

**POPULAR KNOWLEDGE AND MEDICINAL PLANTS USE IN NATIVIDADE CITY - RJ, BRAZIL****Wendel Mattos Pompilho**

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**RESUMO**

A utilização de plantas medicinais é bastante difundida por todo mundo, inclusive no Brasil, que é detentor de uma vasta diversidade biológica e rica diversidade cultural. Neste cenário destaca-se o vasto acervo de conhecimentos sobre manejo e uso de plantas medicinais. O objetivo desta pesquisa foi realizar um estudo etnobotânico sobre a utilização de plantas medicinais pela população da cidade de Natividade - RJ. A coleta dos dados consistiu-se na aplicação de um questionário a 240 residências deste município. Além de questões socioeconômicas, indagou-se o nome popular das plantas, partes utilizadas, preparados e vias de administração. A análise dos questionários revelou 77,5% dos entrevistados utilizam plantas com propriedades medicinais. Os entrevistados citaram 23 espécies distribuídas em 16 famílias, dentre estas o Boldo (*Vernonia condensata* Baker, Asteraceae) e Erva cidreira (*Melissa officinalis* L., Lamiaceae) foram as espécies mais citadas. O Índice de Relevância para todas as espécies mostrou que: 34,78% das espécies possuem pouco uso pela comunidade local, 47,82% uso intermediário, e 17,40% espécies são amplamente utilizadas pela população deste município. Os dados sugerem que o município de Natividade apresenta uma rica herança cultural em plantas medicinais servindo como fonte de informações a inclusão de novas plantas medicinais na RENISUS.

**Palavras-chave:** Plantas medicinais, *Vernonia condensate*, RENISUS, Natividade.

**ABSTRACT**

The use of medicinal plants is widespread throughout the world including Brazil, with vast biological diversity and a rich cultural diversity. In this scenario, we highlight the vast storehouse of knowledge about management and use of medicinal plants. The aim of this work was to conduct an ethnobotanical study on the use of medicinal plants by the population of the city of Natividade - RJ. The data collection consisted in the application of a questionnaire to 240 households in this town. In addition to socioeconomic issues, people were asked the popular name of the plants, parts used, preparations and administration routes. The analysis of the questionnaires revealed that 77.5% of the people interviewed use plants with medicinal properties. The interviewed cited 23 species of 16 families. Among them, Boldo (*Vernonia condensata* Baker, Asteraceae) and Lemon Balm (*Melissa officinalis* L., Lamiaceae) were the most cited. The Index of Relevance to all species was calculated. It was found that 34.78% of species have little use for the local community, 47.82% have intermediate use, and 17.40% species are widely used by the population of this town. The data suggest that the city of Natividade has a rich cultural heritage of medicinal plants, serving as source of information the inclusion of new medicinal plants in RENISUS.

**Keywords:** Medicinal Plants, *Vernonia condensate*, RENISUS, Natividade.

## 1. INTRODUCTION

The use of medicinal plants in disease treatment has aroused the interest of man for millennia. Empirically, since prehistory man has tried to lessen the pain or treat diseases using plants with medicinal properties (YAMADA, 1998).

The large plant diversity associated with wide ethnic-cultural richness available in Brazil allowed, over the centuries, a knowledge accumulation about management and use of medicinal plants. For sure, much of this knowledge in medicinal plants has been traced to indigenous communities throughout the country. During colonial times, European immigrants absorbed the traditional knowledge of indigenous people, as well as the African slaves, establishing a rich folk medicine. Nowadays, this knowledge is result of an accumulation, modification and transformation of information from many people along years (REZENDE & RIBEIRO, 2005). The knowledge about the herbs with medicinal properties was transmitted mainly orally among people of a community. However, since the written tradition raised, oral knowledge is less common (ALBUQUERQUE, 2005). Thus, the change in population profile by migration may make part of this knowledge change or lost. It is possible that population migration from rural communities to cities lead to the loss of the knowledge related to medicinal plants. This may, new generations may lose the knowledge accumulated by their ancestors, because of the distance from the source of the plants or the inability to cultivate and/or the lack of interest on learning plant medicinal properties (ALBUQUERQUE & HANAZAKI, 2006).

Even with medicine advance, a significant portion of world population uses popular knowledge on medicinal plants applied to primary health care.

The use of plants as medicine may be associated to several factors, for example: the search for a more balanced and healthy life, and even limited resources to purchase prescription drugs (VEIGA JUNIOR, 2008).

In December 2008, it was established by the ministerial decree number 2960 the National Policy on Herbal and Medicinal Plants, that medicinal plants are considered strategic in the strengthening of family agriculture, employment and income generation, sustainable use of Brazilian biodiversity, technological advancement and improving health care for Brazilian population (BRASIL, 2008).

To consolidate the popular use of medicinal plants in Brazil, were established the National List of Medicinal Plants of Interest to Health System - RENISUS - which lists 71 species of medicinal plants which can be used as herbal medicines in the National Health System (BRASIL, 2009). Thus, the RENISUS aim is to promote and recognize the traditional and popular practices of the use of medicinal plants besides contribute to safety, effectiveness and quality aspects of medicinal plants, herbal medicines and services related to phytotherapy in the National Health System (BRASIL, 2008).

For that inclusion occurs, it was essential that health professionals are aware of pharmacological activities and toxicity of medicinal plants from Brazilian biomes, as well as the use in accordance with the customs, traditions and socio-economic status of the population (ARNOUS *et al.*, 2005).

In this context, the aim of this work was investigate popular knowledge and use of medicinal plants by the population of Natividade city – RJ.

## 2. MATERIAL AND METHODS

Natividade city is located in the northwest of Rio de Janeiro State at approximately 350 km from Rio de Janeiro City (Rio de Janeiro State). According to IBGE (2010), the city has an estimated population of 15.053 inhabitants.

Data collection was based on structured questionnaires, applied on in the random houses. Houses were visited on urban and rural zones, sampling all city.

One informant was interviewed per visited house, in a total of 240 residences, all permanent Natividade residents. The interviews took place during daytime, being interviewed the older adult of any genders.

The questioning was related to socioeconomic characteristics, method of obtaining the plants, orientation to the use of plants, method of preparation, therapeutic purpose, use and part of the plant used, side effects. The survey was conducted from March to May 2010.

The species cited by the residents were collected according to interviewed indication and herborized. The identification of herborized specimens was confirmed by comparison with the specimens available in the Guido Pabst Herbarium- GFJP, located in the city of Itaperuna - RJ.

The relative importance index (RII) of the mentioned medicinal plants was calculated according to the methodology proposed by Amorozo & Gély (1988). The RII values present in the range from 0 to 100. According to the authors, the relative importance index values between 0 and 24 indicate species which are little used by the community, values between 25 and 49 indicate species of intermediate use, and values between 50 and 100 indicate species widely used in the community. The data were tabulated using Microsoft Excel 2007®.

### 3. RESULTS AND DISCUSSION

The use of medicinal plants by a community population fortifies traditional practices, preserves popular knowledge as well as provides contact and knowledge of local flora (ALBUQUERQUE, 2005). Data analysis revealed that, in Natividade-RJ, 77.5% of the interviewed uses medicinal plants. Among them, 8.06% affirm daily use of medicinal plants; 17.74% uses more than once week; 16.13% uses medicinal plants once a week; 22.58% more than once a month; and 35.48% once a month.

Also, when asked about the reasons they chose medicinal plants, 48.39% affirmed because is "natural", 32.26% mentioned the accessibility, 8.07% mentioned low cost, 3.23% affirmed because of the absence of side effects, and 8.06% mentioned other unspecified reasons. When asked about possible side effects and adverse reactions related to the use of plants, all informants said they never felt them.

In general, users of medicinal plants do not associate side effects with its continued use and believe that these medicines show no risk to health. However, the fact that it is a plant origin product does not guarantee the exemption of adverse reactions and other problems resulting from its misuse. Parallel to this belief, scientific data on poisoning and side effects related to the use of medicinal plants hardly ever come within range of the users in public health service (SILVA *et al.*, 2006). To prevent toxic effects, users of medicinal plants must have special attention to identification of the plants and, therefore, avoid the cultivation and use of plants with toxic properties (SILVEIRA *et al.*, 2008).

Considering that traditional medicine represents an important social role, where knowledge is shared throughout society, it is important to assess whether the use of medicinal plants stems from a traditional knowledge, based on direct experience of community members, or results from contacts with sources which are external to the local culture (PEREIRA *et al.*, 2004).

In this context, the analysis of questionnaire data revealed that 77.42% of respondents acquire their knowledge of medicinal plants with close relatives (mother, father, grandmother, grandfather); 14.52% said that specific books were the source of knowledge; and 8.06% were instructed by other members of society (pharmaceuticals, religious communities, for example). This result highlights the importance of traditional knowledge on medicinal plants in this town, where knowledge is transmitted mainly among close relatives. According to Giraldo & Hanazaki (2010) this fact demonstrates a rich cultural heritage of medicinal plants use in this locality.

Regarding the average family income reported by the respondents, 38.70% affirmed to have income up to a minimum wage, 41.40% declare having an income between 1 to 2 minimum wages, and 19.90% declared an income above two minimum wages. According to Carlini *et al.* (2006) the economic factor contributes to increase the number of users of medicinal plants, as they most often have no cost or low cost,

compared to synthetic drugs. However, as mentioned earlier, the low cost factor was decisive for only 8.07% of the informants, revealing that the use of medicinal plants by these informants is not associated with economic factors. It is important to note that 48.39% of respondents say that they use medicinal plants because it is a "natural" product, and 32.26% because it has easy access.

Regarding the education level of medicinal plants users, the following profile was found: 47.31% reported having completed only elementary school, 42.47% affirmed having completed high school, and 10.22% affirmed to have a college degree. In general, the level of education was not an influencing factor in the use of medicinal plants, since different informants demonstrated similar knowledge to use as much as treatment.

The occupations reported by respondents were, Community Health Agent; Administrative Assistant; General Services Assistant; Social Worker; Nursing assistant; Retired; Cooky; Businessman; Housewife; Housemaid; Student; Physiotherapist; Civil servant; Monitor; Operator of machinery; Educator; Mason; Teacher; Receptionist; Servant; Radiology technologist; Nursing technician. These data reveal the diffusion of knowledge about medicinal plants in various social segments of this city.

Among the respondents, 41.94% say that the medicinal plants used by them are grown in the backyard, 38.71% say they get the plants from family members or friends. The practice of collecting the plant in local native vegetation is maintained by 9.68% of the informants. The acquisition of the medicinal plant is carried out with greater concern by 8.07% of respondents, who acquire them at drugstores. Other ways of obtaining medicinal plants, such as religious institutions, guides, healers, health workers were mentioned by 1.60% of the respondents.

The high percentage of respondents who use plants grown in their own backyard translates a vast knowledge and proximity of this population to the local flora. It should be noted that the habit of cultivating medicinal plants is a step of great value in the process of preservation of these species, since the removal of native plants from their natural environment can lead to drastic depletions of the populations (SMITH *et al.*, 2004).

The consolidation of popular knowledge in medicinal plants is a dynamic process, during which acquisition and loss of information may occur (PEREIRA *et al.*, 2004; ALBUQUERQUE & HANAZAKI, 2006). In this context, deep ethnobotanical investigations contribute to understanding the process of transformation and maintenance of popular knowledge on medicinal plants of a given community. In Natividade-RJ city, informants of this research cited 23 species, belonging to 16 families. The plant families with the greatest number of species cited were Asteraceae (26.1%) and Lamiaceae (17.4%). According to Moerman & Estabrook (2003) these families have many species which exhibit biological activity, thus showing that the selection of plants for medicinal use does not occur at random, and that botanical families with bioactive compounds tend to be more represented in the popular pharmacopoeia.

Other ethnobotanical studies on medicinal plants conducted in areas of Atlantic Rain Forest, also point Asteraceae and Lamiaceae among the families most representatively cited by users of this resource (OLIVEIRA *et al.*, 2010; LEITÃO *et al.*, 2009).

The calculation of the Index of Relevance for the species mentioned, revealed that 34.78% of the species have little use for the local community, 47.82% intermediate use, and 17.40% species are widely used by the population of the city of Natividade (Table 1).

Boldo (*Vernonia condensata* Baker, Asteraceae), popularly called boldo baiano, was the most cited species with a relevancy importance index (RII) of 65.0.

Africa native, this specie, was brought to Brazil by slaves in colonial times. Its leaves have analgesic properties and act on the bile duct, popularly used to treat headaches of digestive origin, also having cytoprotective action of the gastrointestinal mucosa (LORENZI & MATOS, 2002).

In the phytochemical composition of *V. condensata* was reported the presence of saponins, cardiac glycosides (vernonina), flavonoids, chlorogenic acid, essential oils and sesquiterpene lactones (MONTEIRO,

*et al.*, 2001). The second species most mentioned was lemon balm (*Melissa officinalis* L., Lamiaceae) with a relevancy importance index equal to 60.0.

Originally from Portugal and The Madeira Island (LORENZI & MATOS, 2002), the tea made from the leaves of lemon balm has antispasmodic, antioxidative, antibiotic, antifungal, antibacterial and soothing properties (TEKEL *et al.*, 1997).

The agreement regarding the use of a medicinal plant in a community as well as the scientific validation of their therapeutic action may explain the fact some species are always among the most cited in ethnobotanical studies. It is important to note that the higher this correlation, it is possible that the plant cited may contain some active principle that validates their use. Therefore, preserve this knowledge is a way to register the informal learning that contributes to the promotion of popular medicine, besides generate information about the health of local community (FRIEDMAN *et al.*, 1986).

The comparison of species with the list of national medicinal plants of interest to the Health System revealed that six, among those cited by the residents of the Natividade, are out of RENISUS. They are: watercress (*Nasturtium officinale* W.T.Aiton, Brassicaceae) (IR = 40.0), chapeu de couro (*Echinodorus macrophyllus* (Kunth) Micheli, Alismataceae) (IR = 15.0), Dandelion (*Taraxacum officinale* Weber, Asteraceae) (IR = 5.0), lemon balm (*Melissa officinalis* L., Lamiaceae) (IR = 60.0), Pé de galinha (*Cynodon dactylon* (L.) Pers., Poaceae) (IR = 10.0) and Valerian (*Valeriana officinalis* L., Valerianaceae) (IR = 25.0). It is important to note that watercress and lemon balm had high relevancy index, confirming the agreement regarding the use of these species in Natividade city.

The record of the preparation, as well as parts of the plant used is of great importance in an ethnobotanical survey. The leaf was the most used part of the plant in preparations. According to Gonçalves & Martins (1998) the leaf is the part of the plant which gives access to the harvest and causes less damage to the plant, therefore they gain prominence in medical use. Table 1 shows the used plant part, the indication, how to use it and the preparation method for each species.

According to respondents, the same plant can be used to treat various diseases (Table 1). According Amorozo (2002), the use of a species as medicinal is associated to its availability in a given region. This may explain why one species is used to treat various diseases.

The population of Natividade city uses many plants as medicine source, collected at different places as backyard or forest. Among used plants, the most cited was boldo (*Vernonia condensata* Baker, Asteraceae) with relevancy importance index (RII) of 65.0 and lemon balm (*Melissa officinalis* L., Lamiaceae) with a relevancy importance index equal to 60.0.

The fact of interviewed affirm acquire their knowledge of medicinal plants with close relatives strongly suggest the necessity of cultural heritage preservation, once the oral knowledge can be easy lost.

More studies are need to a better elucidation of the relationship between this population and medicinal plants.

Table 1: Plants used as medicinal by Natividade city (RJ) residents.

Plant Common name Species (Family)	Used Part	Indication	How to use it	Method of preparation	RII
<b>Agrião</b> <i>Nasturtium officinale</i> W.T.Aiton (Brassicaceae)	Leaf and stem	Cough, Breathing problems	Oral	Syrup	40,0
<b>Alfavaca</b> <i>Ocimum gratissimum</i> L. (Lamiaceae)	Leaf	Flu	Oral	Decoction	25,0

<b>Amora</b> <i>Morus</i> ssp. (Moraceae)	Stem and Leaf	Diabetes	Oral	Infusion	2,5
<b>Assa peixe</b> <i>Vernonia polysphaera</i> Baker. (Asteraceae)	Leaf	Flu	Oral	Maceration	50,0
<b>Babosa</b> <i>Aloe</i> spp. (Liliaceae)	Leaf	Hair loss	Topical	Maceration	15,0
<b>Boldo</b> <i>Vernonia condensate</i> Baker. (Asteraceae)	Leaf	Digestion, Malaise, Flu , Liver problems, Headache	Oral	Maceration	65,0
<b>Camomila</b> <i>Chamomilla recutita</i> L. Rauschert (Asteraceae)	Leaf and Flower	Soothing, Circulatory problems, Sinus	Oral	Infusion	50,0
<b>Cana de macaco</b> <i>Costus spicatus</i> Swartz. (Zingiberaceae)	Stem	Kidneys problems	Oral	Infusion	15,0
<b>Carqueja</b> <i>Baccharis trimera</i> (Less.) DC. (Asteraceae)	Stalk and Leaf	Soothing, Digestion, Bladder problems, Losing weight	Oral	Infusion	25,0
<b>Chapeu de couro</b> <i>Echinodorus macrophyllus</i> (Kunth) Micheli (Alismataceae)	Leaf	Infection	Oral	Infusion	15,0
<b>Dente de Leão</b> <i>Taraxacum officinale</i> Weber (Asteraceae)	Leaf and Root	Liver problems	Oral	Infusion	5,0
<b>Erva Cidreira</b> <i>Melissa officinalis</i> L. (Lamiaceae)	Leaf	Insomnia, Stomachache, Heart problems	Oral	Decoction	60,0
<b>Espinheira Santa</b> <i>Maytenus ilicifolia</i> Mart. ex Reiss. (Celastraceae)	Leaf	Stomachache	Oral	Infusion	30,0
<b>Eucalipto</b> <i>Eucalyptus globules</i> Labill. (Myrtaceae)	Leaf	Respiratory problems, sinus	Oral, inhalation	Syrup, Infusion	10,0
<b>Guaco</b> <i>Mikania glomerata</i> Spreng. (Asteraceae)	Leaf	Flu, Digestion	Oral	Syrup	40,0

<b>Hortelã</b> <i>Mentha</i> spp. (Lamiaceae)	Leaf	Insomnia, Flu	Oral	Infusion	25,0
<b>Pé de galinha</b> <i>Cynodon dactylon</i> (L.) Pers. (Poaceae)	Leaf	Flu	Oral	Syrup	10,0
<b>Poejo</b> <i>Mentha pulegium</i> L. (Lamiaceae)	Leaf	Flu	Oral	Infusion	5,0
<b>Quebra-pedra</b> <i>Phyllanthus niruri</i> L. (Euphorbiaceae)	Leaf	Kidney problems	Oral	Infusion	25,0
<b>Romã</b> <i>Punica granatum</i> L. (Puniaceae)	Fruit (peel)	Inflammation	Gargle	Decoction	25,0
<b>Saião</b> <i>Kalanchoe brasiliensis</i> Comb. (Crassulaceae)	Leaf	Flu, Stomachache	Oral	Infusion	25,0
<b>Tanchagem</b> <i>Plantago major</i> L. (Plantaginaceae)	Leaf	Inflammation	Oral	Decoction	40,0
<b>Valeriana</b> <i>Valeriana officinalis</i> L. (Valerianaceae)	Root	Stress	Oral	Infusion	25,0

RII: Relative Importance Index.

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