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Artigo

Ethnopharmacological study of medicinal plants used in Rosário da Limeira, Minas Gerais, Brazil

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RESUMO: "Estudo Etnofarmacológico de Plantas Medicinais utilizadas em Rosário da Limeira, Minas Gerais, Brasil". Em virtude da importância do saber popular na utilização de plantas medicinais e da contribuição desse saber na preservação da flora medicinal, o trabalho atual tem o objetivo de resgatar e sistematizar o conhecimento popular de espécies medicinais e sua relação com usos terapêuticos, em Rosário de Limeira, MG. Os dados foram coletados entre janeiro e março de 2007. Quinze informantes foram entrevistados sobre seus conhecimentos das espécies medicinais, residentes nas comunidades rurais e nos bairros do município. A pesquisa revelou o uso de 66 espécies pertencentes a 33 famílias (Asteraceae com o maior número de espécies, seguido por Lamiaceae, Rutaceae e Bignoniaceae) usadas no tratamento de várias patologias. Das espécies medicinais citadas, 44,3% crescem espontaneamente e 55,7% são cultivadas. A principal parte vegetal usada na preparação dos fitoterápicos é a folha e a preparação mais comum é a infusão. As espécies mais usadas são: *Baccharis trimera, Mentha* sp., *Plantago major, Chenopodium ambrosioides* e *Symphytum officinale.*

Unitermos: Etnobotânica, plantas medicinais, conhecimento tradicional, etnofarmacologia.

ABSTRACT: In order to evaluate the popular knowledge on the use of medicinal plants and the contribution in the preservation of medicinal flora, the present work aims to rescue and organize such knowledge on medicinal species and its relation with therapeutic uses, in the city of Rosario de Limeira, MG. Data were collected January to March, 2007. Fifteen informants, all resident in urban and agricultural communities, were asked about their knowledge on medicinal plants. The current survey revealed the use of 66 species belonging to 33 families (Asteraceae with the major number of species, followed by Lamiaceae, Rutaceae, and Bignoniaceae) used in the treatment of various diseases. 44,3% of them grow spontaneously and 55,7% are cultivated. The main vegetal part used in the preparation of the phytotherapy was the leaf, and the most common preparation was the infusion. The most used species were: *Baccharis trimera, Mentha* sp., *Plantago major, Chenopodium ambrosioides* and *Symphytum officinale.*

Keywords: Ethnobotanic, medicinal plants, traditional knowledge, ethnopharmacology.

INTRODUCTION

Medicinal plant is any vegetal that containing substances, that can be used therapeutically. These plants are widely used by the alternative medicine (Amorozo, 2002). The factor that favors the area of natural products in Brazil is the ethnobotanic and ethnopharmacological knowledge of the Brazilian population. Peoples of African origins and Europeans brought to Brazil their knowledge on the use of medical plants, joining with the experience of the native populations. The spread of this knowledge facilitated the popular acceptance of phytoterapics.

Ethnobotanic includes all the pertinent studies on the mutual relation between traditional populations and the plants (Cotton, 1996). The basic characteristic of the ethnobotanic study is the direct contact with traditional populations, rescuing all possible knowledge on the relation of affinity between inhabitants and plants. Many ethnobotanic studies are being developed both in Brazil and in the world, searching for a better knowledge of the medicine of traditional peoples and/or contemporaries, and for a better scientific organization of this popular knowledge. These studies look for plants with therapeutical activity, allowing the discovery of new active principles. Many modern drugs have origin in traditional medicine, ethnobotanic and ethnopharmacology (Patwardhan, 2005). Ethnopharmacology and drug discovery using natural products remain important issues in the current target-rich, lead-poor scenario (Patwardhan et al., 2004). Ethnobotanic researches promote culture rescue, traditional knowledge register and information collection on the empirical uses of plants which are in process of disappearance (Martinez,

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1997). Beyond the cultural rescue, this type of survey has as benefits, that the results of the researches are returned to the people who helped, helping the preservation of these traditions generation after generation, with the add of scientific strenght to traditional cultures (Rasp, 2000). Aiming to contribute to the preservation of popular knowledges on native plants useful for the human health, this research intends to systemize the knowledge regarding medicinal plants of the inhabitants of the urban and agricultural area of Rosário da Limeira MG, as well as recording informations related to preparation, indications of use and used parts of the exploited species.

MATERIAL AND METHODS

The study area, Rosário da Limeira-MG (20°58'44 43'' S and 42° 30'43'' W), lies in the Brigadeiro mountain range. The climate is considered tropical of altitude; the predominant relief is the mountainous (55%), followed of the waved (30%) and plan (15%). The city of Rosário da Limeira locates in the "*Zona da Mata*" of the State of Minas Gerais, at the altitude of 650 m, with minimum of 600 m and maximum of 1800 m (Rosário da Limeira, 2007). The field data have been collected from January to March, 2007 in the urban part and agricultural communities. We interviewed fifteen informants of both sexes, age varying from 27 to 73 years old, chosen for previous survey. In the interviews, structurized forms was used (Martin, 1995), asking questions referring to the interviewed (local residence, name, age, sex, instruction degree, years of residence in the place, region of origin and with whom the use of medicinal plants was learned), to the plants (popular name, used parts, therapeutic indication, form of use and way of preparation), to the main illnesses and/or symptoms. Each interview was registered by recorder preventing loss of information.

Described plants were photographed and their identification was confirmed by comparison to the specimen stored in the herbarium of the Federal University of Viçosa (MG, Brazil).

During the organization of recorded data, we transcripted the content of recordings as recommended by Bardin (1988), or we grouped the various informations in analytical categories, to better study the frequency of similar answers on our questions. Some answers we obtained were impossible to classify in the purposed categories, but yet we couldn't discharge them, because, despite unusual, they had great relevance to the issues of our research.

According to the methodology proposed by Amorozo & Gély (1988), we calculated the Index of Relative Importance (IR) of medicinal plants used in communities and at the headquarters of the council, the number of informants who cited the agreement and the usage. We excluded from this calculation only the species mentioned by just one informant. The Index of Relative Importance is obtained by calculating the percentage of agreement on the main uses of each species (CUP). Considering that the main uses meet the most cited indications, CUP is calculated as follows:

$$CUP = \frac{\text{Number of informants citing main uses}}{\text{Number of informants citing use of the species}} \times 100$$

Later the value of CUP was corrected by the correction factor of FC where:

$$FC = \frac{\text{Number of informants citing the species}}{\text{Number of informants citing the species most cited}} \times 100$$

The CUP is given then corrected by the formula CUPc = CUP x FC which is equivalent to IR.

RESULTS AND DISCUSSION

Among the fifteen informants of Rosário da Limeira, thirteen of them were proceeding from agricultural communities, two from the urban part. Interviewed indicated different species of plants, taxonomically identified as 66 different species, distributed in 33 families, being the Asteraceae with bigger number of species (30,0%), followed by Lamiaceae (26.0%), Rutaceae e Bignoneaceae with 8,0% each (Table 1). The more cited plant was the "*transagem*" (*Plantago major* L.).

The vegetal species cited on survey are listed in Table 1, including family, regional vulgar name, used part and therapeutical indication. All the interviewed (average 40 years old) had demonstrated knowledge about medicinal plants. In the work of Rodrigues et al. (2002), in Luminárias, interviewed ages varied from 32 to 89 years old. The use of the medicinal plants in the region is passed generation to generation. According to Amorozo (1996), the main way of knowledge transmission in traditional societies is verbal, and the transmission between generations requires intense contact between younger and older members of the society. Although, the cultural inheritance has been the biggest source of learning regarding plants with medicinal use, and in this survey we found a great interest from interviewed in acquiring more information about medicinal plants, so they look for external sources as books, magazines and courses promoted by universitarian institutions, indicating strong influence of these sources in their knowledge. Research institutions can contribute to the dissemination of information, spreading in accessible form the results obtained in complementary studies in this area.

Four of the interviewees were men and eleven were women. According to Rodrigues & Casali (2002), women hold more knowledge on medicinal plants and have important function in the transmission process. Dias (1999) related the differentiations of the knowledge holding

by women and men in daily activities, the women, in this study, were responsible for the culture and the preparation of the medicinal plants, as well as for the food preparation and care of the family, children and others. According to Amorozo & Gély (1988), there are differences between the knowledge of the man and the woman. In general women dominate the knowledge of the plants that grow near to residence, while men know more the plants that grow on the fields. This specialization is not rigid, some women know the remedies of the fields as well as their husbands. Women and men have traditionally had separate duties, and each gender moves through these spaces differently (Müller-Schwarze, 2006).

Asked about the risk of the use of the phytotherapy, 93,3% had answered that plants, when badly indicate or prepared, may cause some type of toxic effect demonstrating the awareness with the correct use of medicinal plants. The vegetal part more used in the preparation of the remedies is the leaf 67.69% followed by flower 9.23% and rind 6.15% (Table 1). Analogous results can be observed in the work carried through for Rasp (2000). The most common way of preparation is infusion (60.3%), followed by the decoction (20.66%) (Table 1). In accordance with Castellani (1999), the infusion is used to prepare all tender parts of medicinal plants such as leaves, buttons and flowers, rich in volatile components, delicate aromas and active principles, degraded by the action of water and heat. It has been observed, the most common use of medicinal plants is in cases of illnesses involving inflammations, infectious diseases and cold or fever (Table 1). It observed that the same plant is used to treat several pathologies, and frequently inhabitants prepare together two or more vegetal species, indicating the use of associations of plants.

Eleven interviewees were native from the city and had lived there for more than 10 year. The majority of the medicinal plants they use are cultivated in small gardens or balconies, but native plants are collected in the field. In this study, many plants are used traditionally by the inhabitants, this information is transmitted from generation to generation orally, and through research and studies regarding the medicinal plants on youngest. Although the increase of the contact with medicines acquired in pharmacies, the communities of this area keep in practice the use of remedies from medicinal plants as viable remedy for some illnesses. Since the implantation of the Program of Phytotherapy on the Government System of Health (SUS) in Rosário da Limeira, it has been observed a rescue in the knowledge of medicinal plants, having, today, a concern to transmit this to youngest. The majority of the people have conscience of the plants as medicinal for primary medical assistance. Moreover, it has been seen, the interviewees take the necessary cares to the use of the plants: they know how to collect in appropriate places and they can identify correctly the medicinal species. It has also observed, the cultivated plants are those of traditional use in the popular medicine and the acquired native plants directly of the field. This preliminary result shows, the extraction of native plants is a common habit and the population must be reported about the actual damages to the species with predatory extraction.

The Index of Relative Importance (RI) was calculated in relation to 36 species (60% of the total of identified medicinal plants) because only 24 species have been cited by an informant. This index was obtained by calculating the CUPc (corrected percentage of agreement on the main uses). According to Amorozo & Gély (1988) the values of RI are in the range of 0 to 100. The authors explain, values of IR between 0 and 24 indicate species little used by the community, between 25 and 49, intermediate use species and between 50 to 100, widely used species by the community.

In most medicinal species (61.2%) cited by informants, the value of the RI index was between 25 and 49 (species of intermediate use). RI was low in about 13.8% of the species (little use) and the RI of 25.0% of the species was high, indicating plants that are widely used by the population of the municipality.

Table 1. Vegetal species used as medicinal plants among the inhabitants of the city of Rosário da Limeira. Common and scientific names, family, application, plant part, method, environment and Relative Importance R.I.)

Species	Application	Plant part	Method	Environment	R.I.
Abacate (*Persea americana*, Lauraceae)	throat infection, bladder infection, cough	Leaf	Infusion	Cultivated	N.C.
Açoita-cavalo (*Luthea divaricata*, Tiliaceae)	pain	Bark	Decoction	Cultivated	25.0
Agrião (*Nasturtium officinalis* (Brassicaceae)	anemia, liver problems	Leaf	Infusion	Cultivated	25.0
Alecrim (*Rosmarinus officinalis*, Lamiaceae)	anxiety	Leaf	Infusion	Cultivated	37.5
Alfavaca (*Ocimum* sp., Lamiaceae)	constipation	Leaf	Decoction	Cultivated	12.5
Algodão (*Gossipium* sp., Malvaceae)	infection	Leaf	Infusion	Cultivated	50.0
Ameixa (*Prunus domestica*, Rosaceae)	intestine regulation	Fruit	Maceration	Cultivated	N.C.
Amora (*Morus alba*, Moraceae)	hormonal reposition	Leaf	Infusion	Cultivated	N.C.
Arnica (*Solidago chilensis*, Asteraceae)	pain and inflammation	Leaf	Maceration	Cultivated	25.0
Arruda (*Ruta graveolens*, Rutaceae)	inflammation	Leaf	Maceration	Cultivated	N.C.

Babosa (*Aloe ferox*, Liliaceae)	skin, burn	Leaf	Maceration	Cultivated	25.0
Bardana (*Arctium lappa*, Asteracea)	kidney problems	Leaf	Infusion	Cultivated	50.0
Berinjela (*Solanum melongena*, Solanaceae)	lower cholesterol	Fruit	Decoction	Cultivated	N.C.
Boldo (*Vernonia condensate* Asteraceae)	bad digestion, liver	Leaf	Maceration	Cultivated	25.0
Calêndula (*Calendula officinalis* Asteraceae)	allergy	Flower	Decoction	Cultivated	12.5
Camomila (*Chamomilla recutita* Asteraceae)	tranquilizer and digestive	Flower	Infusion	Cultivated	37.5
Cana-de-macaco (*Costus spicatus,* Zingiberaceae)	diuretic and lower pression	Leaf	Infusion	Spontaneous	25.0
Capeba (*Piper* sp., Piperaceae)	diuretic	Leaf	Infusion	Spontaneous	N.C.
Capim-cidreira (*Cymbopogon citrates*, Poaceae)	analgesic, calmant, fever	Leaf	Infusion	Cultivated	25.0
Caroba (*Jacaranda caroba*, Bignoniaceae)	anti-rheumatic	Leaf	Infusion	Spontaneous	N.C.
Carqueja (*Baccharis trimera*, Asteraceae)	diabetes, vermifuge	Leaf	Infusion	Spontaneous	50.0
Cavalinha (*quisetum* sp., Equisetaceae)	arthritis, arthrosis and blood depurative	Root	Decoction	Spontaneous	37.5
Chapéu-de-couro (*Echinodorus macrophyllus*, Alismataceae)	blood depurative	Leaf	Infusion	Cultivated	50.0
Coentro (*Coriandrum sativum*, Umbelliferae)	menstrual colic	Entire plant	Decoction	Cultivated	N.C.
Confrei (*Symphytum officinale*, Boraginaceae)	healing and slimmer	Leaf	Maceration and infusion	Cultivated	62.5
Dente-de-leão (*Taraxacum officinale*, Asteraceae)	cholesterol and high pressure	Leaf	Infusion	Cultivated	25.0
Erva-cidreira (*Lippia alba*, Verbenaceae)	antiespasmodic	Seed	Decoction	Cultivated	25.0
Erva-de-são-joão, (*Ageratum conyzoides*, Hypericaceae)	antidepressive	Leaf	Infusion	Spontaneous	N.C.
Erva-de-santa-maria, (*Chenopodium ambrosioides*, Chenopodiaceae)	vermifuge	Leaf	Infusion	Spontaneous	50.0
Espinheira-santa (*Maytenus ilicifolia,* Celastraceae)	stomach acidity	Leaf	Infusion	Cultivated	12.5
Eucalipto (*Eucaliptus globulus*, Myrtaceae)	diabetes	Leaf	Infusion	Spontaneous	N.C.
Funcho (*Foeniculum vulgare*, Umbeliferae)	flatulence, calmant	Leaf	Infusion	Cultivated	37.5
Gengibre (*Zingiber officinale*, Zingiberaceae)	expectorant	Root	Decoction	Cultivated	N.C.
Gervão-azul (*Stachytarpheta jamaicensis*, Verbenaceae)	diabetes	Leaf	Infusion	Spontaneous	25.0
Guaco (*Mikania glomerata*, (Asteraceae)	cough, asma, bronchitis	Leaf	Syrup	Cultivated	N.C.
Hortelã (*Mentha* sp., Lamiaceae)	vermifuge	Leaf	Infusion	Cultivated	87.5
Jaborandi, *Pilocarpus microphyllus*, Rutaceae)	hair loss	Leaf	Maceration and Infusion	Cultivated	N.C.
Jurubeba (*Solanum paniculatum*, Solanaceae)	siuretic and anti-inflammatory	Roots, leaves and fruits	Infusion and decoction	Cultivated	N.C.
Laranjeira (*Citrus sinensis*, Rutaceae)	analgesic and digestive	Leaf	Infusion	Cultivated	25.0
Levante (*Mentha* sp., Lamiaceae)	flu	Leaf	Infusion	Cultivated	N.C.
Macaé (*Leonurus sibiricus*, Lamiaceae)	bronchites	Flower	Infusion and syrup	Cultivated	N.C.
Macelinha (*Achyrocline satureoides*, Asteraceae)	indigestion	Leaf	Maceration in water	Spontaneous	N.C.
Maracujá (*Passiflora alata,* Passifloraceae)	diuretic, depurative and sedative	Leaf	Infusion	Spontaneous	25.0
Margarida (*Bellis perennis*¸ Asteraceae)	stomach problems and calmant	Flower	Infusion	Cultivated	N.C.
Melão-de-são-caetano, (*Momordica charantea,* Cucurbitaceae)	skin and acne	Leaf	Maceration	Cultivated	N.C.
Melissa (*Melissa officinalis*, Lamiaceae)	digestive and calmant	Leaf and stem	Infusion	Cultivated	N.C.
Mil-folhas/Novalgina (*Achillea llefolium*¸Asteraceae)	colic and ulcer	Flower and Leaf	Infusion	Cultivated	N.C.

Paratudo (*Gomphrena arborescens*, Amaranthaceae)	stomach and vermifuge	Bark	Infusion	Spontaneous	37.5
Pata-de-vaca (*Bauhinia forficata,* Fabaceae)	Diabetes	Leaf	Decoction	Spontaneous	N.C.
Pé-de-galinha (*Cynodon dactylon*, Poaceae)	expectorant	Entire plant	Syrup	Spontaneous	37.5
Perpétua (*Gomphrena globosa,* Amaranthaceae)	respiratory disorders	Flower	Infusion	Cultivated	N.C.
Picão (*Bidens pilosa,* Asteraceae)	jaundice	Leaf	Decoction	Spontaneous	12.5
Poejo (*Mentha pulegium,* Lamiaceae)	flu	Leaf	Infusion	Cultivated	37.5
Rebenta-pedra (*Phyllanthus niruri,* Euphorbiaceae)	kidneys disorders	Leaf	Infusion	Spontaneous	50.0
Romã (*Punica granatum,* Punicaceae)	throat infections	Bark and seed	Decoction	Cultivated	25.0
Saião (*Kalanchoe brasiliensis,* Crassulaceae)	flu and inflamations	Leaf	Infusion	Cultivated	12,5
Transagem (*Plantago* sp., Plantaginaceae)	throat infections	Entire plant	Decoction	Cultivated	87.5
Trapoeraba (*Commelina nudiflora*, Commelinaceae)	allergy	Leaf	Infusion	Cultivated	37.5
Vick (*Mentha arvensis*, Lamiaceae)	nasal decongestant	Leaf	Inhalation	Cultivated	25.0

Source: Data from research
N.C.: Not Calculated

REFERENCES

Amorozo MCM 1996. A abordagem etnobotânica na pesquisa de plantas medicinais. In: *Plantas Medicinais: Arte e Ciência.* Um guia de estudo interdisciplinar. São Paulo: UNESP, p. 47-68.

Amorozo MCM 2002. Uso e diversidade de plantas medicinais em Santo Antônio do Leverger, MT, Brasil. *Acta Bot Bras 16*: 189-203.

Amorozo MCM, Gély AL 1988. Uso de plantas medicinais por caboclos do Baixo Amazonas, Barcarena, PA, Brasil. *Boletim do Museu Paraense Emílio Goeldi, Série Botânica 4*: 47-131.

Bardin L 1988. *Análise de conteúdo.* Lisboa: Edições 70, 229p.

Brasil 1998. Ministério da Saúde. Secretaria de Políticas de Saúde. Coordenação Nacional de DST e AIDS. *Relatório consolidado do "Encontro Macroregional de Estratégias de Prevenção e Controle das DSTs e AIDS para os povos indígenas da Amazônia Oriental"*. Macapá, 40p.

Castellani DC 1999. *Plantas medicinais.* Viçosa: Agromídia software.

Cotton CM 1996. *Ethnobotany: principles and applications.* New York: J. Wiley, 996. 320p.

Dias MC 1999. *Plantas medicinais utilizadas no Distrito de Juquiratiba - Município de Conchas - SP.* Dissertação de Mestrado em Agronomia - área de concentração Horticultura. Faculdade de Ciências Agronômicas da UNESP, Campus de Botucatu, 82p.

Martin GJ 1995. *Ethnobotany: a methods manual.* London: Chapmam & Hall.

Martinez PH 1997. Medicinal plants and regional traders in Mexico: physiographic differences and conservational challenge. *Econ Bot 51*: 107-120.

Müller-Schwarze, NK 2006. Antes and Hoy Día: Plant knowledge and categorization as adaptations to life in Panama in the twenty-first century. *Econ Bot 60*: 321-334.

Patwardhan B, Vaidya ABD, Chorghade M 2004. Ayurveda and natural products drug discovery. *Curr Sci 86*: 789-799.

Patwardhan B 2005. Ethnopharmacology and drug discovery. *J Ethnopharmacol 100*: 50-52.

Rasp RX, It Hisses SM, Kunivoshi YS, It Hisses LB 2000. Etnobiologia of continental communities of the area of ambient protection of Guaraqueçaba, Paraná, Brazil. *Etnoecologica 4*: 33-55.

Rodrigues AG, Casali VWD 2002. Plantas medicinais, conhecimento popular e etnociência. In: Rodrigues, A. G., Andrade, F. M. C.; Coelho, F. M. G et al. *Plantas Medicinais e Aromáticas : etnoecologia e etnofarmacologia.* Viçosa: UFV, p. 25-76.

Rodrigues LA, Carvalho DA, Gomes LJ, Botrel RT 2002. *Espécies vegetais nativas usadas pela população local em Luminárias, MG.* Boletim Agropecuário 52: 1-34.

Rosário da Limeira. Município do Estado de Minas Gerais. Disponível em: http://www.municipionline.com.br/. Acess in 5 March 2007.