temperatures (IBGE 1992, Pennington et al. 2000). The seasonal semi-deciduous forests can lose between 20% and 50% of their leaves during the dry period, while seasonal deciduous forests can lose up to 50% of their leaves at that time (IBGE 1992).

The seasonal forests in northeastern Brazil occur in transition areas between the coastal Atlantic Forest and the inland Caatinga dryland vegetation, or in semiarid zones in mountain ranges (Cunha & Silva Júnior, 2014). Those forests formations are fragmented, discontinuously distributed, and are currently surrounded by sugar cane monoculture plantations (*Saccharum officinarum* L.) or urban areas, so that their biodiversity is continuously and severely threatened (Damasceno-Júnior et al. 2009, Dias 2005, Pereira & Alves 2007).

The Tapacurá Ecological Station (TES) is a conservation area conserving an Atlantic Forest remnant of predominantly seasonal semi-deciduous lowland forest (Almeida & Oliveira 2009). The station was established as an initiative of Professor João Vasconcelos Sobrinho as an Environmental Protection Area of the Federal Rural University of Pernambuco (UFRPE) in 1975 (CPRH 2019), at the “São Bento” Escola Superior de Agricultura (1917-1936) where the UFRPE was first established (being transferred to the city of Recife in 1938) (Almeida and Oliveira 2009).

The TES was exposed to numerous anthropogenic impacts before it was established as a protection area, with farms, the presence of people and vehicles, hunting, logging, and the introduction of exotic species (Melo 2017). Despite changes over the years, endemic species can still be found growing in the TES; its vegetation is currently composed of secondary forest regenerating for over 30 years, and harbors approximately 41 families of herbs, shrubs, and trees (Melo 2017). A large portion of the station’s territory was closed to the public in 2006 to guarantee its conservation (Melo 2017). Numerous phytosociological (Andrade & Rodal 2004, Moura et al. 2012) and scientific studies have been undertaken in the TES (Andrade & Rodal 2004, Júnior 2005, El-Deir et al. 2012, Andrade & Câmara 2008, Melo 2017, among others) and have demonstrated its wide biodiversity, with the station contributing greatly to the conservation of the local biota.

Our basic knowledge of the plant diversity at TES is not fully sufficient to guarantee its conservation, however, as there is still a general lack of information concerning the geographic distributions of its species, their conservation statuses, and records of new occurrences. We therefore undertook a detailed survey of the Angiosperms in the TES forest, to gather additional data concerning its species composition.

Materials and Methods

The present study was carried out in a remnant of seasonal semideciduous lowland forest at the Tapacurá Ecological Station (TES), located in the municipality of São Lourenço da Mata (-8.004, -35.111), in Pernambuco State, Brazil (Figure 1). The regional climate is hot and humid (type As’ by

the Köppen classification), with an average annual precipitation rate of 1,900 mm (BENTO et al. 2018). The geomorphology there is characterized by remobilized surfaces and a landscape of low and wide hills, with rocks of the Precambrian crystalline basement and sediments of the Cabo Formation (conglomerates of Aptiano clay) and alkaline vulcanites of the Ipojuca Formation, with elevations varying from 140 to 200 masl (CPRH 2017).

The vegetation in the TES is a seasonal semideciduous lowland forest according to the phytogeographic classification of IBGE (2012). The station covers a total area of approximately 800 ha, with a predominance of Atlantic Forest surrounded by dry forest, “capoeiras”, and anthropized areas of cottages or small farms that cultivate several commercial and/or exotic species such as jambolão (*Syzygium* sp.), palm (*Elaeis guineenses* L.), papaya (*Carica* sp.), coconut (*Cocos nucifera* L.), mango (*Mangifera indica* L.), and bananas (*Musa* sp.). Atlantic Forest vegetation covers approximately 400 ha, distributed in three fragments: Mata do Alto da Buchada, Mata do Camucim, and Mata do Toró; an additional 400 ha corresponds to the Tapacurá Lake – resulting from the damming the Tapacurá River, an affluent of the Capibaribe River (Andrade et al. 2009).

Collections of flowering or fruiting species were undertaken in September/2019 and January/2021, during the wet and dry seasons (Figure 1), focusing on the three forest fragments mentioned above, following established trails but also exploring other less-accessible areas in different sites within the TES. The botanical material was collected and herborized employing standard taxonomic methodologies (Fidalgo & Bononi 1989). Plant identifications were established through the use of identification keys, comparisons with type collections, consulting the specialized literature and specialists of specific taxa, and comparisons with PEUFR herbarium collections. Additionally, the SpeciesLink database (<http://splink.cria.org.br/>) as well as specimens deposited in the collections of the HST, IPA, PEUFR and UFP herbaria (acronyms according to Thiers 2020). For distribution, We consulted the labels of exsiccates, Flora of Brazil (2020) website, among floristic studies undertaken in northeastern Brazil and/or in Pernambuco State (Souza & Wanderley 2000, Sobral-Leite et al. 2010, Hatori 2009, Santos et al. 2013, Soares Neto 2014). The species occurrences were recorded in the TES database to create a species list as presented here. The floristic list classifications are based on the Angiosperm Phylogeny Group (APG IV 2016).

Results

A total of 479 species were recorded, belonging to 81 families and 285 genera, some of their representatives are showed in the figures 2, 3 and 4 (Table 1 and Figure 5). Of those, 71.60% were Eudicotyledons (58 spp.), 22.22% were monocotyledons (18 spp.), and 4.94% belong to the magnoliidae group (4 spp.; Table 1). The families were: Fabaceae (68 spp.), Rubiaceae (25), Malvaceae (20), Myrtaceae (20), Cyperaceae (19), Poaceae (19), Bromeliaceae (18), Euphorbiaceae (17), Asteraceae (16), and Sapindaceae (14). Those ten families represented 49.27% of all of the species identified in the study area (Figure 6). The results also confirmed 44 new occurrences for Pernambuco State.

Twenty-six families were represented by only a single species: Alismataceae, Alstroemeriaceae, Apiaceae, Araliaceae, Begoniaceae, Burseraceae, Cactaceae, Cannabaceae, Caryophyllaceae, Costaceae, Dioscoreaceae, Gesneriaceae, Heliconiaceae, Hernandiaceae, Hypericaceae, Iridaceae, Linderniaceae, Marcgraviaceae, Menispermaceae, Olacaceae, Phytolaccaceae, Piperaceae, Podostemaceae, Polygalaceae, Smilacaceae, and Violaceae.

Angiosperm in Tapacurá

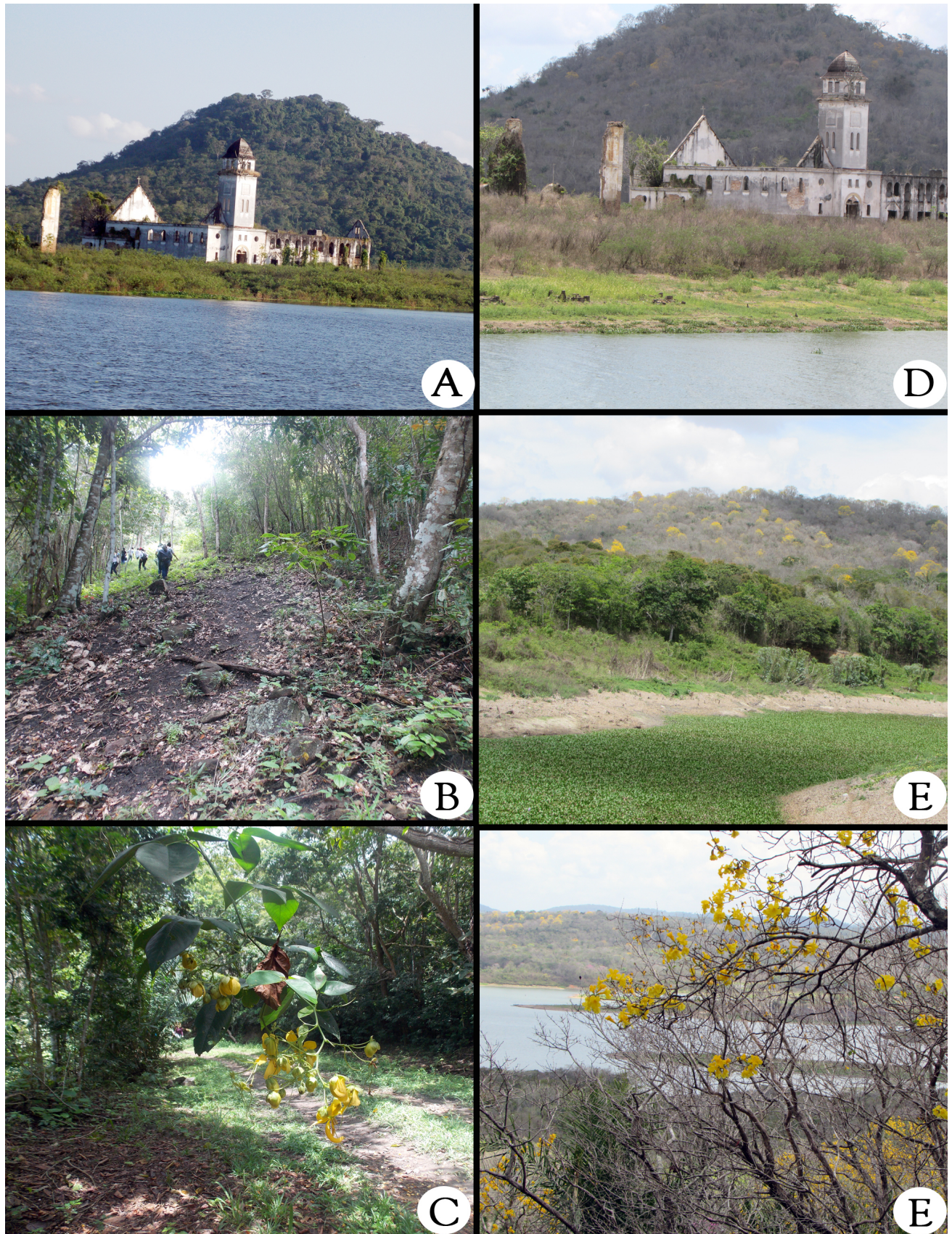


Figure 1. A-C. TSE during the wet season; D-F. TSE during the dry season.

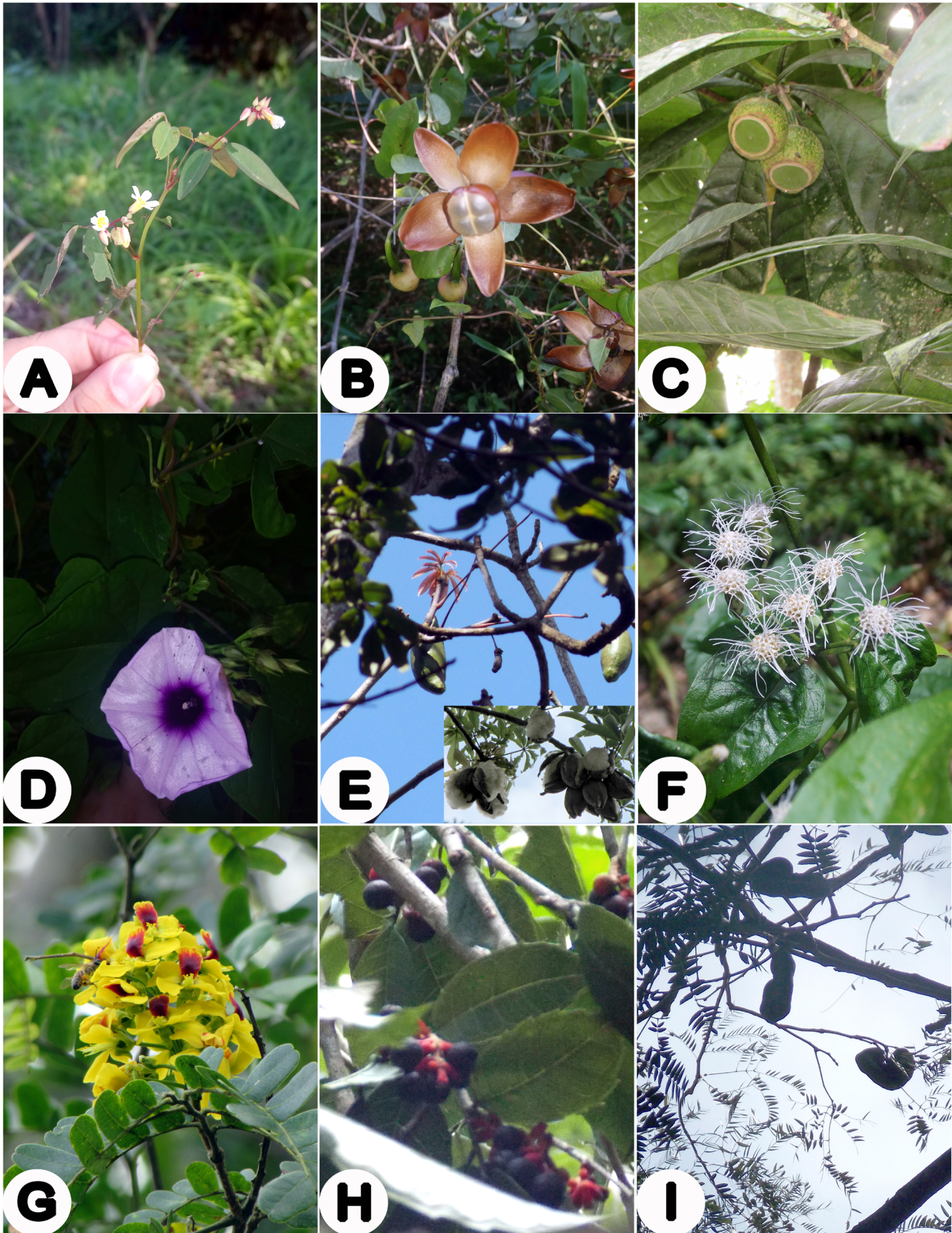


Figure 2. A. *Oxalis physocalyx* Zucc. Ex Progel.; B. *Merremia* cf. *tuberosa* Rendle; C. *Gustavia augusta* L.; D. *Ipomoea marcellia* Meisn.; E. *Pseudobombax marginatum* (A. St. Hil. Juss & Cambess.) A. Robyns.; F. *Chromolaena odorata* (L.) R.M.King & H. Rob.; G. *Paubrasilia echinata* (Lam.) Gagnon, H. C. Lima & G. P. Lewis; H. *Sorocea bonplandii* W.C. Burger, Lanj. & Wess. Boer; I. *Enterolobium contortisiliquum* (Vell.) Morong.

Angiosperm in Tapacurá

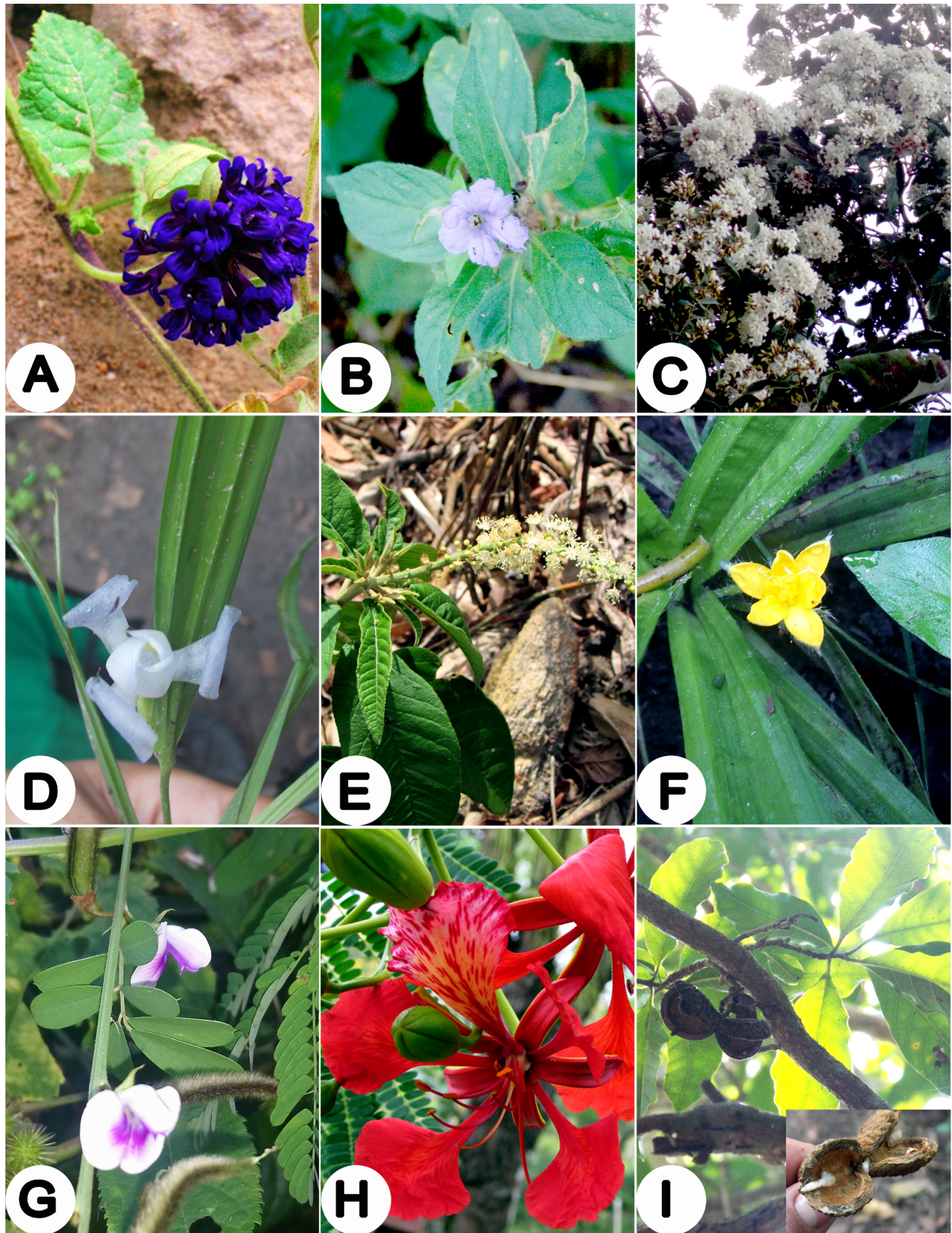


Figure 3. A. *Rhaphiodon echinus* (Nees & Mart.) Schauer; B. *Ruellia grandiflora* Poir.; C. *Cordia goeldiana* Huber; D. *Cipura paludosa* Aubl. E. *Croton heliotropifolius* Kunth.; F. *Hipoxis hirsuta* G. Tephrosia noctiflora; H. *Delonix regia* (Hook.) Raf.; I. *Tabernaemontana hystrix* Steud.

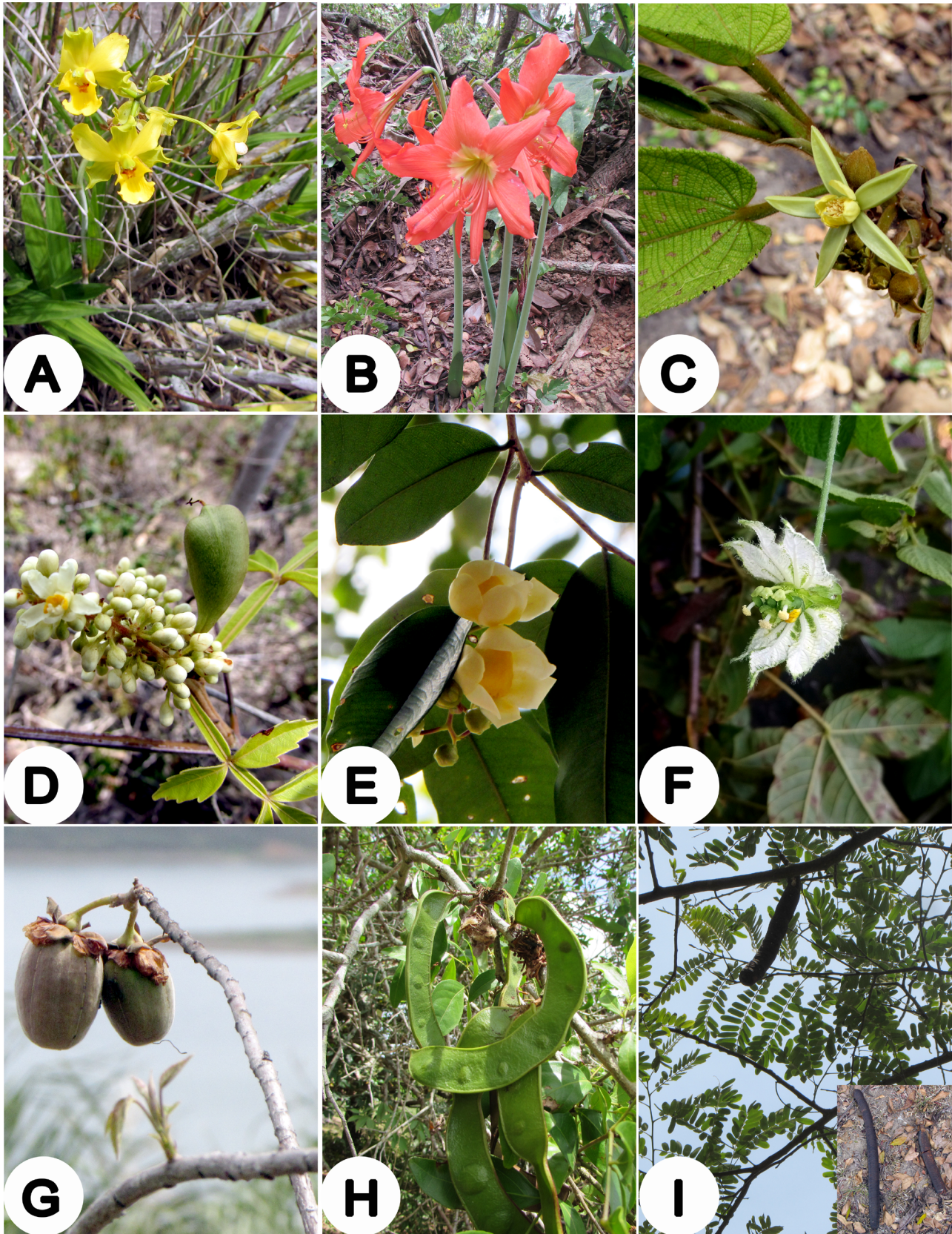


Figure 4. *Cyrtopodium cardiochilum* Lindl.; **B.** *Hippeastrum puniceum* (Lam.) Voss; **C.** *Apeiba tibourbou* Aubl. **D.** *Paullinia* sp L.; **E.** *Eschweilera ovata* Mart. ex Miers; **F.** *Dalechampia pernambucensis* Baill. Spreng; **G.** *Cochlospermum vitifolium* (Willd.) Spreng; **H.** *Adenanthera pavonina* L. **I.** *Cassia grandis* L. f.

Table 1. Angiosperms of the TSE. H = Herb; SU = Subshrub; S = Shrub; T = Tree; V = Vine.

Taxa	Habit	Voucher(s)
Acanthaceae		
1. <i>Dicliptera ciliaris</i> Juss.	H	Sobrinho, M.S. 405
2. <i>Hygrophila costata</i> Nees & T. Nees.	H	M.J.N. Rodal; A. M. da Silva 758
3. <i>Nelsonia canescens</i> (Lam.) Spreng.	H	Sobrinho M. 472
4. <i>Pseuderanthemum verbenaceum</i> (Nees et Mart.) Radlk.	H / SU	Sobrinho M. S. 518
5. <i>Ruellia bahiensis</i> (Nees.) Morong.	SU	Maranhão E. L.
6. <i>Ruellia cearensis</i> Lindau.	SU	Baracho, G.S.; Lopes, A.V.F. 676
7. <i>Ruellia geminiflora</i> Kunth.	SU	Baracho G. S., Siqueira-Filho J. A. 285
8. <i>Ruellia paniculata</i> L.	S	Pickel B. 2792
9. <i>Thunbergia alata</i> Boger ex. Sims	V	Euripedes 30
10. <i>Thunbergia fragrans</i> Roxb.	V	Miranda A.M. et al., 361
Alismataceae		
11. <i>Hydrocleys parviflora</i> Seub.	H	Siqueira-Filho, J.A.; Campelo, M.J.A. & Lopes, A.V.F. 617
Alstroemeriaceae		
12. <i>Bomarea edulis</i> (Tussac) Herb.	V	I.Pontual 77
Amaranthaceae		
13. <i>Alternanthera philoxeroides</i> (Mart.) Griseb.	SU	I. Pontual 1530
14. <i>Alternanthera tenella</i> Colla.	SU	I. Pontual 1502
15. <i>Amaranthus spinosus</i> L.	H	I. Pontual 1476
16. <i>Chamissoa altissima</i> (Jacq.) Kunth	V / SU	D.B. Pickel, 555
Amaryllidaceae		
17. <i>Hippeastrum puniceum</i> (Lam.) Kuntze	H	Pinheiro, K.; Alves-Araújo, A. 49
18. <i>Hippeastrum stylosum</i> Herb.	H	Alves, M. s.n. (UFP 13662)
Anacardiaceae		
19. <i>Astronium fraxinifolium</i> Schott	T	Cruz, M.A.M. da 50588
20. <i>Spondias mombin</i> L.	T	K. Almeida, 246
Annonaceae		
21. <i>Annona montana</i> Macfad.	T	Sobrinho, M.S. 465
22. <i>Annona muricata</i> L.	T	Melo, Y.; Alves, M. & Borges, L. 05
23. <i>Cymbopetalum brasiliense</i> (Vell.) Benth. ex Baill.	S/T	Cassandra, L. s.n. (IPA 51382)
24. <i>Annona pickelii</i> (Diels) H.Rainer	T	K. Almeida, 152
Apiaceae		
25. <i>Spananthe paniculata</i> Jacq.	H	Pontual I. 1459
Apocynaceae		
26. <i>Allamanda blanchetii</i> A.DC.	S	Lima, R.C. s.n. (UFP 27710)
27. <i>Aspidosperma illustre</i> (Vell.) Kuhl. & Piraja	S / T	K. Almeida; M. Andrade 83
28. <i>Mandevilla scabra</i> K. Schum.	V	Miranda A. M., Araújo S. 339
29. <i>Rauvolfia grandiflora</i> Mart. ex. A. DC.	S / T	K. Almeida; T. M. C. da Silva 167
30. <i>Tabernaemontana catharinensis</i> A. DC.	S / T	Rodal, M.J.N.; Silva, T.M.C. da; Silva, T.M.C. da 767
31. <i>Tabernaemontana hystrix</i> Steud.	T	Pontual I. 1412
32. <i>Tabernaemontana laeta</i> Mart.	T	Sobral M. 7287
33. <i>Aspidosperma nigricans</i> Handro	T	K. Almeida, 155
Araceae		
34. <i>Anthurium affine</i> Schott.	H	Alunos do 2º Semente de 1988
35. <i>Anthurium gracile</i> (Rudge) Schott.	H	K. Almeida; T.M.C. da Silva 169
36. <i>Caladium bicolor</i> (Aiton) Vent.	H	Euripedes
37. <i>Philodendron imbe</i> Schott.	V	Ramalho F. C. 823
38. <i>Pistia stratiotes</i> L.	H	Costa K. M. 12
39. <i>Taccarum peregrinum</i> (Schott) Engl.	H	Miranda A. M. 522

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Arecaceae		
40. <i>Bactris pickelii</i> Burret.	P	Leite, I.R.M. s.n.
41. <i>Desmoncus polyacanthos</i> Mart.	H / V	Leite, I.R.M. s.n.
Araliaceae		
42. <i>Hydrocotyle ranunculoides</i> L.F.	H	K.M. Costa 14
Asteraceae		
43. <i>Delilia biflora</i> (L.) Kuntze	H	Pontual, I., 1474
44. <i>Mikania micrantha</i> Kunth	V	T. M. C. da Silva, 16
45. <i>Acanthospermum hispidum</i> DC.	H	I. Pontual 1522
46. <i>Bidens pilosa</i> L.	H	I. Pontual 1472
47. <i>Centratherum punctatum</i> Cass.	SU	I. Pontual 1529
48. <i>Eclipta prostrata</i> (L.) L.	H	Eurípedes 17
49. <i>Emilia fosbergii</i> Nicolson.	H	Sobral, M 7285
50. <i>Emilia sonchifolia</i> DC.	H	Sobral, M 7285
51. <i>Lactuca sativa</i> L.	H	Lima V. C. et al CFPE-650
52. <i>Pterocaulon alopecuroides</i> (Lam.) DC.	SU	Baracho G. S., Siqueira-Filho J. A. 16904
53. <i>Mikania cordifolia</i> (L. f.) Willd.	V	T.M.C. da Silva; K. Almeida 16
54. <i>Sphagneticola trilobata</i> (L.) Pruski	H	Pontual I. 1475
55. <i>Synedrella nodiflora</i> (L.) Gaertn.	H / S	Pontual I. 1526
56. <i>Verbesina macrophylla</i> (Cass.) S. F. Blake.	S	Sobrinho M. 50127
57. <i>Vernonanthura brasiliiana</i> (L.) H. Rob.	S	Barreto I. 1
58. <i>Wedelia villosa</i> Gardner	S	Sobrinho M. S. 50021
Begoniaceae		
59. <i>Begonia reniformis</i> Dryand.	SU	D. Castilho s.n.
Bignoniaceae		
60. <i>Adenocalymma divaricatum</i> Miers.	V	A.M. Miranda; E. Araújo, S.I. Silva et G. Gamarras 3610
61. <i>Adenocalymma comosum</i> (Cham.) DC.	V	Santos, E.G. dos; Silva, A.M.; Silva, A.M. s.n. (IPA 92931)
62. <i>Adenocalymma hypostictum</i> Bureau & K. Schum.	S / V	Sobrinho, M.S. 309
63. <i>Amphilophium crucigerum</i> (L.) L. Lohmann.	V	Santos, E.G. dos; Silva, A.M.; Silva, A.M. s.n. (IPA 92935)
64. <i>Handroanthus serratifolius</i> (Vahl) S.O. Grose.	T	K. Almeida; A. Lima 199
65. <i>Lundia longa</i> (Vell.) D.C.	V	Lopes A. V. F. s.n.
66. <i>Adenocalymma coriaceum</i> A. DC.	V	E.S. Silva, 19
67. <i>Bignonia binata</i> Thunb.	V	V. Sobrinho s.n. (K 000977498)
Boraginaceae		
68. <i>Cordia sellowiana</i> Cham.	T	M.J.N. Rodal; T.M.C. da Silva 770
69. <i>Cordia superba</i> Cham.	S / T	Lopes, A.V.F. s.n.
70. <i>Cordia taguahyensis</i> Vell.	S / T	R. Barreto; R. Lima S/N
71. <i>Cordia toqueve</i> Aubl.	T	I. Pontual 1302
72. <i>Cordia trichotoma</i> (Vell.) Arráb. ex Steud.	T	K. Almeida 156
73. <i>Heliotropium elongatum</i> (Lehm.) I.M. Johnst.	H / SU	I. Pontual 77
74. <i>Heliotropium angiospermum</i> Murray.	H / SU	Baracho, G.S.; Siqueira-Filho, J.A. 533
75. <i>Varronia polycephala</i> Lam.	S / SU	K. Almeida, 126
Bromeliaceae		
76. <i>Aechmea mertensii</i> (G.Mey.) Schult. & Schult.f.	H	Andrade-Lima 63-4186
77. <i>Aechmea fulgens</i> Brongn.	H	I. Pontual 1312
78. <i>Aechmea leptantha</i> (Harms) Leme & J.A. Siqueira	H	Lopes, A.V.F. s.n.
79. <i>Aechmea lingulata</i> (L.) Baker.	H	Sousa, G.M.; Wanderley, M.G.L. 165
80. <i>Aechmea muricata</i> (Arruda) L.B. Sm.	H	Sousa, G.M. 169
81. <i>Aechmea tomentosa</i> Mez.	H	Sousa, G.M.; Wanderley, M.G.L. 164
82. <i>Billbergia morelii</i> Brongn.	H	Lopes, A.V.F. s.n.
83. <i>Bromelia karatas</i> L.	H	Siqueira-Filho, J.A. 612
84. <i>Cryptanthus fosterianus</i> L.B. Sm.	H	I. Pontual 1537

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85. <i>Cryptanthus diana</i> Leme.	H	Siqueira-Filho, J.A. 607
86. <i>Cryptanthus pickelii</i> L.B. Sm.	H	Siqueira-Filho, J.A. 611
87. <i>Hohenbergia ridleyi</i> (Baker) Mez	H	G. Martinelli, 15122
88. <i>Hohenbergia ramageana</i> Mez.	H	D.B. Moura s.n.
89. <i>Tillandsia gardneri</i> Lindl.	H	Souza G. 127
90. <i>Tillandsia juncea</i> (Ruiz. & Pav.) Poir.	H	Siqueira-Filho J. A., 1212
91. <i>Tillandsia polystachia</i> (L.) L.	H	Siqueira-Filho, J.A.; Campelo, M.J.A. & Lopes, A.V.F. 613
92. <i>Tillandsia stricta</i> Sol. Ex Sims	H	Rocha E. A., Lopes A. V. F. 202
93. <i>Tillandsia usneoides</i> (L.) L.	H	Siqueira-Filho J. A., 1213
Burseraceae		
94. <i>Protium heptaphyllum</i> (Aubl.) Marchand	S/T	K. Almeida, 132
Cactaceae		
95. <i>Pereskia aculeata</i> Mill.	V	Silva T. M. C., Almeida K. 61
Cannabaceae		
96. <i>Trema micrantha</i> (L.) Blume	S / T	Almeida K. et al. 37
Capparaceae		
97. <i>Cynophalla flexuosa</i> (L.) J. Presl.	S	K. Almeida; E.S. Silva da 110
98. <i>Neocalyptrocalyx nectareus</i> (Vell.) Hutch.	S / T	Miranda A. M. et al. 3611
Caryophyllaceae		
99. <i>Drymaria cordata</i> (L.) Roem & Schult.	H	I. Pontual 1516
Celastraceae		
100. <i>Monteverdia erythroxylla</i> (Reissek) Biral	S/T	K. Almeida, 197
101. <i>Prionostemma asperum</i> (Lam.) Miers.	V	Santos E, G., Silva A. M. s.n.
Cleomaceae		
102. <i>Tarenaya pernambucensis</i> Soares Neto & Roalson	H	M.B. Costa, 1529
103. <i>Tarenaya longicarpa</i> Soares Neto & Roalson	H/SU / S	Laurênio, A., 542
Combretaceae		
104. <i>Combretum rotundifolium</i> Rich	S/ V	T. M. C. da Silva, 57
105. <i>Combretum fruticosum</i> (Loefl.) Stuntz.	S / V	Maciel, Z.G. s.n.
Commelinaceae		
106. <i>Dichorisandra puberula</i> Nees & Mart.	H	20579 UFP
107. <i>Commelina diffusa</i> Burm. f.	H	E. Maranhão 3
108. <i>Commelina erecta</i> L.	H	I. Pontual 1510
109. <i>Dichorisandra hexandra</i> (Aubl.) Standl..	H / V	Cavalcanti, G.; Lima, V.C.; Roxana Barreto; Lima, V.C.; Roxana Barreto 88
110. <i>Dichorisandra sagittata</i> Aona & M.C.E. Amaral	H	R. Barreto; R. Lima 668
111. <i>Gibasis geniculata</i> (Jacq.) Rohweder.	H	Baracho, G.S.; Lopes, A.V.F. & Pierrot, L.M. 653
112. <i>Tinantia sprucei</i> C.B. Clarke.	H	I. Pontual 1465
113. <i>Tradescantia zebrina</i> Heynh. ex Bosse.	H	E. Maranhão 3
Convolvulaceae		
114. <i>Camonea umbellata</i> (L.) A.R. Simões & Staples.	V	Leite, M.S. 249
115. <i>Distimake macrocalyx</i> (Ruiz & Pav.) A.R. Simões & Staples.	V	Primo, L. s.n. (IPA 89221)
116. <i>Evolvulus nummularius</i> (L.) L.	H	I. Pontual 1506
117. <i>Ipomoea setosa</i> Ker Gawl.	V	I. Barreto 14
118. <i>Ipomoea alba</i> L.	V	Primo, L. s.n. (IPA 89222)
119. <i>Ipomoea tiliacea</i> (Willd.) Choisy.	V	Rodrigues, A.; et al.; et al. 30
Costaceae		
120. <i>Costus spiralis</i> (Jacq.) Roscoe	H	Lopes, A.V.F. s.n.
Cucurbitaceae		
121. <i>Cucurbita pepo</i> L.	V	K.M. Costa 16
122. <i>Fevillea trilobata</i> L.	V	K.M. Costa 17
123. <i>Gurania bignoniacea</i> (Poepp. & Endl.) C.Jeffrey.	V	Santos, E.G. dos; Silva, A.M.; Silva, A.M. s.n. (IPA 92940)

Continued...

...Continuation

124. <i>Gurania subumbellata</i> (Miq.) Cogn..	V	Gomes-Costa, G.A.; Alves-Araújo, A. s.n.
125. <i>Momordica charantia</i> L..	V	K.M. Costa 15
126. <i>Psiguria triphylla</i> (Miq.) C. Jeffrey	V	Sobrinho M. S. 544
127. <i>Psiguria umbrosa</i> (Kunth.) C. Jeffrey	V	Sobrinho M. S. 509
Cyperaceae		
128. <i>Cyperus odoratus</i> L.	H	Martins, S., 164
129. <i>Cyperus ligularis</i> L.	H	M. Alves et al. 9795
130. <i>Cyperus surinamensis</i> Rottb.	H	I. Pontual 77-1524
131. <i>Cyperus sesquiflorus</i> (Torr.) Mattf. & Kük.	H	M. Alves et al. 9495
132. <i>Hypolytrum bullatum</i> C.B. Clarke	H	I. Pontual 77-1536
133. <i>Cyperus haspan</i> L.	H	Shirley Martins; Alves-Araújo, A. & Amorim, D. 166
134. <i>Cyperus meyenianus</i> Kunth.	H	Alves, M. 9295
135. <i>Cyperus pohlii</i> (Nees) Steud.	H	Alves, M. 10395
136. <i>Cyperus polystachyos</i> Rottb.	H	Martins, S.; Alves-Araújo, A. & Amorim, D. 168
137. <i>Cyperus simplex</i> Kunth.	H	Alves, M. 9595
138. <i>Cyperus uncinulatus</i> Schrad. ex Nees.	H	Alves, M. 9795
139. <i>Fimbristylis littoralis</i> Gaudich..	H	Shirley Martins; Alves-Araújo, A. & Amorim, D. 167
140. <i>Fimbristylis vahlii</i> (Lam.) Link.	H	E.G.M. Junior; Oliveira, H.S.B. 05
141. <i>Fuirena umbellata</i> Rottb.	H	I. Pontual 1536
142. <i>Rhynchospora cephalotes</i> (L.) Vahl.	H	Mendes A. P., Rocha E. A. 209
143. <i>Rhynchospora ciliata</i> (Vahl) Kük.	H	Rocha E. A., Lopes A. V. 207
144. <i>Rhynchospora comata</i> (Link.) Roem. & Schult.	H	Rocha E. A., Lopes A. V. 208
145. <i>Rhynchospora contracta</i> (Nees.) J. Raynal.	H	Rocha E. A. 76
146. <i>Scleria panicoides</i> Kunth	H	E. Maranhão 12
Dioscoreaceae		
147. <i>Dioscorea piperifolia</i> Humb. & Bonpl. ex Willd.	V	Sobrinho, M.S. 597
Erythroxylaceae		
148. <i>Erythroxylum citrifolium</i> A.St.-Hil..	S / T	Costa-Lima, J.L. 883
149. <i>Erythroxylum nummularia</i> Peyr.	S	Rodal, MJN; Silva, TMC da 775
150. <i>Erythroxylum ochranthum</i> Mart.	S / T	I. Pontual 1280
151. <i>Erythroxylum passerinum</i> Mart.	S / T	Costa-Lima, J.L.; Amorim, B.S. & Louzada, R.B. 884
152. <i>Erythroxylum subrotundum</i> A. St.-Hil.	S / SU / T	Costa-Lima, J.L.; Amorim, B.S. & Louzada, R.B. 882
153. <i>Erythroxylum tapacuranum</i> Costa-Lima	S / T	Silva, E.S. da; Almeida, K. 5
154. <i>Erythroxylum pungens</i> O.E. Schulz	S/T	Oliveira, J., 39
Euphorbiaceae		
155. <i>Actinostemon appendiculatus</i> Jabl.	S / T	K. Almeida; R.D. Lucena 62
156. <i>Actinostemon concolor</i> (Spreng.) Müll. Arg.	S / T	A. Laurênio; A.P.S. Gomes; C. Tavares 2101
157. <i>Actinostemon verticillatus</i> (Klotzsch) Baill..	S	R. Barreto; R. Lima s.n.
158. <i>Cnidoscolus oligandrus</i> (Müll. Arg.) Pax.	T	A. Laurênio; V. Santos 842
159. <i>Cnidoscolus urens</i> (L.) Arthur.	SU / S	A. Laurênio; V. Santos 843
160. <i>Croton fuscescens</i> Spreng..	SU / S	Costa, KC; Silva, AM; Da Silva, TMC; Rodal, MJN 203
161. <i>Croton heliotropifolius</i> Kunth.	SU / S	I. Barreto 2
162. <i>Croton hirtus</i> L'Hér.	H	Euripedes 34
163. <i>Croton jacobinensis</i> Baill.	SU / S	I. Pontual 1308
164. <i>Croton triquetus</i> Lam.	S / SU	K.C. Costa; A.M. Silva; T.M.C. da Silva; M.J.N. Rodal 203
165. <i>Dalechampia brasiliensis</i> Lam.	V	Webster, G.L.; Bijan Dehgan; Bijan Dehgan 25617
166. <i>Dalechampia pernambucensis</i> Baill.	V	Lopes, A.V.; Machado, I.C. UFP24452
167. <i>Dalechampia tiliifolia</i> Lam.	V	Lopes, A.V.; Machado, I.C. UFP24451
168. <i>Euphorbia hyssopifolia</i> L.	H	Euripedes 8

Continued...

...Continuation

169. <i>Gymnanthes nervosa</i> Müll. Arg..	S / T	K. Almeida; A. L. A. Lima 245
170. <i>Romanoa tamnoides</i> (A. Juss.) Radcl.-Sm.	V	K. Almeida; M.J.N. Rodal 78
171. <i>Sapium glandulosum</i> (L.) Morong	S / T	M. J. N. Rodal, 778
Fabaceae		
172. <i>Aeschynomene fluminensis</i> Vell.	S / SU	Pohl s.d. (K 000920068)
173. <i>Hymenaea rubriflora</i> Ducke	S / T	T M C Silva, 54
174. <i>Machaerium condensatum</i> Kuhl. & Hoehne	S / V	K. Almeida, 74
175. <i>Mimosa caesalpinifolia</i> Benth.	S / T	A.G. Silva, 382
176. <i>Albizia polycephala</i> (Benth.) Killip.	T	I. Pontual 77-1314
177. <i>Anadenanthera colubrina</i> (Vell.) Brenan.	S/T	I. Barreto 10
178. <i>Andira nitida</i> Mart. ex Benth.	S/T	I. Pontual 1390
179. <i>Bauhinia forficata</i> Link.	T	K. Almeida; T.M.C. da Silva 59
180. <i>Bowdichia virgilioides</i> Kunth.	S / T	I. Pontual 1388
181. <i>Canavalia parviflora</i> Benth.	V	Cassandra, L. 49053
182. <i>Canavalia brasiliensis</i> Mart. ex Benth..	V	R. Barreto; R. Lima
183. <i>Cassia grandis</i> L. f.	T	I. Pontual 77-1397
184. <i>Centrosema brasilianum</i> (L.) Benth.	V	Sobrinho, M.S. 354
185. <i>Centrosema macrocarpum</i> Benth.	V	Sobrinho, M.S. 378
186. <i>Centrosema pubescens</i> Benth.	V	Sobrinho, M.S. 374
187. <i>Chamaecrista ensiformis</i> (Vell.) H.S.Irwin & Barneby	S / T	Almeida, K 82
188. <i>Chamaecrista nictitans</i> (L.) Moench	H / SU	Sobrinho, M.S. 329
189. <i>Clitoria stipularis</i> Benth.	S / SU	V.C. Andrade 247
190. <i>Clitoria falcata</i> Lam.	H / V	Sobrinho, M.S. 320
191. <i>Crotalaria retusa</i> L.	H / SU	Lima, R.C. UFP27709
192. <i>Crotalaria stipularia</i> Desv.	H / SU	A.M.Miranda; B.Costa e Silva et S. Lima 632
193. <i>Calopogonium caeruleum</i> (Benth.) Sauv.	SU/V	Sobrinho, M.S. 415
194. <i>Chloroleucon acacioides</i> (Ducke) Barneby & J.W. Grimes.	S / T	Almeida, K.; Silva, T.M.C.; Silva, T.M.C. 172
195. <i>Chloroleucon foliolosum</i> (Benth.) G.P. Lewis.	S / T	K.C. Costa; A.M. Silva; T.M.C. da Silva; M.J.N. Rodal 215
196. <i>Desmodium axillare</i> DC.	SU	Sobrinho, M.S. 471
197. <i>Desmodium distortum</i> (Aubl.) J.F.Macbr.	S / SU	A.M. Miranda; S.Lima, B.Costa e Silva 631
198. <i>Desmodium incanum</i> (Sw.) DC.	SU	I. Pontual 1527
199. <i>Desmodium tortuosum</i> (Sw.) DC.	S/SU	Alunos de Botânica Sistemática
200. <i>Desmanthus virgatus</i> (L.) Willd.	H	I. Pontual 77-1446
201. <i>Dialium guianense</i> (Aubl.) Sandwith.	T	T.M.C. da Silva; K. Almeida; A. Dourado 49
202. <i>Dioclea virgata</i> (Rich.) Amshoff.	V	Sobrinho, M.S. 312
203. <i>Enterolobium contortisiliquum</i> (Vell.) Morong.	T	Oliveira, A. 5137
204. <i>Enterolobium timbouva</i> Mart.	T	Meiado, M.V. 8
205. <i>Hymenaea courbaril</i> L.	T	Silva, TMC da; Almeida, K; Dourado, A 54
206. <i>Indigofera suffruticosa</i> Mill.	S/SU	Euripedes 5
207. <i>Inga bollandii</i> Sprague & Sandwith.	T	M.J.N. Rodal; A.M. da Silva 760
208. <i>Inga ciliata</i> C. Presl.	T	Lima, V.C. 14
209. <i>Inga capitata</i> Desv.	T	I. Pontual 1289
210. <i>Inga edulis</i> Mart.	T	Primo, L. s.n. (IPA 89218)
211. <i>Inga ingoides</i> (Rich.) Willd.	T	I. Pontual 77-1409
212. <i>Inga striata</i> Benth.	T	A.M. Miranda; S. Lima; B.C. e Silva 625
213. <i>Inga vera</i> Willd..	T	Primo, L. s.n. (IPA 89220)
214. <i>Libidibia ferrea</i> (Mart. ex Tul.) L.P. Queiroz	T	Pontual I. 1414
215. <i>Lonchocarpus cultratus</i> (Vell.) A.M.G. Azevedo & H.C. Lima.	T	Pontual I. 1276
216. <i>Lonchocarpus sericeus</i> (Poir.) Kunth ex DC.	T	Pickel B. 3970
217. <i>Machaerium hirtum</i> (Vell.) Stellfeld.	T	M.A.O.M. Cruz 7
218. <i>Macroptilium lathyroides</i> (L.) Urb.	H/V/SU	Euripedes 15
219. <i>Mimosa pigra</i> L.	S	Miranda A. M. s.n
220. <i>Mimosa schomburgkii</i> Benth.	T	Pompeia 32

Continued...

...Continuation

221. <i>Mimosa sensitiva</i> L.	S / SU	I. Pontual 1443
222. <i>Mucuna sloanei</i> Fawcett. & Rendle.	V	Baracho, G.S.; Lopes, A.V.F. 677
223. <i>Paubrasilia echinata</i> (Lam.) Gagnon, H.C. Lima & G.P. Lewis	T	Pontual I. 1389
224. <i>Plathymenia reticulata</i> Benth.	T	Almeida K., Silva T. M. C. 142
225. <i>Pterocarpus rohrii</i> Vahl.	T	Pontual I. 1404
226. <i>Rhynchosia phaseoloides</i> (SW.) DC.	V	Sobrinho M. S. 407
227. <i>Samanea saman</i> (Jacq.) Merr..	T	K. Almeida; E. Santos 1
228. <i>Samanea tubulosa</i> (Benth.) Barneby & J. W. Grimes	T	Rita Pereira et al. 54704
229. <i>Schnella outimouta</i> (Aubl.) Wunderlin.	V / S	Santos E. G., Silva A. M., s.n.
230. <i>Schnella splendens</i> (Kunth.) Benth.	V	Esteves F. s.n.
231. <i>Senegalia tenuifolia</i> (L.) Britton. & Rose.	S / V	Pontual I. 1454
232. <i>Senna alata</i> (L.) Roxb.	SU / S / T	Coelho L. 50645
233. <i>Senna georgica</i> H. S. Irwin. & Barneby.	SU / S / T	Miranda A. M. et al. 3604
234. <i>Senna macranthera</i> (DC. ex Collad.) H. S. Irwin & Barneby.	S / T	Sobrinho M. S. 428
235. <i>Stylosanthes scabra</i> Vogel.	H / SU	Pontual I. 1497
236. <i>Swartzia pickelli</i> Killip. ex. Ducke.	T	Lima R., Barreto R. s. n.
237. <i>Tephrosia cinerea</i> (L.) Pers	S / SU	Sobrinho M. 571
238. <i>Zornia latifolia</i> Sm.	SU	Sobrinho M. S. 327
239. <i>Zygia latifolia</i> (L.) Fawc. & Rendle.	S/T	M.J.N. Rodal; A.M. da Silva 766
Gentianaceae		
240. <i>Schultesia guianensis</i> (Aubl.) Malme.	H	Miranda A. M., et al. 620
241. <i>Voyria flavescens</i> Griseb.	H	Melo A. et al., 443
Gesneriaceae		
242. <i>Drymonia serrulata</i> (Jacq.) Mart.	V	Baracho, G.S.; Siqueira, J.A. & Lopes, A.V.F. 627
Heliconiaceae		
243. <i>Heliconia psittacorum</i> L.F.	H	Gomes, V. s.n.
Hernandiaceae		
244. <i>Sparattanthelium botocudorum</i> Mart.	S	E.S. da Silva; K. Almeida 8
Hypericaceae		
245. <i>Vismia guianensis</i> (Aubl.) Choisy.	S / T	Silva, TMC; Almeida, K 40
Iridaceae		
246. <i>Cipura paludosa</i> Aubl.	H	Alunos de Botânica Sistemática 1988
Lamiaceae		
247. <i>Aegiphila integrifolia</i> (Jacq.) Moldenke	S / T	K. Almeida, 3
248. <i>Aegiphila pernambucensis</i> Moldenke	S / T	Sobrinho, M. 542
249. <i>Aegiphila racemosa</i> Vell.	S / V	A.M. Miranda; E.Araújo, S.I.Silva et G.Gamarras 3616
250. <i>Aegiphila verticillata</i> Vell.	SU / S / T	Almeida, K.; Santos, E.; Santos, E. 3
251. <i>Ocimum gratissimum</i> L.	SU / S	Albuquerque 74
252. <i>Ocimum campechianum</i> Mill.	H / S / SU	Albuquerque 72
253. <i>Mesosphaerum pectinatum</i> (L.) Kuntze	H / S / SU	Alunos 2º Semestre s.n. (PEUFR 11998)
254. <i>Leonotis nepetifolia</i> (L.) R.Br.	H	Euripedes 19
255. <i>Vitex polygama</i> Cham.	S / T	Costa K. C. et al., 210
256. <i>Vitex rufescens</i> A. Juss.	T	Almeida K., Santos E. 2
Lauraceae		
257. <i>Ocotea canaliculata</i> (Rich.) Mez	T	Santos S. O. 319
258. <i>Ocotea glauca</i> (Nees & Mart.) Mez	T	E. S. Silva, 2
259. <i>Ocotea fasciculata</i> (Nees) Mez	S / T	R. Barreto 8
Lecythidaceae		
260. <i>Cariniana legalis</i> (Mart.) Kuntze.	T	R. M. Silva 1
261. <i>Eschweilera alvimii</i> S.A. Mori.	T	R. M. Silva 2
262. <i>Eschweilera ovata</i> (Cambess.) Miers.	T	I. Pontual 1403

Continued...

...Continuation

263. <i>Gustavia augusta</i> L.	S / T	I. Pontual 1424
264. <i>Lecythis pisonis</i> Cambess.	T	I. Pontual 1402
Linderniaceae		
265. <i>Lindernia crustacea</i> F. Muell.	H	Pontual I. 1483
Loganiaceae		
266. <i>Strychnos bahiensis</i> Krukoff & Barneby	V	K. Almeida 130
267. <i>Spigelia flemmingiana</i> Cham. & Schltldl.	H	Chiappeta A. 5438
Malpighiaceae		
268. <i>Amorimia septentrionalis</i> W.R.Anderson	V	Miranda, AM; Araújo, E; Silva, SI; Gamarras, G 3606
269. <i>Bunchosia maritima</i> (Vell.) J.F.Macbr.	S/T	Sobrinho, M.S. 507
270. <i>Malpighia glabra</i> L.	T	Melo Y. et al. 4
271. <i>Stigmaphyllon puberulum</i> Griseb.	V	Pickel B. 3260
272. <i>Tetrapteryx mucronata</i> Cav.	V	Sobrinho M. 582
273. <i>Byrsonima sericea</i> DC.	S / T	K. Almeida, 95
Malvaceae		
274. <i>Apeiba tibourbou</i> Aubl.	T	V.C. Andrade 237
275. <i>Guazuma ulmifolia</i> Lam.	T	Lima, V.C. 12
276. <i>Luehea ochrophylla</i> Mart.	T	Miranda A. M. et al. 3596
277. <i>Luehea paniculata</i> Mart. & Zucc.	S	Almeida K. Santos E. 12
278. <i>Malachra radiata</i> L.	H	Gallindo F. et al. CFPE-648
279. <i>Sida glomerata</i> Cav.	SU / S	Baracho G. S., Siqueira-Filho J. A. 282
280. <i>Sidastrum micranthum</i> (A. St.-Hil.) Fryxell	S / SU	Baracho G. S., Siqueira-Filho J. A. 531
281. <i>Sidastrum quinquenervium</i> (Duchass. ex Triana & Planch.) Fryxell	SU	Sobrinho, M. 584
282. <i>Sida urens</i> L.	SU	Barreto I. 26
283. <i>Urena lobata</i> L.	S / SU	Sobrinho M. S. 570
284. <i>Wissadula periplocifolia</i> (L.) C. Presl ex Thwaites	SU / S	Miranda A. M. 521
285. <i>Sida rhombifolia</i> L.	H	I. Pontual 77-1471
286. <i>Sida spinosa</i> L.	SU	G. S. Baracho 455, 456
287. <i>Abutilon ramiflorum</i> A.St.-Hil.	S	B.S. Amorim, 689
288. <i>Christiana africana</i> DC.	T	K. Almeida, 183
289. <i>Helicteres macropetala</i> A.St.-Hil.	SU / S / T	Batista, E. s.n. (UFRN 9954)
290. <i>Helicteres ovata</i> Lam.	S	G. S. Baracho, 286
291. <i>Sida jussiaeana</i> DC.	SU	G.S. Baracho, 291
292. <i>Triumfetta semitriloba</i> Jacq.	SU	Amorim, B.S., 676
293. <i>Wissadula amplissima</i> (L.) R.E.Fr.	S / SU	G.S. Baracho, 288
Marantaceae		
294. <i>Maranta leuconeura</i> E. Morren	H	Alves et al. 12-95
295. <i>Hylaeanthus hexantha</i> (Poepp. & Endl.) A.M.E. Jonker & Jonker	H	N.K. Luna, 405
296. <i>Ctenanthe compressa</i> (A.Dietr.) Eichler.	H	Arns, K.N.Y. 138
297. <i>Goepertia effusa</i> Saka & Lombardi.	H	A.M. Miranda; et al. 617
298. <i>Goepertia cylindrica</i> (Roscoe) Borchs. & S. Suárez.	H	Baracho, G.; Lopes, A.V.F.; Pierrot, L.M.; Lopes, A.V.F.; Pierrot, L.M. 491
299. <i>Goepertia villosa</i> (Lindl.) Borchs. & S. Suárez.	H	Yoshida, A. 681
300. <i>Maranta divaricata</i> Roscoe	H	Luna N. K. et al. 460
301. <i>Maranta protracta</i> Miq.	H	Luna N. K. 459
302. <i>Stromanthe portea</i> Griseb.	H	Alves M. et al., 33794
303. <i>Stromanthe tonckat</i> (Aubl.) Eichler	H	Alves M. et al., 9695
Marcgraviaceae		
304. <i>Schwartzia brasiliensis</i> (Choisy) Bedell ex Gir.-Cañas	V	Ariadna V F Lopes, 21785
Melastomataceae		
305. <i>Clidemia hirta</i> (L.) D. Don.	S	M ^a . Rita Sales s.n.
306. <i>Clidemia capitellata</i> (Bonpl.) D.Don.	S	Almeida, K. 103
307. <i>Miconia albicans</i> (SW) Triana	S / T	Sobrinho M. S. 510
308. <i>Miconia minutiflora</i> (Bonpl.) DC.	S / T	Silva T. M. C. 10

Continued...

...Continuation

309. <i>Miconia navioensis</i> Wurdack.	S	Almeida K. 8
310. <i>Miconia prasina</i> (Sw.) DC.	S / T	Almeida K. 98
311. <i>Miconia serialis</i> DC.	S / T	M.J.N. Rodal; A.M. da Silva 748
312. <i>Pterolepis trichotoma</i> (Rottb.) Cogn.	H	Sobrinho M. S. 595
313. <i>Clidemia biserrata</i> DC.	S	K. Almeida, 103
Meliaceae		
314. <i>Trichilia hirta</i> L.	T	Miranda A. M. et al. 517
315. <i>Guarea guidonia</i> (L.) Sleumer.	T	Oliveira, A. s.n. (IPA 51371)
Menispermaceae		
316. <i>Cissampelos glaberrima</i> A.St.-Hil..	V	Sobrinho, M.S. 502
Moraceae		
317. <i>Dorstenia pernambucana</i> Arruda.	H	Sobrinho, M.S. 562
318. <i>Sorocea hilarii</i> Gaudich.	S / T	Almeida, K.; Andrade, M.; Andrade, M. 84
Myrtaceae		
319. <i>Calyptanthes lucida</i> Mart. ex DC.	T	K. Almeida, 73
320. <i>Campomanesia eugenioides</i> (Cambess.) D.Legrand ex Landrum	S/T	K. Almeida, 129
321. <i>Myrcia inaequiloba</i> (DC.) Legrand	T	K. Almeida, 94
322. <i>Myrcia felisbertii</i> (DC.) O. Berg	T	K. Almeida, 31
323. <i>Eugenia luschnathiana</i> (O. Berg) Klotzsch ex B.D.Jacks.	T	I. Pontual 77-1416
324. <i>Psidium oligospermum</i> Mart. ex DC.	T	I. Pontual 77-1286
325. <i>Campomanesia aromatica</i> (Aubl.) Griseb.	T	Amorim, BS; Costa-Lima, JL; Louzada, RB 1788
326. <i>Campomanesia dichotoma</i> (O. Berg) Mattos.	T	I. Pontual 1400
327. <i>Eugenia astringens</i> Cambess.	T	Almeida, K; Silva, TMC 120
328. <i>Eugenia candolleana</i> DC.	S / T	K.C. Costa; A.M. da Silva; T.M.C. da Silva; M.J.N. Rodal 207
329. <i>Eugenia duarteana</i> Cambess..	S	I. Pontual 1294
330. <i>Eugenia gaudichaudiana</i> O.Berg.	S	M.Sobral 7296
331. <i>Eugenia hirta</i> O. Berg.	S	E.S. da Silva; K. Almeida 1
332. <i>Eugenia umbrosa</i> O. Berg.	T	E.S. da Silva; Antônio 29
333. <i>Myrcia guianensis</i> (Aubl.) DC.	T	Sobral M. 7290
334. <i>Myrcia insularis</i> Gardner	T	Almeida, K.; Santos, E.; Santos, E. 17
335. <i>Myrcia tomentosa</i> (Aubl.) DC.	T	A. Laurênio; V. Santos 844
336. <i>Myrciaria ferruginea</i> O.Berg.	S / T	K. Almeida; R.D. Lucena 66
337. <i>Myrciaria glazioviana</i> (Kiaersk.) G.M.Barroso ex Sobral	T	Amorim B. S. et al. 687
338. <i>Psidium guineense</i> Sw.	S / T	Almeida K. 51
Nyctaginaceae		
339. <i>Guapira laxa</i> (Netto) Furlan.	S / T	Sobrinho, M.S. 458
340. <i>Guapira hirsuta</i> (Choisy) Lundell.	SU / S / T	Silva, T.M.C. da; Almeida, K.; Almeida, K. 68
341. <i>Guapira nitida</i> (Schimdt) Lundell	T	Rodal, M.J.N.; Silva, A.M. da; Silva, A.M. da 749
Nymphaeaceae		
342. <i>Nymphaea lasiophylla</i> Mart. & Zucc.	H	Pickel B. 3725
343. <i>Nymphaea rudgeana</i> G. Mey	H	Pickel B. 2343
Olacaceae		
344. <i>Ximenia americana</i> L.	S / T	Sobrinho M. S. 443
Onagraceae		
345. <i>Ludwigia helminthorrhiza</i> Mart. H. Hara	H	Pontual I. 77-1534
346. <i>Ludwigia hyssopifolia</i> (G. Don.) Exell.	H / SU	Sobrinho M. 592
347. <i>Ludwigia peploides</i> (Kunth.) P. H. Raven.	H	Leite M. S. 246
Orchidaceae		
348. <i>Vanilla chamissonis</i> Klotz.	H	A. L. A. Lima, 9
349. <i>Campylocentrum fasciola</i> (Lindl.) Cogn.	H	Moraes s.n. (EAN, HB)
350. <i>Gomesa barbata</i> (Lindl.) Chase.	H	Vilaça, M.; Nepomuceno, A.; Guedes, F.M. & Cavalcanti, D. 102

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351. <i>Oeceoclades maculata</i> Lindl.	H	Sobrinho M. S. 560
352. <i>Polystachya concreta</i> (Jacq.) Garay & H. R. Sweet	H	Alves M. 10095
353. <i>Rodriguezia bahiensis</i> Rehb.f.	H	Lima R. C. s.n.
354. <i>Sacoila lanceolata</i> (Aubl.) Garay	H	Lopes A. V. F. s.n.
355. <i>Sarcoglottis acaulis</i> (Sm.) Schltr.	H	Vilaça M. et al., 105
356. <i>Maxillaria subrepens</i> (Rolfe) Schuit. & M.W.Chase	H	Siqueira-Filho J. A. 1214
357. <i>Vanilla planifolia</i> Jacks. ex Andrews	H	Pessoa E. et al., 403
Oxalidaceae		
358. <i>Oxalis cratensis</i> Oliver.	H	Nádia T. L. 207
359. <i>Oxalis psoraleoides</i> Kunth	S / SU	T. M. C. da Silva, 28
Phyllanthaceae		
360. <i>Phyllanthus acuminatus</i> Vahl.	S/T	Sobrinho M. S. 551
361. <i>Phyllanthus juglandifolius</i> Willd.	S/T	Silva, T.M.C. da; Almeida, K.; Almeida, K. 60H
Phytolaccaceae		
362. <i>Rivina humilis</i> L.	H	Pickel B. 1871
Piperaceae		
363. <i>Piper marginatum</i> Jaqc.	S	Silva E. S., Almeida K. 16
Plantaginaceae		
364. <i>Achetaria erecta</i> (Spr.) Wettst.	H / SU	Sobrinho, M.S. 610
365. <i>Stemodia foliosa</i> Benth.	H / SU / S	Sobral M. 7286
366. <i>Scoparia dulcis</i> L.	H / SU	Pontual I. 1488
Poaceae		
367. <i>Axonopus scoparius</i> (Flüggé) Kuhlms.	H	Euripedes 20
368. <i>Andropogon bicornis</i> Forssk.	H	I. Pontual 1548
369. <i>Cenchrus echinatus</i> L.	H	I. Pontual 1467
370. <i>Cynodon dactylon</i> (L.) Pers.	H	I. Pontual 1442
371. <i>Eleusine indica</i> (L.) Gaertn.	H	Euripedes
372. <i>Hyparrhenia rufa</i> (Nees) Stapf.	H	Euripedes 28
373. <i>Lasiacis divaricata</i> (L.) Hitchc.	H / V / SU	Melo J. F. 11734
374. <i>Lasiacis ligulata</i> Hitchc. & Chase.	H	Pontual I. 1540
375. <i>Lasiacis sorghoidea</i> (Desv.) Hitchc. & M.A. Chase.	H	Alves M. UFP 10795
376. <i>Paspalum coryphaeum</i> Trin.	H	Pickel B. 1561
377. <i>Paspalum molle</i> Poir.	H	Maciel J. R. 172
378. <i>Paspalum paniculatum</i> L.	H	Maciel J. R. 167
379. <i>Paspalum plicatulum</i> Michx.	H	Maciel J. R. 170
380. <i>Paspalum virgatum</i> L.	H	Maciel J. R. 168
381. <i>Raddia brasiliensis</i> Bertol.	H	C. A. Silva s.n.
382. <i>Setaria globulifera</i> (Steud.) Griseb.	H	C. A. Silva s.n.
383. <i>Setaria scabrifolia</i> (Nees) Kunth.	H	C. A. Silva s.n.
384. <i>Sporobolus indicus</i> (L.) R. Br.	H	I. Pontual 1498
385. <i>Tragus berteronianus</i> Schult.	H	Alves M. 10495
Podostemaceae		
386. <i>Tristicha trifaria</i> (Bory ex Willd.) Spreng.	H	Pickel B. 1420
Polygalaceae		
387. <i>Securidaca lanceolata</i> St.-Hil.	V	Chiappeta A. 408
Polygonaceae		
388. <i>Coccoloba glaziovii</i> Lindau	S / T	Almeida, K., 102
389. <i>Coccoloba alnifolia</i> Casar.	S / T	Sobrinho, M.S. 375
390. <i>Coccoloba mollis</i> Casar.	T	Rodal, M.J.N.; Silva, A.M. da; Silva, A.M. da 750
391. <i>Coccoloba parimensis</i> Benth.	S / V	Almeida, K. 102
392. <i>Polygonum ferrugineum</i> Wedd.	H	Costa K. M. 10
393. <i>Polygonum punctatum</i> Elliott.	H	Costa K. M. 18
394. <i>Triplaris gardneriana</i> Wedd.	T	Cirne E. s.n.

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Pontederiaceae		
395. <i>Eichhornia crassipes</i> (Mart.) Solms.	H	K.M. Costa 9
396. <i>Heteranthera oblongifolia</i> Mart.	H	Silva, TMC da; Almeida, K 21
Potamogetonaceae		
397. <i>Potamogeton polygonus</i> Cham. & Schldtl.	H	Sobra-Leite M., Araújo J. F. 1402
398. <i>Potamogeton pusillus</i> L.	H	Bento Pickel, 2155
Rhamnaceae		
399. <i>Gouania blanchetiana</i> Miq.	V	Rita Lima, 671
400. <i>Colubrina glandulosa</i> Perkins.	T	Lima, R.; Barreto, R.; Barreto, R. CFPE-666
401. <i>Gouania colurnifolia</i> Reissek.	V	A.M. Miranda; et al. 519
402. <i>Gouania lupuloides</i> (L.) Urb.	V	Cassandra, L. 51375
Rubiaceae		
403. <i>Chomelia occidentalis</i> Müll.Arg.	S / T	Rodal, M.J.N., 1
404. <i>Alseis floribunda</i> Schott.	T	V. C. Andrade 246
405. <i>Alseis pickelii</i> Pilger & Schmale.	T	K. Almeida 114
406. <i>Alseis latifolia</i> Gleason.	T	A.M. Miranda; E.Araújo, S.I. Silva et G.Gamarras 3605
407. <i>Borreria verticillata</i> (L.) G. Mey.	SU	Euripedes 18
408. <i>Carapichea ipecacuanha</i> (Brot.) L. Andersson.	SU	Sobrinho, M.S. 549
409. <i>Chomelia martiana</i> Müll.Arg..	S / T	Gomes, J. 6
410. <i>Chomelia obtusa</i> Cham. & Schldtl.	S / T	Gomes, J.; Alves, M.; Melo, Y.; Araújo, A. & Martins, S. 6
411. <i>Coussarea capitata</i> Benth. & Hook. f.	S / T	I. Pontual 1295
412. <i>Coussarea contracta</i> (Walp.) Müll.Arg.	S / T	A.M. Miranda; E. Araújo, S.I. Silva et G. Gamarras 3598
413. <i>Coutarea hexandra</i> (Jacq.) K. Schum.	S / T	Alves, J.L.H. de UFP5400
414. <i>Genipa americana</i> L.	S / T	M.J.N. Rodal; T. M. C. Silva 772
415. <i>Hamelia patens</i> .	S / T	Lopes, A.V. UFP21763
416. <i>Manettia cordifolia</i> Mart.	V	Pontual I. 1553
417. <i>Palicourea racemosa</i> (Aubl.) Borhidi	S / T	Cassandra L. s.n.
418. <i>Palicourea violacea</i> (Aubl.) A.Rich.	S	Maranhão E. 11
419. <i>Posoqueria latifolia</i> Roem. & Schult.	S / T	Sobrinho M. S. 39973
420. <i>Posoqueria longiflora</i> Aubl.	S / T	Primo L. M. 81499
421. <i>Psychotria bahiensis</i> DC.	S	Nadia T. L. 204
422. <i>Psychotria bracteocardia</i> (DC.) Müll. Arg.	S	M.J.N. Rodal; A. G. Silva 800
423. <i>Psychotria colorata</i> (Willd. ex Roem. & Schult.) Müll. Arg.	S	K. Almeida; M.J.N. Rodal 72
424. <i>Randia armata</i> (SW.) DC.	S / T / V	Pinheiro K. 19
425. <i>Sabicea grisea</i> Cham.& Schldtdt.	V	Sobrinho M. S. 528
426. <i>Tocoyena bullata</i> (Vell.) Mart.	S	Lopes A. V. 47335
427. <i>Tocoyena formosa</i> (Cham. & Schldtl.) K. Schum.	SU / S	Sobrinho M. 541
Rutaceae		
428. <i>Ertela trifolia</i> (L.) Kuntze.	H / SU	Sobrinho, M.S. 496
429. <i>Erythrochiton brasiliensis</i> Nees & Mart.	S	Siqueira-Filho, J.A.; Campelo, M.J.A. & Lopes, A.V.F. 614
430. <i>Esenbeckia pilocarpoides</i> Kunth.	S / T	E. L. Sette Silva 36
431. <i>Metrodorea nigra</i> A. St.-Hil.	T	Almeida, K. 48
432. <i>Zanthoxylum monogynum</i> A.St.-Hil.	T	Almeida, K. 58
433. <i>Zanthoxylum rhoifolium</i> Lam.	T	Melo F. F. 238
Salicaceae		
434. <i>Casearia zizyphoides</i> Kunth	T	K. Almeida, 90
435. <i>Xylosma ciliatifolia</i> (Clos) Eichler	S / T	F.A.A. Nepomuceno et al. 316 T.M.C. Silva; K. Almeida; M.F.L.R. Almeida;
436. <i>Banara brasiliensis</i> (Schott) Benth.	S / T	M.V.P. Almeida; R. Almeida; R.F. Almeida & S.S. Almeida 38
437. <i>Casearia hirsuta</i> SW.	T	Sobrinho, M.S. 457

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438. <i>Casearia sylvestris</i> SW.	SU / S / T	Melo, Y.; Maciel, J.R. & Amorim, D.A. 73
439. <i>Prockia crucis</i> P. Browne ex. L	S / T	Sobrinho M.S. 493
Sapindaceae		
440. <i>Talisia cerasina</i> (Benth.) Radlk.	T	E. L. Sette Silva, 31
441. <i>Allophylus puberulus</i> (Cambess.) Radlk.	S / T	M.S. sobrinho et al. 520
442. <i>Allophylus racemosus</i> Sw.	S / T	K. Almeida 128
443. <i>Serjania hebecarpa</i> Benth.	V	Alunos de botânica sistemática (PEUFR).
444. <i>Allophylus edulis</i> (A. St.-Hil., Cambess. & A. Juss.)	S / T	Sobrinho, M.S. 520
445. <i>Allophylus semidentatus</i> (Miq.) Radlk.	T	Amorim, B.S.; Louzada, R. & Costa-Lima, J.L. 1787
446. <i>Cupania racemosa</i> (Vell.)	T	Almeida, K. 179
447. <i>Cupania impressinervia</i> Acev.-Rodr.	T	Cassandra, L. 51374
448. <i>Paullinia pinnata</i> L.	V	Santos E, G., Silva A. M. s.n.
449. <i>Paullinia trigonia</i> Vell.	V	Santos E, G., Silva A. M. s.n.
450. <i>Serjania leptocarpa</i> Radlk.	V	Pickel B. 3114
451. <i>Serjania paucidentata</i> DC.	V	Santos E. G., Silva A. M., s.n.
452. <i>Talisia retusa</i> R.S. Cowan.	T	Amorim B. S. et al. 1790
453. <i>Talisia esculenta</i> (A. St.-Hil.) Radlk..	T	Costa, K.C.; Silva, A.M. da; Silva, T.M.C. da; Rodal, M.J.N.; Silva, A.M. da; Silva, T.M.C. da; Rodal, M.J.N. 212
Sapotaceae		
454. <i>Pouteria nordestinensis</i> Alves-Araújo & M. Alves	S / T	K. Almeida, 13
455. <i>Chrysophyllum gonocarpum</i> (Mart. & Eichler ex Miq.) Engl.	T	Almeida, K.; Santos, E.; Santos, E. 13
456. <i>Chrysophyllum rufum</i> Mart..	S	I. Pontual 1392
457. <i>Manilkara salzmannii</i> (A. DC.) H. J. Lam.	T	Ameida Jr. E. B. 782
458. <i>Pouteria grandiflora</i> (A. DC.) Baehni.	T	Chiappeta A. 33
459. <i>Pouteria ciliata</i> A. Alves-Araújo	T	T.M.C. da Silva; K. Almeida 67
460. <i>Pouteria glomerata</i> (Miq.) Radlk.	T	T. M. C. da Silva; K. Almeida 45
461. <i>Pouteria venosa</i> (Mart.) Baehni.	S / T	Chiappeta A. 560
462. <i>Pradosia lactescens</i> (Vell.) Radlk.	T	Miranda A. M. et al. 3618
Smilacaceae		
463. <i>Smilax syphilitica</i> Humb. & Bonpl. ex. Willd.	V	Santos E. G., Silva A. M., s.n.
Solanaceae		
464. <i>Solanum asperum</i> Rich.	S / T	Sobral, M, 7291
465. <i>Brunfelsia uniflora</i> (Pohl) D.Don.	S	Sobrinho, M.S. 460
466. <i>Cestrum gardneri</i> Sendtn.	S	Primo, L. s.n.
467. <i>Solanum americanum</i> Mill.	H	Maranhão E. 10
468. <i>Solanum paniculatum</i> L.	S	Pontual I. 1305
469. <i>Solanum rhytidoandrum</i> Sendtn.	S	Sobrinho M. S. 313
470. <i>Solanum sycocarpum</i> Mart. & Sendtn.	S	Andrade V. C. 245
Urticaceae		
471. <i>Cecropia concolor</i> Willd.	T	I. Pontual 1298
472. <i>Phenax sonneratii</i> (Poir.) Wedd.	SU / S	Lima, V. C., Andrade-Lima 07
Verbenaceae		
473. <i>Aloysia virgata</i> (Ruiz & Pav.) Juss.	S / T	Sobrinho, M.S. 456
474. <i>Citharexylum myrianthum</i> Cham.	T	Sobrinho, M.S. 535
475. <i>Lantana canescens</i> Kunth.	S	Sobrinho M. 480
476. <i>Lantana fucata</i> Lindl.	S	Sobrinho M. 300
477. <i>Phyla betulifolia</i> (Kunth.) Greene.	H	Lima V. C. 46335
478. <i>Stachytarpheta angustifolia</i> (Mill.) Vahl.	S	Sobral M. 7302
Violaceae		
479. <i>Amphirrhox longifolia</i> (A.St.Hill.) Spreng.	S/T	Sobrinho, M.S. 508

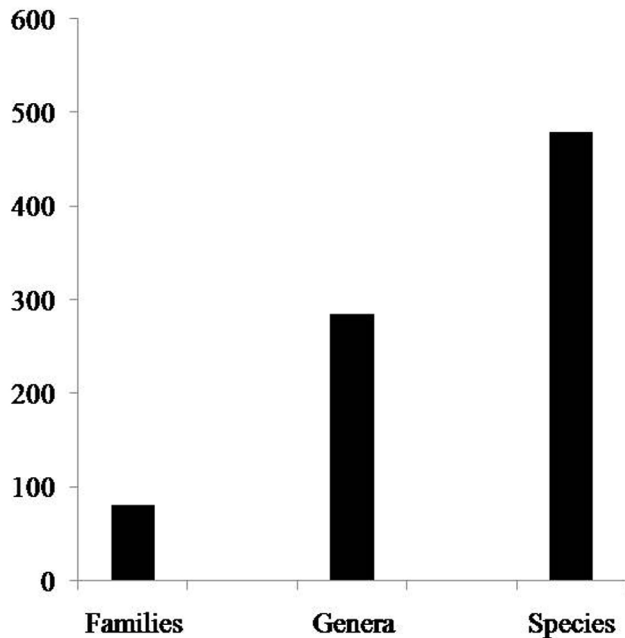


Figure 5. Numbers of families, genus and species from TES.

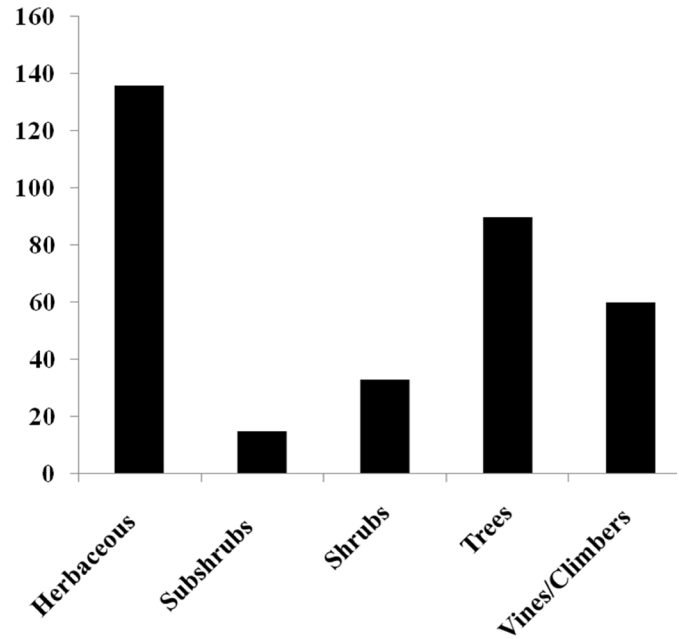


Figure 7. Numbers of species and their respective habits.

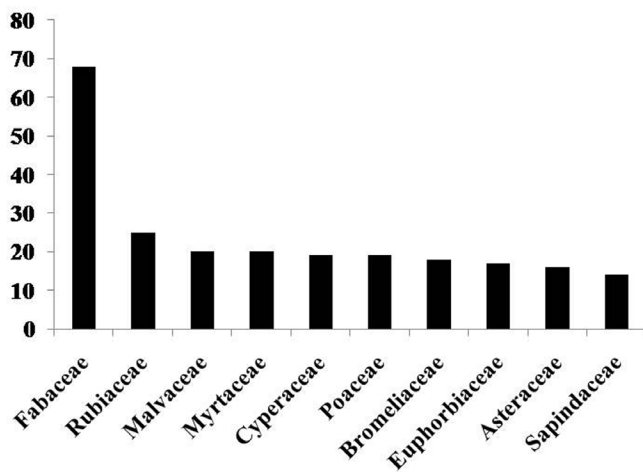


Figure 6. Ten most representative families in the TSE.

Among the genera listed for the TES, 21 (7.37%) were best represented in terms of numbers of species: *Cyperus* L. (10 spp.), *Eugenia* L., *Erythroxylum* P. Browne, and *Inga* Mill. (7 spp. each), *Aechmea* Ruiz & Pav. (6 spp.), *Cordia* L., *Croton* L., *Miconia* Ruiz. & Pav., *Myrcia* DC., *Paspalum* L., *Sida* L., and *Tillandsia* L. (5 spp. each), followed by *Adenocalymma* Mart. ex Meisn. emend L.G. Lohmann, *Aegiphila* Jacq., *Allophylus* L., *Coccoloba* P. Browne, *Desmodium* Desv., *Ruellia* L., *Rhynchospora* Vahl, *Pouteria* Aubl., and *Solanum* L. (4 spp. each).

Herbaceous species were most commonly encountered (136 spp.; 28.39% of the total), followed by arboreal species (90 spp.; 18.79%), lianas/climbers/vines (60 spp.; 12.53%), shrubs 33 spp.; 6.89%, and sub-shrubs (15 spp.; 3.13%) (Figure 7). The families Cyperaceae (19 spp.), Poaceae (18), Bromeliaceae (18), Marantaceae (10), Orchidaceae (10), Asteraceae (8), and Commelinaceae (7) were the most species rich components of the herbaceous strata.

Among the most species rich arboreal families were: Fabaceae (25 spp.), Myrtaceae (13 spp.), Sapindaceae, and Sapotaceae (6 spp. each); among the richest species of shrub families were: Solanaceae and Rubiaceae (5 spp. each) and Melastomataceae (4 spp.); among the most species rich lianas/climbers/vines were: Fabaceae (9 spp.), Bignoniaceae (6 spp.), and Convolvulaceae and Sapindaceae (5 spp. each); and among the most species rich sub-shrubs were: Fabaceae and Acanthaceae (3 spp. each).

Discussion

The floristic profile of the main botanical families recorded in the present study, in terms of species richness, is similar to the data presented in studies undertaken in other regions of Lowland Rainforest and Dense Montane Rainforest in northeastern Brazil, reinforcing the importance of TES in Atlantic Forest conservation (Landim et al. 2015, Sobral-Leite 2011). The present work corroborates with the survey carried out by Landim et al. (2015) in the lowland Mata do Crasto forest in Sergipe State in listing Fabaceae (33 spp.), Rubiaceae (24), and Myrtaceae (23) as the most representative families; the species richness recorded for the Fabaceae family in TES, however, was more than double that (68 spp. vs 33) reported by Landim et al. (2015).

We also observed very similar results for angiosperms when comparing our results with those of Sobral-Leite (2011) from Mata do Estado, in the municipality of São Vicente Férrer, Pernambuco State. That area included vegetation of both the Caatinga (dryland) and Atlantic Forest phytogeographic domains, classified as Montane Rain Forest (sensu Veloso et al. 1991), and that author reported a predominance of the families Fabaceae (33 spp.), Myrtaceae (21) and Rubiaceae (20). Fabaceae is often the richest plant family in terms of species numbers even in the semiarid regions of Pernambuco with predominantly Caatinga vegetation and areas influenced by the Atlantic Forest and Cerrado (neotropical savanna), as was observed by Gomes et al. (2006) and Athiê-Souza et al. (2019).

The Myrtaceae family in Lowland Rainforests in eastern Brazil, however, appears to be detached (Lima et al. 2012, Peixoto et al. 2008). Lima et al. (2012) carried out a floristic survey in the Carlos Botelho State Park in São Paulo, and reported that the richest families were Myrtaceae (85 spp.), Lauraceae (53), Fabaceae (37), and Rubiaceae (23). Peixoto et al. (2005) likewise cited Myrtaceae (185 spp.) as having the greatest species richness among the phanerogamic flora of the Linhares Reserve in Espírito Santo, followed by Fabaceae (109) and Rubiaceae (105).

In terms of plant genera, *Cyperus* L. (Cyperaceae), *Eugenia* L. (Myrtaceae), *Erythroxylum* P. Browne (Erythroxylaceae), and *Inga* Mill. (Fabaceae) stood out as having the largest numbers of species in our survey. Peixoto and Gentry (1990) noted that Myrtaceae species have significant ecological importance in forests along the Atlantic coast of Brazil, with great richness and abundance. Cordeiro and Loiola (2018), on the other hand, noted that Erythroxylaceae species frequently occur in seasonally dry climates, such as Savanna Steppe (*Carrasco*) and Deciduous Forests (dry forests).

Regarding the herbaceous strata, Poaceae has also been highlighted in terms of richness in lowland regions of the Atlantic Forest in the states of Sergipe and Rio Grande do Sul (Maraschin-Silva et al. 2009; Landim et al. 2015), as well as in areas of Semideciduous Seasonal Forest in the Atlantic Forest of Bahia State, and in Caatinga vegetation in Pernambuco (Costa-Júnior et al. 2007; Alves et al. 2015; Athiê-Souza et al. 2019).

Among arboreal species, our results differ from Costa-Júnior et al. (2005), who studied the tree species in eight areas of Lowland Forest in Pernambuco State (Mata das Caldeiras, Mata do Zumbi, Mata de Tejió, Mata do Resec Gurjaú, Mata dos Macacos, Mata do Curado, and Resec Dois Irmãos Forest) and highlighted the greatest similarity between Mata of Caldeiras and Mata of Curado; indicating Fabaceae, Moraceae, Anacardiaceae, and Annonaceae as the most representative families there.

In terms of shrub and sub-shrub species, those families having the highest numbers of species are generally cited as having the highest numbers of species in the shrub/sub-shrub components of the Atlantic Forest in northeastern Brazil (e.g., Amorim et al. 2005, Pereira & Alves 2007, Alves et al. 2015) although occasionally in a different order. The family Fabaceae stands out in terms of species diversity in most of the surveys already mentioned, and also presents the most varied life forms – as seen in the present study area and confirmed by the observations of Gentry (1995) for dry neotropical forests. Queiroz (2009) noted that high plant habit diversity is related to the association of nitrogen fixing bacteria with root nodules, thus facilitating morphological adaptations and the occupation of a wide diversity of habits.

Considering the data available on the Flora do Brasil 2020 site and in floristic studies conducted in Pernambuco or northeastern Brazil (Sobral-Leite et al. 2010, Hatori 2009, Santos et al. 2013, Soares Neto 2014), we report here 44 new occurrences for Pernambuco State based on exsiccates deposited in herbaria. Most of the species reported here for the first time in Pernambuco were already known to occur in several states in northeastern Brazil, including: *Abutilon ramiflorum* A.St.-Hil. (BA); *Bignonia binata* Thunb. (CE); *Combretum rotundifolium* Rich. (CE); *Mikania micrantha* Kunth (CE); *Nelsonia canescens* (Lam.) Spreng. (BA, MA); *Plathyenia reticulata* Benth. (BA, CE, MA, PI); *Pterocaulon alopecuroides* (Lam.) DC. (BA, PB); *Rivina humilis* L. (BA, CE); *Thunbergia fragrans* Roxb. (BA); and *Urena lobata* L. (AL, BA, CE, MA, PB, SE).

Serjania leptocarpa Radlk (Sapindaceae), however, was the only species not mentioned for other states in northeastern Brazil (although identified in the states of Acre and Amazonas in the North, Rio de Janeiro in the Southeast, and Parana in the South) (Flora do Brasil 2020). *S. leptocarpa* was previously known only to Bolivia and Amazonas State in Brazil (Acevedo-Rodríguez 1993), in the Amazon rainforest, and in areas of the Atlantic Forest in northeastern and southern Brazil (Flora of Brazil 2020). Here, we recognize it as a new occurrence for Pernambuco State, which has been only poorly collected, but appears to prefer riverside habitats. According to Acevedo-Rodríguez (1990), the species of the genus *Serjania* that occur in humid areas generally have the widest distributions, which may be associated with the large number of rivers in the Amazon region that aid in propagule dispersal and help explain the adaptation of the genus to humid regimes. The same situation was observed for *Serjania leptocarpa* when herbarium label data were analyzed (Flora do Brasil 2020): that species is found in an Environmental Protection Area that surrounds the Negro River in the northern region of Brazil (considered the largest block of protected tropical forest in the world) (Ayres et al. 2005). There is also a wildlife corridor that crosses the Amazon-Solimões and Negro rivers (Ayres et al. 2005), contributing to gene flow through that region. *S. leptocarpa* occurs along the Turvo River in Paraná State, and it was recorded at the edges of the Tapacurá River in the TES in Pernambuco. According to the information available on GEOCAT, the species is classified as “of least concern” due to its extent of occurrence (8,079,000 km²) although, it can be classified as endangered due to its smaller area occupation of 120,000 km².

Another new occurrence, *Nelsonia canescens* (Acanthaceae), also deserves mention here. The species has a curious distribution in Brazil, occurring from the northern part of the country in the states of Amazonas and Pará to the northeastern region with records for the states of Alagoas, Piauí, Rio Grande do Norte, and Bahia; it also occurs in the midwestern region of the country in Goiás State. Thus, *Nelsonia canescens* has a geographic distribution that includes areas of the Amazon and Atlantic forests, neotropical savanna, and semiarid forests – suggesting that the species has a disjunct distribution, as reported by Cavalcanti & Tabarelli (2004) for some species with Amazonian-Northeastern occurrences.

The Tapacurá Ecological Station therefore holds a varied flora with high species richness and shares affinities with several other areas in northeastern Brazil. The rare species in this area have disjunct distributions between the Amazon rainforest and the Atlantic Forest. While our results have increased our knowledge of the flora of this region, additional efforts will still be needed for studies of other plant groups such as Bryophytes, Pteridophytes, and Gymnosperms that could reveal other new occurrences, and expand our knowledge of TES biodiversity.

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Author Contributions

Rafaela Alves Pereira-Silva: conceived the idea of the manuscript; structured, contributed to the writing of the text, and the interpretation of the results; conducted the fieldwork.

Beatriz Rayrana de Araújo Gama: structured, contributed to the writing of the text, and the interpretation of the results; reviewed the species list, prepared the table; conducted the fieldwork.

Joésili Cristina Pereira de Oliveira: structured, contributed to the writing of the text, reviewed the species list.

Jone Clebson Ribeiro Mendes: structured, contributed to the writing of the text, and the interpretation of the results; conducted the fieldwork.

Jorge Irapuan de Souza Barbosa: reviewed the species list, confirmed the identification of species.

Sarah Maria Athiê-Souza: revised the manuscript.

Leidiana Lima dos Santos: structured, contributed to the writing of the text.

Margareth Ferreira de Sales: revised the manuscript.

Ana Luiza Du Bocage: also conceived the idea of the manuscript and revised the manuscript.

Conflicts of Interest

We, the authors, declare that we have no conflicts of interests related to the publication of this manuscript.

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Angiosperm in Tapacurá

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