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Medicinal plants of ethnopharmacological relevance in Sierra de Ancasti, Catamarca, Argentina

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ABSTRACT

The aim of this work is to document the knowledge, significance, and uses of medicinal plants in the rural population of Ancasti, Catamarca, Argentina, considered an area of great biodiversity. The community defines itself as criollos-serranos and its subsistence economy is associated with traditional livestock production systems and small-scale agriculture. The techniques used in ethnobiology were adopted as a methodological framework. Informants were selected intentionally based on their expertise or by snowball sampling. The specific information about the topic was gathered by records and documentation of species, open interviews and specific semi-structured surveys, participant observation and records of a rapid rural diagnosis. For quantitative analysis, two indices were applied, including: Relative Importance (RI), and Informant Consensus Factor (ICF). A total of 209 medicinal plant and 5 species of fungi belonging to 70 families were recorded. Asteraceae was dominating with 25 species. Herbs were leading with a 45% contribution, followed by shrubs. The RI index highlights species like *Rosmarinus officinalis*, *Vachellia caven* and *Cestrum parqui*, also others rarely referred to in previous studies, as in the case of *Lithraea molleoides*. The medicinal flora in Ancasti, Catamarca is highly diverse and remained scarcely explored so far. Its composition accounts for a set of species and applications that are shared with those of other regions of central and northwestern Argentina, highlighting the presence of intercultural contacts.

KEYWORDS: Ancasti, medicinal flora diversity, criollos-serranos

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INTRODUCTION

One of the most remarkable things about ethnobotany is its dedication to the recovery and study of the knowledge that societies, ethnic groups and cultures around the world had and still have, about the properties of plants and their use to satisfy human needs. In this sense, traditional knowledge can offer sustainable alternatives for the future, both in terms of technology and development, as well as a necessary respectful coexistence of social communities with each other and with the environment (Anderson *et al.*, 2011). For all this, we consider important to rescue and reevaluate the traditional knowledge of the autochthonous medicinal flora, which is part of the cultural heritage and identity of the peoples. On the other hand, the information provided by this type of studies can be useful and applicable for the conservation of plant genetic resources linked to the subsistence of the inhabitants, in particular for their health, when it refers to medicinal plants.

Traditional medicinal systems are mainly characterized by the use of plants for treating health problems. Herbal medicine has been an essential part of the health system in many traditional societies. Nearly 80% of the world population

resorts to traditional medicine for treating their diseases, which is mainly based on the use of extracts and active substances from medicinal plants; two-thirds of these plants come from underdeveloped countries (WHO, 1978a,b; Alonso and Desmarchelier, 2005; Barboza *et al.*, 2009). In the declaration of Alma-Ata, WHO insists on the need to reassess the use of plant pharmacopoeia in health care (WHO, 1978b).

Although the bibliography on the use of plants in traditional Argentine medicine is extensive specific studies on medicinal plants in central Argentina are less common, despite having gained increasing interest in recent decades.

This knowledge of the rural inhabitants of central Argentina has been explored from an ethnobotanical and ethnomedical point of view, including for Córdoba: the works by Arias Toledo (2006, 2009), Arias Toledo *et al.* (2007, 2009, 2010); Trillo *et al.* (2010) and Menseguez *et al.* (2007) in the Tulumba department; the work of Goleniowski *et al.* (2006) for the Comechingones mountain ranges; the research by Martínez (2005, 2007, 2008, 2010) and Martínez and Planchuelo (2003) in the intermountain valleys of Paravachasca and Calamuchita in the south of the

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province of Córdoba; the studies by Luján and Martínez (2017) to compare urban and rural populations, and Luján *et al.* (2017) for the Traslasierra valley, San Javier department. Meanwhile, for the Cuyo region (San Juan province), a series of popular publications arising from collaborative research processes with rural schools is known (Karlin, 2006; Karlin *et al.*, 2005). Additionally, as part of the general floras, contributions are known for the province of Córdoba (Barboza *et al.*, 2006) and the Famatina locality in La Rioja province (Cantero *et al.*, 2015). Nearly to the study area, in the Puna region, Pérez de Nucci (1998) and Palma (1973) described the traditional medicine in the Northwest of Argentina, and Hilgert (2001) characterized domestic medicine in the Yungas ecosystem in Salta province.

With respect the province that concerns us, Catamarca, there is little tradition in ethnobotanical studies. The information comes from folkloric sources such as the well-known glossary by Villafuerte (1961), which includes a list with the names of some plants and their applications.

Given the scarcity of ethnobotanical information in this region and the process of cultural loss and erosion (Martin, 2001), there is an urgent need to document it before it is too late. Therefore, the aim of this work is to document the knowledge, significance, and uses of medicinal plants in the rural population of Ancasti, Catamarca, Argentina.

MATERIAL AND METHODS

Study Area and Population

Located east of the province of Catamarca, the Ancasti mountain range (Figure 1) is over 1,200 meters of altitude and is considered an area of great biodiversity where the following ecoregions converge: Yungas (Selva de Transición, Selva Montana) [Yungas]; Monte de Sierras y Bolsones [Argentine Northwest Monte]; and Chaco Seco (Chaco Semiárido y Serrano) [Dry Chaco] (Maldonado, 2011; Morláns, 1995; Palmeri *et al.*, 2008). Regarding the vegetal structure, the area is characterized by combining tree elements typical of the Chaco Semiárido, such as *Celtis* spp., *Geoffroea decorticans* (Gillies ex Hook. and Arn) Burkart., *Jodina rhombifolia* (Hook. and Arn.) Reissek and *Schinopsis lorentzii* (Griseb.) with elements typical of Chaco Serrano, such as *Parapiptadenia excelsa* (Griseb.) Burkart., *Prosopis nigra* (Griseb.) Hieron, and *Zanthoxylum coco* Gillies ex Hook. f. and Arn., as well as species more related with Selva de Transición, such as *Anadenanthera colubrina* (Vell.) Brenan, *Erythroxylum argentinum* O.E. Schulz and *Xylosma pubescens* Griseb.

According to the latest national census, the department of Ancasti is made up of a population of 2,917 inhabitants, distributed in 786 households (INDEC, 2010). The department is divided into 10 districts, where populations with little demographic concentration are settled, the only municipality being Villa de Ancasti (305 inhabitants). The rest of the population is scattered in hamlets and places that make up the typical rural appearance of the area (Jiménez-Escobar, 2019).

The community defines itself as *criollos-serranos* and its subsistence economy is associated with traditional livestock production systems (cattle, goats, and sheep) and small-scale agriculture, mainly *maíz* (corn) (*Zea mays* L.) and *zapallo* (squash) (*Cucurbita maxima* Duch.). Currently, a recent migration of small Catamarca producers to urban centers is observed due, among other reasons, to changes in land use (Jiménez Escobar and Martínez, 2019).

In relation to its health system, the province of Catamarca is divided into 12 programmatic areas; each of them has an Area Chief and a Healthcare Director in charge. The Ancasti Department belongs to Programmatic Area No. 7, a territorial space which includes the Municipalities of Ancasti, Icaño and part of La Paz; where the centrality in administration, management and coordination of the area, is in the Icaño District Hospital.

The health system in Ancasti is made up of a District Hospital, a Sectional Hospital and Peripheral Health Posts located in towns with a concentrated and dispersed population. Ancasti Hospital is the only health facility with permanent medical care. Currently 82.84% of the population of Ancasti is covered by PHC; this implies that 82.84% formally have a health agent in charge, working at collecting health information and executing PHC actions required by the central administration (weight and height control, vaccinations, identification of pregnant women, etc.) (Ochoa and Fernández, 2014).

Ethnobotanical Trips and Surveys

As methodological framework, techniques commonly used in ethnobiology were used (Albuquerque *et al.*, 2010; Anderson *et al.*, 2011; Martin, 2001). Prior to the interviews with the residents, the research project and its objectives were reported both to the municipal representatives and the State Office for Environment and Development in the province. Likewise, this was reported to the members of the community and, individually, to each household, in which a verbal consent was requested in accordance with the Code of Ethics of the International Society of Ethnobiology (2006). Informants were selected intentionally based on their expertise, snowball sampling, or inhabitants' interest in taking part in the project.

The specific information about the topic was gathered at different stages of the research process, namely:

- a) Records and documentation of species, vernacular names and uses in general, within the framework of ethnobotanical walks with qualified informants.
- b) Open interviews and specific semi-structured surveys on traditional medicine with local actors: ethnobotanical survey guidelines were followed for Gran Chaco (Arenas 1995), which helped obtain information about the traditional diagnostic and healing practices, with a focus on traditional medicinal plant uses.
- c) Participant observation.
- d) Records of a rapid rural diagnosis (Rifkin 2007) in local health centers by consulting professionals from the regional hospital and dispensaries.

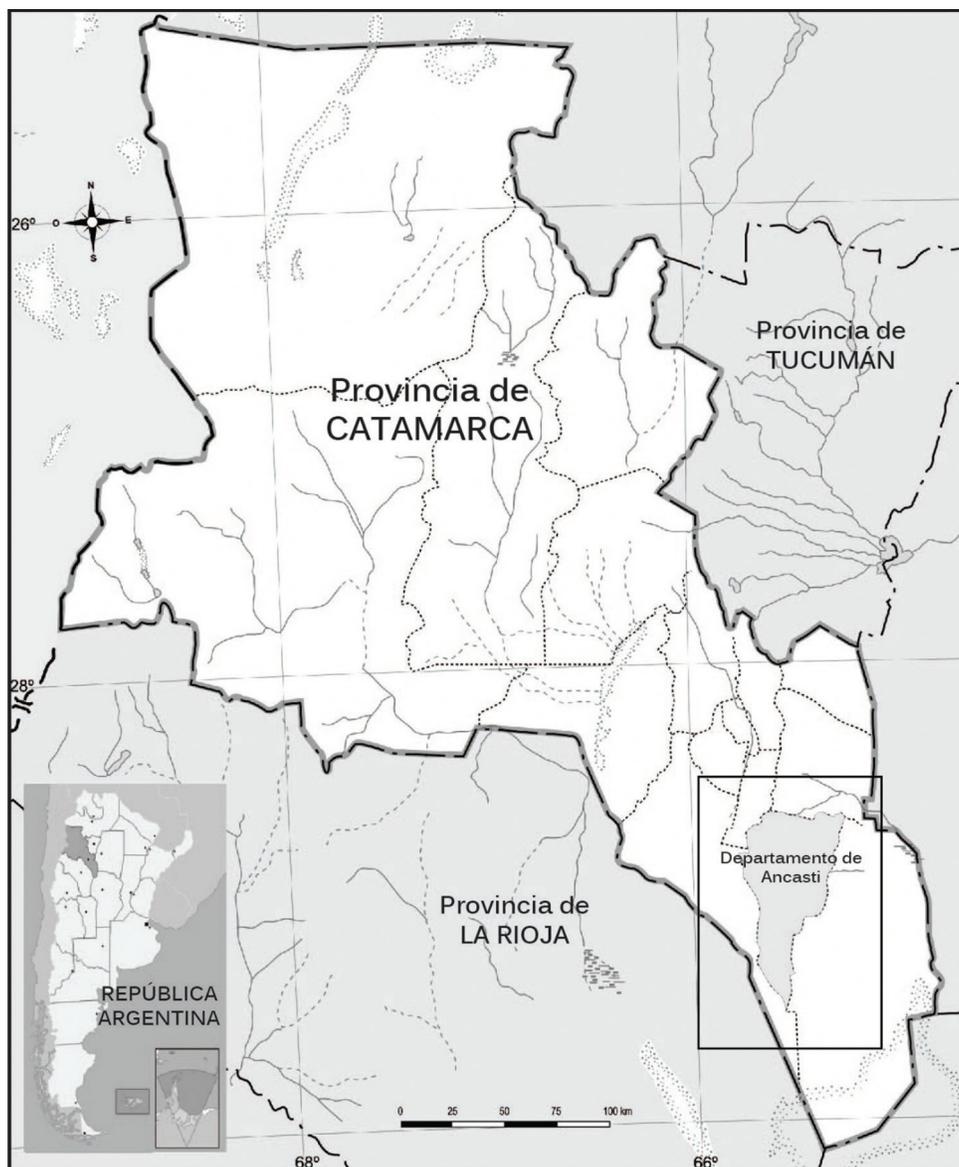


Figure 1: Location of the study area, Ancasti department, Catamarca province, Argentina.

The interview material was registered in digital recordings and in field notebooks. The plants were collected mainly in a reproductive state for later identification. The collection was processed according to established standards (Alexiades, 1996). The specimens were determined by the author and, subsequently, deposited in the Herbarium of the Botanical Museum (CORD), of the Multidisciplinary Institute of Plant Biology (IMBIV), National University of Córdoba, Argentina under the numbering series GJ. Martínez (GJM) and ND. Jiménez-Escobar (NDJE). The list of species follows the taxonomic proposal and nomenclature established in the Catalogue of Vascular Plants of the southern cone (Zuloaga *et al.*, 2008).

Data Analysis

The ethnobotanical information was systematized in an Excel database through the dynamic tables function for its analysis.

The following indices were applied:

a) *Relative Importance*

Relative Importance (RI) for each medicinal species was calculated following Bennet and Prance (2000) based on the normalized number of pharmacological properties attributed to it and the normalized number of body systems (BS) it affects, using the given formula:

$$RI = (\text{Rel PH} + \text{Rel BS}) \times 100/2$$

Rel PH = PH for a given plant/Maximum PH of all reported plant species

Where: PH is the pharmacological attribute of the selected plants (according to an etic perspective), and Rel PH, the

relative number of pharmacological properties attributed to individual plant species.

Rel BS = BS of a given plant/Maximum BS of all reported plant species

BS is the number of body systems healed up by using single species, and Rel BS, the relative number of body systems healed up by using a single species.

b) Informant Consensus Factor

The Informant Consensus Factor (ICF) was used to see if there was agreement in the use of plants in the ailment categories between the plant users in the study area. The ICF was calculated using the following formula (Trotter and Logan, 1986; Heinrich *et al.*, 1998):

$$ICF = (Nur - Nt)/(Nur - 1)$$

Where: Nur refers to the number of use-reports for a particular ailment category, and Nt, to the number of taxa used for a particular ailment category by all informants. The product of this factor ranges from 0 to 1. A high value (close to 1.0) indicates high consensus among informants, since relatively few taxa are used similarly by a large proportion of the informants. A low value indicates that the informants disagree on the taxa to be used in the treatment within a category of illness.

RESULTS AND DISCUSSION

Local Health Care System and Epidemiology

According to the rapid rural diagnosis conducted, among the most common childhood diseases we find the flu, gastric and liver diseases, diarrhea, fevers, sore throats, neurological seizures. The most common ailments in adults are heart disease, blood pressure, hypercholesterolemia, osteoarthritis (due to the intensity of field work). The district hospital of Ancasti is a place for the control of the vaccination card up to 16 years of age, control of healthy children, head circumference, weight and height and where people stock up on milk. The analyzes, x-rays, ultrasounds are derived to Icaño, a town belonging to the La Paz Department. With regard to maternal and child health, pregnancy control is carried out during the first month and there is no delivery care, except for emergencies, generally deriving to maternity in the capital of Catamarca. An obstacle in the care of maternal and child health is the delay in the control of pregnancy, since younger women often do not know the dates of their last menstruations or the time of pregnancy, postponing much the controls, which sometimes are when contractions and labor are imminent. The prescription of plants among those who are cared for in the hospital, according to the opinion of biomedical, is not common, although sometimes they buy preparations in herbal stores to treat osteoarthritis and diabetes, ensuring that there were improvements in the patient. Likewise, some health

agents remember popular recipes with which patients have used to treat their ailments.

Health agents also noted that the influence of home or domestic medicine and traditional medicine practices which contribute to the primary health care system are especially relevant among the most marginalized population. They hold important knowledge about plant, animal and medicinal mineral species, although this knowledge is also similarly distributed in the general population of the study area. Conversely, the figure of the healer or traditional practitioner is not central to the treatment and management of specialized diseases and ailments with medicinal plants.

A part of the population is treated collaterally to the official health system, and they are generally the group of artisans who seek respected childbirth, are opposed to vaccines, and make their own medicinal preparations with local products. The midwives, for their part, are not frequently found in the area, since gynecological care is conducted in the municipal hospitals of the region.

One of the most documented aspects among non-indigenous populations throughout the Americas and which manifests itself in the context of these practices is the validity of reformulated principles of humoral medicine and the notions of “warm” and “cold” in the classification of diseases, food, therapies and even among plants (Foster 1994; Idoyaga Molina 2000). On the basis of these theories, it is understood that an imbalance caused by excess heat or cold impacts on the etiology of various diseases, which is why, in the therapeutic field, attempts are made to restore the lost balance through the use of “cold” and “hot” plants for some cases. However, these aspects appeared only seldom among the criteria for selecting medicinal species for a given ailment or recipe. One of the few and most illustrative examples is the use of the leaves of hediondilla (*Cestrum parqui* LHér.) which are applied in poultices on the temples to relief headaches, and with cold water in sitz baths to treat stomach ache caused by heats; it is also used as a venous anti-inflammatory to relieve leg pain. Besides, clothes are washed with a soap made with hediondilla to treat hemorrhoids and as a skin healer. The leaf of this plant is also applied between underwear and the anus, and are placed under the hat or on the neck to provide protect against sun poisoning. Since it is fresh, “four leaves are put between the underwear and the buttocks to avoid the heat of the saddle and steam”; with iguana fat, it “sucks the dirt” from pimples and boils. Finally, it relieves itching caused by the sun heat.

1) Diversity and composition of ethnomedical flora

A total of 702 uses corresponding to 209 medicinal plant and 5 fungi species belonging to 70 families, which were used by local communities to treat 12 disease categories, were recorded (Table 1).

a) Most relevant Families

As shown in Figure 2, *Asteraceae* was dominating with 25 species and 78 uses, followed by the *Fabaceae* (15 spp./42 uses),

Table 1: List of medicinal species and uses with their recipes in Sierra de Ancasti, Catamarca, Argentina

Family Species (Voucher)	Vernacular name	Recipes
FUNGI		
AGARICACEAE		
<i>Mycenastrum corium</i> (Guers.) Desv. (GJM 1318) / <i>Lanopila bicolor</i> (Lév.) Pat. (GJM 1037)	polvo del zorro, hongo de la tierra, flor de la tierra	Spores used topically to treat "soft foot corns" or athlete's foot injuries. Spores used topically to treat burns and scalds that occur when children urinate. Whipped egg applied with the spores to treat burns. Spores applied to heal wounds, injuries, pimples and infections. Spores used to heal the umbilical cord.
LYCOPERDACEAE		
<i>Calvatia fragilis</i> (GJM 1255, GJM 1296)	polvo del zorro, polvillo del zorro, hongo de la tierra	Spores are used topically to treat burns; also, to treat scalds that occur when children urinate. Its spores are applied to heal wounds, injuries, pimples and infections.
PARMELIACEAE		
<i>Usnea aff. barbata</i> (L.) Weber ex F.H. Wigg. (GJM 1370)	barba de la peña, barba de monte	It is placed in footwear to prevent perspiration of the feet. As an infusion or in <i>mate</i> , it is drunk for high blood pressure. It is prepared in decoction to treat kidney conditions and stones.
<i>Usnea amblyoclada</i> (Müll. Arg.) Zahlbr. (GJM 1170)	barba de piedra	Frictions of its infusion are drunk or applied for joint pains, fractures, sprains and leg pains. It is used in decoction to treat foot pain due to its iodine content. With <i>rompepiedras</i> and <i>cola de caballo</i> , an infusion is prepared to relieve kidney discomfort or waist pain. In decoction, to treat kidney conditions and stones. To treat tonsillitis and throat conditions, gargles with its decoction and salt are made. An infusion in hot water on an empty stomach dissolves gallbladder stones. The infusion is applied to rinse the mouth out for relieving toothaches. The infusion is drunk for liver and digestive conditions.
PLANTAE		
ADOXACEAE		
<i>Sambucus</i> sp.	saúco	Infusion with leaves drunk as a fresh beverage to help measles ooze.
AMARANTHACEAE		
<i>Alternanthera pungens</i> Kunth (GJM 1291)	yerba del pollo	Decoction of the root with <i>malva</i> and <i>menta</i> leaves prepared for constipation. It is also prepared as an infusion with burnt sugar. Tea prepared and taken for an upset stomach or as digestive conditions and diarrhea. For upset stomach, an informant proposes the following recipe: Some <i>maíz</i> , rice, noodles, and bread are burned, and a tea is prepared boiling all these with three <i>yerba de pollo</i> roots, which works as a purgative.
<i>Amaranthus</i> sp. (GJM 1434)	yerba meona	The decoction of its aerial part is used for liver conditions and to relieve an upset stomach. It may be combined with <i>menta</i> .
AMARYLLIDACEAE		
<i>Allium cepa</i> L.	cebolla	In cases of nosebleeds, the <i>cebolla</i> smell is provided for aspiration, or the sign of the cross is made with it on the head. The infusion of its cataphylls is applied as a pain reliever for sore throats. A jug of water is prepared with <i>cebolla</i> peels and 2 tablespoons of honey and is then provided as a drink for colds, sore throats and cough. For the same purpose, it is combined with toasted naranja peel and <i>quimpe</i> . It is also prepared with Coca-Cola. With <i>salvia blanca</i> and <i>limón</i> as an infusion. It is also ingested raw.
<i>Allium sativum</i> L.	ajo	The intake of its bulb is prescribed to lower cholesterol and treat "thick blood." Half a warm bulb is applied with cotton to relieve ear ache. A piece of bulb is applied locally to treat oral conditions. Ajo intake is purifying and boosts blood circulation. Ajo intake prevents strokes, as it lowers blood pressure and "relieves" the blood. It is usually left in a glass of water for a day and is drunk on an empty stomach. Raw ajo is consumed to relieve asthma and lung conditions. A symbolic action is applied, which includes thrusting into an <i>ajo</i> and removing the cloves, which are then threaded while perforating the warts. After that, 3 Our Father prayers are to be said, and where the cloves are left should be unknown. In other cases, the ajo clove is rubbed in the "soft foot corn" or wart nucleus. In case of bites by poisonous animals (vipers or insects,) a clove of <i>ajo</i> is ingested. <i>Ajo</i> or ajo milk is ingested on an empty stomach for intestinal parasites; prior to this, a tablespoon of sugar or honey is given to attract them; they are also cured with words. Ajo with tomato is also ingested for parasites.
Not collected	azucenita blanca	The bulb is applied with salt on plantar calluses.

(Contd...)

Table 1: (Continued)

Family Species (Voucher)	Vernacular name	Recipes
ANACARDIACEAE <i>Lithraea molleoides</i> (Vell.) Engl. (GJM 883)	molle, molle Córdoba, molle cordobés, molle de beber	As a fresh beverage, infusion or in mate, it relieves bone pain. The decoction of its leaves with honey is consumed as flu medicine and for colds. It is also combined with <i>salvia blanca</i> leaves and <i>naranja</i> peels with toasted sugar as a homemade remedy. The infusion of its leaves is recommended as a cough suppressant. The fruit is consumed by adding it to mate. For headaches from the sun or heat, a head wash is used; it can be combined with sauce and tusca. As an infusion (or a fresh infusion), it is drunk for blood conditions such as cholesterol, causing it to "relieve." It is also applied with <i>sombra de toro</i> and/or <i>poleo</i> . It is pointed out, however, that it is "makes you angry," that is to say, it causes stinging, that is why it is barely used with frequency. The infusion of its leaves is drunk to lower cholesterol and treat "thick blood." It is used alone in <i>aguapasto</i> to treat uric acid, or combined with infusion of <i>sombra de toro</i> leaves. It helps the blood "slim" along with the <i>sombra de toro</i> leaves. The "acid" or caustic liquid that comes out when cutting the fruit is applied for 2 or 3 days on warts until they are burned.
<i>Schinopsis lorentzii</i> (Griseb.) Engl. (GJM 950)	quebracho colorado	A terebinto decoction is prepared with granada husk and toasted sugar on a hot coal for diarrhea cases. The bitter infusion of the leaves is drunk for liver conditions.
<i>Schinus areira</i> L. (NDJE 2342)	terebinto, aguariabay	Hot fomentations are prepared with <i>jarilla</i> to treat strains and sprains; it is anti-inflammatory and relieves pain.
<i>Schinus fasciculatus</i> (Griseb.) I.M. Johnst. var. <i>fasciculatus</i> (GJM 1263)	molle tonto, molle tonto, molle sonso, molle incienso, molle pispo	<i>Molle sonso</i> incense is perfumed with chicken fat to relieve respiratory problems caused by the "air." The boiled leaves are used with salt to rinse the mouth out and relieve canker sores and mouth sores. As a tea, it acts as an oxytocic which helps release the retained placenta; for the same purpose, the handles of a pair of scissors is placed in the mouth so that the woman retches. A wash with the leaves is used to treat pain in the feet and deflate them. It is used to treat and fix fractures, with sugar, <i>yerba</i> and <i>molle tonto</i> resin, since it takes out the "air." It is used to treat the fall of the paletilla shoulder-blade, which causes vomiting and diarrhea. It is applied as "patches" with sugar, <i>yerba</i> and the <i>molle tonto</i> resin. It is prescribed as an infusion for liver pains when overdrinking. A <i>molle sonso</i> , <i>manzanilla</i> and <i>salvia lora</i> tea is prescribed in case of vomiting as an antiemetic. Alone or a mixture of 3 herbs is prepared: <i>membrillo</i> , <i>piscoyuyo</i> , and <i>molle pispo</i> . It is drunk as a tea to treat diarrhea. A boiled <i>molle tonto</i> water is also prepared and a fairly "chullito" starch is dissolved, that is light liquid, not thick. There are two: <i>guiador</i> and <i>redondito</i> , whose smell is bad and strong. The infusion of the leaf is used for stomach aches, but it is strong.
APIACEAE <i>Ammi visnaga</i> (L.) Lam. (GJM 1485)	cilantro de zorro	The infusion of the aerial part is drunk as an antihemorrhagic agent
<i>Apium graveolens</i> L. (GJM 1497)	apio	The leaves are prepared as an infusion with <i>romero</i> and <i>paico</i> and taken as a blood purifier. The infusion is used for high blood pressure. <i>Apio</i> as a fresh beverage or in <i>mate</i> relieves urinary infections and is drunk as an antinephritic remedy. A tea with <i>orégano</i> , <i>apio</i> , <i>té de burro</i> and <i>poleo</i> is prepared to "correct" the stomach. It is also combined with <i>apio</i> , <i>orégano</i> and <i>hinojo</i> for infections or the heat that affects the intestines when a meal makes you sick and causes stomach heaviness. This corrects pain and swelling of the abdomen. An infusion with <i>aguardiente</i> liquor is prescribed for fertilizing purposes. An <i>apio</i> tea with <i>aguardiente</i> liquor is given to relieve postpartum pain and promote the recovery of the woman's body; chicken soup is also provided.
<i>Coriandrum sativum</i> L.	cilantro	For cases of confinement (the placenta is not eliminated,) a homemade remedy with <i>poleo</i> , <i>paico</i> , <i>romero</i> and toasted <i>cilantro</i> seeds is prescribed, since they work as oxytocics.
<i>Foeniculum vulgare</i> Mill. (GJM 1365)	hinojo	An infusion with <i>anís</i> is prescribed to boost breast milk production. In decoction with <i>hinojo</i> , it is drunk to relieve menstrual cramps and release retained placenta. The aerial part as an infusion to relieve flatulence. In mystery: <i>chamico</i> , <i>hinojo</i> and <i>malva</i> are boiled, and twigs are added for a sitz bath when a child's body temperature rises (after he/she has sat on very hot ground.) <i>Hinojo</i> tea for infections, or "belly twitch," with <i>orégano</i> and <i>apio</i> .

(Contd...)

Table 1: (Continued)

Family Species (Voucher)	Vernacular name	Recipes
<i>Hydrocotyle ranunculoides</i> L. f.	redondo del agua, arandela del agua	Leaves are applied on the temple to relieve headaches.
<i>Petroselinum crispum</i> (Mill.) Fuss	perejil	An infusion is used for rinsing the mouth out to treat toothaches. An infusion of its aerial part is prescribed for diabetes. Decoction is employed in washes for the treatment of dandruff.
<i>Pimpinella anisum</i> L. Cfr <i>Azorella</i> sp. (GJM 1446)	anís yareta	An infusion of hinojo with anís is prescribed to boost breast milk production. A <i>yareta</i> cigar is used for perfuming in the case of earaches. For the treatment of measles, <i>yareta</i> , <i>paja de techar</i> and pig manure are used with it for perfuming. When children are scared, <i>yareta</i> , <i>yerba mate</i> and sugar are used with it for perfuming, and they are told to cross in the form of a cross. This plant is brought from the west of Catamarca; it is combined with champa from growing streams, peccary manure and nutmeg; it would be used for perfuming to remove the "airs" in the region of the mouth affected by a stroke or a facial paralysis. To stop bleeding from the nose, <i>yareta</i> , black sheep wool and pig's dung are used with it for perfuming.
APOCYNACEAE		
<i>Araujia brachystephana</i> (Griseb.) Fontella & Goyder (GJM 1299)	doca	The decoction of its root boosts breast milk production. To treat pimples and heal thorn wounds, a piece of paper with <i>doca</i> latex is placed.
<i>Aspidosperma quebracho- blanco</i> Schltld. (GJM 1239)	quebracho blanco	The infusion of its fruits is applied in washes as a pediculicide.
<i>Vallesia glabra</i> (Cav.) Link (GJM 932)	ancoche	Leaf decoction is used to treat fleas. The decoction of its leaves is used in washes to treat pediculosis.
AQUIFOLIACEAE		
<i>Ilex paraguayensis</i> A.St.-Hil.	yerba, yerba mate	The perfume of <i>yerba</i> and sugar relieves ear conditions. To wean, the nipple was moisturized with yerba mate. <i>Yerba mate</i> tea bags with milk are drunk to boost breast milk production. <i>Yerba</i> , sugar and pig manure are used with it for perfuming in cases of molle and quebracho "stings" or bee stings. <i>Yerba</i> , sugar, <i>romero</i> and beeswax (<i>Plebeia molesta</i>) are used for perfuming. The sign of the cross is made with a burned stick of yerba mate to treat warts. It is drunk in mate without sugar for diabetes cases. To treat enuresis or fecal incontinence due to "colds" in the bladder or intestine, <i>yareta</i> , black sheep wool and yerba mate are used with it for perfuming. An infusion of "yerba mate water" is inhaled to relieve colds. <i>Yerba</i> and sugar are used with it for perfuming and as an antieruptive (measles and chicken pox); wind exposure is to be avoided for three days to prevent measles from going "inside." <i>Yerba</i> , sugar and pig manure are used with it for perfuming those children who suffer from the "air" and turn their eyes back due to drafts and strong winds, which make them cry and feel discomfort. It is used to treat the fall of the paletilla shoulder-blade, which causes vomiting and diarrhea. It is applied as "patches" with sugar, yerba and <i>molle tonto</i> resin. When a child's the paletilla shoulder-blade falls due to a fright, he/she is perfumed with it, and also with yerba and sugar.
ARISTOLOCHIACEAE		
<i>Aristolochia argentina</i> Griseb. (GJM 1190)	charrua	A folded leaf is placed inside the ear canal for 1 or 2 days until it dries, and the heat that causes the air buzzing comes out.
<i>Prosopanche americana</i> (R.Br.) Baill. (GJM 1358)	guaycurú, costilla de la tierra	A fresh beverage (in a fresh decoction) is made with its root to purify the blood. A fresh beverage (in a fresh decoction) is made with its root for the kidneys. The infusion of its root is used to treat asthma. "Before you would take a piece of the root and put it up your..., people would be in good health for a long time!"
ASPARAGACEAE		
<i>Agave americana</i> L. (NDJE 2340)	pita	The maceration in alcohol of <i>pita</i> leaves and <i>romero</i> is applied to relieve rheumatism.
ASTERACEAE		
<i>Achyrocline satureioides</i> (Lam.) DC. (GJM 1284)	salvia silvestre	The infusion of its leaves is prescribed for respiratory conditions.
<i>Artemisia douglasiana</i> Besser (GJM 1363)	buscapina, pata de rana, ajenjo, boldo andino	The <i>Buscapina</i> infusion is used to treat vomiting and a hepatic agent. The infusion is diuretic.

(Contd...)

Table 1: (Continued)

Family Species (Voucher)	Vernacular name	Recipes
<i>Artemisia abrotanum</i> L. (GJM 1079)	alcanfor	A piece of <i>alcanfor</i> is applied in cavities. A doradilla and <i>alcanfor</i> infusion is prepared for painful menses. Alcanfor in clothing pockets is a lice repellent. A maceration of alcanfor leaves is applied with <i>ruda</i> in alcohol or hot <i>ruda</i> for earaches. It may also be put on a cotton: a bud on the embers, or a piece of alcanfor with romero in coals and as a perfume, which is then covered with cotton. Washes with a maceration in alcohol made of <i>romero</i> , <i>llantén</i> , <i>aloe</i> , <i>ruda</i> , aspirin, and <i>alcanfor</i> (seven things or herbs in total) are applied to relieve pain from ankle strains or sprains.
<i>Artemisia absinthium</i> L.	ajeno	The infusion of its leaves is used for vomiting. It is drunk as a hepatic agent alone or in combination with <i>manzanilla chilena</i> and <i>arbusto</i> . It is taken as digestive and for infections.
<i>Baccharis articulata</i> (Lam.) Pers. (GJM 1262)	carqueja grande	The infusion of the aerial part is used for blood conditions. The infusion of its leaves is used as an antiulcerative for gastritis and ulcers. As an infusion, it is drunk for liver conditions.
<i>Baccharis coridifolia</i> DC. (GJM 1267)	nillo, mío, nio nio, romerillo	<i>Nio</i> wedges are thrown under the beds to ward off lice and fleas. It is prepared on the embers of ashes and is applied in frictions to deflate bumps, strains, muscle and joint pains. An infusion is applied with washes when "bad air" causes headaches, does not help cook food, and causes earache and twisted neck
<i>Baccharis crispa</i> (GJM 1514)	carqueja pisipita, carquejilla	Its infusion is considered energizing. As an infusion with <i>boldo</i> , it relieves bone pain. The infusion is used as an aphrodisiac. As an infusion for liver conditions.
<i>Baccharis flabellata</i> Hook. & Arn. (NDJE 2244)	clavillo	Decoction is applied in head washes to treat "bad air" and relieve pain.
<i>Carduus</i> sp. (GJM 1367)	cardo	Smoothies are prepared with its leaves to treat parasites. It is a remedy for blood.
<i>Cyclolepis genistoides</i> Gillies D. Don (GJM 1334)	expalo azul	It is used as an infusion for kidney conditions. The infusion of the aerial part is drunk as an antilithic for kidney stones.
<i>Gaillardia megapotamica</i> (Spreng.) Baker var. <i>scabiosoides</i> (Arn. ex DC.) Baker (GJM 1149)	botón de oro, topasaire	To wash the head, when an air is caught or when there is pain. The decoction of the entire plant is used in washes to treat greasy hair or dandruff.
<i>Lactuca sativa</i> L.	lechuga	The <i>higuera</i> and <i>lechuga</i> leaves are drunk as a fresh beverage to regulate blood pressure. It is prescribed as an infusion for nervousness. It can also be combined with <i>mandarina</i> and/or <i>tilo</i> water.
<i>Matricaria chamomilla</i> L.	manzanilla, manzanilla dulce	An infusion of <i>manzanilla</i> flowers is applied in a bag of boiled water to relieve eye pain. For toothaches, a <i>manzanilla dulce</i> flower cigarette is applied. The infusion of their inflorescences is used to relieve vomiting. Decoction of the inflorescences is drunk for menstrual cramps. A decoction is prescribed to relieve gas. An infusion of <i>manzanilla</i> and <i>paico</i> is used to treat constipation. An infusion of <i>manzanilla</i> and <i>tilo</i> is used to lose weight and remove adiposities. Frictions of chicken fat, <i>manzanilla</i> , and a hot cloth are applied; also with thick altea ointment.
<i>Parthenium hysterophorus</i> L. (GJM 1199)	altamisa	Baths are prescribed with a decoction of the plant to treat pruritus. It is used to wean children, given its bitter taste. The infusion of its leaves is used as an antidiabetic. The infusion is used for liver conditions.
<i>Pectis odorata</i> Griseb. (NDJE 2320)	manzanilla del campo, manzanilla dulce	The infusion of its aerial part is drunk as a digestive with <i>mate</i> .
<i>Pluchea sagittalis</i> (Lam.) Cabrera (GJM 1244)	cuatro cantos, tres cantos	The infusion of its leaves is prescribed for liver conditions.
<i>Schkuhria pinnata</i> (Lam.) Kuntze ex Thell. (GJM 1280)	matapulgas, canchalagua	The maceration of its infused air part is drunk to lower fevers. For pediculosis, the head is washed with a maceration of canchalagua with soap. A broom is created with it to sweep fleas, or maceration of water is used for watering. The flea killer decoction is applied to treat dandruff. It is a very good herb to wash feet and relieve limb pain. It is drunk as an infusion for liver conditions. It is recommended for drinkers. The decoction of its aerial part in water is applied in washes for dandruff (the eyes are to be tightly closed because it is bitter.)
<i>Senecio deferens</i> Griseb. (GJM 850)	cuatro cantos	It is drunk in infusion as a hepatic agent.

(Contd...)

Table 1: (Continued)

Family Species (Voucher)	Vernacular name	Recipes
<i>Tagetes filifolia</i> Lag.	anisillo, suiquillo	Its infusion is antiemetic. Its infusion is digestive. As an infusion, it is a carminative.
<i>Tanacetum parthenium</i> (L.) Sch. Bip. (GJM 910)	manzanilla amarga, manzanilla boliviana, manzanilla chilena	The infusion is drunk as an appetizer to whet the appetite. The decoction of this bitter herb is applied in washes to facilitate weaning. A decoction is employed in washes for eye conditions. An infusion is prepared with 2 or 3 peach leaves for flatulence. As an infusion, it is used for cases of constipation. It is drunk as an infusion alone for liver conditions or in combination with <i>arbusto</i> and <i>ajenjo</i> . A poultice of its inflorescences with chicken or iguana fat is also applied.
<i>Tanacetum vulgare</i> L. (GJM 911)	arbusto	It is drunk as an infusion for headaches. It is drunk as an infusion alone for digestive and hepatic conditions or in combination with <i>manzanilla chilena</i> and <i>ajenjo</i> .
<i>Taraxacum officinale</i> (L.) Weber ex F.H.Wigg.,	diente de león	It is drunk as an infusion to treat liver conditions. Its decoction or salad is consumed to stop blood pressure problems. This recipe was learned from a Peruvian physician who worked in Ancasti. The leaves are blood purifying. Its leaves are used to treat kidney conditions.
<i>Xanthium spinosum</i> L. var. <i>spinosum</i> (GJM 904)	cepacaballo	The decoction of its leaves is applied as a healer for wounds. The sign of the cross is made with its thorns on warts. An infusion of its leaves is drunk to improve circulation and purify the blood. The infusion of its leaves dissolves kidney stones. The infusion of its roots is used for kidney conditions. The root is considered purifying. Washes are applied to treat vaginal discharge. The infusion of its root is drunk after labor. The infusion of the root is drunk or used in washes for belly infection.
BORAGINACEAE		
<i>Borago officinalis</i> L.	borraja	The infusion of its leaves makes the measles "appear outside." The air should not touch it so that the disease does not "get inside." It is boiled in water to relieve fever; it is especially used in fevers due to eruptive diseases.
BRASSICACEAE		
<i>Lepidium didymum</i> L. (GJM 1310)	quimpe, quimpi	It is drunk as an infusion for colds. For cases of allergy in the eyes, it is scrubbed as a muzzle around the face. As an infusion with naranja peels, it is applied to make gargles for sore throats. An infusion is prepared with <i>naranja</i> or <i>limón</i> peel and toasted sugar for coughs; <i>cebolla</i> peel may also be added. An informant prepares an expectorant syrup with <i>quimpe</i> , <i>chañar</i> bark, honey and <i>níspero</i> leaf, as a homemade remedy, and limoan.
<i>Nasturtium officinale</i> W.T. Aiton (GJM 1461)	berro	As an infusion, it is used for kidney conditions. The infusion of its root is drunk for hypertension.
BROMELIACEAE		
<i>Tillandsia</i> sp. (GJM 1528)	azahar de chañar	As an infusion, it is used for heart conditions.
CACTACEAE		
<i>Opuntia ficus-indica</i> (L.) Mill. (GJM 1426)	tuna blanca	To cure umbilical hernias, it is applied as a ritual by marking the sole of the foot in the cladode, which is then hung from a thread until it dries. For gallbladder conditions, a tea is prepared with the tuna criolla blanca flower and it is drunk as a fresh beverage on an empty stomach. It is also left aside and eaten for 15 days. The perfume with the wheat husk (bran) makes eructation appear. The infusion of its dried flowers (tepals) is drunk for prostate conditions. The infusion of its dried flowers (tepals) is drunk for kidney conditions. An infusion is prepared with the dry flower tepals to treat kidney calculus, stones, and conditions. It is a diuretic. The recently-formed green fruit is cut from the flower of the rib and is drunk as a fresh beverage for the liver. The ribs are used for symbolic word cures of intestinal parasites.
<i>Opuntia quimilo</i> K.Shum	quimile, quimilo	The cladode is broken, the sign of cross is made and cumin is put; then it is applied in the viper bite as an antivenom.
<i>Pfeiffera ianthothele</i> (Monv.) F.A.C. Weber (GJM 1319)	ulvilla	The <i>ulvilla</i> mucilage is used as a healer.
<i>Rhipsalis aculeata</i> F.A.C. Weber (GJM 1318)	suelda, sueldilla, suelda consuelda	It is applied in washes for hair treatment and care (anti-seborrheic and anti-dandruff.) It is ground and used in poultices for snake bites. The poultices are applied in fractures, strains and sprains.

(Contd...)

Table 1: (Continued)

Family Species (Voucher)	Vernacular name	Recipes
<i>Trichocereus terscheckii</i> (Parm. cardón ex Pfeiff.) Britton & Rose (GJM 1102) CAPPARACEAE		For sinusitis, <i>cardón</i> is cut before dawn, the thorns and cover are removed, and with the "meat," the sign of the cross is made to cut it, and it is then placed on the forehead as a cataplasm until it dries.
<i>Capparis atamisquea</i> Kuntze (GJM 1214) CAPRIFOLIACEAE	atamisqui	The decoction of these leaves is used as a digestive.
<i>Lonicera japonica</i> Thunb. (GJM 1473) CARYOPHYLLACEAE	madreselva	A tea is prepared for roughness in the throat. Three or four leaves in half a cup of water are recommended.
<i>Dianthus caryophyllus</i> L. CELTIDACEAE	clavel blanco	The flower infusion has tonic properties; thus, it is applied for heart conditions.
<i>Celtis ehrenbergiana</i> (Klotzsch) tala Liebm. (GJM 905)		A decoction of 3 <i>malva</i> buds, 3 <i>tala</i> shoots, and 3 <i>vid</i> tendrils is prepared to treat diarrhea. It is drunk as an infusion or with milk to avoid constipations and an upset stomach. A midwife from Santa Gertrudis, would prescribe neonates <i>tala</i> and <i>malva</i> water with honeycomb or queyita to get rid of the phlegm that could have been accumulated in the airways. Cow or goat milk with <i>tala</i> leaves is drunk to boost breast milk production. The decoction of its leaves is applied in washes for eye conditions. The decoction of its leaves in milk is a carminative.
<i>Celtis</i> sp. CERVANTESIACEAE	tala pispo	The <i>tala pispo</i> leaves are boiled with <i>mate</i> tea bags and drunk to boost milk production.
<i>Jodina rhombifolia</i> (Hook. & Arn.) Reissek (GJM 914)	sombra de toro	The infusion of its leaves is drunk for kidney conditions. The decoction of its leaves is drunk as a diuretic. In a fresh decoction with <i>zarzaparrilla</i> and <i>cola de caballo</i> is drunk to improve blood circulation. A decoction is used for the blood to "slim" and be purified; it is prescribed alone or in combination with <i>molle de beber</i> , with <i>cola de caballo</i> and/or with <i>zarzaparrilla</i> . It is warned that blood pressure may rise. The infusion of its leaves in tea or <i>mate</i> is used to lower cholesterol or treat "thick blood." It can be combined with <i>molle de beber</i> . Warts are pierced with the thorny tips of the leaves. The infusion of its leaves is used to treat uric acid; it can be combined with <i>molle de beber</i> . Some say it should be drunk for up to 15 days and then suspended.
CHENOPODIACEAE		
<i>Dysphania ambrosioides</i> (L.) Mosyakin & Clemants (GJM 947)	paico	The infusion of its leaves is drunk with those of <i>romero</i> and <i>apio</i> as a blood purifier. Paico branches are applied in places where there are fleas. In decoction or infusion, it is used to treat intestinal worms. It is consumed as an infusion to whet the appetite. For cases of confinement (the placenta is not eliminated,) a homemade remedy with <i>poleo</i> , <i>paico</i> , <i>romero</i> and toasted <i>cilantro</i> seeds is prescribed. To relieve infections in the belly, it is consumed as an infusion with <i>orégano</i> . The infusion is drunk to stop vomiting. Contrary to what is believed, some consider that the <i>paico</i> infusion is an antidiarrheal. As an infusion with burnt sugar, it relieves an upset stomach and infections with laxative effects. It can be combined with tea and ruda. An informant combines paico with <i>salvia de la Puna</i> (brought from the Ambato Department) for constipation. With <i>manzanilla</i> , an infusion is prepared to relieve constipation in children.
COMMELINACEAE		
<i>Commelina erecta</i> L. (GJM 879) CUCURBITACEAE	Santa Lucía	A droplet of the beverage or mucilage of the flower bracts is applied to the eye, which relieves any bumps or conjunctivitis in the eyes.
<i>Citrullus lanatus</i> (Thunb.) Matsum. & Nakai <i>Cucumis sativus</i> L. <i>Cucurbita maxima</i> Duch.	Sandía Pepino zapallo de Angola, Angola	Consuming its fruit is considered an aphrodisiac. The white pulp and the peel are thrown under the bed to fight against fleas and lice. The slices of this fruit are applied to skin that is burned. Three peeled of its seeds are consumed on an empty stomach as a vermifuge. Before eating, consume a tablespoon of sugar and a drink aguardiente liquor for three days.
EPHEDRACEAE		
<i>Ephedra tweediana</i> Fisch. & C.A. Mey. emend. J.H. Hunz. (GJM 1170)	tramontana	Its infusion is used in washes for the hair treatment. A decoction is applied in washes to treat varicose veins and leg pain. A tramontana infusion is drunk for cases of hypertension. It has blood purifying effects. The infusion of your aerial part is drunk for diabetes. The infusion of its aerial part is drunk for cases of high cholesterol. It is applied in poultices and washes to treat fractures. In decoction with <i>doradilla</i> , it relieves body aches. In a bath, to take out the "air" that makes the joints hurt. To relieve osteoarthritis.

(Contd...)

Table 1: (Continued)

Family Species (Voucher)	Vernacular name	Recipes
EQUISETACEAE		
<i>Equisetum giganteum</i> L. (GJM 1038)	cola de caballo	With <i>sombra de toro</i> and <i>zarzaparrilla</i> , a fresh decoction is prepared and drunk to improve blood circulation. With <i>zarzaparrilla</i> , it is considered as being good for heart conditions. In decoction, it is used as a blood purifier. It can be combined with <i>molle de beber</i> and <i>sombra de toro</i> . An infusion of <i>poleo</i> , corn silk, and <i>cola de caballo</i> is prepared to deflate the abdomen. As an infusion, it is drunk for urinary infections. The infusion of the entire plant is used for kidney stones. Infusion or decoction is drunk for prostate conditions. It is taken as a decocted or fresh beverage for the kidneys and kidney stones.
EUPHORBIACEAE		
<i>Croton lachnostachyus</i> Baill. (GJM 894)	tinajera	A leaf is put on the embers with a little <i>altea</i> ointment and then placed in the ear canal. The dry incinerated leaves are perfumed to get rid of the "air" that produces eye conditions (tears, conjunctivitis and eye pain.) The decoction of its leaves is applied in washes as an antiseptic against ant bites. The decoction of its leaves is applied in washes for skin blemishes. The decoction of its leaves is applied in washes as wound healers.
<i>Croton lanatus</i> Lam. var. <i>lorentzii</i> (Müll. Arg.) P.E. Berry (GJM 1025)	cambalacho	A leaf is cut and placed in the ear to take the "air" out when there is pain. Decoction of its leaves is applied to deflate and relieve leg pains. The decoction is applied in washes on the head. The decoction of its aerial part is used in washes as a wound healer and drier.
<i>Euphorbia eichleri</i> Müll. Arg. (GJM 1287)	golondrina	Latex is applied for the treatment of warts.
<i>Jatropha macrocarpa</i> Griseb. (GJM 1237)	piñón, higuera del zorro	The decoction of its fruits and seeds is a drastic purgative.
<i>Ricinus communis</i> L. (GJM 1512)	tártago	To relieve swollen glands in the neck or mumps, a leaf neckless is prepared and left hanging until it dries. As it dries, the disease improves.
FABACEAE		
<i>Anadenanthera colubrina</i> (Vell.) Brenan var. <i>cebil</i> (Griseb.) Altschul (GJM 1190)	cebil	An informant remembers an anecdote in which he was attacked by a peccary when he put his hand in its cave, and he managed to heal the wound with a ground piece of <i>cebil</i> bark.
<i>Bauhinia forficata</i> Link ssp. <i>pruinosa</i> (Vogel) Fortunato & Wunderlin (GJM 923)	pezuña de vaca, uña de vaca	As a fresh decoction, it is used for kidney conditions. A decoction of 3 leaves in 2 liters of <i>pezuña de vaca</i> water is prescribed to treat cases of diabetes. It is also combined with <i>quebrarado</i> root and <i>níspero</i> leaves or with <i>higuera negra</i> leaves. As an infusion or in mate, it relieves gallstones.
<i>Caesalpinia gilliesii</i> (Wall. ex Hook.) D. Dietr. (GJM 1238)	mal de ojo	His mother would advise an informant not to approach or touch it because it affects the eyesight.
<i>Cercidium praecox</i> (Ruiz & Pav. ex Hook.) Harms (GJM 1220)	brea	The decoction of the bark is used for respiratory conditions.
<i>Enterolobium contortisiliquum</i> (Vell.) Morong (GJM 1240)	pacará	The ground fruits are applied in soapy water for dandruff.
<i>Geoffroea decorticans</i> (Gillies ex Hook. & Arn.) Burkart (NDJE 2218)	chañar	The fruit syrup is prescribed for sore throats on an empty stomach and before sleeping. The <i>chañar</i> fruit syrup is used for bronchial and pulmonary conditions such as bronchitis and asthma. The decoction of the bark relieves cough. In addition, the infusion of the flowers and bark with toasted <i>naranja</i> peel or as a homemade remedy are expectorant. Moreover, an expectorant syrup is prepared as a homemade remedy with <i>níspero</i> leaves, <i>chañar</i> bark, <i>quimpe</i> , honey, and <i>limón</i> .
<i>Medicago sativa</i> L. (GJM 1531)	alfalfa, alfa	The consumption of tender alfa is prescribed as an aphrodisiac. The infusion of tender alfa or its consumption in salads is used for prostate conditions. Tender alfa water is prescribed for its slimming properties.
<i>Phaseolus vulgaris</i> L.	poroto boca negra o poroto blanco	A poultice is prepared with a <i>coco</i> leaf, <i>poroto blanco o boca negra</i> , and egg (it gets a hard texture) to apply when there is fluid, or the knees or elbows are swollen. Furthermore, for fractures, patches of <i>porotos</i> with eggs are prepared.
<i>Prosopis nigra</i> (Griseb.) Hieron. var. <i>nigra</i> (GJM 1166)	algarrobos	A fresh drink is prepared by making an infusion with its ground fruits and setting it aside for cooling; the resulting preparation provides great "vitality" and energy. For venereal conditions, a milled paste is applied as a cream of <i>mistol</i> and <i>algarrobo</i> leaves. The resin or "droplet" that comes out when the <i>algarrobo</i> tree is axed is applied to treat eye conditions.
<i>Prosopis strombulifera</i> (Lam.) Benth. var. <i>strombulifera</i> (GJM 34)	mastuerzo	An infusion of the root is drunk to treat diarrhea. An infusion is prepared with <i>guaycurú</i> to treat asthma.

(Contd...)

Table 1: (Continued)

Family Species (Voucher)	Vernacular name	Recipes
<i>Senna cf. aphylla</i> (Cav.) H.S. Irwin & Barneby	<i>Retama</i>	It is used as a tonic and for blood conditions.
<i>Senna corymbosa</i> (Lam.) H.S. Irwin & Barneby (GJM 1396)	<i>sen</i>	The infusion of its leaves is drunk for upset stomachs. The infusion of 2 or 3 leaves of <i>sen</i> with 3 drops of <i>limón</i> is a good laxative and is used to treat upset stomachs..
<i>Senna morongii</i> (Britton) H.S. Irwin & Barneby (GJM 1392)	café del zorro	Washes with water and salt are applied to treat wounds and injuries and relieve foot and hand conditions. The leaves help normalize pressure in the head, which relieves dizziness.
<i>Vachellia aroma</i> (Gillies ex Hook. & Arn.) Seigler & Ebinger (GJM 1298)	tusquilla, algarrobilla, tusca	<i>Tusca</i> water is used for the treatment of pimples. It is applied in washes with <i>llantén</i> to heal ulcers, varicose veins and treat pimples. An informant from Ancasti highlights the properties of <i>tusca</i> as follows: "A man had cut both legs due to diabetes and had brought him with oceans of pus and infection. The old man boiled <i>tusca</i> , strained it and put it on the legs, and it sucked his infection. The doctor couldn't explain how he had been healed." In relation to its use, they have also told him that it is a secant and that is why it affects the kidneys, so, it is not recommended for eating, but only for external use. It is drunk alone for cough or with honey. An informant from Santa Gertrudis provides the following recipe: The <i>algarrobilla</i> is used on the embers, it is ground and boiled with food and honey <i>laurel</i> , with <i>naranja</i> peel. It is considered a fresh plant, which, as an infusion and in sitz baths with <i>malva</i> , relieves female inflammations. A decoction or infusion with <i>mate</i> is prepared in water with <i>tusca</i> leaves to treat acidity. It is taken for stomach wounds; it is a natural disinfectant. The infusion of its segments is drunk as an antidiabetic. The infusion of its segments is taken as a purifier. The decoction in washes is applied for eye conditions. Taking sitz baths or drinking an infusion with it helps to urinate and relieves cystitis. The decoction of its leaves is applied in sitz baths to relieve inflammation of the lower belly. The infusion of <i>tusca</i> leaves is used for dermal purposes. A decoction or <i>tusca</i> water and dry pig fat (the result looks like a soap or rubber) is prepared and applied in insect bites. The decoction of <i>tusca</i> leaves disinfects and relieves tick bites. The water of <i>tusca</i> leaves is used for the treatment of pimples. The decoction of its leaves is used as a disinfectant and healer; it also applied to the feet and legs for burning and blemishes. An informant combined white soap, with <i>tusca</i> water and pharmacy ointment to treat blemishes and burning in legs. The decoction of its leaves is used to treat gallstones. The decoction of its leaves alone or in <i>mate</i> is used to treat gastritis. A <i>llatén</i> and <i>tusca</i> mixture relieves intestinal infections, since they are an antibiotic. It works very well as a natural disinfectant; some twigs are boiled and then drunk for stomach wounds. A remedy with <i>tusca</i> , <i>sauce</i> and <i>molle de beber</i> is prepared for headaches. <i>Malva</i> and <i>jarilla</i> is added to deflate bruises or bumps.
Not collected Cfr. <i>Senegalia praecox</i> GENTIANACEAE	garabato blanco	Ground pieces of garbato blanco bark is applied as a healer.
<i>Gentianella multicaulis</i> (Gillies ex Griseb.) Fabris ILLICIAEAE	<i>nencia</i>	As an infusion, it is prescribed for the liver and diabetes.
<i>Illicium verum</i> Hook. F. JUGLANDACEAE	anís estrellado	As an infusion, it is a carminative.
<i>Juglans australis</i> Griseb. (GJM 1046)	nogal, nogal cimarrón	The decoction of its leaves is used in washes for hair treatment. Mate with peeled walnuts is drunk for a couple of days to boost milk production; chicken fat is also applied to cure infections.
<i>Juglans regia</i> L. LAMIACEAE	nogal	The intake of walnuts is a memory booster. The infusion of the fruit bark is used to treat diabetes. The decoction of its leaves and fruits is used to treat greasy hair and cover gray hair.
<i>Clinopodium nepeta</i> (L.) (GJM 1364)	Kuntze menta peperina	It is drunk as a fresh beverage, in tea or <i>mate</i> to relieve gastritis. The infusion of its leaves is drunk in <i>mate</i> as a digestive. The infusion of <i>peperina</i> , <i>menta</i> and <i>ortiga</i> is consumed as a sedative. As an infusion, it is a digestive. Craftspeople prepare composite yerba with <i>naranja</i> peel, <i>poleo</i> , <i>palo amarillo</i> and <i>burrito</i> .

(Contd...)

Table 1: (Continued)

Family Species (Voucher)	Vernacular name	Recipes
<i>Hedeoma multiflora</i> Benth. (GJM 1257)	tomillo	As an infusion, it is considered an aphrodisiac. It is prescribed as an infusion for menstrual cramps and bleeding. For cases of influenza, a tomillo tea is prescribed.
<i>Lavandula</i> spp.	alhucema	With mate, it has a good flavor and is used as a digestive. A pillow to rest is prepared for headaches. An infusion of <i>doradilla</i> and <i>alhucema</i> is prescribed for menstrual cramps and bleeding; also, to relieve the belly infections of pregnant women when they sit on something hot. Children are bathed when they get ill with the "air."
<i>Leonurus japonicus</i> Houtt. (GJM 1443)	marihuaniilla	A cigarette is rolled with the dry leaf and smoked by perfuming the inside of the ear three times; the ear is then covered with a piece of cotton.
<i>Marrubium vulgare</i> L. (GJM 1026)	malva de sapo, marrrubio	Some residents report that, due to the similarity of its leaves with those of <i>marijuana</i> , it can be used as a substitute. An infusion of the plant is applied in washes with vinegar to fight against lice. It is ingested as an infusion to treat diabetes.
<i>Melissa officinalis</i> L. (GJM 1395)	toronjil, melisa	A decoction with its leaves and roasted sugar is prepared and drunk for liver infections. They are recommended for drinkers. As an infusion, it is used as an antidepressant. The decoction is applied in washes to treat the effects of the "air."
<i>Mentha</i> sp.	yerba buena	The infusion of its leaves is drunk for heart problems, palpitations and tachycardia. It is prepared as an infusion or in decoction to relieve headaches. For insomnia and the heart, the infusion of its leaves is drunk without sugar.
<i>Mentha</i> spp. (GJM 1042, 919,954)	menta	As an infusion or in mate, it is a digestive; it can be combined with <i>burro</i> , <i>menta</i> , <i>toronjil</i> , <i>ruda</i> and <i>poleo</i> .
<i>Ocimum basilicum</i> L.	albahaca	An infusion of its leaves is prescribed as a sedative, alone or in combination with peperina and ortiga. In decoction with <i>yerba de pollo</i> root, <i>menta</i> leaves and <i>malva</i> leaves, it is used for constipation. As an infusion with <i>burro</i> , <i>toronjil</i> , <i>poleo</i> and <i>ruda macho</i> , it works as digestive. Also, with <i>menta</i> . It is a sedative.
<i>Origanum vulgare</i> L.	orégano	An albahaca seed is applied in a beaten eye or with "clouds;" the cloud clears, and the seed comes out white. The mouth is rinsed out with salt and orégano to treat oral conditions. To relieve belly infections, it is consumed as an infusion only, or with a paico or ruda. A diet of chicken soup with orégano is prescribed for an appropriate postpartum recovery. In decoction with <i>hinojo</i> , it is drunk to relieve menstrual cramps; also, to release the retained placenta. A tea with <i>orégano</i> , <i>apio</i> , <i>té de burro</i> , and <i>poleo</i> is prepared "correct" the stomach. Also, to relieve intestinal infections with <i>hinojo</i> , <i>orégano</i> and <i>apio</i> . An <i>orégano</i> tea is prepared in cases of fever; 3 sips of soup are taken.
<i>Plectranthus</i> sp. (GJM 1520)	sertal, buscapina	As an infusion or as a fresh beverage, it used for liver conditions.
<i>Rosmarinus officinalis</i> L.	romero	<i>Yerba mate</i> , <i>romero</i> and beeswax (Plebeia molesta) are used with it for perfuming in the case of measles. For cases of confinement (the placenta is not eliminated,) a homemade remedy with <i>poleo</i> , <i>paico</i> , <i>romero</i> and toasted <i>cilantro</i> seeds is prescribed. Children are bathed with ruda and romero water, so that they don't get "aired," thus, preventing diseases. As an infusion with <i>apio</i> and <i>paico</i> , it is taken as a blood purifier. The infusion is a digestive. To relieve stomach discomfort when they catch "steams." Its infusion is taken as a sedative. Macerated in wine, it is a stimulator, makes individuals perspire, is uplifting and helps to recover from flu states. A mixture of wine, <i>limón</i> and <i>romero</i> that is "hot" is prepared; it makes individuals perspire and relieves their colds. It also gets people drunk. Another recipe says that boiling romero in red wine relieves the flu. The maceration in alcohol of pita and romero leaves is used to treat rheumatism. The decoction is applied in warm baths for body aches; the steam is stepped on when it comes to foot pain. With a piece of <i>alcanfor</i> , it is applied with a cotton on the ear. Also, as a perfume with romero and alcanfor, or alcafor and romerillo. Aguardiente liquor, alcanfor bread, <i>ruda</i> and <i>romero</i> are mixed; this is then stored in glass bottles and applied in frictions in cases of facial paralysis; this relieves the "airs." It is also perfumed with pig manure. In alcohol, seven things are prepared to make frictions: <i>ruda</i> , <i>alcanfor</i> , <i>romero</i> , aspirin, <i>aloe vera</i> , among others.
<i>Salvia hispanica</i> L.	chía	The seeds are used to treat cholesterol. This plant is purchased in stores.

(Contd...)

Table 1: (Continued)

Family Species (Voucher)	Vernacular name	Recipes
<i>Salvia microphylla</i> Kunth (GJM 1051)	fernet, coramina, coronaria	The infusion of its leaves is prescribed for hypertension. The leaves are used in mate for heart conditions. The name of the plant is derived from the belief that the commercial remedy known as Coramina is extracted from this plant. The infusion is used as a digestive and a hepatic agent.
<i>Salvia officinalis</i> L. (GJM 1503)	boldo de jardín	As an infusion with <i>carqueja pispa</i> , it relieves bone pain. As an infusion, it is a digestive. It is drunk in a tea as a hepatic agent. People believe that it is the same species that comes milled in tea bags (<i>Peumus boldus</i>)
LAURACEAE		
<i>Cinnamomum verum</i> J.Presl	canela	Milk with <i>canela</i> bark is prescribed for whooping cough. Additionally, for neonates' phlegm, it is prepared with a burned coal in sugar. Milk with <i>canela</i> is prepared and drunk hot, so as to not come down with measles; it can also be combined with granada husk or with a ruda leaf. For measles, a tea with canela is prescribed, and using pig manure and champa fruit from a growing stream with it for perfuming are also prescribed
<i>Laurus nobilis</i> L.	laurel de cocina	The infusion regularizes pressure. The decoction of its leaves with honey is drunk to treat asthma. A decoction of milk with <i>laurel</i> is prepared to relieve coughing. Moreover, a decoction with the <i>algarrobilla</i> fruit on the embers and ground is prepared with a <i>laurel</i> leaf and honey with <i>naranja</i> peel.
<i>Persea americana</i> Mill.	palta	The decoction of <i>palta</i> leaves is drunk to relieve vertigo. Boiled avocado leaf water is prepared and mixed with a paste made with toasted flour. This preparation stops diarrhea and serves to relieve dysentery and bloody diarrhea.
LILIACEAE		
<i>Aloe</i> spp.	aloe, aloe vera	Its mucilage is used to heal canker sores and mouth sores. For toothaches, a piece of the leaf is applied on the affected site. In alcohol, seven things are prepared to make frictions, relieve flu and "joint pain:" <i>ruda</i> , <i>alcanfor</i> , <i>romero</i> , aspirin, <i>aloe vera</i> , among others. The leaves are applied to relieve bumps. Also, for the "joint pain" with the mixed used to treat the flu. A smoothie is prepared with its mucilage and honey to treat gallstones. A smoothie of the leaf with honey or a maceration of the leaf in water is prepared during the night, and they is drunk for liver conditions. Its leaves are ingested for the stomach and even for cancer. <i>Aloe vera</i> is added to mate for the injured stomach, or the mucilage is ingested (there are two kinds: one with a narrow leaf, and the other with a pink flower.) They are spread on varicose legs are to produce relief. It is made into a smoothie for kidney conditions. The leaves are applied topically for pruritus. The topical application of the leaves is used to treat skin fungi. Its leaves are applied topically for dermal purposes. Its leaves are applied to treat skin blemishes. See recipe for mixed cream in jarilla. A smoothie with honey is prepared for healing in cases of burns. Aloe that grows in the shade, not in the sun, should be used.
LINACEAE		
<i>Linum usitatissimum</i> L.	lino	For intestinal parasites, an anthelmintic mixture of 50 g of clavo de olor and 200 g of mixed lino seeds is prepared, and a tablespoon of tea in water or milk is ingested. The infusion of lino seeds is used as a laxative.
LOASACEAE		
<i>Caiophora lateritia</i> Klotzsch (GJM 1317)	ortiga, rupa chico guiador, ortiga guiadora	A decoction of the aerial part is drunk to relieve varicose veins. The decoction is used in washes to boost hair growth and softness. The skin is "punished" to relieve rheumatic hand pain. It is taken with water as a sedative to treat nervousness.
LORANTHACEAE		
<i>Ligaria cuneifolia</i> (Ruiz & Pav.) Tiegh. (GJM 1283)	liga chañar, Iliga de tala, liga	It is taken as an infusion or decoction of its aerial part and works as a diuretic to treat hypertension. A liga poultice is prepared, and a porous patch is also applied for cases of fractures. The decoction of its leaves is drunk to fight against varicose veins. The infusion is taken as a blood purifier. It is considered to have the property of "slimming" the blood and boosting circulation, which decreases cholesterol. The liga del tala is good for regularizing blood pressure. It can be combined with <i>molle</i> and <i>sombra de toro</i> leaves. It is ground in a mortar and applied as a poultice for fractures.

(Contd...)

Table 1: (Continued)

Family Species (Voucher)	Vernacular name	Recipes
<i>Struthanthus uraguensis</i> (Hook. & Arn.) G. Don (GJM 1241)	liga	The infusion is drunk to regularize blood pressure.
LYTHRACEAE		
<i>Heimia salicifolia</i> (Kunth) Link (GJM 855)	arupaco, quiebraarado	The infusion of the root is drunk as an antidiarrheal. The decoction of the root is drunk as a fresh beverage for diabetes, either alone or in combination with <i>uña de vaca</i> and <i>níspero</i> leaves. With ground and toasted roots, an infusion is prepared for diarrhea. For the same purpose, a tea is prepared with its root and milk, and some flour is added. Its root is incinerated with <i>granada</i> husk and some flour, and a decoction is prepared for diarrhea.
<i>Punica granatum</i> L.	granada	A tea is prescribed for profuse gynecologic hemorrhages. Boiled milk with <i>canela</i> and <i>granada</i> husk is drunk for measles. The <i>granada</i> peel husk is prepared in milk or is toasted with flour as an antidiarrheal. It is also prepared in a decoction with <i>terebinto</i> leaves and burnt sugar in coals.
MALVACEAE		
<i>Althaea officinalis</i> L.	altea	The <i>altea</i> ointment relieves abdominal pains.
<i>Ceiba chodatii</i> (Hassl.) Ravenna (GJM 1192)	palo borracho	The infused flowers are drunk for heart conditions.
<i>Sphaeralcea bonariensis</i> (Cav.) Griseb. (GJM 854)	malva, malva blanca	Enemas are prepared with <i>malva</i> in boiled water, oil or milk, and also in sitz baths for constipation. To treat mouth sores and ulcers, malva water washes are applied. For constipation, an enema made from a decoction of malva blanca with vegetable oil is applied. A decoction of 3 <i>malva</i> buds, 3 <i>tala</i> shoots, and 3 <i>vid</i> tendrils is prepared to treat diarrhea. An enema with vegetable oil is applied for cases of bloody diarrhea. In decoction with quiyocisa, it is used in washes for eye conditions. The decoction of <i>menta</i> , <i>malva</i> and <i>yerba de pollo</i> root is used for constipation. The infusion of its leaves is used to relieve fever. The decoction of its leaves is drunk for prostate conditions. The malva root is used as an infusion or on the embers to deflate the lower belly and urinary tract, when infections occur due to the heat that make it difficult to urinate. It is considered to be a plant with "a lot of mystery" or healing power; and thus, it is used in doses of three elements or parts. It is applied in sitz baths to deflate the belly, with root and/or leaf washes. For bowel pain, constipation and infections. In mystery: <i>chamico</i> , <i>hinojo</i> and <i>malva</i> are boiled, and twigs are added; it is prepared for a sitz bath when a child's body temperature rises (because he/she has sat on very hot ground.) It can also be combined with membrillo or paico leaves. Water is drunk to relieve gas. The leaves are boiled in water, and 1/2 liters of milk are added to treat the upset stomachs. To deflate the stomach, a segment is prepared in 1 liter of water, then it is set aside, strained and drunk fresh. A kind of chuño of malva is prepared by boiling the malva root with milk to give to the children. Water sitz baths are applied with 20-liter containers for pregnancy care, as an antispasmodic. A midwife from Santa Gertrudis, would prescribe neonates <i>tala</i> and <i>malva</i> water with honeycomb or queyita to get rid of the phlegm that could have been accumulated in the airways. The decoction of its leaves is drunk to relieve menstrual cramps. It is applied in sitz baths to treat female infections. In sitz baths, to relieve the "heat in your behind" and hemorrhoids; either alone or with <i>hediondilla</i> . A cataplasm of <i>malva</i> leaves is applied on the forehead and head to relieve headaches. With <i>jarilla</i> and <i>tusca</i> , for bruises or bumps.
MELIACEAE		

(Contd...)

Table 1: (Continued)

Family Species (Voucher)	Vernacular name	Recipes
<i>Melia azedarach</i> L.	paraíso	<p>Its fruits are used in washes for treating dandruff and seborrhea.</p> <p>Its fruits are used in washes to relieve headaches.</p> <p>Inhaling a decoction of the fruits, so that colds and sinusitis “ripen” and improve, is prescribed. Eleven dried fruits and 30 seconds of steam inhalation twice a day are prescribed. Despite this, it is considered a risky practice due to the toxicity of the fruit.</p> <p>Roasted dried fruits are prepared with honey and <i>canela</i>, which are then drunk in small quantities as a vermifuge.</p> <p>The decoction of its fruits is used in washes to treat fleas.</p> <p>The decoction of its fruits is used in washes to treat pediculosis. Additionally, a maceration in alcohol can also be employed.</p>
MONIMIACEAE		
<i>Peumus boldus</i> Molina	boldo	The commercial preparation is drunk as a tea to relieve vomiting.
MORACEAE		
<i>Ficus carica</i> L. (GJM 1100)	Higuera, higuera blanca, Higuera negra	<p>In cases of asthma, coffee with chicken fat and dried figs on an empty stomach for three days is prescribed.</p> <p>Eating dried figs in water during the morning on an empty stomach for constipation is prescribed.</p> <p>The <i>higuera</i> grabs the “air;” one takes the air from the stream or plants such as the higuera. The <i>higuera</i> is annoying for some individuals, especially the city slickers who do not know about it.</p> <p>A decoction with its leaves is prepared and toasted and well dried flour is added until it is kind of thick; it should be done with the big higo blanco, not the cuello one.</p> <p>The water of <i>higuera</i> leaves and <i>lechuga</i> leaves are combined to regulate blood pressure.</p> <p>A fresh decoction of its leaves is drunk as a fresh beverage to treat diabetes. For the same purpose, it is prepared as an infusion with malfato leaves or pezuña de vaca leaves.</p> <p>It is used in ritual cure to treat umbilical herniation. This is done by curing the trail on the bark of the higuera negra, marking it with a knife, and hanging it on top of a bonfire; when it dries, it means that the navel “was tucked in,” and the hernia healed.</p> <p>A fig is cut and put in the pocket to cure hemorrhoids.</p> <p>A fig, sugar and honey syrup is prepared and taken on an empty stomach every day to relieve asthma symptoms.</p>
MYRTACEAE		
<i>Eucalyptus</i> sp.	eucalipto	<p>The steam of its leaves is inhaled as an antiasthmatic agent.</p> <p>Steam from its boiled leaves is inhaled as a decongestant. Steam from the round-leaf <i>silver eucalyptus</i> (<i>E. cinerea</i>) is preferred.</p>
<i>Syzygium aromaticum</i> (L.) Merr. & L.M.Perry	clavo de olor	<p>For intestinal parasites, an anthelmintic mixture of 50 g of <i>clavo de olor</i> and 200 g of mixed <i>lino</i> seeds is prepared, and a tablespoon of tea in water or milk is ingested.</p> <p>A <i>clavo de olor</i> is bitten to relieve tooth aches.</p>
NYCTAGINACEAE		
<i>Bougainvillea stipitata</i> Griseb (GJM 896)	espinillo	A tea with <i>incayuyo</i> , <i>salvia de la Puna</i> , <i>vira vira</i> , and <i>espinillo</i> is prepared for liver conditions.
OLEACEAE		
<i>Olea europaea</i> L.	olivo	<p>The infusion of its leaves is drunk to treat nervousness.</p> <p>An infusion of 3 to 7 olive leaves is used to treat high blood pressure; it should not be used excessively because it is strong.</p>
OXALIDACEAE		
<i>Oxalis conorrhiza</i> Jacq. (GJM 1258)	vinagrillo	It is put on the teeth to whiten them; it tastes sour.
PAPAVERACEAE		
<i>Argemone subfusiformis</i> G.B. Ownbey (GJM 903)	cardosanto	<p>The boiled root is used for washes in order to relieve molle or quebracho “stings.”</p> <p>A decoction of its seeds is applied as washes to relieve eye conditions.</p> <p>The infusion of its leaves is used for the blood to “slim,” so, it is likely to have cholesterol-lowering effects.</p> <p>Latex is applied in poison or insect and spider bites, as an alexiteric and anti-inflammatory. It is also boiled in water for the poison or irritation in the baby’s butt.</p>
PASSIFLORACEAE		
<i>Passiflora caerulea</i> L.	pasionaria	The infusion of its leaves regularizes blood pressure imbalances.
PHYTOLACCACEAE		
<i>Petiveria alliacea</i> L. var. <i>alliacea</i> (GJM 1423)	calauchín	A <i>calauchín</i> leaf is rolled up and placed in the ear canal for ear pain.
PINACEAE		
<i>Pinus</i> sp.	pino	The <i>pino</i> shoot (brachyblast) boiled with wine is drunk to treat coughing.

(Contd...)

Table 1: (Continued)

Family Species (Voucher)	Vernacular name	Recipes
PIPERACEAE <i>Piper nigrum</i> L.	pimienta	Is applied topically to the woman's chest to wean children.
PLANTAGINACEAE <i>Plantago major</i> L.	llantén	To relieve menstrual cramps, an infusion of llantén leaves is prescribed. The decoction of its leaves is drunk for female infections. Washes with a maceration in alcohol made of <i>romero</i> , <i>llantén</i> , <i>aloe</i> , <i>ruda</i> , aspirin, and <i>alcanfor</i> (seven things or herbs in total) are applied to relieve pain from ankle strains or sprains. Also, for foot pains. It is combined with tusca water and applied in washes to heal ulcers. It can also be applied as a poultice. It is recommended to drink wide-leaf <i>llantén</i> as a fresh beverage (in decoction) to relieve fever. The leaves are applied in warm oil to relieve infections or insect bites. Warm leaves are applied to treat pimples and boils, which relieves inflammation; also, for pimples from eruptive diseases. It is also used in decoction with tusca leaves. It is applied in cataplasms with altea ointment to treat mumps. An infusion of 3-4 leaves in gargles for a sore throat is applied. It is also prepared with hot water, limón and baking soda. It is applied in infections such as canker sores. As an infusion, it is good for the stomach, either alone or with <i>sombra de toro</i> . As an infusion, it is used for gastritis. It is applied in sitz baths to relieve hemorrhoids. A <i>llantén</i> and <i>tusca</i> mixture relieves intestinal infections, since it works as an antibiotic.
<i>Plantago</i> sp. POACEAE <i>Avena sativa</i> L.	llantén peludito avena	For cases of constipation, "avena water" is prescribed. An informant recalls a cream of <i>jarilla</i> , <i>aloe vera</i> , <i>avena</i> , olive oil and beeswax that craftspeople made to treat skin blemishes.
<i>Cymbopogon citratus</i> (DC.) Stapf	cedrón pasto	As an infusion, it is prescribed for heart conditions.
<i>Cynodon dactylon</i> (L.) Pers. <i>Jarava ichu</i> Ruiz & Pav. var. <i>ichu</i> (NDJE 2316)	gramilla paja de techar	As an infusion, either alone or with yerba mate, it is a digestive. The infusion or decoction of its root is taken as a purifier to treat kidney conditions and stones. A neckless for snake bites is applied.
<i>Jarava leptostachya</i> (Griseb.) F. Rojas (NDJE 2305)	paja fina	Some <i>paja</i> is applied on the snake bite.
<i>Oryza sativa</i> L.	arroz	The boiled root is applied for hair care and growth Rice water is prescribed for diarrhea. Rice water or raw rice is consumed to treat gastritis.
<i>Saccharum officinarum</i> L.	caña de azúcar	Symbolic use: A <i>caña de azúcar</i> is placed under the diabetic's mattress, and, as it dries, the person heals, and the blood sugar level is reduced Its thorns are the cause of warts.
<i>Setaria macrostachya</i> Kunth (NDJE 2264)	Cadillo	
<i>Sorghum halepense</i> (L.) Pers. (GJM 1170)	pasto ruso	As an infusion, it helps with deliveries and to overcome postpartum hemorrhages.
Cfr. <i>Arundo donax</i> L. (GJM 1481)	caña de cañaveral	Ashes are applied in areas affected by eczema. An infusion of the root is used as an alexiteric to counteract snake bites. The decoction of <i>caña</i> roots is used in washes to treat alopecia. The <i>caña</i> is split, an "inner cap" is taken out, and set aside to dry as an adhesive that is applied as a healer and for the treatment of burns.
<i>Zea mays</i> L.	maíz	In a mazamorra dish with water, it is used to boost breast milk production. Symbolic action: Three <i>maíz</i> kernels are applied to warts, and 3 signs of the cross are made; the kernels are tied in a handkerchief and thrown backwards without turning; the person who picks up the handkerchief will get warts. It is also customary to thrust the tip of the grain into the warts by marking a cross, and then throwing the fruit at a crossroads. Infusion with corn silk is used to lower blood pressure. An infusion of <i>poleo</i> , corn silk, and <i>cola de caballo</i> is prepared to deflate the abdomen. The infusion of the corn silk is used as a diuretic. Nine grains of boiled red <i>maíz</i> in 1 liter of water are prescribed to treat pneumonia.
POLYGONACEAE <i>Rheum</i> sp.	ruibarbo	The decoction of its leaves is taken as a decongestant.
PTERIDACEAE <i>Adiantum lorentzii</i> Hieron. (GJM 1376)	helecho palo negro, negrillo	It is toxic and dangerous to health; the effects are not well known.
RANUNCULACEAE <i>Clematis montevidensis</i> Spreng. var. <i>denticulata</i> (Vell.) Bacigalupo (GJM 1233)	barba de chivo	The perfumed flower is used to relieve earaches. The perfumed flower for when the eyes are tearful or when they burn. To treat odontalgia, a liana is tied around the hand, and this produces blisters, which relieve the toothache. However, it should not be used in large quantities.

(Contd...)

Table 1: (Continued)

Family Species (Voucher)	Vernacular name	Recipes
RHAMNACEAE		
<i>Colletia spinosissima</i> J.F. Gmel.tola, tola tola (NDJE 2007)		Antiseptic against ant bites The decoction of its aerial part is applied in head washes for good hair quality and for treating dandruff and alopecia.
<i>Ziziphus mistol</i> Griseb. (GJM 944)	mistol	Its fruits ground with the seed in boiled and then strained water are ingested as a refreshing and energizing drink. It is also prepared by boiling it with milk. It is considered to work well for sight, bones, and intelligence ("it wakes up the mind.") For venereal conditions, a milled paste is applied as a cream of <i>mistol</i> and <i>algarrobo</i> leaves.
ROSACEAE		
<i>Cydonia oblonga</i> Miller (GJM 1101)	membrillo	In water, to lower cholesterol In water, to treat uric acid The infusion of its leaves with malva leaves or root is used to deflate the intestine. A tea with membrillo leaves is prepared, and toasted flour is added. A mixture of 3 herbs is prepared: <i>membrillo</i> , <i>piscoyuyo</i> , and <i>molle pispo</i> . It can also be prepared as an infusion with <i>membrillo</i> and <i>níspero</i> leaves. As a "mystery," 3 <i>membrillo</i> leaves and 3 <i>álamo</i> leaves are mixed.
<i>Eriobotrya japonica</i> (Thunb.) Lindl.	níspero	The infusion of its leaves with those of <i>uña de vaca</i> and <i>quiebraarado</i> root is used for diabetes. An infusion of <i>membrillo</i> leaves and <i>níspero</i> is combined for diarrhea. They can also be used alone. The infusion of its leaves as a syrup with burnt sugar is used as a cough suppressant. With the same use, it is combined with <i>higuera negra</i> leaves or with <i>salvia blanca</i> leaves. Moreover, an expectorant syrup is prepared as a homemade remedy with <i>níspero</i> leaves, <i>chañar</i> bark, <i>quimpe</i> , honey, and <i>limón</i> .
<i>Malus domestica</i> Borkh.	manzano	Apple intake is a memory booster. The infusion of its inflorescences is used for children as sedatives.
<i>Prunus domestica</i> L. <i>Prunus persica</i> (L.) Batsch	ciruela durazno, durazno amarillo	The ciruela compote has laxative effects. In particular, the <i>durazno amarillo</i> leaf is used. It is hepatic and relieves the stomach, especially in cases of hangovers. A bitter water is prepared with the leaves, which are drunk for headaches due to excess wine. An infusion with its leaves alone or with <i>manzanilla amarga</i> or <i>boliviana</i> leaves is prescribed for flatulence. A leaf tea is drunk for relief when you have drunk alcohol. The infusion of the leaves is drunk for heart conditions.
<i>Rosa</i> sp. <i>Rosa</i> sp.	rosa de jardín rosa de octubre	An infusion of these flowers is used to treat hypertension. The decoction of its flower is a carminative. A <i>rosa de octubre</i> petal tea (it only blooms once) is indicated as a digestive for babies.
RUTACEAE		
<i>Citrus reticulata</i> Blanco	mandarino	The decoction in tea or <i>mate</i> , or the fruit peel is taken as a sedative. Some informants remember that, when someone died, they would make mandarino tea cups to sedate the mourners in the wake. Its leaves are used in <i>mate</i> for sharp pains in the heart.
<i>Citrus × aurantium</i> L.	naranja amargo	The infusion of its leaves is used for heart conditions. The zest of its peel dissolved in water is used in washes to stop hair loss. Washes with its juice are applied to treat dandruff. The craftspeople would make composite yerba with <i>poleo</i> , <i>burrito</i> and <i>peperina</i> .
<i>Citrus × limon</i> (L.) Burm.f.	limón	Warm <i>limón</i> is rubbed as a poultice in areas with joint pain. It is boiled with salt and vinegar, and set aside to cool; it is then applied with pieces of cloth on the back, throat and chest to relieve fever. It can also be used with <i>ruda</i> leaves. Its juice is considered to have slimming properties. It is prescribed with baking soda for flatulence. Three drops with 2 or 3 leaves of <i>sen</i> are drunk for cases of constipation. It is squeezed, and 3 eggs are then covered with the juice; the preparation moves on an empty stomach, and the bitter liquid that comes from the dissolution of the eggshell is drunk. Its juice is also prescribed on an empty stomach for 7 seven days, or with honey to dissolve gallstones. The craftspeople prepare a deodorant and repellent cream with baking soda, beeswax, <i>clavo de olor</i> and <i>limón</i> peel. To relieve sore throats, gargles with its juice, baking soda or swarm honey are made. Its seed is applied on the face to relieve toothaches. The incinerated seed is applied in the ear canal to relieve ear pain. A mixture of wine, <i>limón</i> and <i>romero</i> that is "hot" is prepared; it makes individuals perspire and relieves their colds. It also gets people drunk. With honey, it is a cold decongestant. Its leaves in <i>mate</i> are a digestive.

(Contd...)

Table 1: (Continued)

Family Species (Voucher)	Vernacular name	Recipes
<i>Citrus x sinensis</i> Osbeck	naranja	For constipation, <i>naranja</i> juice is drunk on an empty stomach alone or with honey. In a digestive mixture of composite yerba with <i>poleo</i> , <i>té de burro</i> , <i>peperina</i> and <i>palo amarillo</i> . For bronchial conditions, a honey syrup with toasted naranja peel and a <i>jarilla</i> sprig is prepared. As an infusion with <i>quimpe</i> , or with flowers and <i>chañar</i> bark, it is taken as a cough suppressant. With <i>cebolla</i> peel and toasted <i>naranja</i> peel. It is also prepared as an infusion with burnt sugar in coals and honey.
<i>Ruta chalepensis</i> L. (GJM 1383)	ruda	Ruda and <i>vira vira</i> washes are applied for the treatment of hives. The infusion of <i>ruda</i> leaves prescribed for painful menstrual periods. Children are bathed with <i>ruda</i> and <i>romero water</i> , so that they don't get "aired," thus, preventing diseases. For sprains, a paste of ground goat fat, Pez de Castilla (a stone) and <i>ruda</i> is prepared and applied as a cataplasm. In alcohol, seven things are prepared to make frictions: <i>ruda</i> , <i>alcanfor</i> , <i>romero</i> , aspirin, <i>aloe vera</i> , among others. It relieves the flu as well as joint and leg pains. A leaf of <i>ruda</i> in milk is combined with <i>canela</i> , which is drunk to treat measles. It is used in cloths with <i>limón</i> , salt and vinegar to relieve fever. The plant is rubbed with the hands to relieve foot and bone pain affected by the "air." It is also applied with salt and wrapped in paper burying in embers, to remove and wrap the joints. A small piece of <i>ruda</i> is applied for tooth decay. Mate or tea with milk, <i>ruda</i> and burnt sugar are digestive and preventive, and are recommended for the month of August. It can be combined in tea with <i>paico</i> . With <i>orégano</i> , it is used for cases of infections. The infusion of its leaves on an empty stomach is drunk for liver conditions and headaches. A segment is put on the embers and placed in the mouth to treat canker sores and mouth sores. Its leaves are applied on the embers by rubbing them to take out the "air" that causes ear pain. A leaf is also wrapped in cotton that is dry or moistened with alcohol and placed in the ear canal. In other cases, its combination with <i>alcanfor</i> is prescribed. Aguardiente liquor, alcanfor bread, <i>ruda</i> and <i>romero</i> are mixed; this is then stored in glass bottles and applied in frictions in cases of facial paralysis; this relieves the "airs." It is also perfumed with pig manure.
<i>Zanthoxylum coco</i> Gillies ex Hook. f. & Arn. (GJM 1266)	coco	An informant reports that the infusion of its leaves has antimalarial properties. Its leaves are placed under the beds to scare away fleas. The bitter decoction of branches and leaves is used in washes to eliminate lice. A poultice is prepared with a <i>coco</i> leaf, <i>poroto blanco o boca negra</i> , and egg (it gets a hard texture) to apply when there is fluid, or the knees or elbows are swollen. The decoction of its segments is used for hand and feet washing with very hot water to relieve rheumatism.
SALICACEAE		
<i>Populus deltoides</i> W. Bartram ex Marshall	álamo, álamo plateado	The infusion of its bark with salt is used to rinse the mouth out and make gargles for throat conditions. To treat diarrhea, a "mystery" infusion is prepared with three <i>álamo</i> leaves and three <i>membrillo</i> leaves
<i>Salix humboldtiana</i> Willd. (GJM 929)	sauce, sauce llorón	It is applied in washes to relieve leg pains. The infusion of its bark is drunk for headaches. Alone or combined with tusca and molle de beber The decoction of its leaves in washings deflates varicose veins. The decoction of its leaves is used in washes for dandruff and seborrhea. The boiled leaf in water is applied in the hair to fight against hair loss.
SCHIZAEACEAE		
<i>Anemia tomentosa</i> (Savigny) Sw. var. <i>anthriscifolia</i> (Schr.) Mickel (GJM 1374)	doradilla	In decoction with tramontana, it relieves body aches. An infusion of <i>doradilla</i> alone or with <i>alhucema</i> , or with <i>alcanfor</i> , relieves menstrual cramps. The infusion of its fronds is drunk to relieve postpartum discomfort. The infusion of its fronds boosts blood circulation. The infusion of its fronds is blood purifying. The decoction of its fronds is drunk so that the blood "slims." The infusion of its fronds is a hepatic agent. The infusion of its fronds is a digestive.
SCROPHULARIACEAE		
<i>Buddleja mendozensis</i> Gillies ex Benth. (GJM 1273)	salvia blanca	The infusion of its leaves whets the appetite. The leaves are used in tea with burnt sugar or honey for coughing. Alone or in combination with <i>molle de beber</i> and <i>naranja</i> peel with toasted sugar. Also combined with <i>níspero</i> leaves or <i>cebolla</i> peel and <i>limón</i> peel.

(Contd...)

Table 1: (Continued)

Family Species (Voucher)	Vernacular name	Recipes
SOLANACEAE		
<i>Capsicum annuum</i> L.	pimentón, pimienta	The ground pimentón in cotton stops nosebleeds. The commercial preparation of the fruit of ground pimentón is applied to stop bleeding.
<i>Capsicum</i> sp.	ají	It is ground and then applied on the nipple to foster weaning.
<i>Cestrum parqui</i> L'Hér. (GJM 864)	hediondilla	Its leaves are applied in poultices on the temples to relieve headaches. Its leaves are placed under the beds to scare away fleas. To relieve stomach ache caused by heat, hediondilla (fresh plant) is applied with cold water in sitz baths. It is used as a venous anti-inflammatory to relieve leg pain. Clothes are washed with a soap made with hediondilla to treat hemorrhoids and as a skin healer. The leaf of this plant is also applied in underwear and the anus. Its leaves are placed under the hat or on the neck to provide protect against sun poisoning. It is also applied in poultices with white soap. Hediondilla water in sitz baths relieves urinary infections caused by scalds and irritations in the behind. A segment is used in the hat to provide protection against sun poisoning, or a poultice is prepared. Since it is fresh, "four leaves are put between the underwear and the buttocks to avoid the heat of the saddle and steam;" with iguana fat, it "sucks the dirt" from pimples and boils; it relieves itching caused by the sun heat. A segment is also used in the hat and on the saddles to take out heat. It is applied in pimples from eruptive diseases (measles.) Boil the leaves, then in water with salt, wash the burns. When the eyesight hurts, a leaf is applied in the eye region. In sitz baths, to "dissipate infections", the "internal fever that oozes" and relieve hemorrhoids. When the eyesight hurts, a leaf is applied in the eye region. In sitz baths, to "dissipate infections", the "internal fever that oozes" and relieve hemorrhoids.
<i>Datura ferox</i> L. (GJM 1048)	chamico	A cigar is rolled with the leaf and flower and then smoked for the treatment of asthma. Sitz baths for bowel pain and infections. In mystery: <i>chamico</i> , <i>hinojo</i> and <i>malva</i> are boiled, and twigs are added; it is prepared for a sitz bath when a child's body temperature rises (because he/she has sat on very hot ground.) The combination of <i>chamico</i> , <i>hinojo</i> and <i>apio</i> is also indicated (it is added at the end to the decoction by squeezing some raw leaves.)
<i>Lycium cestroides</i> Schltld. (GJM 1060)	picoyuyo, piscoyuyo	It is used to treat infections.
<i>Nicotiana glauca</i> Graham (GJM 923)	palán, palán-palán	It is applied in a cataplasm for headaches. For emergency fractures, it is reported that a poultice of ground palán with chicken fat and sheep manure, then wrapped up in a cloth, was made. The fever is relieved by applying palán leaves on the forehead. The leaves are used to "fix the legs" and apply as them a fresh cataplasm on varicose veins. It is also useful for infections or heat in the feet, for which its leaves are applied in oil and placed in the socks to hold them. To treat mumps, a leaf of <i>palán</i> with chicken fat is applied and then wrapped in a handkerchief. In cases of conjunctivitis or bumps in the eyes or cheekbones, a piece of leaf moistened in saliva is applied around the eyes. For the treatment of ulcers and sores, its leaves lightly roasted in chicken fat are applied. The leaves are applied to the head when there is sun poisoning, since they are considered a fresh plant. The leaves are applied to dry pimples and boils; alone or with oil, ash, iguana or ampalagua fat, or a tallow candle. It is used to relieve infected pimples and wounds and eruptive diseases. An informant recounts how he could take out a <i>piquillín</i> thorn with <i>palán</i> leaves in hot water and altea ointment. The infusion is used in washes as a pediculicide. Its ash is applied to heal canker sores and mouth sores. A cream with white soap, cigar tabaco and sugar is prepared to treat pimples.
<i>Nicotiana tabacum</i> L.	tabaco	Some slices of the fruit are applied for sunburns.
<i>Solanum lycopersicum</i> L.	tomate	<i>Tomate</i> puree is placed on the chest to generate apprehension and foster weaning of the child.
<i>Solanum tuberosum</i> L. <i>Vassobia breviflora</i> (Sendtn.) Hunz. (GJM 926)	papa piscoyuyo	Some papa slices with salt are placed on both sides of the temple to relieve headaches. It relieves sores; when they turn red or hurt, the leaves are put in chicken or iguana fat, are lightly roasted, and then put as a cataplasm in the skin as hot as possible. A mixture of 3 plants is prepared: a <i>membrillo</i> bud, <i>piscoyuyo</i> and a <i>molle pispo</i> bud to treat diarrhea. To stop diarrhea, a tea is made with a little piece of it, and <i>membrillo</i> can also be added.

(Contd...)

Table 1: (Continued)

Family Species (Voucher)	Vernacular name	Recipes
THEACEAE <i>Camellia sinensis</i> (L.) Kuntze	té	Its infusion is antidiarrheal Washes with it relieves eye conditions.
TILIACEAE <i>Tilia</i> sp.	tilo	An infusion with <i>manzanilla</i> and flower bracts of tilo is prepared to remove fat. The infusion of the flower bracts is a sedative. It is purchased in pharmacies.
URTICACEAE <i>Urtica circularis</i> (Hicken) Sorarú (GJM 1314)	rupachico, ortiga	The infusion of its leaves is taken as a decongestant. The infusion of its leaves is drunk for its circulatory properties. The infusion is drunk for coughing. A decoction with the leaves is prepared to wash the feet when they are sore. Water decoction is used in washes to relieve varicose veins. It is applied to prevent hair loss.
<i>Urtica urens</i> L. (GJM 1315)	ortiga	The skin is "punished" in order to treat rheumatic hand pain. As an infusion with <i>menta</i> and <i>peperina</i> , it is used as a sedative. The root infusion is used for alopecia. The craftspeople prepare it as an infusion or as part of composite yerba; it is used as a purifier.
VERBENACEAE <i>Aloysia citriodora</i> Palau (GJM 1429)	cedrón, cedrón del campo	Its infusion is prescribed with <i>menta</i> as a postpartum sedative. The leaves in tea or mate are digestive. It is drunk as an infusion as a sedative.
<i>Aloysia gratissima</i> (Gillies & Hook.)	palo amarillo, poleo del campo	As an infusion, it is very good for the heart, palpitations, discomfort and decay. <i>Palo amarillo</i> is used for perfuming to treat measles. The <i>palo amarillo</i> water is considered an antibiotic and healer for pimples. As an infusion with <i>poleo</i> , it is used to relieve vomiting. The infusion of <i>palo amarillo</i> , <i>paico</i> and <i>té de burro</i> is a laxative and relieves upset stomachs. Digestive, purgative. The craftspeople make composite yerba with <i>peperina</i> , <i>burrito</i> , <i>poleo</i> and <i>naranja peel</i> .
<i>Aloysia polystachya</i> (Griseb.) Moldenke (GJM 1224)	burrito, té de burro, poleo	The infusion of <i>palo amarillo</i> , <i>paico</i> and <i>té de burro</i> is a laxative and relieves upset stomachs. The infusion of its leaves is drunk to treat vomiting. Its infusion is used for digestive and hepatic conditions (from consuming alcohol.) The decoction of its aerial part is used to relieve belly pain.
<i>Glandularia peruviana</i> (L.) Small (GJM 857 A)	sangre de Cristo	
<i>Lippia alba</i> (Mill.) N.E. Br. ex Britton & P. Wilson (GJM 1379)	salvia lora	The infusion of its leaves is prescribed for heart conditions. A tea with <i>molle sonso</i> , <i>manzanilla</i> and <i>salvia lora</i> is prescribed in case of vomiting. As an infusion, for heart conditions As an infusion, it has digestive properties. A decoction or infusion with mate is prepared in water with tusca leaves to treat acidity.
<i>Lippia integrifolia</i> (Griseb.) Hieron.	incayuyo	A tea with <i>incayuyo</i> , <i>salvia de la Puna</i> , <i>vira vira</i> , and <i>espinillo</i> (not <i>V. caven</i>) is prepared for liver conditions. As an infusion (tea or mate,) it is a digestive. The pilgrims from Santiago del Estero carry it with them a lot, when they come to see the Virgin of the Valley in December.
<i>Lippia turbinata</i> Griseb. (GJM 1241)	poleo	Circulatory stimulant As an infusion, with <i>molle de beber</i> and <i>sombra de toro</i> , it boosts blood circulation. For cases of confinement (the placenta is not eliminated,) a homemade remedy with <i>poleo</i> , <i>paico</i> , <i>romero</i> and toasted <i>cilantro</i> seeds is prescribed. As an infusion, it has slimming properties, either alone or in combination with corn silk and <i>cola de caballo</i> , which are diuretics that soften the abdomen. As an infusion, it is an antidiarrheal. As an infusion with <i>palo amarillo</i> and with a little coal in sugar, it is used to relieve vomiting. It is used as a digestive in mate or in the elaboration of craft composite yerba. Its infusion can be drunk with <i>burro</i> , <i>menta</i> , <i>toronjil</i> , <i>ruda macho</i> and <i>yerba buena</i> . As a tea with <i>orégano</i> , <i>apio</i> and <i>burro</i> .
<i>Verbena intermedia</i> Gillies & Hook. ex Hook. (GJM 917)	cuadrado	For prostate cancer
VISCACEAE <i>Phoradendron liga</i> (Gillies ex Hook. & Arn.) Eichler (GJM 1036)	liga pispita	It is used in decoction to treat hypertension. For the circulation of blood and varicose veins
VITACEAE <i>Cissampelos tweediana</i> (Baker) Griseb.	viña del zorro	In case of snake bites, the tuber is tied or "linked" in the affected area so that the poison does not penetrate. The tuber is used to treat cholesterol. The tuber in water is used to treat diabetes. A decoction as aguapasto of the root or grated tuber is drunk to deflate the prostate.

(Contd...)

Table 1: (Continued)

Family Species (Voucher)	Vernacular name	Recipes
<i>Vitis vinifera</i> L. (GJM 1480)	vid, uva, parra	Raisins or green uvas are ingested to treat constipation. A decoction of 3 <i>malva</i> buds, 3 <i>tala</i> shoots, and 3 <i>vid</i> tendrils is prepared to treat diarrhea. A tea of its leaves and stems is prepared to treat high blood pressure. The raisins fried in oil are applied hot to dry pimples. For the same purpose, raisins are used in cataplasms with sugar. Its leaves are applied with vinegar to relieve fever. Midwives prescribed a leaf tea to speed up a delivery when it was full-term.
ZYGOPHYLLACEAE		
<i>Larrea divaricata</i> Cav. (GJM 1218)	jarilla	It is prescribed as an infusion in baths to treat hemorrhoids. A decoction is applied to treat varicose veins. A bitter tea of jarilla is uplifting. An informant recalls a cream of <i>jarilla</i> , <i>aloe vera</i> , <i>avena</i> , olive oil and beeswax that craftspeople made to treat skin blemishes. An infusion of the aerial part is applied in washes to treat fungi and perspiration in the feet. An infusion of its leaves is prepared and used as eye drops for eye conditions. Gargles are made with the infusion to relieve sore throats. A soft infusion (a little bud in a cup) is prepared; it is then covered, and 1 or 2 grains of salt are added; after that, it is strained. A few sips should be taken for a cold to improve. It is used as a flu medicine and to fight colds. For colds, water steam with jarilla or water baths with <i>jarilla</i> (which is warm) are usually used for fresh conditions. As an infusion, with 2 grains of salt, it can be drunk or used to make gargles for coughing. As an infusion with salt, it is drunk for pneumonia and lung conditions, preferably on an empty stomach. For bronchial conditions, a honey syrup with toasted naranja peel and a jarilla sprig is prepared. Washes are applied to relieve foot pain and improve circulation. In cases of strains or fractures, a cataplasm of ground <i>jarilla</i> with Pez de Castilla (a stone bought in herbal stores) and egg white is applied so that the air dries. With malva and tusca, or in decoction with salt, for bruises, bumps, strains or sprains. With <i>terebinto</i> , hot poultices are prepared to treat strains and sprains. Stems and leaves are used in an infusion for gallbladder treatment.
<i>Porlieria microphylla</i> (Baill.) Descole, O'Donnell & Lourteig (GJM 934)	caspicuchara, frutilla negra, monte crespo, pan de cata	
UNDETERMINED SPECIES		
Undetermined; not collected	apio del campo	They are applied to treat infections.
Undetermined; Not collected	chachacoma	The infusion is drunk as anti-asthmatic.
Undetermined	helecho macho	The infusion or decoction in water is applied to treat parasites.
Undetermined; Not collected	muña, muña-muña	It is used to treat nerves. To treat digestive conditions To purify the blood and treat swelling of the legs Aphrodisiac properties are attributed. It is used to treat colds. It grows towards the west in the Puna region.
Undetermined; Not collected	orejita del agua	Leaves in cataplasms
Undetermined; Not collected	paja	Smelling its root is prescribed to avoid or relieve the symptoms of mountain sickness.
Undetermined; Not collected	penquita	Parts of it are peeled and broken and then applied in the region of a viper bite.
Undetermined; Not collected	romerillo, pichanilla	Smelling it works well for mountain sickness.
Undetermined; Not collected	romerillo, pichanilla	Smelling it works well for mountain sickness.
Undetermined; Not collected	salvia muña	As an infusion, it is used for liver conditions.
Undetermined; Not collected	salvia de la Puna	It is a creeping herb that grows on the ground. It is used for blood conditions. A tea with <i>incayuyo</i> , <i>salvia de la Puna</i> , <i>vira vira</i> , and <i>espinillo</i> is prepared for liver conditions. <i>Salvia de la Puna</i> grows on the hills of Singuil, Humaya, and El Rodeo, in the Ambato region.
Undetermined; Not collected	suma, papa de Orazú, yaco	The root is chewed as a stimulant to relieve tiredness. The root is chewed as an anesthetic; it is "yummy and a little salty" and "buffers" the tongue.
Undetermined; Not collected	tres caras; tres cantos	The aerial part of the plant is boiled and drunk for prostate conditions.
Undetermined; Not collected	uña de gato	Circulatory stimulant
Undetermined; Not collected	vira vira	<i>Ruda</i> and <i>vira vira</i> washes are applied for the treatment of hives. A tea with <i>incayuyo</i> , <i>salvia de la Puna</i> , <i>vira vira</i> , and <i>espinillo</i> (not <i>V. caven</i>) is prepared for liver conditions.
Undetermined; Not collected	yerba de San Nicolás	It relieves heavy menstrual periods and postpartum bleeding.

(Contd...)

Table 1: (Continued)

Family Species (Voucher)	Vernacular name	Recipes
Undetermined; Not collected	zarzaparilla	<p>The infusion is drunk for muscle and joint pains.</p> <p>It is used in the treatment of urinary infections.</p> <p>It is used for cases of painful menstrual periods.</p> <p>It is used as an oxytocic.</p> <p>It is applied to treat varicose veins.</p> <p>In fresh decoction with cola de caballo and sombra de toro, it is drunk to boost blood circulation.</p> <p>The infusion of its leaves is drunk to decrease uric acid levels.</p> <p>The leaf and root in an infusion is blood purifying and has an impact on the "fat blood," and uric acid decreases. To treat "minor urine" or difficulty urinating.</p>

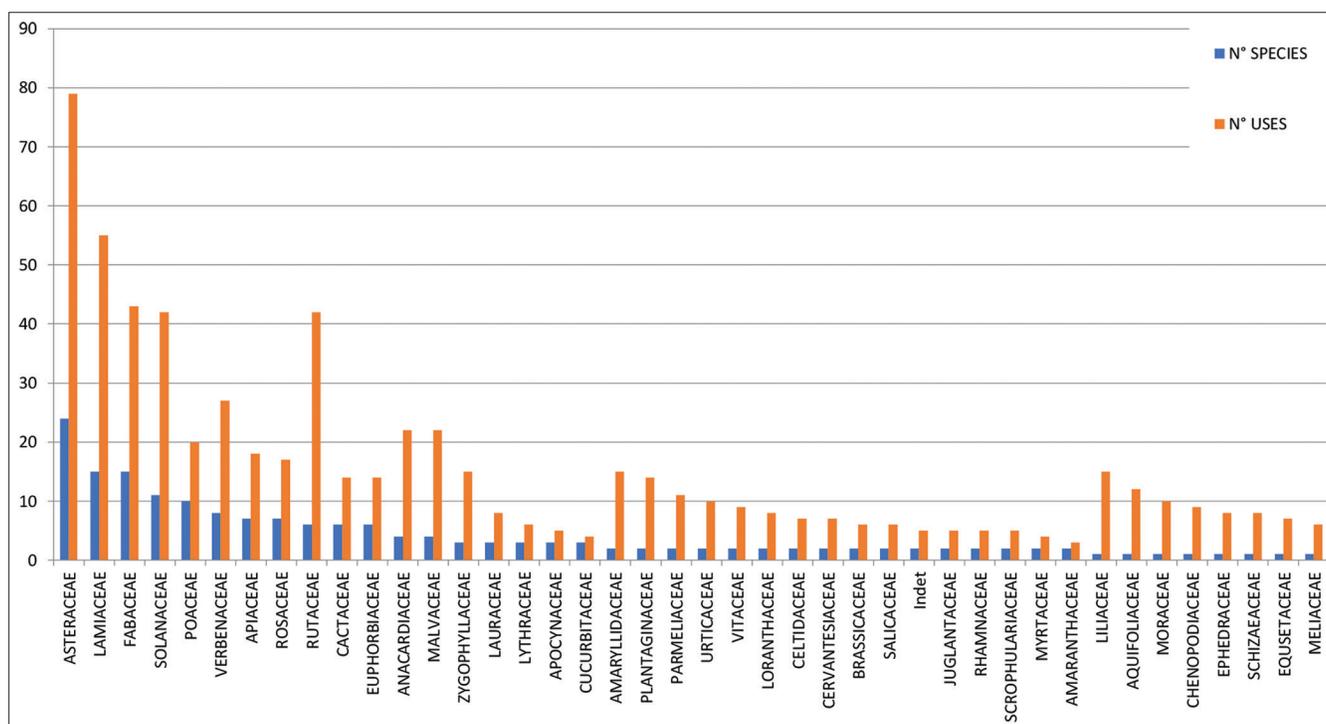


Figure 2: Arrangement of botanical families based on the number of species and medicinal uses

Lamiaceae (15 spp./55 uses), *Solanaceae* (11 spp./41 uses), *Poaceae* (10 spp./20 uses), and *Verbenaceae* (8 spp./27 uses). These findings were in consistence with previous reports in other parts of the world (Tabuti *et al.*, 2003; Bolson *et al.*, 2014; Kadir *et al.*, 2014). Regarding the composition of the most numerous families in number of species, there is a coincidence with other natural pharmacopoeias reviewed for other countries and continents of the world (Moerman *et al.*, 1999), accounting for the abundance of biodiversity (e.g. *Asteraceae* and *Fabaceae*) and the presence of active principles in these families (e.g. *Lamiaceae* and *Solanaceae*). The dominance of *Asteraceae*, *Fabaceae*, and *Lamiaceae* in the local flora facilitates a greater interaction of the local communities with them in the study area (Farooq *et al.*, 2019). This may be due to their wide distribution of plant species belonging to *Asteraceae* (Barboza *et al.*, 2006) and their traditional uses known by the indigenous communities living in different parts of the world. The traditional uses of these groups of plant families are well recognized by local

inhabitants, and many of them have a variety of significant bioactive, pharmacological and organoleptic properties due to their secondary metabolites (Arias Toledo 2006; Arias Toledo *et al.*, 2007, 2010; Lulekal *et al.*, 2008; Martínez 2010; Baydoun *et al.*, 2015; Qaseem *et al.*, 2019).

b) Most relevant species

Figure 3 shows, in a descending order, the species with the greatest numbers of medicinal uses and applications. On the top of the list is *Sphaeralcea bonariensis* (Cav.) Griseb., followed by *Aloe spp.*, *Ruta chalepensis* L., *Rosmarinus officinalis* L., *Vachellia caven* (Molina) Seigler and Ebinger, *Cestrum parqui* L'Hér., *Larrea divaricata* Cav., *Plantago major* L., and *Ilex paraguariensis* A.St.-Hil. The various applications can be seen in the different shades of the bars, with gastroenterological and skin conditions prevailing among the species with the greatest number of uses. Among these species, a large part is

cited as being of pharmaceutical interest due to their active ingredients and, in some cases, as coded in editions of the National Pharmacopoeia (Luján *et al.*, 2011), such as the case of *Matricaria chamomilla* and *Plantago major*, and in other cases, with confirmatory pharmacological studies, such as *Larrea divaricata* (Davicino *et al.*, 2011)

An aspect to highlight in the list of species are those that are used in the region but that could not be documented since they do not grow in the study area, being the main form of acquisition in herbal stores in nearby cities. These are species whose common names coincide with those outlined in other studies carried out in the Puna (Palma, 1973; Pérez de Nucci, 1988) and in the Yungas (Hilgert, 2001; Hilgert and Gil, 2007), such is the case of vira-vira (cfr. *Achyrocline* spp.), yareta (cfr. *Azorella* sp.), muña-muña (cfr. *Clinopodium gilliesii* (Benth.) Kuntze), chachacoma (cfr. *Senecio nutans* Sch. Bip.) and salvia de la Puna (cfr. *Salvia cuspidata* Ruiz and Pav. subsp. *gilliesii* (Benth.) J.R.I. Wood.). Despite the low relative frequency of citations, these similarities highlight the contact of the herbalism and the criollo population of Ancasti with that of the native peoples of the Puna and the Yungas. Likewise, there are also other species in common use in the Yungas (Hilgert, 2001) and in Ancasti, mainly exotic species, that are part of many other pharmacopoeias in central Argentina and other Latin American regions. For instance, we can mention species such as *Citrus* spp., *Cydonia oblonga* Miller, *Ruta chalepensis*, *Eucalyptus*

sp., *Foeniculum vulgare* Mill., *Ilex paraguariensis*, *Matricaria chamomilla* L., *Melissa officinalis* L., *Aloysia citriodora* Palau, *Punica granatum* L., *Prunus persica* (L.) Batsch, *Rosmarinus officinalis*, *Tanacetum vulgare* L., among other. On the contrary, most of the list make up a pharmacopoeia with a large number of exclusive recipes for the region, which gives it originality and accounts for the autonomy of the inhabitants to manage their own medicinal resources.

Relative Importance

Table 2 shows the species with values above the mean plus a standard deviation ($23 + 19 = 42$) of their RI. The RI of plant species is a useful parameter to measure their versatility. The RI index, which considers the total pharmacological properties attributed (PH) and body systems or health areas involved (BS) in the use of medicines, the plant arrangement listed in Table 2, again highlights some species that stand out for their number of uses: *Sphaeralcea bonaeriensis*, *Rosmarinus officinalis*, *Vachellia caven*, *Cestrum parqui*, *Aloe* spp., *Ruta chalepensis*, *Larrea divaricata*, *Ilex paraguariensis* and *Plantago major*. However, this type of versatile analysis highlights other species rarely referred to in the previous studies, as in the case of *Lithraea molleoides* and *Ficus carica*.

Plants with the highest RI indicate that they are more versatile and used primarily by the inhabitants in the area, that they

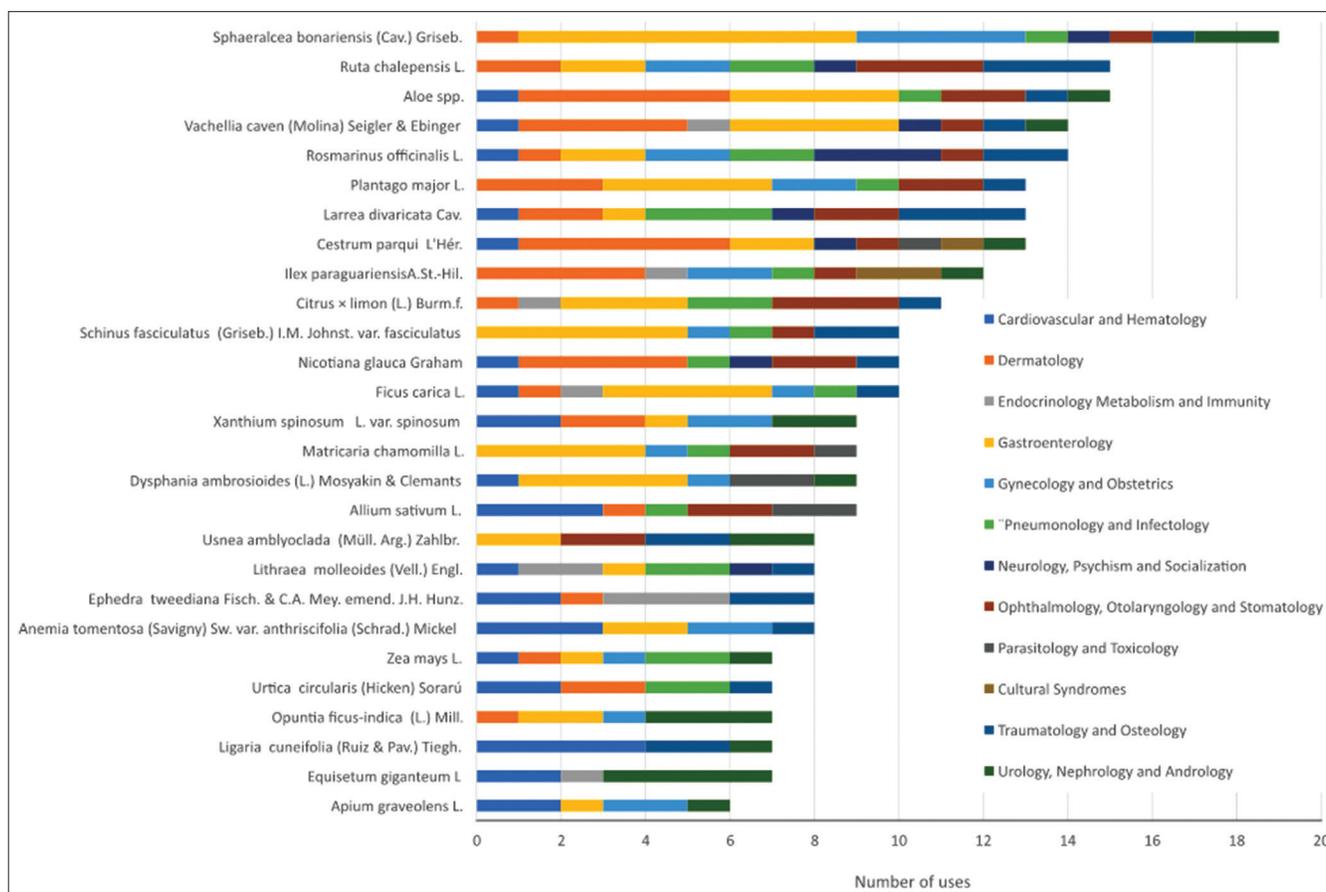


Figure 3: Species with higher amounts of medicinal uses and applications

Table 2: Species with RI values above the mean plus a standard deviation (23 + 19 = 42).

	Count BS	Rel BS	Count PH	Rel PH	RI
<i>Sphaeralcea bonariensis</i> (Cav.) Griseb.	8	1,00	19	1,00	100,00
<i>Rosmarinus officinalis</i> L.	8	1,00	14	0,74	86,84
<i>Vachellia caven</i> (Molina) Seigler & Ebinger	8	1,00	14	0,74	86,84
<i>Cestrum parqui</i> L'Hér.	8	1,00	13	0,68	84,21
<i>Aloe</i> spp.	7	0,88	15	0,79	83,22
<i>Ruta chalepensis</i> L.	7	0,88	15	0,79	83,22
<i>Larrea divaricata</i> Cav.	7	0,88	13	0,68	77,96
<i>Ilex paraguariensis</i> A.St.-Hil.	7	0,88	12	0,63	75,33
<i>Plantago major</i> L.	6	0,75	13	0,68	71,71
<i>Ficus carica</i> L.	7	0,88	10	0,53	70,07
<i>Citrus x limon</i> (L.) Burm.f.	6	0,75	11	0,58	66,45
<i>Nicotiana glauca</i> Graham	6	0,75	10	0,53	63,82
<i>Lithraea molleoides</i> (Vell.) Engl.	6	0,75	8	0,42	58,55
<i>Schinus fasciculatus</i> (Griseb.) I.M. Johnston. var. <i>fasciculatus</i>	5	0,63	10	0,53	57,57
<i>Zea mays</i> L.	6	0,75	7	0,37	55,92
<i>Allium sativum</i> L.	5	0,63	9	0,47	54,93
<i>Dysphania ambrosioides</i> (L.) Mosyakin & Clemants	5	0,63	9	0,47	54,93
<i>Matricaria chamomilla</i> L.	5	0,63	9	0,47	54,93
<i>Xanthium spinosum</i> L. var. <i>spinosum</i>	5	0,63	9	0,47	54,93
<i>Artemisia abrotanum</i> L.	5	0,63	6	0,32	47,04
<i>Origanum vulgare</i> L.	5	0,63	6	0,32	47,04
<i>Schkuhria pinnata</i> (Lam.) Kuntze ex Thell.	5	0,63	6	0,32	47,04
<i>Vitis vinifera</i> L.	5	0,63	6	0,32	47,04
<i>Anemia tomentosa</i> (Savigny) Sw. var. <i>anthriscifolia</i> (Schrad.) Mickel	4	0,50	8	0,42	46,05
<i>Ephedra tweediana</i> Fisch. & C.A. Mey. emend. J.H. Hunz.	4	0,50	8	0,42	46,05
<i>Usnea amblyoclada</i> (Müll. Arg.) Zahlbr.	4	0,50	8	0,42	46,05
<i>Opuntia ficus-indica</i> (L.) Mill.	4	0,50	7	0,37	43,42
<i>Urtica circularis</i> (Hicken) Sorarú	4	0,50	7	0,37	43,42

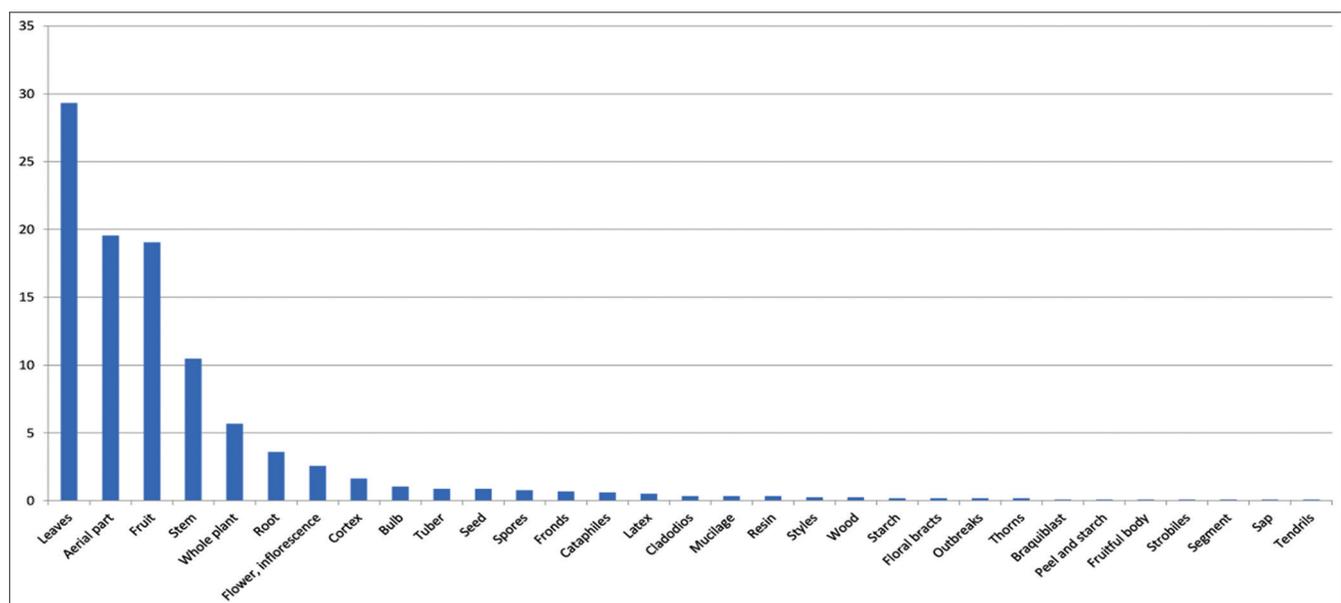
have more powerful pharmacological properties, and that their importance increases when they are used to cure more diseases (Albuquerque *et al.*, 2006).

Life-forms, parts used and way of consumption of the species

Regarding the most relevant life-forms, herbs were leading with a 45.1% contribution, followed by shrubs (25.3%), trees (23.6%), climbers (5.1%), and fungi (0.8%).

Figure 4 shows that the most used parts are leaves (29%), followed by flowering aerial parts (19%), fruits (18%), stems (11%), whole plant (6%), while the contribution of the roots, flowers-inflorescences, and bark is less than 5%; finally, other parts contribute the remaining 12%. In this sense, leaves contain a high concentration of health-beneficial phytochemicals and essential oils, which contribute significantly to phytotherapy or the treatment of various health disorders (Mahmood *et al.*, 2013; Bano *et al.*, 2014). Likewise, roots are rich in bioactive constituents compared to other parts. However, previous studies reveal that most researchers prefer to use leaves to that of roots and cortex because eradicating the latter could lead to more severe problems in the conservation of species. This percentage distribution is similar to that of other studies in which the leaves lead the percentage of parts used in the total of medicinal uses (Martínez 2007, 2008, 2010; Leto *et al.*, 2013).

With respect to the way of consumption, decoction and infusion were the most widely used modes of preparation with a percentage contribution of 68%, followed by direct application (4%), incineration (4%), ground (3%), and maceration in alcohol (2%), respectively; finally, other forty six different way of consumption contribute the remaining 19%. The frequent use of decoction had also been reported previously (Arias Toledo, 2009; Martínez, 2010; Gürdal and Kültür, 2013; Tugume *et al.*, 2016; Luján and Martínez, 2017; Luján *et al.*, 2017; Umair *et al.*, 2019; Farooq

**Figure 4: Percentage of each plant-part in the total of medicinal uses**

et al., 2019). This confirms that the preparation of decoctions is a simple and straightforward form used in herbal preparations with greater health benefits. In decoctions, the effectiveness of medicinal herbs increases due to the thermal extraction of a great number of secondary metabolites beneficial to health and other bioactive components. In the oral administration mode, the plant materials were mainly ingested as a decoction or in infusion form. Oral administration of herbal preparations is usually effective for the treatment of internal ailments, while external ailments (for example, skin, joint, or hemorrhoid conditions) were treated by topical applications, such as poultices, juices and friction. These observations were in agreement with previous reports (Uzun and Kaya, 2016). One aspect to be highlighted is that brief association was found between the mode of preparation and administration and the principle of opposition warm-fresh that, as previously mentioned, is restricted to very few cases.

2) Different body systems

Figure 5 highlights that the greatest numbers of uses and species are intended for applications in the gastroenterology

and cardiovascular medicine and hematology area, followed by skin ailments, which is consistent with the most common applications in other regions of central Argentina where species for use in digestive disorders predominate (Arias Toledo, 2009; Martínez, 2010; Luján and Martínez, 2017; Luján *et al.*, 2017).

Informant Consensus Factor of species and uses per health area

Based on the informant consensus about the medicinal applications in various health areas, Table 3 shows that the greatest flow of shared information and the most defined criteria in the choice of medicinal species among informants are observed in the treatment of gastrointestinal (ICF = 0.44) and skin conditions (ICF = 0.39). The low consensus values (ICF = 0.20) and neurology, psychism and socialization ailments (ICF=0.14) associated with few use reports are indicators of the exclusivity of certain information with a cultural nature, which means that this knowledge is poorly shared or exchanged between informants.

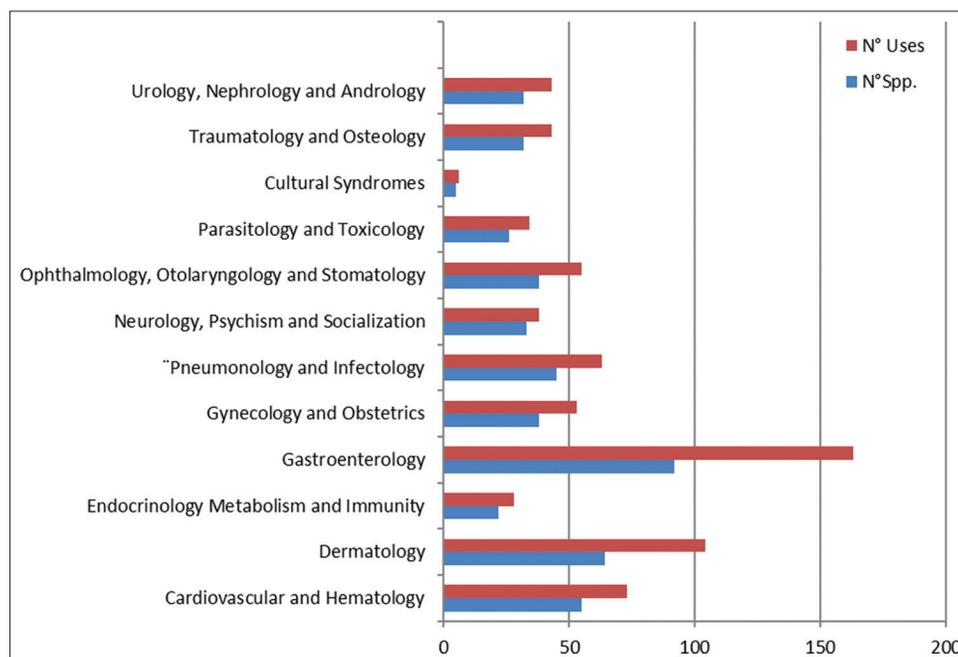


Figure 5: Number of uses and species per category of health area.

Table 3: Arrangement of health areas according to their descending ICF values.

Health area	N° SPECIES	% SPECIES	N° USES	% USES	Ration N° Uses / N° Sp	ICF
Gastroenterology	92	19,09	163	23,19	1,77	0,44
Dermatology	64	13,28	104	14,79	1,63	0,39
Ophthalmology, otolaryngology and stomatology	38	7,88	55	7,82	1,45	0,31
Cardiovascular and hematology	55	11,41	73	10,38	1,33	0,25
Pneumonology and infectology	45	9,34	63	8,96	1,40	0,29
Ginecology and obstetrics	38	7,88	53	7,54	1,39	0,29
Traumatology and osteology	32	6,64	43	6,12	1,34	0,26
Urology, nephrology and andrology	32	6,64	43	6,12	1,34	0,26
Parasitology and toxicology	26	5,39	34	4,84	1,31	0,24
Endocrinology, metabolism and immunity	22	4,56	28	3,98	1,27	0,22
Cultural syndromes	5	1,04	6	0,85	1,20	0,20
Neurology, psychism and socialization	33	6,85	38	5,41	1,15	0,14

CONCLUSIONS

The medicinal flora in Ancasti, Catamarca is highly diverse and was scarcely explored so far; the present article is the first systematic study in this area and describes the use of 214 medicinal plant species as part of the natural pharmacopoeia of its residents. The present study and the indices applied highlight the relevance of medicinal species such as *Sphaeralcea bonariensis*, *Vachellia caven*, *Ruta chalepensis*, *Rosmarinus officinalis*, *Cestrum parqui*, *Aloe* spp., *Plantago major*, *Larrea divaricata*, *Ilex paraguariensis* among other. It is necessary to avoid the extinction of this ethnobotanical heritage through the participation of interested authorities, conservation administrators and the academy. The figure of the healer or traditional practitioner is not central to the treatment and management of specialized diseases and ailments with medicinal plants, rather these are more common in their use in the framework of domestic and homemade medicine or in self-treatment where the application of medicinal plants listed in this article takes place.

An aspect that needs further research is the ethnomedicinal knowledge that underlies the vast list of plants and uses documented here. In this sense, the study of the context of the utilization of these species is promising, for example, the etiology of the ailments, the forms of diagnosis and the therapeutic itineraries. This is so because the local people are bearers of a rich wisdom that could contribute to deepen upcoming studies. Likewise, the variety of the pharmacopoeia of Ancasti and its points of intercultural contact with other regions (Northeast and Central Argentina) make it possible to differentiate exotic (mainly present in gardens) and native wild species collected in situ, from those acquired in markets; its more in-depth study will allow making inferences regarding the impact of its extraction for conservation, especially in the case of those species with higher medicinal importance.

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