ESTUDO ETNOBOTÂNICO NO MUNICÍPIO DE TOLEDO-PR: UMA ABORDAGEM SOBRE A VARIABILIDADE DE ESPÉCIES UTILIZADAS COM A MESMA DENOMINAÇÃO POPULAR

ETHNOBOTANICAL STUDY IN TOLEDO-PR DISTRICT: AN APPROACH ABOUT USED SPECIES VARIABILITY WITH THE SAME POPULAR NAME

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RESUMO:
O conhecimento etnofarmacológico adquirido ao longo da evolução humana culminou com o desenvolvimento de fármacos de grande relevância terapêutica. No levantamento etnobotânico realizado no município de Toledo, em 2007, constatou-se que 79% da população utiliza com frequência plantas para fins medicinais, em sua maioria na forma de chás, oriundas de cultivos próprios e afirmam ter melhora após o consumo das plantas. As plantas mais citadas foram: cidreira, marcela e camomila. Este estudo teve como objetivo verificar se os hábitos da população relacionados com plantas medicinais mudaram, realizar uma revisão na literatura para descobrir se as plantas mais utilizadas têm sua atividade biológica cientificamente comprovada, além de procurar relatos de homônimos para as plantas medicinais mais citadas. Houve uma pequena mudança nas espécies utilizadas pela população. No levantamento bibliográfico, constatou-se que diferentes espécies são utilizadas com a mesma denominação popular, na prática, verificou-se o uso de duas espécies distintas, *Piper amalago* L. (UNOP 7972) e *Piper mikanianum* (Kunth) (UNOP 7971), referentes à planta medicinal popularmente conhecida como pariparoba, onde nenhuma equivale à espécie reconhecida pela Farmacopeia Brasileira.
Palavras-chave: Cidreira, camomila, marcela, pariparoba, estudo etnobotânico

ABSTRACT:
The ethnopharmacological knowledge acquired throughout human evolution culminated in the development of high therapeutic relevance drugs. In ethnobotanical survey conducted in the city of Toledo in 2007, it was found that 79% of the population often use plants for medicinal purposes, mostly in the tea form, originated from own crops. They claimed that the consumption of these plants improved their health conditions. The plants mainly cited were: balm, chamomile and marcela. This study aimed to verify if the population habits related to medicinal plants have changed, also proceed a literature review to find out if the most used plants have their biological activity scientifically proven and looking for reports of homonymous to the most cited medicinal plants. There was small change in the species used by the population. In the literature, it was found out that different species are used with the same popular name, in practice, it was detected the use of two different species, *Piper amalago* L. (UNOP 7972) and *Piper mikanianum* (Kunth) (UNOP 7971), for the medicinal plant commonly known as pariparoba, although none of them is recognized for the Brazilian Pharmacopoeia.
Key words: Lemon balm, chamomile, marcela, pariparoba, ethnobotanical study.

INTRODUCTION

Using medicinal plants for treating certain diseases has been a persistent practice throughout the years. Applying these plants is common in Brazil, considering the strong influence of indigenous culture and European colonization (Maioli-Azevedo & Fonseca-Kruel, 2007). The interest in these treatments is encouraged by several factors like: cultural dissemination that there is only benefits using plants, the public health organs lack of resources and the increasing costs of synthetic drugs (Parente & Rosa, 2001).

Every plant known as medicinal herb needs an adequate dosage and, primarily, the correct identification of the specie to be used. In some cases the related pharmacological properties have no scientific evidence (Veiga et al., 2005). According to Brazilian Health Ministry, the National Program of Medicinal Plants and Phytotherapy was aimed to promote the rational use of medicinal plants and phytotherapy remedies in attempt to standardize and aware the population about plants utilization (Brasil, 2009).

However, indiscriminate plants use with medicinal purposes is part of Brazilian families' routine that often relies on treatments based on teas, decoctions or infusions. These plants' origin is very diverse, usually they can be found in the native forest nearby rural residences or they are brought from other places and cultivated at home. This seems to be one problem about using herbs, since they can have the same popular name but different species.

Thereby, the adequate identification of the used species by the phytoterapeutics labs or the community is important, because regionals names may culminate in the consumed species misidentification. A variation in the popular designation can occur in different regions, as example, the *Casearia silvestris Swartz,* which is known as brugres' tea and bugres' herb in southern Brazil, and by guaçatonga or basilisk tongue in other Brazilian's regions. On the other hand, the same popular name can mean different species, as the marcela or macela, that can mean two native species of *Asteraceae* gender *Achyrocline* (*A. satureioides* Lam DC. and *A. vauthieriana* DC.), and *Anthemis nobilis* L., mostly known as Roman Chamomile.

The existing myth that plants are not harmful to health can have serious public health consequences. The toxic potential, contamination's problems and the poisoning due to improper use has been related in some studies, as the case of the popularly known comfrey (*Symphytum officinale*) and rue (*Ruta graveolens*), among others (Veiga et al., 2005).

In an ethnobotanical study realized in Toledo region, with the purpose of evaluate the population´s habit related to medicinal plants, it was found that the population indeed use medicinal plants and the most cited ones were: lemon balm, plantain, boldo, mint, marcela, mauve, marjoram and chamomile (Olguin et al., 2007). In this context, this study aimed to verify if the population habits related to medicinal plants have changed, and also to proceed a literature review to find out if the most used herbal plants have their biological activity scientifically proven looking for reports of homonymous to the most cited medicinal plants.

2. MATERIALS AND METHODS

The realized study targeted the habitants of Toledo/PR and region. Toledo city is

located in the west region of Parana State, it has about 120.000 inhabitants and it was colonized by Germans and farmers from Rio Grande do Sul, which brought with them their habits and traditions.

The methodology used in this work consisted of a partial approach of an ethnobotanical study. Initially this was performed by a questionnaire application seeking for the local knowledge of natural resources available nearby. The questions were about the distribution and frequency of most used phytotherapy remedies, as well as the use characterization: green, drought or industrialized plant, forms of use, information source, obtainment place, side effects, disease's improvement or cure by using this resource. In addition to clarifications, about using plants or phytotherapy remedies by family, and investigate if the studied population knows any plant that cures cancer.

Minimum age of this field research participants was 16 years old. A total of 47 people were interviewed, 87% were female, emphasizing women aging 45 to 60 years old.

RESULTS AND DISCUSSION

When asked about the utilization of medicinal plants, 79% of volunteers answered that they frequently use them. The most ordinary way of usage was as the tea with a long-standing use. For several generations, it represented at the same time mystical and religious wisdom, due to the fact that many infusions cause hallucinations or cures (Monte, 2007).

The origin of the plants is also important. The lack of care at the management, drying, and other steps before consumption can lead to contamination, reducing the effectiveness, or making the plant harmful. Most of the used plants, 63%, came from the interviewees' yards, raising concerns that the identification, manipulation and the used amount could be able to cause undesirable effects.

Respondents were also asked about the improvement or cure of any disease with the use of plants. 94% of them had, at least, an improvement of several symptoms. When asked about the use of some medicinal plant to treat different types of cancer, 18% of participants claimed to know plants that cure this disease. The most cited plant to such question was aloe, sometimes used alone or in formulations. Beyond it was mentioned the aveloz, soursop and saffron.

Among the 46 reported plants, the most mentioned were: lemon balm (26 citations), marcela (18), chamomile (16), boldo (10), holy thorn (10), fennel (10) and rosemary (7). A higher frequency of certain plant is probably due to a greater dissemination of information about its medicinal indications, for example, lemon balm was mentioned 28 times and garlic only 1. This is probably because lemon balm use as a soothing is much better known than the use of garlic as a regulator of blood pressure. It is observed that the most cited plants were also reported in the study by Olguin et al., (2007), but some species previously mentioned were not cited in this survey, as the plantain.

It is significantly reported in the literature the use of lemon balm, marcela and chamomile as a medicinal plant high consumed by the population. However, when performing a literature review on the known and popularly used species with these denominations, we found out there is a significant number of ethnobotanical studies reporting different species used by the same popular name, as shown in Table 1.

TABLE 1. Bibliographical survey on different species used by the same popular designation

Popular Name	Species	Indications	References
Lemon balm	*Lippia alba* (Mill.) Brow*	Stomachache, headache and soothing	(Almeida & Albuquerque, 2002); (Pilla et al., 2006); (Silva & Proença, 2008); (Arjona et al., 2007); (Pasa et al., 2005); (Amorozo, 2002); (Vásquez et al., 2014)
	Aloysia citrodora Palau	Soothing, Reduce blood pressure and cough	(Vendruscolo & Mentz, 2006)
	Aloysia gratissima (Gillies & Hook)	Reduce blood pressure, cholesterol, headache, soothing, etc.	(Vendruscolo & Mentz, 2006)
	Cymbopogon citratus (DC.) Stapf	Soothing, depression, pain in the body, irregular pressure, flu, colds, cough, high blood pressure	(Pilla et al., 2006); (Miranda & Hanazaki, 2008); (Ritter et al., 2002); (Vendruscolo & Mentz, 2006); (Negrelle & Fornazzari, 2007)
	Kyllinga odorata	Flu	(Souza et al., 2010)
	Melissa officinalis	Soothing and High pressure	(Negrelle & Fornazzari, 2007); (Barros et al., 2007); (Oliveira et al., 2007); (Medeiros et al., 2004)
Marcela	*Achyrocline satureioides**	Soothing, liver pain, headaches, intestinal problems, cough, flu	(Vendruscolo & Mentz, 2006); (Souza et al., 2010); (Ritter et al., 2002)
	Achyrocline vauthieriana DC	Stomachaches and indigestion	(Ritter et al., 2002);
	Chamaemelum nobile var. *discoideum* (Boiss.) P. Silva	Whet the appetite, headache, bitter taste in mouth, indisposition, Stomach, Intestinal/ Cramps, Fever, flu, constipation, sore throats	(Mendes et al., 1999)
	Pluchea sagittalis	Fever, headaches and stomachaches	(Vásquez et al., 2014)
Chamomile	*Matricaria recutita* *, sinônimo de: *Chamomilla recutita* (L.) Rauschert, *Matricaria chamomilla* (WHO, 1999).	Intestinal constipation, digestion, stomachache, Stomach burning ache, liver, nausea	(Souza et al., 2010); (Negrelle & Fornazzari, 2007); (Barros et al., 2007); (Pasa et al., 2005); (Almeida & Albuquerque, 2002); (Medeiros et al., 2004); (Pilla et al., 2006); (Ritter et al., 2002)
	Coreopsis grandiflora Hogg	No evidences	(Arjona et al., 2007)
	Aloysia oblanceolata Moldenke	No evidences	(Silva & Proença, 2008)

* Related species at Resolution of Board of Directors n°10, of the National Health Surveillance Agency,

In Table 1 can be verified that for the same popular name, the therapeutic indications are similar and that some species are most cited than others. The *Lippia alba* species, popularly known as lemon balm, has analgesic and anti-inflammatory activity, fights migraines, among others (Carmona et al., 2013). The *Achyrocline satureioides* species (marcela) shows antioxidant activity, anti-herpes, analgesic, anti-inflammatory, antiviral, etc. (Rivera et al., 2004); has no cytotoxic or genotoxic effects (Sabini et al., 2013). As for *Matricaria recutita* (chamomile), there are a number of proven biological activities: antimicrobial, antioxidant, antimalarial, and anti-inflammatory, slightly sedative, gastrointestinal and liver benefits, among others (Petronilho et al, 2012.). All the above species have authorized use in Brazil (Brasil, 2010).

Based on the data presented, there was carried out a specific questioning about certain species, in order to verify if there were differences between the species used with the same popular denomination. Thus, the plant known as pariparoba, although few quoted, was collected in two different locations in the Toledo area and sent to botanical identification in the Herbarium of the State University of West Parana. It was found that these are two different species: *Piper amalago* L. (UNOP 7972) and *Piper mikanianum* (Kunth) (UNOP 7971). According to ethnobotanical survey, this plant is popularly used to stimulate stomach functions, as an analgesic, diuretic, for skin problems, against kidney failure and fever.

The pariparoba was reported in the first edition of the Brazilian Pharmacopoeia in 1926 under synonymy of *Heckeria umbellata, Pothomorphe umbellata, Piper umbellatum* among others (Moraes, 1986). According to the realized literature survey, it was found that some species of the Piper genus are used by the population with the usual pariparoba denomination. Table 2 shows the proven biological activity relative to species consumed as pariparoba

TABLE 2. Proven biological activity relative to species consumed by the population as "papiroba"

Species	Proven Activity	Reference
Piper amalago L.	Diuretic and anti-lithiasic	(Novaes et al., 2014)
	Antileishmanial	(Carrara et al., 2013)
	Anti-inflammatory	(Sosa et al., 2002)
	Anxiogenic	(Lopes et al., 2012)
Piper mikanianum (Kunth)	Anxiolitic, anxiogenic	(Lopes et al., 2012)
Piper dilatatum	Antifungal (*Cladosporium cucumerinum* and *Crinipellis Perniciosa*) Antioxidant	(Terreaux et al., 1998; Silva et al., 2007; Silva et al., 2014)
Piper glabratum	Antiparasitic agent (*Leishmania spp*., *Trypanosoma cruzi*, and *Plasmodium falciparum*)	(Flores et al., 2008)
Pothomorphe umbellata	Antioxidant, photoprotector	(Ropke et al., 2006; Ropke et al., 2003)
	Anti-inflammatory and analgesic	(Perazzo et al., 2005)
	Cytotoxic and antitumoral	(Sacoman et al., 2008)
	Antiplasmodium and antitrypanosomal assay	(Kamanzi et al., 2004;
	Antileishmanial and antifungal	(Braga et al., 2007)

According to Roersch (2010) the *Pothomorphe umbellata* species does not present alarming data of toxicity, after several studies realized, but it highlights the importance of the continuing research. The *P. mikanianum* and *P. amalago* species did not show high toxicity (Lopes et al., 2012). The other species do not have toxicity studies. The species *P. amalago L.* presents some proven activity, with similar effects to those described for pariparoba plant.

The absence of a phytochemical and pharmacological study beyond the correct identification of the plant to be used pose a great risk to the population, since they can be consuming a species which entails health hazards.

The ethnobotanical surveys provide significant information about the use of plants for medicinal purposes. This practice is still widespread into the population, which uses the plants mainly in the tea form and observes an improvement in the health condition after the ingestion. However, the consumption of plants must be done with care, particularly the identification of the species to be consumed. Through the ethnobotanical survey, we note that there has been a small change in the most cited species in relation to 2007, setting up a possible change in the consumption habits of medicinal plants. It was identified two distinct species used by people with pariparoba denomination the *Piper amalago L.* and *Piper mikanianum* Kunth. The *P. amalago* species showed similar activities described for pariparoba plant, but the species recognized by the Brazilian Pharmacopoeia, *Pothomorphe umbellata*, was not collected in the region.

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