

Medicinal plants used in Peru for the treatment of respiratory disorders

Plantas medicinales utilizadas en Perú para el tratamiento de enfermedades respiratorias

Rainer W. Bussmann* and Ashley Glenn

William L. Brown Center, Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166-0299, USA, Office phone: +1-314-577-9503, Fax: +1-314-577-0800.

Email Rainer Bussmann: rainer.bussmann@mobot.org,

*corresponding author

Abstract

Respiratory tract infections continue to be a major health challenge worldwide especially due to the increasingly fast development of resistance to the drugs currently in use. Many plant species are traditionally used for respiratory illness treatment, and some have been investigated for their efficacy with positive results. A total of 91 plant species belonging to 82 genera and 48 families were documented and identified as respiratory system herbal remedies in Northern Peru. Most species used were Asteraceae (15 species, 16.67%), followed by Lamiaceae and Fabaceae (8.89% and 5.56%). The majority of respiratory disorder herbal preparations were prepared from the leaves of plants (27.69%), while the whole plant (18.46%), flowers (13.85%) and stems (17.69%) were used less frequently. In almost 55% of the cases fresh plant material was used to prepare remedies. About 86% of the remedies were applied orally, while the remaining ones were applied topically. Over half of all remedies were prepared as mixtures of multiple ingredients. Almost 50% of the plants found in the respiratory pharmacopoeia of Northern Peru, or their congeners have been studied for their medicinal properties. The results of this study show that both indigenous and introduced species are used for the treatment of respiratory system disorders. The information gained on frequently used traditional remedies might give some leads for future targets for further analysis in order to develop new drugs.

Keywords: Ethnobotany, traditional medicine, Peru, bronchitis, pneumonia, cold, cough, tuberculosis.

Resumen

Las infecciones del sistema respiratorio continúan siendo un desafío en sistemas de salud, en particular porque ellas desarrollan resistencia a los antibióticos más usados. Varias plantas medicinales son utilizadas en sistemas tradicionales de salud para el tratamiento de enfermedades respiratorias, incluso algunas de ellas han sido investigadas para verificar su eficacia. En este estudio registramos 91 especies de plantas de 82 géneros y 48 familias, utilizadas como medicina para el sistema respiratorio. Las especies más usadas pertenecieron a la familia Asteraceae (15 especies, 16,67%), seguido por Lamiaceae y Fabaceae (8,89% y 5,56%). En los preparados para problemas respiratorios se utilizaron con más frecuencia hojas de plantas (27,69%), seguido de la planta entera (18,46%), flores (13,85%) y tallos (17,69%). En el 55% de los preparados se utilizó material fresco, y el 86% de los preparados se administraron por vía oral, y más de la mitad fueron preparados como mezclas de diferentes especies. Casi el 50% de las plantas que se encuentran en la farmacopea respiratoria del norte del Perú, o de sus congéneres, ya han sido estudiados por sus propiedades medicinales. Los resultados de este estudio muestran que se usan especies introducidas y nativas, y que la información obtenida de los remedios tradicionales utilizados puede contribuir al desarrollo de medicamentos nuevos.

Palabras claves: Etnobotánica, medicina tradicional, Perú, bronquitis, neumonía, resfrió, tos, tuberculosis.

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Introduction

The WHO reports that respiratory illnesses are of high importance as a cause of death and morbidity at a global scale in Peru respiratory problems are a major cause for infant deaths (WHO 2006).

Traditional Medicine is used globally and is rapidly growing in economic importance. In developing countries, Traditional Medicine is often the only accessible and affordable treatment available. The WHO reports that Traditional Medicine is the primary health care system for important percentage of the population in developing countries. In Latin America, the WHO Regional Office for the Americas (AMRO/PAHO) reports that 71% of the population in Chile and 40% of the population in Colombia has used Traditional Medicine. In many Asian countries Traditional Medicine is widely used, even though Western medicine is often readily available. In Japan, 60 – 70% of allopathic doctors prescribe traditional medicines for their patients.

Complementary Alternative Medicine is also becoming more and more popular in many developed countries. Forty-two percent of the population in the US have used Complementary Alternative Medicine at least once (WHO 1998), and a national survey reported the use of at least one of 16 alternative therapies increased from 34% in 1990 to 42% in 1997 (UNCCD 2000).

The number of visits to providers of Complementary Alternative Medicine (CAM) now exceeds by far the number of visits to all primary care physicians in the US (WHO 1999a, 2002b).

The expenses for the use of Traditional and Complementary Alternative Medicine are exponentially growing in many parts of the world. The 1997 out-of-pocket Complementary Alternative Medicine expenditure was estimated at US\$ 2,700 million in the USA. The world market for herbal medicines based on traditional knowledge is now estimated at US\$ 60,000 million (Breevort 1998).

Northern Peru is believed to be the center of the Central Andean Health Axis (Camino 1992), and traditional medicinal practices in this region are still an important component of everyday life (Bussmann & Sharon 2006, Bussmann 2006, De Feo 1992, Joralemon & Sharon 1993, Polia 1988, Sharon 1978, 1980, 1994, 2000, Sharon & Bussmann 2006). Traditional Medicine is also gaining more and more respect by national governments and health providers. Peru's National Program in Complementary Medicine and the Pan American Health Organization recently compared Complementary Medicine to allopathic medicine in clinics and hospitals operating within the Peruvian Social Security System (EsSalud/ Organización Panamericana de Salud 2000). According to WHO (2002b), the sustainable cultivation and harvesting of medicinal species

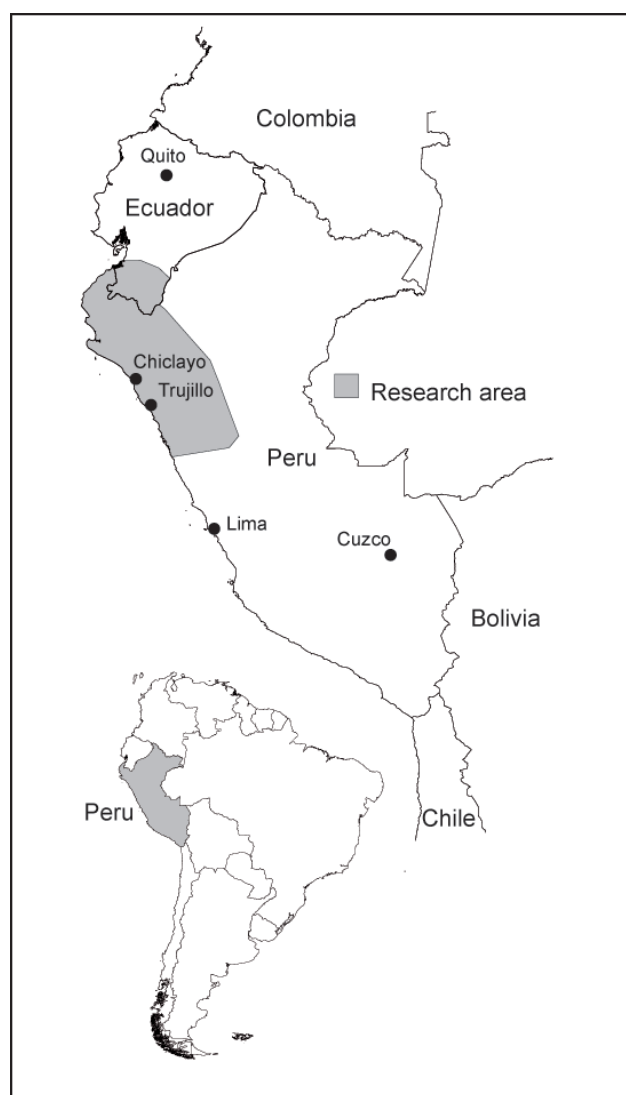


Figure 1. Location of the study area of the medicinal plants used in Peru for the treatment of respiratory disorders.

is one of the most important challenges for the next few years.

The present study attempts to give an overview on medicinal plant species employed in traditional therapies in Northern Peru to treat respiratory problems, and compare this use to the western scientific evidence regarding their efficacy.

Materials and methods

Plant collections

Plants in Peru were collected in the field, in markets, and at the homes of traditional healers (*curanderos*) in Northern Peru (Fig. 1) in August-September 2001, July-August 2002, July-August 2003, June-August 2004, July-August 2005, July-August 2006, June-August 2007, June-August 2008, March-April 2009 and June-August 2009. A total of 116 informants (healers and market venders) in the Trujillo and Chiclayo area were interviewed using structured questionnaires. The informants were always provided with fresh plant material, either collected with them, by them, or available at their market stands. The questionnaires did not include any reference as to disease concepts, plant parts or preparations. In contrast, the participants were only asked simple questions along the lines “What is this plant used for, which part, which quantity, how is it prepared, are any

Table 1. Plants used for respiratory health in Northern Peru

Family	Genera	Species	%
Asteraceae	13	15	16.50
Lamiaceae	6	8	8.80
Fabaceae	5	5	5.50
Verbenaceae	4	4	4.40
Poaceae	3	3	3.30
Liliaceae	2	3	3.30
Solanaceae	2	3	3.30
Anacardiaceae	2	2	2.20
Boraginaceae	2	2	2.20
Brassicaceae	2	2	2.20
Malvaceae	2	2	2.20
Scrophularaceae	2	2	2.20
Ericaceae	1	2	2.20
Piperaceae	1	2	2.20
Plantaginaceae	1	2	2.20
Acanthaceae	1	1	1.10
Amaranthaceae	1	1	1.10
Apiaceae	1	1	1.10
Asphodelaceae	1	1	1.10
Betulaceae	1	1	1.10
Bignoniaceae	1	1	1.10
Burseraceae	1	1	1.10
Capparidaceae	1	1	1.10
Caprifoliaceae	1	1	1.10
Chenopodiaceae	1	1	1.10
Chloranthaceae	1	1	1.10
Convolvulaceae	1	1	1.10
Cyperaceae	1	1	1.10
Dipsacaceae	1	1	1.10
Erythroxylaceae	1	1	1.10
Geraniaceae	1	1	1.10
Juglandaceae	1	1	1.10
Lauraceae	1	1	1.10
Malesherbiaceae	1	1	1.10
Moraceae	1	1	1.10
Myristicaceae	1	1	1.10
Myrtaceae	1	1	1.10
Olacaceae	1	1	1.10
Onagraceae	1	1	1.10
Phytolaccaceae	1	1	1.10
Ranunculaceae	1	1	1.10
Rosaceae	1	1	1.10
Rubiaceae	1	1	1.10
Salicaceae	1	1	1.10
Tiliaceae	1	1	1.10
Ulmaceae	1	1	1.10
Vitaceae	1	1	1.10
Zingiberaceae	1	1	1.10
Non Plant Material	1	1	1.10
TOTAL	82	91	100.10

other plants added to the mixture.” All questions were asked in the same order. All informants were of Mestizo origin, and spoke only Spanish as their native language. The study covered the four existing medicinal plant markets of the region, and included all venders present. All interviews were conducted with the same set of participants. The specimens are registered under the collection series “RBU/PL”, “ISA”, “GER”, “JULS”, “EHCHL”, “VFCHL”, “TRUBH”, and “TRUVANERICA”, depending on the year of fieldwork and collection location. Surveys were conducted in Spanish by fluent speakers. Surveyors would ap-

Table 2. Comparison of respiratory treatments to the ten most important plant families of the medicinal flora of Northern Peru (after Bussmann & Sharon 2006)

Plant used in respiratory treatments		Medicinal Flora of Northern Peru	
Family	%	Family	%
Asteraceae	16.67	Asteraceae	13.64
Fabaceae	5.56	Fabaceae	6.82
Lamiaceae	8.89	Lamiaceae	4.87
Solanaceae	3.33	Solanaceae	4.09
Euphorbiaceae	0	Euphorbiaceae	2.33
Poaceae	3.33	Poaceae	2.33
Apiaceae	1.11	Apiaceae	2.14
Lycopodiaceae	0	Lycopodiaceae	1.95
Cucurbitaceae	0	Cucurbitaceae	1.75
Rosaceae	1.11	Rosaceae	1.75

proach healers, collectors and market vendors and explain the premise for the study, including the goal of conservation of medicinal plants in the area.

Vouchers of all specimens were deposited at the Herbario Truxillensis (HUT, Universidad Nacional de Trujillo), and Herbario Antenor Orrego (HAO, Universidad Privada Antenor Orrego Trujillo). In order to recognize Peru's rights under the Convention on Biological Diversity, most notably with regard to the conservation of genetic resources in the framework of a study treating medicinal plants, the identification of the plant material was conducted entirely in Peru. No plant material was exported in any form whatsoever.

Nomenclature

The nomenclature of plant families, genera, and species follows the catalogue of Brako and Zarucchi (1993) and Jørgensen and León-Yanez (1999). The nomenclature was compared to the TROPICOS database. Species were identified using the available volumes of the Flora of Peru (McBride 1936-1981), as well as Jørgensen & Ulloa Ulloa (1994), Pestalozzi (1998) and Ulloa Ulloa & Jørgensen (1993), and the available volumes of the Flora of Ecuador (Sparre & Harling 1978-2009), and reference material in the herbaria HUT, HAO, QCA, LOJA and QCNE.

Results

A total of 91 plant species belonging to 82 genera and 48 families were documented and identified as respiratory system herbal remedies in Northern Peru. Most species used were Asteraceae (15 species, 16.67%), followed by Lamiaceae and Fabaceae (8.89% and 5.56%). Most other families contributed only one species each to the pharmacopoeia (Table 1). A complete overview of all plants encountered, including data on use-recipes and preparation, is given in Appendix 1. The most important families are clearly similarly well represented in comparison to the overall medicinal flora, although some other medicinally important families (e.g. Euphorbiaceae, Lycopodiaceae, Cucurbitaceae) are completely missing from the respiratory portfolio (Table 2) (Bussmann & Sharon 2006).

The majority of respiratory disorder herbal preparations were prepared from the leaves of plants (27.69%), while the whole plant (18.46%), flowers (13.85%) and stems (17.69%) were used less frequently (Table 3, Bussmann & Sharon 2006). This indicates that the local healers count on a very well developed

Table 3. Part of medicinal plant used in Peru for the treatment of respiratory disorders.

Plant part	%	#
Leaves	27.69	36
Whole plant	18.46	24
Stems	17.69	23
Flowers	13.85	18
Seeds	6.15	8
Bark	5.38	7
Root	2.31	3
Fruit	2.31	3
Wood	1.54	2
Bulb	0.77	1

knowledge about the properties of different plant parts. In almost 55% of the cases fresh plant material was used to prepare remedies, which differs little from the average herbal preparation mode in Northern Peru. About 86% of the remedies were applied orally, while the remaining ones were applied topically. Over half of all remedies were prepared as mixtures of multiple ingredients by boiling plant material either in water or in sugarcane spirit.

Discussion

Respiratory disorders are so common globally, and over-the-counter remedies, both allopathic and complementary, so frequently sold, that much effort has been put into the verification of traditional remedies. Almost 50% of the plants found in the respiratory pharmacopoeia of Northern Peru, or their congeners have been studied for their medicinal properties. The original hypothesis that many species employed for respiratory illnesses would be non-native, introduced to treat diseases that were originally also introduced by colonialists, did not hold however. Quite contrarily, many remedies for respiratory ailments are native to the study area (Bussmann & Sharon 2006). From this perspective it is surprising to see how many species have actually been studied at least preliminarily. Biella et al. (2008) report on the activity in an extract of *Alternanthera*. Braga et al. (2007) worked on *Schinus molle*. Other examples include *Apium graveolens* (Atta & Alkofahni 1998), *Acmella* (Hoeltz et al. 2002), *Clibadium* (Perez-Garcia et al. 2001), *Eupatorium* (Jaric et al. 2007), *Flaveria* (Bardón et al. 2007), *Perezia* (Enríquez et al. 1980), *Senecio* (Uzun et al. 2004), *Tagetes* (Caceres et al. 1991), *Alnus* and *Sambucus* (Turner & Hebda 1990), *Jacaranda* (Gachet & Schühly 2000), *Raphanus* (Ishtiaq et al. 2007), *Cordia* (Molina-Salinas 2007), *Scabiosa* (Abad et al. 1996), *Bursera* (Kumarasamy et al. 2002), *Erythroxylum* (Weil 1978), *Myroxylon* (Linares & Bye 1987), *Prosopis* (Hebbar et al. 2004), *Lanandula* (Hajahashemi et al. 2003; Uzun et al. 2004), *Cinchona* (Rojas et al. 2006), *Juglans* (Cruz-Vega et al. 2008), *Uncaria* (Deharo et al. 2004; Heitzmann et al. 2005), *Cymbopogon* and *Cinnamomum* (Giron et al. 1991; Wannissorn et al. 2005), *Plantago* and *Eucalyptus* (Andrade-Cetto 2008; Rakover et al. 2008), *Malva* and *Alcea* (Carmona et al. 2005), *Dracaena* (Mothana et al. 2006), *Allium* (Petkov 1986; Bielroy 2004; Al-Momani et al. 2007), *Rubus* (Rvra & Obón 1995; Ritch-Krc et al. 1996), *Stachys* (Duarte et al. 2005), *Satureja* (Caceres et al. 1991; Rediç 2007), *Salvia* (Ali-Shatayeh et al. 2000) and *Thymus* (Jariç et al. 2007).

http://sisbib.unmsm.edu.pe/BVRevistas/biologia/biologiaNEW.htm

Conclusions

Respiratory tract infections continue to be a major health challenge worldwide especially due to the increasingly fast development of resistance to the drugs currently in use. Many plant species are traditionally used for respiratory illness treatment, and some have been investigated for their efficacy with positive results. An often-limiting factor to these investigations is lack of comprehensive ethnobotanical data to help choose plant candidates for potency/efficacy tests. Since the plant parts utilized in preparation of remedies are reported in this survey, it serves as an indication of species that may need further ecological assessment on their regeneration status.

The results of this study show that both indigenous and introduced species are used for the treatment of respiratory system disorders. The information gained on frequently used traditional remedies might give some leads for future targets for further analysis in order to develop new drugs. However, more detailed scientific studies are desperately needed to evaluate the efficacy and safety of the remedies employed traditionally.

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Appendix 1. Species encountered and used in Northern Peru for respiratory system disorders.

Family/Genus/Species	Indigenous name	Plant part used	Admin.	Preparation	Use	Coll. #
ACANTHACEAE						
<i>Aphelandra cirsioides</i> Lindau	Espina de hoja	Whole plant, dried	Oral	2 Tbsp with 1 L boiled water, 3 cups per day, 3-4 days.	Bronchitis	ISA40
AMARANTHACEAE						
<i>Alternanthera brasiliana</i> (L.) Kuntze	Hierba del oso, Veronica (Hembra), Moradilla de cerro	Whole plant, fresh or dried	Oral	5-10 g per 1 L water, mix with Muyaca, Huamanripa, Brochamelia. 4 cups per day, 1-2 weeks.	Bronchitis, Asthma	RBU/PL275, JULS11, EHCHL78, ISA83
ANACARDIACEAE						
<i>Mangifera indica</i> L.	Mango	Leaves, dried	Oral	Boil 5 Mango Leaves with 10 Moy Leaves, 10 Eucalyptus Leaves, 5 Stems buds of Pajaro Bobo and 1 Limon (all dried Leaves) in 1l of water for 30 minutes. Drink cold, 2 tablespoons 2 a day for 3 days.	Bronchitis, Colds, Inflammation (chest)	GER49
<i>Schinus molle</i> L.	Molle, Moy	Flowers, Leaves and Stems, fresh	Topical	Macerate material in alcohol and spray on patient at nighttime. Once daily for five days as poultice or rub the patient's body with plant material while bathing in the mixture. Advise the patient to rest and to avoid going outdoors.	Bronchitis, Cough, Cold, Chills	EHCHL123, JULS196, GER13
APIACEAE						
<i>Apium graveolens</i> L.	Apio cimarron, Apio	Whole plant, fresh	Oral	Boil 1 L water, then add 10 g Apio Cimarron. Combine with Manzanilla, Mejorana, and Culantrillo. Drink 4 cups per day for 1 week.	Bronchitis	JULS21, ISA79, ISA116, EHCHL106
ASPHODELACEAE						
<i>Aloe vera</i> (L.) Burm f.	Sabila, Zabila, Aloe, Hojas de sabila, Aloe vera	Leaves, fresh	Oral	1 kg of herb, 1/2 kg of Honey, and three Tbsp of Pisco. Open the leaf longitudinally and extract the iodine secretion and the internal gel from the inside of the leaf. Consume the iodine secretion and the gel. 1-2 cups per day for a week to a month. Leaf can also be macerated in a bottle of alcohol.	Cough, Bronchitis, Asthma	JULS274, GER22, EHCHL165, VFCHL10
ASTERACEAE						
<i>Acmella cf. ciliata</i> (H.B.K.) Cas.	Ufla	Root, dried	Oral	Boil 100 g of Ufla root and 100 g of Menta in 1 L of water for 10 minutes. Patient should drink lukewarm solution. 2 times a day for 3 days.	Cold with high mucus	GER7
<i>Ambrosia peruviana</i> Willd.	Altamisa, Marco, Artamisa, Manzanilla del muerto, Ajenjo, Llatama negra malera, Llatama roja malera	Leaves and Stems, fresh	Oral	Boil 1 L water 2 min, then mix water with a total of 10 g of Manzanilla, Borracha, Madre Selva, Toronjil, Hinojo and Chancas de Comida for nerve disorders. Use Boldo, Malva, and Linaza for liver ailments. Use Matico, Borracha, Eucalipto, Vira vira, and Brochamelia for Bronchitis. Cover and let sit for 2-3 minutes. Drink lukewarm, 3-4 cups a day for a month. Colds: Boil 1/2 L of water with 50 g of Altamisa and 10 g of Sauce, Chicoria, and Pajaro Bobo for 10 minutes. 2 tablespoons every 8 hours for 8 days.	Bronchitis, Colds womb	JULS108, TRUBH18, RBU/PL370, TRUBH15, JULS90, GER9, GER110
<i>Chuireguia weberbaueri</i> Tovar	Amaro amaro	Whole plant, fresh or dried	Oral	Boil 10g in 1 L of water for 3-4 minutes with Eucalyptus, Matico, Mullaca, Muña, Flor de Overo. Take one cup 3-4 times a day for a month.	Cough, Bronchitis, Asthma	JULS99, EHCHL131
<i>Clibadium cf. sylvestre</i> (Aubl.) Baill.	Flor de novia	Flowers, Leaves and Stems, fresh or dried	Topical	1 bundle, 20 drops of perfume per 3 L boiling water. 3 baths per month.	Cold	EHCHL80

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Appendix 1. Continuation.

Family/Genus/Species	Indigenous name	Plant part used	Admin.	Preparation	Use	Coll. #
<i>Cronquistianthus lavandulifolius</i> DC.	Clavelillo, Espino de hoja, Pulmonaria	Flowers, Leaves and Stems, fresh or dried	Oral	Add 10 g of plant material, Matico, Zarzamora, Nogal, Salvia, Borraja, Llatama, Vira Vira. with 1 L of water. Boil the mixture for 3-4 minutes. Drink 1 L daily, 3 months.	Cough, Bronchitis, Cold, Asthma, Pulmonary disease	ISA5, JULS233, GER163
<i>Diplostephium gynoxyoides</i> Cuatr.	Parrano	Flowers, fresh	Oral	Boil 10 Flowers of Parrano and 4 Leaves of Chicoria in 1/2 cup of water for 2 minutes. Patient should drink hot solution. 3 tablespoons 3 times a day for 5 days.	Cold, Inflammation of the lungs	GER5
<i>Eupatorium gayanum</i> Wedd.	Asma Chilca, Asma (Chica)	Leaves, fresh	1. Topical 2. Oral	1. 200 g with Balsamo de Buddha. Use as poultice, 2 times per month. 2. 5 g per 1 L mix with Tilo, Huamanripa, Borraja, Nogal. 4 cups per day, 10 days.	Cough, Bronchitis, Asthma	RBU/PL276, EHCHL164
<i>Flaveria bidentis</i> (L.) Kuntze	Mata Gusano	Flowers, Leaves and Stems, fresh or dried	Oral	Boil 1 L water, then add 10 g Mata Gusano. Drink 3-4 times per day for 1-2 weeks, or as needed.	Cough, Bronchitis	JULS68
<i>Oritrophium peruvianum</i> (Lam.) Cuatrec.	Huamanripa, China linda, Wiña wiña, Vira vira, Hierba del sol, Oronamo, Maguanmarica, Hierba del lucero	Whole plant, fresh or dried	Oral	Add 10 g of plant material per 1 L, boil 3 min. 3 cups per day, as needed. Drink lukewarm.	Asthma, Bronchitis, Pneumonia	JULS58, EHCHL126, TRUBH29, TRUBH26, ISA96, TRUVan/Erica2, GER166
<i>Perezia multiflora</i> (H. & B.) Lessing	Corzonera, Escorcionera, Escorzonera	Whole plant, fresh or dried	Oral	Boil 1 L water, then add 10 g Escorcionera. Combine with Matico, Eucalyptus, Veronica, Vira vira, Nogal, Huamanripa, Tilo and Zarzamora. 3 cups per day for 15 days. Patient should drink cold solution.	Cough, Bronchitis, Asthma	RBU/PL323, JULS16, EHCHL52, GER160
<i>Picosia longifolia</i> D. Don	Achicoria, Chicoria	Whole plant, fresh	Oral	Boil 10-50 g of Chicoria and Verbena, Canchalagua, Chochocon per 1l water, 1l daily, 15-30 days. Alternatively chop and extract juice of 200 g fresh material, drink 1 glass daily, no longer than a week. Overdosing can harm vision.	Bronchitis, Pneumonia	EHCHL116, JULS6, GER21
<i>Senecio canescens</i> (H.B.K.) Cuatrecasas	Vira Vira, Oreja de conejo	Whole plant, fresh	1. Oral 2. Topical	1. 10 g diced herb in boiling water, combine with Borraja, Eucalyptus, Corzonera, Borraja, Cerraja, Polen de Hierbas, Manzanilla, Toronjil, Congona, Poleo, Claveles, Juan Alonso, Espina de hoja, and Alcanfor. Drink 3 cups per day, 1 month. 2. Use same mixture for steam baths and inhalation.	Bronchitis, Asthma, Cough	TRUBH8, JULS14, RBU/PL322, EHCHL104, 24, ISA108, GER158, TRUVan/Erica12,
<i>Senecio tephrosioides</i> Turcz.	Huamanripa, Genciana	Whole plant, fresh	Oral	Boil 1 cup of water, then add 10 g of Huamanripa, combined with Veronica, Vira vira, Brochamelia, and other herbs. Drink 3 cups per day, 15 days.	Bronchitis, Asthma, Pneumonia	JULS12
<i>Tagetes elliptica</i> Sm.	Culantrillo serrano	Whole plant, fresh or dried	Oral	50 g of the plant and 1 cup of water and boil for 5 minutes. Drink cold, 1/4 cup a day for 8 days.	Colds, Bronchitis	GER184

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Appendix 1. Continuation.

Family/Genus/Species	Indigenous name	Plant part used	Admin.	Preparation	Use	Coll. #
<i>Tagetes erecta</i> L.	Flores del muerto, Clavel chino, Flor de muerto	Flowers and Leaves, fresh	Oral	Take 3 to 4 Flowers and boil in 1 L of water along with 10 g of a mixture of Toronjil, Pimpinela, Poleo, Manzanilla. Drink 3 to 4 glasses a day for 1 month.	Cough	EHCHL141, JULS156, GER112
BETULACEAE						
<i>Alnus acuminata</i> H.B.K.	Aliso blanco (Liso), Aliso colorado (Arrugado)	Bark, fresh	Oral	Boil 10 minutes, 2 Tbsp per cup to get the extract, Take 1 Tbsp every 4 hours.	Cold	ISA18, ISA17, RBU/PL292
BIGNONIACEAE						
<i>Jacaranda acutifolia</i> H. & B.	Arabisca, Yarabisca	Leaves and Stems, fresh or dried	Oral	10 g per 1 L boiling water, boil 2-3 min. Drink 3 cups per day, as needed.	Cough, Bronchitis, Asthma, Phlegm	RBU/PL326
BORAGINACEAE						
<i>Borrago officinalis</i> L.	Borraja	Whole plant, fresh or dried	Oral	10 g herb with 1 L boiling water, boiled for 3-5 minutes, combined with Vira Vira. Drink three times per day or 1 L per day, as long as needed.	Bronchitis, Lungs, Cough, Cold	ISA112, JULS24, RBU/PL300, EHCHL58
<i>Cordia alliodora</i> (R. & P.) Oken	Ajos giro, Ajos quiro, Ajo sachá	Bark and Stems, dried	Oral	Add 1 bottle of Abuelo wine with 10 g of plant material and 20 g of Chuchuhasi, Cascarilla, Honey, Pollen, Tutuma. Let the mixture sit for 1 week. Drink the mixture. Patient should not leave the house while taking treatment. Adults take 1 small cup. Children take 1 teaspoon. Patients take the medication 3-4 times a day until the bottle is finished.	Bronchitis	ISA74, JULS281
BRASSICACEAE						
<i>Raphanus sativus</i> L.	Rabanito	Tuber, fresh	Oral	1/4 kg of sugar, add 1/2 kg of Rabanito cut in pieces. Boil with a scallion with no water. The syrup becomes a drink for the patient. 1 Tablespoon every 6 hours for 1 month.	Bronchitis	JULS238, GER202
<i>Rorippa nasturtium-aquaticum</i> (L.) Hayek	Berros	Whole plant except root, fresh or dried	Oral	Oral fresh as needed or crush and drink juice with Alfalfa. Make a soup with the nape of the neck of the sheep and boil. Add potatoes and veggies. Alternatively boil 1 L of water with Berros, plus 10 g total of Malva, Pie de Perro, Unquia, Amor Seco, Chacur, Pajablanca, Flor de Arena, Puren Rosa, and other herbs. Boil for 3 to 4 minutes. Drink 3 to 4 times a day for 1 month.	Bronchitis	RBU/PL367, EHCHL25, JULS113
BURSERACEAE						
<i>Bursera graveolens</i> (H.B.K.) Triana & Planchon	Palo santo, Palo de santo	Small Stems, Bark and Wood, dried	Oral	Boil 1 l of water, then add 2 pieces of about 5-10 g of the Palo Santo, boil for 5 minutes. Cover and let it sit for 3 minutes. Drink hot, 1 little glass 3 times a day for 2 days only.	Cough, Flu, Bronchitis, Cold	ISA143, JULS210, GER34

Appendix 1. Continuation.

Family/Genus/Species	Indigenous name	Plant part used	Admin.	Preparation	Use	Coll. #
CAPPARIDACEAE						
<i>Capparis crotonoides</i> H.B.K.	Simuro, Bichayo, Simulo	1. Flowers, fresh 2., 3. Leaves, fresh	1. Oral 2., 3. Topical	1. Boil 10 Flowers buds in 1/2 cup of water for 2 minutes. Patient should drink warm solution and stay inside the house during treatment. 1 cup a day for 8 days. 2. Crush 20 Leaves of Bichayo. Place crushed Leaves on affected area and massage the area with it. Patient should not go out during treatment. 3. Add 20 g of plant material into 4-5 L of water. Boil the mixture for 5-6 minutes. Bathe with the tizana. Do not ingest the mixture. Bath 2-3 times, as needed.	1. Bronchitis 2. Cold 3. Colds	GER4, JULS250
CAPRIFOLIAEAE						
<i>Sambucus peruviana</i> H.B.K.	Sauco, Saucotillo	1. Leaves, Flowers and Stems, fresh or dried 2. Flowers and Leaves, fresh	Oral	1. 5-20 g per 1 L, boil for 1 min, as tea, combine with Llonque. 3 times per week, up to 1 L per day if needed, or until fever passes. Take while cold. Rub with Llonque. 2. Boil 1 L of water, then add 10 g of Sauco. Add Manzanilla, Hinojo, Coleo, Ajenjo, Toronjil, Pimpinela and Claveles. Cover and let it sit for 2-3 minutes. Patient should drink warm solution, 3-4 cups per day for 1 month.	1. Bronchitis, 2. Fright / Susto, Fever, Yellow Fever 2. Cough, Cold	EHCHL140, RBU/PL291, VFCHL44, ISA131, ISA87, JULS246, EHCHL110
CHENOPODIACEAE						
<i>Chenopodium ambrosioides</i> L.	Paico	Leaves and Stems, fresh	Oral	Add 10 g of plant material with 1/2 L of water. Drink hot, 1 cup, 2-3 times a day for 1 week.	Cough	EHCHL112, RBU/PL280, EHCHL53, JULS206
CHLORANTHACEAE						
<i>Hedyosmum racemosum</i> (R. & P.) G. Don.	Masamoche, Asancito, Asarcito, Asarquiro, Choleta	Bark, dried	Oral	Use outside of Bark. 8-10 g per 2l water, boil 20 min. drink as needed. Alternatively 30 g per two bottles of alcohol mixed with Chuchuwasi, Cascarilla, 7 Raices, and Huayacanes then allow to sit for 8 days. Drink as needed, but do not drink before it has sat 8 days.	Bronchitis, Cold, Cough	EHCHL147, RBU/PL377
CONVOLVULACEAE						
<i>Ipomoea pauciflora</i> M. Martens & Galeotti	Huanarpo	Whole plant, fresh	Oral	Put together in a bottle of cañazo (Yonque) 20 g of the plant material plus 20 g of Cascarilla, Diego Lope, Hualtaco. Let it sit for 8 days. Drink temperate 1 small cup once a day or as needed (max 2 days only).	Chills, Colds	GER222
CYPERACEAE						
<i>Scirpus californicus</i> (C.A. Meyer) Steudel subsp. <i>tatora</i> (Kunth) T. Koyama	Balsa, Totora	Whole plant, dried	Oral	1/2 cup of water add 10 g of Totora, 10 g of Saze and boil for 3 minutes. Drink cold, 1/2 cup a day for 8 days.	Colds	JULS111, GER169
DIPSACACEAE						
<i>Scabiosa atropurpurea</i> L.	Ambarina, Ambarina negra, Flor de ambarina, Ambarindas	Flowers, fresh	Oral	Boil 1 L of water with 20 g of the plant material and Estilo, Veronica, Hierba del toro, Moradilla, Lancetilla, Hierba de la rabia. Drink hot Drink 3 times a day as long as the disease lasts.	Whooping cough, Cold, Cough, Bronchitis, Compulsive cough	JULS100, EHCHL111, RBU/PL372, ISA50

Appendix 1. Continuation.

Family/Genus/Species	Indigenous name	Plant part used	Admin.	Preparation	Use	Coll. #
ERICACEAE						
<i>Gaultheria erecta</i> Vent.	Mullaca mistura, Mullaca, Mullaca real	Whole plant, fresh or dried	Oral	1 L of water and add 10 g of Mullaca. Include 10 g of each of the following: Humanarripa, Escorceonera, Eucalyptus, Matico, Veronica, and others. Drink 1 cup 3 times a day for 1 month.	Bronchitis, Asthma	JULS288, JULS198
<i>Gaultheria reticulata</i> H.B.K.	Toromaique, Toro maique, Toromaike, Maique, Maque candela, Toro maique amarillo, Toro maique verde, Gavilan maique amarillo, Gavilan maique verde	Whole plant, fresh	Topical	20-30 minutes boil for 50 g per 7 L of water and mix with other Maiques (7 varieties), 10 g each of: Mishia Blanca, Mishia colambo, Mishia galga, Mishia morada, Mishia roja, Mishia rosada and Toro maique. Recite a prayer. Bath, 3 times per week. Bathe the patient in the mixture while rubbing him/her with the herbs. Afterwards, rinse the patient in water, and allow him/her to air dry	Cold, Bronchitis	EHCHL57, JULS259, RBU/PL293, EHCHL171, EHCHL51, GER81, GER241, GER57
ERYTHROXYLACEAE						
<i>Erythroxylon coca</i> Lam.	Coca	Leaves, dried	Oral	Add 5 g of the leaf with 1 cup of water. Boil the mixture for 3-4 minutes, then let it cool. Gargle 3 times a day for 2 days. Drink 1 cup before bed for 2-3 days. Alternatively wash and chew about 5 g of Leaves at a time.	Cold, Cough, Inflammation of the throat	JULS144, GER201
FABACEAE						
<i>Dolichos lablab</i> L.	Frijol chileno	Fruits, fresh	Oral	Boil for 10 minutes 1/2 kg of the plant material in 1l of water. Drink it at room temperature. 1/2 cup 2 times a day for 8 days.	Protects the lungs	GER235
<i>Medicago sativa</i> L.	Alfalfa	Flowers and Leaves, fresh	Oral	Blend Leaves and Flowers with water. Drain, and obtain extract. Drink extract. Honey can be added, if desired. Take 1 glass of extract, twice a day.	Bronchitis	JULS96, GER42
<i>Melilotus alba</i> Medikus	Alfalfilla	Seeds, dried	Oral	Boil for 10 minutes 100 g of the plant material in 1/2 L of water. Drink cold, 1/2 a cup. Once a day for 8 days.	Tuberculosis, Colds, Respiratory infections	GER223
<i>Myroxylon balsamum</i> (L.) Harms.	Quina quina, Kina kina	Seeds, dried	1., 3. Oral 2. Topical	1. Grind 20 Seeds, mixed with Seeds from a specific seven other plants: Ashango, Pucho, Amala, Ishpingo, Mozcada, Cabalonga and put in a bottle of wine and amacerar for 8 days. Drink 3 small cups per day. 2. Boil 20 Seeds per 5 L water for 20-30 min with Ishpingo, Ashango, Pucho, Amala, Raucho, Tokio, Nuez Moscada, Pepa de Cedron (use only the Seeds of these herbs) with 1 L of 90 proof alcohol and add 2 pieces of tobacco, 2 pieces of Ajo Macho, 10 g of Quina Quina, 2 Leaves of Pacra, 1 branch of both Eucalyptus and Maye. Do not leave bath outside, take bath every other day. 3 times per week. 3. 3 Seeds, toasted and crushed, per 1 cup of water. Drink 1/2 cup for adults, 1 tsp for children.	1. Bronchitis 2. Bronchitis 3. Cough, Bronchitis, Asthma	JULS287, RBU/PL382, EHCHL151, VFCHL46, GER91

Appendix 1. Continuation.

Family/Genus/Species	Indigenous name	Plant part used	Admin.	Preparation	Use	Coll. #
<i>Prosopis pallida</i> (H. & B. ex Willd.) H.B.K.	Algarrobo	Seeds, dried	Oral	Boil 10 kg of Algarrobo Fruit and Seeds for 3 hours in medium to high heat until thickened. Turn off fire and let sit until cool, then drain and place syrup in bottle. Drink 2 Tbsp per small cup, 3 times per day as long as you wish.	1. Cough, Bronchitis, Nutritional Supplement	JULS97, GER8
GERANIACEAE						
<i>Erodium cicutarium</i> (L.) L'Herit.	Agujilla blanca, Auguilla, Augilla	Whole plant, fresh	Oral	Boil 1 Tbsp Sap per 1 L of water, mixed with Ambarindas, Hierba del Toro and Sanguinaria. 1 L per day, 1-3 months.	Bronchitis, blood pressure	ISA110, ISA54
JUGLANDACEAE						
<i>Juglans neotropica</i> Diels	Nogal	Leaves, fresh	Oral	10 g per 1 L, boil water for 3-5 min. For Bronchitis: mix with Matico, Enredadera, Borraja. 3 glasses per day, 1 L daily.	Cough, Bronchitis, Asthma	RBU/PL273, ISA67, EHCHL4, ISA123
LAMIACEAE						
<i>Lavandula angustifolia</i> Miller	Alucema, Alhucema, Labanda	Flowers, Leaves, Stems and Seeds, dried	Oral	Do not use roots. Boil 1 L of water, then add a total of 10 g of Labanda, Romero, Claveles, Hinojo, Toronjil, Anjenjo, Manzanilla, and Pinpinela for 2 minutes. Patient should drink lukewarm solution. 1 cup 3 to 4 times a day for 1 month.	Cold	GER113, JULS177
<i>Lepechinia meyenii</i> (Walpers) Epling	Salvia, Salvia real	Whole plant, fresh or dried	Oral	Boil 30 g per 1 L water. Take with meals, three times per day.	Bronchitis	RBU/PL303, VFCHL17, ISA91
<i>Salvia discolor</i> H.B.K.	Palmeras (Chica), Llatama, Yatama	Stems, fresh	Oral	Three Leaves per cup. do not mix with other herbs. One cup a day for a week.	Cough	ISA93, ISA151(93a), ISA25
<i>Salvia officinalis</i> L.	Salvia	Whole plant, fresh or dried	Oral	In 1 L of water boil 10 g of the plant for 3-5 min. It can be mixed with Matico, Nogal and Eucalyptus. Drink hot, 1 cup 3 to 4 times a day as needed. Up to one month.	Cough, Bronchitis	JULS241
<i>Salvia sagittata</i> R. & P.	Salvia negra	Root and Stems, fresh or dried	Oral	10 g per 1 L water, drink 3 times per day, as needed	Cough, Asthma	RBU/PL318
<i>Satureja pulchella</i> (H.B.K.) Briquet	Panizara, Panisara	Leaves, fresh or dried	Oral	Add 50 g of plant material with Culein, Manzanilla, Chancas de Comidas or Muña in 1/2 cup of water. Boil the mixture for 3 minutes. Drink the mixture cold. Take 1/8 cup once a day, for 3 days.	Bronchitis, Asthma	GER148, JULS43
<i>Stachys lanata</i> Jacq.	Veronica (Macho)	Whola plant, dried	Oral	Boil 10 g Veronica Macho with 1 L water. Combine with Salvia, Matico, and Muyaca. Drink before or after meals. 3 cups per day for 15 days.	Bronchitis, Asthma	JULS13
<i>Thymus vulgaris</i> L.	Tomillo	Leaves, Stems and Flowers, fresh or dried	Oral	Boil 5 g per 1 L water. Drink 3 times per day.	Cough	EHCHL169

Appendix 1. Continuation.

Family/Genus/Species	Indigenous name	Plant part used	Admin.	Preparation	Use	Coll. #
LAURACEAE						
<i>Cinnamomum verum</i> J. Presl.	Canela	Bark, dried	Oral	1 L of water, 1 garlic clove, 10 g of Matico, Veronica, Brochamelia, Vira vira, 3 g of Cinnamon. Boil for 3 to 4 minutes. Drink warm, 3 to 4 times a day as needed. After rituals drink cold a day after rituals occurrence. Preferably in the morning during breakfast. As much as the patient feels is needed.	Bronchitis	JULS122, GER101
LILIACEAE						
<i>Allium odorum</i> L.	Cebolla china, Cebolla	Whole plant, fresh	Oral	Dice 15 onions in a bowl. Add a glass of water and 1/4 kg of white sugar. Add a piece of ginger (can also add hen fat). Boil and stir until thick. Drink syrup at all temperatures, 1 spoonful every 6 hours for 1 week. Juice can also be drunk naturally.	Bronchitis, Asthma	JULS129, GER36
<i>Allium sativum</i> L.	Ajo	Clove, fresh	Oral	Add 3 garlic cloves, 1 Chinese onion, Matico, Corcionista, Eucalypto, Vira Vira, white sugar and 1/2 L of water or cow milk into a pot and boil for 3 minutes. Drink warm, 2 tablespoons twice a day, for 1 week. Can also be eaten raw.	Cough, Bronchitis, Cold	JULS92, GER37
<i>Dracaena fragrans</i> Ker Gawl.	Flor dracena	Leaves and Stems, fresh or dried	Oral	10 g per 1 L water and boil. 3 cups per day, according to treatment.	Cough, Bronchitis, Asthma	RBU/PL334
MALESHERBIACEAE						
<i>Malesherbia ardens</i> Macbr.	Veronica	Whole plant, fresh or dried	Oral	Boil 5 g per 1 L, combine with Contilo, Arabisca, and Huamanripa. Drink Three times per day to total 1 L daily.	Cold, Cough, Bronchitis, Asthma	EHCHL139
MALVACEAE						
<i>Alcea rosea</i> (L.) Cavanilles	Malva Blanca, Malva Morada	Whole plant except Stems, fresh	Oral	10 g per 1 L water. Use Flowers for cough and hemorrhages. Drink 3 times per day, as needed.	Cough	JULS78, JULS79
<i>Malva parviflora</i> L.	Malva Rosa, Malva Real	Leaves, fresh	1. Oral 2. Topical	1. Combine 1 L of water with 10 g of Pie de Perro, Chacuro, Verbena, Cola de Caballo, Amor Seco, and Unaza. Also add 3-4 Leaves of Malva. Boil the mixture for 3 minutes. Patient should drink lukewarm solution. Take 1 cup, 3-4 times a day, for 1 month. 2. Can also be applied as poultice.	Cough, Bronchitis, Coughing with blood	JULS189
MORACEAE						
<i>Brosimum rubescens</i> Taubert	Palo Sangre, Palo de la Sangre, Ablita	Wood and Bark, fresh or dried	Oral	7 roots or 50 g per 1 bottle of Whiskey or Tequila mixed with Chuchuwasi, Cascarilla. Drink during meals, two times per day for 8-10 days.	Bronchitis	JULS209, ISA49, EHCHL64, 62, RBU/PL311, GER86
MYRISTICACEAE						
<i>Myristica fragrans</i> L.	Nuez Moscada, Ajonjoli	Seeds, dried	Oral	Grind Seeds and boil in 1 L water 1 Seeds to make 4 glasses. Drink 4 cups per day, 7-15 days. Alternatively macerate Nuez Moscada with 10 g of Ajonjoli with 1 bottle of Abuelo wine, 10 g each of Palo Sangre, Palo Huaco, bee honey, Pacra, Huanarpo Macho, bee pollen, Huevo de Angelote and Para Para. Take 1 cup in the mornings, middays and evenings until bottle is finished.	Cough, Asthma, Bronchitis	RBU/PL385, EHCHL155, JULS292, GER197

Appendix 1. Continuation.

Family/Genus/Species	Indigenous name	Plant part used	Admin.	Preparation	Use	Coll. #
MYRTACEAE						
<i>Eucalyptus globulus</i> Labill.	Alcanfor, Eucalipto Serrano, Eucalipto	1. Leaves, dried 2. Leaves, fresh or dried	1. Oral 2. Topical	1. Boiled, cover the head with steam for 15 minutes. Boil 10 g in 1 l water, combined with Manzanilla, Matico, Nogal, Ajos Giro and Chilca. Inhale 1 time per week, 3-4 times a month. 2. Bath, 500 g Eucalipto boiled with Chilca, Palo Santo, Romero, Ajos Giro. 2 times a month, do not use too much because plant is very hot, patient must be naked and covered with a sheet over his head, then sitting to absorb the vapor for 20 minutes. Stay inside home for 24 hours after the bath. 1 every 30 days. 2 times only.	1. Bronchitis, Respiration, Cold, Cough, Sinusitis, Asthma 2. Cold,	ISA130, JULS61, VFCHL35, JULS153, GER14, EHCHL12
OLACACEAE						
<i>Heisteria acuminata</i> (H. & B.) Engler	Chuchuasi, Chuchuhuasi	Bark, fresh or dried	Oral	Crush Bark and put in 1 bottle of wine to macerate. Drink 1 cup 3 times a day for 15 days, stop for 15 days, then start treatment again for 15 more days.	Cold, Cough	RBU/PL287, JULS138, GER164
ONAGRACEAE						
<i>Fuchsia ayavacensis</i> H.B.K.	Conchalalay, Conchalalay colorado	Leaves and Stems, fresh or dried	Topical	5 g mixed with Saucó, Nogal, Salvia, Anásquero grande and 7 Espiritus with 3 L boiled water. Boil for 1 hour, then let cool down to tepid temperature (lukewarm). 2 Baños per week in agreement with what La Mesa indicates or twice a month.	Cold	ISA82, ISA1
PHYTOLACCACEAE						
<i>Gallesia integrifolia</i> (Spreng.) Harms.	Palo de ajo	Stems, dried	Oral	Boil 20 g of Palo de Ajo with 1/2 cup of water for 2 minutes. Drink cold, 1/8 cup a day for 8 days.	Bronchitis, Asthma	GER116
PIPERACEAE						
<i>Piper aduncum</i> L.	Yerba del Soldado, Tilonga, Matico, Mogo-Mogo	1. Leaves, fresh or dried 2. Leaves, fresh	1. Oral 2. Topical	1. Boil 5-10 Leaves per 1 L of water for 3-5 min mixed with Salvia real, Escorcionera, Viravira, Borraja, and Asma chilca. Drink 1 L daily for 15 days. 2. Boil 50 g per 8 L for 10 minutes combined with Eucaliptus, Laurel, Verbena, Altamisa. Bathe twice a week. Alternativel Grind and pulverize 200 g of the plant material. Apply the powder on affected areas. Apply once a day, until the wound is healed.	1. Cold, Cough, Wounds, Bronchitis, Chills, Tuberculosis 2. Bronchitis, Colic (women)	VFCHL26, RBU/PL277, TRUVan/ Erica24, JULS15, GER141, JULS199
<i>Piper nigrum</i> L.	Pimienta negra	Seeds, dried	Oral	Add plant material, Asma Chilca, Borraja, Escorcionera, Muyaca, Vira Vira, Veronica, Cinnamon and a portion of Garlic. Make the mixture concentrated by boiling for 5 minutes. Drink hot. Take 1 cup, 2 times a day, for 2 weeks.	Bronchitis	JULS227
PLANTAGINACEAE						
<i>Plantago linearis</i> H.B.K.	Llantén serrano, Llantén de la costa	Root, fresh	Oral	Boil 2 roots per 1 L water for three minutes and combined with Matico, Nogal, Vira vira, Eucalipto. Drink 4 times a day, as needed.	Cough, Bronchitis	JULS35, JULS86, GER133
<i>Plantago major</i> L.	Llantén	Seeds, fresh or dried	Oral	10 g or 1 Tbsp per 1 L of water, one cup in the morning, at noon and one in the evening, before eating.	Bronchitis, Cough	VFCHL50, EHCHL11, TRUVan/ Erica13

Appendix 1. Continuation.

Family/Genus/Species	Indigenous name	Plant part used	Admin.	Preparation	Use	Coll. #
POACEAE						
<i>Cymbopogon citratus</i> (DC.) Stapf.	Cedron, Hierba Luisa, Maria Luisa	Leaves, Roots and Stems, fresh or dried	Oral	Boil 1 L of water, then add 5 g of Hierba Luisa. Let sit for 2 to 3 minutes. Add a little Tequila. Stems have more alkaloids and more strength. Patient should drink hot solution. May consume with food best at breakfast.	Cold, Cough, Flu	EHCHL16, VFCHL30, JULS181, GER25
<i>Uncaria tomentosa</i> (Willdenow ex Roemer & Schultes) DC.	Uña de gato, Uncaria tormentosa, Uña de gato de la selva	Leaves and Stems, fresh or dried	Oral, Topical	Grind material. Better used dried. Boil 10 g per 1 L water, 10 min combined with Chanca Piedra, Linaza, Boldo, Flor de Overo, Bolsa de Pastor. Drink 1 L daily, three times per day for 15 days at least or as needed. Drink lukewarm. Solution can also be used in a poultice. Wash wound and apply soaked Leaves.	Bronchitis, Asthma	VFCHL11, RBU/PL263, EHCHL103, JULS275, GER230
<i>Zea mays</i> L.	Espiga de maiz, Chuno de maiz, Maiz	Seeds, dried	Oral	1/2 L of water, 1/2 kg of corn, a bunch of Chancaca and boil for 5 to 10 minutes (until corn is cooked). Hot servings (reheat if not fresh). Once eaten, stay in room, do not come out to rid the chills. 2 times a day for 2 days.	Chills, Pain in the lungs	JULS69, JULS139, GER31, GER186
RANUNCULACEAE						
<i>Laccopetalum giganteum</i> (Wedd.) Ulbrich	Huamanripa, Pacra, Flor de guarmarya	Leaves, fresh or dried	Oral	2 small Leaves per 1/2 L water, boil. Drink 1 L per day, until 3 months.	Cough, Bronchitis, Asthma, Flu, Cold	VFCHL53, GER162, RBU/PL321, EHCHL42, JULS284,
ROSACEAE						
<i>Rubus robustus</i> C. Presl.	Zarzamora, Moyaca, Zarza, Zarza parrilla, Mora, Cushai	Flowers and Leaves, fresh or dried	Oral	3 Flower buds per cup boiled water, mixed with Llatama. Drink 1 L per day, 1 month. Can also be inhaled.	Cough, Bronchitis	EHCHL132(a), ISA41, ISA48, JULS47, EHCHL132(b)
RUBIACEAE						
<i>Cinchona officinalis</i> L.	Cascarilla, Quinuagiro	1. Flowers and Leaves, dried 2. Bark	Oral	1. 1 Tbsp per 1 L boiling water, mixed with Flor Blanca, Grama Dulce and Rose essence, 1 L daily for 2 months or more. 2. Boil 50 g of Cascarilla in 1 cup of water for 10 minutes. Drink lukewarm 1/4 cup 1 time a day for 15 days.	1. Cough 2. Colds	RBU/PL314, JULS127, ISA19, GER167
SALICACEAE						
<i>Salix chilensis</i> Molina	Sauce	Leaves, fresh	1. Topical 2. Oral	1. Smash Leaves for juice, apply as enema once. Do not ingest. Use only when the patient is very sick. 2. Boil 10 g of Sauce and 10 Fruits of Capuli in 1 L of water for 30 minutes. Drink warm, 1/2 small cup every time the patient has chills.	Colds	TRUBH25, JULS82, GER39
SCROPHULARIACEAE						
<i>Escobedia grandiflora</i> (L.f.) Kuntze	Azafran	Flowers, dried	Oral	Boil 1/2 L of water for 3 mins with 20 g of Azafran. Drink hot, 1 cup in the morning, 1 cup in the night for a week.	Bronchitis, Pneumonia, Chills (general)	JULS110
<i>Galvesia fruticosa</i> J. Gmelin	Curil, Macacha	Flowers, Leaves and Stems, fresh or dried	Oral	In 1 L of water add 10 g of the Flowers and the Stems plus Zarzamora and Matico, Nogal. 3 to 4 times a day for 2 weeks.	Cold, Bronchitis, Asthma	VFCHL37, JULS289

Appendix 1. Continuation.

Family/Genus/Species	Indigenous name	Plant part used	Admin.	Preparation	Use	Coll. #
SOLANACEAE						
<i>Cestrum auriculatum</i> L'Herit	Hierba santa, Agrasejo	Leaves, fresh or dried	Oral	5 g per 1 L with Corpus Way, Carqueja, and Flor de Overo. Drink 1 L per day.	Cough, Bronchitis	JULS166, RBU/PL281, EHCHL172, ISA122, GER174, EHCHL102
<i>Solanum americanum</i> Mill.	Hierba mora, Hierba del susto, Baja del espanto, Semora	Fruits fresh	Topical	Crush 20 fruits to extract juice, 2 drops per nostril.	Sinusitis, Flu, Cold	EHCHL125, JULS76, EHCHL87, GER85, GER159
<i>Solanum tuberosum</i> L.	Chuno de papa	Tuber, dried	Oral	1/2 kg of Chuño de Papa in 1/2 L of water. Add Chancaca, Angamacha, Valeriana Estrella and boil for 10 to 15 minutes or until the starch comes out. Remove it from the flame. Serve hot as a pudding or a candy 3 times a day for 2 days within 10 days of the baby's birth. The preparation makes a kind of candy and should be served hot. Oral it while blowing on it because it should be consumed freshly cooked. Take the last dose in bed so not to go outside in the cold.	Bronchitis, Respiratory problems	JULS140, JULS141
TILIACEAE						
<i>Tilia platyphyllos</i> Scop.	Tilo	Flowers and Leaves, fresh	Oral	Boil 1 L of water, then add 10g of Saucó. Add Manzanilla, Hinojo, Coleo, Ajenjo, Toronjil, Pimpinela and Claveles. Cover and let it sit for 2-3 minutes. Patient should drink warm solution, 3-4 cups per day for 1 month.	Cough, Cold	JULS257
ULMACEAE						
<i>Celtis loxense</i> C.C. Berg	Palo huaco, Palo blanco	Bark, Stems and Leaves, dried	Oral	Add plant material, Palo Sangre, Chuchuasi, Huanaco, Huevo Angelote, Pacra, Pollen, Miel de Palo, Honey, Chuchuwasi, Cascarilla and Huanarpo Macho into a mixture with 1 bottle of Abuelo wine or Tequila. Let mixture sit for 1 week. Drink cold, 1 small wine glass 3 times a day until bottle is finished. Patient can repeat the treatment.	Bronchitis	JULS208, EHCHL65, GER87, ISA7
VERBENACEAE						
<i>Clerodendron</i> sp.	Brochamelia	Flowers, fresh or dried	Oral	1 L of water and add 10 g of the herb. Boil for 3 to 5 minutes. Can be mixed with 10 g of Huamanripa and Veronica. Drink 1 cup 3 times a day for 2 weeks. Toz Ferina indicates a condition, where a baby can't breathe and turns blue and makes a "rooster like" noise.	Bronchitis, Asthma, Whooping cough	JULS115
<i>Lantana scabiosaefolia</i> H.B.K.	Mastrando, Mastrante	Leaves and Stems, fresh or dried	Oral	20-100 g per 1 L water, boil 3 min. mix with Canchalagua, Culantrillo, Purenrosa, Panisara, and Salvia Real. 1 L per day, 3 days. Patient should drink lukewarm solution. This treatment is only for women.	Cold	VFCHL51, GER6
<i>Lippia integrifolia</i> (Grieseb.) Hieron	Poleo del inca	Leaves and Stems, fresh	Oral	5 g per 1L water, 1 L daily, 1 month.	Cold, Bronchitis	EHCHL76

Appendix 1. Continuation.

Family/Genus/Species	Indigenous name	Plant part used	Admin.	Preparation	Use	Coll. #
<i>Verbena littoralis</i> H.B.K.	Verbena, Berbena	Whole plant, fresh or dried	Oral	Boil 30 g per 1 L for 3 min., mix with Cerraja, Moradilla, and Verdolaga. 2 glasses per day for 4 days. Take one in the morning and one at night.	Colds	RBU/PL369, JULS77, EHCHL69, VFCHL28, GER138
VITACEAE						
<i>Vitis vinifera</i> L.	Uva	Fruits, dried	Oral	Add 1/2 L of fresh milk with 10 g of dried grape (raisin). Boil the mixture for 3-4 minutes. Drink hot. Take 1 glass, 3 times a day for 2 weeks.	Bronchitis	JULS266
ZINGIBERACEAE						
<i>Zingiber officinale</i> Roscoe	Kion, Quion, Gengibre, Gengible	Root, fresh	Oral	Cut Kion into small pieces. Add 10 g of this, along with Matico, Nogal and Veronica. Boil in 1/2 L of water. Take 1 cup, 3 times a day for 1 week.	Cold, Cough, Bronchitis	JULS237, GER206
NON PLANT MATERIAL						
	Polen de Zapote, Polen de Espina Negra, Polen de Arboles, Polen de Ciachon (Insect feces)	Insect feces	Oral	Insect larvae bore into the root of the tree. Use the feces of the larvae ('pollen'). 4 g per 1 L water. Is very strong, so use a small amount. 1 L daily, 1 month	Bronchitis, Asthma, Tuberculosis	ISA124