



Potentialities of Plant Species Native to the Caatinga

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Abstract

The Caatinga biome presents several possibilities of use, especially regarding plants, showing unique vegetation marked by its heterogeneity, with a significant number of rare and/or endemic taxa. This article presents some aspects related to the potentialities of plant species in this biome, highlighting the riches that exist in the semiarid region of Brazil. It is thus necessary to consider the peculiarities of this region in order not to lose this potential due to unfamiliarity and inappropriate use.

Keywords: Caatinga; Forage plants; Medicinal plants; Ornamental plants; Autochthonous plants

Introduction

Brazil is a country of continental proportions, with its 8.5 million km² occupying nearly half of South America and presenting several climate zones, leading to significant ecological variations that form a number of biomes: the Amazon Forest, the largest tropical rainforest in the world; the Pantanal, the largest floodplain; the savannahs and groves of the Cerrado; the fields of the Pampas; the Atlantic rainforest; and the Caatinga forests, which predominate in the semiarid region, in addition to a coastline of 3.5million km² that includes ecosystems such as coral reefs, dunes, mangroves, lagoons, estuaries, and swamps [1].

The Caatinga, a term from the Tupi-Guarani language that means “white” (tinga) “wood” (caa), is a biome that occupies an area of approximately 844.4 thousand km², corresponding to about 12% of the national territory and 70% of the Northeast region, including 28 million people and extending across nine Northeastern states and the north of Minas Gerais [2]. The biome is also known by different denominations due to the predominant plant formations, receiving names such as sertão, cariri, Seridó, and carrasco

[3]. It is the only exclusively Brazilian biome, and most of its biological diversity cannot be found anywhere else in the world [4].

The vegetation is an integrating element of nature, interacting with the climate, soil, relief, and drainage networks [5]. The Caatinga vegetation is considered a unique ecosystem due to its heterogeneity, with many rare and/or endemic taxa [6]. Composed of spiny and deciduous shrubs and small trees that lose their leaves at the beginning of the drought period, the Caatinga is mostly constituted by annual plants, cacti, bromeliads, and an herbaceous component belonging to several botanical families [7].

The search for sustainability has encouraged researchers to seek alternatives in agreement with the potentialities and edaphoclimatic conditions of each region [6], a context that highlights the great potentialities of the Caatinga biome.

Use of Plants from the Caatinga

In the Caatinga, there is a large number of plants and animals used by the population to produce food, medicines,

or as forage and wood sources; besides, flowers provide nectar and pollen for bees, from which they produce honey [8], also being used for ornamental purposes.

There is a growing interest from different study fields regarding the plants of this region, several of which possess properties that may result from secondary metabolites [9], being used as medicinal plants as well as phytochemicals in general [10]. Fernandes PRD, et al. [11], reported the antioxidant activity of plants native to the semiarid region of Brazil, such as pereiro (*Aspidosperma pyriforme* Mart), juazeiro (*Ziziphus joazeiro* Mart), catingueira (*Caesalpinia pyramidalis* Tui), jurema preta (*Mimosa tenuiflora* Willd), and hog plum (*Ximenia americana* L.), also noting that this activity could have medicinal use.

Caatinga plants exhibit high forage potential, being responsible for most of the feeding of grazing ruminants throughout the year, with a biodiversity that comprises several species [12]. According to Araújo Filho JA, et al. [3], about 80% of the area corresponding to the semiarid in the Northeast region is used as native pasture, often associated with agricultural production by smallholder farmers.

Given the lack of conventional drugs, the medicinal potential of Caatinga plants turns them into immediate alternatives within traditional communities, such as the species *Croton grewioides* (canelinha de cheiro), used to alleviate symptoms such as colds and coughing [13].

Besides the medicinal use, some woody species from the Caatinga can be used to produce quality forage at low costs. The leaves and thin branches of these plants can be consumed in the field or provided as hay if collected in the rainy season, a period of water and food abundance, supplementing the animal diet in the dry season [14].

Fruit species are among the resources used by the population that lives in this biome; several of them, both native and exotic to the Caatinga, are well known and hold significant economic value, such as umbu, cajá, ouricuri, jenipapo, pitomba, and mangaba [15]. However, many native fruits and vegetables, although showing a diversity of uses and high contents of minerals and proteins, are still underused or even totally unknown [16].

The identification of native plant species can also reveal plants with ornamental potential, widening the available options for landscaping while valuing and promoting the conservation of the regional flora [17]. In general, every plant species may have some ornamental use as long as it fits the environment to be decorated and/or the finality: internal and external gardens, decoration, gifts, craftwork, etc. [18].

The use of native species for ornamental purposes is linked to their valuing due to several environmental benefits, considering that they contribute to genetic variability, and the diversity of species that can be used for the landscaping of gardens or different environments, attributing originality as autochthonous species that characterize the regional identity [19].

The lack of studies on the diversity, use, and management of native species is a problem that complicates the conservation of the local flora and hinders its commercial use as there is no orientation regarding the possible replacement of exotic plants by native species [20]. The reduction in the use of exotic ornamental plants or their total replacement by native species is a current landscaping trend [21].

It is thus essential to identify the potentialities of the Caatinga biome, with its biological and economic values. Although with so marked characteristics, the Caatinga is one of the less known vegetations in the country [22], and the one that suffers the most from human interference [23], mainly due to deforestation.

Research investments in the Caatinga may represent a widening of the knowledge on this biome and help define actions for its economic exploitation through an independent technology, without damaging the natural relationships of the environment, while preserving it from the threat of biodiversity extinction [22].

Conclusion

Native plants to the Caatinga show high environmental potential as a function of their biodiversity and abundance; however, it is necessary to consider the peculiarities of the semiarid region in order not to lose this potential due to unfamiliarity and inappropriate use when disregarding the interactions between the ecological processes and the dynamics of economic production. It is imperative to work focusing on coexistence strategies with the semiarid and not on its "fragilities."

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