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Ethnopharmacological study of medicinal plants used by population in district of Travessão De Minas, Minas Gerais

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Abstract

The traditional knowledge of medicinal plants use for diseases treatment is very valuable. The purpose of this present study was to identify the main medicinal plants popularly used in Travessão de Minas-MG to evaluate in the scientific literature and prove the effectiveness of the therapy indicated by the community. Therefore, interviews were carried out with 78 individuals, using a semi-structured questionnaire. As for the answers there was calculated the Relative Importance (RI), Informant Consensus Factor (ICF) and the Responses Frequency (RF). It was identified a total of 145 plants species used, distributed in 70 botanical families. *Lippia alba* (Brazilian lemon balm) had the highest RF = 81 responses (8,9%), the second highest RI = 1,75 and was indicated to treat diseases in the category of mental and behavioral disorders with the highest ICF = 0,81. The scientific literature proves the effectiveness of most therapeutic indications for *Lippia alba*.

Keywords: Natural products. Pharmacognosy. Traditional medicine. Ethnopharmacology, Medicinal plants

1. Introduction

Medicinal plants are used world wide for the treatment of many diseases by different populations, characterized as therapeutic resources that perpetuate in society through the popular knowledge [1, 2, 3, 4]. In 2006, the National Policy on Medicinal Plants and Herbal Medicine was approved in Brazil with the aim that traditional knowledge about the use of medicinal plants and the country's biological, cultural and ethnic diversity could be used in the development of research with medicinal plants [5]. Ethnopharmacological and ethnobotanical studies both national and regional have been carried out to rescue popular knowledge related to the use of medicinal plants as an alternative therapy and demonstrate the relevance of these resources for the health of the investigated populations [6, 7, 8, 9, 10].

The World Health Organization-WHO recognizes the importance of the traditional use, but for the usage of a plant with therapeutic purposes, in terms of public health, it is essential to establish of its safety, effectiveness and guarantee the quality of the preparations [11]. The inadequate use of these therapeutic resources might create lead to delayed and/or asymptomatic adverse effects, drug interactions not studied yet and hardly recognized, besides slowing the diagnosis and appropriated treatment [12]. For this reason, it is important to carry out studies that investigate the scientific evidence of popular uses of medicinal plants so that these resources are provided safely and effectively [13].

Additionally, ethnopharmacology surveys are very useful at researches related to the development of new drugs, as many pharmaceutical laboratories and universities use the obtained data in these surveys to select natural products with the potential to become drugs [14]. Thus, considering the importance of the traditional use of plant species, the concern for the correct use of these resources and the potential for discovering new drugs, the present study pursued to identify the most popular medicinal plants used in district of Travessão de Minas in the municipality of São Francisco-MG and verify in the literature if there was scientific proof of the therapeutic efficacy indicated by the community.

2. Material and Methods

2.1 Study area

The district of Travessão de Minas is a rural community that belongs to the municipality of São Francisco and is located in the north of Minas Gerais state, Brazil (latitude 15°49'20.4"S and longitude 44°41'46.8"O). The altitude is approximately 918 meters above the sea level.

It is entered within the of Cerrado biome and the characteristic climate is semi-arid. The Cerrado biome is a region that has plant species with huge pharmacological potential [15]. And, as this district is inserted within that biome, it is likely that the people who live in this location already have popular knowledge about the use of certain medicinal plants. This, in addition to helping to maintain tradition in the use of these resources, can direct research have aimed at identifying new drugs.

2.2 Data collection

The data were collected through interviews using a semi-structured questionnaire (Appendix I). To proceed with the interviews, the purpose of this study was duly explained to the participants, making sure that they would feel comfortable being interviewed. After accepting the participation, it was presented and read the Informed Consent Form (ICF) which was signed for both parts, interviewer and interviewed. The interviews were carried out with 78 individuals of both sexes, over 18 years old. To obtain the sample number, the first participant was selected at random within inside a sample framework and the others after a regular interval [16]. The formula used to set the total people amount to be interviewed was:

$$\text{Sampling fraction} = \text{desired sample size}/\text{total population}$$

In this formula, the sampling fraction represents the proportion of the population to be selected for the interview. The total population was 156 people, which is the number of families/houses benefited by the water of the community well. Therewith:

$$\text{Sampling fraction} = 78/156$$

$$\text{Sampling fraction} = 1/2$$

Therefore, the sample size was 78 participants and the sampling fraction was 1/2, in other words, 1 each 2 individuals were interviewed until reaching the 78 participants.

The semi-structured questionnaire was used during the interviewed. Firstly, aspects were asked such age, education, sex and occupation about the interviewed. Then, it was asked if the person had already used medicinal plants for therapeutic purpose, in case of a negative answer, the interview would be shut. The interviewed who responded positively, answered the following variables related to the use of medicinal plants: common plant names, therapeutic indications, used morphological part of the plant; preparation method; method of use; collection area and harvest season; possible adverse effects observed by the user related to the use of these products

2.3 Analysis of data

For processing and statistical analysis of the collected data, PASW software (version 22) [17] and Microsoft Excel®, were used, where the Response Frequency (RF) and its percentage of all the varieties related to plants were determined, for this was considered every time that these plants were mentioned by the research participants considering the different indicated uses. The search of the scientific name of all the related plants was based on the popular names mentioned by the participants using scientific books and scientific articles [18].

To find the most relevant medicinal plants based on its

therapeutic indications the Relative Importance (RI) of each specie was calculated [19]. For this was used the formula $RI = NBS + NP$, being $NBS = NBSS/NBSSV$ and $NP = NPS/NPSV$, where NBS is the number of body systems, NBSS is the number of body systems treated by the specific specie, NBSSV is the number of body systems treated by the most versatile species, NP is the number of proprieties, NPS is the number of the proprieties of specific specie, and NPSV is the number of the proprieties of the most versatile species [20]. The highest value of RI must be equal 2 [21]. The body systems were defined according to the International Statistical Classification of Diseases and Related Health Problems provided by the World Health Organization-WHO [22].

The Informed Consent Form (ICF) was calculated to determine the main groups of diseases reported by the community of Travessão de Minas. For this, the formula used was: $ICF = \text{nur-nt}/\text{nur-1}$, where *nur* is the number of uses in each body system and *nt* is the number of species used within each body system [23].

To evaluate the scientific proof of the therapeutic effectiveness of the species with the best rates found, scientific articles, dissertations and relevant thesis were consulted [21].

2.4 Ethic Aspects

This present research project was submitted and approved by the Comitê de Ética em Pesquisas com Seres Humanos of the Universidade Federal de Uberlândia previously its completion. The approval protocol was made through the report No. 3.289.572.

3. Results

The variables regarding to the interviewed such as education, sex and occupation were analyzed through frequency tables. Subsequently, these answers were crossed using two variables at time. Regarding to education, from 78 people, three related that they had never studied and 75 said that had already studied at some point in life, which is equivalent to 3, 8% and 96, 2%, respectively (Table 1).

Table 1: Education of the interviewed.

Education	Frequence	Percentage (%)
Never studied	3	3,8
1 st degree Incomplete	44	56,4
1 st degree Complete	9	11,5
2 nd degree Incomplete	12	15,4
2 nd degree Complete	5	6,4
Higher Education Complete	5	6,4
Total	78	100,0

In sex variable, 70 women and eight men were registered, which is equivalent to 89,7% and 10,3%, respectively (Table 2).

Table 2: Sex of the interviewed.

Sex	Frequence	Percentage (%)
Female	70	89,7
Male	8	10,3
Total	78	100,0

None of the occupation mentioned by the population of the Travessão de Minas had a percentage bigger than 50%. However, it stands out the both with highest occurrence were rural worker (41%) and housewife (38,5%) (Table 3).

Table 3: Occupation of the interviewed

Occupation	Frequency	Percentage (%)
Community health agent	2	2,6
Basic services helper	3	3,8
Retired	5	6,4
Community post office clerk	1	1,3
Diarist	1	1,3
Housewife	30	38,5
Teacher	2	2,6
Retired teacher	1	1,3
General services	1	1,3
Rural worker	32	41,0
Total	78	100,0

By crossing the variables, it was obtained that from the 70 interviewed women, the majority 55,71% (39) had an incomplete primary education and 4,3% (3) never studied. While all the eight interviewed men said they had already studied, the majority 62,5% (5) had an incomplete primary education. Based on these data, it can be observed that for both sexes, the prevalent level of education was the incomplete 1st degree (Table 4).

Table 4: Crossing of the variables Sex and Education

Education	Sex			
	Female	%	Male	%
Never studied	3	4,3	0	0
1 st degree Incomplete	39	55,71	5	62,5
1 st degree Complete	7	10,0	2	25
2 nd degree Incomplete	11	15,71	1	12,5
2 nd degree Complete	5	7,14	0	0
Higher Education Complete	5	7,14	0	0
Total	70	100,0	8	100

When crossing the data of the occupation and sex variables, it was obtained that of the 70 women, most were housewives (42,86%) and rural worker (35,7%). From the eight-male interviewed, most were rural workers (87,5%) (Table5).

Table 5: Crossing of the variables Sex and Occupation.

Occupation	Sex			
	Female	%	Male	%
Community health agent	2	2,86	0	0
Basic services helper	3	4,29	0	0
Retired	4	5,71	1	12,5
Community post office clerk	1	1,43	0	0
Diarist	1	1,43	0	0
Housewife	30	42,86	0	0
Teacher	2	2,86	0	0
Retired teacher	1	1,43	0	0
General services	1	1,43	0	0
Rural worker	25	35,70	7	87,5
Total	70	100,00	8	100

Statistical parameters were measured from the ages of men and women participating in this study. For the female sex, the mean age was 53,2 years old ($\pm 13,8$ years old), the middle age was 52 years old and the maximum and minimum age were 91 and 26 years old, respectively. In relation to men, the mean age was 58,9 years old ($\pm 13,7$), the middle age was 57 years old and the maximum and minimum were 78 and 40 years old, respectively (Table6).

Table 6: Middle, median, maximum and minimum ages of men and women interview participants

Sex	Age			
	Middle	Median	Maximum	Minimum
Female	53,2 \pm 13,8	52,0	91,0	26,0
Male	58,9 \pm 13,7	57,0	78,0	40,0

A total of 145 species of medicinal plants used by the research participants were reported. For each variable related to the use of these plants an amount of 909 answers was calculated. Among the most mentioned therapeutic indications it is the flu (21,8%), hypertension (6,6%), calming effect (5,4%), anti-inflammatory (5%) and against the indigestion (4,8%). In relation to the used part, the leaves obtained the highest frequency, with 516 answers (56,8%). It was noted that the most medicinal plants are prepared as a tea, because besides it has 592 answers (65,1%) for the preparation method, it was also mentioned with others types of preparation. 416 answers (45,8%) were obtained that the medicinal plants are used three times a day, corresponding to the highest percent of the answers. The most frequent location for collecting these plants was the own house of the participants, with 513 answers (56,4%). In addition to this total, 63 answers (6,9%) affirmed to collect these plants, both at home and at neighbor's homes in the Travessão de Minas community. As for the harvest season, 756 answers (83,2%) affirmed that most the plants can be harvested during all year. As for the probable adverse effects caused by the used of medicinal plants, most of the participants affirm that they have never felt any discomfort as a result of this consume. The medicinal plants were distributed in 70 botanical families, among those that contemplated the largest number of species were Lamiaceae and the Asteraceae, both with 10 responses.

In a total of 909 responses, the specie with the highest frequency, 81 responses(8,9%), was *Lippia alba*, popularly known as Lemon balm (Table 7) and its reported therapeutic indications were as antioxidant, calming, feed detoxifier, diarrhea, headache, shortness of breath, flatulence, flu, arterial hypertension, arterial hypotension, sleeplessness, indigestion, improves the immune system, constipation, cardiac problems, gastric problems, gastrointestinal problems, intestinal problems and common cold.

Of all the species reported, 15 (10,34%) had an RI>1, with the five highest values being *Chenopodium ambrosioides* (RI=1,84); *Lippia alba* (RI=1,75); *Amburana cearensis* (RI=1,70); *Citrus sinensis* (RI=1,61) *Psidium guajava* (RI=1,51) (Table 7).

Table 7: Medicinal plants related by travessão de minas community, MG.RI-Relative importance. Rf-responses frequency

Scientific name	Popular name	Botanical family	Part used	RI	RF
<i>Achyrocline satureioides</i>	Marcela	Asteraceae	Leaves	0,18	1
<i>Acosmium dasycarpum</i>	Unha D'anta	Fabaceae	Tree bark	0,18	1
<i>Aframomum melegueta</i>	Pimenta-da-costa	Zingiberaceae	Fruits	0,18	1
<i>Ageratum conyzoides</i>	Mentrasito	Asteraceae	Leaves	0,82	6
<i>Allium cepa</i>	Onion, White onion, Purple onion	Liliaceae	Bulb; Bulb bark	0,87	8
<i>Allium sativum</i>	Garlic	Liliaceae	Bulb	0,76	6
<i>Aloe arborescens</i>	Aloe	Asphodelaceae	Leaves	1,40	13
<i>Amburana cearensis</i>	Imburana, Imburana-de-cheiro, Umburana-de-cheiro	Fabaceae-Faboideae	Tree bark, seed	1,70	35
<i>Anacardium occidentale</i>	Cashew	Anacardiaceae	Leaves	0,18	1
<i>Anadenanthera peregrina</i>	Angico	Fabaceae	Tree bark	0,18	1
<i>Ananas comosus</i>	Pineapple	Bromeliaceae	Fruits	0,18	1
<i>Annona muricata</i>	Soursop	Annonaceae	Leaves	1,05	10
<i>Annona squamosa</i>	Custard apple	Annonaceae	Leaves	0,23	5
<i>Arnica montana</i>	Arnica	Asteraceae	Leaves	0,53	3
<i>Arrabidaea brachypoda</i>	Cervejinha-do-campo	Bignoniaceae	Tree bark, Root	0,23	2
<i>Artemisia absinthium</i>	Losna	Compositae	Leaves	0,18	1
<i>Aspidosperma pyriformium</i>	Pereiro-branco	Apocynaceae	Bast Root bast	0,41	3
<i>Astronium fraxinifolium</i>	Gonçalo	Anacardiaceae	Leaves	0,23	2
<i>Baccharis dracunculifolia</i>	Alecrim-do-brejo	Asteraceae	Leaves	0,18	1
<i>Baccharis trimera</i>	Carqueja	Asteraceae	Leaves	0,18	1
<i>Bambusa vulgaris</i>	Bamboo	Poaceae	Stem	0,18	1
<i>Beta vulgaris</i>	Beet	Chenopodiaceae	Root	0,36	2
<i>Bidens pilosa</i>	Picão	Asteraceae	Leaves, root, seed, Whole plant	1,22	15
<i>Boerhavia diffusa</i>	Pega-pinto	Nyctaginaceae	Root	0,18	1
<i>Brassica oleracea</i>	Cabbage	Brassicaceae	Leaves	0,23	2
<i>Cajanus cajan</i>	Andú	Fabaceae	Leaves	0,18	1
<i>Camellia sinensis</i>	India tea	Theaceae	Leaves, stem	0,36	3
<i>Capsicum frutescens</i>	Chili pepper	Solanaceae	Leaves	0,18	1
<i>Carica papaya</i>	Papaya	Caricaceae	Leaves, Flower	0,37	22
<i>Caryocar brasiliense</i>	Pequi	Caryocaraceae	Leaves, Fruits	0,53	3
<i>Casearia sylvestris</i>	Bugre	Salicaceae	Leaves	0,41	3
<i>Celosia argentea</i>	Cresta-de-Gallo	Amaranthaceae	Leaves	0,18	1
<i>Celtis iguanaea</i>	Juá-mirim	Cannabaceae	Leaves	0,18	1
<i>Chenopodium ambrosioides</i>	Erva-de-Santa-Maria, Mastruz	Chenopodiaceae	Leaves, root	1,84	27
<i>Chenopodium quinoa</i>	Quinoa	Chenopodiaceae	Seed	0,18	1
<i>Cinnamomum verum</i>	Cinnamon	Lauraceae	Tree bark	0,59	5
<i>Citrus limon</i>	Lemon	Rutaceae	Fruits	1,12	11
<i>Citrus sinensis</i>	Orange	Rutaceae	Leaves, fruit skin	1,61	32
<i>Cocos nucifera</i>	Coconut tree	Arecaceae	Bast, Fruits	0,41	3
<i>Colocasia esculenta</i>	Yam	Araceae	Root	0,18	1
<i>Commiphora leptophloeos</i>	Umburana-vermelha	Burseraceae	Tree bark; seed	0,71	4
<i>Cordia leucocephala Moric.</i>	Moleque-duro	Boraginaceae	Leaves	0,18	1
<i>Coriandrum sativum</i>	Coriander	Apiaceae	Seed	0,76	5
<i>Costus spicatus</i>	Cana-de-macaco, Cana-do-brejo	Costaceae	Bast	0,23	3
<i>Coutarea hexandra Shum.</i>	Quina	Rubiaceae	Bast	0,18	1
<i>Cucurbita spp.</i>	Pumpkin	Cucurbitaceae	Seed	0,36	2
<i>Curcuma longa</i>	Saffron	Zingiberaceae	Leaves; Root	0,94	6
<i>Cymbopogon citratus</i>	Capim-Santo	Poaceae	Leaves; root; stem	1,43	72
<i>Cyperus esculentus</i>	Junco	Cyperaceae	Root	0,18	1
<i>Dipteryx alata</i>	Baru	Fabaceae	Bast	0,71	4
<i>Dorstenia brasiliensis</i>	Carapiá	Moraceae	Leaves, root	0,18	2
<i>Equisetum sp.</i>	Cavalinha	Equisetaceae	Leaves, stem	0,18	1
<i>Eruca sativa</i>	Rocket	Brassicaceae	Leaves	0,18	1
<i>Eucalyptus globulus</i>	Eucalipto-cheiroso	Myrtaceae	Leaves	0,36	3
<i>Eugenia dysenterica</i>	Cagaita	Myrtaceae	Leaves, bast	0,36	2
<i>Eugenia uniflora</i>	Pitanga	Myrtaceae	Leaves	0,36	2
<i>Genipa americana</i>	Genipapo	Rubiaceae	Fruits	0,18	1
<i>Gomphrena globosa</i>	Perpetual	Amaranthaceae	Flower	0,36	3
<i>Gossypium hirsutum</i>	Cotton	Malvaceae	Leaves, tree bark, stem, green fruit, seed	1,22	14
<i>Handroanthus impetiginosus</i>	Ipê-roxo	Bignoniaceae	Tree bark	0,36	3
<i>Hibiscus sabdariffa</i>	Ibisco	Malvaceae	Flower	0,34	4
<i>Hybanthus calceolaria</i>	Papaconha	Violaceae	Root	0,18	1
<i>Hymenaea courbaril</i>	Jatobá	Fabaceae	Tree bark, Bast	0,59	6
<i>Illicium verum</i>	Star anise	Schisandraceae	Fruits	0,18	1
<i>Ipomoea batatas</i>	Sweet potato	Convolvulaceae	Leaves	0,18	1
<i>Jatropha gossypifolia</i>	Pião-roxo	Euphorbiaceae	Leaves	0,18	1
<i>Kalanchoe daigremontiana</i>	Aranto	Crassulaceae	Leaves	0,36	3
<i>Kalanchoe pinnata</i>	Folha-santa	Crassulaceae	Leaves	0,69	9
<i>Lactuca sativa</i>	Lettuce	Asteraceae	Root	0,18	1
<i>Lafoensia pacari</i>	Pacari	Lythraceae	Bast	0,18	1
<i>Leonotis nepetifolia</i>	Cordão-de-frade	Lamiaceae	Leaves	0,18	1
<i>Libidibia ferrea</i>	Pau-ferro	Fabaceae	Seed	0,18	1
<i>Licaria puchury</i>	Pixuri	Lauraceae	Seed	0,18	1

<i>Linum Usitatissimum</i>	Lin seed	Linaceae	Seed	0,53	3
<i>Lippia alba.</i>	Lemon balm	Verbenaceae	Leaves, stalk, Flower, root	1,75	81
<i>Macrosyphonia velame</i>	Velame	Apocynaceae	Leaf, root	0,18	1
<i>Malpighia glabra</i>	Acerola	Malpighiaceae	Leaves	0,18	1
<i>Malva sylvestris</i>	Malvão, Malva-vermelha	Malvaceae	Leaves	0,36	2
<i>Mangifera indica</i> L. cv. Comum.	Usual Mango	Anacardiaceae	Leaves	0,18	1
<i>Matricaria chamomilla</i>	Chamomile	Asteraceae	Flower, seed	0,41	4
<i>Mentha arvensis</i>	Vick	Lamiaceae	Leaves, bast	1,61	20
<i>Mentha piperita</i>	Temperão	Lamiaceae	Leaves, stem	0,41	7
<i>Mentha pulegium</i>	Pennyroyal	Lamiaceae	Leaves, stem, root	0,18	25
<i>Mentha spicata</i>	Peppermint	Lamiaceae	Leaves, root, stem	0,71	52
<i>Miconia albicans</i>	Canela-de-velho	Melastomataceae	Leaves	0,18	4
<i>Mikania glomerata</i>	Guaco	Asteraceae	Leaves	0,76	9
<i>Momordica charantia</i>	São-caetano	Cucurbitaceae	Leaves, fruits	0,23	4
<i>Morinda citrifolia</i>	Noni	Rubiaceae	Fruits	0,18	3
<i>Moringa oleifera</i>	Moringa	Moringaceae	Leaves, Tree bark, seed	0,36	5
<i>Morus nigra</i>	Blackberry	Moraceae	Leaves, tree bark	0,94	12
<i>Myristica fragrans</i>	Nutmeg	Myristicaceae	Seed	1,43	4
<i>Nasturtium officinale</i>	Watercress	Brassicaceae	Leaves, seed	0,18	2
<i>Ocimum canum</i>	Alfavaca, Basil	Lamiaceae	Leaves, Stem, Flower, Root, whole plant	0,71	30
<i>Origanum vulgare</i>	Oregano	Lamiaceae	Leaves	0,18	1
<i>Passiflora cincinnata</i>	Maracujá-do-mato	Passifloraceae	Leaves, Fruits	0,18	2
<i>Passiflora edulis</i>	Passion fruits	Passifloraceae	Fruit skin, Leaves, Fruits	0,18	7
<i>Pereskia aculeata</i>	Ora-pro-nóbis	Cactaceae	Leaves	0,36	2
<i>Persea americana</i>	Avocado	Lauraceae	Leaves, Seed	0,36	8
<i>Petiveria alliacea</i>	Tipí	Phytolaccaceae	Leaves	0,36	2
<i>Petroselinum crispum</i>	Parsley	Apiaceae	Leaves	0,18	5
<i>Philodendron bipinnatifidum</i>	Imbé	Araceae	Root	0,36	1
<i>Phyllanthus niruri</i>	Quebra-Pedra	Euphorbiaceae	Bast, Leaves, Whole plant	1,22	4
<i>Pilocarpus pennatifolius</i>	Jaborandí	Rutaceae	Leaves, Seed	0,36	4
<i>Pimpinella anisum</i>	Fennel	Apiaceae	Leaves, seed	0,34	3
<i>Plantago major</i>	Confrei, Transagem	Plantaginaceae	Leaves, root, seed, Whole plant	0,18	16
<i>Plectranthus barbatus</i>	Boldo, Sete-dor	Lamiaceae	Leaves	0,59	31
<i>Pluchea sagittalis</i>	Quitoco	Asteraceae	Leaves, Flower	0,18	2
<i>Plumeria lancifolia, Passiflora alata, Citrus aurantium</i>	Saúde-da-mulher	Apocynaceae, Passifloraceae, Rutaceae	Leaves	0,18	2
<i>Psidium guajava</i>	Guava	Myrtaceae	Leaves	0,18	16
<i>Pterodon polygalaeflorus</i>	Sucupira	Leguminosae	Seed	0,36	7
<i>Punica granatum</i>	Pomegranate	Punicaceae.	Fruit skin, seed	0,69	8
<i>Qualea grandiflora</i>	Pau-terra	Vochysiaceae	Leaves, tree bark	0,18	1
<i>Ricinus communis</i>	Castor bean	Euphorbiaceae	Seed	0,18	1
<i>Rosa alba</i>	Rosa-de-casa	Rosaceae	Flower	0,18	3
<i>Rosmarinus officinalis</i>	Rosemary	Lamiaceae	Leaves	0,18	12
<i>Ruta graveolens</i>	Rue	Rutaceae	Leaves	0,18	5
<i>Saccharum officinarum</i>	Cane, Cana-caiana	Gramineae	Stem, Leaves, Root	0,53	5
<i>Salvia hispanica</i>	Chia	Lamiaceae	Seed	1,75	2
<i>Sambucus nigra</i>	Sabugueiro	Adoxaceae	Leaves, Flower	0,18	8
<i>Schinus terebinthifolius</i>	Aroeira	Anacardiaceae	Tree bark	0,18	2
<i>Sechium edule</i>	Chayote	Cucurbitaceae	Leaves	0,36	1
<i>Senna macranthera</i>	Fedegoso, Sena	Fabaceae	Flower, Leaves, Root	0,18	5
<i>Sesamum indicum</i>	Sesame	Pedaliaceae	Seed	0,41	1
<i>Sideroxylon obtusifolium</i>	Quixabeira	Sapotaceae	Tree bark, Bast	0,82	9
<i>Solanum lycocarpum</i>	Lobeira	Solanaceae	Fruits	0,18	1
<i>Solanum melongena</i>	Aubergine	Solanaceae	Fruits	0,23	2
<i>Solanum nigrum</i>	Melancia-da-praia	Solanaceae	Root	0,23	3
<i>Solanum paniculatum</i>	Jurubeba	Solanaceae	Tree bark, root, Fruits	0,71	7
<i>Solanum tuberosum</i>	Potato	Solanaceae	Tuber	0,18	1
<i>Spondias tuberosa</i>	Imbu, Umbu	Anacardiaceae	Tree bark	0,53	3
<i>Sterculia striata</i>	Chicháchi	Malvaceae	Leaves	0,18	1
<i>Stryphnodendron polyphyllum</i>	Barbatimão	Fabaceae	Tree bark	0,53	5
<i>Syzygium aromaticum</i>	Clove	Myrtaceae	Flower, Leaves	0,46	5
<i>Syzygium cumini</i>	Jamelão	Myrtaceae	Leaves	0,59	6
<i>Tamarindus indica</i>	Tamarindo	Leguminosae	Leaves, fruits	0,18	1
<i>Triplaris gardneriana</i>	Pau-Jaú	Polygonaceae	Tree bark, Bast, flower	0,23	4
<i>Tynanthus elegans</i>	Cipo-da-trindade	Bignoniaceae	Leaves	0,18	1
<i>Uncaria tomentosa</i>	Unha-de-gato	Rubiaceae	Leaves, Whole plant	0,59	4
<i>Vanilla sp.</i>	Vanilla	Orchidaceae	Fruits	0,18	1
<i>Vernonia polyanthes</i>	Assa-peixe	Asteraceae	Leaves	0,59	4
<i>Zea mays</i>	Black corn	Poaceae	Corn hair	0,18	1
<i>Zingiber officinale</i>	Ginger	Zingiberaceae	Leaves, root	0,92	12
<i>Ziziphus joazeiro</i>	Juá	Rhamnaceae	Bast	0,18	1

Through a consultation with International Statistical Classification of Diseases and Related Health Problems [22], 18 categories were determined to represent the body systems based on the therapeutic indications cited by the interviewed.

Among these, 13 had values of an Informed Consent Form (ICF) greater than zero. The highest results for ICF were in the categories of mental and behavior disorders (ICF=0,81), respiratory diseases (ICF=0,78), digestive tract diseases

(ICF=0,68), circulatory system diseases (ICFI=0,65) and ear diseases and mastoid apophysis (ICF=0,6) (Table 8).

Table 8-Informant Consensus Factor for each body system

and the plants classified within each category according to their therapeutic indication. The categories were classified according to the WHO.

Body Systems/Code/ICF	Medicinal species	Therapeutic indications
Some affections originated in the perinatal period (P00-P96) ICF = 0	<i>Bidens pilosa</i>	Jaundice
	<i>Aloe arborescens</i>	Infection
Some infectious and parasitic diseases (A00-B99) ICF= 0,48	<i>Arnica montana</i>	Mycosis
	<i>Carica papaya</i>	Dengue, Worm
	<i>Chenopodium ambrosioides</i>	Antibiotic, Worm
	<i>Citrus limon</i>	Worm
	<i>Cucurbita</i> spp.	Worm
	<i>Curcuma longa</i>	Antibiotic
	<i>Eugenia uniflora</i>	Food poisoning
	<i>Gossypium hirsutum</i>	Whooping cough, Infection
	<i>Mentha spicata</i>	Worm
	<i>Plantago major</i>	Antibiotic, Infection
	<i>Psidium guajava</i>	Food poisoning
	<i>Ruta graveolens</i>	Antibiotic, To kill lice
	<i>Sambucus nigra</i>	Chickenpox, Measles, Smallpox
<i>Zea mays</i>	Mumps	
External causes of morbidity and mortality (V01-Y98) ICF= 0	<i>Mikania glomerata</i>	Spider bites
Diseases of the skin and subcutaneous tissue (L00-L99) ICF = 0,24	<i>Aloe arborescens</i>	Healing
	<i>Amburana cearensis</i>	Healing
	<i>Capsicum frutescens</i>	To suppurate boils
	<i>Caryocar brasiliense</i>	Healing
	<i>Chenopodium ambrosioides</i>	Healing
	<i>Commiphora leptophloeos</i>	Healing
	<i>Cucurbita</i> spp.	Increases skin elasticity
	<i>Curcuma longa</i>	Healing
	<i>Genipa americana</i>	Healing
	<i>Gossypium hirsutum</i>	Healing
	<i>Momordica charantia</i>	Itch
	<i>Moringa oleifera</i>	Healing
	<i>Passiflora cincinnata</i>	Healing
	<i>Psidium guajava</i>	Healing, Itch, Hair loss
	<i>Rosmarinus officinalis</i>	Improves skin
	<i>Sambucus nigra</i>	Itch; Improves skin
	<i>Schinus terebinthifolius</i>	Healing
	<i>Sideroxylon obtusifolium</i>	Healing
<i>Stryphnodendron polyphyllum</i>	Healing	
<i>Uncaria tomentosa</i>	Itch	
Diseases of the Circulatory system (I00-I99) ICF = 0,65	<i>Allium cepa</i>	Arterial hypertension, Varicose veins
	<i>Allium sativum</i>	Arterial hypertension, Poor circulation
	<i>Amburana cearensis</i>	Poor circulation, Prevents stroke
	<i>Ammonia muricata</i>	Arterial hypertension
	<i>Bidens pilosa</i>	Depurative of blood
	<i>Camellia sinensis</i>	Arterial hypertension
	<i>Casearia sylvestris</i>	Poor circulation
	<i>Chenopodium ambrosioides</i>	Poor circulation, Varicose veins
	<i>Citrus limon</i>	Poor circulation
	<i>Citrus sinensis</i>	Decreases heart rate, Arterial hypertension, Prevents stroke
	<i>Curcuma longa</i>	Depurative of blood
	<i>Cymbopogon citratus</i>	Arterial hypertension
	<i>Lactuca sativa</i>	Arterial hypertension
	<i>Licaria puchury</i>	Prevents stroke
	<i>Lippia alba</i>	Arterial hypertension, Arterial hypotension, Cardiac problems
	<i>Mentha piperita</i>	Arterial hypertension
	<i>Mentha pulegium</i>	Arterial hypertension
	<i>Morus nigra</i>	Arterial hypertension
	<i>Myristica fragrans</i>	Arterial hypertension
	<i>Ocimum canum</i>	Arterial hypertension, Heart problems
	<i>Passiflora edulis</i>	Arterial hypertension
	<i>Petroselinum crispum</i>	Depurative of blood
	<i>Plectranthus barbatus</i>	Arterial hypertension
	<i>Psidium guajava</i>	Arterial hypertension
	<i>Saccharum officinarum</i>	Arterial hypertension
	<i>Salvia hispanica</i>	Arterial hypertension
	<i>Sechium edule</i>	Hipertensão arterial
	<i>Syzygium cumini</i>	Hipertensão arterial
<i>Achyrocline satureioides</i>	Stomach problems	
Diseases of the digestive system (K00-K93) ICF = 0,68	<i>Aframomum melegueta</i>	Flatulence
	<i>Allium cepa</i>	Laxative effect
	<i>Allium sativum</i>	Constipation

	<i>Aloe arborescens</i>	Laxative effects, Bile functioning, Gastritis
	<i>Anacardium occidentale</i>	Diarrhea
	<i>Artemisia absinthium</i>	Diarrhea
	<i>Aspidosperma pyrifolium</i>	Stomach problems
	<i>Amburana cearensis</i>	Flatulence, Gastritis, H. pylori, Indigestion, Constipation, Stomach problems, Liver problems
	<i>Baccharis trimera</i>	Liver problems
	<i>Bidens pilosa</i>	Gastritis
	<i>Brassica oleracea</i>	Gastritis, Ulcer
	<i>Cajanus cajan</i>	Constipation
	<i>Camellia sinensis</i>	Flatulence
	<i>Carica papaya</i>	Indigestion, Stomach problems, Gastrointestinal problems, Intestinal problems
	<i>Chenopodium ambrosioides</i>	Gastritis, Stomach problems
	<i>Chenopodium quinoa</i>	Intestinal function
	<i>Citrus limon</i>	Indigestion
	<i>Citrus sinensis</i>	Flatulence, Indigestion, Constipation, Gastrointestinal problems, Intestinal problems
	<i>Cocos nucifera</i>	Detoxifies the liver, Diarrhea
	<i>Commiphora leptophloeos</i>	Stomach problems
	<i>Coriandrum sativum</i>	Diarrhea, Flatulence
	<i>Cymbopogon citratus</i>	Flatulence
	<i>Eugenia dysenterica</i>	Diarrhea
	<i>Eugenia uniflora</i>	Diarrhea
	<i>Gossypium hirsutum</i>	Gastritis, Stomach problems
	<i>Hybanthus calceolaria</i>	Laxative effect
	<i>Hymenaea courbaril</i>	Gastritis, Ulcer
	<i>Ipomoea batatas</i>	Laxative effect
	<i>Kalanchoe pinnata</i>	Gastritis
	<i>Linum Usitatissimum</i>	Intestinal function
	<i>Lippia alba</i>	Food detoxifying, Diarrhea, Flatulence, Indigestion, Constipation, Stomach problems, Gastrointestinal problems, Intestinal problems
	<i>Malva sylvestris</i>	Diarrhea
	<i>Matricaria chamomilla</i>	Stomach problems
	<i>Mentha arvensis</i>	Cold
	<i>Mentha spicata</i>	Gastritis, Indigestion, Stomach problems
	<i>Miconia albicans</i>	Intestinal problems
	<i>Momordica charantia</i>	Intestinal problems
	<i>Moringa oleifera</i>	Constipation, Intestinal problems
	<i>Myristica fragrans</i>	Flatulence, Constipation
	<i>Pilocarpus pennatifolius</i>	Toothache
	<i>Pimpinella anisum</i>	Diarrhea
	<i>Plectranthus barbatus</i>	Diarrhea, Indigestion, Stomach problems, Gastrointestinal problems, Intestinal problems, Liver problems
	<i>Pluchea sagittalis</i>	Indigestion
	<i>Psidium guajava</i>	Diarrhea, Flatulence, Indigestion, Intestinal problems
	<i>Pterodon polygalaeflorus</i>	Diarrhea, Stomach problems, Colitis
	<i>Punica granatum</i>	Gastritis, Tooth infection
	<i>Ricinus communis</i>	Laxative effect
	<i>Rosa alba</i>	Diarrhea, Laxative effect, Vomit
	<i>Rosmarinus officinalis</i>	Indigestion, Stomach problems
	<i>Salvia hispanica</i>	Intestinal function
	<i>Senna macranthera</i>	Laxative effect
	<i>Sesamum indicum</i>	Intestinal function
	<i>Sideroxylon obtusifolium</i>	Gastritis, Inflammation in the stomach, Stomach problems
	<i>Solanum paniculatum</i>	Liver problems
	<i>Solanum tuberosum</i>	Stomach problems
	<i>Spondias tuberosa</i>	Diarrhea
	<i>Stryphnodendron polyphyllum</i>	Ulcer
	<i>Tamarindus indica</i>	Stomach problems
	<i>Triplaris gardneriana</i>	Diarrhea, Intestinal function
	<i>Ageratum conyzoides</i>	Colic
	<i>Annona muricata</i>	Kidney stone
	<i>Annona squamosa</i>	Urinary infection, Kidney stone
	<i>Arrabidaea brachypoda</i>	Kidney stone, Kidney problems
	<i>Bidens pilosa</i>	Kidney pain, Urinary infection, Bladder Inflammation, Kidney stone
	<i>Boerhavia diffusa</i>	Bladder inflammation
	<i>Commiphora leptophloeos</i>	Uterus problem
	<i>Coriandrum sativum</i>	Colic
	<i>Costus spicatus</i>	Kidney pain, Kidney stone
	<i>Cymbopogon citratus</i>	Colic
	<i>Gossypium hirsutum</i>	Urinary infection
	<i>Linum Usitatissimum</i>	Urinary infection
	<i>Mentha piperita</i>	Urinary infection, Uterus problem
	<i>Momordica charantia</i>	Vaginal infection
	<i>Morus nigra</i>	Menopause
	<i>Origanum vulgare</i>	Uterus problems
Diseases of the genitourinary system (N00-N99) ICF = 0,55		

	<i>Persea americana</i>	Urinary infection, Kidney stone, Kidney problems
	<i>Petroselinum crispum</i>	Urinary infection
	<i>Phyllanthus niruri</i>	Kidney stone
	<i>Plantago major</i>	Colic, Urinary infection, Uterus problems
	<i>Pluchea sagittalis</i>	Vaginal infection
	<i>Plumeria lancifolia, Passiflora alata, Citrus aurantium</i>	Colic, Uterus problem
	<i>Psidium guajava</i>	Urinary problem
	<i>Sideroxylon obtusifolium</i>	Uterus problem
	<i>Solanum paniculatum</i>	Kidney pain
	<i>Zingiber officinale</i>	Colic
	<i>Acosmium dasycarpum</i>	Flu
	<i>Ageratum conyzoides</i>	Flu, Rhinitis, Sinusitis
	<i>Allium cepa</i>	Flu
	<i>Allium sativum</i>	Flu
	<i>Aloe arborescens</i>	Asthma, Flu
	<i>Amburana cearensis</i>	Flu, Pneumonia
	<i>Baccharis dracunculifolia</i>	Flu
	<i>Beta vulgaris</i>	Flu
	<i>Celosia argentea</i>	Flu
	<i>Chenopodium ambrosioides</i>	Flu, Cold, Sinusitis
	<i>Cinnamomum verum</i>	Flu
	<i>Citrus limon</i>	Flu
	<i>Citrus sinensis</i>	Flu, Cold
	<i>Commiphora leptophloeos</i>	Flu
	<i>Coriandrum sativum</i>	Flu
	<i>Cymbopogon citratus</i>	Flu, Cold
	<i>Dipteryx alata</i>	Bronchitis
	<i>Eucalyptus globulus</i>	Flu
	<i>Gomphrena globosa</i>	Bronchitis
	<i>Gossypium hirsutum</i>	Flu
	<i>Hymenaea courbaril</i>	Bronchitis
	<i>Kalanchoe pinnata</i>	Bronchitis, Flu
	<i>Leonotis nepetifolia</i>	Flu
	<i>Linum Usitatissimum</i>	Flu
	<i>Lippia alba</i>	Flu, Cold
	<i>Macrosyphonia velame</i>	Bronchitis
	<i>Malpighia glabra</i>	Flu
	<i>Malva sylvestris</i>	Flu
	<i>Mentha arvensis</i>	Bronchitis, Nasal decongestant, Flu, Cold
	<i>Mentha piperita</i>	Flu
	<i>Mentha pulegium</i>	Nasal decongestant, Flu, Cold
	<i>Mentha spicata</i>	Flu, Cold
	<i>Mikania glomerata</i>	Bronchitis, Flu, Pneumonia
	<i>Nasturtium officinale</i>	Flu
	<i>Ocimum canum</i>	Flu, Sinusitis
	<i>Petiveria alliacea</i>	Flu
	<i>Pilocarpus pennatifolius</i>	Flu, Cold
	<i>Pimpinella anisum</i>	Flu
	<i>Plantago major</i>	Sinusitis
	<i>Plectranthus barbatus</i>	Flu
	<i>Rosmarinus officinalis</i>	Flu, Sinusitis
	<i>Ruta graveolens</i>	Flu
	<i>Sambucus nigra</i>	Flu
	<i>Senna macranthera</i>	Flu
	<i>Solanum nigrum</i>	Flu, Pneumonia
	<i>Solanum paniculatum</i>	Flu
	<i>Spondias tuberosa</i>	Flu
	<i>Syzygium aromaticum</i>	Flu
	<i>Vanilla sp.</i>	Flu
	<i>Vernonia polyanthes</i>	Pneumonia
	<i>Zingiber officinale</i>	Flu
Diseases of the eye and adnexa (H00-H59) ICF = 0	<i>Spondias tuberosa</i>	Conjunctivitis
Diseases of the ear and mastoid process (H60-H95) ICF= 0,6	<i>Carica papaya</i>	Labyrinthitis
	<i>Citrus sinensis</i>	Labyrinthitis
	<i>Morus nigra</i>	Labyrinthitis
Diseases of the blood and haematopoietic organs and some immune disorders (D50-D89) ICF = 0,2	<i>Colocasia esculenta</i>	Anemia
	<i>Eruca sativa</i>	Improves the immune system
	<i>Kalanchoe daigremontiana</i>	Improves the immune system
	<i>Lippia alba</i>	Improves the immune system
	<i>Moringa oleifera</i>	Anemia
	<i>Ocimum canum</i>	Coagulant
	<i>Pereskia aculeata</i>	Anemia
	<i>Petroselinum crispum</i>	Anemia
	<i>Syzygium cumini</i>	Anemia
Diseases of the musculoskeletal system and connective tissue (M00-M99) ICF = 0,2	<i>Amburana cearensis</i>	Muscle pain
	<i>Arnica montana</i>	Muscle pain

	<i>Chenopodium ambrosioides</i>	Leg pain
	<i>Libidibia ferrea</i>	Bone pain
	<i>Miconia albicans</i>	Arthritis, Arthrosis, Back pain
	<i>Persea americana</i>	Rheumatism
	<i>Philodendron bipinnatifidum</i>	Back pain
	<i>Plectranthus barbatus</i>	Arthrosis
	<i>Tynanthus elegans</i>	Leg pain
Endocrine, nutritional and metabolic diseases (E00-E90) ICF = 0,43	<i>Annona muricata</i>	Diabetes, Decreases the cholesterol, Diuretic
	<i>Aspidosperma pyriformium</i>	Helps lose weight, Diabetes
	<i>Bidens pilosa</i>	Diuretic
	<i>Casearia sylvestris</i>	Helps lose weight, Decreases the cholesterol
	<i>Cinnamomum verum</i>	Accelerate the metabolism, Helps lose weight
	<i>Citrus limon</i>	Decrease cholesterol
	<i>Citrus sinensis</i>	Decrease cholesterol
	<i>Curcuma longa</i>	Accelerate the metabolism
	<i>Dipteryx alata</i>	Diabetes
	<i>Equisetum sp.</i>	Diuretic
	<i>Eugenia dysenterica</i>	Diabetes
	<i>Hibiscus sabdariffa</i>	Helps lose weight, Helps lose weight, Diuretic, Reduces adipogenesis
	<i>Morinda citrifolia</i>	Diabetes
	<i>Morus nigra</i>	Reduces the triglyceride, Diuretic, Hormone replacement
	<i>Plectranthus barbatus</i>	Diuretic
	<i>Qualea grandiflora</i>	Diabetes
	<i>Solanum lycocarpum</i>	Diabetes
	<i>Solanum melongena</i>	Helps lose weight, Diuretic
	<i>Syzygium cumini</i>	Diabetes, Diuretic
	<i>Vernonia polyanthes</i>	Malnutrition
<i>Zingiber officinale</i>	Accelerate the metabolism, Helps lose weight	
Pregnancy, childbirth and puerperium (O00-O99) ICF = 0	<i>Ageratum conyzoides</i>	Used after childbirth
	<i>Caryocar brasiliense</i>	Helps in contraction for childbirth
	<i>Mentha spicata</i>	Abortive
Injury, poisoning and some other consequences of external causes (S00-T98) ICF = 0	<i>Aloe arborescens</i> Miller	Burn
	<i>Senna macranthera</i>	Allergy
Neoplasms [tumors] (C00-D48) ICF = 0,29	<i>Aloe arborescens</i> Miller	Anticarcinogenic
	<i>Annona muricata</i>	Anticarcinogenic, Tumor treatment
	<i>Chenopodium ambrosioides</i>	Anticarcinogenic
	<i>Dipteryx alata</i>	Anticarcinogenic
	<i>Handroanthus impetiginosus</i>	Anticarcinogenic
	<i>Kalanchoe daigremontiana</i>	Anticarcinogenic
	<i>Lafoensia pacari</i>	To prevent prostate cancer
	<i>Momordica charantia</i>	Anticarcinogenic
	<i>Morinda citrifolia</i>	Anticarcinogenic
	<i>Punica granatum</i>	Myoma
	<i>Uncaria tomentosa</i>	Anticarcinogenic
	<i>Ageratum conyzoides</i>	Anti-inflammatory
Symptoms, signs and abnormal findings of clinical and laboratory tests, not elsewhere classified (R00- R99) ICF = 0,59	<i>Allium cepa</i>	Anti-inflammatory, Headache, Cough
	<i>Allium sativum</i>	Throat inflammation
	<i>Aloe arborescens</i>	Hair growth
	<i>Amburana cearensis</i>	Anti-inflammatory, Pain, Headache, Fever, Cough
	<i>Anadenanthera peregrina</i>	Expectorant
	<i>Ananas comosus</i>	Expectorant
	<i>Annona muricata</i>	Decreases the glucose
	<i>Arnica montana</i>	Pain
	<i>Astronium fraxinifolium</i>	Pain, Swelling
	<i>Bambusa vulgaris</i>	Hair growth
	<i>Beta vulgaris</i>	Cough
	<i>Bidens pilosa</i>	Anti-inflammatory
	<i>Caryocar brasiliense</i>	Hoarseness
	<i>Celtis iguanaea</i>	Helps in tooth birth in children
	<i>Chenopodium ambrosioides</i>	Anti-inflammatory, Headache, Expectorant, Fever
	<i>Cinnamomum verum</i>	Cough
	<i>Citrus limon</i>	Antiseptic, Headache
	<i>Citrus sinensis</i>	Fever
	<i>Cocos nucifera</i>	Swelling
	<i>Cordia leucocephala</i>	Helps the child to walk fast
	<i>Coriandrum sativum</i>	Hoarseness
	<i>Coutarea hexandra</i>	Body aches
	<i>Curcuma longa</i>	Anti-inflammatory, Hoarseness
	<i>Cymbopogon citratus</i>	Anti-inflammatory, Headache, Shortness of breath; Fever, Cough
	<i>Cyperus esculentus</i>	Helps in tooth birth in children
	<i>Dipteryx alata</i>	Expectorant
	<i>Dorstenia brasiliensis</i>	Fever
	<i>Eucalyptus globulus</i>	Headache
	<i>Gomphrena globosa</i>	Cough
	<i>Gossypium hirsutum</i>	Anti-inflammatory, Cough
	<i>Handroanthus impetiginosus</i>	Anti-inflammatory
	<i>Hymenaea courbaril</i>	Anti-inflammatory

	<i>Illicium verum</i>	Improves memory
	<i>Kalanchoe pinnata</i>	Anti-inflammatory, Headache, Cough
	<i>Lippia alba</i>	Antioxidant, Headache, Shortness of breath
	<i>Mangifera indica</i>	Cough
	<i>Mentha arvensis</i>	Expectorant
	<i>Mentha piperita</i>	Anti-inflammatory, Expectorant
	<i>Mentha spicata</i>	Anti-inflammatory, Headache, Expectorant, Fever, Throat inflammation, Cough
	<i>Mikania glomerata</i>	Expectorant, Cough
	<i>Morinda citrifolia</i>	Anti-inflammatory
	<i>Ocimum canum</i>	Swelling reduction, Headache, Cough
	<i>Persea americana</i>	Anti-inflammatory
	<i>Petiveria alliacea</i>	Anti-inflammatory
	<i>Petroselinum crispum</i>	Anti-inflammatory
	<i>Plantago major</i>	Anti-inflammatory, Throat inflammation, Cough
	<i>Psidium guajava</i>	Anti-inflammatory
	<i>Pterodon polygalaeflorus</i>	Anti-inflammatory, Throat inflammation
	<i>Punica granatum</i>	Throat inflammation
	<i>Rosmarinus officinalis</i>	Anti-inflammatory, hair growth, Improves memory
	<i>Ruta graveolens</i>	Anti-inflammatory, Headache
	<i>Saccharum officinarum</i>	Anti-inflammatory
	<i>Sambucus nigra</i>	Fever
	<i>Schinus terebinthifolius</i>	Anti-inflammatory
	<i>Senna macranthera</i>	Fever
	<i>Sideroxylon obtusifolium</i>	Anti-inflammatory
	<i>Solanum paniculatum</i>	Cough
	<i>Sterculia striata</i>	Swelling in the legs
	<i>Stryphnodendron polyphyllum</i>	Anti-inflammatory
	<i>Syzygium aromaticum</i>	Headache, Expectorant, Fever
	<i>Uncaria tomentosa</i>	Anti-inflammatory, Body aches
	<i>Vernonia polyanthes</i>	Expectorant, Cough
	<i>Zingiber officinale</i>	Anti-inflammatory, Throat inflammation, Hoarseness, Cough
	<i>Ziziphus joazeiro</i>	Swelling
	<i>Citrus sinensis</i>	Calming
	<i>Cymbopogon citratus</i>	Anxiety, Calming, Insomnia
	<i>Jatropha gossypifolia</i>	Psychiatric problems
	<i>Lippia alba</i>	Calming, Insomnia
	<i>Matricaria chamomilla</i>	Calming, Insomnia
	<i>Mentha spicata</i>	Calming
	<i>Ocimum canum</i>	Calming, Insomnia
	<i>Passiflora cincinnata</i>	Calming
	<i>Passiflora edulis</i>	Calming
	<i>Pimpinella anisum</i>	Calming
	<i>Psidium guajava</i>	Calming
	<i>Rosmarinus officinalis</i>	Calming
Mental and behavior disorders (F00-F99) ICF = 0,81		

4. Discussion

Analyzing the results of this research, it is possible to observe that the women were the majority, corresponding to 89,7% of the interviewed. The herbal medicines as the medicinal plants are therapeutic resources very used by the feminine population [24]. Others studies also prove that the women make use of this treatment form, representing a larger portion that 50% of the investigated individuals [25, 9].

When question the research participants about which diseases that they pursued using the medicinal plants, most of the answers cited the symptoms. It is normal that results like this occurs on ethnopharmacological researches, because the investigated population does not have technical knowledge as the health professionals to specify a type of illness from the symptoms. However, researching this traditional knowledge is important because allows it to obtain information about biological phenomena through the systematic observation made by people that even doesn't have access to the academic science, they are able to perceive the therapeutic effects that the medicinal plants promotes to the human health [26]. This low education level of the participants of an ethnopharmacological investigation agrees with the results found in this research, because the most of the interviewed (56,4%) have only incomplete primary education.

In this present study, it was observed that the most related occupations by the participants was rural worker, which

corroborates with the local that they reside and that possibly have hard access to medical care and allopathic medicines. Furthermore, it was demonstrated that the most of these people get the plant species at home. Therewith, there is the probability that they have this natural product as medicinal resources faster and accessible. The lack of access to quality medical care is also one of the factors that become this alternative method an important ally in the ill treatment of needy people [27].

For presenting the highest RF in this study, by having the second highest value of RI and being one of the plants used in the category of highest ICF, the *Lippia alba* was the main specie investigated in scientific literature. A similar result was found in the RI value of this research for *Lippia alba*, being one of the most important species for being indicated by the interviewed as a form of treatment for a bigger number of diseases [28].

In a bibliographic survey it was found that the highest number of citations of species in Verbenaceae family was regarded to *Lippia alba* [29]. Studies identified that this specie has antimicrobial activity [30], what is related to therapeutic indications mentioned by the interviewed that fall within the category of digestive tract diseases, as diarrhea and food poisoning, which it can be caused by pathogenic microorganisms [31]. The calming effect was one of the medicinal proprieties attributed to *Lippia alba*, this can be

related to the sedative and analgesic capacity of this plant [32]. The antiviral activity described suggests a relation to the use of this specie in flight the flu, but additional studies of specific virus of its specie are still necessary to confirm the action [33]. It was demonstrated that the *Lippia alba* presents antioxidant activity [34], a pharmacological propriety involved in the improvement of the immunologic system [35]. The direct use of the tea of this plant for the treatment of arterial hypertension and cardiac problems has not yet been scientifically proven, as suggested by the interviewed in this present study. However, when evaluating the essential oil of *Lippia alba* it was concluded that it has the ability to produce a hypotensive effect, bradycardia, vasorelaxation [36]. It was not found in the scientific literature pharmacological proprieties that it is related the use of this specie in the arterial hypertension increase. It was proven in preclinical experiments, the effectiveness of the oral use of *Lippia alba* in the prevention of gastric ulcers [37].

In this research, the *Lippia alba* was presented in six categories of body systems determined by the WHO, four of which had the highest values of ICF. As in this study, other studies showed that the *Lippia alba* was one of the indicated

plants to treat the illness that it fits within the categories of respiratory diseases [38, 39, 40], mental and behavioral disorders [38, 40] circulatory system diseases [38, 39], digestive tract diseases [38]. Another survey of medicinal plants used in popular medicine found similar results for this search, which the category of mental and behavior disorders obtained the highest value of ICF [41].

5. Conclusion

Thus, through this study it was possible to obtain statistically relevant information about the use of the medicinal plants by population of Travessão de Minas-MG. Furthermore, it was possible to prove in the scientific literature some popular use indicated of *Lippia alba*. Therefore, the traditional use about the therapeutic use of plant species are important, as long as it is necessary that the use be correct and safe through the pharmacological studies and natural product chemistry studies. Finally, considering the results found, the medicinal plants and indicated uses by this community, it can provide search sources for future studies in the prospection of new bioactive molecules.

Appendix I

Questionnaire

No. of interviewer: _____ Date: ___/___/_____ Sex: Fem () Male ()

1. How old are you? _____ years old
2. Did you study?
 - () YES: Tick below the schooling clarified () NO
 - Schooling: 1st degree () Complete () Incomplete
 - 2nd degree: () Complete () Incomplete
 - Higher degree: () Complete () Incomplete
3. What is your current occupation? _____
4. Do you use medicinal plants to treat any disease?
 - () NO: Finalize the questionnaire.
 - () YES: Answer the next questions. Specify which disease:
5. Popular name of the medicinal plan to or drug: _____
6. Is this plant known by another name?
 - NO () YES (). If so, which ones?
7. What is it for? _____
8. Which part of the plant is used?
 - () Leaves
 - () Fruits
 - () Bark
 - () Root
 - () Other, specify:
9. How do you prepare?
 - () Tea
 - () Bottle
 - () Pure
 - () Others.

Which? _____

10. How is it taken? (Times a day, week, month, and so on) _____

11. Where do you get the plant? _____

12. At what time of the year is it harvested? _____

13. Have you ever felt any discomfort or health problems after using these medicinal plants?

() YES: report below () NO

Which? _____

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