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► **To cite this version:**

Isanete Geraldini Costa Bieski, Marco Leonti, John Thor Arnason, Jonathan Ferrier, Michel Rapinski, et al.. Ethnobotanical study of medicinal plants by population of Valley of Juruena Region, Legal Amazon, Mato Grosso, Brazil. *Journal of Ethnopharmacology*, 2015, 173, pp.383-423. 10.1016/j.jep.2015.07.025 . mnhn-03988599

HAL Id: mnhn-03988599

<https://mnhn.hal.science/mnhn-03988599>

Submitted on 16 Feb 2024

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Contents lists available at ScienceDirect

Journal of Ethnopharmacology

journal homepage: www.elsevier.com/locate/jep

Ethnobotanical study of medicinal plants by population of Valley of Juruena Region, Legal Amazon, Mato Grosso, Brazil



Isanete Geraldini Costa Bieski^a, Marco Leonti^b, John Thor Arnason^c, Jonathan Ferrier^c, Michel Rapinski^c, Ivana Maria Povoá Violante^a, Sikiru Olaitan Balogun^a, João Filipe Costa Alves Pereira^a, Rita de Cassia Feguri Figueiredo^a, Célia Regina Araújo Soares Lopes^d, Dennis Rodrigues da Silva^d, Aloir Pacini^e, Ulysses Paulino Albuquerque^f, Domingos Tabajara de Oliveira Martins^{a,*}

^a Department of Basic Sciences in Health, Faculty of Medicine, Federal University of Mato Grosso (UFMT), 78060-900 Cuiabá, MT, Brazil

^b Department of Biomedical Sciences, University of Cagliari, 09124 Cagliari, Italy

^c Department Biology, University of Ottawa, 30 Marie Curie, Ottawa, Canada

^d Faculty of Biological and Agrarian Sciences, University of Mato Grosso State (UNEMAT), Campus Universitário de Alta Floresta, UNEMAT, 208, km 146, Jardim Tropical, Alta Floresta, MT, Brazil

^e Department of Anthropology, Rondon Museum, Federal University of Mato Grosso, Brazil

^f Department of Biology, Laboratory of Applied and Theoretical Ethnobiology (LEA), Federal Rural University of Pernambuco (UFRPE), Recife, Pernambuco, Brazil

ARTICLE INFO

Article history:

Received 13 April 2015

Received in revised form

16 June 2015

Accepted 16 July 2015

Available online 30 July 2015

Keywords:

Emic use

Ethnobotanical

Amazon rain forest

Use-reports

Informant consensus factor

ABSTRACT

Ethnopharmacological importance: The use of medicinal plants for treatment, cure and prevention of diseases has been described by many people since time immemorial. Because of this use, commercial and scientific interests have emerged, making it necessary to realize ethnobotanical surveys of medicinal plants species, which is important for subsequent chemical and pharmacological bioprospections.

Aim of the study: This study aimed at surveying, identifying, cataloging and documenting the medicinal plants species used in the Valley of Juruena, Northwestern Mato Grosso, Legal Amazon Brazil for the treatment of various human diseases, as well as assessed the species of interest for bioprospecting potential.

Materials and methods: Informants were interviewed using semi-structured form to capture information on socio-demographic and ethnopharmacological data of medicinal plants such as vernacular name, uses, geographic origin, habit, form of preparation and part used. Results were analyzed using descriptive and quantitative means: indices of use-report (Ur) and informant consensus factor (ICF), for the selection of plant species with therapeutic potential.

Results: Three hundred and thirty two (332) plants species belonging to 90 families were reported for medicinal purposes and totaling 3973 use-reports were reported by 365 (92.9%) of the people interviewed. Asteraceae (32.2%), Fabaceae (26.7%) and Lamiaceae (24.4%) families were the most represented, with majority being species native (64.45%) to Brazil. Leaves (64.5%) were the part of the plant most used and infusion (45.7%) was the most utilized form. Gastrointestinal disorders followed by respiratory complaints topped the list of use-reports. The native or naturalized plants with the highest use reports in the order of decreasing absolute frequency per each emic-category are *Cymbopogon citratus* (DC.) Stapf (104), *Mentha pulegium* L. (94), *Arrabidaea chica* (Humb. & Bonpl.) B. Verl. (97), *Alternanthera brasiliana* (L.) Kuntze (71), *Baccharis crista* Spreng (57), *Phyllanthus niruri* L. (48), *Gossypium barbadense* L. (44), *Solidago microglossa* DC. (40) and *Bauhinia forficata* L. (20). And the most cited exotics are: *Chenopodium ambrosioides* L. (151), *Aloe vera* (L.) Burm. f., (89) and *Rosmarinus officinalis* L. (72). In some cases, high ICF values were found, which reflects high degree of homogeneity of consensus among informants in this region on medicinal plants.

Conclusion: The population of Valle of Juruena makes use of a wide array of medicinal plants distributed in all use categories with predominance of those use in the treatments of gastrointestinal and respiratory

* Corresponding author.

E-mail address: taba@terra.com.br (D.T.d.O. Martins).

ailments. The therapeutic potential of some of the species of medicinal importance extensively utilized by the population of the region have been scientifically validated, and are therefore promising prototype of new drugs. However, there are some of these species whose ethnomedicinal uses are yet to be scientifically verified and thus constitute an unexplored terrain for future biological/pharmacological studies.

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1. Introduction

The Amazon rainforest also known as “Amazônia”, ‘Selva Amazônica’, “Hileia Amazônica”, Rain Forest and Amazon Equatorial Forest is present in nine countries of South America (Brazil, Peru, Colombia, Venezuela, Ecuador, Bolivia, Guyana, Suriname and French Guiana) occupying an area of 5,500,000 km², with most part found in the Brazilian territory (60%) (Rodrigues et al., 2014).

In Brazil, the Amazon accounts for 49.29% (4,196,943 km²) of the territory, covering seven states of the Northern Region (Amazon, Pará, Tocantins, Rondônia, Acre, Amapá and Roraima), one of the Midwest (Mato Grosso) and one of the Northeast (Maranhão). For the purposes of social and economic development of the Amazon region, the Brazilian government in 1996 introduced the concept of Legal Amazon which holds 12.4% of the Brazilian population (Michael, 2007).

The Amazon rainforest is a biome characterized, like all tropical forests, by its high biodiversity. Around 1100 tree species were censused in an area of 0.25 km², which is around as many species found in 4.2 × 106 km² of temperate forests of Europe, Asia and North America (Wright, 2002). In addition, previous ethnopharmacological field-studies with local Amazonian populations have identified several medicinal species popularly used for the treatment of a range of diseases (Rodrigues, 2006), while other studies showed promising activities in preliminary *in vitro* assays (Kloucek et al., 2007).

The Amazon rainforest is the most extensive equatorial forest in the world and represents the largest reservoir of plant and animal species, hosting an estimated one-quarter of all terrestrial species (Rodrigues et al., 2014). Besides having the largest plant

and animal biodiversity in the world, with approximately 25% of all terrestrial species (Rodrigues et al., 2014), the Amazon is a cultural complex, the bearer of a traditional set of values, beliefs, attitudes and ways of life that have shaped the social organization and system of knowledge, practices and uses of natural resources, that was previously predominantly indigenous. New values and cultural practices have been incorporated to the existing ones by the colonizers and settlers, mainly Portuguese and Spanish, with some African, Asian and Semitic contribution, in addition to new values contributed by the northeastern migrants and, more recently from various regions of Brazil, especially migrants from the South and Southeast Regions (Benchimol, 2009). With this multi-diversity of peoples and nations, the Amazon is home to a significant number of indigenous and traditional peoples including rubber tappers, chestnut tree collectors, riverine dwellers, babassu collectors, among others, that give prominence to its cultural diversity (Benchimol, 2009).

Here we report on an ethnopharmacological field-study conducted in the Valley of Juruena, a little studied area within the Amazon rainforest. The ethnobotany of this region was of particular interest to us, because, despite being located in one of the biodiversity rich environments, there is lack of comprehensive studies regarding the uses of medicinal plants by the local population, however, there is a report on the pharmacological activity of a medicinal plant species from this region (Mafioleti et al., 2013).

The present study focused on a quantitative ethnobotanical field-work through interviews of Valley of Juruena population and the analysis of the data obtained. Additionally we evaluated the most important medicinal plants of this region using information in the specialised literature in the area. The rationale for using

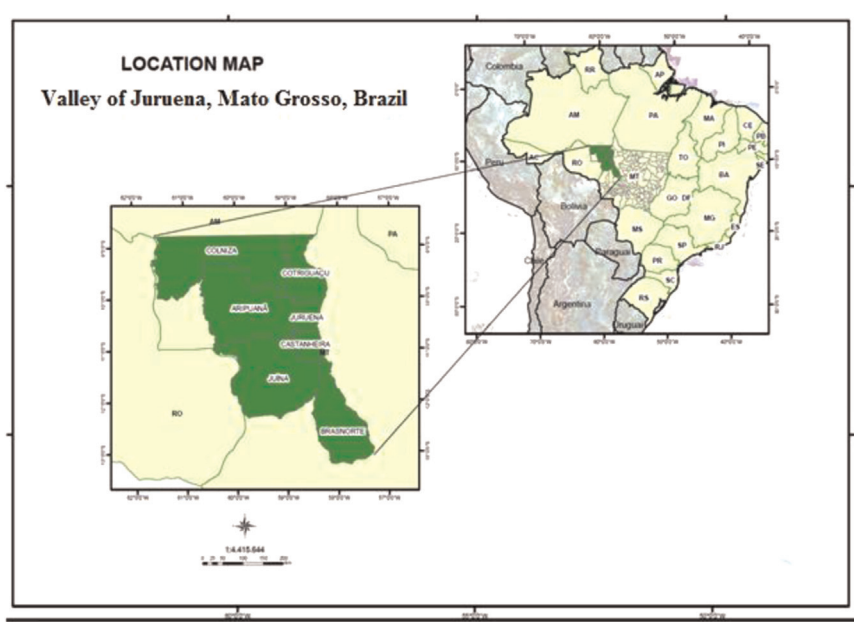


Fig. 1. Location of the study area, Valley of Juruena, Mato Grosso, Legal Amazon, Brazil.

Table 1

Distribution of population and sample by municipals and number of use-report of plants Valley of Juruena, Mato Grosso, Legal Amazon, Brazil.

*Source: IBGE 2013.

	City	Distance from Cuiaba (km)	Popula- tion*	Sample fraction	Sample size <i>n</i>	Sample size <i>fn</i>	Use-report	Species cited	Rf (%)
1	Aripuanã	883	20,511	0.1470	56	57	808	133	41
2	Brasnorte	579	15,089	0.1081	41	46	298	116	36
3	Castanheira	781	8059	0.0578	22	19	87	46	14
4	Colniza	1200	31,597	0.2265	87	91	1570	228	71
5	Cotriguaçu	920	14,965	0.1073	41	44	223	81	25
6	Juína	735	39,708	0.2846	109	110	850	197	61
7	Juruena	830	9595	0.0688	26	26	137	60	19
Total			139,524	1.0000	383	393	3973	–	–

ID=identification municipals. *n*=proposed informants to be interviewed. *fn*=Final informants interviewed. Rf=Relative Frequency.

these plants by the population of Valle do Juruena is also discussed.

2. Methods

2.1. Description of the study area

Valley of Juruena Region is located in the northwestern part of Mato Grosso State of Brazil. It is divided into seven municipals (Juína, Aripuanã, Brasnorte, Conilza, Castanheira, Cotriguaçu and Juruena) and located between 11°22′ – 09°24′ – 10°10′ – 12°9′ – 09°24′ – 11°07′ – 09°57′ – 10°20′ S and 58°44′ – 59°27′ – 57°58′ – 59°01′ – 58°36′ – 58°24′ – 58°30′ W, respectively as shown in Fig. 1 (Mato Grosso, 2012).

The population of the Valley of Juruena Region counts with 139,524 inhabitants, which represents 4.6% of the total population of Mato Grosso, with a high percentage of migrants coming from the south-central part of Brazil. The area is characterized by ecological diversity wholly represented by the biome of the Amazon, the largest rainforest in the world, covering a total area of 111,849.70 km² (IBGE, 2013). Although the area was traditionally seen as a relatively homogeneous biome today, the idea prevails that it is a mosaic of different ecosystem harboring heterogeneous community, in both composition and diversity (Prance and Lovejoy, 1985; Ferreira, 2001). The climate is hot and humid equatorial, with two months of drought from June to July, and the annual rainfall is 2750 mm on average, with temperature varying between 4 and 40 °C (Ferreira, 2001).

The 7 municipals are regarded as agricultural frontiers of Mato Grosso, i.e. they have their economy based on agricultural expansion. The economy of the whole region is largely based on the rural sector, with agriculture, timber industry as well as gold and diamond mining as the main income sources (Mato Grosso, 2012).

2.2. Data collection

2.2.1. Sampling design

While the large part of ethnobotanical field studies focused on expert knowledge (Heinrich et al., 2009), in the present study we focused on the average knowledge and attitude towards medicinal plants, self-medication, and therapeutic choices by the population of Valley of Juruena. Therefore, we needed to collect a sufficiently large, randomly selected and unbiased sample using sampling method termed “probability sampling” or “random sampling” by Bolfarine and Bussab (2005).

We used probabilistic planning considering a simple and stratified randomized sampling method (Bolfarine and Bussab, 2005; Scheaffer et al., 2006). Calculation of estimated total sample size for the whole Region as well as the micro-areas was realized as

previously detailed by Espinosa et al. (2012, 2014).

2.3. Ethnobotanical data collection

Ethnobotanical study was conducted in all the seven municipals that constitute Valley of Juruena Region. Valley of Juruena area was visited 20 times between 2010 and 2013. One informant per family who was at least 18 years of age and had been living more than a year in the study area was selected for the interview. Interviews were conducted using a detailed form to obtain sociodemographic and ethnobotanical data. A free list technique was used, in which informants were asked to list the medicinal species that they knew and/or used. The informants were also asked to describe the methods of preparation of the plant, part used, therapeutical indication, dosage and duration of application, including descriptions of side-effects or perceived toxicity or caution measures applied to avoid toxic effects.

Most plant species were collected together with the informants and in some cases; plants were collected in a later visit in the same location where the informant lived. As shown in Table 2, emic perceptions of the illnesses as reported by the informants (use-report, UR) were used for the purpose of comparison and to analyze the cultural importance.

The interviews were conducted in the local language ‘Portuguese’ and the documentation of the data in the field was also done in the same local language, in addition to voice recording for later verification.

During the three years of field-research, 1123 specimens of vascular plants were collected. Plants were pressed in the field and prepared for identification. The system used for species classification was the Angiosperm Phylogeny Group III (APGIII). The scientific names and the distribution of the species were confirmed with the databases of the Missouri Botanical Garden (MOBOT) (available at <http://www.tropicos.org>), while the geographical origin status was based on Rio de Janeiro Botanical Garden database of list of species of the Brazilian flora (available at <http://floradobrasil.jbrj.gov.br/>). Vouchers that were collected in the flowering state and/or with fruits were identified by comparison with the specimens at the Herbário UFMT (Universidade Federal de Mato Grosso). Herbarium vouchers were also incorporated in the respective collections of the following herbaria for identification: Herbário UFMT, Cuiabá campus, HERBAM Southern Amazon, State University of Mato Grosso (UNEMAT), Alta Floresta Campus and CGMS/MS Campo Grande. The curators of these herbaria, whose name are Germano Guarim Neto, Célia Regina Araujo Soares Lopes and Joana Pott, respectively, did the identification. APG III classification system was employed (The Angiosperm Phylogeny Group, 2009). The voucher number of each plant identified is included in Table 1.

Table 2

Quantitative ethnobotanical analysis of the 12 categories of indigenous uses of Valley of Juruena, Mato Grosso, Legal Amazon, Brazil.

Category of indigenous uses (group of illness)	ICF	Use-report	% Ur _{tot}	Taxa	% Taxa	% Leaf/aerial part	% Root/tuber	% Bark
Gastrointestinal disorders (GA)	0.81	839	21.13	154	46.75	72.50	8.30	5.80
Respiratory complaints (RE)	0.85	818	20.60	116	34.00	82.20	5.13	12.60
Fever and aches (FI)	0.68	421	10.60	131	39.05	85.70	4.90	9.35
Diseases of the skin (DE)	0.76	401	10.10	94	28.11	74.17	22.76	3.30
Genitourinary problems (GU)	0.74	347	8.74	88	25.74	78.30	12.00	9.60
Women's health (GY)	0.75	248	6.25	62	18.64	80.00	15.10	4.90
Skeleto-muscular disorders (SK)	0.57	198	4.99	79	23.67	63.50	11.60	24.80
Diabetes (DI)	0.40	39	0.98	22	6.51	77.80	13.90	7.90
Culture-bound syndromes (CB)	0.14	8	0.20	7	2.07	71.40	28.60	0.00
Ophthalmologic complaints (OP)	0.60	7	0.18	3	0.89	100.00	0.00	0.00
Venomous animals (VE)	0.55	6	0.15	3	0.89	50.00	0.00	50.00
Different uses (DU)	NA	641	16.17	145	42.31	NA	NA	NA

Total number of use-reports is 3973; total number of taxa is 332; ICF, informant consensus factor; % Ur_{tot}, percentage of use-reports that contributed to the total amount of use-reports by the respective illness category; Taxa, total amount of plant species contributing to the use-reports of the respective illness category; % Taxa, percentage of the plant species reported for an illness category with respect to the total amount of reported plants species; % Bark, percentage of use-reports for the respective illness category which indicate barks; % Leaf/aerial part, percentage of use-reports for the respective illness category that indicate leaves or aerial parts; % Root/tuber, percentage of use-reports for the respective illness category which indicate roots or tubers.

2.4. Data analysis

The ethnobotanical data were evaluated through the quantification of UR, and the informant consensus factor as described by Trotter and Logan (1986). Additionally we evaluated the most important medicinal plants of this region using published literature on the phytochemistry and pharmacology of these species as similarly reported by Leonti et al. (2001).

2.4.1. Informant consensus factor (ICF)

The ICF (Trotter and Logan, 1986) was calculated according to the following formula: $ICF = \frac{Nur - Nt}{Nur} - 1$. Where *Nur* refers to the number of use reports of informants for particular illness category, and *Nt* is the number of species used for particular illness by all informants. The ICF reflects the homogeneity of the information and consensus between the informants (Gazzaneo et al., 2005). This factor ranges from zero to one, where increasing values indicate high rate of informant consensus. The ICF is used to show cultural coherence in the selection of certain medicinal plants or agents employed in the treatment of a certain illness category, and seem to highlights their effectiveness in treating a particular disease (Heinrich et al., 1998; Leonti et al., 2001).

2.4.2. Literature review

Data search was performed using the following electronic databases: Pubmed, SciFinder, Chemical Abstracts, Biological Abstracts, Web of Science, Science Direct and SciELO, the collection of libraries of Osvaldo Cruz Foundation and Botanical Garden – RJ as well as books on botany and pharmacology. Searches were carried out using the keywords: “scientific name of the plant family” and “vernacular name”.

Scientific names and abbreviations of authors of taxa are in accordance with the Brazilian Flora Species List, International Plant Name Index, the TROPICOS database and Missouri Botanical Garden. The botanical terms are according to Judd et al. (2002) and Pereira and Agarez (1977).

For the purpose of further discussion on phytochemical and pharmacological of literature findings, we selected for review species within a use-category with at least 200 URs and an ICF of at least 0.7. For each of the use-category, only plants native to or naturalized to Brazil with the highest UR per category were selected.

We excluded discussion of exotic plants that have been extensively studied and are well documented in the literature, because discussing these plants will make the paper superfluous.

2.5. Ethical aspects

The project was approved by the Ethics Committee on Research involving Human Subjects in November 2010, under the Protocol no. 958/CEP-HUJM/2010 and the National Board of Genetic Heritage of the Ministry of Environment (CGEN/MMA), under Resolution no. 247 published in the Brazilian Official Gazette, in April 2013. The access to samples (plants parts) of Genetic Patrimony was authorized by Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), under No. 010728/2013-9 (Table 2).

3. Results and discussion

3.1. Demographic characteristics of informants

Of the 393 informants who responded to the form, the largest proportion was female (68.7%), predominantly in the age range of 40 and 59 years (41.8%). A greater proportion of respondents were from the South, Southeast and Northeast of Brazil (79.6%), with only 4.8% born in the Valley of Juruena Region. Around 87% of the respondents had been living in the Region for more than five years. Analysis of how respondents' came to acquire the use of medicinal plants shows that 79.79% (291) of the respondents learnt it from their family members (Fig. 2A).

When asked for the reasons for using herbs, 45.48% (167) of the respondents said that they learnt it principally because it is part of their cultural tradition, while another 33.97% (125) does so because of the perceived safety (Fig. 2B). These informations showed the importance of tradition and family influence in the transmission and preservation of traditional medicine knowledge.

According to Alexiades (1996), the most reliable medicinal uses are those already used by the informants, relatives or acquaintances of the same. Apparently, those without formal education seem to be more knowledgeable of medicinal plants than those who had some formal education. For example, 35 respondents who had less than one year of schooling contributed 411 UR (10.34% of the total reports) compared to 61 of those who had between 1 and 9 years of schooling, but contributed 394 (9.91%) UR. Similar results have been reported in studies conducted in Ethiopia (Gedif and Hahn, 2003; Giday et al., 2009) and Thailand (Wester and Yongvanit, 1995). The monthly income of the majority was between US\$ 242 and \$ 1210, which corresponds to one and five times the Brazilian minimum wage (81.2% of respondents).

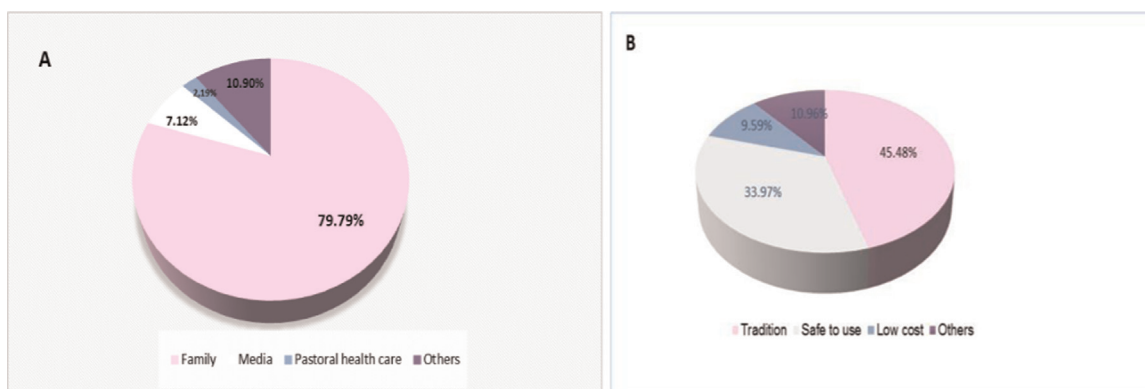


Fig. 2. (A) Sources of the informants knowledge on medicinal plants. (B) reasons for using medicinal plants by the informants.

3.2. Medicinal plants and associated knowledge

The respondents from Valley of Juruena cited 332 plants as being used for medicinal purposes. However, only 271 were identified by the botanists attached to the herbaria and another 61 by the first author using books (Corrêa and Penna, 1984; Guarim Neto, 1996; Lorenzi and Matos, 2002) (Table 3).

Analysis of the contribution of the municipals to the URs shows that Colniza municipality accounts for the higher percentage (38.30%) with 1371 UR, followed by Juína 830 UR (20.89%) and Aripuanã with 708 (17.82%), based on the proportion of informants interviewed. Out of 393 informants, 365 (93.0%) reported using medicinal plants in self-care, with a maximum of 86 UR reported by a woman and a maximum of 81 UR reported by a male. In total, we obtained 3973 UR associated with 332 different plant species belonging to 93 botanical families and 277 genera (Table 3). Plants used to treat gastrointestinal disorders were the most frequently reported (21.12% of UR) followed by respiratory complaints (20.59%), fever and aches (10.60%), diseases of the skin (10.09%) and genitourinary problems (8.73%).

Concerning the number of taxa noted in this survey and in the order of decreasing magnitude of the most cited, they are GA (157), DU (137), FI (127), RE (108), GU (81) and GY (67). This is a highly significant number of taxa when compared with other ethnobotanical surveys conducted in the Legal Amazon area of Mato Grosso (Van Den Berg, 1982; Vieira, 1992; Guarim Neto, 1996). Ninety three (93) plant families were recorded. Asteraceae 12.67% (29 species), Fabaceae 9.28% (24 species) and Lamiaceae 9.34% (22 species) topped the list of plant families with the highest citations.

Out of the recorded species, 64.45% were native, 42.42% were herbaceous and 32.72% were trees. The most common methods of preparations were infusion (45.70%) followed by decoction (23.41%). The parts of the plants used were leaves (64.50%), roots (8.90%) and bark (7.84%), while fruits, seeds, flowers as well as oils, latex and resins account for the remaining 18.76%.

As can be seen in Table 2 the ICFs for the use-categories are relatively high, suggesting exchange of informations or common knowledge among the population of Valle do Juruena on medicinal plants or apparent efficacy of these plants. This may be related to the mode of transmission of the information in this population (mainly through parents) and/or because the informants sampled had lived for a considerable period (more than 5 years) in this Region.

3.3. General analysis of the data

High UR and ICF values were obtained for fever and headaches (UR=405; ICF=0.68), diseases of the skin (UR=400; ICF=0.76)

and genitourinary related complaints (UR=335; ICF=0.74). As we stated above, it may be due to the common occurrence of these conditions due to the nature of economic activities, health and sewage facilities of these inhabitants of the area under study. A relatively high URs and ICF was also obtained for the women's health use-category (UR=248; ICF=0.75).

In some of these use-categories, there is prominence of some well known exotic plants, like in the case of gastrointestinal disorders (*Mentha × piperita* and *Bidens pilosa* L., 40 and 32 UR respectively) and skin diseases [*Aloe vera* (L.) Burm, 50 UR]. As Leonti and Casu (2013) noted, the present globalization is currently accelerating the interchange between local and global pharmacopoeias through international business interests, the print media, television, the World Wide Web, and thus generating a feedback loop. However, it is unlikely that these factors are responsible for the sizeable portion (22.13%) of the exotics encountered in this study, since negligible number of the informants reported acquiring information on medicinal plants through mass media or the internet, while majority did so through their family members and by traditional practices (Fig. 2).

The readers may also consult a prime work by Bennett and Prance (2000) on plants introduced to Southern America. These authors also observed that most of the exotics introduced are used in the treatments of respiratory and skin problems. According to these authors, some of the primary reasons advanced for the introduction of plants might relate to their use as food ingredients (such as seasoning and coloring purposes), in this case we may cite *Mentha × piperita* and for their well known therapeutic purposes like in the case of *A. vera*.

As noted in our study, the most common exotic plants employed in many use-categories have been extensively studied and are frequently encountered in many studies of this nature in many communities either as exotics or natives (AbouZid and Mohamed, 2011; Juárez-Vázquez et al., 2013; Savikin et al., 2013). *B. pilosa* L. is another commonly encountered exotic plants. *B. pilosa* is a globally distributed across temperate and tropical regions. The folkloric use of *B. pilosa* has been recorded in America, Africa, Asia and Oceania (Bartolome et al., 2013).

Culture-bound syndrome (0.14), diabetes (0.40), skeleton-muscular ailments (0.57) had relatively lower values of ICF value.

Leaves and aerial parts of the plant are most commonly used, followed by root/tuber and then the bark in all use-categories, (see Table 1). The predominance of leaves in ethnomedicine of many tribal communities has been noted (Amri and Kisangau, 2012; Ayyanar and Ignacimuthu, 2011; Prabhu et al., 2014; Yabesh et al., 2014). This may be due to the ease of collection of leaves and their availability throughout the seasons when compared to the underground parts, flowers, fruits, etc. (Giday et al., 2009). And from the scientific point of view, leaves are active in photosynthesis and

Table 3
List of medicinal plants conclusively identified and reported use (UR), Valley of Juruena, Mato Grosso, Legal Amazon, Brazil.

Family/botanical species	Vernacular name	Category of disease/use-category/use-report	tCD	tUC	tUR	BI	HB	GO	Distribution
ACANTHACEAE									
<i>Justicia pectoralis</i> Jacq.	Anador	Fl: analgesic (2), dengue (1), local pain (6), fever (3); RE: flu (2)	2	5	14	BI-33442	He	N	Argentina, Belize, Bolivia, Brazil, Caribbean, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, United States, Venezuela
ALISMATACEAE									
<i>Echinodorus horizontalis</i> Rataj	Taioba	DU: anemia (1); Fl: constipation (5)	2	2	6	BI-336	He	N	Brazil, Colombia, Ecuador, Peru, Venezuela
<i>Echinodorus scaber</i> Rataj	Chapéu-de-couro	DE: eczema (1), pimples (1), external wound (1), wound healing (1); DU: blood depurative (7), hypertension (1); Fl: local pain (1); GA: liver (1); GY: uterine infection (2); SK: inflammation (1), rheumatism (6); UR: bladder (1), diuretic (3), kidney infection (4), urinary infection (1), kidneys (16)	7	16	48	BI-31608	He	N	Brazil, Guyana, Nicaragua
AMARANTHACEAE									
<i>Alternanthera brasiliana</i> (L.) Kuntze	Terramicina	DE: wound healing (23), wounds (9), wash wound (1); DU: cancer (2); GA: diarrhea (1); GY: uterine infection (3), discharge (1), postoperative infection (3); Fl: local pain (3), fever (1), RE: antibiotic (8), throat (2), flu (1), infection in throat (1); SK: inflammation (4); UR: diuretic (1), urinary infection (5)	8	17	71	BI-33453	He	N	Argentina, Belize, Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Peru, Suriname, United States, Venezuela
<i>Beta vulgaris</i> L.	Beterraba	DU: anemia (1)	1	1	1	BI-IC	He	E	Belize, Colombia, Costa Rica, Ecuador, Honduras, Madagascar, Mexico, New Zealand, Saudi Arabia, United States
<i>Celosia argentea</i> L.	Crista-de-galo	DU: heart (1); Fl: local pain (1)	2	2	2	BI-32714	Tr	N	Belize, Bhutan, Bolivia, Brazil, Burma, Cambodia, Canada, China, Colombia, Costa Rica, Ecuador, French Guiana, Gabon, Guatemala, Guyana, Honduras, India, Japan, Laos, Madagasca, Mexico, Nepal, Panama, Peru, Phillipines, Reunion, Russian Federation, South Africa, South Korea, Suriname, Thailand, United States, Venezuela, Vietnam
<i>Chenopodium ambrosioides</i> L.	Erva-de-santa-maria	DE: wound healing (16), injuries (13), bruise (12), blow (1); DU: bone regeneration (7); Fl: Local pain (7); GA: stomach (3), gastritis (1), hepatitis (1), intestine (infection) (1), roundworms (1), worm (70); RE: antibiotic (3), flu (1); SK: inflammation (10), bone fracture (11), swelling (4), twist (1)	6	19	151	BI-863	He	N	Argentina, Australia, Belize, Bolivia, Brazil, Caribbean, Chile, Costa Rica, Ecuador, French Guiana, Gabon, Guatemala, Guyana, Honduras, Java, Kenya, Madagasca, Mexico, Newzealand, Panama, Peru, Phillipines, Saudi Arabia, South Africa, Sulawesi, Suriname, Tanzania, Uganda, USA, Venezuela
<i>Gomphrena globosa</i> L.	Perpétua	DU: heart (1)	1	1	1	BI-IC	He	N	Argentina, Belize, Bolivia, Brazil, Canada, China, Colombia, Costa Rica, Ecuador, French Guiana, Guatemala, Guyana, Honduras, India, Mexico, Panama, Peru, South Africa, Suriname, United

<i>Pfaffia glomerata</i> (Spreng.) Pedersen	Ginseng-brasileiro	DE: wound healing (2); DI: diabetic (1); DU: cancer (1), cholesterol (1), impotence (1), palpitation (1); FI: local pain (1); GA: liver (1), stomach problems (1); RE: flu (1); SK: inflammation (1), rheumatism (2)	7	12	14	BI-33430	Sh	N	States, Venezuela Argentina, Bolivia, Brazil, French Guiana, Guyana, Suriname
AMARYLLIDACEAE									
<i>Allium cepa</i> L.	Cebola	FI: local pain (1); RE: flu (1), cough (1); DU: tetanus (1)	3	4	4	BI-IC	He	E	Belize, Canada, China, Colombia, Costa Rica, Ecuador, Guatemala, Honduras, Mexico, United States
<i>Allium sativum</i> L.	Alho	FI: local pain (1); GA: worm (2); RE: flu (7), cough (2); SK: inflammation (1); DU: cholesterol (2), hypertension (2)	5	7	17	BI-17397	He	E	Belize, Canada, China, Colombia, Costa Rica, Ecuador, Guatemala, Honduras, Mexico, United States
ANACARDIACEAE									
<i>Anacardium occidentale</i> L.	Caju	DE: wound healing (3); DI: diabetic (2); DU: blood circulation (3); FI: local pain (1); GA: dysentery (1), diarrhea (6); GY: bleeding (2); UR: kidney infection (2)	7	8	19	BI-853	Sh	N	Belize, Bolivia, Brazil, Caribbean, China, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Gabon, Guatemala, Guyana, Honduras, Madagascar, Mexico, Panama, Paraguay, Peru, South Africa, Suriname, Venezuela
<i>Mangifera indica</i> L.	Manga	DI: diabetic (1); FI: virtual (1); RE: bronchitis (1), expectorant (1), flu (11), infection of throat (1), cough (4); UR: diuretic (1), infection of kidneys (2)	4	9	23	BI-35942	Tr	E	Bangladesh, Belize, Bolivia, Brazil, Cambodia, China, Colombia, Costa Rica, Ecuador, El Salvador, French, Gabon, Guiana, Guatemala, Guyana, Honduras, India, Laos, Madagascar, Mexico, Panama, Paraguay, Peru, South Africa, Suriname, USA, Venezuela, Vietnam
<i>Myracrodruon urundeuva</i> Allemão	Aroeira	DE: wound healing (2), wounds (1); GY: uterine infection (1); SK: bone fracture (1)	3	4	5	BI-339	Tr	N	Brazil, Bolivia
<i>Schinus terebinthifolius</i> Raddi	Aroeira-rosa	DE: itching (1); UR: kidneys (1)	2	2	2	BI-868	Tr	NE	Brazil
<i>Spondias purpurea</i> L.	Seriguela	DU: hypertension (1)	1	1	1	BI-31665	Tr	E	Belize, Bolivia, Brazil, Caribbean, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, India, Mexico, Panama, Peru, United States, Venezuela
<i>Spondias mombin</i> L.	Cajazinho, cajuaçú-da-mata	DE: wound healing (1); GA: diarrhea (1)	2	2	2	BI-768		N	Belize, Bolivia, Brazil. Caribbean, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Gabon, Guatemala, Guyana, Honduras, Mexico, Panama, Peru, Suriname, United States, Venezuela
ANNONACEAE									
<i>Annona dolabripetala</i> Raddi	Araticum	DU: earache (1)	1	1	1	BI-751	Tr	NE	Brazil
<i>Annona muricata</i> L.	Graviola	DI: diabetic (2); DU: cancer (2), cholesterol (1), fatigue (1); FI: local pain (2); GA: gastrointestinal problems (1); GY: weight loss (6), menopause (1); UR: kidney infection (1); VE: snakebite (1)	7	10	18	BI-33452	Tr	E	Belize, Bolivia, Caribbean, China, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Gabon, Guatemala, Guyana, Honduras, Mexico, Panama, Peru, Suriname, United States, Venezuela
<i>Unonopsis guatterioides</i> R.E.	Uxi-amarelo	RE: pneumonia (1); GY: cyst (5)	2	2	6	BI-857	Tr	N	Bolivia, Brazil Caribbean,

Table 3 (continued)

Family/botanical species Fr.	Vernacular name	Category of disease/use-category/use-report	tCD	tUC	tUR	BI	HB	GO	Distribution
									Colombia, French Guiana, Guyana, Paraguay, Peru, Suriname, Venezuela
APIACEAE									
<i>Daucus pusillus</i> Michx.	Cenoura	DU: anemia (1)	1	1	1	BI-IC	He	N	Brazil, Canada, Chile, USA
<i>Eryngium foetidum</i> L.	Chicória	FI: local pain (1)	1	1	1	BI-IC	He	N	Belize, Bolivia, Brazil, Canada, Caribbean, China, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Gabon, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Peru, Suriname, USA, Venezuela
<i>Coriandrum sativum</i> L.	Coentro	GA: infantile colic (1); GY: colic (1)	2	2	2	BI-373	He	E	Belize, Bolivia, Brazil, Canada, China, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Peru, South Africa, USA
<i>Pimpinella anisum</i> L.	Erva-doce	DU: calmative (5); FI: local pain (2); GA: fullness in the stomach (2), intoxication (1), constipation (2); GY: menstrual cramps (3), increased milk production (2); RE: flu (1)	5	10	20	BI-25505	He	E	Bolivia, China, Colombia, Egypt, El Salvador, Guatemala, Mexico, Nicaragua, Russian Federation, United States
<i>Foeniculum vulgare</i> Mill	Funcho	GA: constipation (2); GY: infantile colic (1)	2	2	3	BI-IC	He	E	Belize, Bolivia, Brazil, Canada, Chile, China, Colombia, Ecuador, Guatemala, Honduras, Mexico, Peru, South Africa, United States
<i>Petroselinum crispum</i> (Mill.) Nyman ex A.W. Hill	Salsinha	DE: bronchitis (1); FI: local pain (1); UR: urinary infection (2), kidneys (2)	3	4	6	BI-975	He	E	Belize, Bolivia, Colombia, Ecuador, Honduras, United States
APOCYNACEAE									
<i>Aspidosperma polyneuron</i> Müll.Arg.	Peroba	FI: local pain (1)	1	1	1	BI-5851	Tr	N	Argentina, Bolivia, Brazil, Colombia, Paraguay, Peru, Venezuela
<i>Catharanthus roseus</i> (L.) G. Don	Maria-sem-vergonha	DE: ringworm (1)	1	1	1	BI-33423	He	E	Argentina, Belize, Bolivia, China, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Gabo, Guatemala, Guyana, Honduras, Madagascar, Mexico, Nicaragua, Panama, South Africa, Suriname, United States, Venezuela
<i>Geissospermum laeve</i> (Vell.) Miers	Pau-pereira	DU: cholesterol (1); GA: stomach (1), liver (1)	2	3	3	BI-1334	Tr	N	Bolivia, Brazil, French Guiana, Guyana, Suriname
<i>Himatanthus obovatus</i> (Müll.Arg.) Woodson	Angélica, pau-de-leite	DU: anemia (1), tonic (1)	1	2	2	BI-29067	Sh	N	Bolivia, Brazil, Guyana
<i>Himatanthus sucuba</i> (Spruce ex Müll. Arg.) Woodson	Sucuba	GA: gastritis (1); SK: inflammation (1)	2	2	2	BI-843	Tr	N	Bolivia, Brazil, Colombia, Ecuador, Guyana, Panama, Peru, Suriname, Venezuela
<i>Macrosiphonia longiflora</i> (Desf.) Müll. Arg.	Velame-campo	DU: blood depurative (2)	1	1	2	BI-32834	SB	N	Argentina, Bolivia, Brazil, Paraguay
ARACEAE									
<i>Philodendron acutatum</i> Schott	Cipó-imbé	DE: erysipelas (2); SK: back pain (1)	2	2	3	BI-734	Tr	N	Brazil, French Guiana, Suriname, Venezuela
ARECACEAE									
<i>Attalea speciosa</i> Mart. ex	Babaçu	DU: anemia (2); FI: dengue (1); GA: gastritis (1); poor digestion (1)	3	4	5	BI-	Tr	NE	Bolivia, Brazil, Guyana,

Spreng. <i>Astrocaryum aculeatum</i> G. Mey.	Bejaúba	DE: wound healing (2)	1	1	2	19388 BI-IC	Tr	NE	Suriname Bolivia, Brazil, Caribbean, Colombia, Costa Rica, French Guiana, Guyana, Suriname, Venezuela
<i>Bactris setosa</i> Mart. <i>Cocos nucifera</i> L.	Tucum Côco	DU: dehydration (1), weakness (1); GA: gastritis (1); SK: inflammation (1) DE: healing (1); FI: dengue (3); UR: kidneys (2)	2 4	2 5	2 8	BI-IC BI-IC	Sh Tr	NE N	Brazil Belize, Bolivia, Brazil, Caribbean, China, Colombia, Comoros, Costa Rica, Ecuador, El Salvador, French Guiana, Gabon, Guatemala, Guyana, Honduras, India, Madagascar, Mexico, Nicaragua, Panama, Venezuela
<i>Desmoncus orthacanthos</i> Mart.	Cerca-onça, coquinho	SK: rheumatism (5)	1	1	1	BI-IC	Sh	NE	Belize, Bolivia, Brazil, Caribbean, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, Mexico, Panama, Peru, Suriname, Venezuela
<i>Euterpe oleracea</i> Mart.	Açaí	FI: malaria (1); GA: hepatitis (1), gastrointestinal problems (1); GY: vaginal bleeding (1); DU: anemia (3), nutritional (1), vitamin (1)	4	7	9	BI-IC	Tr	N	Brazil, Caribbean, Colombia, Costa Rica, Ecuador, French Guiana, Guyana, Honduras, Panama, Peru, Suriname, Venezuela
<i>Mauritia flexuosa</i> L.f.	Buriti	DU: anemia (1), nutritive (1); UR: kidneys (1)	2	3	3	BI-IC	Tr	N	Bolivia, Brazil, Caribbean, Colombia, French Guiana, Guyana, Honduras, Peru, Suriname, Venezuela
<i>Oenocarpus bataua</i> Mart	Pocova, Patuá	UR: kidney infection (11)	1	1	11	BI-312	Tr	N	Bolivia, Brazil, Caribbean, Colombia, French Guiana, Guyana, Ecuador, Panama, Peru, Suriname, Venezuela
<i>Ptychosperma elegans</i> (R. Br.) Blume	Solitária	GA: worm (1)	1	1	1	BI-IC		E	Australia, Colombia, Honduras
<i>Socratea exorrhiza</i> (Mart.) H.Wendl.	Sete-pernas	DU: blood (1); SK: inflammation (1)	2	2	2	BI-IC	Tr	N	Bolivia, Brazil, Colombia, Costa Rica, Ecuador, French Guiana, Guyana, Nicaragua, Panama, Peru, Suriname, Venezuela
<i>Syagrus oleracea</i> (Mart.) Becc.	Gueroba	DU: cholesterol lowering (1); GA: gastritis (1); FI: local pain (3); RE: throat (1), flu (2); SK: rheumatism (4)	5	6	12	BI-12910	Tr	NE	Bolivia, Brazil, Paraguay
ARISTOLOCHIACEAE									
<i>Aristolochia cymbifera</i> Mart & Zucc.	Cipó-mil-homem	DE: wound healing (2); DU: circulation (1), blood depurative (9), natural viagra (1); FI: local pain (1), malaria (2); GA: stomach (2), liver (2), indigestion (1), gastrointestinal problems (1), worm (3); GY: menstrual cramps (2), menstruation (1), partum relapse (1); RE: antibiotic (1); SK: inflammation (1), rheumatism (3); UR: bladder (1), diuretic (1), kidneys (3)	8	20	39	BI-35946	Tr	NE	Brazil
ASPARGACEAE									
<i>Herreria salsaparilha</i> Mart.	Salsaparrilha	DE: wound healing (3), equisema (1), pimples (1), wounds (1); DU: blood depurative (18); FI: leishmaniasis (1); GA: liver (1), intestine (2); RE: flu (1); SK: inflammation (1), rheumatism (3); UR: bladder (8), kidneys (2)	7	13	43	BI-363	He	NE	Brazil
ASTERACEAE									
<i>Acanthospermum australe</i> (Loefl.) Kuntze	Carrapixinho	DE: wounds (1); FI: local pain (1); GY: wound in the uterus (1); RE: infection of throat (22); UR: kidneys (1)	5	5	26	BI 736	He	N	Argentina, Bolivia, Brazil, China, Colombia, French Guiana, Guyana, Paraguay, Peru, South Africa, Suriname, USA, Venezuela
<i>Achillea millefolium</i> L.	Mil-em-folha, Ponta-alívio	DU: blood depurative (1); UR: kidneys (1)	2	2	2	BI-380	He	N	Argentina, Australia, Brazil, Canada, Caribbean, Chile, China, Colombia, Costa Rica, Ecuador, Greenland, Guatemala, Honduras, Mexico,

Table 3 (continued)

Family/botanical species	Vernacular name	Category of disease/use-category/use-report	tCD	tUC	tUR	BI	HB	GO	Distribution
<i>Achyrocline satureioides</i> (Lam.) DC	Marcela-do-campo	DU: calmative (1); FI: local pain (2); GA: diarrhea (1), stomach (2), liver (1), intestinal infection (1), poor digestion (1)	3	7	9	BI-24996	Sh	N	Mongolia, New Zealand, Nicaragua, Peru Argentina, Bolivia, Brazil, Colombia, Ecuador, Guyana, Paraguay, Peru, Uruguay, Venezuela
<i>Ageratum conyzoides</i> L.	Mentrasto	FI: local pain (1); GA: indigestion (1); GY: colic (1), menstrual cramps (2); RE: flu (2); SK: rheumatism (2)	5	6	9	BI-17032	He	N	Argentina, Belize, Brazil Bolivia, China, Caribbean, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, India, Madagascar, México, South Africa, Suriname, United States, Venezuela
<i>Artemisia absinthium</i> L.	Losna	DU: anemia (1); FI: local pain (5); GA: stomach (11), liver (1), poor digestion (3), gastrointestinal problems (1), worm (4); GY: abortive (1), uterine infection (1)	4	9	28	BI-26102	He	N	Afghanistan, China, Argentina, Bolivia, Brazil, Canada, Chile, Colombia, Ecuador, Honduras, India, Japan, Kazakhstan, México, Pakistan, Peru, Russian Federation, United States
<i>Artemisia vulgaris</i> L.	Artemiisia	GA: stomach (1); UR: kidney (1)	2	2	2	BI-818	He	N	Afghanistan, Brazil, Canada, China, Colombia, Costa Rica, Greenland, Guatemala, Honduras, Iran, Japan, Mexico, Mongolia, Pakistan, Russian Federation, South Africa, Thailand, USA
<i>Baccharis crispa</i> Spreng.	Carqueja	DI: diabetic (1); DU: cholesterol (1), malaise (1); FI: local pain (7), fever (2), malaria (1); GA: uric acid (1), bile (1), belly ache (1), stomach (23), liver (5), poor digestion (3), constipation (1), dryness (1), worm (1); GY: weight loss (4); RE: flu (1); SK: inflammation (1); UR: diuretic (1)	8	19	57	BI-26042	Sh	NE	Bolivia, Brazil
<i>Bidens pilosa</i> L.	Picao-preto	DU: anemia (15); FI: malaria (1); GA: jaundice (14), stomach (2), liver (5), hepatitis (10), hepatitis B (1), prevents yellowing (2); UR: bladder (1)	4	9	51	BI-33433	Sh	N	Belize, Bolivia, Brazil, Caribbean, China, Colombia, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, Madagascar, Mexico, Panama, South Africa, Suriname, United States, Venezuela
<i>Pseudobrickellia brasiliensis</i> (Spreng.) R.M. King & H. Rob.	Arnica-do-mato	DE: wound healing (2); SK: contusion (2); UR: kidney stones (2), kidney infection (2)	3	4	8	BI-18621	He	NE	Brazil
<i>Centratherum punctatum</i> Cass.	Agoniada	GA: gastritis (1); SK: rheumatism (1)	2	2	2	BI-1009	He	N	Argentina, Australia, Brazil, Caribbean, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guyana, Mexico, Nicaragua, Panama, Paraguay, Peru, Philippines, Venezuela
<i>Chromolaena maximiliani</i> (Schrad. ex DC.) RMKing & H. Rob.	Mata-pasto	DE: wound healing (1); SK: contusion (1); UR: kidney stones, kidney infection (1/1)	3	4	4	BI-33444	He	N	Brazil, French Guiana, Venezuela
<i>Conyza bonariensis</i> (L.) Cronquist	Voadeira	DE: spots on the body (1)	1	1	1	BI-34782	Sh	N	Argentina, Australia, Belize, Bolivia, Brazil, Caribbean, Chile, Colombia, Costa Rica, Ecuador, El Salvador, French

<i>Coreopsis grandiflora</i> Hogg ex Sweet	Camomila-amarga	GA: stomach (1); GY: colic (1)	2	2	2	BI-33436	He	E	Guiana, Guatemala, Guyana, Honduras, México, Panama, Paraguay, Peru, South Africa, Suriname, United States, Venezuela
<i>Cynara cardunculus</i> L.	Alcachofra	GA: stomach (3)	1	1	3	BI-IC	He	E	China, Ecuador
<i>Eclipta alba</i> (L.)	Vassourinha-de-santo-antônio	DE: wounds (1); SK: bruises (1); UR: kidneys (1)	3	3	3	BI-32715	He	N	Colombia, Ecuador, United States
<i>Erechtites hieraciifolius</i> (L.) Raf. ex DC.	Serralha	FI: fever (1); GA: bowel syndrome constipation (1)	2	2	2	BI-IC	He	N	Belize, Bolivia, Caribe, Ecuador, El Salvador. Gabon, Guatemala, Honduras, India, Madagascar, Mexico, Panama, United States
<i>Gymnanthemum amygdalinum</i> (Delile) Sch. Bip.ex Walp.	Caferana	FI: local pain (4); GA: congestion (1), stomach (12), liver (7), intestine (1), poor digestion (6), gastrointestinal problems (3), vomit (1); GY: colic (2)	3	9	37	BI-40.503	Sh	E	Argentina, Belize, Bolivia, Brazil, Canada, Caribbean, China, Colombia, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, India, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, United States, Uruguay, Venezuela
<i>Lactuca sativa</i> L.	Alface	DU: calmative (3)	1	1	3	BI-IC	He	E	Bolivia, Brazil
<i>Matricaria chamomilla</i> L.	Camomila	DU: calmative (6), natural viagra (1); FI: local pain (12), fever (3); GA: infantile colic (3), diarrhea (2), bloating (1), stomach (2), gases (2), poor digestion (1), constipation (1), feeling of fullness (1)	4	13	35	BI-292	He	E	Argentina, Australia, Belize, Bolivia, Brazil, Canada, Caribe, Chile, China, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Newzealand, Nicaragua, Panama, Paraguay, Peru, South Africa, Tanzania, USA, Venezuela, Zaire
<i>Mikania glomerata</i> Spreng.	Guaco	FI: malaria (1); RE: expectorant (2), flu (4), cough (10)	2	4	17	BI-25536	He	N	Argentina, Austerlia, Bolivia, Brazil, Canada, Caribbean, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Kazakstan, , Mexico, Mongolia, Nicaragua, Paraguay, Peru, Russian Federation, China, United States, Uruguay, Uzbekistan
<i>Pluchea sagittalis</i> (Lam.) Cabrera	Quitoco	DE: intimate part itching (1)	1	1	1	BI-33424	He	N	Brazil
<i>Porophyllum ruderale</i> (Jacq.) Cass.	Picão-branco	DU: anemia (1); GA: hepatitis (1)	2	2	2	BI-32793	He	N	Argentinian, Bolivia, Brazil, China, Paraguay, Uruguay, Venezuela
<i>Senecio bicolor</i> (DC.) Chater	Enfalivina	FI: local pain (2), fever (1)	1	2	3	BI-IC	Sh	E	Argentina, Belize, Bolivia, Brazil, Caribbean, Colombia, Costa Rica, Ecuador, French Guiana, Guatemala, Guyana, Honduras, Mexico, Panama, Peru, Suriname, United States, Venezuela
<i>Solidago microglossa</i> DC.	Arnica-brasileira	DE: wound healing (9), injuries (1); DU: anemia (1), prostate (1); FI: pain location (8); GY: uterine infection (1); RE: antibiotic (4), bronchitis (4), flu (1), pneumonia (2); SK: contusion (1), bone fracture (3), internal blow (2), rheumatism (2)	6	14	40	BI-32763	He	N	Honduras, Venezuela
<i>Spilanthes acmella</i> (L.)	Jambo	DI: diabetic (1); DU: heart (1); FI: anesthetic (1); RE: cough (1);	4	4	4	BI-	Tr	E	Brazil, Bolivia
									Ecuador, Gabon, Madagascar,

Table 3 (continued)

Family/botanical species	Vernacular name	Category of disease/use-category/use-report	tCD	tUC	tUR	BI	HB	GO	Distribution
Murray <i>Tagetes erecta</i> L.	Cravo-de-defunto	DI: diabetic (1); RE: flu (1), cough (1); SK: rheumatism (1)	3	4	4	BI-18011 BI-33425	He	N	Australia, Belize, Bolivia, Brazil, Caribbean, China, Colombia, Costa Rica, Ecuador, El Salvador, Gabon, Guatemala, Guiana, Honduras, Mexico, Newzealand, Nicaragua, Panama, Paraguay, Peru, South Africa Surinmae, USA, Venezuela
<i>Taraxacum officinale</i> F.H. Wigg.	Dente-de-leão	DE: wound healing (1); GA: stomach (1)	2	2	2	BI-2589	He	E	Algeria, Argentina, Bolivia, Brazil, Canada, Caribbeam, Chile, Guatemala, Kazakhstan, Madagascar, Panama, South Africa, United States
<i>Tithonia diversifolia</i> (Hemsl.) A. Gray	Flor-da-amazônia	GA: stomach (1), liver (2); GY: pregnancy sickness (1)	2	3	4	BI-32808	Sh	N	Belize, Brazil, Caribbean, China, Colombia, Costa Rica, Ecuador, El Savador, Guatemala, Honduras, Mexico, Nicaragua, Panama, South Africa, United States, Venezuela
<i>Vernonanthura brasiliiana</i> (L.) H. Rob.	Assa-peixe	DE: wound healing (1); GA: uric acid (1); RE: allergies (1), bronchitis (3), emphysema (1), throat (1), flu (5), pneumonia (3), cough (2); SK: inflammation (1), UR: kidneys (3)	5	11	23	BI-26794	Sh	N	Afghanistan, Bolivia, Brazil, Burna, Canada, China, Colombia, Costa Rica, Greenland Guatemala, Honduras, Iran, Japan, Mexico, Mongolia, Pakistan, Russian Federation, South Africa, Thailand, United States, Vietnam
BALANOPHORACEAE <i>Lophophytum mirabile</i> Schott & Endl.	Canafístula	GA: liver (1)	1	1	1	BI-IC	Tr	N	Argentina, Bolivia, Brazil, Ecuador, Paraguay
BASELLACEAE <i>Basella alba</i> L.	Cipó-beceleste	DU: cancer of prostate (1)	1	1	1	BI-862	He	N	Belize, Brazil, French Guiana, Gabon, Guyana, Panama, Peru, Suriname
BIGNONIACEAE <i>Anemopaegma chrysoleucum</i> (Kunth) Sandwith	Cipó-cravo	DU: afrodisiaco (1), calmative (1); RE: pneumonia (11)	2	3	13	BI-250	Tr	N	Brazil, Belize, Colombia, Ecuador, French Guiana, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Peru, Suriname, Venezuela
<i>Arrabidaea chica</i> (Humb. & Bonpl.) B. Verl.	Crajiru	DE: wound healing (8), skin (2); DU: cancer (1), blood depurative (2), malaise (1); FI: local pain (10), fever (8); GA: ulcer (11); GY: menstrual cramps (2), infection in the ovaries (4), inflammation of the uterus (9); RE: antibiotic (2); SK: rheumatism (8); UR: renal colic (1), bladder infection (4), infection in the kidneys (10), kidneys (13)	8	18	97	BI-33460	Sh	N	Argentina, Belize, Bolivia, Brazil, Caribbean, Colombia, Ecuador, El Salvador, French Guiana, Guatemala, Honduras, Mexico, Nicaragua, Panama, Venezuela
<i>Handroanthus impetiginosus</i> (Mart. ex DC.) Mattos	Ipê-roxo	DE: wound healing (5); DU: cancer (3), blood depurative (2); FI: malaria (1); GA: stomach (2); GY: vaginal bleeding (1), infection in the ovary (4), osteoporosis (1), uterine problems (1); RE: antibiotic (1); SK: rheumatism (1); UR: Bladder infection (1), urinary infection (1)	8	13	24	BI-38439	Tr	N	Bolivia, Brazil, Mexico
<i>Jacaranda cuspidifolia</i> Mart	Caroba	DE: wound healing (2); DU: blood depurative (2); UR: kidney stone (2)	3	3	6	BI-32734	Tr	N	Bolivia, Brazil
<i>Jacaranda decurrens</i> Cham	Carobinha	GA: liver (1); GY: vaginal bleeding (1)	2	2	2	BI-35829	Tr	N	Bolivia, Brazil, Paraguay
<i>Pyrostegia venusta</i> (Ker Gawl.) Miers	Erva-de-são-joão	DE: wound healing (1), skin (1); GY: abortive (1), colic (2)	2	4	5	BI-32861	Tr	N	Bolivia, Brazil, Colombia, Ecuador, El Salvador,

<i>Tabebuia aurea</i> (Silva Manso) Benth. & Hook. f. ex S. Moore	ipê-amarelo	DE: wound healing (2); GY: ovarian cysts (1), colic (1); myoma (1) GA: stomach (2), diarrhea (1), hepatitis (1), RE: bronchitis (1), cough (1)	4	7	9	BI-39138	Tr	N	Guatemala, Honduras, Mexico, Panama, Paraguay, USA, Venezuela Argentina, Bolivia, Brazil, Paraguay, Peru, Suriname
<i>Tecoma stans</i> (L.) Juss. ex Kunth	Sabugueiro	Fl: chickenpox (1), dengue (1), fever (3), measles (6); RE: flu (3)	2	5	14	BI-33451	Sh	E	Argentina, Belize, Bolivia, Caribbean, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Gabon, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Peru, USA, Uruguay, Venezuela
BIXACEAE									
<i>Bixa orellana</i> L.	Urucum	DE: wound healing (1), prevent boils (1); DU: weight loss (1); anemia (2), cholesterol (1); RE: expectorant (1), throat (1); Fl: dengue (1); GA: liver (1); UR: bladder infection (1), infection in the kidneys (3)	7	11	14	BI-33422	Tr	N	Argentina, Belize, Bolivia, Brazil, Caribbean, China, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Gabon, Guatemala, Guyana, Honduras, Madagascar, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, United States, Venezuela
BORAGINACEAE									
<i>Cordia nodosa</i> Lam.	Cipó-cabeludo	DE: wound healing (2); GA: ulcer (4)	2	2	6	BI-772	Sh	N	Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guyana, Peru, Suriname, Venezuela
<i>Symphytum officinale</i> L.	Confrei	DE: wound healing (3), injuries (1), skin (1); DI: diabetic (1); DU: cancer (1); GA: gastritis (1); GY: weight loss (2); RE: bronchitis (1); SK: inflammation (2)	7	9	13	BI-241	Sh	E	Canada, China, Kazakhstan, Kyrgyzstan, Russia Federation, Tajikistan, Turkmenistan, United States, Uzbekistan
<i>Varronia curassavica</i> Jacq.	Erva-baleeira	Fl: local pain (1), fever (1); RE: bronchitis (1)	2	3	3	BI-346	Sh	N	Argentina, Belize, Bolivia, Brazil, Caribbean, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Venezuela
BRASSICACEAE									
<i>Coronopus didymus</i> (L.) Sm.	Mastru-rasteiro	GA: stomach (1); SK bone fractures (1)	2	2	2	BI-894	He	N	Bolivia, Brazil, Canada, China, Ecuador, French Guiana, Honduras, Madagascar, Peru, South Africa, USA
<i>Brassica oleracea</i> L.	Couve	GA: heartburn (1), stomach (2), gastritis (4), ulcer (1); RE: flu (1), low immunity (1)	2	6	11	BI-IC	He	E	Bolivia, China, Ecuador, Gabon, Greenland, Honduras, Mexico, USA
<i>Nasturtium officinale</i> W. T. Aiton	Agrião	GA: ulcer (1); RE: bronchitis (1); UR: kidneys (1)	3	3	3	BI-IC	He	E	Bolivia, Canada, China, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Madagascar, Mexico, Nicaragua, Panama, United States, Venezuela
BROMELIACEAE									
<i>Ananas comosus</i> (L.) Merr	Abacaxi	RE: flu (1); UR: kidneys (2)	2	2	3	BI-32	He	N	Belize, Bolivia, Brazil, Caribbean, China, Colombia, Costa Rica, Ecuador, French Guiana, Gabon, Guatemala,

Table 3 (continued)

Family/botanical species	Vernacular name	Category of disease/use-category/use-report	tCD	tUC	tUR	BI	HB	GO	Distribution Guyana, Honduras, México, Nicaragua, Panama, Paraguay, Peru, Sierra Leone, Suriname, Venezuela
BURSERACEAE									
<i>Protium heptaphyllum</i> March	Almécega	DU: calmative (1)	1	1	1	BI-553	Tr	N	Bolivia, Brazil, Colombia, French Guiana, Paraguay, Suriname, Venezuela
CACTACEAE									
<i>Cipocereus bradei</i> (Backeb. & Voll) Zappi & N.P.Taylor	Cacto	UR: urinary infection (1)	1	1	1	BI-237	He	NE	Brazil
<i>Pereskia sacharosa</i> Griseb.	Oro-pronobis	DU: anemia (1)	1	1	1	BI-33447	He	N	Argentina, Bolivia, Brazil
CANNABACEAE									
<i>Celtis iguanaea</i> (Jacq.) Sarg.	Grão-de-galo	Fl: local pain (1); GA: stomach (2); UR: kidneys (2)	3	3	5	BI-32.692	Sh	N	Argentina, Bolivia, Brazil, Caribbean, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, USA, Venezuela
<i>Trema micrantha</i> (L.) Blume	Grandiuva, periquiteiro	DU: insect bite (1); SK: inflammation (1); GA: heartburn (1), ulcer (1)	3	4	4	BI-27231	Sh	N	Argentina, Belize, Bolivia, Brazil, Caribbean, Colombia, Costa Rica, Ecuador, French Guiana, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Sur- iname, USA, Venezuela
CARICACEAE									
<i>Carica papaya</i> L.	Mamão	DU: cholesterol (3), detoxification (3), tumor (1); Fl: local pain (5); GA: diarrhea (1), stomach (4), liver (3), indigestion (1), intoxication (1), poor digestion (3), digestive problems (1), worm (6); GY: weight loss (1); RE: bronchitis (2), nasal congestion (1), flu (4); cough (1); UR: kidneys (1), urethra (1)	6	19	43	BI-31670	Tr	E	Argentina, Belize, Bolivia, Brazil, Caribbean, Colombia, Costa Rica, Ecuador, El Salva- dor, French Guiana, Gabon, Guatemala, Guyana, Hon- duras, Madagascar, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, USA, Venezuela
<i>Jacaratia spinosa</i> (Aubl.) A. DC.	Jacaratiá, ma- mãozinho-do- mato	GA: worm (1)	1	1	1	BI-747	Tr	N	Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, French Guiana, Gua- temala, Guyana, Nicaragua, Panama, Paraguay, Peru, Suriname
CELASTRACEAE									
<i>Maytenus</i> sp.	Sussuia, Xixuá	Fl: local pain (1); SK: inflammation (1)	2	2	2	BI-IC	Tr	N	Australia, Brazil, Colombia, Honduras, Mexico, USA
CLEOMACEAE									
<i>Tarenaya spinosa</i> (Jacq.) Raf.	Quicendê	DE: itching of intimate part (1)	1	1	1	BI-IC	He	N	Brazil, Caribbean
CLUSIACEAE									
<i>Clusia</i> sp. Mart.	Apuí	OP: conjunctivitis (1)	1	1	1	BI-IC	Tr	N	Colombia, El Salvador, Honduras
COMBRETACEAE									
<i>Terminalia catappa</i> L.	Sete-copas	DI: diabetic (1); UR: kidneys (1)	2	2	2	BI-272	Tr	E	Argentina, Australia, Bangla- desh, Belize, Bolivia, Brazil, Burma, Comodia, Caribbean,

COMMELINACEAE										China, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, India, Madagascar, Malaysia, Mexico, Nicaragua, Panama, Paraguay, Peru, Philippines, Suriname, Thailand, USA, Venezuela, Vietnam
<i>Commelina erecta</i> L.	Trapueraba	DU: cleanser (2); DE: wound healing (2), ringworm (1); SK: inflammation (1), rheumatism (1)	3	5	7	BI-33426	He	N	Argentina, Belize, Bolivia, Brazil, Caribbean, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Gabon, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, South Africa, Suriname, United States, Venezuela	
<i>Dichorisantra hexandra</i> (Aubl.) Kuntze ex Hand.-Mazz.	Cana-de-macaco	DU: dehydration (1); DE: wound healing (1); FI: local pain (4); GA: poor digestion (1); SK: column (1), inflammation (1); UR: urinary congestion (1), diuretic (1), kidney infection (1), cleanse the kidneys (1), kidneys (6)	6	11	19	BI-195	He	N	Argentina, Belize, Bolivia, Brazil, Caribbean, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Venezuela	
CONVOLVULACEAE										
<i>Ipomoea batatas</i> (L.) Lam.	Batata-doce	DE: candidiasis (1), discharge (1); FI: local pain (1); RE: antibiotic (1), throat (1); anemia (1)	4	6	6	BI-IC	Tr	E	Argentina, Belize, Bolivia, Brazil, Caribbean, Chile, China, Colombia, Comoros, Costa Rica, Ecuador, El Salvador, French Guiana, Gabon, Guatemala, Guyana, Honduras, Indica, Japan, Laos, Madagascar, Mexico, Nepal, Nicaragua, Pakistan, Panama, Paraguay, Philippines, South Africa, Sri Lanka Suriname, Thailand, United States, Uruguay, Venezuela	
COSTACEAE										
<i>Costus spicatus</i> (Jack.) Sw.	Caninha-do-brejo	DE: wound healing (1); FI: local pain (1); GA: stomach (1); SK: inflammation (1); UR: bladder (1), diuretic (1), kidney infection (1), stone in the kidneys (1), kidneys (10)	5	9	18	BI-973	Sh	E	Bolivia, Caribbean, Honduras, Mexico	
CRASSULACEAE										
<i>Kalanchoe pinnata</i> (Lam.) Pers	Corama	SK: rheumatism (3); DU: circulation (1), hypertension (1)	2	3	5	BI-IC	He	E	Belize, Caribbean, China, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Panama, USA, Venezuela	
<i>Bryophyllum calycinum</i> (Lam.) Oken	Saião	DE: wound healing (1), lesion (1), bruise (1), wounds, injuries (1), skin (1); FI: local pain (2); RE: antibiotic (1), throat (1); SK: trauma (1); UR: kidneys infection (1)	5	10	11	BI-728	He	E	Madagascar	
CUCURBITACEAE										
<i>Cucumis anguria</i> L.	Maxixe	RE: pneumonia (2)	1	1	2	BI-337	He	E	Angola, Argentina, Belize, Bolivia, Botswana, Brazil, Cape Verde, Caribbean, Colombia, Costa Rica, Ecuador, French Guiana, Guatemala, Guyana, Honduras, Malawi, Mexico, Mozambique, Namibia, Nicaragua, Panama, Paraguay, Peru,	

Table 3 (continued)

Family/botanical species	Vernacular name	Category of disease/use-category/use-report	tCD	tUC	tUR	BI	HB	GO	Distribution
<i>Cucumis sativus</i> L.	Pepino	DU: hypertension (1)	1	1	1	BI-339	Tr	E	Sierra Leone, South Africa, Suriname, Swaziland, Tanzania, USA, Venezuela, Zambia, Zimbabwe
<i>Cucurbita maxima</i> Duchesne	Abobora	GA: worm (1); DU: cholesterol (5)	2	2	6	BI-376	He	E	Belize, Bolivia, Burma, Canada, China, Colombia, Ecuador, Guatemala, Honduras, India, Madagascar, Mexico, Nepal, Nicaragua, Panama, Sri Lanka, Thailand, Venezuela
<i>Luffa operculata</i> (L.) Cogn.	Buchinha-paulista	FI: malaria (1); RE: sinusitis (1)	2	2	2	BI-32	Tr	N	Argentina, Bolivia, Brazil, China, India, Nicaragua, Panama, Uruguay, Venezuela
<i>Momordica charantia</i> L.	Melão-de-são-caetano	DI: diabetic (1); FI: dengue (1), local pain (2), fever (2), malaria (7), virtual (3); GA: liver (1), hepatitis (1)	3	8	18	BI-31667	Tr	E	Brazil, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Gabon, Guatemala, Guyana, Honduras, India, Madagascar, Mexico, Nicaragua, Panama, Paraguay, Peru, Reunion, Rodrigues, South Africa, Suriname, USA, Venezuela
<i>Sechium edule</i> (Jacq.) Sw.	Chuchu	DU: calmative (1), hypertension (7)	1	2	8	BI-IC	Tr	E	Argentina, Belize, Bolivia, Brazil, Caribbean, China, Colombia, Costa Rica, Ecuador, El Salvador, Gabon, Guatemala, Guyana, Honduras, Madagascar, Mauritius, Mexico, Nicaragua, Panama, Peru, Reunion, Rodrigues, USA, Venezuela
<i>Siolmatra brasiliensis</i> (Cogn.) Baill.	Taiuiá	GA: gastritis (1); SK: inflammation (1)	2	2	2	BI-31643	Tr	N	Bolivia, Brazil, Peru
CUPRESSACEAE									
<i>Chamaecyparis</i> sp.	Tuia	DE: wound healing (3)	1	1	3	BI-228	Tr	E	Argentina, Guatemala, Honduras
CYPERACEAE									
<i>Cyperus corymbosus</i> Rottb.	Junco	SK: rheumatism (4)	1	1	4	BI-33435	He	N	Argentina, Australia, Brazil, Chile, Ecuador, India, Madagascar
DENNSTAEDTIACEAE									
<i>Pteridium aquilinum</i> (L.) Kuhn	Samambaia	GA: worm (1)	1	1	1	BI-826	Tr	E	Bolivia, China, Mexico, Venezuela
DILLENIAEAE									
<i>Curatella americana</i> L.	Lixeira	RE: lung (1)	1	1	1	BI-39564	Tr	N	Belize, Bolivia, Brazil, Caribbean, Colombia, Costa Rica, French Guiana, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Peru, Suriname, Venezuela

<i>Dolioscarpus dentatus</i> (Aubl.) Standl.	Cipó-d'água	GA: hemorrhoid (1)	1	1	1	BI-IC	Tr	N	Belize, Bolivia, Brazil, Caribbean, Colombia, Costa Rica, Ecuador, French Guiana, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Venezuela
DIOSCORIACEAE									
<i>Dioscorea cayenensis</i> Lam.	Inhame	DU: anemia (1), cleanser (1)	1	2	2	BI-3923	He	E	Costa Rica, French Guiana, Guyana, Madagascar, Suriname, Venezuela,
EQUISETACEAE									
<i>Equisetum hyemale</i> L.	Cavalinha	DE: wound healing (1); DU: combat smoking (1); GA: stomach (1); UR: kidneys (4);	4	4	7	BI-13879	He	E	China, Japan, Mexico, Mongolia, North Korea, Russian Federation, South Korea
EUPHORBIACEAE									
<i>Aparisthium cordatum</i> (A. Juss.) Baill.	Vicki-de-árvore	DU: blood depurative (1); RE: flu (6), cold (1)	2	3	8	BI-824	Sh	N	Bolivia, Brazil, Colombia, Costa Rica, French Guiana, Guyana, Peru, Suriname, Venezuela
<i>Croton urucurana</i> Baill.	Sangra-d'água	DE: wound healing (4), wound (2); DU: cancer (1), wound healing (1), cleanser (1), hypertension (1), prostate (1); GA: stomach (1), gastritis (1), ulcer (3); GY: uterine infection (1), bleeding (1); UR: urinary infection (1), kidneys (1)	5	15	20	BI-27119	Tr	N	Bolivia, Brazil, Paraguay
<i>Euphorbia tirucalli</i> L.	Aveloz	DE: wounds (1); DU: cancer (2); FI: local pain (1)	3	3	4	BI-389	Tr	E	Angola, Belize, China, Ecuador, El Salvador, Ethiopia, Gabon, Ghana, Honduras, India, Madagascar, Mexico, Mozambique, Philippines, Rwaanda, Somalia, South Africa, Sudan, Swaziland, Tanzania, Zaire, Zambia
<i>Euphorbia umbellata</i> (Pax) Bruyns	Leiterinha, Gotamilagrosa	DE: whitlow (1), wart (1); DU: cancer (3), cleanser (1); GA: cholera (1), ulcer (2)	3	6	9	BI-225	Sh	E	Costa Rica, El Salvador, Mexico
<i>Hevea microphylla</i> Ule	Barriguda	GA: ulcer (1)	1	1	1	BI-834	Tr	NE	Brazil, Venezuela
<i>Jatropha curcas</i> L.	Pinhão-manso	GY: menstrual cramps (1)	1	1	1	BI-IC	Sh	E	Argentina, Belize, Bolivia, Brazil, Chile, China, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Gabon, Guyana, Guatemala, Honduras, Madagascar, Mexico, Nicaragua, Panama, Paraguay, Peru, South Africa, Suriname, USA, Venezuela
<i>Jatropha elliptica</i> (Poh) Oken	Bata-purga-de-lagarto	VE: snakebite (5); DU: blood depurative (1)	2	2	6	BI-28,534	He	N	Bolivia, Brazil, Paraguay
<i>Jatropha weddelliana</i> Baill.	Metiolate	DE: wound healing (2); GA: ulcer (1)	2	2	3	BI-31642	Sh	E	Paraguay
<i>Joannesia princeps</i> Vell.	Cultieira	DE: infection (1)	1	1	1	BI-IC	He	NE	Brazil
<i>Manihot esculenta</i> Crantz	Mandioca	DE: itching (1); RE: antibiotic (1)	2	2	2	BI-32786	Sh	N	Belize, Bolivia, Bolivia, Brazil, Caribbean, China, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Gabon, Guatemala, Guyana, Honduras, India, Mexico, Panama, Paraguay, Peru, Suriname, United States, Venezuela
<i>Ricinus communis</i> L.	Mamona	DE: wound healing (1); RE: allergy (1), GA: congestion (1)	3	3	3	BI-23884	Sh	N	Belize, Bolivia, Brasil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Gabon, Guatemala,

Table 3 (continued)

Family/botanical species	Vernacular name	Category of disease/use-category/use-report	tCD	tUC	tUR	BI	HB	GO	Distribution Guyana, Honduras, Madagascar, Mexico, Panama
FABACEAE									
<i>Amburana cearensis</i> (Allemão) A.C. Sm.	Cerejeira	DU: fatigue (1), hypertension (2); FI: fever (1); GA: diarrhea (2), stomach (2), liver (1), poor digestion (1); GY: colic (2); RE: throat (1), flu (1), cough (1); SK: inflammation (1)	6	12	16	BI-13249	Tr	N	Brazil, Bolivia, Paraguay, Peru
<i>Anadenanthera colubrina</i> (Vell.) Brenan	Angico	DE: wound healing (1); RE: flu (1); SK: rheumatism (1)	3	3	3	BI-904	Tr	N	Brazil
<i>Bauhinia glabra</i> Jacq	Cipó-escada-de-macaco	GY: frigidity (1); RE: allergy (1); SK: rheumatism (1)	3	3	3	BI-330	Tr	N	Belize, Bolivia, Brazil, Caribbean, Colombia, Costa Rica, Ecuador, French Guiana, Guyana, Honduras, Mexico, Panama, Peru, Suriname, USA, Uruguay, Venezuela
<i>Bauhinia forficata</i> L.	Pata-de-vaca 1	DI: diabetic (9); DU: blood depurative (1), rheumatism (1); FI: local pain (1); GA: uric acid (1); GY: uterine problems (1); SK: column (1), rheumatism (1); UR: diuretic (1), kidneys (3)	7	10	20	BI-32833	Tr	N	Argentina, Brazil, Caribbean, Ecuador, El Salvador, Guyana, Panama, Peru, Venezuela
<i>Bauhinia cf. unguolata</i> L.S. Lat	Pata-de-vaca 2	DI: diabetic (3)	1	1	3	BI-32738	Sh	N	Belize, Bolivia, Brazil, Colombia, Costa Rica, El Salvador, Guatemala, Mexico, Guyana, Honduras, Nicaragua, Panama, Paraguay, Peru, Venezuela
<i>Bauhinia rufa</i> (Bong.) Steud.	Pata-de-boi	UR: kidneys (2)	1	1	2	BI-4410	He	NE	Brazil
<i>Bauhinia</i> sp.	Unha-de-vaca	DI: diabetic (1); UR: kidneys (1)	2	2	2	BI-341	TP	NE	Brazil
<i>Bowdichia virgilioides</i> Kunth	Sucupira	DE: wound healing (2); DU: circulation (1); FI: local pain (2); GA: gastritis (1); RE: antibiotic (1), flu (1), inflammation of throat (4); SK: inflammation (1), rheumatism (3); UR: kidneys (1)	7	10	16	BI-253	Tr	NE	Brazil
<i>Cajanus cajan</i> (L.) Millsp.	Feijão-andú	DE: wound healing (3); DU: internal injury (1); GY: vaginal infection (1); RE: flu (1); SK: rheumatism (1); UR: urinary infection (1)	6	6	8	BI-17427	Sh	E	Bolivia
<i>Copaifera langsdorffii</i> Desf.	Copaiba	DE: wound healing (12), wounds (3), bruise (2); DU: wound healing (1), cleanser (1), hypertension (1), heart problems (1), tetanus (1); FI: local pain (3), malaria (1); GA: stomach (1), gastritis (3), laxative (1); GY: abortive (1), menstruation (1); RE: antibiotic (3), bronchitis (16), pulmonary emphysema (1), flu (1), pneumonia (1), sinusitis (1), cough (2); SK: inflammation (2), arthritis (1), rheumatism (1)	7	25	62	BI-38780	Tr	NE	Brazil
<i>Copaifera marginata</i> Benth.	Guarantã	DU: appetite (1); FI: local pain (2)	2	2	2	BI-3347	Tr	NE	Brazil
<i>Copaifera martii</i> Hayne	Guaranã-de-lugares-baixos	GA: gastrointestinal problems (2)	1	1	2	BI-3334	Tr	NE	Brazil
<i>Desmodium incanum</i> DC.	Carrapicho-carneiro	GA: dysentery (1)	1	1	1	BI-29093	He	N	Argentina, Belize, Bolivia, Brazil, Caribbean, Ecuador, French Guiana, Guyana, Honduras, Madagascar, Mexico, Nicaragua, Panama, Paraguay, Suriname, United States, Uruguay, Venezuela
<i>Dipteryx odorata</i> (Aubl.) Willd	Camaru-ferro	GA: stomach (1)	1	1	1	BI-IC	Tr	NE	Brazil
<i>Eriosema rufum</i> (Kunth) G. Don	Balsamo	DE: wound (3)	1	1	3	BI-33418	Sh	NE	Brazil
<i>Erythrina amazonica</i> Krukoff	Mulungu	DU: cancer (1); GA: hepatitis (4); SK: rheumatism (1); UR: kidney infection (1)	4	4	7	BI-3269	Tr	NE	Brazil
<i>Glycine max</i> (L.) Merr.	Soja	GA: gastritis (1)	1	1	1	BI-IC	He	N	Argentina, Belize, Bolivia, Brazil, Caribbean, China, Colombia, Costa Rica, Ecuador, Honduras, Mexico, United States
<i>Hymenaea stigonocarpa</i> Mart. ex Hayne	Jatobá	DE: wound healing (1), take stain (1); DU: cancer (1), anemia (9), prostate cancer (1), blood depurative (2), restorative (1), prostate (1), vitamin (1); GA: intestine (1), poor digestion (2); RE: bronchitis (4), pulmonary	4	17	38	BI-11954	Tr	NE	Brazil

<i>Indigofera suffruticosa</i> Mill.	Anil	emphysema (1), forificante lung (1), flu (6), lung (bronchitis) (1), cough (4) GY: help in labor (3); GA: ulcer (2)	2	2	5	BI-744	Sh	N	Argentina, Austria, Belize, Bolivia, Brazil, Caribbean, Chile, China, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, French Guiana, Guatemala, Guyana, Honduras, India, Mexico, Nicaragua, Panama, Paraguay, Peru, Philippines, Suriname, Taiwan, United States, Uruguay, Venezuela
<i>Leptolobium dasycarpum</i> Vogel	Cinco-folhas	UR: kidneys (1)	1	1	1	BI-39293	He	NE	Brazil
<i>Pterodon pubescens</i> Benth.	Sucupira-branca	DE: wound healing (2); GA: gastritis (1); RE: antibiotic (1), flu (1), inflammation of throat (4); SK: inflammation (1), rheumatism (4)	4	7	14	BI-17	Tr	NE	Brazil
<i>Schizolobium amazonicum</i> Huber ex. Ducke	Pinho-cuiabano	DE: itching (2)	1	1	2	BI-IC	Tr	NE	Brazil
<i>Senna occidentalis</i> (L.) Link	Fedegoso	DE: ringworm (1); DU: prostate (1); FI: dengue (1), local pain (3), fever (4), malaria (3), virtual (2); GA: liver (2), hepatitis (1), jaundice (1), poor digestion (1), worm (1); RE: flu (6), respiratory problems (1), sinusitis (1), cough (1)	5	16	30	BI-2835	Tr	NE	Brazil
<i>Stryphnodendron adstringens</i> (Mart.) Coville	Barbatimão	DE: wound healing (13); DI: diabetic(1); FI: leishmaniasis (1); GA: ulcer (1); GY:uterine infection (2); ovary (1) vaginal problems (1); RE: antibiotic (2); SK: inflammation (2); bone fracture(1); UR: bladder infection (1) kidney infection (1)	7	12	27	BI-31615	He	NE	Brazil
<i>Tephrosia cf. purpurea</i> (L.) Pers.	Sene	FI: fever (1); GA: bowel syndrome constipation (1)	2	2	2	BI-33429	He	N	Brazil, Cambodia, Caribbean, China, El Salvador, Guyana, India, Indonesia, Laos, Madagascar, Malaysia, Nepal, Sri Lanka, Suriname, Taiwan, Thailand, United States, Venezuela, Vietnam
GINKGOACEAE <i>Ginkgo biloba</i> L.	Ginkgo-biloba	RE: labyrinthitis (1)	1	1	1	BI-IC	Tr	E	China
HYPERICACEAE <i>Vismia guianensis</i> (Aubl.) Choisy	Lacre	UR: kidneys (2), GA: stomach (2)	2	2	4	BI-825	Sh	NE	Brazil
IRIDACEAE <i>Eleutherine bulbosa</i> (Mill.) Urb.	Ruibarbo-palmeirinha	GA: diarrhea (1); DU: cramp (1), blood depurative (1)	2	3	3	BI-1013	He	N	Argentina, Bolivia, Brazil, Caribbean, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, Mexico, Suriname, States United, Venezuela
LAMIACEAE <i>Hyptis suaveolens</i> Poit.	Tapera-velha	GA: gastritis (1); SK: inflammation (1)	2	2	2	BI-904	Sh	NE	Brazil
<i>Leonotis nepetifolia</i> (L.) R. Br.	Cordão-de-são-francisco	DE: wound healing (1); DU: malaise (2), hypertension (2); FI: dengue (1), local pain (10), fever (3), malaria (2); GA: stomach (2), liver (3), hepatitis (1); GY: menstrual cramps (1); RE: congestion (1), flu (1)	6	13	30	BI-32668	Sh	NE	Brazil
<i>Leonurus japonicus</i> Houtt.	Rubim, Macaé	DE: injuries (1); FI: local pain (2), fever (1); GA: congestion (1), diarrhea (1), stomach (5), intestinal fever (1), digestive problems (1), gastrointestinal problems (1); SK: hematoma (1); DU: calmativa (1), tooth ache (1), cancer (1), leakage (1), hypertension (1)	6	15	20	BI-32698	He	N	Argentina, Belize, Bolivia, Brazil, Burma, Cambodia, Caribbean, China, Colombia, Costa Rica, El Salvador, French Guiana, Guatemala, Guyana, Honduras, Japan, Laos, Mexico, Nicaragua, Panama, Peru, South Korea, Suriname, Thailand, States United, Venezuela, Vietnam
<i>Marsypianthes chamaedrys</i> (Vahl) Kuntze	Hortelã-do-mato	GA: worm (2)	1	1	2	BI-3345	He	NE	Brazil
<i>Melissa officinalis</i> L.	Melissa	DU: calmativa (1); FI: local pain (1), fever (1); GA: diverticulitis (1); RE: flu (1)	4	5	5	BI-IC	He	E	Argentina, China, Chile, Colombia, Ecuador, Kyrgyzstan,

Table 3 (continued)

Family/botanical species	Vernacular name	Category of disease/use-category/use-report	tCD	tUC	tUR	BI	HB	GO	Distribution
<i>Mentha arvensis</i> L.	Hortelã-vick	RE: bronchitis (2), flu (2)	1	2	4	BI-3431	He	E	Pakistan, Russian Federation, Tajikistan, Turkmenistan, United States, Canada, United States
<i>Mentha crispa</i> L.	Hortelã-míuda	FI: virtual (1); GA: dysentery (1), diarrhea (1), worm (2); GY: colic-baby (1); RE: flu (3)	4	6	9	BI-238	He	E	United States
<i>Mentha pulegium</i> L.	Poejo	DE: gross carpal (1); FI: local pain (5), fever (4); GA: infantile colic (1), belly ache (1), diarrhea (1), constipation (1), worm (2); GY: colic-baby (6), change of life (1); RE: expectorant (1), flu (62), cold (2), cough (5); UR: renal colic (1)	6	15	94	BI-26249	He	E	Argentina, Brazil, Chile, China, Ecuador, Pakistan, Russian Federation, Tajikistan, Turkmenistan, United States
<i>Mentha viridis</i> (L.) L.	Elevante	FI: local pain (2), fever (2); GA: diarrhea (1), worm (1); RE: throat (1), flu (6), flu in children (1), cold, cough (1)	3	9	18	BI-37.935	He	NE	Brazil
<i>Mentha x piperita</i> L.	Hortelã-pimenta	DE: wound healing (1), boil (1); FI: dengue (1), Local pain (4), fever (6), flu (1); GA: colic-baby (1), belly ache (1), diarrhea (1), liver (1), worm (66); GY: menstrual cramps (1); RE: allergy (1), bronchitis (2), expectorant (1), throat (1), flu (87), labyrinthitis (1), cold (3), cough (10); DU: anemia (1), calmative (4), local pain (2), hypertension (2), nerves (1), tumor (1)	6	27	202	BI-26089	He	E	Argentina, Canada, China, Ecuador, El Salvador, Gabon, India, Japan, Kirgystan, Mexico, Russian Federation, Turkmenistan, United States
<i>Ocimum basilicum</i> L.	Manjericão-roxo	RE: flu (1); GA: stomach (2)	2	2	3	BI-33427	He	E	Belize, China, Colombia, Ecuador, El Salvador, Gabon, Guatemala, Honduras, India, Iran, Madagascar, Mexico, Nicaragua, Pakistan, Panama, South Africa, United States, Venezuela
<i>Ocimum gratissimum</i> L.	Alfavaca, Hortelã-do-mato	DU: calmative (5); FI: constipation (1), dengue fever (1), pain location (1), child fever (1), malaria (1); GY: colic (1), weight loss (1); RE: bronchitis (1), flu (26), infection of throat (5), nasal congestion (1), respiratory problems (1), lung (1), cold (2), cough (3); SK: rheumatism (1); UR: bladder (1), kidney infection (1), urinary infection (1)	6	20	57	BI-31655	He	N	Bolivia, Brazil, Caribbean, China, French Guiana, Gabon, Guyana, India, Madagascar, Mexico, Panama, Suriname, United States, Venezuela
<i>Ocimum minimum</i> L.	Manjericão	DE: itching (1); DU: calmative (1); FI: fever (1); RE: flu (6)	4	4	9	BI-385	Sh	E	United States
<i>Ocimum kilimandscharicum</i> Gürke	Alfavaquinha	DE: wound healing (1); RE: flu (2), lung (1), respiratory problems (1)	2	4	5	BI-33437	He	N	Bolivia, Brazil, Caribbean, China, French Guiana, Gabon, Guyana, India, Madagascar, Mexico, Panama, Suriname, United States, Venezuela
<i>Ocimum carnosum</i> (Spreng.) Link & Otto ex Benth.	Atroveram	FI: fever (1)	1	1	1	BI-IC	He	N	Argentina, Bolivia, Brazil, Mexico, Venezuela
<i>Origanum majorana</i> L.	Manjerona	DE: navel healing (1); FI: local pain (1); GA: stomach (1), intestine (1), poor digestion (1); GY: menstrual cramps (1); RE: expectorant (1), flu (4)	5	8	11	BI-222	He	E	Colombia, Pakistan, United States, Venezuela
<i>Origanum vulgare</i> L.	Oregano	GA: intestine (1); GY: uterine infection (1)	2	2	2	BI-IC	He	E	Colombia, Honduras, United States
<i>Plectranthus amboinicus</i> (Lour.) Spreng.	Hortelã-folha-gorda	DE: wound healing (1); DU: calmative (1); FI: local pain (1), fever (1); GA: stomach (2), gastritis (1); RE: flu (1), cough (2)	5	8	10	BI-26239	He	E	Belize, Comoros, El Salvador, Guatemala, Honduras, Nicaragua, South Africa
<i>Plectranthus barbatus</i> Andrews	Boldo	DU: aches (1); local pain (1), hangover (1); FI: local pain (17), fever (1); GA: heartburn (3), colic intestine (1), congestion (1), digestive (3) bloating (1) stomach (65), liver (16), intestine (2), laxative (1) poor digestion (17), gastrointestinal problems (5), intestinal dryness (1), vomit (2); GY: colic (1), menstrual cholic (1), nausea (2), RE: labyrinthitis (1)	5	22	144	BI-17933	He	E	South Africa
<i>Rosmarinus officinalis</i> L.	Alecrim	DU: anticoagulant (1), arrhythmia (2), stroke (1), calmative (9), blood circulation (2), depression (2), decreases the heart's rhythm (2), hypertension (1), myocardial infarction (7) stroke (1), palpitations (2), heart problems (25); FI: local pain (5), fever (2); GA: diverticulitis (1), stomach ache (2), hepatitis (2), vomiting (1); RE: shortness of breath (1), flu (1), respiratory failure (1), sinusitis (1), cough (2)	4	22	72	BI-25554	He	E	Bolivia, China, Colombia, Ecuador, El Salvador, Guatemala, Mexico, Pakistan, Peru, United States, Venezuela
<i>Salvia officinalis</i> L.	Salvia	GA: stomach (2), gastrointestinal problems (1); RE: flu (1)	2	3	4	BI-1020	He	E	Argentina, China, Colombia, Ecuador, United States
<i>Vitex triflora</i> Vahl	Tarumã	RE: antibiotic (1)	1	1	1	BI-25617	Tr	N	Bolivia, Brazil, Colombia, Ecuador, French, Suriname,

										Venezuela
LAURACEAE										
<i>Cinnamomum camphora</i> (L.) J. Presl.	Cânfora	SK: contusion (1)	1	1	1	BI-IC	He	E		Bolivia, China, El Salvador, Honduras, Japan, South Korea, Taiwan, United States, Vietnam
<i>Cinnamomum verum</i> J.Presl	Canela	GA: diarrhea (1), poor digestion (1); GY: menstrual cramps (2), menstruation (1); RE: flu (1), cough (1); SK: column (1); DU: hypertension (2)	5	8	10	BI-873	Tr	E		Bolivia, China, El Salvador, Gabon, Sri Lanka, Taiwan
<i>Cryptocarya mandioccana</i> Meisn.	Noz-moscada-brasileira	Fl: local pain (1); GA: stomach (2); GY: menstrual cramps (1)	3	3	4	BI-IC	He	NE		Brazil
<i>Laurus nobilis</i> L.	Louro	GA: digestive (1)	1	1	1	BI-878	Tr	E		China, Gabon, Madagascar, Taiwan
<i>Persea americana</i> Mill.	Abacate	DU: blood depurative (1); Fl: pain location (4); GA: uric acid (1), stomach (4), liver poor digestion (2); GY: menstrual cramps (1), uterine infection (1); RE: bronchitis (1), throat (1), cough (1); SK: rheumatism (2); UR: renal colic (1), infection of the kidneys (27), urinary problems (1)	6	12	48	BI-21363	Tr	N		Argentina, Belize, Bolivia, Brazil, Caribbean, China, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Gabon, Guatemala, Guyana, Honduras, Madagascar, Mexico, Nicaragua, Panama, Paraguay, Peru, Philippines, Suriname, United States, Venezuela
LECYTHIDACEAE										
<i>Bertholletia excelsa</i> Bonpl. ex Spreng.	Castanha-do-brasil	DE: wound healing (1), impetigo (1), spots on the skin (1), white cloth (1), skin (1); DI: diabetic (1); Fl: malaria (1), virtual (1); GA: diarrhea (1), liver (1); UR: kidney disease (1), cholesterol (1), blood depurative (1), heart stimulant (1), restorative (1), insomnia (1), nutritious (1), varicose veins (1)	5	18	18	BI-854	Tr	NE		Brazil
<i>Cariniana rubra</i> Gardner ex Miens	Jequitiba	UR: kidneys (1)	1	1	1	BI-39419	Tr	N		Bolivia, Brazil
LOGANIACEAE										
<i>Strychnos pseudoquina</i> A. St.-Hil.	Quina-amarga	Fl: local pain (1)	1	1	1	BI-38621	Tr	N		Bolivia, Brazil, Paraguai
LORANTHACEAE										
<i>Psittacanthus robustus</i> (Mart.) Mart.	Erva-de-passarinho	UR: kidneys (1)	1	1	1	BI-IC	Sh	N		Bolivia, Brazil, Colombia, Guyana, Venezuela
LYTHRACEAE										
<i>Cuphea carthagenensis</i> (Jacq.) J.Macbr.	Sete-sangria	DU: blood depurative (3); GY: weight loss (1)	2	2	2	BI-33428	He	N		Argentina, Belize, Bolivia, Brazil, Caribbean, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Hawaiian, Honduras, Mexico, Panama, Paraguay, Peru, Suriname, Taiwan, United States, Venezuela
<i>Lafoensia pacari</i> A. St. Hil.	Mangava-brava	GA: ulcer (1)	1	1	1	BI-883	Tr	N		Bolivia, Brazil
<i>Punica granatum</i> L.	Romã	DE: wound healing (9); DU: cancer (1); Fl: local pain (1); GA: diarrhea (1), intestinal infection (1); GY: uterine infection (3); RE: throat (9), flu (2), inflammation in the throat (4); SK: inflammation (2), rheumatism (4)	7	11	37	BI-31659	He	E		Belize, China, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, India, Madagascar, Mexico, Nicaragua, Panama, South Africa, United States
MALPIGHIACEAE										
<i>Adelphia hiraee</i> (Gaertn.) W.R.Anderson	Erva-do-gado	DU: cause death in cattle (1)	1	1	1	BI-2004	He	E		Belize, Caribbean., Colombia, Costa Rica, Guatemala, Mexico, Peru, Venezuela
<i>Byrsonima arthropoda</i> A. Juss.	Murici	GA: stomach (2), diarrhea (3)	1	2	5	BI-774	Tr	N		Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Guyana, Peru, Suriname, Venezuela
<i>Byrsonima crisper</i> A.Juss.	Muricá	DE: wound (1), injuries (1); SK: bone fracture (1)	2	3	3	BI-861	Tr	N		Bolivia, Brazil, Colombia, Brazil, French Guiana, Panama, Venezuela
<i>Camarea ericoides</i> A. St.-Hil.	Arniquinha	Fl: local pain (1); SK: bone fracture (1), rheumatism(1)	2	3	3	BI-	He	NE		Brazil

Table 3 (continued)

Family/botanical species	Vernacular name	Category of disease/use-category/use-report	tCD	tUC	tUR	BI	HB	GO	Distribution
<i>Heteropterys tomentosa</i> A. Juss.	Nó-de-cachorro	DU: natural viagra (1)	1	1	1	BI-31637	He	N	Bolivia, Brazil, Paraguai, Peru
<i>Malpighia glabra</i> L.	Acerola	FI: fever (1); RE: bronchitis (1), flu (15), cough (3)	2	4	20	BI-32750 BI-31671	Tr	N	Belize, Brazil, Caribbean, China, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Honduras, Mexico, Nicaragua, Panama, Peru, United States of America, Venezuela
MALVACEAE									
<i>Abelmoschus esculentus</i> (L.) Moench	Quiabo	CU: snakebite (2); GA: diarrhea (1)	3	3	4	BI-33440	He	E	Belize, Colombia China, Índia, Mexico, Panama, USA
<i>Eriotheca macrophylla</i> (K. Schum.) A.Robyns	Algodanzinho	DU: cleanser (1); GY: uterine infection (1)	2	2	2	BI-796	Sh	N	Bolivia, Brazil
<i>Gossypium barbadense</i> L.	Algodão	DU malaise (1); FI: pain location (1); GA: inflammation in the intestine (1); GY: uterine inflammation (36); RE: infection of throat (1); UR: urinary infection (3), kidneys (1)	6	7	44	BI-31775	Sh	N	Belize, Bolivia, Brazil, Chile, China, Colombia, Costa Rica, Ecuador, French Guiana, Gabon, Guatemala, Guyana, Honduras, India, Madagascar, Mexico, Panama, Peru, Suriname, USA, Venezuela
<i>Gossypium hirsutum</i> L.	Algodão-roxo	GY: infection in the ovaries (2), uterine infection (14), postpartum (1); RE: throat (1); UR: kidneys (1)	3	5	19	BI-31682	Sh	N	Brazil, China, Índia, Madagascar, Sri Lanka
<i>Hibiscus sabdariffa</i> L.	Vinagreira	DU: hypertension (1)	1	1	1	BI-33434	He	E	Angola, Belize, Burma, Cameroon, Central African Republic, China, Colombia, French Guiana, Gabon, Guatemala, Guinea-Bissau, Guyana, Honduras, India, Madagascar, Mali, Mexico, Mozambique, Namibia, Nepal, Nigeria, Panama, Peru, Philippines, Senegal, Sierra Leone, South Africa, Sudan, Suriname, Tanzania, Thailand, Togo, United States, Venezuela, Zambia, Brazil
<i>Luehea grandiflora</i> Mart. & Zucc	Açoita-cavalo	GY: infection ovarian (2), uterine infection (2); DU: cancer (1), coronary arteries obstruction (1)	2	4	6	BI-33838	Sh	N	Bolivia, Brazil, Peru
<i>Luehea speciosa</i> Willd.	Cupuaçu	RE: cough (1)	1	1	1	BI-760	Tr	E	Brazil, Belize, Bolivia, Caribbean, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Venezuela
<i>Malva erecta</i> J. Presl & C. Presl	Malva-branca	DE: wound healing (2); FI: local pain (1)	2	2	3	BI-951	He	E	Canada, Colombia, Ecuador, Guatemala, Honduras, Mexico, USA, Venezuela
<i>Pachira aquatica</i> Aubl.	Manguba	DE: wound healing (1); GA: ulcer (1); DU: varicose veins (1)	3	3	3	BI-725	Tr	N	Belize, Bolivia, Brazil, China, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Gabon, Guatemala, Guinea, Guyana, Honduras, Mexico, Panama, Peru, Suriname, Venezuela
<i>Sida acuta</i> Burm.f.	Guanchuma	GA: stomach (2); UR: kidneys (2),	2	2	4	BI-36754	He	N	Belize, Bhutan, Bolivia, Brazil, Cambodia, China, Colombia, Costa Rica, Ecuador, French

<i>Waltheria americana</i> L.	Malva-do-campo	DE: wound healing (2); FI: local pain (1)	2	2	3	BI-32.739	He	N	Guiana, Guatemala, Guyana, Honduras, India, Laos, Madagascar, Mexico, Nepal, Panama, Peru, South Africa, Suriname, Thailand, United States, Venezuela, Vietnam
MELASTOMATACEAE									
<i>Miconia hyemalis</i> A. St.-Hil. & Naudin	Bota-branca	FI: malaria (1); SK: inflammation (1)	2	2	2	BI-IC	Tr	N	Brazil, Uruguay
<i>Miconia tiliifolia</i> Naudin	Bota-vermelha	FI: malaria (1); SK: inflammation(1)	2	2	2	BI-208	Tr	N	Bolivia, Brazil, Peru
MELIACEAE									
<i>Azadirachta indica</i> A. Juss	Nim	DE: itching (1); DI: diabetic (3); DU: cancer (1); FI: analgesic (1), local pain (1); GA: gastritis (1), worm (5); RE: cough (1); DU: cancer (1), blood depurative (1)	5	8	12	BI-807	Tr	E	Colombia, Ecuador, El Salvador, Índia, Pakistam, United States, Venezuela
<i>Cedrela odorata</i> L.	Cedro-rosa	FI: malaria (1); GA: instestinal infection (1), intoxication (1), poor digestion (1); UR: kidneys (1)	5	9	9	BI-1078	Tr	NE	Argentina, Belize, Bolivia, Brazil, Caribbean, China, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, Madagascar, Mexico, Nicaragua, Panama, Peru, South Africa, Suriname, United States, Venezuel
<i>Cedrela saltensis</i> M.A.Zapater & del Castillo	Cedro	DE: wound healing (1)	1	1	1	BI-846	Tr	E	Argentina, Bolivia, Peru
MENISPERMACEAE									
<i>Abuta grandifolia</i> (Mart.) Sandwith	Butuá 1	FI: malaria (3)	1	1	3	BI-209	Tr	N	Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guyana, Peru, Suriname, Venezuela
<i>Cissampelus</i> sp.	Butuá 2	FI: malaria (1)	1	1	1	BI-260	Tr	E	Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Guatemala, Paraguay, Peru, Venezuela
MORACEAE									
<i>Artocarpus integrifolius</i> L. f.	Jaca	GA: liver (1); UR: kidneys (2)	2	2	3	BI-960	Tr	E	Honduras, Java
<i>Brosimum gaudichaudii</i> Trécul	Mamica-de-cadela	DE: viteligo infection (1); GA: poor digestion (1)	2	2	2	BI-30084	Sh	N	Bolivia, Brazil, Paraguay
<i>Clarisia ilicifolia</i> (Spreng.) Lanj. & Rossberg	Cancorosa	GA: diarrhea (1), liver (1), hepatitis (1) stomach ache (1)	1	4	4	BI-1087	Sh	N	Bolivia, Brazil, Colombia, French Guiana, Guyana, Peru, Suriname, Venezuela
<i>Ficus brasiliensis</i> Link.	Figo	FI: dengue (1); GA: food poisoning (1), ulcer (1); RE: bronchitis (1), flu (1); UR: diuretic (1)	4	6	6	BI-378	Tr	E	Ecuador, Honduras, Venezuela
<i>Ficus insipida</i> Willd.	Figueira-branca	DU: anemia (1), restorative (1); GA: gastritis (1), ulcer (1)	2	4	4	BI-1089	Tr	N	Belize, Bolivia, Brazil, Caribbean, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Honduras, Mexico, Panama, Paraguay, Peru, Venezuela
<i>Maclura tinctoria</i> (L.) D. Don ex Steud.	Amora-do-mato, Moreira	SK: rheumatism (3)	1	1	3	BI-306	Tr	N	Argentina, Belize, Bolivia, Brazil, Caribbean, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname,

Table 3 (continued)

Family/botanical species	Vernacular name	Category of disease/use-category/use-report	tCD	tUC	tUR	BI	HB	GO	Distribution
<i>Maytenus ilicifolia</i> Mart.ex Reissek.	Espinheira-santa 2	DE: wound healing (2); GA: stomach (1), gastritis (1); RE: antibiotic (1); SK: inflammation (1); UR: kidneys (1)	5	6	7	BI-18207	Tr	N	Venezuela Bolivia, Brazil
<i>Morus nigra</i> L.	Amora	DE: wound healing (1), GA: liver (1), hemorrhoid (1), intestinal infection (1), GY: change of life heat (1), weight loss (2), bleeding (1), uterine infection (1), hormone replacement (13), RE: throat (1), flu (1), throat infection (4), SK: rheumatism (2); UR: kidney stone (1), diuretic (3), urinary infection (1), kidneys (5); DU: blood pressure control (1), hypertension (2)	7	20	45	BI-31644	Tr	E	China, United States
<i>Sorocea guilleminiana</i> Gaudich	Espinheira-santa 1	DE: wound healing (2); GA: stomach (1), gastritis (1); RE: antibiotic (1); SK: inflammation (1); UR: kidneys (1)	5	6	7	BI-882	Tr	N	Bolivia, Brazil, Colombia, Ecuador, Peru
MORINGACEAE									
<i>Moringa oleifera</i> Lam.	Moringa	SK: inflammation (1)	1	1	1	BI-IC	Tr	N	Belize, Caribbean, China, Colombia, Costa Rica, El Salvador, French Guiana, Guatemala, Gabon, Guyana, Honduras, India, Madagascar, Mexico, Nicaragua, Pakistan, Panama, Paraguay, Venezuela
MUSACEAE									
<i>Musa x paradisiaca</i> L.	Bananeira	FI: chickenpox (1); GA: intestinal infection (1)	2	2	2	BI-372	Tr	E	Belize, China, Colombia, Costa Rica, Ecuador, Gabon, Guatemala, Honduras, Mexico, United States
MYRTACEAE									
<i>Corymbia citriodora</i> (Hook.) K.D. Hill & L.A.S. Johnson.	Eucalipto	FI: local pain (2); GA: worm (1); RE: bronchitis (2), expectorant (1), flu (13), pneumonia (1), cold (3), sinusitis (1), cough (2); SK: rheumatism (1)	4	10	27	BI-888	Tr	E	Australia, El Salvador
<i>Eugenia aurata</i> O.Berg	Cabeludinho	GY: colic (1); UR: burning in the urethra (1), kidney infection (3), urinary infection (1)	2	4	6	BI-08	He	NE	Brazil
<i>Eugenia uniflora</i> L.	Pitanga	DU: hypertension (13), prostate cancer (1); FI: dengue (1), fever (1); GA: diarrhea (1); RE: bronchitis (1), infection in throat (1); UR: diuretic (1)	5	8	20	BI-33438	Tr	N	Argentina, Belize, Bolivia, Brazil, Caribbean, China, Colombia, Costa Rica, El Salvador, French Guiana, Gabon, Guatemala, Guyana, Honduras, India, Madagascar, Mexico, Panama, Paraguay, South Africa, Suriname, United States
<i>Leptospermum scoparium</i> J. R. Forst. & G. Forst.	Érica	GY: menstruation (2)	1	1	2	BI-IC	He	E	United States
<i>Plinia cauliflora</i> (DC.) Kause	Jaboticaba	GA: diarrhea (1); RE: labyrinthitis (1)	2	2	2	BI-IC	Tr	NE	Brazil
<i>Psidium cattleyanum</i> Sabine	Araçá-do-brejo	GA: dysentery (1), diarrhea (1)	1	2	2	BI-1021	Sh	N	Brazil, Caribbean, China, Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Panama, South Africa, United States, Uruguay
<i>Psidium guajava</i> L.	Goiaba	DU: malaise (1); FI: Local pain (2); GA: dysentery (1), diarrhea (19), intestine (1), heartburn (1), burning (1); GY: colic (2); RE: throat (1), immunity (1)	5	10	30	BI-33448	Tr	N	Argentina, Belize, Bolivia, Brazil, Caribbean, Chile, China
<i>Syzygium aromaticum</i> (L.) Merr. e L.M. Perry	Cravo	DE: skin problems (1)	1	1	1	BI-872	Tr	E	Caribbean, French Guiana, Gabon, Moluccas
<i>Syzygium cumini</i> (L.) Skeels.	Jamelão, Azeitona-preta	DI: diabetes (1); DU: cholesterol (2)	2	2	3	BI-32	Tr	E	Bhutan, Bolivia, Brazil, Burma, China, El Salvador, India, Laos, Nepal, Sri Lanka, Thailand, Venezuela, Vietnam
NYCTAGINACEAE									
<i>Boerhavia coccinea</i> Mill.	Pega-pinto	DU: prostate (1)	1	1	1	BI-793	He	E	Argentina, Belize, Bolivia, Brazil, Caribbean, China, Costa Rica, Ecuador, Honduras, Mexico, Panama, Peru, United States, Venezuela

<i>Mirabilis jalapa</i> L.	Maravilha	DU: blood depurative (6); RE: expectorant (2), pneumonia (2)	2	3	10	BI-16909	Tr	E	Belize, Bolivia, Brazil, Canada, Colombia, Costa Rica, Ecuador, French Guiana, Gabon, Guatemala, Guyana, Honduras, India, Madagascar, Mexico, Panama, Peru, South Africa, Suriname, United States, Venezuela
OXALIDACEAE									
<i>Averrhoa bilimbi</i> L.	Bilimbi	RE: antibiotic (2)	1	1	2	BI-IC	Tr	E	Brazil, Caribbean, China, Costa Rica, El Salvador, French Guiana, Honduras, India, Nicaragua, Panama, Sri Lanka, Venezuela
<i>Averrhoa carambola</i> L.	Carambola	DI: diabetic (2); DU: hypertension (1); RE: flu (1); UR: kidneys (2)	4	4	6	BI-10007	Tr	E	Bolivia, Brazil, Caribbean, China, Colombia, Costa Rica, El Salvador, French Guiana, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Peru, Suriname, Venezuela
PAPAVERACEAE									
<i>Argemone mexicana</i> L.	Cardo-santo	GA: diarrhea (1), liver (1), hepatitis (1) stomach (1); FI: constipation (1), fever (1)	2	6	6	BI-39215	He	E	Argentina, Belize, Bolivia, Brazil, Caribbean, China, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, India, Madagascar, Mexico, Nepal, Nicaragua, Panama, Paraguay, Peru, South Africa, Suriname, United States, Uruguay, Venezuela
PASSIFLORACEAE									
<i>Passiflora alata</i> Curtis	Maracujá	DI: diabetic (1); DU: calmativa (6), cholesterol (1), hypertension (1)	2	4	9	BI-1019	Tr	NE	Brazil
PEDALIACE									
<i>Sesamum indicum</i> L.	Gergelim	DU: anemia (2), circulation (1), GY: bleeding (2)	2	3	5	BI-3356	Sh	E	Belize, Bolivia, Brazil, Canada, Caribbean, China, Costa Rica, Ecuador, Egypt, El Salvador, Ethiopia, French Guiana, Guatemala, Guyana, Honduras, India, Iran, Japan, Madagascar, Mexico, Nicaragua, Panama, South Africa, Suriname, United States, Venezuela
PHYLLANTHACEAE									
<i>Phyllanthus niruri</i> L.	Quebra-pedra	FI: local pain (2); GA: intestine infection (1); UR: kidney stone (5), renal colic (1), diuretic (1), kidney disease (5), kidneys (33)	3	7	48	BI-10524	Sh	N	Argentina, Belize, Bolivia, Brazil, Cambodia, Caribbean, China, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Honduras, India, Laos, Madagascar, Mexico, Panama, Paraguay, Peru, Philippines, South Africa, Suriname, United States, Venezuela, Vietnam
PHYTOLACCACEAE									
<i>Petiveria alliacea</i> L.	Guiné	DU: cholesterol (1); FI: local pain (2); RE: throat (1), flu (2); SK: rheumatism (4)	4	5	10	BI-34108	Tr	E	Argentina, Belize, Bolivia, Caribbean, Colombia, Costa Rica, Ecuador, French Guiana,

Table 3 (continued)

Family/botanical species	Vernacular name	Category of disease/use-category/use-report	tCD	tUC	tUR	BI	HB	GO	Distribution
<i>Gallesia integrifolia</i> (Spreng.) Harms	Páu-de-alho	SK: rheumatism (1)	1	1	1	BI-IC	Tr	NE	Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Peru, Suriname, United States, Venezuela
PIPERACEAE									
<i>Piper umbellatum</i> L.	Capeba	DU: obstruction of coronary artery (2), RE: expectorant (1), lung (1); SK: rheumatism (1); UR: diuretic (1), bladder infection (2), kidneys (6)	4	7	14	BI-1093	Sh	N	Angola, Belize, Bioko, Bolivia, Brazil, Cambodia, Caribbean, China, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guinea-Bissau, Guyana, Honduras, India, Kenya, Madagascar, Malawi, Mexico, Mozambique, Nicaragua, Panama, Peru, Philippines, São Tomé and Príncipe, Seychelles, Sri Lanka, Sudan, Tanzania, Thailand, Uganda, United States, Venezuela, Vietnam, Zaire
<i>Piper cuyabanum</i> C. DC.	Jaborandi	DE: wounds (1), loss of hair (1); DU: circulation (1)	3	3	3	BI-2826	Sh	N	Bolivia, Brazil
PLANTAGINACEAE									
<i>Plantago major</i> L.	Tansagem	DE: wound healing (30), wounds (1), skin (7); DU: cancer (2); FI: local pain (4), fever (2); GA: diarrhea (1), stomach (1), intestinal infection (2), ulcer (2); GY: weight loss (1), uterine inflammation (4); OP: conjunctivitis (1); RE: antibiotic (8), grippe (2), infection of throat (10); SK: inflammation (4); UR: bladder (3), bladder infection (3), infection of kidneys (9)	9	20	101	BI-31790	He	E	Argentina, Belize, Bolivia, Brazil, Canada, Caribbean, Chile, China, Colombia, Costa Rica, Ecuador, French Guiana, Guatemala, Guyana, Honduras, India, Madagascar, Mexico, Nepal, Nicaragua, Pakistan, Panama, Peru, South Africa, Suriname, United States, Venezuela, Vietnam
<i>Scoparia dulcis</i> L.	Vassourinha	DE: injuries (1); SK: bone fracture (1)	2	2	2	BI-32715	He	N	Argentina, Belize, Bolivia, Brazil, Caribbean, China, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, Madagascar, Mexico, Panama, Paraguay, Peru, South Africa, Suriname, United States, Venezuela
POACEAE									
<i>Coix lacryma-jobi</i> L.	Lágrima-de-nossa-senhora	GA: stomach (2); UR: kidneys (2)	2	2	4	BI-32850	He	E	Argentina, Australia, Belize, Bolivia, Brazil, Caribbean, Chile, China, Colombia, Costa Rica, Ecuador, El Salvador, Ethiopia, French Guiana, Gabon, Guatemala, Guyana, Honduras, India, Japan, Laos, Madagascar, Mexico, Nepal, Nicaragua, Panama, Papua New Guinea, Paraguay, Peru, Philippines, South Africa, Sri Lanka, Suriname, Thailand, Turkey, United States,

<i>Cymbopogon citratus</i> (DC.) Stapf	Capim-cidreira	DU: calmative (57), depression (1), blood depurative (1), stress (2), hypertension (17), insomnia (3), depression (1), stomach (1); FI: local pain (3); GA: digestive problems (2), stomach (1); RE: bronchitis (1), flu (12), infection in throat (1), pneumonia (1)	4	14	104	BI-239	He	E	Uruguay, Venezuela, Vietnam, Argentina, Australia, Belize, Bolivia, Brazil, Borneo, Caribbean, Chile, China, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Gabon, Guatemala, Guyana, Honduras, India, Mexico, Micronesia Federated States, New Guinea, Nicaragua, Panama, Paraguay, Peru, Philippines, Sulawesi, Sumatra, Suriname, United States, Uruguay, Venezuela
<i>Cymbopogon nardus</i> (L.) Rendle	Capim-citronela	FI: fever (2)	1	1	2	BI-1012	He	E	Brazil, Caribbean, China, French Guiana, Honduras, India, Java, Mexico, Sri Lanka, Suriname, United States
<i>Cynodon dactylon</i> (L.) Gaertn.	Capim-prostata	DU: disturbances in the prostate (11)	1	1	11	BI-855	He	N	Angola, Argentina, Belize, Bolivia, Brazil, Burma, Cameroon, Canada, Caribbean, Islands, Caribbean, Chile, China, Colombia, Congo, Costa Rica, Easter Island, Ecuador, El Salvador, Ethiopia, French Guiana, Gabon, Guatemala, Guyana, Honduras, India, Kenya, Malawi, Mexico, Madagascar, Mexico, Mozambique, New Zealand, Nicaragua, Pakistan, Panama, Peru, Portugal, South Africa, Suriname, Tanzania, Turkey, United States, Uruguay, Venezuela, Zambia, Zimbabwe
<i>Digitaria insularis</i> (L.) Mez ex Ekman	Campim-amargoso	DE: wound healing (1), wounds (1); FI: local pain (1)	2	3	3	BI-32822	He	N	Argentina, Bolivia, Brazil, Caribbean, Colombia, Costa Rica, El Salvador, French Guiana, Guyana, Honduras, Mexico, Panama, Paraguay, Peru, Suriname, United States, Uruguay, Venezuela
<i>Eleusine indica</i> (L.) Gaerth	Capim-pé-de-galinha	DE: wound healing (1), bruise (1); DU: poor circulation (1); FI: local pain (1), virtual (1); GA: worm (1); GY: uterus (1); RE: antibiotic (1), bronchitis (4), flu (1), pneumonia (12), respiratory problems (1), cough (1); UR: kidneys (1)	7	14	28	BI-33408	He	E	Argentina, Belize, Bolivia, Brazil, Burma, Cameroon, Canada, Caribbean, Islands, Caribbean, Chile, China, Colombia, Costa Rica, Easter Island, Ecuador, El Salvador, Ethiopia, French Guiana, Gabon, Guatemala, Guyana, Honduras, India, Madagascar, Mexico, Nicaragua, Panama, Paraguay, Peru, South Africa, Sri Lanka, Suriname, Turkey, United States, Uruguay, Venezuela
<i>Imperata brasiliensis</i> Trin.	Capim-sapê	DU: calmative (1), hypertension (1)	1	2	2	BI-35.207	He	N	Brazil, Argentina, Belize, Bolivia, Caribbean, Chile, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Guyana,

Table 3 (continued)

Family/botanical species	Vernacular name	Category of disease/use-category/use-report	tCD	tUC	tUR	BI	HB	GO	Distribution
<i>Melinis minutiflora</i> P. Beauv.	Capim-gordura	DE: cleaning (1); FI: analgesic (1)	2	2	2	BI-40	He	E	Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, United States, Uruguay, Venezuela Algeria, Argentina, Australia, Belize, Bolivia, Brazil, Burundi, Cameroon, Canary, Islands, Caribbean, Chile, China, Colombia, Congo, Costa Rica, Ecuador, El Salvador, Ethiopia, Fiji, Gabon, Ghana, Guatemala, Guinea, Guyana, Honduras, India, Java, Kenya, Liberia, Madagascar, Malawi, Mexico, Mazambique, New Guinea, Nicaragua, Panama, Paraguay, Peru, Philippines, Rwanda, Sierra Leone, South Africa, Sri Lanka, Sudan, Suriname, Swaziland, Tanzania, Togo, Tonga, Uganda, United, Uruguay, Venezuela, Zaire, Zambia, Zimbabwe
<i>Parodiolyra micrantha</i> (Kunth) Davidse & Zuloaga	Bambuzinho	GA: stomach (1); UR: kidneys (1)	2	2	2	BI-966	Tr	N	Argentina, Bolivia, Brazil, Colombia, French Guiana, Guyana, Paraguay, Peru, Suriname, Venezuela
<i>Saccharum officinarum</i> L.	Cana-de-açúcar	DU: anemia (1), hypertension (6); FI: leishmaniasis (1); RE: respiratory failure (1); UR: diuretic (1)	4	5	10	BI-IC	Sh	E	Argentina, Belize, Bolivia, Brazil, Caribbean, Chile, China, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Honduras, India, Mexico, New Guinea, Nicaragua, Panama, Paraguay, Peru, Suriname, Taiwan, Turkey, United States, Uruguay, Venezuela
<i>Zea mays</i> L.	Milho	DU: weight Loss (1); FI: local pain (1); UR: diuretic (1), urinary infection (1), kidneys (5)	3	5	9	BI-32758	Sh	N	Argentina, Australia, Belize, Bolivia, Brazil, Burma, Canada, Caribbean, Chile, China, Colombia, Costa Rica, Ecuador, El Salvador, Ethiopia, French Guiana, Gabon, Guatemala, Guyana, Honduras, India, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Turkey, United States, Uruguay, Venezuela
POLYGALACEAE									
<i>Bredemeyera floribunda</i> Willd.	Cipó-gemada	DE: tonic (1); GA: stomach (1)	2	2	2	BI-3379	Tr	N	Bolivia, Brazil, Colombia, Guyana, Venezuela
<i>Polygala extraaxillaris</i> Chodat	Pé-de-gelol	SK: contusion (1)	1	1	1	BI-3378	He	NE	Brazil
POLYGONACEAE									
<i>Muehlenbeckia platyclada</i> (F.J. Müll.) Meisn.	Carqueja-doce	GA: worm (1)	1	1	1	BI-240	He	N	Bolivia, Brazil, Costa Rica, Ecuador, Guatemala, Honduras, Mexico, Panama,

<i>Polygonum punctatum</i> Elliott	Erva-de-bicho	Fl: local pain (2), dengue (2), scabies (1), virtual (1); GA: hemorrhoid (1); RE: antibiotic (1)	3	3	8	BI-368	He	N	Venezuela Brazil, French Guiana, Guyana, Nepal, Suriname, Venezuela
POLYPODIACEAE									
<i>Phlebodium decumanum</i> (Willd.) J.Sm.	Erva-de-macaco, Rabo-de-caxinguelê	Fl: local pain (2)	1	1	2	BI-943	He	E	Argentina, Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guatemala, Honduras, Mexico, Paraguay, Peru, Suriname, United States, Uruguay, Venezuela
PORTULACACEAE									
<i>Portulaca pilosa</i> L.	Amor-crescido	DE: injuries (1); GA: ulcer (1)	2	2	2	BI-999	He	N	Argentina, Belize, Bolivia, Brazil, Burma, Caribbean, Chile, China, Colombia, Costa Rica, Ecuador, French Guiana, Greenland, Guatemala, Guyana, Honduras, Laos, Mexico, Nicaragua, Panama, Paraguay, Peru, Philippines, South Africa, Thailand, United States, Venezuela
PTERIDACEAE									
<i>Adiantum capillus-veneris</i> L.	Avenca	GA: worm (1)	1	1	1	BI-1048	He	E	Belize, Bolivia, Canada, Caribbean, Chile, China, Comoros, France, Guatemala, Honduras, Japan, Madagascar, Mexico
RHAMNACEAE									
<i>Ampelozizyphus amazonicus</i> Ducke	Saracura	GA: diarrhea (1), liver (1)	1	2	2	BI-IC	Sh	N	Brazil, French Guiana, Guyana, Peru, Suriname, Venezuela
<i>Ziziphus joazeiro</i> Mart.	Juá	DE: boil (1)	1	1	1	BI-IC	He	N	Bolivia, Brazil
ROSACEAE									
<i>Prunus domestica</i> L.	Ameixa	DI: diabetic (1)	1	1	1	BI-IC	Tr	E	China, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, United States
<i>Rosa alba</i> L.	Rosa-branca	DE: wound healing (2); DU: heart (1), hypertension (1); GA: constipation (1); RE: flu (1); SK: local pain (1); UR: urinary infection (1)	6	7	8	BI-40,514	Sh	E	China
<i>Rosa glabrifolia</i> C.A. Mey. ex Rupr	Rosa-vermelha	RE: flu (1)	1	1	1	BI-41	Sh	E	Algeria, Argentina, Bolivia, Brazil, Canada, Caribbean, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, India, Madagascar, Mexico, New Zealand, Panama, Paraguay, Peru, Tanzania, United States, Uruguay, Venezuela
RUBIACEAE									
<i>Alseis latifolia</i> Gleason	Escorrega-macaco	DE: wound healing (2); Fl: leishmaniasis (1)	2	2	3	BI-755	Tr	NE	Brazil
<i>Coutarea hexandra</i> (Jacq.) K. Schum	Quina-do-mato	Fl: malaria (1), local pain (1); GA: gastrointestinal problems (1)	2	3	3	BI-IC	Tr	N	Argentina, Belize, Bolivia, Brazil, Caribbean, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Venezuela
<i>Genipa americana</i> L.	Jenipapo	DU: vitamin (11); GA: liver (1), worm (1); SK: rheumatism (1); UR: kidney infection (1), kidneys (2);	4	6	17	BI-328	Tr	N	Argentina, Belize, Bolivia, Brazil, Caribbean, Colombia,

Table 3 (continued)

Family/botanical species	Vernacular name	Category of disease/use-category/use-report	tCD	tUC	tUR	BI	HB	GO	Distribution
<i>Morinda citrifolia</i> L.	Noni	DU: cholesterol (2), leukemia (2); fever (1)	2	3	5	BI-33441	Sh	E	Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, United States, Venezuela Australia, Belize, Brazil, Burma, Cambodia, Caribbean, China, Colombia, Costa Rica, El Salvador, Guyana, Hawaiian Isl, Honduras, India, Indonesia, Japan, Malaysia, Mexico, Nicaragua, Panama, Papua New, Philippines, Solomon Isl, Thailand, United States, Venezuela, Vietnam Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guyana, Peru, Suriname, Venezuela
<i>Palicourea coriacea</i> (Cham.) K. Schum	Douradina-do-campo	GA: uric acid (1); UR: kidneys (3)	2	2	4	BI-11	He	N	Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guyana, Peru, Suriname, Venezuela
<i>Uncaria guianensis</i> (Aubl.) J. F. Gmel.	Unha-de-gato	DE: wound healing (3); DI: diabetic (1); DU: blood depurative (1), inflammation of the prostate (1); GA: diarrhea (1), diverticulitis (1), ulcer (1); GY: ovarian cysts (2), uterine infection (1); RE: cough (1); SK: rheumatism (1); UR: bladder infection (1)	8	13	15	BI-32793	Tr	N	Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guyana, Peru, Suriname, Venezuela
RUTACEAE									
<i>Citrus limon</i> (L.) Osbeck	Limão	DU: cholesterol (3), blood depurative (2), hypertension (1); FI: constipation (1), local pain (1), fever (1), virtual (1); GA: dysentery (1), diarrhea (2), gastritis (1); GY: obesity (1); RE: flu (22), cough (6)	5	14	43	BI-32848	Tr	E	Burma, Cambodia, China, Guatemala, Honduras, India, Laos, Mexico, Vietnam Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guyana, Suriname, Venezuela Colombia, Ecuador, El Salvador, Guatemala, Honduras, Mexico
<i>Citrus bigaradia</i> . Risso e Poit.	Limão-rosa	DI: diabetic (1)	1	1	1	BI-IC	Tr	E	Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guyana, Suriname, Venezuela
<i>Citrus maxima</i> (Burm) Merr	Laranja	DU: blood pressure (1); FI: local pain (3), fever (14); RE: antibiotic (1), expectorant (1), throat (2), flu (29); SK: inflammation (1); UR: diuretic (1)	5	9	53	BI-745	Tr	E	Colombia, Ecuador, El Salvador, Guatemala, Honduras, Mexico
<i>Citrus reticulata</i> Blanco	Mixirica	DU: calmative (1); RE: flu (1)	2	2	2	BI-IC	Tr	N	Bolivia, Brazil, Caribbean, China, Colombia, Costa Rica, Ecuador, El Salvador, Guyana, Honduras, Japan, Mexico, Panama, Philippines, United States, Venezuela
<i>Murraya paniculata</i> (L.) Jack	Murta	FI: anesthetic (1)	1	1	1	BI-IC	He	E	Belize, Bhutan, Burma, Cambodia, China, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guyana, Honduras, India, Japan, Laos, Mexico, Nepal, Pakistan, Panama, Peru, Philippines, Sri Lanka, Suriname, Thailand, United States, Venezuela, Vietnam
<i>Ruta graveolens</i> L.	Arruda	CU: evil eye (1), chipping (5); DE: erysipelas (1); DU: calmative (2); FI: constipation (1), pain site (13), fever (1); GA: infantile colic (1), stomach (2), gastrointestinal problems (1), worm (3); GY: menstrual cramps (10), cycle control (1), stopping menstruation (1), down menstruation (1), uterine problems (2); OP: eye drops (2), conjunctivitis (1), eyes (1), eyes red (1); RE: sinusitis (1)	8	21	51	BI-25	He	E	Bolivia, Canada, Chile, China, Ecuador, Madagascar, Mexico, South Africa, United States, Venezuela
SAPINDACEAE									
<i>Cardiospermum grandiflorum</i> Sw.	Cipó-balãozinho	DU: circulation (1), hypertension (1); SK: rheumatism (3)	2	3	5	BI-779	He	N	Belize, Bolivia, Brazil, Caribbean, Colombia, Ecuador, Guatemala, Honduras, Mexico, Panama, Peru, South

<i>Paullinia cupana</i> Kunth	Guaraná-de-mato-grosso	DU: slow aging (1)	1	1	1	BI-726	Sh	N	Africa, United States, Venezuela
<i>Sapindus saponaria</i> L.	Jequiri	DU: blood depurative (1)	1	1	1	BI-IC	Tr	N	Brazil, Ecuador, Peru, Venezuela Belize, Bolivia, Brazil, Burma, Caribbean, Chile, China, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, India, Japan, Mexico, Nicaragua, Panama, Paraguay, Peru, South Korea, Suriname, Thailand, United States, Venezuela, Vietnam
SIMAROUBACEAE									
<i>Quassia amara</i> L.	Quina	Fl: local pain (1), fever (1), malaria (2); GA: diarrhea (1), stomach (6), liver (5), stomach infection (1), intestine (1), gastrointestinal problems (1)	2	10	20	BI-833	Tr	N	Belize, Brazil, Colombia, Costa Rica, French Guiana, Guatemala, Gyana, Honduras, Mexico, Nicaragua, Panama, Suriname, United States, Venezuela
<i>Simaba ferruginea</i> A. St.-Hil.	Calunga, Fel-datterra	UR: kidney problems (1)	1	1	1	BI-33474	Sh	NE	Brazil
SIPARUNACEAE									
<i>Siparuna guianensis</i> Aubl	Negramina	DE: wound healing (1); DU: leg swelling (8); Fl: local pain (1)	3	3	10	BI-742	He	N	Bolivia, Brazil, Caribbean, Colombia, Costa Rica, Ecuador, French Guiana, Guyana, Nicaragua, Panama, Paraguay, Peru, Suriname, Venezuela
SMILACACEAE									
<i>Smilax brasiliensis</i> Spreng.	Japecanga	DE: wound healing (1); DU: blood depurative (4); SK: inflammation (1), rheumatism (2)	3	4	8	BI-332	Tr	NE	Brazil
SOLANACEAE									
<i>Brunfelsia uniflora</i> (Pohl) D. Don	Primavera, Macae	SK: rheumatism (5)	1	5	1	BI-1016	Sh	N	Argentina, Bolivia, Brazil, Guyana, Venezuela
<i>Capsicum annuum</i> L.	Pimento-malagueta	DE: boil (1); DU: slow aging (6)	2	2	7	BI-IC	Tr	N	Bolivia, Brazil, China, Colombia, Ecuador, Ethiopia, French Guiana, Guatemala, Guyana, Honduras, Madagascar, Mexico, Panama, Peru, Suriname, United States, Venezuela
<i>Capsicum campylopodium</i> Sendtn.	Pimenta-domato	DE: boil (1); DU: slow aging (1)	2	2	2	BI-32725	Tr	N	Bolivia, Brazil, China, Colombia, Ecuador, Ethiopia, French Guiana, Guatemala, Guyana, Honduras, Madagascar, Mexico, Panama, Peru, Suriname, United States, Venezuela
<i>Lycopersicon esculentum</i> Mill.	Tomate	UR: kidneys (1)	1	1	1	BI-IC	He	E	Bolivia, China, Colombia, Ecuador, Guatemala, Madagascar, Mexico, Panama, United States, Venezuela
<i>Physalis angulata</i> L.	Canapu, Tomate-de-copote	GA: liver (1)	1	1	1	BI-338	He	E	Argentina, Belize, Bolivia, Brazil, Caribbean, China, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guyana, Honduras, India, Madagascar, Mexico, Nicaragua, Panama, Peru, South, Suriname, United States, Venezuela
<i>Solanum americanum</i> Mill.	Maria-preta	SK: inflammation (1)	1	1	1	BI-	He	N	Belize, Bolivia, Brazil, Canada,

Table 3 (continued)

Family/botanical species	Vernacular name	Category of disease/use-category/use-report	tCD	tUC	tUR	BI 1062	HB	GO	Distribution
									Caribbean, China, Colombia, Costa Rica, Ecuador, French Guiana, Guatemala, Guyana, Honduras, Mexico, Panama, South Africa, Suriname, United States, Venezuela
<i>Solanum cernuum</i> Vell.	Panacéia	DU: skin cancer (1), blood depurative (1), swollen legs (2); SK: rheumatism (2); UR: kidney infections (2)	3	5	8	BI-783	Sh	NE	Brazil
<i>Solanum melongena</i> L.	Berinjela	DI: diabetic (1)	1	1	1	BI-IC	Tr	E	Belize, Caribbean, China, Colombia, Ecuador, Honduras, Madagascar, Panama, Peru, United States, Venezuela
<i>Solanum paniculata</i> L.	Jurubeba	GA: liver (1), gastritis (2)	1	2	3	BI-34777	Sh	NE	Brazil
<i>Solanum tuberosum</i> L.	Batata-inglesa	DE: wound healing (2)	1	1	2	BI-IC	Tr	E	Belize, Bolivia, China, Colombia, Ecuador, Honduras, Madagascar, Mexico, Panama, Peru, South Africa, United States, Venezuela
TURNERACEAE									
<i>Turnera subulata</i> Sm.	Chanana	FI: local pain (1)	1	1	1	BI-1010	Sh	N	Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guyana, Suriname, Venezuela
URTICACEAE									
<i>Cecropia pachystachya</i> Trécul	Embaúba	DU: heart (1), hypertension (1), impotence (1), do not remember (1); FI: local pain (1); RE: bronchitis (2), cough (2); SK: inflammation (2); UR: kidney stone (1), diuretic (2)	5	10	14	BI-31618	Tr	N	Honduras, India, Mexico, Micronesia Federated States, New Guinea, Nicaragua, Panama, Paraguay, Peru, Philippines, Southawesi, Sumatra, Suriname, United States, Uruguay, Venezuela
<i>Laportea aestuans</i> (L.) Chew	Urtiga-vermelha	DU: hypertension (12)	1	1	12	BI-1032	He	N	Belize, Bolivia, Brazil, Caribbean, China, Colombia, Congo, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, India, Indonesia, Java, Lesser, Sunda Isl, Liberia, Madagascar, Mascarene Islands, Mauritius, Mexico, Mozambique, Nicaragua, Nigeria, Panama, Peru, Reunion, Saudi Arabia, Sumatra, Suriname, Uganda, United States, Venezuela, Zaire
<i>Pilea microphylla</i> (L.) Liebm.	Brilhantina	GA: diarrhea (1), RE: bronchitis (1); GY: contraceptive (3)	3	3	5	BI-33454	He	E	Argentina, Belize, Bolivia, Brazil, Caribbean, China, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, Mauritius, Mexico, Nicaragua, Panama, Paraguay, Peru, Reunion, South Africa, Suriname, United States, Venezuela
<i>Urera baccifera</i> (L.) Gaudich. ex Wedd.	Urtigã	DU: skin cancer (1), blood depurative (1), swollen legs (2), hypertension (1); SK: rheumatism (2); UR: infection in the kidneys (2)	3	6	9	BI-963	He	N	Belize, Bolivia, Brazil, Caribbean, Costa Rica, Ecuador, French Guiana, Guatemala,

																		Guyana, Mexico, Panama, Peru, Suriname, United States, Venezuela
VERBENACEAE																		
<i>Aloysia citriodora</i> Palau	Limão, Cidrão-de-árvore	DU: calmative (1), hypertension (1), insomnia (1); FI: fever (1), malaria (1); GY: contraceptive (1); RE: cold (1); UR: kidneys (2)	5	8	9	BI-863	Tr	E										Bolivia
<i>Aloysia virgata</i> (Ruiz & Pav.) Pers.	Lavanda-de-folha	DU: calmative (10), heart (2), depression (2), hypertension (3); FI: local pain (1), fever (2); GA: stomach (1); RE: shortness of breath (2)	4	8	23	BI-33476	He	N										Argentina, Bolivia, Brazil, Panama
<i>Lantana trifolia</i> L.	Cambarazinho	DE: wound healing (1); GA: diarrhea (1)	2	2	2	BI-757	He	N										Argentina, Belize, Bolivia, Brazil, Caribbean Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, Madagascar, Mexico, Nicaragua, Panama, Peru, South Africa, Suriname, Venezuela
<i>Lippia alba</i> (Mill.) N.E.Br.ex Britton & P. Wilson	Erva-cidreira	DU: calmative (44), depression (2), stress (1), fatigue (2), hypertension (12), insomnia (3), malaise (1); FI: local pain (3), fever (3); GA: diarrhea (1), vomit (1), stomach (4), intestine (4), intoxication (1), poor digestion (5); GY: colic (1); RE: flu (7), cough (1)	5	18	96	BI-33446	He	N										Brazil, Argentina, Belize, Colombia, Ecuador, Costa Rica, México, Guyana, Honduras, Nicaragua, Panama, Peru, Suriname, United States e Venezuela
<i>Stachytarpheta cayennensis</i> (Rich.) Vahl	Gervão, Fel-da-terra	FI: local pain (1), fever (1); GA: liver (2), hepatitis (1); GY: colic (1); RE: antibiotic (1), bronchitis (1); SK: inflammation (1)	5	8	9	BI-384	He	N										Argentina, Australia, Belize, Bolivia, Brazil, Caribbean, China, Christmas Isl, Colombia, Costa Rica, Ecuador, French Guiana, Guatemala, Guyana, Hawaiian Isl, Honduras, Mexico, Nicaragua, Panama, Papua New Guinea, Paraguay, Peru, Suriname, United States, Venezuela
<i>Verbena litoralis</i> Kunth	Gervão-nativo-do-sul	FI: fever (1)	1	1	1	BI-810	He	N										Argentina, Australia, Belize, Bolivia, Brazil, Caribbean, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mauritius, Mexico, Nicaragua, Panama, Paraguay, Peru, South Africa, United States, Uruguay, Venezuela
VIOLACEAE																		
<i>Hybanthus calceolaria</i> (L.) Oken	Poaia	GA: diarrhea (1); RE: bronchitis (3)	2	2	4	BI-24591	He	N										Belize, Bolivia, Brazil, French Guiana, Guyana, Mexico, Nicaragua, Panama, Venezuela
VITACEAE																		
<i>Cissus Duarteana</i> Cambess.	Bactrim	UR: kidney (1)	1	1	1	BI-32	Tr	N										Bolivia, Brazil, French Guiana, Guyana, Paraguay, Suriname
<i>Cissus verticillata</i> (L.) Nicolson & C.E. Jarvis	Insulina-vegetal	DI: diabetic (1)	1	1	1	BI-31686	Tr	N										Argentina, Belize, Bolivia, Brazil, Caribbean, Chile, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, United States, Uruguay, Venezuela
VOCHYSIACEAE																		
<i>Vochysia cinnamomea</i> Pohl	Quina-doce	FI: local pain (1)	1	1	1	BI-IC	Tr	NE										Brazil, Paraguay
XANTHORRHOACEAE																		
<i>Aloe arborescens</i> Mill.	Babosa-roxa	FI: local pain (1)	1	1	1	BI-987	He	E										South Africa

Table 3 (continued)

Family/botanical species	Vernacular name	Category of disease/use-category/use-report	tCD	tUC	tUR	BI	HB	GO	Distribution
<i>Aloe vera</i> (L.) Burm. f.	Babosa	DE: hair (2), dandruff (1), wound healing (20), cosmetic (1), wound (6), burn (13), seborrhea (1), hair tonic (4); DU: cancer (3), blood depurative (1), bone problems (1), prostate (1); FI: analgesic (1), GA: stomach (3), gastritis (2), stomach problems (2), ulcers (2); GY: sterility (1), wound in the uterus (3), uterine infection (3); RE: antibiotic (1), bronchitis (2), expectorant (1), flu (1), throat infection (1), pneumonia, cough (1)	6	27	69	BI-26028	He	E	Belize, Caribbean, Bolivia, China, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Saudi Arabia, United States, Venezuela
ZINGIBERACEAE									
<i>Alpinia</i> sp.	Açafrão-do-mato	DI: diabetic (1); SK: inflammation (3)	2	2	4	BI-33421	He	E	Colombia, Honduras, United States
<i>Alpinia zerumbet</i> (Pers.) B.L. Burtt & R.M. Sm.	Colônia	DU: circulation (1), hypertension (1); SK: rheumatism (3)	2	3	5	BI-IC	He	E	Bamgçadesj, Bolivia, Burma, Cambodia, China, Colombia, Ecuador, Honduras, India, Laos, Nicaragua, Panama, Philippines, Sri Lanka, Thailand, Vietnam
<i>Curcuma longa</i> L.	Açafrão	DE: wound healing (2); DU: anemia (9), cholesterol (1), detoxification (1); FI: chicken pox (1), pain location (1), malaria (1), chickenpox (1); GA: yellowing (1); stomach (2); jaundice (3); RE: bronchitis (1); throat (7), flu (2); SK: inflammation (1);	6	15	34	BI-207	He	E	Belize, China, Colombia, Costa Rica, Ecuador, Gaon, Honduras, India, Madagascar
<i>Curcuma zedoaria</i> (Christm.) Roscoe	Zedoaria	DU: cancer (1); FI: fever (1); GA: stomach (10)	3	3	12	BI-231	He	E	China, India
<i>Hedychium coronarium</i> J. Koenig	Gengibre-do-mato	SK: rheumatism (1)	1	1	1	BI-1053	He	E	Argentina, Belize, Brazil, Burma, China, Colombia, Costa Rica, Ecuador, French Guiana, Guatemala, Guyana, Honduras, India, Madagascar, Mexico, Nepal, Nicaragua, Panama, South Africa, Sri Lanka, Suriname, Thailand, Venezuela, Vietnam
<i>Renealmia alpinia</i> (Rottb.) Maas	Pacová, Gengibre-do-mato	SK: rheumatism (5)	1	1	5	BI-33450	Sh	E	Belize, Bolivia, Brazil, Caribbean, Colombia, Costa Rica, Ecuador, French Guiana, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Peru, Suriname, Venezuela
<i>Zingiber officinale</i> Roscoe	Gengibre	FI: local pain (1); GA: gastritis (15); RE: infection of throat (12), flu (17), inflammation of throat (1), cold (3), cough (5); SK: rheumatism (2)	4	8	56	BI-993	He	E	Australia, Belize, Bhutan, Bolivia, Burma, Cambodia, China, Colombia, Ecuador, Gabon, Guatemala, Honduras, India, Japan, Laos, Madagascar, Mexico, Nicaragua, Panama, Philippines, Sri Lanka, Thailand, Vietnam

Ur: Use report; tCD: Total categories of diseases; tUC: Total use-category; tUR: Total reported use; DE: Dermatologic afflictions, GA: Gastrointestinal disorders, hepatic complaints, GY: Women's medicine, UR: Urogenital complaints, CU: Culture-bound syndromes, RE: Respiratory ailments, FI: Fever (including protozoan and viral infections) SK: Skeleto-muscular disorders, VE: Bites and stings of venomous animals, DI: Diabetic, OP: Ophthalmologic complaints, DU: Different uses; BI: Botanical identification; BI-IC: Identified by comparison; HB: Habit; Tr: tree; He: Herbaceous; Sh: Shrub; N: Native; E: Exotic; GO: Geographic origin; NE: Native and endemic to Brazil. Species distribution were assigned based on Missouri Botanical Garden database, available at www.tropicos.org, while geographical origin was based on Rio de Janeiro Botanical Garden database, available at <http://floradobrasil.jbrj.gov.br/>. Both databases were last accessed on the 14th of June 2015.

production of metabolites (Ghorbani, 2005).

The most common forms of preparations of the herbal medicines were infusion (45.70%) and decoction (23.41%). We discuss in the following section the phytochemical and pharmacological review of plants selected based on cultural use importance.

3.4. Literature survey and discussions on the selected species of most cited in each use-category

3.4.1. Gastrointestinal disorders

Baccharis crispa Spreng popular known in Brazil as 'carqueja' or 'carqueja amargosa' was the most cited native plant in this UR category with 57 UR. It is popularly known in Jurueña region as "carqueja". The leaves collected in the morning in the adult stage of the plant are usually employed in the form of infusion, but sometimes as maceration and decoction in alleviating symptoms of diabetes, skin itching, headache, gastrointestinal disorders (intestinal cholic, diarrhea, indigestion, flatulence and others), malaria, inflammation and in weight loss treatment. As noted in this present work, similar uses of *B. crispa* have been reported including as a treatment or prevention against hepatic diseases, rheumatism and morbid obesity (Oliveira et al., 2005).

3.4.1.1. Pharmacological properties. Gamberini et al. (1991) for example, reported similar folkloric use of *B. crispa* and in addition, the authors demonstrated the antisecretory activity of the aqueous extract of the plant in pylorus ligated rats. The extract (1 g/kg, p.o.) also prevented gastric ulcers induced in rats by cold stress but not by indomethacin, supporting its use in ethnomedicine, at least partially, in the treatment of gastrointestinal disorders like gastric ulcer. Moreover, they also justified its use as an anti-diarrheal and anti-spasmodic, all of which further attest to its usefulness in treating gastrointestinal disorders. Oliveira et al. (2005) also demonstrated the anti-diabetic effect of the plant, albeit at a very high dose. However, all the pharmacological studies encountered are preliminary, further studies are warranted in this regard.

3.4.1.2. Phytochemical studies. Phytochemical studies by Simões-Pires et al. (2005) revealed the presence of mono caffeoyl ester derivatives of quinic acid Compounds 3-O-[E]-caffeoylquinic acid, 5-O-[E]-caffeoylquinic acid, 4-O-[E]-caffeoyl-1-methylquinic acid, 4,5-O-[E]-dicaffeoylquinic acid, 3,4-O-[E]-dicaffeoylquinic acid and 3,5-O-[E]-dicaffeoylquinic acid. The presence of quinic acid and its derivatives have been suggested to be responsible for many of its pharmacological activity (Matsingou et al., 2000), including gastric and esophageal injuries and inflammation (Gene et al., 1992; Oh et al., 2001).

3.4.2. Respiratory complaints

Mentha pulegium is an aromatic plant popularly known in Brazil as 'poejo' and commonly referred to as 'Pennyroyal' in English, originated from North Africa, Europe and western Asia, but it is widely naturalized in the Amazon, Cerrado and Atlantic forest of the phytogeographic regions of Brazil (Harley et al., 2014). It is commonly used in the form of decoction, infusion and sirup in treating a wide array of ailments with 94 UR, with main uses being for respiratory afflictions (70 UR) and to a lesser extent gastrointestinal (6 UR), fever and headache ailments (9 UR). These uses have been traditionally documented in similar study by our group as well as from other countries (Bieski et al., 2012; Gürdal and Kültür, 2013).

3.4.2.1. Pharmacological properties. The *in vivo* and *in vitro* antibacterial activities of various extracts or essential oils of *M. pulegium* have been documented (Cherrat et al., 2014; Erhan et al., 2012; Khaled-Khodja et al., 2014; Mahboubi and Hagh, 2008; Nikolić et al., 2014; Selim et al., 2013; Teixeira et al., 2012) and

antifungal activity (Nikolić et al., 2014). The plant has long been used, and as an abortifacient is known to be hepatotoxic (Anderson et al., 1996). In addition, its neurotoxicity effect has also been reported (Bakerink et al., 1996; Sztajnkrzyer, 2003). However, in the form that it is used traditionally, it is not likely to cause toxicity.

3.4.2.2. Phytochemical studies. Chemical studies on *M. pulegium* have revealed the presence of phenolic acids, flavonoids, terpenoid phenols and terpenic acids, essential oils with elevated pulegone content (33.65%) (Cherrat et al., 2014). The essential oil of *M. pulegium* from different parts of the world always contains pulegone in varying amounts (Nikolić et al., 2014; Zwaving and Smith, 1971). The toxic principle in *M. pulegium* is the R-(+)-pulegone which is metabolized via hepatic cytochrome P450 to toxic intermediates (Anderson et al., 1996; Bakerink et al., 1996; Sztajnkrzyer, 2003).

3.4.3. Fever and aches

Arrabidaea chica (Humb. & Bonpl.) B. Verl. (syn. *Fridericia chica* (Bonpl.) L.G. Lohmann) is a vine belonging to the Bignoniaceae family. The species is native to the Amazon region, where it is called "pariri", "crajiru", "carajuru" or "crajiru" and it occurs throughout the tropical regions of South America and Africa. As observed in this study a total of 97 UR for this medicinal plant were obtained for 9 UR. It is employed in the treatment of genitourinary complaints (28 UR), women's health complaints (16), fever and pains (28 UR) and rheumatism (8 UR). However, the highest UR of this plant was in the FI group, and it will therefore be discussed in this use-category. This present result corroborates previous studies that reported its widespread use as a medicinal plant especially in the Amazon region (Barbosa et al., 2008; Bieski et al., 2012; Lorenzi and Matos, 2002; Mafioleti et al., 2013).

3.4.3.1. Pharmacological properties. Due to the widespread use of *A. chica* in ethnomedicine, it has been subject of various pharmacological and biological studies to verify experimentally its ethnomedical use. Extracts and fractions from the leaves of *A. chica* have been shown to possess different activities supporting its traditional uses. The activities include among others, hepatoprotective (hydroethanolic extract), antimicrobial (hydroethanolic and dichloromethane extracts), wound healing (methanolic and ethanolic extracts), anti-inflammatory (aqueous extract), analgesic, anti-helminthic and anti-Leshmania activities (hexanic extract) (Barbosa et al., 2008; Höfling et al., 2010; Mafioleti et al., 2013; Paula et al., 2014; Rodrigues et al., 2014). Recently also the ethanol and aqueous extracts of *A. chica* were shown to be anti-inflammatory, antiangiogenic and antiproliferative activities in a murine model (Michel et al., 2015).

3.4.3.2. Phytochemical studies. *A. chica* has been subjected to intense phytochemical studies from decades as indicated by the work of Chapman et al. (1927) and in a subsequent study by Takemura et al. (1995) where the author detected flavonoids, anthocyanins, tannins and phytosterols. A flavone, 7,4'-dihydroxy-5-methoxyflavone was later isolated by Takemura et al. (1995). The principal components of anthocyanins found in *A. chica* were later confirmed by subsequent studies (Paula et al., 2013, 2014) and that they are of type 3-desoxyanthocyanidins, namely 6,7,3'-trihydroxy-5-dimethoxyflavilium and 6,7,3',4'-tetrahydroxy-5-methoxyflavilium, known as; and 6-dihydroxy-5,4'- dimethoxyflavilium, known as carajurone and carajurin respectively. Luteolin, a 3',4',5,7-tetrahydroxyflavone and quercetin presence have also been reported (Eda et al., 2002; Hirano et al., 2001; Seelinger et al., 2008). In addition, isoscutellarein, 6-hydroxyluteolin, hispidulin, scutellarein luteolin, and apigenin have been reported from this plant, while 4'-hydroxy-3,7-dimethoxyflavone, vicenin-2 and

kaempferol have been isolated from its leaves (Barbosa et al., 2008; Siraichi et al., 2013). There are reports of the anti-inflammatory, anti-allergic, and anti-tumor properties of these compounds in the literature (Eda et al., 2002; Hirano et al., 2001; Seelinger et al., 2008).

3.4.4. Diseases of the skin

Alternanthera brasiliana (L.) Kuntze belongs to Amaranthaceae; it is a herb indigenous to Brazil and is popularly called “terramicina” (teramicine) “penicilina” (penicillin), and “perpétua-do-mato” and is employed as an ornamental plant as well (Macedo et al., 1999). It is widely distributed in the Amazon, Caatinga, Cerrado (Savannah like) and Atlantic forest of the phytogeographic regions of Brazil (Senna, 2014). It is reportedly employed in the present study, principally in the treatments of skin afflictions (71 UR), respiratory ailments (12 UR) (for both infections and inflammation) and genitourinary ailments (8 URs). Similar uses as well as its use in against, cough, diabetes, diarrhea, analgesic and inflammation, have been reported in previous studies (Formagio et al., 2012; Kumar et al., 2011, 2014).

3.4.4.1. Pharmacological properties. Several biological and pharmacological activities of the plant have been documented. These include wound healing, antibacterial, analgesic, anti-inflammatory activities, and anti-herpes-simplex-virus activity (Baru et al., 2012; Barua et al., 2013; Kumar et al., 2011, 2014; Trapp et al., 2014).

3.4.4.2. Phytochemical studies. A phytochemical study of the leaves extract of *A. brasiliana* demonstrated the presence of flavonoids, triterpenoids, principally the derivatives of kaempferol and quercetin (Kumar et al., 2011). In a study of the essential oil of its leaves, 25 compounds were identified (Facundo et al., 2012; Wakabayashi et al., 2010). More recently, Wakabayashi et al. (2010) identified three flavones. The pharmacological and biological activities of the plant have been attributed to some of these constituents.

3.4.5. Genitourinary problems

Phyllanthus niruri popularly known as “quebra-pedra” (‘stone-breaker’), belongs to the Euphorbiaceae family and is indigenous to the Amazon rainforest and other tropical areas, including South East Asia, Southern India and China but it has a worldwide distribution (Girach et al., 1994). It is found in the Amazon, Caatinga, Cerrado (Brazilian Savannah) and Atlantic forest phytogeographic regions of Brazil (Secco et al., 2014). It is popularly used in the current study almost entirely in the treatment of genitourinary afflictions with 45 out of 48 UR.

There are several reports on the usefulness of *P. niruri* in the alleviation of diverse ailments such as fever, diarrhea, colic and kidneys, as diuretic, urolithiasis, excess uric acid and as an expectorant (Boim et al., 2010; Bagalkotkar et al., 2006; Perry and Metzger, 1980). It is an important medicinal plant widely used in ayurvedic preparation of various formulations (Chatterjee and Sil, 2007).

3.4.5.1. Pharmacological properties. Several of these claims have been validated using *in vitro* and *in vivo* studies and clinical studies in humans. The *in vitro* and *in vivo* pharmacological, biochemical, and clinical studies carried out on the extracts, and the main active constituents isolated from *P. niruri* (Vimala and Gricilda Shoba, 2014; Bieski et al., 2012; Boim et al., 2010; Bagalkotkar et al., 2006; Murugaiyah and Chan, 2006).

There are reports in the literature demonstrating its pharmacological properties such as hepatoprotective (Calixto et al., 1998), anti-viral, especially against hepatitis B virus (Liu et al., 2014), antibacterial and analgesic (Amin et al., 2013).

Clinical investigations revealed that *P. niruri* does not present acute or chronic toxicity, and preliminary data indicates that the extract promotes the normalization of calcium levels in patients'

hypercalciuria (Nishiura et al., 2004), thus demonstrating its usefulness in some types of genitourinary ailments.

3.4.5.2. Phytochemical studies. More than 50 compounds have been identified in the *P. niruri*. The major different classes of organic compounds with various medical interest reported, are the lignans, tannins, polyphenols, alkaloids, flavonoids, terpenoids and steroids. Readers may consult excellent reviews and research articles on this topic from the cited references (Narendra et al., 2012; Boim et al., 2010; Bagalkotkar et al., 2006; Murugaiyah and Chan, 2006; Calixto et al., 1998).

Majority of the compounds or classes of compounds isolated or detected in *P. niruri* have been correlated to its ethnomedical uses. The triterpenes for example have been found to inhibit the cytotoxicity induced by calcium oxalate, including a reduction in the excretion of stone forming constituents and crystal deposition markers in the kidneys (Barros et al., 2003; Boim et al., 2010).

3.4.6. Women's health

Gossypium barbadense Linn (family Malvaceae) is a perennial under shrub 1–3 m high, native to South America. It is mainly employed in the present survey in the treatment of uterine inflammation (44 UR) and less frequently for infections of the urinary tracts and kidney, in the form of infusion, decoction and maceration. Principally, the dry or fresh leaves are commonly employed in the preparations, but also to a lesser extent are the roots, flowered parts and the seeds. Similar reports of its uses in treating female health problems have been related, particularly in treating uterine hemorrhage and regulation of menses (Ososki et al., 2002; Van Andel and Carvalheiro, 2013). In the literature, it has many ethnomedicinal uses, but of interest to this work is its uses in the treatment of venereal diseases and urethral discharge (Burkill, 1985; Bieski et al., 2012; Ogunmefun and Gbile, 2012).

3.4.6.1. Pharmacological properties. The antimicrobial activity of the plant has been demonstrated in some studies (Essien et al., 2011; Luciano-Montalvo et al., 2013). To the best of our knowledge, there are no studies on the anti-inflammatory effect of *Gossypium barbadense* on the uterine or other animal models of inflammation, nor are there any studies that addressed its use in the treating or managing of women's ailments mentioned in this study, thereby constituting a potential prospect for future studies. The only confirmed pharmacological effect was on the blood-pressure-lowering effect of its leaves decoction (Hasrat et al., 2004). It will be interesting therefore, to carry out test using experimental models to verify the ethnomedicinal use of the plant.

3.4.6.2. Phytochemical studies. A number of bioactive triterpenoid and sesquiterpenoid aldehydes compounds have been isolated and characterized from *G. barbadense* (Essien et al., 2011).

3.4.7. Skeleto-muscular disorders

Solidago microglossa DC. is popularly known in Brazil as “arnica-brasileira”, “arnica,” “arnica-do-mato,” “arnica-silvestre,” among others (Lorenzi and Matos, 2002; Bieski et al., 2012). It belongs to the Asteraceae family and is indigenous to Brazil. It has about 10 synonyms. It is found in the Brazilian phytogeographic domains of Caatinga, Cerrado, Atlantic Rainforest and Pampa (Borges and Teles, 2015). It use reports in the study includes mainly skeleton-muscular complaints (8 UR), dermatological complaints (10 UR) and respiratory ailments (11 UR). The uses attributed to it according to literature include treating rheumatic and lumbar pain, contusions, wounds, inflammation, pain and uterine inflammation (Lorenzi and Matos, 2002; Bieski et al., 2012).

3.4.7.1. Pharmacological properties. *In vivo* experimental assays have shown that crude extracts of *Solidago microglossa* possess

local and systemic anti-inflammatory and analgesic effects in some animal models (Rocha, 2006; Goulart et al., 2007; Liz et al., 2008; Tamura et al., 2009). The wound healing of the plant has also been scientifically investigated and supported in animal models (Neto et al., 2005). A clinical study evaluating its efficacy in the treatment of lumbago showed that it produced a better effect than the placebo (da Silva et al., 2010).

It is also interesting to note similarities in the pharmacological spectra of actions of this plant and *Arnica montana*, from whose name other 'arnicas' mentioned in this study are popularly called. The anti-inflammatory and analgesic activities among others of *A. montana* is well known (Šutovská et al., 2014). To the best of our knowledge there is currently no pharmacological study on the other Brazilian 'arnica', *Pseudobrickellia brasiliensis* referred to here as arnica-do-mato.

All the aforementioned studies lend credence to the traditional use of this medicinal plant.

3.4.7.2. Phytochemical studies. Several phytochemical compounds have been detected and isolated from different parts of this plant. Therapeutic effects for a number of these compounds have been established and linked to their traditional use (Tamura et al., 2009). These include caffeoylquinic acid derivatives, the flavonoid rutin, carotenes, diterpenoids, flavonoids, glycosides, saponins essential oils just to mention but few (Hirschmann, 1988; Tamura et al., 2009; da Silva et al., 2010). Several studies have demonstrated the anti-inflammatory, wound healing and antimicrobial effects of many of these compounds (González-Gallego et al., 2010; Jin et al., 2010; Pan et al., 2010; Pelzer et al., 1998; Ríos and Recio, 2005; Verri et al., 2012).

3.4.8. Diabetes

Bauhinia forficata L. is popularly known as "pata-de-vaca" which means "cow's foot", because of the characteristic aspect of its bilobed leaves (Marques et al., 2013). It belongs to the Fabaceae family and is a plant indigenous to Brazil. The main use of the plant in the present survey was largely for the treatment of diabetes (9 UR), in addition to treating kidney infections (4 UR) in the form of infusion and maceration. The ethnomedical use of *B. forficata* in literature as diuretic, tonic, blood depurative, combating elephantiasis, control of hypoglycaemia and to reduce glycosuria (Ferrerres et al., 2012).

3.4.8.1. Pharmacological properties. Pharmacological studies have been carried out on the leaf extracts (aqueous and alcoholic) in order to verify the antidiabetic activity in different *in vivo* models (Cunha et al., 2010; Menezes et al., 2007; Pepato et al., 2004, 2002, 2010). *B. forficata* is one of the most commonly used plants against diabetes (Filho, 2009). The therapeutic potential of this plant was first confirmed in 1929, with the clinical studies of Juliani (1929) which demonstrated the blood sugar lowering effect of *B. forficata*. The antidiabetic potential of the plant was subsequently, confirmed in dogs, humans and rabbits (Juliani, 1931, 1941). The reader may consult an excellent review by Filho (2009) on this species for further details, because reviewing this plant will make the present paper too voluminous.

3.4.8.2. Phytochemical studies. There are numerous studies on the chemical composition of the *B. forficata* leaves which confirm the presence of alkaloids, flavonoids, mucilages, essential oils, catechols, cyanogenic glycosides, steroids and tannins (Pepato et al., 2004; Silva et al., 2012). Duarte-Almeida et al. (2004) observed the presence of monoterpenes, and in significant quantities, β -caryophyllene present in the essential oil. Flavonoids, free and glycosylated, especially kaempferolic glycosides and quercetins account for the main constituents of *B. forficata* (Cunha et al., 2010; Marques et al., 2013). The mimetic effect like insulin of

Kaempferol-3-neohesperidoside has been shown in both *in vitro* and *in vivo* studies (Cazarolli et al., 2009). In addition, the promising hypoglycemic properties of kaempferitrin have also been reported (Trojan-Rodrigues et al., 2012).

3.4.9. Culture-bound syndromes

In this group of illnesses, only eight UR were noted in this study. The plants that cited are *Ruta graveolens* (6 UR) and *Abelmoschus esculentus* (2 UR). These plants are reportedly used to cure what is locally called 'mal olhado' or 'quebrante' which simply means 'evil eye' and 'brokennes'. The two are basically the same or related (Nery, 2006). We found a low consensus (ICF=0.14) in this group of plants. This appears to be typical for this group of illnesses as similar results have been obtained by other researchers in other cultures (Leonti et al., 2001).

In medicine and medical anthropology, a culture-specific syndrome or culture-bound syndrome is a combination of psychiatric and somatic symptoms that are considered a recognizable disease only within a specific society or culture. There are no objective biochemical or structural changes in the body, and the disease is not recognized in other cultures (Carel and Cooper, 2010).

'Evil eye' for example, seems to be a culture-bound syndrome that is common in the Latin America (Gallagher and Rehm, 2012; Gutiérrez et al., 2014). In addition, it is interesting to note that many of these cultural syndromes are widespread in rural populations of the world (Estomba et al., 2006). 'Religious plants' concept is generally believed to have begun in the initial stage of the human society (Sebastian and Bhandari, 1984; Sharma et al., 2012). However, it seems that the purpose to which the plants are used is more important than the plants itself and hence the low ICF that is usually obtained for these group of emic illnesses.

3.4.10. Venomous animals

Jatropha elliptica (Poh) Oken.

3.4.10.1. Pharmacological properties. *J. elliptica* (Pohl) Müll. Arg. (Euphorbiaceae) is a plant native to Brazil popularly called 'batata-purga'. *J. elliptica* is a plant of the Euphorbiaceae family. It is an annual shrub herb that is distributed throughout the north and west of Brazil and has been reported to possess several medicinal properties (Corrêa and Penna, 1984).

Its root or rhizome in the form of decoction or maceration is used in the treatments of snake bites (5 UR) and blood depurative (1 UR). It is the only plant reportedly use in this study as anti-venom. *J. elliptica* is also used in ethnomedicine for the treatment of neoplasia, inflammation, ulcers and diuretic among others (Dos Santos and Sant'Ana, 1999). In addition, literature search shows that *J. elliptica* in the forms of maceration and infusion of its rhizome is used in the treatment of most severe itching, anti-syphilis, jaundice, rheumatism, amenorrhea, dropsy, tumors and snake bites (Corrêa and Penna, 1984; Duke, 1985).

In a study by Vilar et al. (2007) *J. elliptica* extract showed no neutralizing effect on the lethality of *Bothrops jararaca* venom in mice inoculated with the snake venom.

3.4.10.2. Phytochemical studies. Fractionation and purification of *J. elliptica* extract obtained from its rhizome furnished jatrophone and a mixture of jatropholones A and B, as the main compounds (Dos Santos and Sant'Ana, 1999). Various other constituents have been isolated from its rhizomes such as ferulic acid ester of the fraxetin coumarin, coumarin lignoide propacin, the triterpenoid acetyl-3-O-aleuritolico acid, a mixture of β -sitosterol and stigmasterol steroids (Santos et al., 2014) and a substituted pyridine pentahydrate, called diethyl-4-phenyl, 2,6-dimethyl-3,5-pyridinedicarboxylate (Marquez et al., 2005).

3.4.11. Different uses

Cymbopogon citratus (DC.) Stapf is popularly referred in Brazil as 'capim-cidreira' or 'capim-limão' and lemon grass in English. It

is widely naturalized in the Amazon, Cerrado and Atlantic forest of the phytogeographic regions of Brazil (Filgueiras, 2014). In the present study *C. citratus* is the most cited plant in the different use-categories (104 UR) and is most employed as an anxiolytic (57 UR) followed by alleviation of blood hypertension symptoms (17 UR). It gives a pleasant aroma after infusion, and is well known and used in tropical and subtropical countries as an antidepressant among other uses (Soares et al., 2013).

3.4.11.1. Pharmacological properties. Blanco et al. (2009) demonstrated the sedative/hypnotic properties of the essential oil obtained from the fresh leaves of *C. citratus* and scientifically validate its ethnopharmacological use in this regard, confirming the hypnotic, anxiolytic and anticonvulsant activities of the plant essential oil in experimental animals. Further studies by Costa et al. (2011) suggested that the anxiolytic-like effect of the essential oil is mediated by GABA-benzodiazepine receptor complex and demonstrated the dose-related hypotensive effect of *C. citratus* in experimental rats. In addition, the plant is also known for its antifungal, antimicrobial, anti-inflammatory, antioxidant, cancer-chemopreventive, antidepressive, and diuretic, sedative and analgesic (Tavares et al., 2014).

3.4.11.2. Phytochemical studies. Phytochemical analysis of different leaf extracts of *C. citratus* revealed the presence of tannins, phenolic acids, flavonoid glycosides, alkaloids and steroids (Soares et al., 2013). In a study, the following compounds were isolated from the methanol, MeOH/water, infusion, and decoction extracts of the plant: isoorientin, isoscoparin, swertiajaponin, isoorientin 2'-O-rhamnoside, orientin, chlorogenic acid, and caffeic acid (Rahim et al., 2013).

There is active research in analyzing the essential oil obtained from the plant due to its extreme usefulness as medicinal, as well as in food and cosmetics applications. In a study of its essential oil, geranyl (48.1%), neral (34.6%) and myrcene (11.0%) were the major constituents. In other studies, the authors concluded that citral was the principal constituent of its essential oil (Barbosa et al., 2008; Moore-Neibel et al., 2012).

4. Conclusions

This study represents an important step in the documentation and preservation of popular knowledge on medicinal plant use of the population of Valle do Juruena, by enabling identification of several species of principally native medicinal plants, and predominance of their uses in the region of Valley of Juruena. This demonstrates the rich cultural diversity of the region, even though the informants are not part of traditional communities but it reflects the heavy influence of the traditional culture in the appreciation of medicinal flora of the Legal Amazon of Mato Grosso and its environs. This constitutes one of the important steps towards preservation of traditional and ethnomedical knowledge of this region.

We would like to draw readers' attention to the use of *M. pulegium* in plant ethnopharmacy, due to its potential nephro- and neurotoxicities, even though it is widely used in many parts of the world.

There are several concordances on medicinal plants use among the seven municipals of the Valle do Juruena. We also found that several species cited in these municipals have also being related from other regions of Brazil and some in other parts of the world.

The values of ICF obtained for the categories reported indicate the degree of shared knowledge for the treatment of diseases with medicinal plants. The use-categories with the highest ICFs were for remedies related to the respiratory system (0.85) and gastrointestinal disorders (0.81). The number of URs for these 2 use-categories was also high. This may be explained by the fact that the communities surveyed are agrarian-based and therefore these diseases are typical of similar communities (Leonti et al., 2001;

Williamson et al., 2015). The high URs therefore seem to mirror the health situations of most of the municipals under study, because the leading causes of hospital admissions are infectious and parasitic diseases, respiratory diseases, circulatory system and genitourinary tract diseases (Mato Grosso, 2012).

In the case of gastrointestinal disorders, given the status of sanitary facilities, with most municipals lacking public sewage disposal system and most communities depending on the use of cesspool, there is higher possibility of contracting gastrointestinal related diseases. In most of these municipals, there are no private clinics or hospitals and very few Government hospitals, few laboratories to assist in diagnosis of diseases and few health workers available to service the population.

Valle do Juruena's ethnomedicine flora is being threatened by factors such as grazing, expansion of new agricultural land and deforestation, in particular unsustainable use of native medicinal trees, making untenable the purpose of generating income with sustainable use.

The ethnobotanical survey is not only a good way to document the knowledge of medicinal plants before their disappearance, but also a key step for further investigations. Therefore, immediate action, particularly in combating deforestation, with more surveillance should be taken to ensure the conservation and preservation of the plant flora and local ethnoculture.

Comprehensive programs for the conservation of traditional knowledge of medicinal plants are needed, like the 'Farmacia viva Program' of Brazil and production of guidebooks on the correct use of these plants, among others. As has been stated earlier, that ethnobotany/ethnopharmacological survey is one of the most viable ways of developing new therapeutic agents, the current study shows that plants highly valued by these communities have been scientifically confirmed in *in vivo* and sometimes clinical studies. However, there are more yet to be done to scientifically establish the use of some other indications of these plants. Finally, these data could also serve as a basis for biodiversity conservation and community development.

Acknowledgments

The authors thank all the informants and staff members of Family Health Programme of the Valley of Juruena, for the assistance and contributions made throughout ethnobotanical fieldwork, Fundação de Amparo à Pesquisa de Mato Grosso (FAPEMAT Proc. no. 2059782011), Coordenação de Aperfeiçoamento de Pessoal de Nível Superior, (CAPES) for granting scholarships, the Botanist Prof. Dr. Germano Guarim Neto, UFMT. Instituto Nacional de Ciência e Tecnologia em Áreas Úmidas (INAU) and Conselho Nacional de Desenvolvimento Científico e Tecnológico (INAU)/CNPq/MCT (Proc. no. 704792/2009) for funding the research work.

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