

MEDICINAL FLORA CONSUMPTION IN PERU

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ABSTRACT

The current submission is the sequel of a Latin American project on the issue of medicinal flora growth, trade and consumption that was initiated about two decades ago, in 1997. The aim of the research is threefold: i) to offer information about medicinal plant species from tropical environments; ii) to describe best practices in urban and peri-urban sustainable agriculture and forest management projects; and iii) to improve research about the learning processes and fair use of medicinal flora natural resources. Methodology includes an archival investigation into the areas under scrutiny in early colonization times, so as to compare landscape descriptions from the 16th to the 18th century, as well as the use of plant species as food, fuel and for therapeutic applications, with the surveys conducted in our days. The study is a tale of two cities, field researched with a ten-year interval. The first one is Lima, the capital of Peru, within which 8 million metropolitan agglomerations included the port city of Callao in 2006. The second city is Piura, an urban centre of 1,844,100 inhabitants, explored in 2016. Results show an increase in medicinal flora consumption and trade, top ranking chamomile in both urban samples, a surprising fidelity in ten years and two different cities. As to environmental conservation and sustainable practices, results show that species named by the Inca Garcilaso de la Vega, and Antonio Ulloa in the 16th and 18th centuries are still available; this gives us hope that the trend of exploitation is sustainable.

Keywords: sustainable, conservation, medicinal, flora, tropical, Peru, Inca

1 INTRODUCTION

Alternative medicinal plant species that are grown and traded, and the food gardens where spices, staples and fruit trees are carefully tended, existent within urban agglomerations or in peri-urban areas, are perceived both as sustainable practices intended to cope with climatic change [1], [2] and as poverty-reduction strategies [3]. The cultivation of vacant plots within the urban tissue contributes to soil and water conservation, climate regulation, and preserves biological diversity whilst promoting nutrient recycling, because compost is frequently the inexpensive option in fertilization [4], [5].

The contending and often contested issue, as far as medicinal plant species are concerned, is leaf, bark, flower, fruits and, particularly, root collection in forested areas, either primary or secondary, as is the case with Peruvian Amazon tracts. Andean environments are also very biodiverse in Peru as in Chile, and dwarf wild flora is traditionally grabbed by healers and traders. Nevertheless, ancestral cultures, the Aymaras and the Quechuas, which descend from the Incas, usually have an elite of experts that are in charge of wild species collection, a task that requires years of preparation, transmitted from one generation to the next [6], [7].

The objectives of this contribution are six-fold: (1) to identify the medicinal flora consumed in 2006 and 2016, in two Peruvian urban agglomerations; (2) to compare the uses and therapeutic recommendations for the same plant species, with an interval of 10 years, in the same country; (3) to analyse any significant changes in plant therapies and flora consumption in Peru, over 10 years; (4) to publicize a specific type of consumer behaviour linked both to lower-income households and to individual options for alternative medicinal treatments; (5) to rank the preferences detected in 2006 and 2016; and (6) to identify the medicinal flora consumed in early European colonisation times and compare the species and their applications in modernity.



2 STUDY METHOD

2.1 The local environments

This study is a tale of two cities, field researched with a ten-year interval, as said. The first one is Lima, the capital of Peru, where 8 million metropolitan agglomerations included the port city of Callao, in 2006 [8]. The second city is Piura, a 1,844,100-inhabitant's urban centre [9], explored in 2016. Both cities have a semi-arid coastal climate, their average annual precipitation is about 50 millimetres, but they are subjected to summer storms and floods [10]. The dry climate is dictated by the cold Humboldt sea current, which gives Lima an annual average temperature of only 19.2°C, while Piura is hotter, because it is located 5°11' south of the Equator [11].

The Northern Province was dominated by the Incas for about 80 years, just before Pizarro arrived with his army. The Spaniards were the founding fathers of Piura, famously known as the first city the conquistadores established in Peru. It was named San Miguel (of Piura, after its river designation), the 15 July 1532, by Francisco Pizarro, under the testimony of several priests [12]. Lima had the same founding father, sometime later in 1535. The capital city of Peru was again settled next to a river, the Rimac, on a sacred valley located 12°2'S; the corruption of the Inca word that meant "the one who speaks", gave way to Lima, in Spanish [13].

As coastal Peruvian areas are semi-desert, urban centres drawn by the conquistadores favoured river valleys, where corn and fresh vegetables could be grown, even at the expense of the construction of dams and waterways (*acequias*), in order to provide drinking and irrigation water to the lower valley areas. In Lima the moisture of the fog (*garúa*) that covers the city most of the year, keeps the environment more humid. The outstanding tree in the coastal urban agglomerations under scrutiny is the algarrobo (*Prosopis alba*, *P. pallida*), a xerophytic medicinal species [14].

2.2 The methodological approach

The research included three different steps: 1) archival investigation of the food, spices, fuel, medicines and even ornamental plant species farmed and consumed in the early colonization years; 2) surveys conducted in two urban agglomerations in a ten-year interval, as stated above; and 3) the comparison of the flora used in the 16th and 18th centuries is made in a third phase, in order to assess both the survival of many medicinal endemic or native Peruvian plants and their uses in our days.

Archival documents used in this investigation were easy to examine, as they were published preserving the 17th century text, in case of the Inca Garcilaso de la Vega [15], but adapted to contemporary Spanish imprint, in the example of Antonio de Ulloa [13]. Here it is necessary to explain why these authors and their manuscripts are an important source of information for us. Ulloa was born in Seville and participated in the renowned expedition of the French botanist La Condamine to South America. He was a scientist, and a sailor, and was later governor of Louisiana and Florida.

The earlier manuscript was published in Lisbon, years after his author migrated from Cuzco, his home town, and the capital city of the Incas. He was the son of the Spanish Sebastián Garcilaso de la Vega, a warrior that accompanied Gonzalo Pizarro and participated in the defeat of the Inca emperor. He married Isabel Chimpu Oello, a princess, the granddaughter of the last Inca Emperor Huayna Capac. The so-called Inca Garcilaso de la



Vega, frequently states to have learnt from his mother and relatives, the virtues of the native flora he describes.

The second step regards the contemporary surveys, and included 38 in-depth interviews, in 2006, and 40 in 2016. Both samples involved testimonies from medicinal plant traders, namely from the markets, either formal or informal, natural pharmacists, and wild herb collectors. In Lima two traditional Indian healers were added to the survey, together with quests to another couple of conventional medicine doctors devoted to therapeutic flora research. The informant's characterization and the findings from both scientific missions to Peru have been published, in several formats in case of Lima, and as a first discussion with our peers, in the Piura case study [16]–[18].

The comparison of contemporary data with the food and medicines used in the early colonization time is easier in the manuscript of Vega, because Ulloa has travelled extensively around South America, and therefore his references to the Peruvian flora are quite dispersed in two volumes edited in Madrid. A list of all the vernaculars named in the 1609 Lisbon edition of the Inca includes 107 different plants, most Peruvian natives but some also European, mentioned by the author because they were introduced by the Spanish colonisers in his home land. Ulloa listed 13 species, three of them Peruvian. The scientific identification of the vernaculars was done using the Missouri Botanical Gardens online site, so as to register the taxa, as it has been a common practice throughout the Latin American medicinal flora research project, initiated in 1997 and accomplished in 1998 with two scientific missions to the Amazon city of Belen, Brazil [19].

3 RESULTS AND DISCUSSION

3.1 The ancestral remedies mentioned in Vega and Ulloa

Regarding the native flora, we would first identify five ancestral medicines used in one or in both cities that were used in the Empire of the Incas:

1. Flor Blanca or Quishuar (*Buddleja incana*) is an American gender that takes the species designation after this Indian people. As is written in the Inca Garcilaso de la Vega manuscript, it was a tree the Spaniards considered to be similar to the European olive tree [15, p. 253].
2. Maca (*Lepidium peruvianum*) was used to purge; the small roots in water mixture provoked both the vomit and resolved constipation [15, p. 50].
3. Another ancestral remedy described in the manuscript “Commentarios Reales” is the molle (*Schinus molle*); its “milk” was considered to have “supernatural effects” on any fresh skin cut. To our days this natural balm is called “molle’s tear drop”. As beverage, together with corn, *Schinus molle* made wonders in case of urinary and bladder problems [15, pp. 52, 210].
4. The fourth miracle plant inherited from the ancestral Indian cultures is matico (*Buddleja globosa*), also a powerful skin healer, known in Piura from the early Spanish colonization years. The 1609 manuscript informs us that the “leaf juice” was applied to the eyes to resolve any kind of infection [15, p. 52]. Chemical and pharmacological analyses have revealed that matico has antibacterial, anti-inflammatory, and analgesic, diuretic effects, and has anti-hypertensive properties [20].
5. Calaguala (*Polypodium calaguala*) is another example of the recent recovery of ancient uses in Peru. In another manuscript written in 1740 and published in 2002 in Spain, Antonio de Ulloa describes his own experience with local prescriptions using native flora:



“When I arrived to the city of Piura, I was forced to rest for some time (...) so as to cure and recover myself from a fall, having experienced then the virtue and efficacy of calaguala” [13, p. 13].

The use of the fern was not recorded in Lima, in 2006, but recommended in Piura for other health troubles such as gynaecological infections and kidney inflammations, using the rhizome or the aerial plant parts. The medicinal properties of tropical forests’ ferns was recorded elsewhere, in Costa Rica and Mexico, where the *aureum* species is recommended for its diuretic properties, and anti-rheumatic powers, particularly recommended to lower uric acid levels [17]. Ancestral medicinal remedies researched in Costa Rica, among the Huetar Indians, also come across the *Polypodium* gender, (generally designated calaguala), to be a traditional bone-settler and skin healer [21]. Fig. 1 displays the species.

We’ve accounted for forty-seven vernaculars mentioned by the Inca Garcilaso de la Vega that are common to the ones encountered in the 2006 and 2016 surveys, in Lima and in Piura, and two from Antonio de Ulloa. Table 1 presents twelve medicinal plant species, identified as native American, with respective uses in the Inca times and nowadays. The survival of this flora, some endemic (*maca*, *flor blanca*), gives us hope that the conservation status might be still sustainable. It is worth to mention that the algarrobo (*Prosopis pallida*) was quite proliferous in the 18th century, as Ulloa describes in his journey through the valley of Piura [13, p. 17]. It became rare after the 20th century, as the urbanization spread through the area, but is now being replanted by a local university in close cooperation with European institutions [18]. Fig. 2 displays the tree photographed during the 2016 scientific mission to Piura, by the author.

3.2 Identification of the medicinal flora consumed in 2006 and 2016

Peru has now about 31 million inhabitants. In ten years, the economy has tripled and poverty levels have been halved [9]. Table 1 presents only some of the native medicinal plant species traded, as cross-result of the archival investigation and the surveys conducted in 2006 and 2016, respectively in Lima and in Piura. In fact, fieldwork gathered a total number of 150 vernaculars, in Piura, in 2016, about two thirds of which have medicinal applications (93 plants), external or internal. This demonstrates there is an increase in demand for natural and alternative remedies, when compared with the 60 vernacular names of medicines registered during Lima’s sample, in 2006 [17].



Figure 1: Calaguala, the bone-settler.



Figure 2: Algarrobos forest, Piura.

The third result we want to detach from this study is that the medicinal flora traded is augmenting in Peru, in spite of the growing wealth of the Peruvian population, in general. According to the survey, the explanation is the wider awareness from the public that natural remedies have fewer secondary effects than those offered by allopathic medicine. Accordingly, research results demonstrate there is a recent proliferation of plant remedies against cholesterol, diabetes, memory loss, osteoporosis, as well as a good offer of dietetic drugs and natural food supplements.

The fourth result is that Chamomile (*Matricaria chamomilla* and *M. recutita*), a European herb, was the most consumed plant, a surprising fidelity with a ten-year interval. Even though native plants are in dominance, truth is the European herb infusions are displayed as fresh offer in the market or in tea bags, in pharmacies and supermarkets, and the interviews to the traders confirm this public preference. Fresh chamomile in Piura is usually used to wash the eyes, in case of conjunctivitis, as registered 10 years ago in Lima. It is an anti-stress herb elected for helping to cope with daily urban exigencies, a common fact recorded in several other Latin American agglomerations [8]. In infusion, chamomile is again a digestive plant species, which are good reasons that explain why it is the first ranking herb in Peru. The difference noticed in Piura was the use of the herb as dietetic not registered before [18].

3.3 Consumer behaviour and uses for the same plant species in 2006 and 2016

Consumer behaviour favoured 27 plant species that possess at least one common medicinal property in Lima and in Piura. Some are nutraceuticals, meaning, food that cures, as is the case with: 1) Yacón (*Polymnia sonchifolia*), a tuberous root consumed to lower sugar levels, recommended to diabetes patients [22]; and 2) Maca (*Lepidium peruvianum*), an endemic dwarf species from the Peruvian Andes, eaten to strengthen the bones, particularly sought by elderly consumers to resolve osteoporosis [23]. These two Peruvian plants are now recognized in healthy food and diet product's shops all over the world, as the fieldwork in Asia has proven and European supermarket stands show [24].

A sixth result from this study is the recognition that some flora common to both urban realms presented narrowed uses in 2016, as field researched in Piura. Examples are: 1) the Andean species muña (*Minthostachys setosa*) only used as analgesic, now; 2) the European plant Ruda (*Ruta graveolens*) widely used in Peru and elsewhere in Latin America against evil eye, which was also considered a good analgesic in Lima, but not in Piura; and 3) the native American Paico (*Chenopodium ambrosioides*) also popular as an anti-septic and anti-parasites plant species that had several other applications in Lima, not found in Piura.

3.4 Changes in plant therapies and flora consumption in Peru, over 10 years

As seventh result, current research proved there are four natural remedies that presented noticeable changes in the therapeutic application: 1) the European borage (*Borago officinalis*) was considered a good expectorant in Lima. In Piura we registered wider applications as anti-flu, and dietetic remedy, never registered before; 2) the native American corn (*Zea mays*) was consumed as dietetic food in Lima and now has no such claims, which were controversial anyway. The recommendation in Piura was the external application against skin problems; 3) the European Plantain (*Plantago major*) was considered in Lima an anti-cancer species, with no type of cancer allegation in particular, and in Piura it is used as skin healer; 4) the European sage (*Salvia officinalis*) is also now applied in Piura against skin problems, yet it was ingested in Lima against cough, asthma and was even eaten to lower sugar levels in case



of diabetes; 5) the native American matico (*Buddleja globosa*) was applied to the skin against cuts in Lima and in Piura the species is only recommended against gynaecological problems, as said.

Noticeable plants used by the Aymaras, such as asmachilca (*Aristeguetia gayana*) aren't sold in Piura. In fact, this ethnic group dominates southern Peru, and thus the preferences in Piura go to the species dominant in the culture Quechua, meaning the Inca descendants that colonized the northern area. Truth is the Incas dominated most of the Andean cultures, just before the Spanish colonizers arrived. However, as the Aymaras preceded the Incas, cantered on Titicaca Lake, most of their healing practices and medicinal species were preserved as a legacy to future generations to our days [6].

As eighth result we want to emphasize that the following native medicinal plants are absent in the North of Peru, for example: 1) the fruit of Capuli (*Prunus capuli*); 2) the famous bark of Chinchona (*Cinchona officinalis*), later renown as the "Jesuit's bark"; 3) the native vine Hierba del cancer (*Acalypha arvensis*); 4) the white Huila-Huila (*Senecio canescens*), recommended against women gynaecological problems; 5) the colourful Huamampinta (*Chuquiraga spinosa*), recommended against prostate diseases; 6) the typical Janali (*Bocconia frutescens*); 7) the wonder tree called Molle (*Schinus molle*); 8) the less known Pumachilca (*Escallonia pendula*). All these species were photographed and their botanical characterisation and medicinal virtues gathered in a book published in Lisbon [17].

In 2016 there was an increase of herbal remedies for chronic or mild diseases, offered as a substitute to pharmaceutical drugs, even in pharmacies [18]. Examples are: 1) Natural preparations or pills to lower cholesterol (coconut, sachu-inchi, pasuchaca, flax, chia, watercress, alfalfa, apple); 2) Purgative natural drugs (sen, tamarind, canary grass); 3) Anti-oxidant remedies (noni, camu camu, liquorice, soursop, hibiscus); 4) Herbal remedies to resolve calcium deficiency, namely osteoporosis (sesame, maca); 5) Herbal prescriptions against liver diseases (boldo, roselle, aloe); 6) Anti-anemic plants (native algarrobo, cañihua); 7) Anti-parasites plants or plant seeds (pumpkin, peppermint); 8) Herbs and leaves against memory loss and concentration (ginkgo biloba, ginseng, walnut, rosemary); 9) Hypertension pills made of one or several plant species (artichoke, garlic, chicory, moradilla, nettle); 10) Dietetic herbal remedies (algae, green tea, culén, borage, dandelion, chamomile).

As the tenth result, we stress that there is a wide offer of anti-cancer species in Peru, which gives us hope for future development of related pharmaceutical drugs [18]. Examples include: 1) Annato (prostate cancer); 2) Cañihua (antioxidant and anti-anaemic); 3) Huamampinta (prostate cancer); 4) Huila-Huila (lung cancer); 5) Manayupa (uterine cancer); 6) Noni (liver cancer); 7) Pasuchaca (pancreatic cancer); 8) Uña de gato (prostate cancer); 9) Hierba del cancer (unspecified uses). Regarding eye diseases or infections there is also a good offer; some of the plant species were inherited from ancestral cultures, as is the case with matico (see Table 1), the colourful huamampinta (conjunctivitis), and the red variety of maca roots; other plants are exotic and were introduced by the Spanish colonisers, of which the outstanding example is chamomile, or taken to the country by migrants settled throughout the last centuries, such as *Aloe vera*.

3.5 Preferences detected in 2006 and 2016

The main preferences detected in 2006 in Lima were the top-ranking chamomile herb traded by 52.6% of the informants, followed by the tropical lemongrass (*Cymbopogon citratus*) with 44.7%, while ranking third was maca (*Lepidium peruvianum*), traded in 34.2% of the posts, and fourth the Peruvian cat's claw (*Uncaria tomentosa*), amounting to 31.6% of the 60



vernaculars registered. In 2016, the 40 interviews survey conducted in Piura ranked the European herb chamomile first, as said. It was traded by 12.9% of the respondents, followed by the native Andean maca, with 11.8%; in third we've registered aloe (*Aloe vera*) and stevia (*Stevia rebaudiana*), ex aequo, which were found in 9.7 % of the trading posts [18].

Only in fourth place came lemongrass, with 8.6% of the occurrences in the stands, in the group of medicinal plant species, which accounted number was ninety-three. As tenth result, we stress the smaller percentages in the ranking of Piura, gathered during the 2016 survey, which is explained by the wider number of therapeutic flora recorded 10 years later in Peru, a fact that favours a greater dispersion of plants offered to the public, in Piura's sample. Continuing to analyse the differences detected in the ranking, we add that aloe ranked 8th in Lima but stevia was not recorded at all, as its recommendation as sweetener is recent, following chemical and pharmacological studies of antioxidant and anti-diabetic plant species [25].

4 ARE MEDICINAL PLANTS A SUSTAINABLE URBAN TRADE?

As stated by Fistola, in agreement with the Nobel laureate Prigogine's ideas [26], and the Gaia hypothesis by James Lovelock [27], the Earth is a living organism capable of self-regulation, through the constant search for balance among its several components. But the city is also a "complex dynamic system (...) of maximum anthropic concentration", a "dissipative structure" with high entropy [28, p. 32]. The entropy becomes more dramatic even, as time goes by, and the rhythm of deglaciation increases, as storms and extreme climatic events become more frequent or the cycle of rainfall diminishes, year after year in some areas. The Peruvian cities under study suffer from all these problems.

Any problem has a range of solutions, though. Accordingly, there is another recent concept that helps design such solutions: "The resilience of urban agglomerations is the ability of their social or ecological systems to absorb disturbances (...) and to adapt to stress and change, following a perturbation" [1, p. 882]. Climate change adaptation and mitigation strategies are a path to resolve the disturbances provoked by storms, floods, droughts, etc. However, those strategies can only be put in place if and when all the actors involved have a saying about how to solve unexpected perturbations.

That's why the awareness of Peruvian residents and, most particularly, of the flora traders that the consumption of herbs and plant parts from Andean environments, tropical forests or semi-desert coastal areas is important. When interviewing market traders that are simultaneously plant collectors, we asked for the origin of the plant species on the shelves and stands, so as to identify any possible damages against wild species on demand. Safeguarding the impossibility of accompanying the collectors on their harvests, and thus having to rely solely on their word, we had the opportunity and the will to gather information about their procedures, ethnic group and preparation for the collection of wild flora.

The information about this issue looked credible, as by tradition the Indian collectors have long and careful preparation, acquired within their ethnic group, the Aymaras and the Quechuas, observed in several other missions to Chile (2003, 2004, 2005, 2012), to Bolivia (2004) and Peru (2006, 2016). Both ethnic groups have a reciprocal relationship with nature, la Pachamama (Earth Mother), established for centuries in Andean communities [29]. The knowledge about the medicinal flora to be harvested is also transmitted within the family, because the trade is frequently a business for the whole household. Therefore, information is taught by the elders, the same way a grandmother teaches a recipe to the children, so that the secret might remain circumscribed to the clan, and in this way make it more profitable.

Regarding the European flora, namely chamomile, common balm (*Melissa officinalis*), rue (*Ruta graveolens*), rosemary (*Rosmarinus officinalis*), they are cultivated in Peru and in



neighbouring countries, which doesn't put into question the sustainability of those medicinal plant species. Contrarily to other Indian peoples, as the Wichi, hunter-gatherers of the Argentine semi-arid Chaco [30], the two main ethnic groups under scrutiny do not experience difficulty in adapting to the market economy and to political change [31]. The Aymaras, for instance, are semi-sedentary peoples that easily become wage earners. There is always some member from the extended family that keeps the property, the animals and vegetable farming lands at diverse altitudinal plots, so as to make the best profit of both subsistence and traditional activities, and the best from modernity. Diversification inside the household is the norm, and thus they constitute an enviable example of resilience, adapting to change and mitigating all the stresses, from the Pachamama: the earthquakes, the floods, the drought, the Spanish colonisation.

Native Peruvian, in particular, and Latin American flora, in general, are on demand all over the world. There is now bigger pressure over Andean species like maca, and so it is difficult to assess, with two small field surveys whether the current harvest trends are sustainable. Yet, this species are not collected near Lima nor Piura, the urban settlements under study. What the research has proven is that there are at least three conservation projects in Piura's department. They were already mentioned in Vienna, during the Conference on International Research on Food Security, Natural Resource Management and Rural Development, so-called Tropentag 2016, organised by the University of Natural Resources and Life Sciences (BOKU Vienna), Austria [18]. The most outstanding tree reforested in the valley of Piura is the algarrobo or algarroba, as mentioned in Ulloa manuscript in the 18th century. Table 1 presents this and eleven other plant species that survived depredation.

Table 1: Native medicinal flora consumed through times. (Sources: archival investigation and fieldwork data.)

Vernacular (English)	Scientific name	Uses in the 16 th – 18 th centuries	Uses in Lima 2006	Uses in Piura 2016
Algarrobo Algarroba <i>Algarrobo</i>	<i>Prosopis pallida</i> (Humb. and Bonpl. ex Willd.) Kunth FABACEAE	Cattle food	–	Anaemia, antioxidant
Bledo <i>Inca wheat</i>	<i>Amaranthus caudatus</i> L. AMARANTHACEAE	Food	Osteoporosis	Food
Calaguala	<i>Polypodium calaguala</i> Ruiz POLYPODIACEAE	Bone healer	–	Gynaecological problems, kidney inflammations
Çara <i>Corn</i>	<i>Zea mays</i> L. POACEAE	Healing Plasters, kidney stones, bladder (drink)	Obesity	Food Skin problems
Çarça parrilla	<i>Smilax officinalis</i> Kunth SMILACACEAE	Syphilis	–	Anti-inflammatory prostate problems
Cuca, Coca	<i>Erythroxylum coca</i> Lam. ERYTHROXYLACEAE	Wounds broken bones (leaf)	Acosta disease, digestive, carminative, energizing	Carminative, anti- inflammatory, arthritis, digestive problems, energizing, Acosta disease
Flor Blanca Quishuar	<i>Buddleja incana</i> Ruiz and Pav. SCROPHULARIACEAE	Similar to the olive tree	Ovary problems, gastritis, kidney diseases, ulcers	Kidney and ovary problems

Table 1: Continued.

<i>Vernacular (English)</i>	<i>Scientific name</i>	<i>Uses in the 16th– 18th centuries</i>	<i>Uses in Lima 2006</i>	<i>Uses in Piura 2016</i>
Maca	<i>Lepidium peruvianum</i> G. Chacón BRASSICACEAE	Purging (root)	Gynaecological problems, energetic, osteoporosis, ulcers, aphrodisiac	Eyes, Sterility, aphrodisiac, antioxidant, osteoporosis, memory loss, anti-anaemic
Matecillo Matico	<i>Buddleja globosa</i> Hope SCROPHULARIACEAE	Eye infections (juice)	Skin healer	Gynaecological problems
Molle Peruvian Pepper	<i>Schinus molle</i> L. ANACARDIACEAE	Skin healer, scabies, kidney, bladder	Rheumatism, diuretic, liver problems, skin healer	—
Quinoa Quinoa	<i>Chenopodium quinoa</i> Willd. AMARANTHACEAE	Beverage against disease (flour)	Energetic, nutritious, strengthens the bones	Food
Palta Avocado	<i>Persea americana</i> Mill. LAURACEAE	Healing (fruit)	Food	Food

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