



## Survey of Urban Afforestation in municipalities in Alagoas

### Survey of Urban Afforestation in Alagoas municipalities

Ronison Francisco dos Santos<sup>1</sup>

Dacio Rocha Brito<sup>two</sup>

Submitted on: 07/30/2022

Approved on: 07/30/2022

Published on: 08/01/2022 DOI:

10.51473/rcmos.v2i2.331

#### Summary

Despite the benefits provided by urban afforestation, its planning has been neglected in the planning of some Brazilian cities. This leads to a series of problems, such as the use of species unsuitable for the environment and excessive use of some species, especially exotic ones. In this context, the present study sought to carry out a survey of the urban arboreal-shrub flora already widespread in municipalities in Alagoas and, thus, draw a profile of the species that make up the state's urban flora. To this end, a bibliographical review was carried out in five different databases in the period 2010-2021 using the keywords: urban afforestation, Alagoas, urban vegetation of streets and parks and afforestation in schools. The origin, family and mesoregion (phytogeographic domain) of each species were observed. From the data it was detected that municipalities in Alagoas have surveys of urban flora. And a total of 31 families and 99 species were found, of which 4 are undetermined and 48 are exotic and 47 native. The most representative species in the state's urban flora were: *Ficus benjamina*L., *Roystonea oleracea*OFCook, *Tabebuia aurea* Benth. & Hook. f ex S. Moore, *Handroanthus impetiginosus*(Mart. ex DC.) Mattos and *Prosopis juliflora*(Sw.) DC. **Key words:** Urban vegetation; Brazilian Northeast; Survey

#### Abstract

Despite the benefits provided by urban afforestation, its planning has been neglected within the planning of some Brazilian cities. This since the use of specific problems some restrictions to the environment and the restricted use of species, mainly as they are restricted. In this context, the present study sought to carry out a survey of the urban arbo-shrub flora already propagated in the municipalities of Alagoas and thus, draw a profile of the species that determines the urban flora of the state. For that, a bibliographic review was carried out: in the period of different databases from 2010-2021 using the keywords of urban afforestation, Alagoas, urban vegetation of streets and parks and afforestation. Origin, family, mesoregion (phytogeographic domain) of each species were observed. From the data it was detected that the municipalities of Alagoas have surveys of urban flora. And a total of 31 families and 99 species were found, of these 4 are undetermined and 48 are exotic and 47 are native. The most representative species of urban flora in the state were: *Ficus benjamina*L., *Roystonea oleracea*OFCook, *Tabebuia aurea*Benth. & Hook. f ex S. Moore, *Handroanthus impetiginosus*(Mart. ex DC.) Mattos and *Prosopis juliflora*(Sw.) DC. **Keywords:** Urban vegetation; Brazilian Northeast; survey

#### 1. Introduction

Urban afforestation represents the set of trees planted in public or private areas, such as streets, avenues, parks and squares (GONÇALVES; ROCHA, 2003). Numerous benefits are provided by the presence of plant species in the urban environment, among which the following stand out: shade, temperature reduction, shelter for fauna, minimizing visual pollution and the appearance of cities (CUNHA; PAULA, 2013). In addition, they contribute to the tourist attractions and mainly for the conservation of local biodiversity (EMER et al., 2011).

However, urban afforestation is a service that needs to be well planned so that its social, ecological and educational benefits are achieved. According to Aurélio Júnior (2008), the various benefits of afforestation of streets and avenues are dependent on the quality of their planning. It is often seen in our country that the use of species in urban afforestation occurs mainly with the aim of beautifying streets and avenues (EMER

<sup>1</sup> Ronison@vamos.uneal.edu.br

<sup>two</sup> Daciobrito@uneal.edu.br



et al., 2011; SILVA 2008). In Brazil, many studies show that the majority of species used in the afforestation of streets and avenues are of exotic origin (CARVALHO, 2002; KURIHARA et al., 2005; SILVA et al., 2007; BLUM et al., 2008, COLETTTO et al., 2008). Furthermore, the lack of planning for afforestation allows the occurrence of irregular plantings of species, without compatibility with the planting area and/or the region in which it is located. Thus, the effects provided by the presence of afforestation in public spaces are contrary to those that trees provide us, as they result in the irregular distribution of species (YANG et al., 2005; ROSSATTO et al., 2008), excessive use of exotic species, not adapted to that region (BORTOLETO et al., 2007; SILVA et al. 2007; BLUM et al. 2008, COLETTTO et al. 2008), most of the individuals belonging to a few species (ROCHA et al. 2004; SILVA FILHO 2002) and lack of maintenance (ROCHA et al., 2004), which leads to several conflicts between trees and urban elements, mainly the energy distribution network and destruction of sidewalks (VELASCO et al., 2006).

Further studies on urban afforestation are increasingly necessary, given the contributions trees make to improving the quality of the environment, generating positive psychological and physical effects. Despite the advances made, there is still much to be done regarding research in the area of urban afforestation, as, according to Emer et al. (2011) due to the lack of recognition of its importance for health and social well-being, this topic ends up being ignored, since the policy of profitable activities are the focus, while the primordial is forgotten; The population's quality of life does not only depend on a healthy diet, but mainly on the environment in its natural form, which provides clean air, directly in urbanized locations where the most diverse forms of pollution are found.

Therefore, studies on the topic are still incipient. This is notable in the state of Alagoas, where the species that are part of the state's afforestation are little known and this data is found isolated or fragmented for some municipalities and even for streets, neighborhoods, parks, schools and universities. Without in-depth studies based on the data already obtained, it hinders the possibilities of diagnosing and inducing the improvement of projects already implemented, preventing the creation of larger vegetative areas in cities or surrounding areas, which would exponentially increase the population's quality of life.

In this way, studies on the knowledge and diagnosis of urban vegetation in public spaces become useful for managing road afforestation in municipalities, thus guiding future decision-making. Furthermore, it can contribute to awakening a new perspective on its importance, so that other appropriate and efficient projects can emerge that bring benefits to the population.

Thus, with this study, we aimed to carry out a survey of the species used in urban afforestation in municipalities belonging to the state of Alagoas, as well as quantify the native and exotic species and verify whether the species that make up the state's afforestation belong to its native flora.

## 2 Methodology

This study was approached in the form of bibliographical research, characterized in a qualitative-quantitative, documentary and descriptive manner, carrying out analysis to identify the species most used in urban afforestation projects and indicating their origin. The searches were carried out in five bibliographic databases — PubMed, Web of Science, Google Scholar, Portal de Periódicos do Capes and LILACS with the keywords "Urban arborization", "Alagoas" and "Urban vegetation in parks " and "Afforestation in schools".

Publications from all areas of knowledge and in all languages were selected. Thus, the sample for this study consisted of scientific articles, monographs, theses, dissertations and books. Then, through the floristic list, that is, the results obtained in the work on the urban flora of Alagoas, a single list was made, indicating the popular names, family, origin of each species, as well as their municipalities of occurrence and mesoregion. And the scientific names of all species were updated in databases available online, such as Flora do Brasil 2020 (<http://floradobrasil.jbrj.gov.br/>) and the International Plant Name Index (IPNI) (<https://www.ipni.org/>).

two

### 3 Results and Discussion

In a total of 9 works, which deal with urban floristic surveys in the municipalities of Alagoas (Table 1), 99 species were gathered, belonging to 31 families (BARROS et al. 2010; FERREIRA et al. 2016; MESSIAS et al. 2019; SILVA & GOMES, 2013; SILVA et al. 2012; SILVA, 2018; SILVA et al. 2019; SILVA et al. 2021a; TORRES et al. Among the species found, 4 are undetermined and 95 species are determined, 48 of which are exotic and 47 are native (Table 2). The families with the greatest floristic diversity were Fabaceae (34 species), Arecaceae (8), Bignoniaceae (8), Apocynaceae (5) and Sapindaceae (5), while the others had less than five species. And the most representative species in the state's urban flora were: *Ficus benjamina* L., *Roystonea oleracea* O.F. Cook, *Tabebuia aurea* Benth. & Hook. f. ex S. Moore, *Handroanthus impetiginosus* (Mart. ex DC.) Mattos and *Prosopis juliflora* (Sw.) DC. The species *F. benjamina* was found in abundance in the municipalities of Santana do Ipanema, Arapiraca and Maribondo, *R. oleracea* it is *T. aurea* for the municipality of Palmeira dos Índios, *H. impetiginosus* for the municipality of Arapiraca, *P. juliflora* it is *T. aurea* were highlighted in the afforestation of the municipality of Piranhas. Among the five most abundant species in the state's flora, two (*F. benjamina* it is *P. juliflora*) are exotic and not recommended for planting on sidewalks.

Silva et al. (2021b) in a study of urban afforestation in the municipalities of Ceará also reported the *F. benjamina* as a species that was prominent in the afforestation of cities in the state of Ceará. According to Fernandes; Ximenes (2020) the species *F. benjamina* it is not recommended for planting in urban areas, as it grows quickly, is large, reaching up to 30 meters in height, and has an aggressive root system, which can cause disruption to electrical wiring and damage to sidewalks. These authors recommended gradually replacing the city's sidewalks and access roads with native species that are more compatible with the urban environment. However, this species is very common in northeastern municipalities (Cavalcante Neto et al., 2020; Silva et al. 2021b). The preference for using *F. benjamina* in the afforestation of many cities, it may be associated with its high adaptation in Brazilian territory, resisting different environments (LORENZI et al. 2003).

While the *P. juliflora*, popularly known as Algaroba, is known for its high competitiveness with other nearby species, due to its aggressive root system and consequently excessive water consumption, which depletes available sources (FABRICANTE; FILHO, 2014). This justifies its preference for afforestation in many northeastern cities (COSTA; MACHADO, 2009; SANTOS et al. 2015). Fabricante et al. (2017) indicated that the use of exotic species in urban afforestation facilitates the establishment of biological invasion processes.

Most studies showed that these species were above the ideal limit of the number of individuals to compose the urban afforestation of streets, squares, parks or avenues (BARROS et al. 2010; FERREIRA et al. 2016; MES-SIAS et al. 2019 ; SILVA et al. 2012; Therefore, the scenario observed in the afforestation of some municipalities in Alagoas is that one or two species are responsible for almost the entire urban extract of the cities, showing a need for planning and readaptation of this afforestation. According to Melo et al. (2007) the low diversity of species that make up the urban afforestation of cities increases the phytosanitary risk of spreading pests and diseases in trees in urban environments. The main causes are mainly the lack of properly trained personnel, mainly due to the improvisation of public managers, the lack of supervision and maintenance, the lack of knowledge of residents who plant without technical knowledge and the lack of academic work in urban arboriculture (PEREIRA et al. 2011 ; ALENCAR et al. 2014).

**Table 1. Studies on urban afforestation in the state of Alagoas**

Title	Year	County	Mesoregion
Environmental aspects of urban afforestation in the central perimeter of the municipality of Palmeira dos Índios – AL	2010	Palmeira dos Índios	Agreste
Quali-Quantitative Comparison of Afforestation in Public Spaces in the city of Arapiraca-AL	2013	Arapiraca	Agreste
Inventory and Diagnosis of Urban Afforestation in the Municipality of Piranhas – AL	2016	Piranhas	Sertão
Survey of Tree Species and Perception on the Afforestation of Praça Centenário in Maceió, AL	2018	Maceió	Wood zone
Survey of the Tree-Shrub component present in the Campus II of the State University of Alagoas	2018	Santana do Ipanema	Sertão
Diagnosis of urban afforestation in the municipality of Maribondo –AL	2019	Maribondo	Wood zone
Afforestation in Public Schools in the municipality of Poço das Trincheiras – AL	2019	Well of Trinyou smell	Sertão
Arboreal survey of Avenida Ceci Cunha and central squares in the municipality of Arapiraca, AL	2019	Arapiraca	Agreste
Diagnosis of Urban Afforestation of the main public roads in the Camoxinga and Monumento neighborhoods in the municipality of Santana do Ipanema, AL, Brazil	2021	Santana do Ipanema	Sertão

On the other hand, many other native species were added to the state's urban flora, such as: *R. oleracea*, *T. aurea*, *H. impetiginosus*, *Erythrina velutina* Willd., *Cassia grandis* L., and *Senna macranthera* (A.D. ex Collad.) Irwin & Barneby. These species are reported in some studies as potential for urban afforestation projects (ROSSATO et al. 2008; RICHTER et al. 2012; BASSO; CORRÊA, 2014; OLIVEIRA-NEVES et al. 2016).

Among the 9 studies found, 04 are for the Sertão mesoregion, 03 for the Agreste and 02 for Zona da Mata. Thus, it was seen that the majority of studies were concentrated in the Sertão and Agreste and there is a neglect of the Zona da Mata mesoregion. Furthermore, only 06 municipalities present work on afforestation. In contrast to the study by Silva et al. (2021) who report the absence of work on urban vegetation in the mesoregion of Ceará's backlands.

Comparing the present study, with others carried out for other northeastern states (LACERDA et al. 2011; SILVA, et al. 2021b; ZEA et al. 2015), a similarity was noted between the species found, indicating that the planting of certain species is common in many northeastern states.

**Table 2. Species that make up urban trees in municipalities in Alagoas.**

Scientific name	Common name	Family	Origin	Plan municipalities	Mesoregion
<i>Adenanthera pavonina</i> L.	Eye-of-the- they go	Fabaceae	Exotic	Arapiraca	Agreste
<i>Moluccan aleurites</i> (L.) Willd	Walnut	Combretaceae	Exotic	Arapiraca	Agreste
<i>Allamanda blanchetti</i> A.DC	Alamanda-ro- shah	Apocynaceae	Native	Santana do Ipanema	Sertão
<i>Allophylus edulis</i> (A.St.- - Hil., A.Juss. & Cambess.) Radk.	Pom fruit good	Sapindaceae	Native	Maceió	Wood zone
<i>Anacardium occidentale</i> L.	Cashew tree	Anacardiaceae	Native	Maceió	Wood zone
<i>Anadenanthera peregrina</i> (L.) Speg.	Arapiraca do backcountry	Fabaceae	Native	Arapiraca	Agreste
<i>Annona squamosa</i> L.	Pine cone  Pine Tree	Annonaceae	Exotic	Palm Tree of the Indians  Santana do Ipanema  Maceió	Wood zone, Agreste and Sertão
<i>Archontophoenix</i> sp.	Palm tree	Arecaceae	_	Arapiraca	Agreste
<i>Artocarpus heterophyllus</i> Lam.	Fake jackfruit	Moraceae	Native	Maceió	Wood zone
<i>Aspidosperma pyrifolium</i> Mart.	Pereiro	Annonaceae	Native	Santana do Ipanema	Sertão
<i>Azadirachta indica</i> A. Juss.	Nim  Margosa	Meliaceae	Exotic	Palm Tree of the Indians  Santana do Ipanema  Arapiraca	Agreste and Sertão
<i>Bauhinia monandra</i> Kurz	cow paw	Fabaceae	Native	Arapiraca	Agreste
<i>Bauhinia purpurea</i> L.	cow paw	Fabaceae	Native	Arapiraca	Agreste
<i>Bauhinia forficata</i> Link	cow paw	Fabaceae	Native	Santana do Ipanema  Arapiraca	Sertão and Agreste
<i>Bougainvillea glabra</i> Choisy	Bougainvillea	Nyctaginaceae	Native	Santana do Ipanema	Sertão
<i>Buxus sempervirens</i> L.	Boxwood	Buxaceae	Exotic	Maribondo	Wood zone
<i>Caesalpinia pulcherrima</i> (L.) Sw	Flamboyanzi- nho	Fabaceae	Exotic	Santana do Ipanema	Sertão
<i>Caesalpinia pyramidalis</i> Tul	Catingueira	Fabaceae	Native	Santana do Ipanema	Sertão
<i>Caesalpinia</i> sp	_	Fabaceae	_	Arapiraca	Agreste
<i>Casearia javitensis</i> Humb., Bonpl. & Kunth	Pom-eye good	Flacourtiaceae	Exotic	Maceió	Wood zone
<i>Cassia ferruginea</i> ( Schrader.)Schrader ex DC.	Canafistula beetle	Fabaceae	Native	Palm Tree of the Indians	Agreste
<i>Cassia fistula</i> L.	Rain-of-or- ro	Fabaceae	Native	Arapiraca	Agreste



<i>Cassia grandis</i> L.	Cassia Rosa	Fabaceae	Exotic	Maceió	Wood zone
<i>Cassia Javanica</i> L.	Cassia rosea	Fabaceae	Exotic	Palm Tree of the Indians	Agreste, Sertão
<i>Casuarina equisetifolia</i> JR & G. Forst	Casuarina	Casuarinaceae	Exotic	Palm Tree of the Indians	Agreste
<i>Chamaecyparis obtusa</i> (Siebold & Zucc.) Endl.	Double cypress rado	Cupressaceae	Exotic	Maribondo	Wood zone
<i>Chloroleucon tortum</i> (Mart.) Pittier ex Barneby & JW Grimes	Jurema	Fabaceae	Native	Arapiraca	Agreste
<i>Chorisia speciosa</i> St. Hill	Paineira	Malvaceae	Native	Arapiraca	Agreste
<i>Citrus</i> sp	lemon Tree	Rutaceae	_	Santana do Ipanema	Sertão
<i>fairchildian clitoria</i> RA Howard	Purple Cassia	Fabaceae	Native	Palm Tree of the Indians Arapiraca	Agreste
<i>fairchildian clitoria</i> Howard	Sombrero	Fabaceae	Native	Santana do Ipanema Arapiraca	Sertão and Agreste
<i>Cocos nucifera</i> L.	coconut tree	Arecaceae	Exotic	Santana do Ipanema	Sertão
<i>Cordia glabrata</i> (Mart.) A. DC.	Claraíba	Cordiaceae	Native	Santana do Ipanema	Sertão
<i>Cupania racemosa</i> (Vell.) Radlk.	Caboatã in trench	Sapindaceae	Native	Maceió	Wood zone
<i>Delonix regia</i> Raf	Flamboyant	Fabaceae	Exotic	Santana do Ipanema Arapiraca	Sertão and Agreste
<i>Dracaena fragrans</i> (L.) Kerl. Grawal.	Dracena	Ruscaceae	Exotic	Santana do Ipanema	Sertão
<i>Duranta erecta</i> L.	Golddrop	Verbenaceae	Exotic	Maribondo Santana do Ipanema	Forest Zone and Sertão
<i>Dyopsis lutescens</i> H. Wendl	Palm tree	Arecaceae	Exotic	Arapiraca, Santana from Ipanema	Agreste and Sertão
<i>Enterolobium contortisiliquum</i> (Vell.) Morong	Monkfish	Fabaceae	Native	Arapiraca	Agreste
<i>Erythrina indica</i> Lam.	Brasileirinha	Fabaceae	Exotic	Palm Tree of the Indians Maribondo	Forest Zone and Agreste
<i>Erythrina variegata</i> L.	Brasileirinha	Fabaceae	Exotic	Arapiraca	Agreste
<i>Erythrina velutina</i> Willd	Mulungu	Fabaceae	Native	Santana do Ipanema Arapiraca	Sertão and Agreste
<i>Eugenia uniflora</i> L.	Pitangueira	Myrtaceae	Native	Santana do Ipanema	Sertão
<i>Ficus benjamina</i> L.	Ficus FIG tree Fig	Moraceae	Exotic	Palm Tree of the Indians Maribondo Santana do Ipanema Arapiraca	Wood zone, Agreste and Sertão
<i>Ficus elastica</i> Roxb. ex Hornem.	Rubber tree	Moraceae	Native	Maceió	Wood zone

<i>Filicium decipiens</i> (Wight & Arn.)	Tree fern	Sapindaceae	Native	Arapiraca	Agreste
<i>Filicium decipiens</i> Thwaites	Cassia Japanese	Sapindaceae	Exotic	Palm Tree of the Indians Maribondo	Forest Zone and Agreste
<i>Gliricidia sepium</i> (Jacq.) Steud	Gliricidia	Fabaceae	Exotic	Santana do Ipanema	Sertão
<i>Handroanthus heptaphyllus</i> (Vell.) Mattos	Ipe-rosa	Bignoniaceae	Native	Arapiraca Maceió	Agreste and Zone da Mata
<i>Handroanthus impetiginosus</i> (Mart. ex DC.) Mattos	Purple IPE	Bignoniaceae	Native	Arapiraca Maceió	Agreste and Zone da Mata
<i>Handroanthus spongiosus</i> Rizzini	Ipezinho lovescascudo watch	Bignoniaceae	Exotic	Arapiraca	Agreste
<i>Hibiscus tiliaceus</i> L.	cotton - beach	Malvaceae	Exotic	Arapiraca	Agreste
<i>Hibiscus rosa-sinensis</i> L.	Hibiscus	Malvaceae	Exotic	Maribondo Santana do Ipanema	Forest Zone and Sertão
<i>Ixora chinensis</i> Lam	Ixora	Rubiaceae	Exotic	Maribondo	Wood zone
<i>Jacaranda mimosifolia</i> D. Don.	Rosewood	Bignoniaceae	Native	Maceió	Wood zone
<i>Leucaena leucocephala</i> Lam	Leucena	Fabaceae	Exotic	Santana do Ipanema Arapiraca	Sertão and Agreste
<i>Licinia tomentosa</i> Benth	Oiti	Chrysobalanaceae	Native	Palm Tree of the Indians Maceió	Forest Zone and Agreste
<i>Livistona chinensis</i> (Jacq.) R. Br. ex Mart.	Palmeira lewhat	Arecaceae	Exotic	Palm Tree of the Indians Arapiraca	Forest Zone and Agreste
<i>Malpighia emarginata</i> L.	Aceroleira	Malpighiaceae	Exotic	Santana do Ipanema	Sertão
<i>Mangifera indica</i> L.	Hose	Anacardiaceae	Exotic	Santana do Ipanema Maceió	Agreste and Zone da Mata
<i>Mimosa tenuiflora</i> (Willd) Poir)	Jurema-preta	Fabaceae	Native	Santana do Ipanema Maceió	Agreste and Zone da Mata
<i>Myracrodruon urundeuva</i> German	Aroeira	Anacardiaceae	Native	Maribondo Santana do Ipanema	Forest Zone and Sertão
<i>Myrtus communis</i> L.	Orange jasminejeira	Myrtaceae	Exotic	Santana do Ipanema	Sertão
<i>Nerium oleander</i> L.	Spiradei pink	Apocynaceae	Native	Arapiraca Santana do Ipanema	Agreste and Sertão
<i>Olea europaea</i> L	Oliveira	Oleaceae	Exotic	Santana do Ipanema	Sertão
<i>Pachira aquatica</i> Aubl.	chestnut stop false	Malvaceae	Native	Arapiraca	Agreste
<i>Paubrasilia echin-OK</i> (Lam.) Gagnon, HC Lima & GP Lewis	Brazilwood	Fabaceae	Native	Maribondo Arapiraca Santana do Ipanema	Wood zone, Agreste and Sertão

<i>Peltophorum dubium</i> (Spreng.) Taub	Canafistula	Fabaceae	Native	Arapiraca Maceió	Agreste and Zone da Mata
<i>Phoenix roebelenii</i> (O'Brien)	dwarf palm	Arecaceae	Exotic	Maribondo	Wood zone
<i>Pithecellobium sweet</i> Benth	Inga-doce	Fabaceae	Native	Palm Tree of the Indians Arapiraca	Agreste
<i>Pithecellobium unguis-cati</i> (L.) Benth.	Cat nail	Fabaceae	Native	Maceió	Wood zone
<i>Plumeria Alba</i> L.	–	Apocynaceae		Arapiraca	Agreste
<i>Plumeria rubra</i> L.	Jasmine-man-GA	Apocynaceae	Exotic	Arapiraca	Agreste
<i>Poincianella rainy</i> (DC.) LP Queiros	Sibipiruna	Fabaceae	Native	Maceió	Wood zone
<i>Prosopis juliflora</i> A.D.	Mesquite	Fabaceae	Exotic	Palm Tree of the Indians Santana do Ipanema	Agreste and Sertão
<i>Psidium guajava</i> L.	guava tree	Myrtaceae	Exotic	Maceió	Wood zone
<i>Roystonea oleracea</i> OFCook	Palmeira Imperial	Arecaceae	Exotic	Palm Tree of the Indians Santana do Ipanema <small>It is</small> Arapiraca	Agreste and Sertão
<i>Roystonea regia</i> (Kunth) OFCook	royal palm	Arecaceae	Exotic	Maribondo	Wood zone
<i>Sapindus saponaria</i> L.	Soap	Sapindaceae	Exotic	Arapiraca	Agreste
<i>Schefflera arboricola</i> (Hayata) Merr	Schefflera	Araliaceae	Exotic	Santana do Ipanema	Sertão
<i>Schefflera morototoni</i> (Aubl.) Magari, Sleyrm & Frodim	Cassava	Araliaceae	Native	Arapiraca	Agreste
<i>Schinus terebinthifolia</i> Raddi	Aroeira vermelha	Anacardiaceae	Native	Arapiraca Maceió	Agreste and Zone da Mata
<i>Senna macranthera</i> (A.D. ex Collad.) Irwin & Barneby	Saint John	Fabaceae	Native	Santana do Ipanema	Sertão
<i>Senna siamea</i> (Lam) HS Irwin and Barneby	Cassia - in-Zion	Fabaceae	Exotic	Arapiraca	Agreste
<i>Senna trachypus</i> Benth	Saint John, Aleluia	Fabaceae	Native	Santana do Ipanema	Sertão
<i>Sideroxylon obtusifolium</i> (Hm. ex gnaw. & Schult.) TD Penn.	hawthorn	Sapotaceae	Native	Maribondo	Wood zone
<i>Syzygium malaccense</i> (L.) Merr L.M. Perry	Jambo	Myrtaceae	Exotic	Santana do Ipanema	Sertão



<i>Tabebuia aurea</i> Benth. & Hook. f ex S. Moore	Craibeira	Bignoniaceae	Native	Palm Tree of the Indians Maribondo Arapiraca Santana do Ipanema Maceió	Wood zone, Agreste and Sertão
<i>Tabebuia serratifolia</i> (Vahl) G. Nicholson	Pau D'arco/ Ipe	Bignoniaceae	Native	Arapiraca	Agreste
<i>Tabebuia</i> sp	Ipe	Bignoniaceae	_	Arapiraca	Agreste
<i>Tamarindus indica</i> L.	Tamarind	Fabaceae	Exotic	Santana do Ipanema Arapiraca Maceió	Sertão, Agreste and Wood zone
<i>Tecoma stans</i> (L.) Juss. Ex kunth)	I little foot Yellow  Ipê-mirim  B ignonia - - Yellow	Bignoniaceae	Exotic	Arapiraca  Santana do Ipanema	Agreste and Sertão
<i>Terminalia catappa</i> L.	Castanut	Combretaceae	Exotic	Santana do Ipanema	Sertão
<i>Thevetia peruviana</i> Shum	Hat in Napoleon	Apocynaceae	Native	Palm Tree of the Indians Maribondo Arapiraca	Forest Zone and Agreste
<i>tipuana tipu</i> (Benth.) Kuntze.	Acassia-draco	Fabaceae	Exotic	Maceió	Wood zone
<i>Tithonia diversifolia</i> (Hemsl.) A. Gray	Margaridão	Asteraceae	Exotic	Santana do Ipanema	Sertão
<i>Vismia guianensis</i> (Aubl.) Pers.	Seal	Clusiaceae	Native	Maceió	Wood zone
<i>Yucca gigantea</i> Lem.	Giant Lucca	Asparagaceae	Exotic	Maribondo	Wood zone
<i>Ziziphus joazeiro</i> mart	Juazeiro	Rhamnaceae	Native	Santana do Ipanema	Sertão

### Final considerations

The data presented demonstrate that the afforestation of cities in Alagoas is affected by two main problems: excessive use of exotic species and low species diversity, since a single species is responsible, in most cases, for composing the afforestation of some cities. It is then suggested to immediately replace these species with species native to the region, in order to reduce their varied impacts and bring greater comfort to the urban population.

Furthermore, there was a lack of work on the state's urban flora, requiring greater knowledge of the species used in this afforestation so that future decisions can be made.

## 9 REFERENCES

ALENCAR, LS; SOUTO PC; MOREIRA, FTA; SOUTO, JS; BORGES, CHA Quali-quantitative inventory of urban afforestation in São João do Rio do Peixe – PB. **Acsa**, v.10, n.2, p.117-124, 2014.

BARBOSA, MV; LEITE, VA; BRITO, DR SOUZA, WCL JUNIOR, IPS; SILVA, LEB Tree planting in Public Schools in the municipality of Poço das Trincheiras – AL. **Diversitas Journal**, v. 4, no. 3, 728-741. 2019.

BARROS, RP COSTA, AD; CANUTO, ARS Environmental aspects of urban afforestation in the central perimeter of the municipality of Palmeira dos Índios – AL.**Environmental Magazine**, v. 2, no. 2. 1-9. 2010.

BASSO, JM CORRÊA, RS Urban afforestation and landscape qualification.**Landscape and Environment**, v. 34, no. 1, p. 129-148, 2014.

BLUM, CT; BORGIO, M.; SAMPAIO, ACF Invasive exotic species in the afforestation of public roads in Maringá-PR. **Magazine of the Brazilian Society of Urban Afforestation**, v. 3, no. 2, p. 78-97, 2008.

BORTOLETO, S. et al. Composition and distribution of road afforestation in the Águas de São Pedro-SP resort.**Magazine of the Brazilian Society of Urban Afforestation**, v. 2, no. 3, p. 32-46, 2007.

CARVALHO, JA; NUCCI, JC; VALASKI, S. Inventory of trees present in the afforestation of sidewalks in the central portion of the Santa Felicidade neighborhood – Curitiba/PR.**Magazine of the Brazilian Society of Urban Afforestation**, v. 5, no. 1, p. 126-143, 2010.

COLETTI, EP; MULLER, N.G.; WOLSKI, SS Diagnosis of afforestation on public roads in the Municipality of Sete de Setembro-RS.**Magazine of the Brazilian Society of Urban Afforestation**, v. 3, no. 1, p. 110-122, 2008.

COSTA, IS MACHADO, RRB Afforestation of the Uespi-Poeta Torquato Neto Campus in Teresina-PI: Diagnosis and Monitoring.**Magazine of the Brazilian Society of Urban Afforestation**, v. 4, no. 4, p. 32-46, 2009.

CUNHA, DVP; PAULA, AD Quali-quantitative analysis of afforestation in public squares in the municipality of Vitória da Conquista – Bahia. Goiânia:**Biosphere Encyclopedia, Scientific Center Know**, v.9, N.16; p.259-272, 2013.

EMER, Aquélis Armiliato Eta/**Valorization of local flora and its use in urban afforestation**.Article. Federal Technological University of Paraná - Pato Branco Campus. 2011.

MANUFACTURER, JR; FILHO, JAS Exotic and invasive exotic plants of the Caatinga. In: FABRICANTE, JR; FI-LHO, JAS*Prosopisspp*. Florianópolis: Bookess, 2014. p. 13-21.

MANUFACTURER, JR; SANTOS, JPB; ARAÚJO, KCT; COTARELLI, VM Use of exotic species in afforestation and facilitating the establishment of cases of biological invasion.**Biothemes**, v. 30, no. 1, p. 55-63, 2017.

FERREIRA, JTP; FERREIRA, EP; SILVA, MB Petruskas, FJFB; TEOTÔNIO, FB Inventory and Diagnosis of Urban Afforestation in the Municipality of Piranhas – Al.**Know Scientific Center**, v.3, n.06, 25-36, 2016.

FERNANDES, TP XIMENES, LC Behavior of *Ficus* in the urban afforestation of the Santa Clara neighborhood, Santarém/ Pará. **Ibero-American Journal of Environmental Sciences**, v.11, n.1, p.29-39, 2020.

GONÇALVES, S.; ROCHA, FT Characterization of Urban Afforestation in the Neighborhood of Vila Maria Baixa. Consciousness and health.**Scientific Magazine, UNINOVE**, São Paulo, v.2, p. 67-75, 2003

KURIHARA, DL; IMAÑA-ENCINAS, J.; ELIAS DE PAULA, J. Survey of afforestation on the campus of the University of Brasília. *Cerne*, vol. 11, no. 2, p. 127-136, 2005.

LACERDA, RMA; LIRA FILHO, JAL; SANTOS, RV Indication of tree species for urban afforestation in the semi-arid region of Paraíba.**Revsbau**,v. 6, no. 1, 51-68, 2011.

10

LORENZI, H. & HM SOUZA. Exotic trees in Brazil: timber, ornamental and aromatic. Nova Odessa: Instituto Plantarum, 2003. 368p.

MELO, RR; LIRA FILHO, JA; RODOLFO JÚNIOR, F. Qualitative and quantitative diagnosis of urban afforestation in the Bivar Olinto neighborhood, Patos, Paraíba,**Magazine of the Brazilian Society of Urban Afforestation**, Piracicaba, SP, v.2, n.1, p.64-80, 2007.

MESSIAH, EBM; SANTOS, IK; SANTOS, MIG; LIRA, TPS; BRITO, DR Diagnosis of afforestation

OLIVEIRA-NEVES, PP BARBOSA, AS; LOPES, BS; ANDIRES, D.; GONÇALVES, EB; LEMOS, GM Floristic-structural diagnosis and invasive potential of the arboreal composition of municipal squares in São Gabriel, RS, Brazil. **Research, botany**, v. 69, no. 1, p. 227-238, 2016.

PEREIRA, PH; TOPANOTTI, LR, DALLACORT, S., MOTA, CJ, BRUN, FGK, SILVA, RTL Case study of the risk of falling urban trees on public roads in the city of Dois Vizinhos-PR. **Synergismus scientifica** UTFPR, v.6, n.1, 2011.

RICHTER, C.; PEITER, MX; ROBAINA, AD; SOUZA, ARC FERRAZ, RC; DAVID, AF Survey of public urban afforestation in Mata/RS. **Magazine of the Brazilian Society of Urban Afforestation**, v. 7, no. 3, p. 88-96, 2012.

ROCHA, RT; LELES, PSS NETO, SNO Tree planting of public roads in Nova Iguaçu, RJ: the case of the Rancho Novo and Centro neighborhoods. **Tree Magazine**, v. 28, no. 4, p. 599-607, 2004.

ROSSATTO, DR; TSUBOY, MSF; FREI, F. Urban afforestation in the city of Assis-SP: a quantitative approach. **Magazine of the Brazilian Society of Urban Afforestation**, v.3, n.3, p.1- 16, 2008.

SANTOS, CZA; FERREIRA, RA; SANTOS, LR; SANTOS, LI; GOMES, SH; GRAÇAS, DAS Qualitative analysis of the urban afforestation of 25 public roads in the city of Aracaju-SE. **Forest Science**, v. 25, no. 3, p. 751- 763, 2015.

SILVA FILHO, DF Pizetta, PU; ALMEIDA, JBSA PIVETTA, KFL; Ferraudo, AS Recreational database for registration, evaluation and management of afforestation on public roads. **Tree Magazine**, v. 26, no. 5, p. 629-642, 2002.

SILVA, LML; HASSE, I.; MOCCELIN, R.; ZBORALSK, AR Tree planting of public roads and the use of exotic species: the case of the Centro neighborhood of Pato Branco/PR. **Scientia Agraria**, v. 8, no. 1, 47-53, 2007.

SILVA, RN; GOMES, MAS Quali-Quantitative Comparison of Afforestation in Public Spaces in the city of Arapiraca-AL. **Revsbau**, v.8, n.2, 104-117. 2013.

SILVA, I. S. **Survey of Tree Species and Perception on Tree Planting at Praça Centenário in Maceió, Al.** Monograph (Course Completion Work in Agronomy). Federal University of Alagoas. 35f.

SILVA, RMS; SILVA, LS BRITO, DR; SANTOS, RLV; BEZERRA, ILS; LIMA, LLC Arboreal survey of Avenida Ceci Cunha and central squares in the municipality of Arapiraca, AL. **Diversitas Journal**. v. 4, no. 2, 367- 383. 2019.

SILVA, TA; TORRES, AM; BRITO, DR Diagnosis of Urban Afforestation of the main public roads in the Camoxinga and Monumento neighborhoods in the municipality of Santana do Ipanema, Al, Brazil. **Diversitas Journal**, v.6, n.2, 2058-2071, 2021a.

SILVA, JHC MENDES, RMS; PAIXÃO, GC EDSON-CHAVES, B. Floristic profile of urban afforestation in the municipalities of Ceará. **Brazilian Journal of Physical Geography**, v.14, n.7 3982-4002. 2021b.

TORRES, AM; BRITO, DR; SILVA, TA; DANTAS, JIM Survey of the Tree-Shrub component present on Campus II of the State University of Alagoas. **Diversitas Journal**. v. 3, no. 2, 207-219. 2018

VELASCO, GDN; LIMA, AMLP; COUTO, HTZ Comparative analysis of the costs of different networks distribution of electrical energy in the context of urban afforestation. **Tree Magazine**, v. 30. n. 4, p. 679-686, 2006.

11

Yang, J.; MCBRIDE, J.; ZHOU, J.; SUN, Z. The urban forest in Beijing and its role in air pollution reduction. **Urban Forestry and Urban Greening**, v.3, p.65-78, 2005.

ZEI, CJD BARROSO, RF; SOUTO, PC; SOUTO, JS; NOVAIS, DB Survey and diversity of urban afforestation in Santa Helena, in the semi-arid region of Paraíba. **Scientific Agriculture in the Semi-Arid**, v. 1, n.4, 54-62, 2015.