

Sacred Medicinal Plants and Impacts on the Traditional Healing System of the Rodelas/BA's Tuxá Indigenous People

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Abstract— The changes in the biological formation of the São Francisco River after the construction of the Itaparica dam directly interfered in the socio-environmental, cultural and religious dynamics of the Tuxá people. This article aims to investigate the interaction of the Rodelas/BA's Tuxá Indigenous People, with medicinal plants in their healing rituals. For this, qualitative and quantitative techniques were used, such as ethnography, which aims to understand the particularities of the cultural aspects of a specific people. With the help of interviews, workshops and ethnomapping with young people, adults and the elderly. 30 indigenous people were interviewed. In the data analysis, the salience index technique was used, which makes it possible to quantify the cultural relevance and to analyze the different patterns of knowledge about the use of plants. Among the 39 plants mentioned for spiritual cures, caboclo rosemary (*Baccharis Sylvestris* L.) has a higher frequency of citation. This result suggests that caboclo rosemary has a greater scope in physical and spiritual healing, being the first to be remembered. As for the salience index, both caboclo rosemary and juazeiro (*Ziziphus* Mart.) Obtained the same value (0.5). Suggesting that the two plants have a greater cultural representativeness of use in relation to the 39 mentioned. The Tuxá indigenous people carry in their experience a great knowledge of their medicinal flora, and from it they take various remedies that they use in different ways to heal both the body and the spirit.

Keywords— Biodiversity; Traditional knowledge; Medicinal Plants.

I. INTRODUCTION

The perceptions and worldviews about the biotic and abiotic environment vary between human groups (JAIN, 2000; ALBUQUERQUE, 2002; SILVA, 2003) evidenced in the particularities of the use and perception of resources, in the forms of learning, stratification and knowledge transfer, which can result in the unique or particular nature of each one.

In traditional societies the symptoms of physical illness are explained in a way that does not separate nature from the supernatural, the social world from the natural world, and the individual from his social matrix. Therefore, there is an interdependence between nature and the supernatural, society and the individual (QUINTANA, 1999).

A Traditional indigenous medicine is based on a body of knowledge that undergoes space-time changes and that

has an essentially oral and gestural mode of transmission, and that does not communicate through a medical institution, but through the family and the neighborhood, because, according to Amorozo (1996), knowledge (the knowing) is always linked to the practical aspect (doing), that is, knowledge is interconnected to coexistence, to a real interference in the environment that the community occupies, and this action is often the factor of origin and emergence of new knowledge.

The Rodelas/BA's Tuxá Indigenous People Indigenous People lived historically involved in a favorable environment between the waters of the São Francisco River and the forests of the Caatingas of the semiarid and acquired the science of ecosystem flora and fauna, building a way of life transmitted by their ancestors.

However, the overexploitation of growing natural resources in areas inhabited by these peoples, by public and private development agents, is leading to an accelerated process of socio-environmental degradation with loss of their socio-cultural diversity, as was the case with the construction of São Francisco who caused countless territorial conflicts in all dimensions of human life for this group.

Rothman (2008), in his research, assures that the dams caused great changes not only in the aquatic biota but also in the terrestrial ecosystems due to the dimension of the flooded areas, causing profound socio-cultural transformations in the lives of the populations living in the flooded areas, directly altering the mechanisms of socio-cultural reproduction of local communities.

Given this scenario, it is essential to expand ethnobotanical research among indigenous peoples. Because, these are presented as an important tool of contribution in the rescue of the knowledge about the local flora, in other words, of the knowledge about the use and management of the plants, contributing to the conservation and development in the areas inhabited by these groups.

According to Toledo (1990), these societies have developed over the years, developing several sustainable use management practices, they are true guardians of the planet's biogenetic heritage. However, constant attacks on the natural environment in which they live have also led to the loss of their socio-cultural diversity.

Therefore, studying the relationship that the Tuxá Indians maintain with their sacred medicinal plants brings important contributions to the maintenance and conservation of ecosystems, these communities have their

own management systems, as a result of experiences accumulated over centuries of relationships with nature.

This article intends to analyze the interaction of the Tuxá Indians with sacred plants in the healing rituals, considering the impacts resulting from the construction of the Itaparica/BA dam.

This article is part of the results of the master's thesis in Human Ecology and Social and Environmental Management, which has the title, Ethnobotany of the Tuxá Rodelas Indians, in the line of Research on Ethnoecology and Traditional Peoples. The objective of which was to investigate the knowledge, use and management of the medicinal flora of the The Rodelas/BA's Tuxá Indigenous People, based on the ethnic-socio-environmental and religious conflicts resulting from the construction of the Itaparica's dam.

II. MATERIALS AND METHODS

2.1. Study area

2.1.1. The Tuxá People

The research was delimited within the scope of the Tuxá Rodelas' Indigenous People in which they define themselves as "Indians of the Tuxá Tribe, Proká Nation, Caboclo Arco, Flecha and Maracá", constituting one of the last of the diverse ethnic groups gathered since the 17th century, among which they suffered the intervention of several missions that were established along the course of the middle São Francisco (SAMPAIO-SILVA, 1997).

Children of the ancient Indians who lived in the São Francisco Valley region many years ago. The Tuxá village is located in the municipality of Rodelas/BA, in the region of Submédio São Francisco (MARQUES, 2008).

2.1.2. Characterization of the area

The Tuxá village is located in the municipality of Rodelas, in the northeast region, more precisely in the north of Bahia, on the banks of the São Francisco River. Its latitude is 08° 50 '44", its longitude is 38° 46 '00' '. It is limited to the municipalities of Paulo Afonso, Glória, Macururé, Chorrochó and Jeremoabo in Bahia, and to the municipalities of Floresta, Belém do São Francisco, Itacuruba and Petrolândia in Pernambuco. Rodelas has a semi-arid climate and is located in the Caatinga Biome. The municipality has grown considerably in recent years, due to local agriculture, especially with regard to the production of coconut, for which the municipality received

the title of "coconut city", for supplying coconut to the region of Bahia and to other states, such as Sergipe and São Paulo. Rodelas has a semi-arid climate and is located in the Caatinga Biome. The municipality has grown considerably in recent years, due to local agriculture, especially with regard to the production of coconut, for which the municipality received the title of "coconut city", for supplying coconut to the region of Bahia and to other states, such as Sergipe and São Paulo.

2.2. Research Type

The present research is bibliographic, ethnographic, field research with the use of open forms with a qualitative and quantitative approach, pointing through free lists the indexes of botanical projections pointed out by the referred indigenous community.

Lutz (1983) ethnographic research, aims at understanding the culture of a particular group in order to understand the reasons for certain forms of behavior, involving immersion, coexistence, observation and interview as a method and research tool. The free list was another procedure used, where the interviewees listed the plants most used by them in the last twenty years in order of their preference (Lawrence et al. 2005).

In conjunction with qualitative procedures in the collection of research data, a quantitative technique was used to process the information obtained about medicinal plants. The Saliency Index technique (SMITH, 1993; MARTIN, 1995; COTTON, 1996) was used, which takes into account two parameters: the frequency and order of citation, following the methodology recommended by Quinlan (2005), which it makes it possible to quantify the cultural saliency and analyze the different patterns of knowledge about the use of plants; and thus, obtain more objective and closer to real information. The saliency indexes were processed using the Visual Anthropac-Freelists 4.0 software (BORGATTI, 1996), and the index calculations were loaded into text files (*.txt), and later exported their results to Excel 2010.

For the identification of species, specialized literatures were used, such as Lorenzi and Matos (2008) and Marinho; Silva and Andrade (2011). The collected species were pressed into exsiccates, identified and stored in the herbarium of the State University of Feira de Santana - UEFS. The species were collected with the help of two bushmen from the Tuxá community, who know the plants and the territory.

III. RESULTS AND DISCUSSIONS

3.1 Interaction of the Tuxá People and their medicinal flora

According to Mark Plotkin (2008), nobody understands the secrets of plants better than the indigenous shamans, men and women shamans, who have developed an immense knowledge of the local flora, are true "living pharmacies" to cure ills, both physical and spiritual community.

However, the knowledge of these botanical magicians is rapidly disappearing due to deforestation and profound cultural transformation among the younger generations and the combined loss of this knowledge and these forests, promotes degradation that can compromise the world of cultural and biological diversity.

The Tuxá indigenous People has a great diversity of plants that they use for their healing system, as shown below, some represented in the figures.



Fig. 1: Jurema Preta (*Mimosa tenuiflora*)



Fig. 2: Melão caetano (*Momordica charantia* L.)

Fig. 3: Cansção (*Jatropha urens* L.)Fig. 4: Candeia (*Lippia organoides*)

The Tuxá have a deep knowledge of their medicinal plants, and establish an interdependent relationship with nature. "Taking traditional medicine from the Tuxá people is like killing a large part of our culture, a large part of the existence of being from a different people" (Sandro Tuxá, 2012).

However, for the production and reproduction of their culture, the Tuxá maintain full mastery of the knowledge of their medicinal flora, expressed in ethno-drawings by the Tuxá Indians in a workshop.

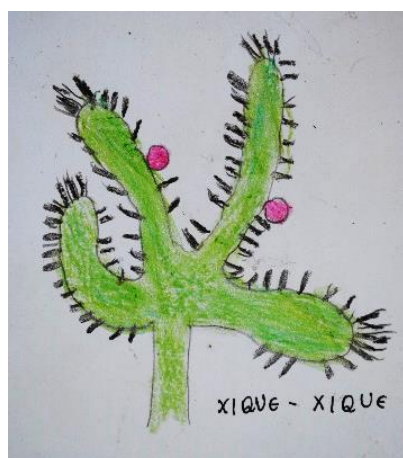
Fig. 5: Xique-xique (*Pilosocereus gounellei*)Fig.6: Muçambê (*Cleome spinosa* L)Fig. 7: Mulungú (*Erythrina mulungu* Mart. Ex Benth.)Fig. 8: Mata cabra (*Ipomoea* sp.)



Fig. 9: Faveleira (*Cnidoscolus phyllacanthus*)

3.2 Medicinal plants for use in the sacred

These plants such as juazeiro (*Ziziphus joazeiro* Mart.), Faveleira (*Cnidoscolus phyllacanthus* (M. Arg.) Pax & Hoffm), genipap (*Genipa americana* Linnaeus.), among others, are part of the vast pharmacopeia of the Tuxá People.

The Tuxá Rodelas Indigenous People make use of plants considered sacred in their healing rituals; these are part of their rich healing system. They have an extraordinary knowledge of their plants, and make use of extremely elaborate recipes. However, these practices are threatened by the accelerated process of socio-environmental and cultural degradation that are exposed.

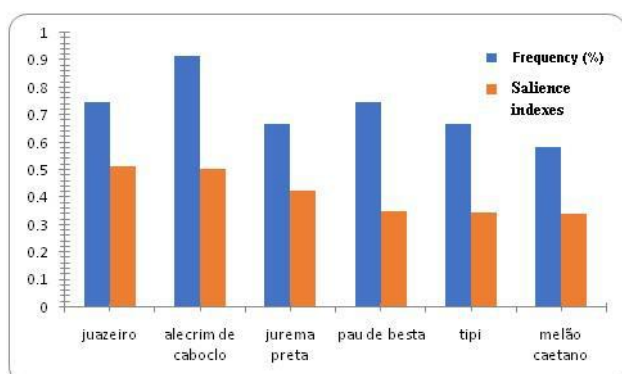
Table 1: Plants used in the healing and sacred rituals of the Tuxá People, according to the interviewees. (Field Research, 2012)

Scientific Names	Sacred Plants	Frequency (%)	Ranking	Salience indexes
01 <i>Baccharis sylvestris</i> L.	Alecrim de caboclo	91,7	7,09	0,505
02 <i>Ptilochaeta</i> SP.	Pau de besta	75	8,33	0,35
03 <i>Ziziphus</i> Mart.	Juazeiro	75	5,22	0,513
04 <i>Petiveria</i> L.	Tipi	66,7	8,13	0,344
05 <i>Mimosa tenuiflora</i> (wild.) Poir.	Jurema preta	66,7	5,75	0,424
06 <i>Vitex angus-castus</i> L.	Anjucá/liamba	58,3	9	0,251
07 <i>Momordica charantia</i> L.	Melão Caetano	58,3	7,29	0,341
08 <i>Senna Rizzini</i> H.S.Irwin & Barneby(det.L.P.deQueiroz,3.2013)	Pau de besouro	50	7,67	0,252
09 <i>Ocimum basilicum</i> L.	Manjerição	41,7	5	0,328
10 <i>Passiflora foetida</i> L.	Coentro d'água/junco	41,7	6,4	0,26
11 <i>Spondias tuberosa</i>	Umbuzeiro	41,7	7	0,224
12 <i>Bauhinia forficata</i>	Mororó	41,7	8,6	0,255
13 <i>Jatropha gossypifolia</i> L.	Pião roxo	41,7	9,6	0,176
14 <i>Scoparia dulcis</i> L.	Vassourinha	41,7	9	0,197
15 <i>Baccharis dracunculifolia</i>	Alecrim do mato	41,7	8,4	0,193
16 <i>Jatropha urens</i> L.	Cansanção	41,7	7,4	0,258
17 <i>Leonotis nepetifolia</i> Schimp. Ex Benth.	Cordão de são Francisco	33,3	6,75	0,218

18	<i>Byrsonima verbascifolia</i> Rich. Ex Juss.	Muricizeiro	33,3	6,75	0,186
19	<i>Nicotiana tabacum</i> L.	Fumo	33,3	13,25	0,088
20	<i>Parietaria Officinales</i>	Alfavaca	25	11,33	0,1
21	<i>Allium sativum</i> L.	Alho	25	8	0,138
22	<i>Boerhavia paniculata</i> Rich.	Pega pinto	25	6,33	0,177
23	<i>Cyperus esculentus</i> L.	Espada de ogum	25	11,67	0,093
24	<i>Croton blanchetianus</i> Baill	Marmeleiro	25	6	0,142
25	<i>Hyptis pectinata</i> (L.) Poir.	Samba caitá	16,7	6,5	0,089
26	<i>Ruta graveolens</i> L.	Arruda	16,7	18,5	0,022
27	Não identificada	Sete pecados	8,3	13	0,012
28	<i>Lippia gracilis</i> Schauer	Alecrim da serra	8,3	14	0,032
29	<i>Hyptis Salzm.</i>	Alecrim de vaqueiro	8,3	10	0,008
30	<i>Sansevieria trifasciata</i> Prain	Espada de São Jorge	8,3	14	0,026
31	<i>Ptilochatea</i> sp.	Pau besta	8,3	2	0,079
32	Não identificada	Melão São Francisco	8,3	13	0,017
33	<i>Caesalpinia pyramidalis</i> Tul	Catingueira branca	8,3	18	0,009

The constituent elements of the Tuxá identity are evidenced in the knowledge practices related to the forests, which are part of its mystical universe. This relationship provides them with a knowledge, use and management of their plants that encompasses a dimension that goes beyond a simple prescription, but that permeates the universe of the sacred experienced in their healing rituals.

Graph 1: Frequency of citation and salience of Plants used in spiritual healing (Field Research, 2012).



Among the 39 plants mentioned for spiritual cures, caboclo rosemary (*accharis sylvestris* L), presents a higher frequency of citation. This result suggests that caboclo rosemary because it is a plant that has a wider range of use in both physical and spiritual healing is the first to be remembered. As for the salience index, both caboclo and juazeiro (*Ziziphus* Mart.) Rosemary obtained the same value (0.5). Suggesting that the two plants have a greater cultural representativeness of use in relation to the 39 mentioned.

IV. CONCLUSION

The Tuxá Indians have a thorough knowledge of their sacred medicinal plants and their healing power, which has been demonstrated in rich recipes.

The interference caused in the Tuxá territory, with the formation of the Itaparica reservoir, drastically affected its socio-environmental and cultural relations.

The impacts on the diversity of medicinal flora Tuxá, due to the submergence of its traditional territory,

jeopardizes the continuation of its tradition, with regard to the important elements for the follow-up of its ritualistic healing practices. In this sense, the dimensions related to the sacred were also quite compromised in the face of the transformations undergone.

The symbolic universe of the Tuxá people is essentially constituted by the cult of the Enchanted / Masters, saints, caboclos and gentiles, and this symbolic dimension is manifested through their interaction with nature, mainly with the forces of the waters of São Francisco and Caatingas forests.

However, these rich knowledge acquired through a history of interaction with nature and ancestral knowledge, are rapidly disappearing, due to deforestation and the accelerated cultural transformation, experienced by its people in the last decades, originating from hydroelectric enterprises installed in its territory.

Today, within the resistance and the proposition, the Tuxá indigenous people are looking for actions that enable the proper and fair use of biodiversity and the guarantee of the right to their material and immaterial heritage. As is the case with the struggles for the resumption of their traditional territories.

REFERENCES

- [1] ALBUQUERQUE, U.P. Introdução à Etnobotânica. Recife: Edições Bagaço, 2002 b.87p.
- [2] COTTON, C. M. Ethnobotany. Principles and Applications. England: John Wiley & Sons Ltda. 1996.
- [3] JAIN, S. K. Ethnobotany, its scope and various subdisciplines. In: Jain, S.K (ed). A manual of ethnobotany, 2000.
- [4] LAWRENCE, A.; PHILLIPS O.L.; ISMODES, R.A.; Lopez, M.; ROSE, S.; WOOD, D. & FARFAN, J.A. Local values for harvested forest plants in Madre de Dios, Peru: Towards a more contextualised interpretation of quantitative ethnobotanical data. Biodiversity and Conservation. 14: 45-79. 2005.
- [5] LORENZI, H. Plantas medicinais no Brasil: nativas e exóticas/Harri Lorenzi, Francisco José de Abreu Matos; computação gráfica Henrique Martins Laureano, 2. Ed. – Nova Odessa, SP: Instituto Plantarum, 2008.
- [6] LUTZ, F. W. Ethnography: the holistic approach to understing schooling. In: Education settings, Judith L. Green at. Alii (Eds), vol (V). Norwood, New Jersey, Ablex, 1981.
- [7] MARQUES, J. Cultura Material e etnicidade dos Povos indígenas do são Francisco afetados por barragens: Um estudo de caso dos Tuxá de Rodelas, Bahia, Brasil. Tese de doutorado – Universidade Federal da Bahia UFBA. salvador/BA, 2008.
- [8] MARTIN, G. J. Etnobotânica. Manual de Métodos. Kew: WWF/UNESCO/Royal Botanical Gardens, Série Pueblos y Plantas. Menezes LFT, Araujo DSD 2005. Formações vegetais da restinga da Marambaia, Rio de Janeiro. In: Menezes L.F et al. (Org.) História Natural da Marambaia. Seropédica, RJ: EDUR, p 67-120. 1995.
- [9] PLOTKIN, M, 2008.Comunidades tradicionais são essências para a conservação da biodiversidade. Disponível em: www.amazonteam.org/. Acessado em 06 mai. 2011.
- [10] QUINLAN, M. Considerations for collecting freelists in the field: Examples from ethnobotany. Field Meth 17: 1-16. 2005.
- [11] QUINTANA, Alberto M. A Ciência da Benzedura, Editora da Unidade do Sagrado Coração – EDUSC, 1999.
- [12] ROTHMAN, F. D. Vidas Alagadas – Conflitos socioambientais, licenciamento e barragens Franklin daniel Rothman. Viçosa, MG: ED.UFV, 2008.
- [13] SILVA, Orlando Sampaio (1997) Tuxá: Índios do nordeste. Annablume. São Paulo, 1997.
- [14] SILVA, V. A. Etnobotânica dos Índios Fulni-ô (Pernambuco nordeste do Brasil) Tese thompsonandLillooetinterior salish. American Anthropologist 96.de Doutorado. Universidade federal de Pernambuco. 2003.
- [15] SMITH, J. J. Using ANTHROPAC 3.5 and a spreadsheet to compute a freelist salience index. Cultural Anthropology Methodology Newsletter, 5: 1 -3. 1993.