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Ethnobotany: Traditional Knowledge of the Rural Community of Juerana, Caravelas, Bahia

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SUMMARY
This study addresses the Juerana district, a rural community in Caravelas, Bahia, located in the Atlantic Forest Biome, one of the world's main conservation hotspots due to its unique biodiversity and high degree of endemism. This work is a partial result of a master's research that investigates the use of medicinal plants in the region, where ethnobotanical practices are passed down from generation to generation and play an essential role in local health. For the community, medicinal plants represent an accessible and sustainable alternative to treat diseases, being cultivated in backyards or collected in the forests, which further strengthens the bond with the environment. In addition to highlighting the importance of medicinal plants in local daily life, the study contributes to the cultural and scientific recognition of this intangible heritage, recording and validating ancestral knowledge. This registration is essential for the protection of the community's intellectual property and reinforces the urgency of conserving the region's biodiversity, promoting a more balanced and sustainable relationship between the inhabitants and the natural ecosystem.
Keywords:ethnobotany; Traditional knowledge; Juerana

ABSTRACT
This study focuses on the district of Juerana, a rural community in Caravelas, Bahia, located within the Atlantic Forest biome, one of the world's leading conservation hotspots due to its unique biodiversity and high level of endemism. This work is a partial result of a master's research project investigating the use of medicinal plants in the region, where ethnobotanical practices are passed down through generations and play a vital role in local healthcare. For the community, medicinal plants serve as an accessible and sustainable alternative for treating illnesses, being cultivated in home gardens or collected from the forests, which further strengthens the bond with the environment. In addition to highlighting the importance of medicinal plants in the community's daily life, the study contributes to the cultural and scientific recognition of this intangible heritage by documenting and validating ancestral knowledge. This documentation is essential for protecting the community's intellectual property and underscores the urgent need to conserve the region's biodiversity, fostering a more balanced and sustainable relationship between the inhabitants and the natural ecosystem.
Keywords: Ethnobotany; Traditional Knowledge; Juerana

1. INTRODUCTION

Ethnobotany is a science that studies the relationship between humans and plants and how these plants are used as resources (Rocha et al., 2015). The accumulation of knowledge from ethnobotanical research enables the use and appreciation of traditional knowledge of human populations, management systems and conservation of plant species. It also promotes the recognition and preservation of important species in their natural ecosystems and which have the potential for prospecting substances with medical and industrial applications (Albuquerque, 2010).

According to Anvisa (2022), plants that contain substances that have the ability to alleviate or treat diseases and are traditionally administered to the human body by the population are considered medicinal. When such substances are used in the production of medicines, they are called phytotherapeutics.

The traditional use of medicinal plants is common among the population of the Northeast Region of Brazil, probably due to the presence of traditional communities with a social base constituted by indigenous and African cultures and which, historically, have lower purchasing power (Souza et al., 2014; Moura et al., 2020). Approximately 90% of the economically deprived population of the Northeast of Brazil resorts to

medicinal plants to promote the healing of health problems (Cerqueira et al., 2020; Moura et al., 2020).

In order to reduce the number of people excluded from government health systems, the World Health Organization (WHO) recommends that the bodies responsible for public health in each country: carry out regional surveys of plants used in traditional folk medicine and identify them botanically; encourage and recommend the use of those that have proven efficacy and therapeutic safety; advise against the use of folk medicine practices considered harmful; develop programs that allow the cultivation and use of selected plants in the form of preparations endowed with efficacy, safety and quality (Lorenzi and Matos, 2021).

Thus, collaboration between herbalists and public health agencies can be essential to achieving the objectives proposed by the WHO, promoting the inclusion and safe and effective use of traditional folk medicine in the context of government health systems. People known as herbalists are representative figures of popular culture who can be found on the streets, in street markets and popular markets, in possession of their knowledge on how to use plants to cure a wide range of diseases (Nascimento et al., 2016, Dantas et al., 2019, Nery, 2021). Their wisdom in handling medicinal plants contributes not only to the accurate identification of species, but also to the preparation and adequate use of these natural resources (Miura et al., 2007; Freitas et al., 2011).

The Juerana district, the object of this study, is a rural community belonging to the municipality of Caravelas located in a rural area within the Atlantic Forest Biome (IBGE, 2023). The Atlantic Forest is a global conservation hotspot, standing out as one of the most significant locations in terms of biodiversity and endemism in the world; however, it is at serious risk, especially in the stretch of the Far South region of Bahia, where the Central Atlantic Forest Corridor is located (Young, 2005, Almeida et al., 2011).

Ethnobotanical studies carried out by Silva e Silva (2020) and Paiva et al., (2017) demonstrate the traditional use of medicinal plants in the municipality of Caravelas in the state of Bahia, with this practice being transmitted orally from generation to generation. Rural communities maintain a strong connection with the use of medicinal plants, often the only accessible alternative for treating diseases in these locations (Santos et al., 2016). This occurs due to the precariousness of conventional medical care, but also due to the availability of raw materials, which are commonly grown in vegetable gardens, backyards or even collected in the forest (Aguiar, 2013).

The use of medicinal plants in the treatment of diseases is essential both due to the social aspects already mentioned and the cultural and environmental aspects contemplated in the Sustainable Development Goals (SDGs) of the United Nations (UN, 2017). The use of medicinal plants is directly related to goal 3, which focuses primarily on the health of the population; goal 12, which deals with sustainable production and consumption, with a focus on global action; and goal 15, which refers to the conservation of sociobiodiversity (UN, 2017; Albuquerque et al., 2022).

The Convention on Biological Diversity (CBD) recognizes the importance of local and indigenous knowledge about natural resources, integrating them into global biological diversity; in its article 8(j), it highlights the need to protect and promote this knowledge in a sustainable and fair manner, ensuring that communities have equitable access to the benefits generated by its use, especially in commercial or technological contexts; this protection aims to conserve biodiversity and enhance cultural diversity, contributing to sustainable development and a more harmonious relationship between human beings and the environment (CBD, 2012).

Therefore, the importance of studies on traditional knowledge about the use of medicinal plants in various local rural communities is evident, enabling the recovery of ancestral knowledge associated with natural heritage, which may not yet be recognized by society or the science. The bibliographic record of such ancestral knowledge protects the culture and history of the communities tra- and draws scientific attention to the practices and species used. Their registration in scientific literature is essential in the search for the preservation and indication of the intellectual property of this knowledge. In addition, it enables the development of scientific investigations that lead to the validation of procedures for the preparation and consumption of therapeutic substances originating from popular culture, as recommended by the UN to encourage health care based on popular traditions and customs; in addition to contributing to the conservation of local biodiversity.

2.1 Associated Traditional Knowledge (ATC)

In Brazil, Law No. 13,123, of May 20, 2015, known as the Biodiversity Law, is the instrument that regulates access to genetic heritage and associated traditional knowledge (CTA), as well as the sharing of benefits for the conservation and sustainable use of biodiversity (Brazil, 2015).

Genetic Heritage is considered by the Convention on Biological Diversity – CBD (2015) as "information of genetic origin of plant, animal, microbial or other species, including substances originating from the metabolism of these living beings". Traditional Knowledge Associated with Biodiversity (CTA) concerns the information or practice of traditional peoples, such as indigenous people, fishermen, healers, witch doctors, quilombolas and rural people, on the direct or indirect use associated with genetic heritage (PG).

Regarding access to Associated Traditional Knowledge, Law No. 13,123, of May 20, 2015 defines:

> Access to associated traditional knowledge - research or technological development carried out on traditional knowledge associated with genetic heritage that enables or facilitates access to genetic heritage, even if obtained from secondary sources such as fairs, publications, inventories, films, scientific articles, registries and other forms of systematization and recording of associated traditional knowledge.

According to Lima (2009), many of the scientific publications found on CTA approach it from the point of view of the use of biodiversity by traditional communities that have a certain knowledge and that, after scientific research, patent medicines that can generate income for companies. Traditional knowledge associated with biodiversity is often captured and patented by multinational companies, which promote new products and technological-scientific processes, without there being a fair compensation for the people who provide this knowledge (Campos, 2016).

By using access to the CTA, research companies in the pharmaceutical, cosmetic, biochemical and food sectors find a cognitive shortcut to learn about active ingredients available in nature that have been used for centuries by traditional peoples, but which will then be used to manufacture industrialized products. Companies often use rural communities as experimental subjects, exploring information about the usefulness of medicinal plants for the subsequent production of medicines, without guaranteeing access to them (Rocha, 2019).

The Nagoya Protocol, adopted in 2010 during the Conference of the Parties to the Convention on Biological Diversity (CBD) in Nagoya, Japan, represents a milestone in global biodiversity governance by regulating access to these genetic resources and associated traditional knowledge (CBD, 2014). In Brazil, this Protocol was implemented through the establishment of the National System for the Management of Genetic Heritage and Associated Traditional Knowledge (SisGen), an electronic platform that requires mandatory registration of all research, whether experimental or theoretical, involving access to genetic heritage and/or traditional knowledge, indicating the origin of the genetic resource or the population holding the knowledge to be accessed (MMA, 2021). SISGEN aims to supervise access to these resources and knowledge, aiming to ensure a fair distribution of the benefits resulting from their use (CBD, 2014). This Benefit Sharing concerns the division of profits arising from the economic exploitation of products obtained through access to genetic heritage and/or associated traditional knowledge (MMA, 2021).

Law No. 13,123 of May 20, 2015 establishes the division of benefits resulting from the economic exploitation of products or materials originating from access to genetic heritage or traditional knowledge. associated nal. According to this legislation, manufacturers of the finished product or producers of the material reproductive are responsible for sharing the benefits, while manufacturers of intermediate products and process developers along the production chain are exempt from this obligation (Brazil, 2015):

> Art. 17. The benefits resulting from the economic exploitation of a finished product or reproductive material originating from access to the genetic heritage of species found in in situ conditions or associated traditional knowledge, even if produced outside the country, will be shared in a fair and equitable manner, and in the case of the finished product, the component of the genetic heritage or associated traditional knowledge must be one of the elements.

main value-adding activities, in accordance with the provisions of this Law.
§ 1º The manufacturer of the finished product or the producer of the reproductive material will be subject to the sharing of benefits, regardless of who previously provided access.
§ 2 Manufacturers of intermediate products and developers of processes originating from access to genetic heritage or traditional knowledge associated throughout the production chain will be exempt from the obligation to share benefits.
§ 3 When a single finished product or reproductive material is the result of different accesses, these will not be considered cumulatively for the calculation of the sharing of benefits.
§ 4º Licensing, transfer or permission to use any form of intellectual property right over a finished product, process or reproductive material arising from access to genetic heritage or associated traditional knowledge by third parties are characterized as economic exploitation exempt from the obligation to share benefits.
§ 5º The following are exempt from the obligation to share benefits, in accordance with the regulation: I - microenterprises, small businesses, individual microentrepreneurs, as provided for in Complementary Law No. 123, of December 14, 2006; and
II - traditional farmers and their cooperatives, with annual gross revenue equal to or less than the maximum limit established in item II of art. 3 of Complementary Law No. 123, of December 14, 2006.
§ 6 In the case of access to associated traditional knowledge by the persons provided for in § 5, the holders of such knowledge will benefit under the terms of art. 33.

Section 6 of Law No. 13,123/2015 stipulates that, when access to associated traditional knowledge is made by the entities listed in Section 5, which include research and technological development institutions, the holders of this knowledge — specifically indigenous peoples, traditional communities and traditional farmers — must be fairly and equitably benefited as determined by article 33 of the same law that institutes the National Benefit Sharing Program (Brazil, 2015).

Art. 33. The National Benefit Sharing Program - PNRB is hereby established, with the purpose of promoting:
I - conservation of biological diversity;
II - recovery, creation and maintenance of ex situ collections of genetic heritage samples; III - prospecting and training of human resources associated with the use and conservation of genetic heritage or associated traditional knowledge;
IV - protection, promotion of the use and valorization of associated traditional knowledge; V - implementation and development of activities related to the sustainable use of biological diversity, its conservation and sharing of benefits;
VI - promotion of research and technological development associated with genetic heritage and associated traditional knowledge;
VII - survey and inventory of genetic heritage, considering the situation and degree of variation of existing populations, including those of potential use and, when feasible, assessing any threat to them;
VIII - support for the efforts of indigenous populations, traditional communities and traditional farmers in the sustainable management and conservation of genetic heritage;
IX - conservation of wild plants;
X - development of an efficient and sustainable system of ex situ and in situ conservation and development and transfer of appropriate technologies for this purpose with a view to improving the sustainable use of genetic heritage;
XI - monitoring and maintenance of the viability, degree of variation and genetic integrity of genetic heritage collections;
XII - adoption of measures to minimize or, if possible, eliminate threats to genetic heritage;
XIII - development and maintenance of various cultivation systems that favor the sustainable use of genetic heritage;
XIV - preparation and implementation of Sustainable Development Plans for Traditional Populations or Communities; and
XV - other actions related to access to genetic heritage and associated traditional knowledge, in accordance with the regulations.

Biodiversity legislation faces significant challenges and receives criticism due to the unpredictability

regulatory uncertainty and institutional uncertainty. The lack of clarity in the concepts and applicability of the law results in legal uncertainty, compromising its effectiveness. In addition, the regulatory quality is impaired by the lack of institutional dialogue, leading to an excessive increase in standards without adequately considering the real needs of the sectors involved in the use of biodiversity (Figueiroa et al., 2019). For many, the law created barriers to Research and Development, hindered innovation and patent registration, interfered with international collaborations and failed to share benefits satisfactorily (Silva, 2018).

One issue to be highlighted regarding the sharing of benefits concerns the situation in which associated traditional knowledge is shared by more than one community, leading to uncertainty regarding who would be the legitimate subject to grant such consent (Dias, 2013).

Traditional knowledge is of interest to researchers due to the body of knowledge resulting from The results of this study are the result of the systematic observation of biological phenomena carried out by individuals over long periods of history. Since this traditional knowledge is primarily transmitted and maintained orally, ethnobotanical research is an important tool for rescuing and recording it, allowing the legitimization of the communities that hold it and preventing the knowledge from being lost over time (Messias et al., 2015; Leite, 2019). The interruption or abandonment of the transmission of this ethnoknowledge results in the erosion of popular knowledge, attributed to the loss of knowledge in the 21st century, a phenomenon influenced by the lack of interest of young people in traditions (Palmer, 2004; Prado, 2019), the degradation of natural resources (Rieder, 2010), the rural exodus (Zambon and Agostini, 2015) and other pressures. This situation can progressively reduce the opportunities for discovering new bioactive substances or medicines derived from flora (Rieder, 2010).

The preservation of cultural knowledge requires the continued transmission of this ethnoknowledge. By maintaining and valuing information from traditional communities that use plants with medicinal properties, it is possible not only to formulate hypotheses about their therapeutic properties, but also to conduct chemical and pharmacological studies of the species in question. By integrating this knowledge into the management of flora, scientists can develop more effective strategies for the use and conservation of these genetic resources (Leite, 2019).

The implementation of the legislation implies conducting studies involving the Brazilian genetic heritage, which includes plants, animals and microorganisms, as well as the development of products derived from biodiversity; in this context, the Biodiversity Law aims to ensure that the use of genetic resources in a given region is carried out in a sustainable and protected manner, also ensuring that the benefits generated by both research and technological advances are distributed in a fair and equitable manner (USP, 2023).

2.2 Fundamentals of Ethnobotany

There are several definitions for the scientific field known as Ethnobotany. According to Albuquerque and Hanazaki (2006), this type of research encompasses all forms of perception and use of plant resources by humans. According to Siqueira and Pereira (2014), it involves the study of medicinal plants and encompasses knowledge of the flora of a region, including the knowledge of local inhabitants and cultural interactions. For Teixeira (2024), Ethnobotany is a discipline that seeks to understand the relationship between humans and plants, exploring cultural, historical and scientific aspects.

Ethnobotanical studies recover traditional knowledge of human societies, past and present, and their ecological, genetic, evolutionary, symbolic and cultural interactions with plants and the generation of scientific and technological knowledge aimed at the appropriate and sustainable use of natural resources (Sales et al., 2015). However, members of the communities accessed often do not fully recognize themselves as social agents, endowed with rights and responsibilities, and, consequently, do not see themselves as an integral part of local processes and changes. This highlights a reality in which communities have lived, and continue to live, in a context that is often neglected or invisible (Santos, 2007; Rocha et al., 2014).

In this context, Ethnobotany emerges as a fundamental instrument for the protection of traditional knowledge and the preservation of biodiversity, by promoting integration among local communities, raising the self-esteem of participants, strengthening the cultural identity of communities, favoring the reduction of rural exodus, increasing the visibility of local communities and improving production processes or service provision (Plazas, 2017, Rocha et al 2014). The valorization of CTA occurs by safeguarding the knowledge of

local communities, enabling the continued use of treatments based on medicinal plants through the perpetuation of this knowledge over generations within the communities themselves and for society as a whole (Rocha, 2019).

In this way, Ethnobotany becomes much more than the sum of natural products, as it encompasses the interaction between human beings and natural resources, it is the intervention of traditional communities in the natural habitats in which they live (Agostinho, 2016).

By involving communities, valuing and integrating their ancestral knowledge in resource management natural resources, Ethnobotany not only strengthens the connection between communities and their environment, but also contributes to the conservation of biodiversity and the sustainable development of these regions. As such, it plays a fundamental role in efforts to achieve the SDGs of the UN 2030 agenda (Agostinho, 2016; Flor and Barbosa, 2015).

The ethno-directed approach is widely used in medicinal plant research, due to its efficiency in terms of time and cost for collecting information. This approach involves the selection of species based on the recommendations of specific population groups in particular contexts of use, highlighting traditional knowledge and the application of natural resources in the context of health and disease processes (Lima, 2016). This interaction is intrinsically linked to people's well-being and the health of the population, as recommended in SDG 3 (UN, 2017). The rural population mainly tends to use natural products, because they are aware of their beneficial properties, generally pointed out by others, but are unaware of the risks involved in the use of certain substances extracted from nature (Souza & Leite, 2017). Ethnobotany helps to validate the therapeutic use of medicinal plants, helping to avoid their indiscriminate use (Gonçalves et al., 2022), facilitating the identification of bioactive compounds with pharmacological potential, which have the potential to improve the well-being of both local and global communities (Agostinho, 2016)

Strengthening the areas involved in an ethnobotanical study facilitates the integration between scientific and traditional knowledge, aiming at reducing harm, creating productive alternatives and seeking solutions that benefit the collective good. This scientific research approach stands out for investigating thoughts, beliefs, feelings and behaviors, which can influence interactions between human populations and the various elements of ecosystems, as well as the impacts resulting from these interactions (Marques, 2002; Rocha et al., 2015).

Despite the abundance of ethnobotanical studies on medicinal plants, it is important to rescue and value the traditional knowledge of communities about plant cultivation in general, whether for medicinal or food use (Moura and Oliveira, 2022; Paulino et al., 2012). Ethnobotany research offers an opportunity to facilitate the sustainable management of plant resources and discover new products, services, and applications of plants while promoting the conservation of traditional knowledge about plants and their management (Plazas, 2017, Agostinho, 2016). In Brazil and in developing countries, the construction and evolution of Ethnobotany occur in a context of rich cultural diversity, which encompasses the knowledge and practices of local populations, and biodiversity, forming a valuable heritage, which includes plants of interest and with market potential, which represent possible sources of income with environmental sustainability (Oliveira et al., 2009; Lima, 2016). These factors are compatible with the UN strategies (2017) to eradicate hunger, promote sustainable agriculture (SDG 02), build more inclusive, safe, resilient and sustainable cities and communities (SDG 11) and protect, restore and promote the sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation and halt biodiversity loss (SDG 15).

In Brazil, knowledge about medicinal plants from traditional communities has driven the formulation and implementation of policies that value and encourage investment in this area, including from an economic and commercial perspective (Albuquerque et al., 2022). Initiatives such as RENISUS (National List of Medicinal Plants of Interest to the SUS) have played a fundamental role in promote the use of plants with potential interest for the Unified Health System (SUS) (Brazil, 2016).

Another initiative worth highlighting is the Farmácia Viva Project, developed through an initiative of the Federal University of Ceará (UFC), conceived by Professor Dr. Francisco José de Abreu Matos, with the aim of reintroducing knowledge about medicinal plants in the community, promoting education about their appropriate and safe use. This comprehensive project incorporates extensive ethnobotanical, ethnopharmacological, taxonomic, bibliographical and experimental research, including chemical and toxicological tests (Brazil, 2012).

The Farmácia Viva in the Unified Health System was established by Ordinance No. 886 of April 20, 2010,

in the context of National Pharmaceutical Assistance and covers the stages of: cultivation, collection, processing, storage, handling, and dispensing of magistral and officinal preparations of medicinal plants and phytotherapeutics (Brazil, 2013).

These initiatives have strengthened and encouraged the empirical knowledge of traditional and local communities, promoting not only a healthy environment, but also the reconciliation between socioeconomic and technological development and environmental preservation (Albuquerque et al., 2022).

2.3 Bahian Hylea

The Atlantic Forest, protected by law no. 11,428/2006, is a Brazilian biome that comprises approximately 15% of the national territory, originally extending across 17 states. Today, only 24% of the forest that originally existed remains, with only 12.4% being mature and well-preserved forests (SOS Mata Atlântica, 2024). It is composed of different native forest formations, which are called Dense Ombrophilous Forest, Mixed Ombrophilous Forest (Araucaria Forest), Open Ombrophilous Forest, Semideciduous Seasonal Forest and Deciduous Seasonal Forest; in addition to associated ecosystems such as mangroves, restinga vegetation, high-altitude fields, inland marshes and forest enclaves in the Northeast (MMA, 2022).

The extreme south of Bahia is located in the domain of the threatened Atlantic Forest Biome, which is home to the largest group of remnants in northeastern Brazil; the region is part of the Central Atlantic Forest Corridor – CCMA, and is part of the Atlantic Forest Biosphere Reserve (OECS, 2017).

This biome is recognized as a biodiversity hotspot due to its rich species diversity and high rate of endemism (INMA, 2021). In addition to providing essential ecosystem services for approximately 145 million Brazilians living in this area (MMA, 2022), its protection should be a national priority (SOS Mata Atlântica, 2024). Its forests and ecosystems are responsible for the production, regulation, and supply of water; climate balance; slope protection and disaster mitigation; soil fertility and protection; production of food, timber, fibers, oils, and medicines; in addition to providing scenic landscapes, as well as housing an immense historical and cultural heritage (MMA, 2022).

The Atlantic Forest is made up of several interconnected ecosystems, influenced by the specific climatic conditions of each region in which they are found. A fundamental aspect of these ecosystems is their exposure to humid winds coming from the ocean, which enables the movement of animals, gene flow between species and the formation of areas of ecological intersection, where ecosystems meet and change (Marques, 2010).

With the aim of promoting connectivity between forest fragments or conservation areas, facilitating gene flow between fauna and flora species, the Ecological Corridor was created, a management and territorial planning instrument defined by the National System of Nature Conservation Units.
– SNUC (Law 9,985, of July 18, 2000) (Brazil, 2020).

The Atlantic Forest Ecological Corridor covers the south of the state of Bahia and the entire territory of Espírito Santo, also including marine areas up to the limit of the continental shelf. This corridor extends over an area of 12 million hectares, encompassing both remaining natural areas, such as forest fragments and aquatic ecosystems, as well as protected areas, both public and private. Approximately 95% of this ecological corridor is located on private properties, distributed across 163 municipalities (MMA, 2007; Network of Managers of Conservation Units of the Central Atlantic Forest Corridor, 2021).

The Atlantic Forest in Bahia represents one of the main centers of endemism in Brazil, characterized by a rich biological diversity. This area is home to the Mosaic of Protected Areas of the Extreme South (MAPES), established by the National Environmental Fund (FNMA), composed of 12 conservation areas (ABAF, 2023), recognized by ordinance no. 492, of December 17, 2010 (Brazil, 2022).

Art. 1º Recognize the Mosaic of the Extreme South of Bahia, covering the following areas and their respective buffer zones, located in the State of Bahia:
I - under the management of the Chico Mendes Institute for Biodiversity Conservation - ICMBio: a) Pau Brasil National Park;
b) Monte Pascoal National Park;
c) Discovery National Park;
d) Corumbau Marine Extractive Reserve;
e) Rio dos Frades Wildlife Refuge;
II - under the management of the State Secretariat for the Environment: a) Caraíva-Trancoso Environmental Protection Area;

b) Coroa Vermelha Environmental Protection Area;
III - under the management of the Municipal Secretariat of the Environment of Porto Seguro (BA): a) Recife de Fora Municipal Marine Park;
IV - under the management of the owners of federal
Private Natural Heritage Reserves - RPPNs:
a) Veracel Private Natural Heritage Reserve;
b) Mamona Private Natural Heritage Reserve;
c) Carroula Private Natural Heritage Reserve;
d) Private Reserve of Natural Heritage Rio Jardim

The emergence of the Mosaic of Protected Areas of the Extreme South of Bahia (MAPES) is a response to the need to coordinate initiatives of several organizations and community leaders aimed at preserving and regenerating the Atlantic Forest, as well as improving the living conditions of local communities. This is a collaborative and inclusive territorial management model, designed to promote a culture focused on socio-environmental progress (GAMBÁ, 2012).

In the coastal plateau area, where the Bahian Far South Mosaic is located, there is a biogeographic region called Hileia Baiana, one of the regions on the planet with the highest levels of diversity and endemism of tree forest species. It extends between the extreme south of Bahia and the north of Espírito Santo (Torresan et al., 2020). The Hileia Baiana received this name because it resembles the Amazon in terms of its constantly hot and humid climate, predominantly sandy terrain, large trees, dense forest, and species common to both biomes (Arboretum, 2019).

The region has both preserved areas with centuries-old tree specimens, as well as areas that have been almost or completely deforested since the arrival of the Portuguese and especially in recent history (1950s to 1980s) (Arboretum, 2019). The biodiverse forest potential of the territory combined with the cultural human diversity makes the Hileia Baiana a unique territory for economic development associated with forest conservation and rural development (Torresan et al., 2020).

Significant impacts on the socio-environmental landscape of the southern region of the state of Bahia occurred with the arrival of the Portuguese. The degradation of the natural resources of this region began more than 500 years ago and was the first biome to be explored during the European colonization of Brazil. Authorized by the imperial crown, timber extraction in the Atlantic Forest was expanded with the purpose of increasing its financial resources and accelerating the deforestation of the forest (Lagos and Muller, 2007; Nascimento and Dominguez, 2010).

Currently, the southernmost part of Bahia has a history of high land expropriation, exposure to pesticides and chemicals, contamination and water scarcity, among other different socio-environmental impacts (Malina, 2013; Ferreira, 2019). This region of Bahia has a complex socio-environmental profile, divided into three zones — Coastal, Central and Western — which have distinct characteristics, shaped by specific historical moments and with economic activities that reflect their geographic and demographic diversity. The Coastal zone, the oldest in terms of population, today stands out in the tourism sector, valued for its natural beauty and facilitated by improved access with the construction of BR-101. This zone has consolidated itself as a vital tourist destination, attracting visitors due to its natural and historical heritage (Fontes & Silva, 2005; Léon et al., 2016; Ferreira, 2019).

In contrast, the Central zone is the most densely populated and has become the center of intensive activities such as timber extraction and export, as well as livestock farming and eucalyptus cultivation, predominantly for the pulp and paper industry. The Western zone, with its low population density, maintains an economy based on livestock farming and agriculture, with emphasis on cocoa, coffee and papaya cultivation (Fontes & Silva, 2005; Léon et al., 2016; Ferreira, 2019).

In this sense, the economy of the extreme south of Bahia is diversified, encompassing tourism activities, livestock farming and agriculture on various scales — from small to large producers. In addition, the region is marked by each for the significant production of paper and cellulose, which plays a fundamental role in the development economic of the region (Ferreira, 2019).

The Mosaic proposal includes the improvement and integration of the network of Protected Areas in the Far South of Bahia, as well as the influence on local and regional public policies, seeking greater capacity for participation and negotiation in the formulation of territorial management and human development plans. In addition, this articulation aims to contribute to the formation and consolidation of mini-corridors and to the enrichment of the sociocultural diversity of the territory, encompassing indigenous communities, family farmers and artisanal fishermen (GAMBÁ, 2012).

2.4 Juerana - A Traditional Rural Community in the Far South of Bahia

Until the beginning of the 20th century, the extreme south of Bahia had large areas of native forest (Abreu, 2010). Currently, significant areas of land in this region are occupied by eucalyptus plantations (Figure 1), main raw material for cellulose (Soares, 2010).

Figure 1 - Eucalyptus Monoculture in the Juerana Community

Source: Personal archive

The Juerana Community is located in this historical socio-environmental context of the southern region of Bahia. The town of Juerana emerged in the 19th century, during the construction of the railroad for the passage of the Bahia and Minas Railway. It was elevated to the category of district and annexed to the municipality of Caravelas in 1938 by state decree no. 11089 (IBGE, 2023). Its name comes from a plant that existed in abundance in the region at that time, the species Parkia pendula (Willd.) Benth. ex Walp. Even today, a century-old tree of this species can be found in the center of the community (Figure 2) (Ralile, 2006).

The Juerana tree, species Parkia pendula, is also known in several regions of Brazil as angico, weeping faveira, acorn fava, boloteiro, visgueiro, joerana, juerana-prego, true juerana, red juerana, angelim-saia, andirá, faveira, paricá-grande, pau-de-arara (Faro et al., 2016, Arboretum, 2019). Its bark is astringent and can be used in tanning and, when cooked, the bark can be used as an anti-hemorrhagic agent in the treatment of wounds caused by cuts (Socualaya et al., 2019; Correa, 2020).

Figure 2 - Centennial Juerana tree present in the center of the Community

Source: Personal archive

The author Ralile (2016) is one of the few to describe the socioeconomic history of the region where the community is located. In his text, he describes that in 1882 the Bahia e Minas Railway Station (EFBM) was built in the community (Figure 3). This station served the purpose of dispatching goods and receiving passengers, most of whom came from Minas Gerais. These people from Minas Gerais, together with local farmers, contributed to the formation of the village (Ralile, 2006).

The main cargo transported by the EFBM was coffee and timber (Souza, 2013). However, the railway was not limited to transporting goods, but also provided essential urban services, such as telegraph, mail and other social and communication activities (Zorzo, 2001; Souza, 2013).

Figure 3 - Bahia and Minas Railway Station in Juerana

Source: Personal archive

According to Ralile's studies (2006), in the 19th century, the community's economy was based on raising cattle, pigs, horses, and growing beans, watermelons, coconuts, coffee,

cocoa, papaya, and the manufacture of straw hats and walking sticks. In addition, there was also the production of cassava flour, coconut beiju, tapioca, coconut cookies, and the extraction of firewood for use in stoves and railroad machines. The sale and resale of products purchased in the state capital, brought by sea navigation, was also carried out at the site. The community concentrated on providing services, such as: seamstresses, tailors, shoemaking, bakeries, painting in general, loading and unloading of goods from train wagons, among others.

From the 1970s onwards, charcoal production was established in the region and became the main source of work and income for many families. During this period, the accelerated deforestation of the Atlantic Forest ended up stimulating the organization of commercial charcoal production. Over the course of 40 years, charcoal production consolidated a production model based on the family unit, involving child labor and unhealthy processes. This activity prospered indifferently to the changes in the regional landscape related to the economic growth model that replaced areas of native forests with planted forests (Fibria, 2011, Loss, 2015).

The Juerana district is located 40 km from the city of Caravelas, with an area of approximately 2,396,609 km². Currently, the predominant crops in the region are annatto and pepper, in addition to the practice of eucalyptus monoculture. These activities represent the main sources of income for many families in the community (Alves et al., 2018). The community has around 1,131 families, which are assisted by only one unit known as Oscarlina Assis de Oliveira (Family Health Strategy – ESF 004); (Personal communication – Basic Health Unit 004).

There are currently 4 basic education institutions operating in the community: Escola Criança Feliz (Daycare), Júlio Gerônimo (Preschool and Elementary School 1), Omar Cajá (Elementary School 2) and Princesa Isabel, an annex of Colégio Polivalente de Caravelas that offers regular High School.

Water in this community is collected through four artesian wells, and the company AQUALUX is responsible for maintenance. It is worth mentioning that water distribution does not include chlorination and there is no charge for fees (PMC, 2018). The Municipal Government of Caravelas is responsible for operating the water supply system in the Juerana district, through a local administrator.

Residents of rural communities accumulate information about the environment in which they live and use their knowledge to meet many of their needs through the use of plants (Lemões et al. 2012). In the Juerana community, the Raizeiros hold the accumulation and value of medicinal plants. The so-called raizeiros are experts who play a fundamental role in the preservation of biodiversity, having in-depth knowledge of medicinal plants and their properties, in addition to contributing to the conservation of local flora, as they often use sustainable methods of collecting and cultivating plants, avoiding predatory exploitation (Teixeira, 2024).

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