

USES OF MEDICINAL PLANTS IN RIO GRANDE DO NORTE, BRAZIL

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Abstract

In the homegardens of northeastern Brazil diverse plant species are used for the treatment of diseases. The aim of this study was to survey the species of medicinal use in homegardens of São João da Varzea, Mossoró, Rio Grande do Norte, Brazil. Twenty two homegardens were studied with the techniques of direct observation and participant, guided tour, free list, semistructured interviews. It was found the presence of 124 species belonging to 37 plant families, a total of 651 plants. Sixty seven diseases including influenza and dysentery were the most frequent in the interviews, which can be treated with 18 and 11 species, respectively, were cited. Informants use plants to treat different symptoms and diseases with well-defined practices for preparations with plants and therapeutic use. In ethnobotanical studies is necessary largest anthropological depth and careful with the use of ICD (International System of Classification of Diseases of WHO) because high number of symptoms cited by the respondents were categorized in Group XVIII (Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified).

Key words: *Homegardens, ethnobotany, ethnomedicine, species diversity.*

INTRODUCTION

Tropical homegardens is one of the oldest forms of land-use systems and a typical homegarden is an integral part of the farmer's system where selected trees, shrubs and herbs grow for edible products and cash income [1]. Traditional rural homegardens can be a suitable site for conservation, propagation, and expansion of medicinal plants that form the backbone of the traditional medicine system and are fast dwindling due to over exploitation and development pattern[2].

One of the major contributions of the homegardens in northeastern Brazil is the supply of plants for medicinal use. For instance, [3]conducted an inventory of medicinal plants grown in 21homegardensof the municipality of Demerval Lobao, Piauí, Brazil and verified the presence of100botanical species. In the State of Rio Grande do Norte, seventeen Ethnobotanical work were performed, most investigated the use of medicinal plants in the communities [4, 5, 6, 7, 8, 9, 10] the use of plants for various purposes [7] or Ethnobotanical aspects of some families or specific botanical species [11].

To better understand the diseases mentioned in ethnobotanical studies the adoption of the International System of Classification of Diseases of WHO (ICD) as a way to standardize the identification of ethnobotanical and epidemiological profile of the community studied information was proposed[12]. However few ethnobotanical studies have adopted this criterion which needs to be further investigated[13].

Therefore, the aim of this study was to conduct an ethnobotanical survey in the homegardens of São João da Varzea, Mossoro, Rio Grande do Norte, Brazil emphasizing the use of medicinal plants and compare with traditional ICD indications.

MATERIALS AND METHODS

The community São João da Várzea is located at 5°18'19.5"South and 37°24 '46.8"West, altitude of 28 m, 18 km far from the seat of the municipality, Mossoró. Initially a workshop was held with residents of the community, where it was presented and discussed the proposed work, emphasizing the importance of these objectives and the methodology to be adopted. In addition, it was clarified that participation by snitches in the search was conditioned upon your acceptance, and may the same drop out at any time without any prejudice. During the workshop, all present expressed interest and agreed to participate in the research.

In the workshops was prepared the term of prior informed consent (TAP) as guides the Genetic Heritage Management Council (CGEN) [14]. The sampling technique used was the "Snow ball"[15]. From the initial contact with the community, a first expert was recognized, who went on to indicate another specialist and thus, successively, to involve all community experts[16].

In this way were selected 22 productive units, corresponding to approximately 42% of homegardens in the community. Visits were carried out at homes of selected families, aiming to clarify possible doubts about the research and schedule the dates and times of the interviews so as not to interfere with daily activities. At the time, was reading the TAP, reaffirming that the information collected would be used only for research purposes. Were conducted two to five visits per production unit in the period June to September 2012, being used the various data collection techniques.

The Ethnobotanical survey was carried out in homegardens by using direct and participant observation techniques involving the observation and record free of the phenomena observed in the field, with smaller or greater degree of involvement, respectively [16]. Another technique used was the semi-structured interview that is a conversation in which only the topics are pre-determined, and new questions arise as a result of the discussions [17]. For some questions was considered the free list technique which consists of asking the informants list events that are important in relation to the matter that is being investigated [18].

Informants were asked about the use and handling of plants and parts used for each use, addressing specific questions about each species present in domestic spaces. In this case, the interviews were made during the verification *on the spot* for each species cited for each informant, using the method "walk-in-the-woods" which is to go to the field with the informant in order to justify and validate the names of the plants cited in the interviews [16].

The therapeutic indications of the plants were described using the same terms cited by informants, also being coded as Classification Diseases and International Health related issues, known as the international classification of diseases (CID 10) which is an official publication of the World Health Organization (WHO) [19].

The information obtained were recorded with the aid of a portable recorder and photographed with a digital camera with the proper authorization of the interviewees. Furthermore, annotation techniques were used simultaneously in the communication and use of field journal for additional information. All information has been noted as obtained in the questionnaires and interviews, using the same terminology used by the informants.

During the tour-guided, plants were cited in detail photographed, for further confirmation of botanical identification through specialized literature[20, 21, 22, 23, 24]. Some species have been herborized according to established techniques in botanical collections, for subsequent taxonomic identification by experts.

The nomenclature of the species and its authors were confirmed using the database Tropics[®] the Missouri Botanical Garden[25]. The system of classification of plants used was the APG II [26]. As they were collected, the information has been compiled in the form of a database, using arrays of texts [27].

RESULTS AND DISCUSSION

Were cited 124 species of medicinal use belonging to 37 botanical families, a total 651 plants in homegardens. When asked about diseases treated with plants, informants commonly cited symptoms, which are also considered in the study and presented in Table 1, using the same terms mentioned, along with the collation on sorting CID. In this way, the therapeutic indications include diseases

themselves and some symptoms. Some ethnobotanical work also tells the diseases the same way in which they were mentioned during the interviews [28].

Table 1. Diseases and symptoms mentioned, classification as CID 10 and species found in domestic spaces and indication quotes number (NC) for treatment of diseases in São João da Várzea, Mossoró-RN.

| Therapeutic indication | CID 10 | | Species | NC |
|-------------------------------|-----------|--|--|----|
| | Chapter | Group | | |
| Whooping Cough | (I) | A30-A49-Other bacterial diseases | <i>Turneraulmifolia</i> L | 1 |
| Vaginal germ | (I) | A50-A64-Infections predominantly sexual transmission | <i>Momordicacharantia</i> L | 1 |
| "Foists" | (I) | B35-B49-Mycoses | <i>Croton campestris</i> A. St. HiL <i>Chenopodiumambrosioides</i> L | 4 |
| Worm | (I) | A00-A09-Intestinal infectious diseases B65-B83-Helminthiasis | <i>Carica papaya</i> L <i>Caesalpinhiapyramidalis</i> TuL | 4 |
| Wart | I XVIII | B00-B09-Viral infections characterized by skin and mucous membrane lesions R20-R23-Symptoms and signs related to the skin and subcutaneous tissue | <i>Calotropisprocera</i> (Aiton) W.T. Aiton <i>Jatrophihamollissima</i> (Pohl) BailL | 2 |
| Cancer | II | C00-C97-Neoplasms [tumors] evil (the) | <i>Aloe vera</i> (L) Burm. f. | 1 |
| Anemia | III | D50-D53-Nutritional anemia-hemolytic anemias D55 D59-D60-D64-Aplásticas anemias | <i>Malpighiaglabra</i> L <i>Citrus X limonia</i> (L) Osbeck | 2 |
| "Stanching blood" | III XVIII | D65 D69-Coagulation Defects, and other hemorrhagic diseases R50-R69-General symptoms and signs | <i>Jatrophihamollissima</i> (Pohl) BailL | 1 |
| Cholesterol, high cholesterol | IV | E70-E90-Metabolic disorders | <i>Tamarindusindica</i> L <i>Morindacitrifolia</i> L <i>Solanummelongena</i> L | 6 |
| Diabetes | IV | E10-E14-Diabetes mellitus | <i>Tamarindusindica</i> L <i>Morindacitrifolia</i> L | 5 |
| For weight loss | IV | E65-E68-Obesity and other forms of hyperalimentation | <i>Citrus X limonia</i> (L) Osbeck | 1 |
| Lack of appetite, "boredom" | V | F50-F59 Behavioural syndromes associated with-physiological disorders and physical factors | <i>Cocosnucifera</i> L <i>Malpighiaglabra</i> L | 3 |
| Sedative, insomnia | V VI | F50-F59 Behavioural syndromes associated with-physiological disorders and physical factors G40-G47-Episodic disorders and paroxísticos | <i>Cymbopogoncitratus</i> (DC.)Stapf <i>Citrus sinensis</i> (L) Osbeck <i>Lippia alba</i> (MilL) N.E. BR. ex Britton & P. Wilson | 4 |
| Earache | VIII | H90-H95-Other disorders of ear | <i>Cocosnucifera</i> L <i>Ocimumbasilicum</i> L | 4 |
| "High blood pressure" | IX XVIII | I10-I15 Hypertensive diseases R00-R09-signs and symptoms relating to the circulatory system and respiratory system | <i>Lippia alba</i> (MilL) N.E. BR. ex Britton & P. Wilson | 1 |

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|---|---------|--|--|----|
| Hemorrhoids | IX | I80-I89-Diseases of veins, lymphatic vessels and lymph nodes, not classified elsewhere | <i>Aloe vera</i> (L) Burm. f. | 1 |
| Thrombosis | IX | I60-Mobile-cerebrovascular diseases | <i>Jatropha gossypifolia</i> L <i>Mentha X villosa</i> Huds. <i>Scopariadulcis</i> L | 3 |
| Asthma, "tiredness" | X | J40-J47 Chronic airway diseases below | <i>Cymbopogon citratus</i> (DC.) Stapf <i>Ziziphus Jacobus</i> Mart. <i>Citrus X limonia</i> (L) Osbeck <i>Myracrodruon urundeuva</i> Allemão <i>Carica papaya</i> L | 6 |
| Bronchitis | X | J20-J22 Other acute infections of the lower airways J40-J47 chronic airway diseases below | <i>Caesalpinia pyramidalis</i> TuL <i>Mentha X piperita</i> L <i>Sideroxylon obtusifolium</i> (Roem. &Schult.) T. D. Penn. <i>Allium sativum</i> L <i>Catharanthus roseus</i> (L) Don. | 6 |
| Sore throat, strep throat, "crisis of throat" | X XVIII | J00-J06-Acute infections of the upper airways R00-R09-signs and symptoms relating to the circulatory system and respiratory system | <i>Cocos nucifera</i> L <i>Nasturtium officinale</i> R. Br. <i>Punica granatum</i> L <i>Turnera ulmifolia</i> L <i>Citrus X limonia</i> (L) Osbeck | 20 |
| "Estalecido" | X | J00-J06-Acute upper airway infections | <i>Origanum majorana</i> L <i>Chenopodium ambrosioides</i> L <i>Allium cepa</i> L <i>Anacardium occidentale</i> L <i>Cocos nucifera</i> L <i>Ananas comosus</i> (L) Merr. <i>Carica papaya</i> L <i>The</i> <i>Bryophyllum pinnatum</i> (Lam.) Oken <i>Kalanchoe brasiliensis</i> Cambess. | 1 |
| Flu, flu badly healed " | X | J09-J18 Influenza [flu] and pneumonia | <i>Caesalpinia pyramidalis</i> TuL <i>Mentha X piperita</i> L <i>Mentha X villosa</i> Huds. <i>Plectranthus amboinicus</i> (Lour.) Spreng. <i>Malpighia glabra</i> L <i>Turnera ulmifolia</i> L <i>Scopariadulcis</i> L <i>Cymbopogon citratus</i> (DC.) Stapf <i>Ziziphus Jacobus</i> Mart. <i>Citrus X limonia</i> (L) Osbeck | 42 |
| Pneumonia | X | J09-J18 Influenza [flu] and pneumonia | <i>Combretum leprosum</i> Mart. <i>Mentha X piperita</i> L | 2 |

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|---|----------|---|--|----|
| "Roquidão" | X XVIII | J30-J39-Other diseases of upper airways R47-R49-Symptoms and signs related to speech and voice | <i>Nasturtium officinale</i> R. Br. | 1 |
| Colic in newborn, navel colic | XI XVIII | K40-Co-Hernias R10-R19-Symptoms and signs related to the digestive system and abdomen | <i>Cucurbitapepo</i> L | 1 |
| Food that's bad for you, "cute", "Maw Maw" swollen, poor digestion, digestive | XI XVIII | K55-K63-Other diseases of intestines R10-R19-Symptoms and signs related to the digestive system and abdomen | <i>Carica papaya</i> L <i>Ocimumgratissimum</i> L <i>Plectranthusamboinicus</i> (Lour.) Spreng. <i>Malpighiaglabra</i> L <i>Psidiumguajava</i> L <i>Citrus sinensis</i> (L) Osbeck <i>Lippia alba</i> (MilL) N.E. BR. exBritton & P. Wilson <i>Cocosnucifera</i> L <i>Menthaarvensis</i> L <i>Mentha X piperita</i> L <i>Ocimumgratissimum</i> L | 12 |
| Diarrhea, dysentery, regular bowel, abdominal pain | XI XVIII | K55-K63-Other diseases of intestines R10-R19-Symptoms and signs related to the digestive system and abdomen | <i>Psidiumguajava</i> L <i>Turneraulmifolia</i> L <i>Cymbopogoncitratus</i> (DC.)Stapf <i>ZiziphusJacobus</i> Mart. <i>Citrus sinensis</i> (L) Osbeck <i>Citrus X limonia</i> (L) Osbeck <i>Lippia alba</i> (MilL) N.E. BR. ex Britton & P. Wilson | 30 |
| Pain of appendicitis | XI | K35-K38 Diseases of appendix | <i>Combretumleprosum</i> Mart. <i>Calotropisprocera</i> (Aiton) W.T. Aiton | 1 |
| Toothache, teeth treatment | XI | K00-K14-Diseases of the oral cavity, salivary glands and JAWS | <i>Pseudobombaxmarginatum</i> (A. St.-HiL, Juss.&Camb.) A. Robyns <i>ZiziphusJacobus</i> Mart. <i>Citrus X limonia</i> (L) Osbeck | 5 |
| Gastritis | XI | K20-K31-Diseases of the esophagus, stomach and duodenum | <i>Menthaarvensis</i> L <i>Mentha X piperita</i> L | 2 |
| Intestinal inflammation | XI XVIII | K50-K52-Non-infectious enteritis and colitis K55-K63-Other diseases of intestines R10-R19-symptoms and signs related to the digestive system and abdomen | <i>Cocosnucifera</i> L | 2 |
| Private bowel deprivation, intestinal problem | XI XVIII | K55-K63-Other diseases of intestines R10-R19-symptoms and signs related to the digestive system and abdomen | <i>Cocosnucifera</i> L <i>Carica papaya</i> L <i>Musa</i> sp. <i>Citrus sinensis</i> (L) Osbeck | 6 |
| Bad breath | XI | K00-K14-Diseases of the oral cavity, salivary glands and JAWS | <i>Ziziphusjoazeiro</i> Mart. | 1 |

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|---|-----------|--|---|----|
| Ulcer | XI | K20-K31-Diseases of the esophagus, stomach and duodenum K50-K52-non-infectious Enteritis and colitis | <i>Chenopodiumambrosioides</i> L | 1 |
| Dandruff | XII | L20-L30-Dermatitis and eczema | <i>ZiziphusJacobus</i> Mart. | 3 |
| Itching | XII | L20-L30-Dermatitis and eczema | <i>Ipomoea asarifolia</i> (Desr.) Roem. &Schult. | 2 |
| | | | <i>Ziziphusjoazeiro</i> Mart. | |
| | | | <i>Anacardiumoccidentale</i> L | |
| | | | <i>Myracrodruonurundeuva</i> Allemão | |
| | | | <i>Cocosnucifera</i> L | |
| | | | <i>Aloe vera</i> (L) Burm. f. | |
| | | | <i>Ipomoea asarifolia</i> (Desr.) Roem. &Schult. | |
| Healing of wounds, "illness" | XII | L00-L08-Infections of the skin and subcutaneous tissue L20-L30-Dermatitis and eczema | <i>The Bryophyllumspinnatum</i> (Lam.) Oken | 13 |
| | | | <i>Caesalpiniaferrea</i> Mart. | |
| | | | <i>Mimosa tenuiflora</i> . (Willd.) Poir. | |
| | | | <i>Ximeniaamericana</i> L | |
| | | | <i>Sideroxylonobtusifolium</i> (Roem. &Schult.) T. D. Penn. | |
| Mouth sores | XII | L00-L08-Infections of the skin and subcutaneous tissue L20-L30-Dermatitis and eczema | <i>Catharanthusroseus</i> (L) Don. | 1 |
| Head wounds | XII | L00-L08-Infections of the skin and subcutaneous tissue L20-L30-Dermatitis and eczema | <i>Ziziphusjoazeiro</i> Mart. | 1 |
| Pain in the column, "back pain" | XIII | M40-M54-Back problems | <i>Pseudobombaxmarginatum</i> (A. St.-HiL, Juss.&Camb.) A. Robyns | 2 |
| | | | <i>Alpiniazerumbet</i> (Pers.) B. L Burt& R. M. Sm. | |
| Pain in the bones, strengthen bones | XIII | M80-M94-Osteopathies and condropatias M00-M25-Arthropathies | <i>Chenopodiumambrosioides</i> L | 2 |
| Rheumatism | XIII | M00-M25-Arthropathies | <i>Musa</i> sp. | |
| | | | <i>Momordicacharantia</i> L | 2 |
| Kidney pain, kidney problem, "urine pain", "infection in urine", diuretic | XIV XVIII | N10-N16-Sidney diseases-tubule, interstitial N25-N29-Other disorders of kidney and ureter R30-R39-Symptoms and signs related to the urinary system | <i>The Bryophyllumspinnatum</i> (Lam.) Oken | 5 |
| | | | <i>Ocimumgratissimum</i> L | |
| | | | <i>Perseaamericana</i> MilL | |
| | | | <i>Phyllanthusniruri</i> L | |
| Ovarian inflammation | XIV | N70-N77-Inflammatory diseases of female pelvic organs | <i>Punicagranatum</i> L | 1 |
| Uterine inflammation | XIV | N70-N77-Inflammatory diseases of female pelvic organs | <i>Sideroxylonobtusifolium</i> (Roem. &Schult.) T. D. Penn. | 1 |
| Kidney stone | XIV XVIII | N20-N23-Renal calculose R30-R39-Symptoms and signs related to the urinary system | <i>Costusspiralis</i> (Jacq.) Roscoe | 5 |
| | | | <i>Phyllanthusniruri</i> L | |
| | | | <i>The Bryophyllumspinnatum</i> (Lam.) Oken | |
| Pain | XVIII | R50-R69-General symptoms and signs | <i>Caesalpinia pyramidalis</i> TuL | 8 |
| | | | <i>Menthaarvensis</i> L | |

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|---|-------|--|---|-----------------------------|
| | | | <i>Mentha X piperita</i> L <i>Plectranthusneochilus</i> Schltr. <i>Cymbopogoncitratus</i> (DC.)Stapf <i>Cocosnucifera</i> L <i>Jatrophagossypiifolia</i> L <i>Menthaarvensis</i> L | |
| Headache | XVIII | R69-General symptoms and signs | <i>Mentha X piperita</i> L <i>Mentha X villosa</i> Huds. <i>Plectranthusamboinicus</i> (Lour.) Spreng. <i>Plectranthusbarbatus</i> Andrews <i>Chenopodiumambrosioides</i> L <i>Cocosnucifera</i> L <i>Ocimumgratissimum</i> L | 15 3 |
| Pain in the stomach | XVIII | R10-R19-Symptoms and signs related to the digestive system and abdomen | | |
| Pain in breasts | XVIII | R00-R09-Signs and symptoms relating to the circulatory system and respiratory system | <i>Chenopodiumambrosioides</i> L | 1 |
| Motion Sickness | XVIII | R10-R19-Symptoms and signs related to the digestive system and abdomen | <i>Citrus X limonia</i> (L) Osbeck | 1 |
| Stimulant | XVIII | R40-R46-Symptoms and signs related to cognition, perception, emotional state and behaviour | <i>Aloe vera</i> (L) Burm. f. | 1 |
| "Burst tumour" | XVIII | R20-R23-Symptoms and signs related to the skin and subcutaneous tissue | <i>Turneraulmifolia</i> L <i>Cocosnucifera</i> L <i>Bryophyllumspinnatum</i> (Lam.) Oken <i>Kalanchoebrasiliensis</i> Cambess. | 2 |
| Fever | XVIII | R50-R69-General symptoms and signs | <i>Caesalpiniaapicalis</i> TuL <i>Menthaarvensis</i> L <i>Mentha X piperita</i> L <i>Plectranthusneochilus</i> Schltr. <i>Malpighiaglabra</i> L | 13 |
| Weakness, "a piece of cake in the body" | XVIII | R40-R46-Symptoms and signs related to cognition, perception, emotional state and behaviour | <i>Cocosnucifera</i> L <i>Lippia alba</i> (Mill) N.E. BR. ex Britton & P. Wilson <i>Chenopodiumambrosioides</i> L <i>Anacardiumoccidentale</i> L <i>Myracrodruonurundeuva</i> Allemão <i>Aloe vera</i> (L) Burm. f. | 3 |
| General inflammation, infections | XVIII | R50-R69-General symptoms and signs | <i>Heliotropiumindicum</i> (L) DC <i>The</i> <i>Bryophyllumspinnatum</i> (Lam.) Oken <i>Kalanchoebrasiliensis</i> Cambess. <i>Punicagranatum</i> L <i>Cymbopogoncitratus</i> (DC.)Stapf | 19 |

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|---------------------------|-------|--|---|---|
| | | | <i>Morindacitrifolia</i> L <i>Sideroxylonobtusifolium</i> (Roem. &Schult.) T. D. Penn. | |
| "Constipation" | XVIII | R10-R19-Symptoms and signs related to the digestive system and abdomen | <i>Carica papaya</i> L | 1 |
| Remove signal | XVIII | R20-R23-Symptoms and signs related to the skin and subcutaneous tissue | <i>Aloe vera</i> (L) Burm. f. | 1 |
| "Tiriça" | XVIII | R10-R19-Symptoms and signs related to the digestive system and abdomen | <i>Cocosnucifera</i> L <i>Ocimumbasilicum</i> L <i>Cocosnucifera</i> L <i>Ananascomosus</i> (L) Merr. | 3 |
| Cough | XVIII | R00-R09-Signs and symptoms relating to the circulatory system and respiratory system | <i>Combretumleprosum</i> Mart. <i>Caesalpinhiapyramidalis</i> TuL <i>Turneraulmifolia</i> L <i>Citrus X limonia</i> (L) Osbeck | 8 |
| Vomit | XVIII | R10-R19-Symptoms and signs related to the digestive system and abdomen | <i>Cocosnucifera</i> L <i>Lippia alba</i> (MilL) N.E. BR. ex Britton & P. Wilson | 4 |
| Fracture, "bone necklace" | XIX | S40-S49-Shoulder and arm Injuries S50-S59-Traumatisms of elbow and forearm protectors S60-S69-Traumatisms of wrist and hand S70-S79-Injuries of hip and thigh S80-S89-Trauma of knee and leg S90-S99-Ankle and foot injuries | <i>Chenopodiumambrosioides</i> L <i>Tocoyenaguianensis</i> K. Schum. | 3 |
| Blow | XIX | T66-T78-Other effects of external causes and not specified | <i>Sideroxylonobtusifolium</i> (Roem. &Schult.) T. D. Penn. | 1 |
| Snake venom | XIX | T51-T65-Toxic effects of substances of predominantly non-medicinal origin | <i>Jatrophihamollissima</i> (Pohl) BailL | 1 |
| Dog ticks | -- | -- | <i>Jatrophihamollissima</i> (Pohl) BailL | 1 |
| Lice | -- | -- | <i>Aloe vera</i> (L) Burm. f. | 1 |
| Louse in animals | -- | -- | <i>Aspidospermapyrifolium</i> Mart. <i>Momordicacharantia</i> L | 4 |

Informants cited a total of 67 diseases that can be treated with medicinal species. The largest number of medicinal plants was indicated for the treatment of influenza (18 spp.), dysentery (11 spp.), general inflammation (11 spp.) and as healing of injuries (10 spp.). Flu and dysentery also stood out as the most therapeutic indications cited during the interviews, with 42 and 30 citations, respectively. Similar results were observed in the use of medicinal plants by migrant colonists northeasterners in Santarém-PA [29].

In study on the popular use of medicinal plants in Rio Grande do Norte several species of plants were cited for the same groups of diseases, and the treatment of the flu/throat/ear was the most quoted [5]. Largest number of species was cited for the treatment of influenza, among the residents interviewed in Mangaratiba, RJ[30]. Possibly this is due to increased frequency of this type of injury and the widespread belief that it's something that doesn't need a doctor.

The ICD 10 provides codes relating to classification of diseases and a wide variety of signs, symptoms, abnormal aspects, complaints, social circumstances and external causes for injury or disease. Each health state is assigned a single category to which corresponds a ICD code 10, covering chapters, groups, and categories. Due to the specificity of the information that apply more to the field

of medicine and Pharmacology and to avoid possible misclassification, diseases and symptoms mentioned in this work were coded only into chapters and groups of ICD 10. The chapters and their component groups, as well as the occurrence of these in this work can be found in Table 2.

Table 2. Chapters and Groups ranges, according to the ICD 10, therapeutic indications treated with medicinal plants in São João da Várzea, Mossoró-RN.

| Chapter | Description of the Chapter | Group interval | Number of occurrence | Paragraph groups cited |
|---------|--|----------------|----------------------|------------------------|
| I | Certain infectious and parasitic diseases | A00-B99 | 6 | 6 |
| II | Neoplasms [tumors] | C00-D48 | 1 | 1 |
| III | Diseases of the blood and bodies hematopoéticos and some immune disorders | D50-D89 | 4 | 4 |
| IX | Endocrine, nutritional and metabolic diseases | E00-E90 | 3 | 3 |
| V | Mental and behavioural disorders | F00-F99 | 2 | 1 |
| VI | Nervous system diseases | G00-G99 | 1 | 1 |
| VII | Eye diseases and attachments | 00-H59 | 0 | 0 |
| VIII | Diseases of the ear and mastoid apophysis | H60-H95 | 1 | 1 |
| IX | Diseases of the circulatory system | I00-I99 | 3 | 3 |
| X | Diseases of the respiratory system | J00-J99 | 8 | 5 |
| XI | Diseases of the digestive system | K00-K93 | 12 | 6 |
| XII | Diseases of skin and subcutaneous tissue | L00-L99 | 8 | 2 |
| XIII | Diseases of the musculoskeletal system and connective tissue diseases | M00-M99 | 4 | 3 |
| XIV | Diseases of the genitourinary system | N00-N99 | 5 | 4 |
| XV | Pregnancy, childbirth and the puerperium | O00-O99 | 0 | 0 |
| XVI | Some disorders originating in the perinatal period | P00-P96 | 0 | 0 |
| XVII | Congenital malformations, deformations and chromosomal abnormalities | Q00-Q99 | 0 | 0 |
| XVIII | Symptoms, signs and abnormal clinical findings and laboratory equipment not classified elsewhere | R00-R99 Non | 27 | 7 |
| XIX | Injury, poisoning and certain other consequences of external causes | S00-T98 | 8 | 8 |
| XX | External causes of morbidity and mortality | V01-Y98 | 0 | 0 |
| XXI | Factors influencing health status and contact with health services | Z00-Z99 | 0 | 0 |
| XXII | Codes for special purposes | U04-U99 | 0 | 0 |

Chapter XVIII stood out as the one that covered the greater number of maladies, with 27 citations of diseases and symptoms. These results can be associated with the scope of this chapter to allow the encoding of symptoms and signs not classified in other chapters and the great frequency of descriptions of symptoms during the interviews. Similar results were also found with the use of

medicinal plants by a rural population in the surroundings of the Parque Nacional da Serra do Itajaí-SC [31].

Another reason that may be related to that Chapter XVIII predominance is the fact that, for most informants, medicinal plants represent the first choice for treatment of the signs and early symptoms of the disease, then, if there is no improvement in health status, the same resort to medicines of conventional medicine. In the municipality of Ouro Verde – GO popular practices constitute the exclusive remedy for the treatment of a portion of the population, being that the patient is only taken to a clinic when exceeded a certain level of tolerance, or when another symptom[32].

There was also featured for diseases of the digestive system (Chapter XI), with 12 citations, followed by respiratory diseases (Chapter X), diseases of the skin and subcutaneous tissue (Chapter XII) and injuries, poisoning and certain other consequences of external causes (Chapter XIX), with 8 citations each. There was a predominance of the R10-R19 (Chapter XVIII), which includes symptoms and signs related to the digestive system and abdomen, with 10 therapeutic indications. The fact that this group be constituted of symptoms such as vomiting, stomach pain, dysentery, among others, that are common to various diseases, may have contributed to their increased occurrence.

During the interviews, some species were cited for treatment of ectoparasites of mammals such as *Aloe vera* (L) Burm. f. for lice in humans; *Aspidospermapyrifolium* Mart. and *Momordicacharantia* L. to animal lice and *Jatropha mollissima* (Pohl) Baill. to the ticks from animals. In these cases there was no coding according to the ICD 10. Although the ICD 10 is considered the standard international classification, listing various categories of diseases, she generalizes some information, making it difficult to identify the correct category. Despite the ICD 10 be suitable for epidemiological purposes and general health are not always administrative she allows the inclusion of enough detail for some specialties, and can sometimes be necessary information about different attributes of disorders classified[33]. In addition, the use of ICD 10 requires more technical knowledge and medical and pharmacological ascertained, what becomes a difficulty when it comes to Ethnobotanical studies.

When you try to combine symptoms and diseases cited by informants in Ethnobotanical studies, the researcher tends to synthesize information and tailor them to the already standardized classification of ICD 10, framing the quotations from informants in pre-established categories and losing-if detailed information regarding the medical indications and of traditional community rating system studied. In addition, the categories of diseases from ICD 10 do not always understand the diseases and symptoms cited by informants, and may generate errors and affect the final outcome of the work.

Of the total of diseases or symptoms treated with medicinal species found in productive units studied, 18 were cited by key informants as traditional classification. This classification uses popular terms and regionalized featuring matches with the categories of the official medicine diseases, requiring the description of detailed information so that you can encode them according to the ICD 10 (Table 3).

Table 3. Description of diseases and symptoms, according to traditional classification of informants of São João da Várzea, Mossoró-RN.

| Traditional classification | Description | Chapter | Group |
|----------------------------|-------------------------------------|----------|---|
| "Fatigue" | Difficulty breathing. | X | J40-J47 Chronic airway diseases below |
| "swollen belly " | Difficulty in the digestion of food | XI XVIII | K55-K63 Other diseases of intestines R10-R19-symptoms and signs related to the digestive system and abdomen |
| "Swollen Stomach" | Poor digestion. | XI XVIII | K55-K63 Other diseases of intestines R10-R19-symptoms and signs related to the digestive system and abdomen |

| | | | |
|-------------------------------|---|-----------|--|
| "Bone Necklace" | Reconstruction of bone in the case of a fracture. | XIX | S40-S49 Shoulder and arm injuries S50-S59-Traumatisms of elbow and forearm protectors S60-S69-Traumatisms of wrist and hand S70-S79-Hip and thigh Injuries S80-S89-Knee and leg Injuries S90-S99-Ankle and foot injuries |
| "Urine pain" | Urinary tract infection. | XIV XVIII | N10-N16-Kidney diseases-tubule interstitial N25-N29-Other disorders of kidney and ureter R30-R39-Symptoms and signs related to the urinary system |
| "Illness" | Injuries, wounds | XII | L00-L08-Infections of the skin and subcutaneous tissue L20-L30-Dermatitis and eczema |
| "Estalecido" | Runny nose, runny nose | X | J00-J06-Acute upper airway Infections |
| "Stanching blood" | Control the blood loss | III XVIII | D65 D69-Coagulation Defects-, Purpura and other hemorrhagic diseases R50-R69-general symptoms and signs |
| "Burst tumour" | Disruption of skin boil | XVIII | R20-R23-Symptoms and signs related to the skin and subcutaneous tissue |
| "Boredom" | Lack of appetite | V | F50-F59 Behavioural syndromes associated with-physiological disorders and physical factors |
| "Foists" | Dermatological disease caused by fungal infection | (I) | B35-B49-Mycoses |
| "Infection in urine" | Urinary tract infection | XIV XVIII | N10-N16-kidney diseases-tubule interstitial N25-N29-other disorders of kidney and ureter R30-R39-symptoms and signs related to the urinary system |
| "A piece of cake in the body" | Weakness, despondency | XVIII | R40-R46-Symptoms and signs related to cognition, perception, emotional state and behaviour |
| "Chest" | Chest discomfort with snoring or wheezing | X | J20-J22 Other acute infections of the lower Airways J40-J47 Chronic airway diseases below |
| "High blood pressure" | Arterial hypertension | IX XVIII | I10-I15 Hypertensive diseases R00-R09-signs and symptoms relating to the circulatory system and respiratory system |
| "Constipation" | Constipation | XVIII | R10-R19-Symptoms and signs related to the digestive system and abdomen |

| | | |
|-------------|--|--|
| "Tiriça" | Jaundice, yellowing of the skin and eyes XVIII | R10-R19-Symptoms and signs related to the digestive system and abdomen |
| "Back pain" | Low back pain in the lower part of the column XIII | M40-M54-Back problems |

In Ethnobotanical studies it is common to obtain information about use of plants for the treatment of diseases not recognized by official medicine. In the present study, only *Jatropha gossypifolia* L was cited as a species, being used for protection and/or treatment of "cultural diseases". The term "cultural diseases" refers to events interpreted as diseases and does not show a cause justify scientifically[34]. Cultural diseases are quite popular in rural communities, and serve to explain symptoms of other ailments that have not been identified by the population in that specific moment[7].

Informants stated that keeps in the yard at least a plant *Jatropha gossypifolia* aiming to protect their homes against negative phenomena. This is a widespread practice throughout the Brazilian Northeast and the species is used as a magic plant, planted in front of the houses, avoiding the entry of evils[23], as protection against lightning, snakes and against violence[35]. Although has not evidenced the occurrence of mourners and/or benzedeiros between informants, most related to use of the pinion purple to pray and/or bless people affected by certain "cultural diseases".

Some rituals must be met methodically during the preparation of some plants. In this way, even if it hasn't been cited as mystical plant, mint (*Mentha arvensis* L. *Mentha X piperita* L. or *Mentha X villosa* Huds.) had its use associated with the mystical character, since the majority of informants reported that, at the time of preparation, the leaves cannot be boiled, as this may cause the death of the plant where they were dropped. The same aspect was observed by[36] in the homegardens of Rondonópolis-MT, but with another species, rue (*Rutagraveolens*L). It is possible that this practice indicates the informant's knowledge about the possible loss of active principles of species during the process of decoction[37]. This information need more research, because it is possible that codes that involve in the more efficient use of the plant are being passed through what in our culture is referred to as "Mystic".

Informants have a traditional knowledge regarding the use of plants for treatment of different symptoms and diseases, with well-defined practices for preparations with plants and therapeutic use.

More anthropological studies are required to understand the diseases and symptoms of community studied, because the framing the quotations from informants in pre-established categories lose detailed information regarding the medical indications and of traditional classification system.

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