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Traditional Medicinal Knowledge in Costa Rica

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Abstract

Over one decade the Portuguese Tropical Research Institute has worked on the issue of natural resources preservation and traditional medicinal knowledge compilation in Latin American metropolitan areas; so far we have researched six countries: Brazil, Chile, Mexico, Peru, Cuba and Costa Rica. Costa Rican rainforests are among the richest world's tropical forests. Some recorded species are common to the Amazon rainforest as field research has proved, though. The tropical forest serves as a storehouse for medicines collected by traditional healers and herb traders that provide a diversity of species highly appreciated by the less wealthy urban residents and plant therapy believers. San Jose, Costa Rica's capital city is no exception, as observed, for Costa Ricans use a wide range of barks, roots and herbs to mitigate pains and treat traditional illnesses. During the year 2009 we have obtained a sample of forty-three interviews to three categories of informants within San Jose: Thirty urban gardeners from Mexico, Sabana and Fatima neighbourhoods; twelve medicinal species traders from several local markets; and one officially recognised plant therapist. Together with the plant species farmed, sold or recommended by suppliers, users and healers for all sorts of diseases we have systematically collected the domestic and ancestral prescriptions so as to make traditional medicinal knowledge available for a wider public. Our objective for compiling the vernacular names and the taxonomists' identification of flora together with their therapeutic uses is to provide a comparative guide of non-conventional medicines focusing Latin America. Hope is to contribute for sustainable use of medicinal resources and supply poverty alleviation formulas.

Introduction

Traditional medicinal knowledge is the repository of healing practises that bond human communities to non-human nature. This paper investigates the preparation of fresh stems, barks, fruit pulp, seeds, and roots collected in the tropical forests of Costa Rica as well as flowers, leaves and fresh cuttings cropped in San Jose home gardens. Because of the location of pollutant activities the city represents one of the main entropic systems (Fistola, 2010). However, locally grown organic food and medicinal species are environmental benefits for urban agglomerations and income providers to less wealthy and food-insecure urban households (Alkon, 2008).

Costa Rica is a tiny Central American country (51 032 km²) that lies about 10° north of the equator. The narrow territory is mountainous, with bare 300 km from coast to coast, the Pacific Ocean shore located to the west and the Caribbean beaches and lowlands spreading east. It is one of the world's most biodiverse locations because of the heavy rainfall that ranges from 1 500 millimetres in north-western areas to 5 000 mm in southern Caribbean lowlands and in the mountains.

Materials and Methods

Over one decade the Portuguese Tropical Research Institute (IICT) has been researching traditional medicinal knowledge in Latin American metropolitan areas, comparing preparations for the same plant species, describing herbal mixtures containing a diversity of medicinal plants,

compiling ancestral prescriptions to treat cold symptoms, to provide relief for aches or to prepare baths and compresses for skin diseases. The investigation also includes information on how to mitigate pains due to serious illnesses, such as cancer, and chronic health problems such as diabetes and rheumatic pains (Madaleno, 2010).

Research developed in San Jose, Costa Rica, has been twofold: 1) before, during and after the 2009 scientific mission, I've explored science databases and documentation on indigenous plant species. The history and geography of the country as a series of ethnographic records about indigenous peoples were also searched; 2) During the mission to Central America a sample questionnaire has been applied to three categories of informants: thirty urban gardeners from three different neighbourhoods – Fatima, Sabana and Mexico – plus twelve herb, root, tuber collectors and traders from the Central market and local markets and fairs, to finalise with one traditional plant healer. Additional interviews were obtained from seven selected respondents, because of their vast medicinal knowledge experience, of their wide prescription repertory and for their openness. Sixty different plant species were identified using the Missouri Botanical Garden taxonomy.

Results and Discussion

Traditional medicinal knowledge in Costa Rica is ethnically rooted Chorotega (north), Cabecar (centre), Huetar (west) and Bribe (south and east) Indians have the most relevant cultural influence, both in the case of cultivated medicinal plant species and in the example of wild specimens traded in the markets. Vegetable production in front and backyards is varied, intercropping or multiple inter-planted species is the norm. Varietal diversity is big, trees intermixing bushes and herbs, which protects the garden or plot against drought, the garden and the house against the wind, and potentiates insect and disease resistance. Organic agriculture is an option in San Jose home gardens and goes together with plant therapy choice over conventional medicine.

In spite of general native species dominance, Table 1 shows that the three top ranking plants used in infusions, concoctions, macerations and external applications are European. In fact, the preferred medicine is Camomile, taken orally in digestive infusions, also recommended against menstrual pains, used as a mild sedative and anti-influenza tea. Costa Ricans sometimes use solely the leaf and the flowers, particularly as pain killers and as collyrium, a popular external convenience for the herb, others the whole plant, together with the root. In this instance they tend to buy the specimen from local traders. External usage of the whole plant infusion in ear drops is considered the best recommendation against ear infections.

Mint refreshments are advised against stomach aches because of the carminative virtues the herb possesses, but in San Jose the mint leaf is eaten in salads for the recognised digestive properties. Rosemary decoctions are used against cough, and externally in remedies to ease rheumatic pains, such as in topical frictions and cataplasms. Women wash their hair with the infusion of this European species in order to protect the scalp and make the hair stronger. I must add that in case of hair treatments Rosemary has a good and appreciated native alternative, an Acanthaceae, *Justicia tinctoria*, locally know by the Spanish designation of Azul de Mata. It has been used from ancient times by the Huetar Indian communities against allergies and to eliminate dandruff. The species has been chemically tested and has proven effects against *Candida albicans*, *Escherichia coli* and *Staphylococcus aureus*. One of Fatima neighbourhood informants recommended the macerated leaf in baths to cure candidiasis.

Bitter wood is another native species, a tropical forest tree, also active against *Candida albicans* and *Staphylococcus spp.* The concoction of the bark is considered a good antidiabetic, suggested to be taken orally after meals. Before the main meals the popular recommendation is the maceration, used as stimulant, febrifuge and depurative. The bark of another tropical forest species, Mozote, is used macerated in water in ancient Bribe Indian prescriptions to facilitate

child delivery. The concoctions of the stem are diuretic, anti-diarrhoeal and used to control acid uric. The native Tiliaceae is applied externally against rheumatic pains.

Common name	Scientific name	Species characterisation	Medicinal application	Origin
Camomile	<i>Matricaria chamomilla</i> L.	Herb	Sedative, analgesic, anti-flu, collyrium, ear infections	European
Mint	<i>Mentha piperita</i> L. var. <i>citrata</i> (Ehrh.) Briq., <i>M. spicata</i> L.	Herb	Sedative, digestive, carminative	European
Rosemary	<i>Rosmarinus officinalis</i> L.	Bush	Rheumatic pains, hair washing	European
Aloe	<i>Aloe vera</i> (L.) Burm.f	Bush	Stomach ulcers, cancer, tumours, prostate diseases, skin problems	African
Frailecillo	<i>Jatropha gossypifolia</i> L.	Bush	Stomach aches, diuretic, hemostatic, depurative, prostate problems	Tropical American
Rue	<i>Ruta graveolens</i> L.	Herb	Ear infections, sour throat, arthritis	European
Lemongrass	<i>Cymbopogon citratus</i> (DC.) Stapf	Herb	Stomach aches, analgesic, cough, sedative, anti-flu	Tropical Regions
Bitter wood	<i>Quassia amara</i> L.	Tree	Diabetes, hepatic, febrifuge, anti-diarrhoea, depurative	Tropical American
Mozote	<i>Triumfetta semitriloba</i> Jacq.	Herb	Stomach aches, diarrhoea, uric acid control, anti-flu, anti-rheumatic	Tropical American
Dandelion	<i>Taraxacum officinale</i> F.W. Wigg.	Herb	Prostate problems, digestive, hepatic, anti-rheumatic	European

Figure 1: Summary of the fieldwork data obtained during the 2009 scientific mission to Costa Rica – the top ranking species registered in San Jose, the capital city.

As anti-dysenteric the Cabecar Indians prefer the usage of native Gavilana (*Neurolaena lobata* (L.) Cass.) that has proven effects against *Escherichia coli* and *Staphylococcus aureus*, *pyogenes* and *tphi* (Navas, 2007, Fernandez, 2007). The fresh cuttings are steeped in a boiling litre of water and taken orally in case of gastritis and colitis. The hepatic virtues favour the usage of the infusion as digestive. It is antidiabetic too. External applications in baths are common in Costa Rica for its antifungal and antibacterial activities that confirm traditional medicinal recommendations.

The European Dandelion grows everywhere, even along the roads, fed on the heavy rains. Introduced in the early days of colonisation, Costa Ricans eat the herb in salads and drink the infusion cold, as refreshment, for the digestive and hepatic actions. Proven anti-inflammatory it is consumed orally in case of rheumatism and excess uric acid. Dandelion is a proven anti-cancer herb either (Valdivia, 2007, WHO, 2007). As diuretic, however, a well-known native is traditionally prescribed by Chorotega Indian healers – corn (*Zea mays* L.) a prescription common to the Aztecs, as recorded during the scientific mission to Mexico City, in 2004. The informant in San Jose, a Sabana neighbourhood resident, had Chorotega Indian ancestors. He had migrated

young to the urban realm from his northern village hopeful on improving his standard of living. He was guarding a local factory and as the wage was not as high as he wished, he used his repertoire of ancestral remedies for his survival.

Overall I found Costa Rica to be the Latin American researched country with the most abundant prescriptions to control diabetes: In addition to Bitter wood and Gabilana, already mentioned, residents use Sorosi (*Momordica charantia* L.), an African native vine, recommended in infusions of the leaf and flower. Another example is a tree, Guapinol (*Hymenaea courbaril* L.) about 40 metres tall, consumed in infusions of the leaf and bark; it is also the advice given in the use of Guarumo (*Cecropia obtusifolia* Bertol.), taken orally in concoctions of the leaf. The tropical forest tree is about 20 metres tall. Escalera de Mono (*Bauhinia manca* Standl.) is a liana that grows from Central America to the Amazon rainforest. In Brazil the locals use the native species (*Bauhinia guianensis* Aubl.) instead. The Calaguala (*Polypodium aureum* L.) roots are used both as antidiabetic and as anti-cancer. Calaguala is a tropical American fern.

Back to the home gardens, Frailecillo is another domestic recommendation; in fact it is the fifth most consumed species in San José. It's also the case with Aloe, an African importation that occupies the fourth place in the ranking of preferences. The stem juice mixed with honey and whiskey is prescribed against prostate problems, including cancer, a central market recommendation that an over seventy years old informant declared to use regularly with success. Coffee beans and leaf (*Coffea arabica* L.) taken orally in concoctions are again recommended to decrease glucose tolerance

Conclusions

The paper presented sample research conducted in the capital city of Costa Rica, in 2009. Half the medicinal species grown in front and backyards and purchased in the markets to treat chronic or mild diseases were native from the American continent. It's no surprise because most of the indigenous people that migrated to urban areas maintain traditional preventive and healing practises, with or without the orientation of a specialist, together with the good habit of growing food and therapeutic plants in the home garden. However, an astonishing result was that one fourth of the plants used in traditional healing practises and domestic remedies had been introduced by European colonisers. Explanation is several world-known herbs are accepted by the conventional medicine and most of them are sold in small pockets in the pharmacy. This result coincides with previous research developed in Chile and in Peru.

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