

**TRADITIONAL MEDICINAL PLANT USE IN THE ECUADORIAN ANDES AND  
AMAZON**

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**Abstract:**

Widespread throughout Ecuador there is a passion and genuine appreciation for the native and medicinal plants that the biodiverse country inhabits. Especially seen in indigenous groups, from the Andes, to the dwellers of Ecuadorian Amazonia; plants and their holistic medicinal uses are second only to the Creator of their wondrous benefits. The biogeography of the Andes and Amazonia in Ecuador play a prominent role in the occurrence of such species, with emphasis placed on two very important National Parks, although they are only for means of direct spotlight on several prominent species. To understand the ethnobotanical importance of such medicines, how they are made, why they are used, and where they are found, is detrimental to the indigenous lives affected every day by habitat destruction, violation of their lands and overall disregard of their traditions. It is not only an act of environmentalism, but also that of social justice, to protect the natural medicines of Ecuador.

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## **Plant Biogeography of the Ecuadorian Andes**

The Andes are characterized by a chain of mountains spread throughout Venezuela, Columbia, Ecuador, Peru, Bolivia, Chile, and Argentina. They are, in fact, the largest chain of mountains in the world and are home to a variety of native and highly medicinal flora. The climate of the Andes is variable in that it depends on a number of factors that differ greatly among the seven countries listed above. Topography, proximity to the ocean, latitude, and the altitude at which point of the Andes is being discussed are all essential factors when determining climatic variability (Klappenbach, 2019).

Ecuador in particular is very diverse in its topographical features, being such a small country with parts at the coast, in the Amazon, the Galapagos Islands, and the highlands, or the Andes. In the highlands of Ecuador, there is a dry season and a rainy season—being slightly warmer during the rainy season, which takes place between October and May. Of course, the higher you get, the cooler the temperatures are, and this affects what sort of plant life can thrive (Galapagos Insiders, 2018). Despite a rainy season, the highlands are semi-arid, with average precipitation being 41.8 inches per year (Data.org, n.d.). Vegetation in the Andes highlands is mainly comprised of bushes, grasses, and small trees. Additionally, several cactus species can be found in the highlands.

## **Cajas National Park**

Nearby beautiful Cuenca city in Ecuador lay the vast lands of Cajas National Park. The park, stretching 70,000 acres, was once used to connect the city of Guayaquil on the coast, with the southern Andean city of Cuenca, for trade between the Inca peoples. This National Park has much more to offer than its aesthetic Andean mountain views and whopping 768 lakes, however (Hooker, 2019). Cajas is home to nine species of Ecuador’s endemic plants, and over 60% of the plants have medicinal uses.

The *Chuquiraga jussieui*, which is native to the highlands of Columbia, Ecuador, and Peru; and also referred to as the “national flower of Andean mountain climbers” are known amongst highlands locals as having great medicinal benefits, such as anti-inflammatory properties that can stimulate the immune system, although it is not endorsed that anyone forage for them in nature, as they are highly endangered today. The entirety of the plant, which is part

of the *Asteraceae* family, is used to make a tea which has traditionally acted as a diuretic. The leaves, flowers, and stems may also help with intestinal and liver functions (Moeller, 2019).

*Minthostachys mollis*, more commonly known as *tipo* to native Andeans, shares the same family as the common herbs *mint* and *oregano*. Tipo is a medicinal plant native to the South American Andes, and has a different name depending on where it is located. For example, in the area around Cuzco, the famous Andean mint is referred to as *muña*, a Kichwa term. (Morveli, 2016). In the indigenous medicine traditions of the Andes, tipo is made into a tea and used medicinally as a carminative, which helps relieve gas pains from the gastrointestinal system, and as an aphrodisiac (Dryadpharmacy, 2016).

*Castilleja*, more commonly known as *Indian paintbrush* within the family *Scrophulariaceae* (Figwort Family), is found in the Andes and at Cajas National Park, as well as a variety of other places, as its zones range from 3 to 9. Indian paintbrush can be enjoyed as a vegetative herb in salads, but is also known to treat rheumatism. Additionally, due to high selenium content, it is used as a bath rinse and for shiny hair (Cichuniec, 2002). It has also been known to be beneficial in regulating the menstrual period when made into a tea and drunk regularly.

*Valeriana officinalis*, referred to as *valerian* or *valeriana*, is one of the most famously known medicinal plants in that the pharmaceutical drug Valium comes from it, which is used to treat anxiety, muscle spasms, and seizures. It is also very widespread throughout Cajas National Park. Traditional uses of valerian include restlessness and slight sleeping disorders caused by nervousness or stress (Kern, 2019). This medicinal plant is used specifically for calming affects.

### **Indigenous Peoples of the Ecuadorian Andes**

There are many native groups living in the Ecuadorian Andes today, many of which have been thriving there for generations under traditional grass homes, foraging and growing their own food, and using plants for medicine. In the Southern provinces, ethnobotany is a major factor of life.

The Saraguros, one of the Kichwa indigenous groups of Ecuador, use community healers, similar to a shaman, and known throughout the community as “Hampiyachakkuna”, to keep and restore health in the communities when needed. They are an integral part of the

community and use only medicinal plants and natural remedies in their healing. A study conducted in San Lucas Parish of Loja found when researching Saraguros community healers that at least 183 plant species known to have medicinal benefits are commonly used in 75 different curative therapies by healers daily (Andrade, M., Mosquera, & Chabaco, 2017). There is no need or desire to administer or partake in “Western” healing techniques or medicines.

Additionally, in the Loja province, the “horchata” drink is consumed for its medicinal benefits and for therapeutic uses. It is an herbal mixture infusion commonly consumed, consisting of 71 medicinal plant species, 50 of which are herbs and three are endemic to the Andean highlands of Ecuador (Rios, Tinitana, & Jarrin, *et al*, 2017). There are a multitude of uses for this drink, but overall, it is a drink of heritage, and mean more to Southern Andean dwellers that what meets the surface.

In the traditional markets of the Southern provinces, medicinal plant trade is common as well as essential. Ethnobotanical studies of these areas are the most important, because the trade of goods here took place long before Spanish colonization and continue today. The indigenous groups that remain today are at risk due to impending global warming, and on local plant resource trade which could eventually see drastic changes due to climatic disparity. Sociocultural customs are expressed in ancestral practices involving the use of medicinal plants (Tinitana, Rios, & Romero-Benavides, *et al*, 2016). Therefore, it is not only an act of environmentalism to protect the lands of the Andes and in Ecuador, but also a social welfare issue in respect to our indigenous groups that remain today.

### **Plant Biogeography of the Ecuadorian Amazon**

The Amazon rainforest is characterized by an ecologically diverse area fed by the Amazon River and spanning nine South American countries. The Amazon is not only extremely important to the survival of many of the Earth’s species but is also in grave danger. Providing over 20 percent of the world’s oxygen and one-fifth of its fresh water, the Amazon Rainforest truly is not a force to be reckoned with. Overall, the Amazon is home to over half of all the world’s species of animals, plants, and insects (Whitehead, 2017).

In Ecuador, the Amazon Rainforest, shared with Brazil to the east, makes up only 2% of the entire Amazon basin, but for the small country, this represents 80% of forested land (Global

Forest Atlas, n.d). Plant life is very diverse and unique to the rainforests. To this day, many new species are discovered daily. In the Ecuadorian Amazon, more than 300 tree species can be identified within one hectare of lowland forest! These trees are noticeably connected by a variety of woody shrubbery and vines, giving the rainforest its full, lush appearance it is so famously known for. The rainforest would be nothing without the appearances of orchids, bromeliads, ferns and other epiphytes that form the dense forest canopy, however. (EOS Ecuador, 2013).

Ecuadorians are actively fighting for the safety and protection of the Amazon on their turf. Although home to much of the country's crude oil supply, and lack of definite cosponsors in saving the Ecuadorian Amazon, indigenous tribes and citizen's workers have been doing all they can to elect the right officials and get proper legislation in place for decades.

### **Yasuni National Park**

The rainforests of Yasuni National Park, in the east of Ecuador and covering a small percentage of the Western Amazon Basin, is one of the most biodiverse parks on Earth. It is located in the provinces of Orellana and Pastaza. Yasuni holds an estimated 1.7 billion barrels of crude oil, or 40% of Ecuador's reserves, on its lands (Vaca, 2018). Indigenous groups living in Yasuni today, hope to keep it that way, as oil is the "blood" of Pachamama, or Mother Earth. Many native peoples still reside in this part of the Amazon as well as others, continuing to use traditional forms of healing through medicinal plants, and connect with nature through the creation of an Ayahuasca drink.

To make the famous *Ayahuasca*, and connect with the gods and the Earth, a special blend of psychoactive and medicinal herbs is formulated quite particularly. *Lianas*, which is a type of woody vine found in tropical rainforests, can be used to make a substance known as *Curare*. This chemical compound is known as a neurotoxin and has been used throughout the jungle as "arrow poison" for many centuries (Carl, Schwarzer, Klingelhofer, Ohlendorf, & Groneberg, 2014). On the other hand, Lianas can be combined with *Banisteriopsis caapi* and *Psychotria viridis*, and the muscle-relaxing benefits it provides combined with the psychoactive plant chemicals make for an earthly adventure, connecting native peoples to the land as a traditional practice of wellbeing.

Another common to Yasuni, *Heliconia rostrata*, is a widely cultivated species native to Ecuador and a few other South American countries. This plant is a far relative of bananas, and

the leaves may be confused for that reason, although they sport bright and beautiful flowers. Widely unreported, although popular within traditional communities of the rainforest, Heliconia, or the Lobster Claw Plant, as it is more commonly referred, is a great aid for treatment of diabetes or diabetes-induced edema (Shahriar, 2017). It is also known to attract great amounts of pollinators and hummingbirds.

*Passiflora incarnata L.*, commonly known as Passion Vine, are bright colored flowers inside the rainforest that double as a wonderful herbal medicine when used to treat a variety of ailments. Depending on where it is found in the world, Passiflora has been used to treat a number of things, including use as a sedative, for dysmenorrhea, insomnia, and even cancer, as well as some other less common health issues (Kim, Lim, Lee, & Kim, 2017). In South America more specifically, it may be referred to as Passionflower, and is a very prominent plant in the Amazon, as it flourishes tropically.

As a frequently used medicinal plant for ailments of the stomach, *Centropogon cornutus*, also widespread throughout Yasuni National Park, has been traditionally used from Ecuador to Bolivia. In certain areas, the entire plant is boiled into a tea, and is used to treat venereal diseases, although it is more traditionally used for stomach ulcers (Powder-George YL, 2017).

### **Indigenous Peoples of the Ecuadorian Amazon**

In the Pastaza province of the Ecuadorian Amazon, the medicinal plants mentioned, plus a great deal more, have been of considerable cultural importance for generations. The teachings that pass-through decades of native peoples are embedded in the practices of medicinal herbal healing techniques and are an important part of what makes the tribes of the Amazon so special. Like in the Andes, groups of Kichwa people remain in the Amazon, along with another group of natives, mestizo. Both groups remain today and practice very similar alternative techniques regarding medicine. In most of the Ecuadorian Amazon, specifically the northwestern area of Pastaza province, there are only active Kichwa and mestizo farmers.

In an ethnobotanical study looking to identify plant species used in traditional medicine by small farmers of the localities of the Amazonian provinces, it was found that a total of 52 plant species, belonging to 34 differing botanical families, were identified and used readily by both Kichwa and mestizo farmers (Abril *et al*, n.d).



The local communities of the Ecuadorian Amazon face many more threats daily than the people of the Andes. The Amazon is constantly at risk of exploitation, especially being that it holds much of South America's supply of crude oil. Due to the impending exploitation and degradation of land that Amazonia faces, native and endemic flora, as well as fauna, are in grave danger. Many species are at high risk of extinction and are severely threatened today. This not only threatens environmentalism and climate change, but also threatens the lives that are maintained by the Rainforest itself. Many of the people of the Amazon speak a language that is particular to their roots. The Inca descendants that are now considered the Kichwa people, for example, still speak the native language. This makes it difficult for those being forced to seek more nontraditional methods of healthcare, especially being that they do not have the means to leave the Amazon rainforest, more often than not. They are secluded to their traditional methods, and without the prominent flora that they are used to, their entire tribe could be in danger.

### **Conclusion**

Particularly in developing and third-world countries, alternative medicine has been the basis of life or death. Some Westernized methods of alternative herbal medicine have become popularized around the world, although for indigenous tribes of Ecuador, alternative practice is practically all they know, and they have survived on these methods for generations.

To upkeep the health and prosperity of the indigenous tribes of Ecuador, it is imperative that the country itself, as well as the rest of the world, in which threatens their habitat and their home, consider the negative affects being put in place by the destructive practices of deforestation for lumber, degradation of the land for oil extraction, and overdevelopment for increased tourism. The indigenous tribes of the world depend on it.

It is blatantly understood that large corporations and many official governing bodies have little to no respect for nature's finest and most highly threatened species of animal and plant. Specifically, those of the Amazon rainforest, which is burnt and chopped down regularly for agricultural land used for large scale companies. The question is, will the human beings of these lands be considered, the next time Brazil sets fire to the jungle? Will the people of the Andes highlands be considered, while Ecuador's largest oil mining operations continue to pollute the water and the air? It is not only an act of environmentalism, but also that of social justice, to protect the natural medicines of Ecuador.

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