LUMEN ET VIRTUS

30 different genera of PANCs in the city of Tauá (CE)

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ABSTRACT

In today's world, agriculture is uncontested in its production of food that generates wealth and food security, especially in a subcontinental country like Brazil. However, the "look" at plants has gained a new perception focused on our food needs focused on plant species not normally used in human food. In this context, PANCs, that is, Non-Conventional Food Plants, have been gaining relevance in recent years. They are usually juicy and well-pigmented, displaying a variety of shapes and colors. Non-Conventional Food Plants (PANCs) are known for their unique and diverse characteristics. PANCs usually have an appearance that resembles weeds, but they are highly nutritious. The objective of the present work is to evidence the presence of PANCs in 3 urban areas of the city of Tauá carried out by students of the mandatory discipline General Systematics and Phylogênia (TA 464) throughout the semester 2024.1, clearly evidencing the existence of at least 34 different species of PANCs in the three research sites that can be classified into at least 30 different genera: Turnera, Portulaca, Kalanchoe. Aloe, Amaranthus, Plectranthus, Calotropis, Cucumis, Asteraceae, Malva, Solanaceae, Ocimum, Portulaca, Macroptilium, Hexasepalum, Jatropha, Sida, Zinnia, Ocimum, Spondias, Momordica, Acanthospermum, Commelina, Coleus, Ipomoea, Marsypianthes, Ricinus, Catharanthus, Commelina, Ammannia.

Keywords: Food Plants, CECITEC, Tauá.

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INTRODUCTION

The relevance of plants to planet Earth is unquestionable. At least 10,000 years ago, agriculture was created, further increasing the relevance of plants to humanity. The domestication of plant species accompanied the full implementation of the most varied agricultural practices. In today's world, agriculture is uncontested in its production of food that generates wealth and food security, especially in a subcontinental country like Brazil. However, the "look" at plants has gained a new perception focused on our food needs focused on plant species not normally used in human food. In this context, PANCs, that is, Non-Conventional Food Plants, have been gaining relevance in recent years. The "PANCs" refer to Non-Conventional Food Plants, that is, they are plant species that offer a wide nutritional potential, but are not widely known or used in everyday food. These are plants that, although not part of the conventional diet, can be easily grown and found in forest areas, and even in our backyards. Non-Conventional Food Plants (PANCs) are known for their unique and diverse characteristics. PANCs usually have an appearance that resembles weeds, but they are highly nutritious. They are usually juicy and well-pigmented, displaying a variety of shapes and colors. Many PANCs are resistant to pests and diseases, adaptable to different environmental conditions, and often found in uncultivated areas such as forests and abandoned fields. In addition, they have a high nutritional value, offering a rich diversity of vitamins, minerals and antioxidants, and contribute significantly to food security and agricultural biodiversity. Although still little known, Non-Conventional Food Plants (PANCs) are gaining visibility in several states of Brazil. They are important because they diversify the diet and make better use of natural resources, being easy to grow and found in natural areas and backyards. PANCs promote agricultural biodiversity and contribute to food security by providing essential nutrients and withstanding harsh environmental conditions. In addition, they reduce dependence on monocultures and promote the conservation of biodiversity, enriching gastronomy with new flavors and encouraging more sustainable food.

In the curriculum of the Full Degree Course in Biological Sciences of the Center for Education, Science and Technology of the State University of Ceará (CECITEC/UECE), the mandatory discipline of General Systematics and Phylogeny (TA 464) is offered. CECITEC is located in the city of Tauá. The city of Tauá is located in the region of Inhamuns (about 350 kilometers from the capital Fortaleza). The population of the municipality of Tauá is estimated at 64,223 inhabitants (IBGE, 2024). It has an altitude of 368 meters, with a semi-arid climate, with an annual average of 399 mm. Average annual temperature 24.2°C. The city of Tauá can be considered an aggregator of the other cities and districts of the

Inhamuns Region, characterized by the Caatinga. Among the six Brazilian Biomes, the Caatinga is the most peculiar of all. In territorial extension, this Biome occupies the third place with 9.9% of the country's areas (IBGE, 2004). It has a unique biodiversity, semi-arid climate, sparse rainfall, vegetation ranging from xerophytes to shrubs, and strong sunshine (SOUZA, 2020). However, the irregularity of rainfall gives greater importance to water, given the need for this natural element, for the survival of the fauna and flora of this ecosystem.

In places where water is scarce, there is evidence of concern for this resource. For the Northeast Region of Brazil, it is extremely relevant, since one of the characteristics of the Caatinga Biome is the alternation of long periods of drought and short-term rainy periods. In addition, among the 12 Hydrographic Regions of the country, the Caatinga is located within the Eastern Northeast Atlantic Hydrographic Region, which suffers from the lowest availability of water (AGÊNCIA NACIONAL DE ÁGUAS E SANEAMENTO BÁSICO, 2023). Therefore, the objective of the present work is to evidence the presence of at least 30 different genera of PANCs in 3 urban areas of the city of Tauá in practice carried out by students of the mandatory discipline of General Systematics and Phylogênia (TA 464) throughout the semester 2024.1.

METHODOLOGY

The methodology used in this study consisted of carrying out morning collections in three locations: 1) external area of CECITEC; 2) Bezerra e Sousa neighborhood; and 3) Francisco Soares de Carvalho Neighborhood (Figures 1, 2 and 3). Software such as ImageJ and Google were also used for improvements and research of the photographs taken from the samples collected, in addition to the specific literature on PANCs. The ImageJ program, which is a software for image processing and analysis, developed by Wayne Rasband at the National Institute of Mental Health, USA, was used to enhance the images obtained by optical microscopy/magnifying glasses . While Google with the Google Lens function for possible taxonomic identification.

RESULTS AND DISCUSSION

The results of the present study clearly demonstrate that the so-called PANCs are found in at least three (3) urban areas of the city of Tauá (Figures 1, 2 and 3; Tables 1, 2 and 3). At least 34 PANCs were found, in addition to those that could not be correctly identified due to the program used in the identification and the lack of data in the literature. Although still little known, Non-Conventional Food Plants (PANCs) are gaining visibility in several states of Brazil. They are important because they diversify the diet and make better

use of natural resources, being easy to grow and found in natural areas and backyards. PANCs promote agricultural biodiversity and contribute to food security by providing essential nutrients and withstanding harsh environmental conditions. In addition, they reduce dependence on monocultures and promote the conservation of biodiversity, enriching gastronomy with new flavors and encouraging more sustainable food. The results of the present work clearly show the existence of at least 34 different species of PANCs in the three research sites that can be classified in at least 30 different genera: Turnera, Portulaca, Kalanchoe. Aloe, Amaranthus, Plectranthus, Calotropis, Cucumis (Figure 4), Asteraceae, Mallow, Solanaceae, Ocimum, Portulaca, Macroptilium, Hexasepalum, Jatropha, Sida, Zinnia, Ocimum, Spondias, Momordica, Acanthospermum, Commelina, Coleus, Ipomoea, Marsypianthes, Ricinus, Catharanthus, Commelina, Ammannia. Such results demonstrate the floristic biodiversity existing in the city of Tauá, especially when only three different sites were researched. In addition, they highlight the potential richness of PANCs that can be used in food when technically oriented.

Finally, some species (13) found in the three sites could not be fully identified as PANCs, future research needs to be implemented for identification as PANCs or not. Emphasizing that the students of TA 464 were limited to the PANCs already identified, we may probably be facing new PANCs, requiring more time and research.

Figure 1 – PANCs collection site 1 on 04/02/2024 in the external area of CECITEC.



Source: Authors/Google Earth.

Table 1 – Results of data collection 1.



Source: authors

Figure 2 – PANC collection site 2 on 04/17/2024 in the Bezerra e Sousa neighborhood.



Source: Authors/Google Earth.

Table 2 – Results of data collection 2.



Source: authors

Figure 3 – PANCs collection site 3 on 05/17/2024 in the Francisco Soares de Carvalho neighborhood.



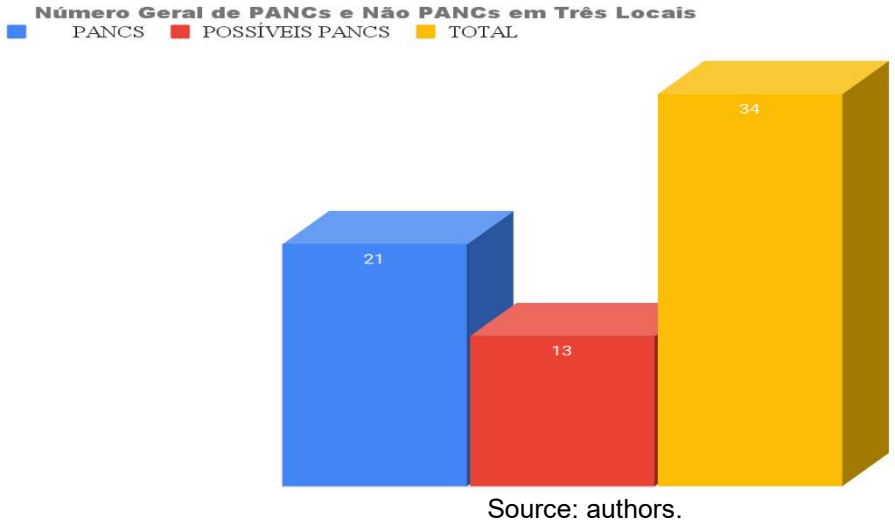
Source: Authors/Google Earth

Table 3 – Results of data collection 3.



Source: authors

Table 1 – Quantification of the results of the collections.



Source: authors.

Figure 4 – Maxixe-bravo (Cucumis anguri) PANC found in the Bezerra e Sousa neighborhood.



FINAL CONSIDERATIONS

Students of the mandatory discipline of GENERAL SYSTEMATICS AND PHYLOGENY (TA 464) during the 2024.1 semester demonstrated the presence of at least 34 PANCs (In at least 30 different genera) present in the urban area of the city of Tauá. Future perspectives point to an expansion of the study area as well as the possible incorporation of PANCs in the diet of students of the Basic Educational Institutions of the city of Tauá through a partnership between CECITC and the Secretary of Education of the Municipality of Tauá.

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