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ETHNOBOTANIC STUDY OF USE OF MEDICINAL PLANTS UTILIZED IN THE QUILOMBOLA COMMUNITY OF CHAPADA DA NATIVIDADE, TOCANTINS, BRAZIL

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ABSTRACT

The knowledge of medicinal plants utilized by the quilombolas is considered important in the conservation of these plants within the Brazilian biodiversity, and must be preserved and transmitted over the generations. Thus, the objective of this study was to make a survey of the use of medicinal plants utilized by the Quilombola Community of Chapada da Natividade, located in the state of Tocantins, Brazil. The data gathering was carried through informal interviews with listing of the plants and the sampling technique utilized for selection of informers was the "Snow Ball". There were registered 32 species belonging to 22 distinct families. The families with the higher number of cited species were Fabaceae, Anacardidaceae and Lamiaceae. The predominant medicinal uses are mostly associated to the respiratory and tegumental systems, with the leaves being the most used parts, in teas by decoction and infusion. Also, there was carried the study of the main illnesses, considering the use of medicinal plants for the treatment of them. The results show a vast diversity of vegetal species utilized, and that the role of the medicinal plants is not only as agent in the cure of diseases, but also as cultural form

Contribution/Originality: This study documents the main medicinal plants used by Quilombolas for the treatment of diseases and the different forms of preparation. This contributes with information that can help in the alternative treatment of diseases, as well as a cultural form of preserving the knowledge acquired through the generations.

1. INTRODUCTION

The use of medicinal plants as medication source is practiced in all the cultures around the world. The most of the populations depends on the plants as essential element in the healthcare system [1]. These medicinal plants are found in many biomes, including the Brazilian biodiversity. Regarding its use, there are infinite possibilities. However, regarding the stablishing of inquiries and inventories for documenting and posterior utilization, there are huge difficulties.

Brazil is a country with rich biodiversity, its flora is composed by more than 55 thousand species, representing 22% of the world total [2]. It presents a great biologic and cultural diversity, so it accumulates significant knowledge and traditional technologies, highlighting the vast acquis of wisdom about the management and utilization of medicinal plants [3].

It is known that in Brazil there are many Quilombolas Communities in many states and besides that, there are few studies carried for knowing the traditions, culture and alternative forms of therapy of these people. Quilombolas are traditional communities descending from black slaves, whose identity closely correlates with the earth [4]. They carry and still practice their ancestors customs, pointing out the use of medicinal plants as therapy for their illnesses [5].

The city of Chapada da Natividade, in the southeast of the state of Tocantins, is a municipality whose economy is based in the rural activity, in the traditional terms of livestock and agriculture for subsistence. Great part of its population consists in families that stablished there centuries ago, many of them still in the cycle of gold mining, activity that still being explored by the residents. Due to the great tradition in the use of these plants and to the credibility inherited form the ancient people about its benefits, there is great utilization in the cure of diseases considered common in the region. Besides that, the traditional wisdom is extremely important, and should be preserved in order to protect this knowledge, which is transmitted over the ages and cannot be lost with time [6].

The World Health Organization (WHO) estimates that approximately 80% of the population of developing countries uses some type of traditional medicine for basic healthcare, and about 85% of these involves medicinal plants [7]. Thus, there was developed a research at the Quilombola Community of Chapada da Natividade, with the objective of making a survey of the diversity of medicinal plants that are utilized by the habitants of the community, as well as its preparation and usage.

2. MATERIAL AND METHODS

2.1. Characterization of the Area of Study

This work was developed at Chapada da Natividade, municipality situated in the southeast region of the state of Tocantins, Brazil. According to IBGE [8] data, the municipality is located at 211 km from Palmas, capital of the state of Tocantins, with an area of 1.646.5 km² and at an altitude of 350 m. It has 3.363 habitants and is situated in the geographic coordinates latitude: 11°37'4" south and longitude: 47°45'7" west. The interviews took place at the Visão de Águia Quilombola's Community Association, located in the urban area of the municipality, with the CNPJ register 140977670001-95 (Figure 1).

2.2. Data Collection

The data collection was carried through informal interviews with listing of the plants. The respondents were individually informed in a simple and clear language about the research objectives. The priority was given to the people in the age range of 45 to 60 years old, since they have a greater knowledge in relation to the younger people, due to their life experience.

During the visits, the information was registered in a field notebook. The sampling technique utilized for selection of informers is known as "snow ball", an intentional sampling in which the involved ones are selected from indications made by the community respondents and by the informers themselves [9]. From the initial contact with

the community, a first specialist is recognized, who indicates other specialist and so on, involving all the community specialists, until the cycle is closed and new specialist are no longer indicated [10].

The identification of the species was carried in the homes of the respondents and some plants were only cited due to the lack of incidence in determined seasons. The identification was done with the aid of a botanist and also a specific literature. Three plants could not be identified because there was no vegetal material for comparing so they were removed from the survey.

All the research result was made available for the Quilombola Community of Chapada da Natividade, according to the Provisional Measure 2.186-16, from August 23th, 2001.

About the access to the genetic patrimony, the protection and access to the traditional knowledge associated, the sharing of benefits and the access to technology and technology transfer for its conservation anzation, and other providences [11].

3. RESULTS

In the community there is a great diversity of medicinal plants, and these plants are being utilized as source of natural medication for the cure of diseases, through bath, teas and syrups. Along the interview it was reported that the knowledge is transmitted over the generation and that some medications are prepared by the social assistance of the municipality itself and distributed to the population for free.

The community people are turning themselves to the use of natural medications, due to the low cost, efficiency and for the tradition that has been occurring for many years by the most traditional families.

The plants reported by the quilombolas are distributed in 22 botanic families, the most representatives being the Fabaceae (15,6%), Anacardidaceae and Lamiaceae (9,4%), Malvaceae and Rutaceae (6,3%) and the others with (3,1%) (Table 1).

The option for the use of the leaves in the medicinal preparations represented around 46,9% of the citations, followed by the enclosed bark with 25%, root and peel of the fruit, both with 6,3% and the other represented 3,1%. The leaves presented higher use due to the ease of attainment of them comparing to the other vegetal parts cited in the Table 1.

Although the community commonly using the leaves for the preparation of the home remedies, it points out the decoction and infusion as most utilized forms in the preparation. Decoction is the preparation method in which vegetal parts of the plants undergoes a boiling process for some minutes, in contrast with the infusion where the water is boiled and put upon the vegetable parts in a recipient, smothering them [12]. The Figure 2 shows the use forms of the home remedies by the method indicated in the Table 1 (Figure 2). The tea is the use form most used by the community, with 43% of the citations, for being the easiest and quickest preparation form. The utilization of gargle and rinse as form of oral administration is the second most cited with 15%, followed by baths with 13%, syrups 9%, and juice and poultice 6%, respectively. Probably are useful in the treatment of mouth, gums and throat sores.

Regarding the preparation forms, the most utilized was decoction and infusion (both represent 75%) (Figure 3). Other forms are not used frequently, like the macerated in alcohol or water, juice and poultice among others, that together represent 24% (Figure 3).

In accordance with the obtained data, accordingly to the popular indication about 47% of the medicinal plants are used with anti-inflammatory and/or cicatrizant purposes, followed by 28% and 9% for flu and diarrhea, respectively. The citation for repellents, menstrual cycle regulation, stomach aches, varicoses, and cholesterol were few, totaling about 16% of the reports (Figure 4).

4. DISCUSSION

Despite the great Brazilian diversity and the popular knowledge about the medicinal plants, represented by the many communities, there are few scientific information about the many plants that could be utilized for prevention and treatment of diseases [13].

There are controversies about this; it is known that after the preparation, these plants once taken or put in contact in small doses, normally does not cause any adverse problems, as usually occurs with the synthetic remedies. According to Waller [14] the need of adequate storage and administration of dosages in fixed hours may also hinder the use of "modern" medications, since the packaging of herbs and its growth in the proximities are easily understood by the population.

In similar works carried in quilombola communities [15] report that the leaf was the most cited and utilized part in the preparation of teas and infusions for therapeutic treatments, followed by the use of peels/stems, roots, seeds, flower and fruits. These results are in accordance with [16] who in his respective studies confirmed the leaf as the organ most used by who practices the auto-medication based on phytotherapic medicines. This can be a justification for the predominant use of the decoction. Dorigoni, et al. [3] state that the urban population of São João do Polêsine (state of Rio Grande do Sul, Brazil), even having access to correct information sources, uses infusion for some roots and decoctions for tender parts.

In agreement with Leão, et al. [17] in the communities of Marambaia and Camboinha, in Itacará, state of Bahia, the lack of medication and basic healthcare results in the medicinal plants being important in the treatment of diseases and in the prophylactic measures. In both the communities, the tea is the most common preparation form of the home remedies, followed by plaster, bath and *"lambedor"* (a type of syrup). The medicinal plants are present among the main therapeutic resources of complementary and alternative medicine that are being utilized for many time by the Brazilian population in its healthcare [18].

For Silva, et al. [19] there are many preparation forms of the home remedies, such as *lambedor*, syrup, teas by decoction and infusion, macerated in water, alcohol, *cachaça* and wine, seat bath, compresses and others. According to Messias, et al. [20] the leaves are the most utilized parts in the preparations and the seeds, the less ones.

Trindade, et al. [21] reported the main indications of use of the medicinal plants of the family Lamiaceae, such as agains flu, stomach ache, digestion, menstrual colic, depression and analgesic. The practices of use of the medicinal plants, as well as the information given, are essential for the orientation and consolidation of the therapeutic properties present in the species [22].

Added to the important use of medicinal plants by the quilombolas, the habit of cultivation of these plants, as observed in the Quilombola Community of Chapada da Natividade-TO, is a practice that also aims at the conservation of the native species in its natural environments. Zank, et al. [4] noted that there was decrease in the percentage of citations of native plants in three quilombola communities located in the Center-South littoral of the state of Santa Catarina inside the domain of the Atlantic Forest, prevailing the use of bought plants, mainly by people who invest time in urban works. Thus, the cultivation and the collection of this powerful "tool" in favor of the conservation of the great Brazilian biodiversity.

5. CONCLUSIONS

It was verified an elevated number of medicinal plants utilized by the habitants of the Quilombola Community of Chapada da Natividade, as well as the ease of management and multiplication of these plants. Also, it was observed that the population believes in their effects upon the cure of the diseases and uses them in a natural way. This gradual accumulation of knowledge has been occurring for many generations and the information are registered mainly by the more experienced people.

The botanic families represented in this work are related to the most numerous in the region, and can also be found in other parts of the country. The information about the plants utilized as medicinal plants and its importance

for the quilombola community are relevant for the future generations and for future projects related to this area of research.

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Appendix

Table-1. Medicinal plants cited by the informers of the Quilombola Community, Chapada da Natividade, TO.

Family/ species	Popular name	Utilized part	Popular indication	Preparation method	Use method
Anacardiaceae *Spondias purpurea*	*Seriguela*	F	Relieve spasms, dysentery, fever, gas, inflammation, cleaning wounds, burning.	D	CH
Anacardiaceae *Mangifera indica*	Mango Tree	F	Indicated against fever, chest aches, diarrhea, diabetes and hypertension.	D	CH
Anacardiaceae *Anacardium occidentale*	Cashew Tree	Ec	Indicated as anti-inflammatory antiseptic for wound cases, mouth ulcer and throat sores, and washing of malignant wounds.	D	CH, BO and G
Apocynaceae *Lafoensia replicata*	*Mangabeira*	R and F	Indicated against high cholesterol and diabetes.	D	CH
Asteraceae *Vernonia polysphaera*	*Assa-peixe*(Ironweed)	F	Used as expectorant and in cases of high fevers.	D and I	CH
Bignoniaceae *Handroanthus impetiginosus*	Purple *ipê*	Ec	Indicated against varicose ulcers and veins, wounds of any type and skin diseases.	D	CH
Bromeliaceae *Ananas comosus*	Pineapple	Fr	Utilized in the cure of coughing and colds.	D	X
Burseraceae *Protium heptaphyllum*	*Breu Branco*	Ec	Used in infusion to wash ulcers and wounds.	I	B
Cardiopteridaceae *Cymbopogon winterianus*	Citronella	F	Used as insect repellent.	O	O
Caryocaraceae *Caryocar brasiliense*	*Pequi* tree	B	Utilized for the regulation of the menstrual cycle.	D	CH
Chemopodiaceae *Chemopodium ambrosioides*	*Mastruz*	F	Anti-inflammatory, expectorant, vermicide, cicatrizant.	I	CH

Crassulaceae *Kalanchoe pinnata*	*Folha santa*	F	Anti-inflammatory, antifungal, antiviral, antimicrobial, emollient and cicatrizant.	Su and C	Su
Euphorbiaceae *Croton urucurana*	*Sandra d'agua*	L	Utilized for burnings, wounds, for accelerating the cure and protection of infections.	O	B
Fabaceae *Cajanus cajan*	*Andú* Bean	F	Used in the cure of hemorrhage, coughing, bronquitis, throat inflammations and blood cleaning.	I	G
Fabaceae *Sclerolobium aureum*	*Tatarema*	Ec	Against stomach issues, liver issues, used as food and resin for wounds.	I	O
Fabaceae *Anadenanthera macrocarpa*	*Angico*	Ec	Efficient in the treatment of respiratory diseases like asthma, bronquitis and coughing.	D	CH and X
Fabaceae *Pterodon emarginatus*	*Sucupira*	S	Used in the treatment of throat infections.	D	BO and G
Fabaceae *Stryphnodendron adstringens*	*Barbatimão*	F and Ec	Used against uterus and ovary inflammations, internal hemorrhages and is also cicatrizant.	D	CH and B
Lamiaceae *Mentha pulegium*	*Poejo* mint	F	Against coughing, flu and other respiratory diseases.	I	CH
Lamiaceae *Mentha arvensis*	*Vick*	F	Against fever, cold, pharyngitis, coughing and throat sores.	I	CH
Lamiaceae *Mentha sp.*	Mint	F	Aids weight loss; treats coughing and colds; diarrhea treatments, stomach colic and aches; and sore throats combat.	I	CH
Liliaceae *Aloe vera*	*Babosa*	F	Used in treatments of wounds, cuttings and hurts.	O	B and C
Lythraceae *Lafoensia pacari*	*Pacari*	Ec and F	Cicatrizant.	MA	B
Malvaceae *Gossypium hirsutum*	Cotton	F	Against catarrh, diarrhea, muscular aches, wounds, furuncles, hemorrhages, swellings, kidney infections and inflammations.	D, I and Su	Su and CH
Malvaceae *Luehea divaricata*	*Açoita cavalo*	Ec	Used in treatment of ulcers, cramps and sore throats.	MC	O
Moraceae *Brosimum gaudichaudii*	*Mama-cadela*	Ec	Indicated against flu, bronquitis and acts as depurative of blood.	D and I	CH and C
Musaceae *Musa ssp.*	Banana tree	Se	Used as cicatrizant of wounds and ulcers.	I	CH
Punicaceae *Punica granatum*	Pomegranate	CF	Throat inflammation.	D and MC	BO and G
Rutaceae *Citrus aurantium*	Earth-orange	CF	Flu and throat inflammation.	D	X
Rutaceae *Ruta graveolens*	*Arruda*	F	Used in the treatment of varicose veins.	D	CH
Siparunaceae *Siparuna guianensis*	*Negramina*	F	Used against flu, headache and rheumatism.	D	CH
Zingiberaceae *Zingiber officinale*	Ginger	R	Utilized for weight loss and anti-inflammatory.	D	CH and G

Family/ Species. Popular name. Utilized part (**B** – Sprouts; **CF** – Fruit peel; **F** – Leaf; **Fr** – Fruit; **Ec** – Enclosed bark; **L** – Latex; **R** – Root; **Re** – Resin; **Se**. – Sap; **S** – Seed). Popular indication. Preparation method (**D** – Decoction; **I** – Infusion; **MA** – Water Macerated; **MC** – Alcohol Macerated; **O** – Other; **Su -** Juice). Use method (**B** – Bath; **BO** – Rinse; **C** – Poultice; **CH** – Tea; **G** – Gargle; **O** – Other; **Su** – Juice; **X** – Syrup)

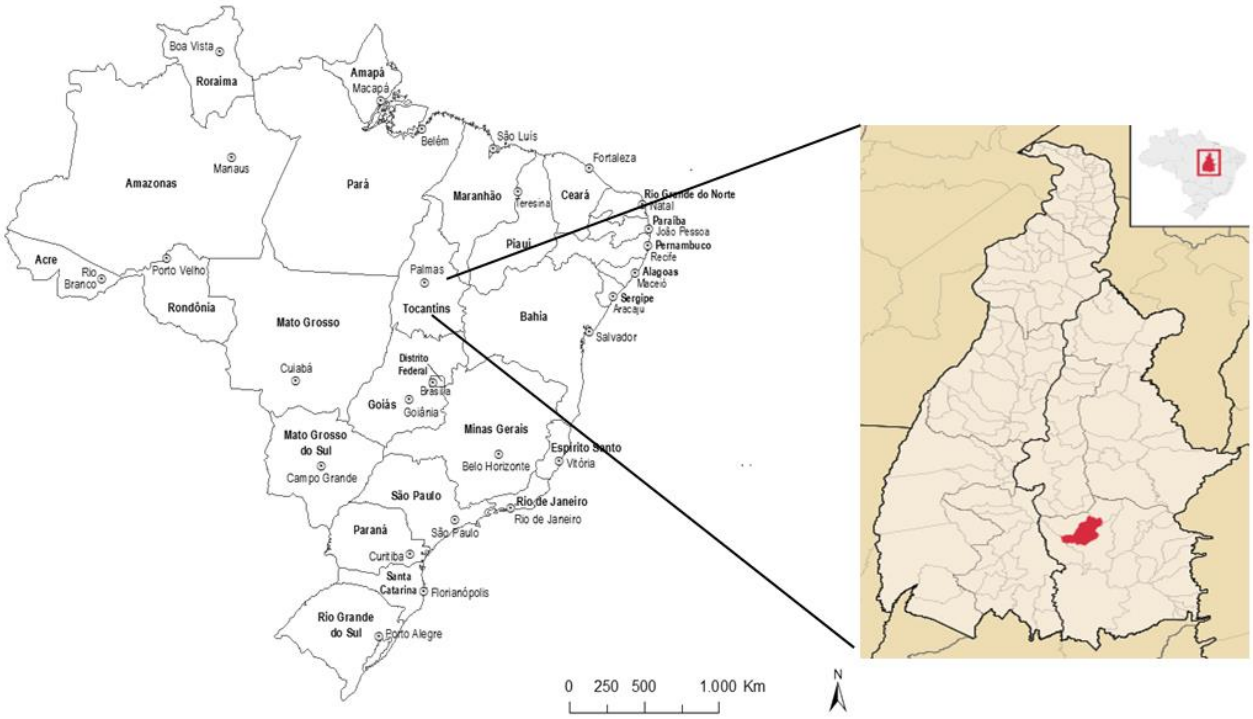

Figure-1. Municipality of Chapada da Natividade (area of study).
Source: IBGE modified 2014.

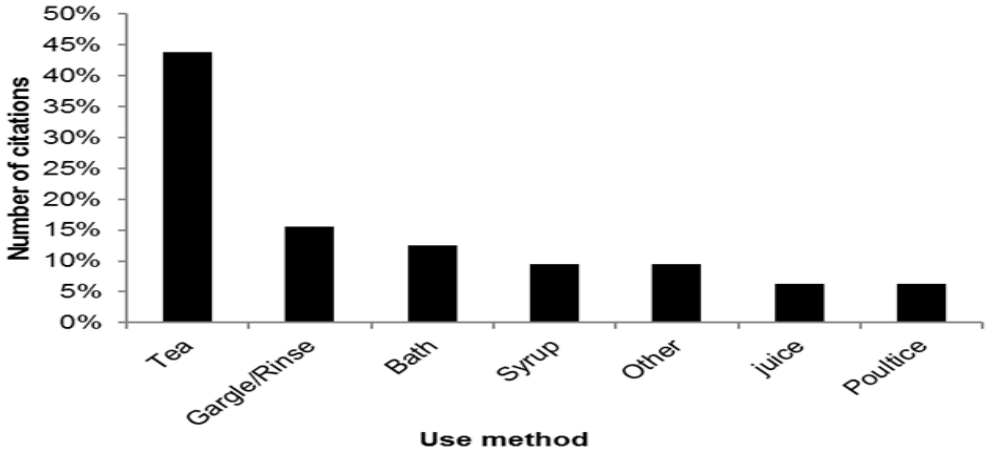

Figure-2. Use forms of the home remedies in the Quilombola Community of Chapada da Natividade, Tocantins.

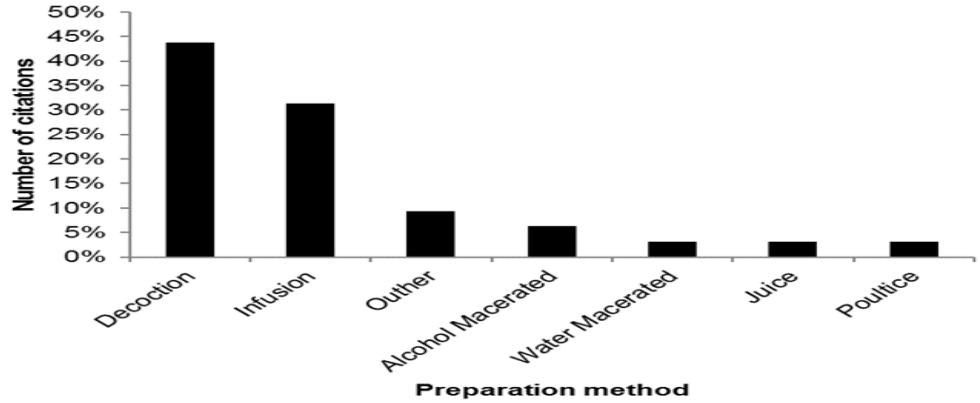

Figure-3. Preparation forms of the medicinal plants from the habitants of the Quilombola Community of Chapada da Natividade, Tocantins.

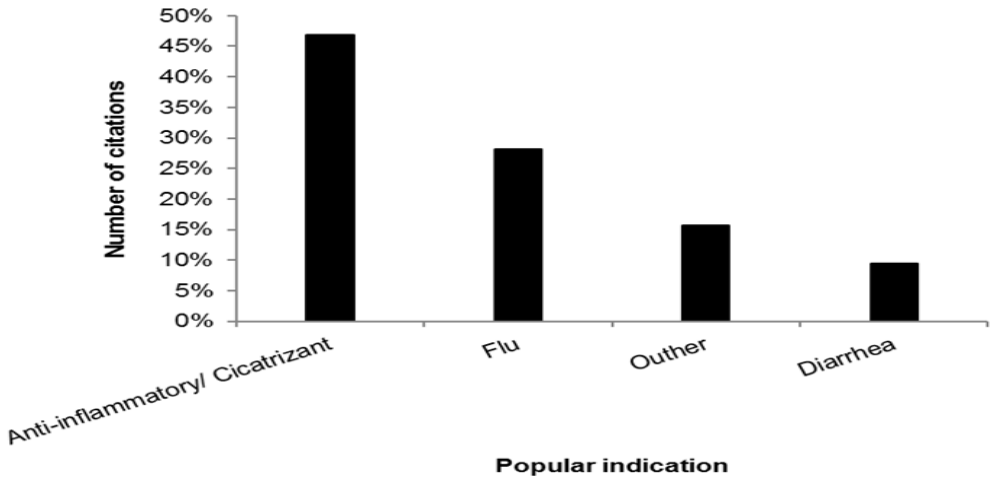

Figure-4. Popular indication of the home remedies in the Quilombola Community of Chapada da Natividade, Tocantins.