

The Therapeutic Use of Plants By Users of a Public Pre-Hospital Unit in Campos dos Goytacazes City, Rio De Janeiro State, Brazil.

Uso de Plantas com Fins Terapêuticos por Usuários de uma Unidade Pré-Hospitalar Pública de Campos dos Goytacazes, Rio de Janeiro, Brasil

Uso de Plantas con Fines Terapéuticos por Usuarios de Una Unidad Prehospitalaria Pública en Campos dos Goytacazes, Rio de Janeiro, Brasil

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How to quote this article:

Vargas ECA, Texeira ER, Wenerck YCS, *et al.* The Therapeutic Use of Plants By Users of a Public Pre-Hospital Unit in Campos dos Goytacazes City, Rio De Janeiro State, Brazil. Rev Fund Care Online.2019. Oct./Dec.; 11(5):1129-1134. DOI: <http://dx.doi.org/10.9789/2175-5361.2019.v11i5.1129-1134>

ABSTRACT

Objective: The study's purpose has been to identify the plants used for therapeutic purposes by users of a public pre-hospital unit in the *Campos dos Goytacazes* city, *Rio de Janeiro* State. Furthermore, to identify the methods of preparation and use, and their knowledge about the therapeutic properties, mechanisms of action and indication of the plants they use. **Methods:** It is a descriptive-exploratory research with a qualitative approach, which was performed through ten semi-structured interviews in April 2016, whose data were processed by thematic analysis. **Results:** 40 plants were mentioned, the most frequent being the lemongrass (*Lippia alba*) that was used as a soothing medicine; the main way of obtaining the plants is by means of own cultivation; and the tea, prepared by infusion or decoction, the main form of consumption. Unpleasant effects associated with the use of bush arnica (*Solidago chilensis*) were mentioned. **Conclusion:** It was verified that most of the plants used are of regional origin, whose knowledge of use was acquired through their relatives.

Descriptors: Phytotherapy, Medicinal Plants, Ethnobotany.

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RESUMO

Objetivo: Identificar as plantas utilizadas com fins terapêuticos por usuários de uma unidade pré-hospitalar pública do município de Campos dos Goytacazes/RJ, os modos de preparo e uso, e o conhecimento deles sobre às propriedades terapêuticas, mecanismos de ação e indicação das plantas que utilizam. **Métodos:** Pesquisa descritiva, exploratória e qualitativa, operacionalizada por dez entrevistas semiestruturadas em abril de 2016, cujos dados foram tratados por análise temática. **Resultados:** Foram citadas 40 plantas, sendo a mais frequente a erva cidreira (*Lippia alba*), utilizada como calmante. A principal forma de obtenção das plantas é por meio de cultivo próprio; e o chá, preparado por infusão ou decocção, a principal forma de consumo. Foram citados malefícios associados ao uso da arnica (*Solidago chilensis*). **Conclusão:** Verificou-se que a maior parte das plantas utilizadas é de procedência regional, cujo conhecimento de uso foi adquirido por mães e avós.

Descritores: Fitoterapia, Plantas Mediciniais, Etnobotânica.

RESUMEN

Objetivo: Identificar las plantas utilizadas con fines terapéuticos por los usuarios de una unidad pública prehospitalaria en la ciudad de Campos dos Goytacazes/RJ, los métodos de preparación, uso y sus conocimientos sobre las propiedades terapéuticas, mecanismos de acción e indicación de las plantas. **Método:** Se desarrolló una investigación descriptiva, exploratoria y cualitativa, operada por diez entrevistas semiestructuradas en abril de 2016, cuyos datos fueron tratados por análisis temático. **Resultados:** Se mencionaron 40 plantas, siendo la más frecuente la hierba de limón (*Lippia alba*). La forma principal de obtención de las plantas es mediante el cultivo propio; y el té, preparado por infusión o decocción, la forma principal de consumo. Se citaron los efectos de la enfermedad asociados con el uso de arnica (*Solidago chilensis*). **Conclusión:** La mayoría de las plantas utilizadas son de origen regional, cuyo conocimiento de uso fue adquirido por familiares.

Descritores: Fitoterapia, Plantas Medicinales, Etnobotánica.

INTRODUCTION

The use of medicinal plants for therapeutic purposes is an old form of treatment, which has been discouraged with the advancement of science and technology, especially concerning the use, processing and preparation of drugs.¹ Nevertheless, in recent years, by strengthening primary care and seeking comprehensive health strategies that value popular knowledge linked to the territory, natural therapies are increasingly being used as a resource for the care and treatment process, being considered complementary or alternative in health.²

The contemporary growth in the use of medicinal and herbal medicines is also associated with their easy access and lower cost, the frequent side effects of traditional medicine, and the popular belief that natural products are harmless.³

It is estimated that 65 to 80% of the population is using alternative therapies worldwide, such as herbal medicine, which is widespread in Brazil, where approximately 82% of the population uses herbal products.^{4,5}

Given this framework, in 2006, the Ministry of Health

implemented the National Policy for Integrative and Complementary Practices in the Sistema Único de Saúde (SUS) [Brazilian Unified Health System], not only as a strategy to ensure comprehensive health care, but also with the objective of guarantee the population safe access and rational use of medicinal and herbal medicines. The aim is to encourage community development, solidarity and social participation in disease prevention and health promotion as a more natural and less harmful choice, especially compared to the harms caused by overuse and/or misuse of medicines.⁶

Most of the time, the knowledge and the consequent use of medicinal plants are transmitted through the generations, however, without the scientific linkage that guides the effectiveness of the treatment. Due to its cultural and environmental riches, Brazil can make great progress in this field, providing discoveries and disseminating information to the public through the development of studies that ratify or refute the use of specific plants for medicinal purposes.

It is of fundamental importance to educate the population about the appropriate indication of plants as a therapeutic resource, and the qualification of health professionals to guide individuals on their indiscriminate use, without restricting the natural knowledge of the assisted population, thus being able to link popular knowledge to the scientific one. Initially, it is necessary to make a local diagnosis on the plants used by the population and their methods of use.

Hence, this study meant to identify the plants used for therapeutic purposes by users of a public prehospital unit in the Campos dos Goytacazes city, Rio de Janeiro State, Brazil, as well as the methods of preparation and use, and their knowledge about the therapeutic properties and the mechanisms of action and indication of the plants they use.

METHODS

It is a descriptive-exploratory study with a qualitative approach, which was carried out in a pre-hospital unit in Travessão district, Campos dos Goytacazes city, Rio de Janeiro State, Brazil, in April 2016.

Participants were selected by the following inclusion criteria: to be registered in the unit, with medical record number; adults or the elderly; and make use of at least one plant for medicinal purposes. The exclusion criterion was defined as follows: having any physical or mental condition that compromised participation in research and data saturation. Ten users of this health service were interviewed, a sample considered numerically satisfactory to meet the objective of this research, since it is a universe composed of people from the same locality and, in the vast majority of cases, use native plants of the region.

Data were collected while clients were waiting to

be served or while at rest after care in the mornings and afternoons. The data collection technique used the interview with the aid of a semi-structured script, containing questions related to the participant's profile and the object of study. The interviews were recorded and transcribed in full and then submitted to the content analysis according with Bardin,⁷ seeking to achieve the proposed objectives.

This research was approved by the Research Ethics Committee of the School of Medicine from the Universidade Federal Fluminense (*Certificado de Apresentação para Apreciação Ética (CAAE)* [Certificate of Presentation for Ethical Appreciation] No.50323015.6.0000.5243), in compliance with the ethical precepts provided in the Resolution No. 466/2012. Participants signed the Informed Consent Form (ICF), aiming to safeguard their rights and the voluntary nature of the research.

RESULTS AND DISCUSSION

Respondents Profile

Considering the ten interviewees, most were women (n=9), within the age group from 33 to 43 years old (n=5), with complete high school as the highest level of education (n=5), born in Campos dos Goytacazes (n=7) with a family income of one to three minimum wages (n=4), and evangelical religion (n=5).

Plants used for therapeutic purposes

A total of 40 plants were mentioned by the participants, which makes clear the diversity of use, knowledge and flora accessible to the local population.

Table 1 presents the names of the twenty most cited plants and the popular and scientific indications for each of them, then allowing a parallel between popular and scientific knowledge.

Table 1 – Plants most used by emergency unit users, with their popular and scientific indications. Campos dos Goytacazes city, Rio de Janeiro State, Brazil, 2016.

Popular name (scientific name)	Popular indication	Scientific indication
Blackberry (<i>Rubus brasiliensis</i>)	Hormone Repository	Diuretic, antispasmodic, laxative, tonic action
Bush arnica (<i>Solidago chilensis</i>)	Anti-inflammatory, rheumatic and joint pain	Action not scientifically proven. Not intended for intake
Babosa (<i>Aloe vera</i>)	Burn healing, laxative, anticancer	Healing action, antimicrobial, laxative
Boldo (<i>Plectranthus barbatus</i>)	Liver, digestive	Gastric hyposecretive action. Indication: gastritis, dyspepsia, heartburn, gastric upset
Chamomile (<i>Chamomilla recutita</i>)	Soothing	Digestive, sedative, anxiolytic action, eliminates gas, antispasmodic, stimulates appetite.
Marsh-cane (<i>Costus spicatus</i>)	Kidneys	Its roots are indicated as diuretics, tonics. The fresh stem juice is indicated for nephritis, syphilis, bladder problems and diabetes.
Lemon grass (<i>Cymbopogon citratus</i>)	Soothing	Soothing and smooth spasmolytic action

Lemongrass (<i>Lippia alba</i>)	Soothing	Soothing and smooth spasmolytic action
Fennel (<i>Foeniculum vulgare</i>)	Gases, child cramps	Stimulant of digestive, carminative and spasmolytic functions
Santa maria herb (<i>Chenopodium ambrosioides</i>)	Worms	Indicated to eliminate intestinal worms mainly <i>ascaris lumbricoides</i> .
Holy-thorn (<i>Maytenus ilicifolia</i>)	Gastritis	Ulcers, indigestion, chronic gastritis, dyspepsia.
Mint (<i>Mentha x villosa</i>)	Soothing, Digestion	Worm killing action (dewormer)
Yam (<i>Colocasia esculenta</i>)	Boosts Immunity	There is no scientific proof yet
Merthiolate (<i>Jatropha multifida</i>)	Heating	Antiseptic, healing; there are studies, but without proof
Noni (<i>Morinda citrifolia</i>)	Anticancer, weight loss	There is no scientific proof yet
Beggartick seeds (<i>Bidens pilosa</i>)	Kidneys, anti-inflammatory	Bactericidal, hepatoprotective, anti-inflammatory action
Stonebreaker (<i>Phyllanthus tenellus</i>)	Kidneys, renal stone, diuretic	Relaxing and analgesic action of the ureters. Indication: Renal lithiasis and high uric acid rates
Pomegranate (<i>Punica granatum L.</i>)	Throat, pharyngitis, tonsillitis, laryngitis	Efficacy has not been proven although there are studies. Indication: inflammation of the mouth and throat, dewormer
Thick leaf (<i>Kalanchoe brasiliensis</i>)	Lung, expectorant, anti-inflammatory	Local use for furunculosis. Antiallergic, antiulcerative and immunosuppressive action
Great plantain (<i>Plantago major</i>)	Anti-inflammatory	Seed tea is used as a laxative and purifier. Leaves tea is used for tonsillitis, pharyngitis, tracheitis, stomatitis.

Source: Research data; Lorenzi and Matos, 20028

Lemongrass was the most mentioned plant (n=9), followed by boldo (n=5), lemon grass (n=4) and arnica (n=4). Stonebreaker, beggartick seeds, mint, blackberry, thick leaf and great plantain were cited in three interviews.

About the compositions among the plants, were cited: apple with cinnamon and lemongrass with lemon grass, used as a sedative; chayote leaf with birdseed, noni leaf with alfavaca and blackberry, as hypotensive; arnica plus great plantain for anti-inflammatory action; watercress, mainly in syrup form, as an expectorant; yam with orange juice to improve immunity; and bay tea with onion and parsley for gas problem.

The knowledge gained about plants

When asked how they have acquired knowledge about the plants they use, it can be seen that the majority (n=7) of respondents had access to treatment with medicinal plants since childhood, in the family nucleus, especially through female figures (mothers and grandparents):

"I started using it with my grandparents, I had problems with the flu, stomachache, worms, headache, fever, all the everyday things." (Interview 1)

I got to know it through my grandparents, aunts, neighbors. In the old days we treated children with medicinal plants, most diseases were with plants, baths. I ate something, it would hurt, then the mother would give a cup of boldo; very agitated child, did not want to sleep, then gave a lemon balm tea. (Interview 2)

Ways to obtaining plants

Concerning obtaining the plants, respondents reported that they acquire them in several ways. Those with the easiest access are preferably planted at home, as in the case of rural areas, most people live at home with backyard and space to have their own cultivation. It is important to

mention that most of the mentioned plants are native to the region, many of them considered weeds that, when viewed from the perspective of health care, acquire their value.

There were references to the acquisition of plants with people nearby, inferring that the neighbor's yard, relatives and friends is an extension of his own backyard.

When we were kids, no one bought a medicinal plant, everyone had it in their backyard, so we would trade, if we didn't have it in the backyard, catch up with our neighbor or an aunt, with someone. We never bought, there was no such thing. (Interview 3)

The most specific cultivation and the most difficult to access because they are not native, such as Chamomile and Ginkgo Biloba, are purchased at health food stores or pharmacies.

Ways of preparing and using plants

As for the methods of preparation and use of the plants, tea was quoted in all interviews, which is, according to them, prepared by infusion for fresh leaves and decoction for dry leaves, roots and seeds. In the first case, boil the water and, after turning off the fire, place the leaf and leave it in the lid container for ten minutes; In the second one, the plant is boiled for a time ranging from five to 30 minutes, depending on the type and part of the plant. Also mentioned were the juices, the tinctures; the bottles; ointments and oils.

The action mechanism and effect of plants in the body

When asked how plants act on the organism, six of the respondents answered not knowing; two said that plants act by clearing the body and healing; one stated that they act by healing and reducing pain; and another stated that they act through their active ingredients in the same way as medicines.

Regarding the benefits and harms identified with the use of medicinal plants, eight of the respondents reported that they only found benefits such as relief from sickness and cure.

I had a little stomachache, I was taking omeprazole and dipyron and it didn't get better, so I remembered Pomegranate making tea. I did and took it for a couple of days, it got better, and the pain didn't come back. I took it for one to two weeks, then the pain had passed (Interview 4)

Only two reported harms such as stomach pain, high blood pressure and nonspecific discomfort following the use of arnica bush tea.

The sedimentation of the practical use of plants for therapeutic purposes, exclusively and exclusively

derived from the knowledge inherited over time, today is supported by researches that prove their effectiveness, ratifying the popular knowledge. This statement is supported by the scientific literature and also by the results of this research, which found that most of the plants used by the population have scientific therapeutic indication consistent with the popular indication. An interesting example is the stonebreaker (*Phyllanthus tenellus*), which respondents use to treat kidney stones. According to them, the use of tea leaves helps to eliminate the stones. Studies of the pharmacological properties of species belonging to the *Phyllanthus* family have found that they are capable of producing ureter relaxation which, in parallel with an analgesic action, facilitates the expulsion of stones without causing pain or bleeding most often, and also increases glomerular filtration. and the excretion of uric acid.⁹⁻¹¹ The stonebreaker is even one of the 71 plants recommended by the Ministry of Health to be used and distributed by the SUS.

With the regional specificities in mind, most of the plants cited by the interviewees of this study are of national knowledge and used by popular and health professionals in several municipalities of different states and regions. A study carried out in Southern Brazil confirms these results, indicating that of the 40 plants indicated by the subjects of this study, 17 are used or indicated by primary care nurses.² Studies from the Northeast also indicate the use of plants similar to those found by this study.^{12,13}

Nonetheless, some plants used therapeutically by the subjects of this study are based solely on popular knowledge, as there is no scientific proof of their actions and effects. Such is the case of noni (*Morinda citrifolia*), mentioned as anticancer, whose sale in Brazil is prohibited by the National Health Surveillance Agency (Anvisa) precisely because of the lack of studies that prove its consumption safely.¹⁴

Similarly, the bush arnica (*Solidago chilensis*), widely ingested in the form of tea, still lacks more robust studies to prove its efficacy and safety. Studies addressing the *Solidago chilensis*^{15,16} have confirmed the presence of flavonoids with proven anti-inflammatory properties, however, the results were not able to assure the safe dose for their ingestion and their long-term toxicity potential. Bearing this in mind, the harms reported by respondents after use of bush arnica may be associated with its prolonged use and its possible toxic effect.

The popular use of this species of arnica may be based on the proven use of mountain arnica, originating from the mountainous regions of Europe, which has been widely studied and is recommended for its anti-inflammatory action, although it is considered hepatotoxic and can be used in the homeopathic treatment, but not in herbal medicine.^{17,18}

The natural preference for the use of medicinal plants to fight diseases is embedded in everyday life. It is so

natural and so easy to assimilate that those who use it feel appropriate to full knowledge. It was observed in this study, through the reports, that the use of home remedies happens before the search for professionals specialized in health services, and when seeking these services do not give up the use of plants even if drug therapy is indicated. This may pose a health risk because of the potential for adverse effects from interactions, as medicines usually contain unique chemicals, while almost all plants contain mixtures of pharmacologically active substances.³

Likewise, there is concern about possible exposure to interactions between medicinal plants, as this is another practice that lacks scientific evidence, and may incur potentiation of effects or inactivation of plant properties.¹⁹

Herein, it was consensual the preference to use the fresh plant obtained by own cultivation, on the one hand, for the taste and, on the other, for the practicality. It is warned that this practice may bring risks related to the quality and safety of use, as there may be a misidentification of the plant at the time of harvest.¹⁹

On the other hand, the forms of preparation of the plants used by the subjects of this study, especially in the case of teas, find a place in the scientific literature that confirms the infusion for leaves and flowers and the decoction for leathery leaves, seeds and bark. as preparation methods.^{20,21}

Despite the usual use and knowledge regarding the indication of medicinal plants, it was found that users are unaware of their mechanisms, effects and potential interactions in the body. In this sense, popular knowledge must be ratified or corrected to enhance the therapeutic use of natural resources. And in this area, health professionals are of fundamental importance with regards to health education. For this, they must be provided with knowledge related to the theme.

A study performed in the Northeast of Brazil with health professionals, all linked to the Family Health Strategy (FHS), pointed out that most of them do not consider themselves prepared to pass information about the use of medicinal plants to users.²² In a study conducted in the South, with nurses from the FHS, it was found lack of knowledge regarding the National Policy of Medicinal Plants and Phytotherapies and little participation in training activities on the subject.²

This fact indicates the need for continuing education processes and motivation of these professionals for the correct and safe use of integrative practices, especially concerning medicinal plants and herbal medicine that are the most used by the Brazilian population.

This study finds limitations regarding its local character and sample number, which although defined by saturation does not allow the generalization of the results. Hence, studies are recommended to investigate local popular practices on the use of medicinal plants, whose data might support health education strategies, as well as experimental research that may legitimize the use of such plants.

CONCLUSIONS

There are many plants used for therapeutic purposes by the SUS users, among which a great deal is obtained from their own cultivation and consumed in the form of tea, and whose knowledge about the use and indications came from the family culture, especially from mothers and grandparents. Confident in this knowledge, this type of care precedes the search for health services or occurs in a complementary way to professional practices.

It was also found that some plants used still lack scientific evidence to ensure their use and that there is a lack of knowledge about the mechanisms and effects that these plants have on the body.

Given the aforementioned, considering that these complementary practices are already inserted in daily life, it is of fundamental importance that health professionals with this knowledge can approach their clientele, making possible the fusion between popular knowledge and the scientific one, basing the popular for a more conscious use of plants for therapeutic purposes, thus reducing the risks arising from misuse.

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Received on: 12/18/2017

Required Reviews: None

Approved on: 01/17/2018

Published on: 10/05/2019

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The authors claim to have no conflict of interest.