



RESEARCH ARTICLE

# Floristic inventory of urban afforestation in the city of Nepomuceno - MG

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## Abstract

Urban afforestation refers to the vegetation cover present in urban areas, which plays an important role in man's relationship with the environment, ensuring a better quality of life, as well as visually enhancing and ornamenting the urban space. The vegetation found in urban areas, when implemented correctly, is responsible for minimizing the environmental impact caused by anthropic action to expand cities. With this in mind, a survey was carried out of the species present in the tree planting on public roads in the municipality of Nepomuceno, Minas Gerais, Brazil. A census-type inventory was carried out, covering streets, avenues and lanes, except for private gardens. Individuals over 1.5 m were analyzed and species identification was based on specialized bibliography, as well as comparative analysis with botanical material from the ESAL Herbarium (Herbarium of the Department of Biology-DBI of the Institute of Natural Sciences-ICN of the Federal University of Lavras-UFLA, Lavras - MG, Brazil). The presence of 54 species was verified, among the most representative species: *Sibipiruna* (*Cenostigma pluviosum* var. *peltophoroides* (Benth.) Gagnon & G.P.Lewis - Fabaceae), followed by *Sete-copas* (*Terminalia cattapa* L. - Combretaceae). Therefore, studies such as this one are essential for guiding appropriate management practices, selecting species suitable for local conditions and promoting awareness of the importance of urban vegetation in building more sustainable and resilient cities.

## Keywords

urban afforestation; native trees; ornamental trees; urban vegetation

## Introduction

Urban greenery is essential for mitigating the environmental and social problems faced by city dwellers. As well as providing a more visually pleasing environment, urban vegetation has a significant influence on people's psychological well-being and environmental quality (1).

Street tree planting, which is part of the green areas system, should receive special attention, as it can represent a significant portion of the total flora in a city (2). The planting of trees in urban areas, in addition to having a landscaping function because it breaks up the gray monotony of asphalt and buildings, is capable of perceptibly interfering in the microclimate of the region, since it reduces the temperature range, atmospheric pollution and noise and increases the relative humidity of the air (3,4).

According to IBGE data, the city of Nepomuceno has 41.3% tree cover on its public roads (5). The aim of this study was to identify the tree species used in the afforestation of roads in this city, providing crucial information for sustainable urban planning and management.

## Materials and Methods

This study was carried out in the city of Nepomuceno (21°7'12" S, 45°15'0", altitude: 848 m), located in the Campo das Vertentes mesoregion, as part of the Lavras micro-region, in the state of Minas Gerais, Brazil, as shown in Fig. 1. Its climate is humid, with mild summers but sporadic droughts, with an average annual temperature of 19 to 21 degrees Celsius. The topography is represented by the São João, Morembá, Oriente, Dois Irmãos, Carrapato and Paineira mountains. The municipality is bathed by the Grande and Cervo rivers.

The inventory was carried out using the qualitative census method, walking along streets, avenues and lanes, except for residential gardens. All the arborescent plants with a minimum height of 1.5 m were analyzed in terms of: popular name(s) and scientific name.

The scientific names, resulting from the botanical identification of the species, were based on specialized bibliography (3,6-11), as well as comparison with material deposited in the ESAL Herbarium (Herbarium of the Department of Biology-DBI of the Institute of Natural Sciences-ICN of the Federal University of Lavras-UFLA, 37.200-900 - Lavras-MG, Brazil). The scientific binomials had to be updated, based on specialized websites (12-14).

## Results

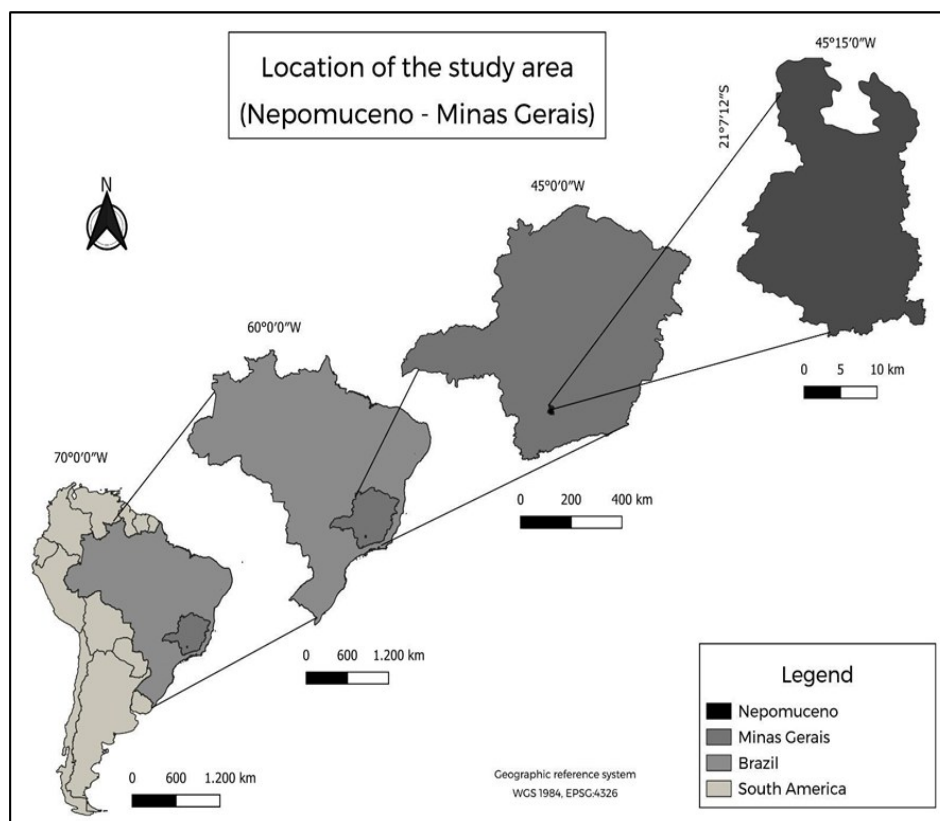
The inventory carried out in Nepomuceno identified 54 species of arboreal/arborescent plants present in roadside trees. The survey covered 12 avenues, 235 streets and 7 lanes within the city's urban perimeter. All the avenues covered had tree/shrub species. Around 32.77% of the streets covered had tree/shrub species; the rest of the streets were free of any. In addition, none of the 7 crosswalks had any species that fit this classification.

54 species were identified (50 genera and 26 botanical families); 38 species are exotic (70%) and 16 native (30%). The Fabaceae family (Leguminosae) has the largest number of species, with 16 representatives and 18 families have just one species. Table 1 shows the common names (vernacular), scientific names, botanical family and origin of the plants observed from the floristic survey.

## Discussion

The common names noted are those most commonly used within the municipality, as well as in cities neighboring Nepomuceno (Campo Belo, Coqueiral, Santana da Vargem, Três Pontas, Carmo da Cachoeira, Aguanil, Lavras, Perdões and Cana Verde, as well as other cities that are part of the Campo das Vertentes mesoregion).

This study provides a comprehensive view of the tree diversity present on Nepomuceno's public roads, contributing to the understanding of urban plant composition and providing important subsidies for the planning and management of road tree planting in a sustainable and effective way.



**Fig. 1.** Location of the city of Nepomuceno, Minas Gerais, Brazil [Adapted from IBGE (15)].

**Table 1.** Tree/wood species present in the urban afforestation of avenues, streets and lanes in the municipality of Nepomuceno - MG

| Scientific name                                                                    | Common name(s)                     | Family           | Origin                         |
|------------------------------------------------------------------------------------|------------------------------------|------------------|--------------------------------|
| <i>Acacia podalyraefolia</i> A. Cunn. ex G. Don                                    | Acácia-mimosa;<br>Acácia-prateada  | Fabaceae         | Exotic (Australia)             |
| <i>Bauhinia variegata</i> L.                                                       | Pata-de-vaca                       | Fabaceae         | Exotic (China, India)          |
| <i>Caesalpinia pulcherrima</i> (L.) Sw.                                            | Flamboiã-mirim;<br>Flamboianzinho  | Fabaceae         | Exotic (Central America)       |
| <i>Calliandra brevipes</i> Benth.                                                  | Caliandra-rosa<br>Esponjinha       | Fabaceae         | Native                         |
| <i>Calliandra tweedii</i> Benth.                                                   | Caliandra<br>Esponjinha            | Fabaceae         | Native                         |
| <i>Callistemon viminalis</i> (Sol. ex Gaertn.) G. Don ex Loud.                     | Escova-de-garrafa                  | Myrtaceae        | Exotic (Australia)             |
| <i>Caryota urens</i> L.                                                            | Palmeira-rabo-de-peixe             | Arecaceae        | Exotic (India, Malaysia)       |
| <i>Cedrela fissilis</i> Vell.                                                      | Cedro<br>Cedro-brasileiro          | Meliaceae        | Native                         |
| <i>Cenostigma pluviosum</i> var. <i>peltophoroides</i> (Benth.) Gagnon & G.P.Lewis | Sibipiruna                         | Fabaceae         | Native                         |
| <i>Clusia fluminensis</i> Planch. & Triana                                         | Clusia-ornamental                  | Clusiaceae       | Native                         |
| <i>Codiaeum variegatum</i> (L.) A. Juss.                                           | Cróton                             | Euphorbiaceae    | Exotic (India, Malaysia)       |
| <i>Coffea arabica</i> L.                                                           | Cafeeiro                           | Rubiaceae        | Exotic (Ethiopia )             |
| <i>Cupressus sempervirens</i> L.                                                   | Cipreste-italiano                  | Cupressaceae     | Exotic (Asia, South Europe)    |
| <i>Cycas revoluta</i> Thunb.                                                       | Sagu-de-jardim<br>Cicas            | Cycadaceae       | Exotic (Asia)                  |
| <i>Delonix regia</i> (Bojer ex Hook.) Raf.                                         | Flamboiã                           | Fabaceae         | Exotic (Madagascar)            |
| <i>Duranta erecta</i> L.                                                           | Pingo-de-ouro                      | Verbenaceae      | Exotic (Mexico)                |
| <i>Dyopsis decaryi</i> (Jum.) Beentje & J. Dransf.                                 | Palmeira-triangular                | Arecaceae        | Exotic (Madagascar)            |
| <i>Dyopsis lutescens</i> (H. Wendl.) Beentje & J. Dransf.                          | Palmeira-areca<br>Areca-bambu      | Arecaceae        | Exotic (Madagascar)            |
| <i>Eriobotrya japonica</i> (Thunb.) Lindl.                                         | Nespereira<br>Ameixa-do-Japão      | Rosaceae         | Exotic (China)                 |
| <i>Euphorbia tirucalli</i> L.                                                      | Dedo-do-diabo                      | Euphorbiaceae    | Exotic (Africa)                |
| <i>Ficus benjamina</i> L.                                                          | Ficus<br>Figueira-benjamin         | Moraceae         | Exotic (Asia)                  |
| <i>Heptapleurum actinophyllum</i> (Endl.) Lowry & G.M. Plunkett                    | Cheflera<br>Árvore-polvo           | Araliaceae       | Exotic (Australia, Java)       |
| <i>Hibiscus rosa-sinensis</i> L.                                                   | Hibisco<br>Rosa-da-China           | Malvaceae        | Exotic (Tropical Asia, Hawaii) |
| <i>Holocalyx balansae</i> Micheli                                                  | Alecrim-das-campinas               | Fabaceae         | Native                         |
| <i>Jacaranda mimosifolia</i> D. Don                                                | Jacarandazinho<br>Jacarandá-mimoso | Bignoniaceae     | Exotic (Bolivia, Argentina)    |
| <i>Lagerstroemia indica</i> (L.) Pers.                                             | Resedá<br>Extremosa                | Lythraceae       | Exotic (China, India)          |
| <i>Lagerstroemia speciosa</i> (L.) Pers.                                           | Resedá-gigante                     | Lythraceae       | Exotic (Asia, India)           |
| <i>Leucaena leucocephala</i> (Lam.) de Wit                                         | Leucena                            | Fabaceae         | Exotic (Central America)       |
| <i>Libidibia ferrea</i> var. <i>leiostachya</i> (Benth.) L.P.Queiroz               | Pau-ferro                          | Fabaceae         | Native                         |
| <i>Magnolia champaca</i> (L.) Baill. ex Pierre                                     | Magnólia-amarela                   | Magnoliaceae     | Exotic (Asia)                  |
| <i>Mangifera indica</i> L.                                                         | Mangueira                          | Anacardiaceae    | Exotic (Asia)                  |
| <i>Melia azedarach</i> L.                                                          | Santa-Bárbara                      | Meliaceae        | Exotic (China, India)          |
| <i>Moquilea tomentosa</i> Benth.                                                   | Oiti                               | Chrysobalanaceae | Native                         |
| <i>Morus nigra</i> L.                                                              | Amoreira                           | Moraceae         | Exotic (Asia, Africa)          |
| <i>Muntingia calabura</i> L.                                                       | Calabura<br>Muntingia              | Muntingiaceae    | Exotic (Mexico, Peru)          |
| <i>Murraya paniculata</i> (L.) Jack.                                               | Murraia                            | Rutaceae         | Exotic (China, Australia)      |
| <i>Nerium oleander</i> L.                                                          | Espirradeira                       | Apocynaceae      | Exotic                         |
| <i>Pachira aquatica</i> Aubl.                                                      | Munguba                            | Malvaceae        | Native                         |
| <i>Phoenix roebelenii</i> O'Brien                                                  | Palmeira-fênix                     | Arecaceae        | Exotic (Thailand, Vietnam)     |
| <i>Pleroma granulatum</i> (Desr.) D. Don                                           | Quaresmeira                        | Melastomataceae  | Native                         |
| <i>Plumeria rubra</i> L.                                                           | Plumeira<br>Jasmim-manga           | Apocynaceae      | Exotic<br>(Central America)    |
| <i>Psidium guajava</i> L.                                                          | Goiabeira                          | Myrtaceae        | Naturalized                    |

|                                                         |                                 |               |                                |
|---------------------------------------------------------|---------------------------------|---------------|--------------------------------|
| <i>Punica granatum</i> L.                               | Romã<br>Romanzeira              | Lythraceae    | Exotic (Greece, Syria, Cyprus) |
| <i>Salix babylonica</i> L.                              | Chorão<br>Salgueiro-chorão      | Salicaceae    | Exotic<br>(China, Asia)        |
| <i>Schinus molle</i> L.                                 | Aroeira-salsa<br>Aroeira-chorão | Anacardiaceae | Native                         |
| <i>Schizolobium parahyba</i> (Vell.) Blake              | Guapuruvu                       | Fabaceae      | Native                         |
| <i>Senna multijuga</i> (L.C. Rich) H.S. Irwin & Barneby | Cássia<br>Canafístula           | Fabaceae      | Native                         |
| <i>Spartium junceum</i> L.                              | Giesta                          | Fabaceae      | Exotic (Mediterranean)         |
| <i>Spatodea campanulata</i> P. Bauv.                    | Bisnagueira<br>Tulipeira        | Bignoniaceae  | Exotic<br>(Tropical Africa)    |
| <i>Syagrus oleracea</i> (Mart.) Becc.                   | Gariroba                        | Arecaceae     | Native                         |
| <i>Syzygium cumini</i> (L.) Skeels                      | Jambolão<br>Jamelão             | Myrtaceae     | Exotic (India)                 |
| <i>Tecoma stans</i> (L.) Juss. ex Kunth.                | Ipê-mirim;<br>Ipê-de-jardim     | Bignoniaceae  | Exotic (Mexico)                |
| <i>Terminalia catappa</i> L.                            | Sete-copas                      | Combretaceae  | Exotic (India, New Guinea)     |
| <i>Triplaris americana</i> L.                           | Pau-formiga                     | Polygonaceae  | Native                         |

## Conclusion

After carrying out this study, it can be concluded that there are 54 species of arboreal/woody plants present in the roadside arborization of Nepomuceno - MG, 70% of which are exotic and only 30% native. This survey was able to introduce the concept of the need to improve the current urban vegetation, as well as the need to include more species native to the region, with the aim of promoting local biodiversity, in addition to the greater resilience and adaptation to local conditions, pests and maintenance that these native species have.

## Authors' contributions

All authors have equally contributed in the planning of the research and preparation of manuscript.

## Compliance with ethical standards

**Conflict of interest:** The authors declared that they have no conflict of interest.

**Ethical issues:** None

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