



ELSEVIER

Contents lists available at ScienceDirect

Journal of Ethnopharmacology

journal homepage: www.elsevier.com/locate/jep

Research paper

Can organoleptic properties explain the differential use of medicinal plants? Evidence from Northeastern Brazil



Patrícia Muniz de Medeiros^{a,*}, Bárbara Luzia Santos Pinto^a,
Viviany Teixeira do Nascimento^b

^a Universidade Federal do Oeste da Bahia, Centro das Ciências Biológicas e da Saúde, Estrada para o Barroco, s/n, Morada Nobre, 47800-000 Barreiras-BA, Brazil

^b Universidade do Estado da Bahia, Campus IX, Rodovia BR 242, km 4, s/n, Loteamento Flamengo, 47800-000 Barreiras-BA, Brazil

ARTICLE INFO

Article history:

Received 9 September 2014

Received in revised form

30 October 2014

Accepted 1 November 2014

Available online 11 November 2014

Keywords:

Ethnomedicine

Traditional medicine

Medicinal plant selection

Brazil

ABSTRACT

Ethnopharmacological relevance: This study examined how people classify plants in terms of their taste and smell, and how those organoleptic properties influence the differential use of medicinal plants for treating different diseases.

Methods: We conducted an ethnobotanical survey of household heads in the community of Sucruíu, located in Barreiras, Bahia, Brazil. The head of each family was questioned concerning their knowledge and use of medicinal plants, as well as the therapeutic indications (TIs), taste, and smell of each plant. We then tested for associations between the therapeutic indications and taste attributes of various plants using the Chi-squared test on a contingency table with Monte Carlo simulations. The same analysis was performed for associations between TIs and smell.

Results: The study participants provided more details when classifying tastes than when classifying smells. We considered only the most cited TIs and attributes, and found significant associations between both taste and therapeutic indications ($p < 0.001$) and smell and therapeutic indications ($p < 0.0001$).

Conclusions: Our results showed that the taste and smell of a plant can influence its differential medicinal use, since plants with certain tastes and smells prevailed in the treatment of distinct diseases. However, our results are valid only for the most popular TIs and organoleptic attributes.

© 2014 Elsevier Ireland Ltd. All rights reserved.

1. Introduction

One central interest of ethnobotanical research is to identify factors that influence a plant's selection and differential use by local communities (Medeiros et al., 2013a, 2013b). Previous investigations have sought to understand whether factors such as a species' availability (Lawrence et al., 2005; Lucena et al., 2012), bioactivity (Omar et al., 2000; Araújo et al., 2008) or organoleptic properties (Leonti et al., 2002; Molares and Ladio, 2009) may explain its popularity and application for treating certain disorders.

A plant's taste and smell can play an important role in its selection for medicinal use by local populations, and such attributes are directly associated with the presence of certain secondary plant metabolites. It is possible that some organoleptic attributes act as determinants of plant selection, clues of bioactivity, or serve a mnemonic function (Medeiros et al. 2013a), which

enables people to have taste-based and smell-based information that can be used for experimenting and innovating traditional knowledge (Heinrich, 2003; Molares and Ladio, 2008).

Some ethnobotanical studies have reported the importance of organoleptic attributes when distinguishing between medicinal and non-medicinal plants (Ankli et al., 1999; Leonti et al., 2002). Furthermore, we believe that the differential use of medicinal plants (use of different plants for distinct purposes) can be explained by attributes such as taste and smell. While previous investigators have found that certain diseases are mostly treated with plants that have specific tastes or smells (Ankli et al., 1999; Leonti et al., 2002; Heinrich, 2003), these reports have been limited to only a few diseases. Our current study examined the association between a plant's taste and smell, and its selection for treatment of a wide variety of diseases, with the goal of determining whether such an association can be generalized or is limited to particular diseases.

We hypothesized that a plant's taste and smell influence its selection for treating specific diseases, and examined whether the differential use of medicinal plants be explained by their organoleptic properties.

* Corresponding author. Tel.: +55 7736143113.

E-mail address: patricia.muniz@gmail.com (P.M. de Medeiros).

2. Methods

2.1. Study area

This study was conducted in 2012 in the rural community of Sucruuiu (12°12'29,06''S and 45°15'24,03''W), located in the municipality of Barreiras, in the Western region of the state of Bahia, Brazil (Fig. 1). The municipality covers 7859.225 km² (IBGE, 2010), and has seasonally dry vegetation. Its population of 136,427 inhabitants (IBGE, 2010) and the majority of economic activity are related to agribusiness.

Although commercial large-scale agriculture has a substantial presence in Barreiras, it coexists with small-scale agricultural operations in local communities such as Sucruuiu. Sucruuiu is located 25 km from the nearest urban area, and has 21 households and 38 family chiefs.

In terms of ethnicity, Sucruuiu is constituted of mixing races, as its inhabitants are descendants of European, African and Indigenous people. Researchers commonly use the terms 'sertanejos' or 'cultura sertaneja' (better translated as backcountry culture) to describe mixed race farming communities from seasonally dry Brazilian areas (Lütke-meier, 2014). However, the 'sertanejos' cannot be considered as culturally homogeneous, since differences can be found in their social organization and subsistence activities.

Most men in Sucruuiu are native to the community, while the women are mostly from neighboring communities, and migrated to Sucruuiu after marrying Scuruiiu men. While the men are mostly dedicated to agricultural activities and the extraction of commercial forest products, women work in commerce, service, agriculture, and/or domestic activities.

The community has a Catholic church (main religion in the area) and a public elementary public school. Students seeking higher academic degrees must travel to neighboring communities or the Barreiras urban area. In terms of access to public health, the community does not have a health center; however, health agents from the Barreiras urban area often visit community members.

In term of therapeutic options, the community presents a plural medical system, since traditional and official medicines coexist.

Similar to other rural communities in Northeastern Brazil, young natives continuously migrate to urban centers, leading to their decreased numbers in Sucruuiu.

2.2. Data collection

This study was conducted in accordance with guidelines developed by the National Health Counsel by means of the Research Ethics Committee (Resolution 196/96), and the protocol was approved by that committee (CAAE 07488513.4.0000.5026).

The community of Sucruuiu was fully informed concerning the goals of this study, and members who agreed to participate were invited to sign a Free and Clarified Consent Term. We interviewed 21 family chiefs (men and women). This number of participants was reached because 17 individuals did not want to participate or were not located even after several attempts. We performed a free-listing of medicinal plants that each individual knew of and/or had used, including the parts utilized, their therapeutic indications, and their attributes of taste and smell.

Species cited by the informants were collected and then identified by consultations with specialists and comparisons with herbarium material. The samples were deposited at the herbarium of the Universidade Federal do Oeste da Bahia, and the herbarium of the Universidade do Estado da Bahia (Campus IX).

2.3. Data analysis

The relative importance (RI) of each plant was calculated by the method of Bennett and Prance (2000) using the following equation: $IR = (NTI_x / NTIVE) + (NBS_x / NBSVE)$, where NTI_x is the number of therapeutic indications (TIs) for the species x ; $NTIVE$ is the number of therapeutic indications for the most versatile species; NBS_x is the number of body systems of the species x , and $NBSVE$ is

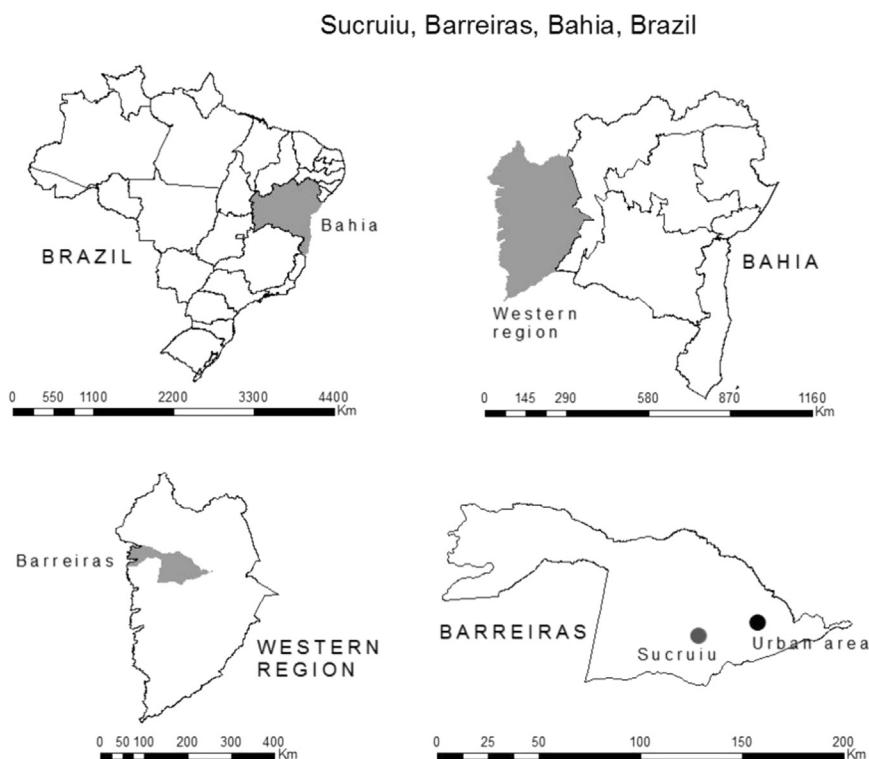


Fig. 1. Map of the study area emphasizing the state of Bahia, Western region and the municipality of Barreiras.

Download English Version:

<https://daneshyari.com/en/article/5836014>

Download Persian Version:

<https://daneshyari.com/article/5836014>

[Daneshyari.com](https://daneshyari.com)