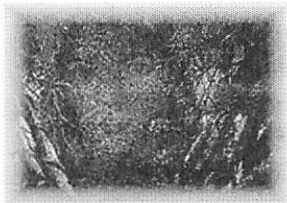


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"Transformative workshop retreats exploring the essence of traditional shamanic ayahuasca healing practices and ethnobotany in the heart of the Peruvian Amazon"

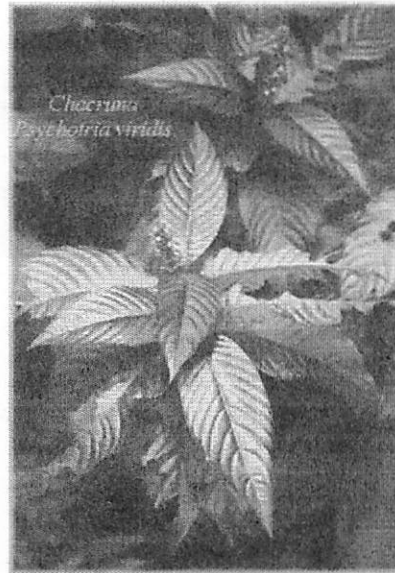
Ayahuasca, Yagé, Caapi, Natema

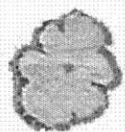
an overview of an extraordinary healing plant

Banisteriopsis caapi (Spr. ex Briesb.)

Family Malpighiaceae

Translate from





Vine of the Souls

by Charlie Kidder



"Every tree, every plant, has a spirit. People may say that a plant has no mind. I tell them that a plant is alive and conscious. A plant may not talk, but there is a spirit in it that is conscious, that sees everything, which is the soul of the plant, its essence, what makes it alive..."



...I feel a great sorrow when trees are burned, when the forest is destroyed. I feel sorrow because I know that human beings are doing something very wrong.

*When one takes **ayahuasca** one can sometimes hear how the trees cry when they are going to be cut down. They know beforehand, and they cry."*

*- Pablo César Amaringo
retired Peruvian ayahuasquero*

Deep in the heart of the Amazonian rainforest grows a sacred vine known for its magical powers. This vine is known by many names, but the most well known of them all may be **ayahuasca** (aye-yah-wah-skah). In the Quechua language, *aya* means spirit or ancestor, and *huasca* means vine or rope. It is reputed that those who consume this vine of the souls are bestowed with the ability to commune with spirits, diagnose illness, treat disease, and even predict the future. While the existence of this vine is certainly no big secret, it is only recently that western science has decided to study the magical properties of this sacred medicine.

Archaeological evidence may date **ayahuasca** use in Ecuador back five millennia. However, western knowledge of **ayahuasca** dates back only as far as 1851 when a group of Tukanoan Indians invited British botanist and explorer Richard Spruce to participate in a ceremony which included a visionary drink they called caapi. Spruce only drank a small amount of the "nauseous beverage," but he couldn't help noticing the profound effect it had on his new friends. The Tukanoans showed Spruce the plant from which the caapi was made, and he was able to collect good specimens of the plant in full flower. Spruce named the plant *Banisteria caapi*, and further research led him to conclude that caapi, yagé, and **ayahuasca** were all Indian names for the same potion made using this one vine.

Since these early findings, indigenous use of various **ayahuasca** potions has been reported throughout the Amazon as far east as the Río Negro in Brazil and as far west as the Pacific coastal areas of Colombia and Ecuador. It is also found as far north as the Panama coast, and southward into areas of Amazonian Perú and Bolivia. At least 72 indigenous groups have been found to use similar preparations known by a total of over forty different names.

Preparation

Ayahuasca potions are normally prepared by soaking or steeping lianas of *Banisteriopsis caapi* or related species for various lengths of time. The specific method varies from group to group, but the simplest method is a cold water infusion where pieces of the stem are first pounded and allowed to stand in cold water, after which the plant material is strained off and the remaining potion drunk. Some groups will immerse the pounded stems in hot water, cooking the plant material anywhere from an hour to all day long. The longest of these preparation methods involves repeated boiling and filtering of the plant matter and extract until only a thick concentrate remains. This process normally comprises a whole day's work, taking up to fifteen hours to prepare a single batch.

Banisteriopsis caapi is often the only plant used to make **ayahuasca**. However, it is not an uncommon practice to add one or more admixture plants to the brew during its preparation. Admixture plants help to flavor the experience of each specific batch of **ayahuasca**, and often contain stimulants or visionary compounds, like caffeine, nicotine, or DMT. In **ayahuasca** potions made using DMT-containing additives, it is most likely that DMT is the key visionary ingredient, responsible for most if not all of the potion's powerful entheogenic effects.

Pharmacology of Ayahuasca

DMT was first synthesized in 1931, fifteen years before it was discovered to be a naturally occurring compound. DMT is found in many psychoactive Amazonian snuffs prepared from the resin of numerous species of *Virola* trees, and was first naturally extracted from a shamanic snuff made from the crushed seeds and pods of *Anadenanthera peregrina* in 1955. In 1956, Stephen I. Szara and colleagues became the first to experience the effects of the hydrochloride salt of N,N-Dimethyltryptamine via intramuscular injection at doses ranging from 0.7 to 1.1 mg per kg body weight. He found the drug to produce what he described as a "psychotic effect partially similar to that caused by mescaline or LSD-25." Szara found that after injecting 50 to 60 mg of DMT, entheogenic effects commenced within two to three minutes, lasting about 45 minutes to an hour. He described the effects thus: "Eidetic phenomena, optical illusions, pseudo-hallucinations and later real hallucinations, appeared. The hallucinations consisted of moving, brilliantly colored oriental motifs, and later I saw wonderful scenes altering very rapidly. The faces of the people seemed to be masks. My emotional state was elevated sometimes up to euphoria..."

By 1977, it was established that smoking DMT free base produces a more potent and rapid effect than does injection. Thirty mg of DMT smoked was found to produce almost instant peak effects, lasting a total of only five to ten minutes. However, DMT has been tested in doses of up to an entire gram ingested orally without producing any effects whatsoever. So the question remained: Since DMT appears to be completely inactive orally, how can the average 29 mg found in an orally ingested dose of **ayahuasca** produce a visionary effect?

The answer to this question lies in the enzyme monoamine oxidase (MAO). This enzyme normally functions in our digestive systems to break down any monoamines present

within the foods we eat so that they do not upset the balances of monoamine neurotransmitter metabolism going on in our brains. DMT, being a monoamine, is completely oxidized and decomposed by MAO in the gut when it is ingested orally. However, the β -carboline alkaloids from the *Banisteriopsis* liana are known to inhibit MAO to the point where the accompanying DMT from the admixture plant can survive in the digestive tract and make its way to the brain.

The structure of DMT (as well as those of other entheogenic compounds) is remarkably close to that of the important modulatory neurotransmitter serotonin (5-hydroxytryptamine, or 5-HT). Such neurotransmitter shuffling is thought to bring about the disinhibition of normally controlled and regulated processes within the brain. The binding of serotonin-like molecules to the 5-HT receptors affects serotonergic neurons which can stimulate a wide range of things - from repressed emotions and memories to the brain's image-processing system. This unique combination of neural stimuli results in a wondrous explosion of transcendent emotion and internal kaleidoscopic imagery.

Shamanic Use of Ayahuasca

The mestizo shamans of the Peruvian Amazon generally refer to themselves as *vegetalistas*. These plant-doctors help the people of rural areas and the urban poor who often have no other available help in critical situations requiring medical attention. Most *vegetalistas* tend to specialize, using just one or few plant teachers in their practices. Thus there are *tabaqueros* who use tobacco; *toeros* who use various *Brugmansia* species; *catahueros* who use the resin of catahua (*Hura crepitans*); *paleros* who use the bark, resins and roots of various large trees; *perfumeros* who use the scents of various fragrant plants; and *ayahuasqueros* who use **ayahuasca**.

The shamanic use of **ayahuasca** is usually within the context of healing. The shaman or ayahuasquero takes **ayahuasca** to better diagnose the nature of the patient's illness. *Vegetalistas* claim they receive their healing skills from certain plant teachers, who are believed to have a madre or spirit-mother. The role of the shaman is to mediate the transmission of medicinal knowledge from the plant teacher to the human world for use in curing.

The plant teachers are believed to teach the neophyte shaman a number of power songs or supernatural melodies called *icaros*, either during an **ayahuasca** session or in dreams following the ingestion of other plant teachers. The plant teachers give the magical songs to the *vegetalista* so that he or she may sing or whistle them during healing sessions. Some shamans place so much emphasis on the healing power of the *icaros* that once he or she has learned a good number of them, the **ayahuasca** is no longer necessary for healing.

Artist and Peruvian *vegetalista* Pablo Amaringo has painted a series of his past **ayahuasca** visions, depicting them in great detail. In order to do this, Amaringo will attempt to recall one of his visions, sometimes by singing the *icaro* he sang at the time of the vision. This brings back the image so vividly that Amaringo is able to project it onto a canvas and then simply trace it adding colors later. Images from **ayahuasca** visions are a predominate feature of Amazonian art. It has been suggested that this visual art along with the melodies of the *icaros* combine with the synaesthetic effects of the potion to

produce an "aesthetic frame of mind" central to the healing process. The design the shaman paints onto his or her body is believed to represent a healthy energy pattern, and is often revealed by the **ayahuasca**.

When a person becomes sick, their energy pattern becomes distorted. Under the influence of **ayahuasca**, the shaman can see the distortion in the patient's energy pattern and attempt to restore a healthy pattern using suction, massage, medicinal plants, hydrotherapy, and restoration of the patient's soul. The similarities between these shamanic methods and techniques used in traditional Chinese chi-gong, or "energy directed" medicine, should be noted. Interestingly, a shaman usually chooses medicinal plants based on visible characteristics, like shape or color. For example, a plant which produces flowers shaped like an ear may be used to treat ear diseases. Part of the novice shaman's training involves scrutinizing nature to learn about the properties or "hidden virtues" within the surrounding plants and animals.

Modern Interest in Ayahuasca

From the first written mention of **ayahuasca** by a Jesuit priest near the end of the 17th century to current research dealing with **ayahuasca**, our knowledge of this ancient Amazonian ethnomedicine has grown considerably. In just the last few decades, a fair number of publications have been written on the topic; anthropologists have begun studying how **ayahuasca** is used to heal; and research groups have started studying the potion's long-term physiological and psychological effects. Another interesting modern phenomenon is the growing number of Christian churches throughout South America who have opted for **ayahuasca** as their sacrament during communion instead of the usual symbolic bread and wine sacraments. These churches claim that the potion helps to promote intense concentration and direct contact with the spiritual plane.

The first of these **ayahuasca** churches were initially formed in the 1920s in Brazil, and today two groups, the União do Vegetal (UDV or 'Herbal Union') and the Santo Daime [see related article], continue to flourish. These neo-Christian churches now mainly exist in urban areas, and represent the modern movement of ritual **ayahuasca** use from the primal rainforest into the big city.

In these churches mass is held once a week. The church members cultivate the plants needed to make the potion, and oversee its preparation and storage. On special occasions, **ayahuasca** is dispensed in small cups at communion. The dose is only a couple of ounces, but the **ayahuasca** they produce has been reported to be very strong. As the celebration usually lasts all night long, it is not unusual for members of the church to take several doses during the course of the evening.

In 1985, the Brazilian government added the **ayahuasca** liana to its list of controlled substances. The UDV soon petitioned the ban and the Brazilian government appointed a commission to investigate the issue. The commission found no evidence of social disruption associated with the sacramental use of **ayahuasca** (which the commission members tried themselves) and **ayahuasca** was removed from the Brazilian controlled substances list in August of 1987. More problems arose in 1988 when an anonymous source alleged that the churches consisted of fanatics, drug addicts, and ex-guerrillas given to smoking *Cannabis* and taking LSD during their rites. Yet another study of the

issue was ordered by the government, this time to investigate the physiological aspects of **ayahuasca's** pharmacology. The conclusions of this study prompted the Brazilian government in June of 1992 to exempt *Banisteriopsis caapi* and *Psychotria viridis* - as well as the **ayahuasca** potion - from its illicit substances list. This legal decision has opened the doors to the further expansion of these churches, which have since held ceremonies in several cities all over the world. An international scientific research team, the Hoasca Project, has recently begun studying the long term effects, both psychological and physiological, of chronic **ayahuasca** use by these church members.

Ayahuasca and the Future

It is hard to say what the future may hold for **ayahuasca**. It could prove to be a useful tool in helping science better understand the biochemistry of consciousness and the genetics of pathological brain function. Pharmaceutical MAO-inhibitors are widely used in western medicine as anti-depressants, and further research into the psychotherapeutic benefits gained from the tryptamines remains to be done.

As far as religion is concerned, the potential for expansion of **ayahuasca**-using churches seems unlimited. Incorporation of a powerful psychoactive sacrament into religious ceremonies could have far-reaching effects on modern spiritual practices and beliefs. However, it remains to be seen whether entheogen users here in the U.S. would be attracted to the idea of psychedelic Christianity.

All in all, **ayahuasca** represents a unique plant-based medicine. The fact that its traditional use by Amazonian Indians has survived the continual influence of Western acculturation is testimony to the central and important role it has in their world-view. In fact, in many Amazonian tribes the first thing the parents will give a newborn baby is a drop of **ayahuasca** - right in the mouth. To them it is the supreme medicine, and a true gift from the gods.

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Common Names in Amazonia

yagé; bejuco bravo; bejuco de oro; caapi (Tupi, Brazil); *mado, mado bidada and rami-wetsem* (Culina); *nucnu huasca* and *shimbaya huasca* (Quechua); *kamalampi* (Piro); *punga huasca; rambi* and *shuri* (Sharanahua); *ayahuasca amarillo; ayawasca; nishi* and *oni* (Shipibo); *ayahuasca; ayahuasca negro; ayahuasca blanco; ayahuasca trueno, cielo ayahuasca; népe; xono; datém; kamarampi; Pindé* (Cayapa); *natema* (Jivaro); *iona; mii; nixi; pae; ka-hee'* (Makuna); *mi-hi* (Kubeo); *kuma-basere; wai-bu-ku-kihoa-ma; wenan-duri-guda-hubea-ma; yaiya-suava-kahi-ma; wai-buhua-guda-hebea-ma; myoki-buku-guda-hubea-ma* (Barasana); *ka-hee-riama; mene'-kaji-ma; yaiya-suána-kahi-ma; kahi-vaibucuru-rijoma; kaju'uri-kahi-ma; mene'-kaji-ma; kahi-somoma'* (Tukano); *tsiputsueni, tsipu-wetseni; tsipu-makuni; rami-wetsem* (Kulina); *amarrón huasca, inde huasca* (Ingano); *oó-fa; yajé* (Kofan); *bi'-ã-yahé; sia-sewi-yahe; sese-yahé; weki-yajé; yai-yajé; nea-yajé; horo-yajé; sise-yajé* (Shushufindi Siona); *shimbaya huasca* (Ketchwa); *shillinto* (Peru); *nepi* (Colorado); *wai-yajé; yajé-oco; beji-yajé; so'-om-wa-wai-yajé; kwi-ku-yajé; aso-yajé; wati-yajé; kido-yajé; weko-yajé; weki-yajé; usebo-yajé; yai-yajé; ga-tokama-yai-yajé; zi-simi-yajé; hamo-weko-yajé* (Siona of the Putomayo); *shuri-fisopa; shuri-oshinipa; shuri-oshpa* (Sharanahua).*

At least 42 indigenous names for this preparation are known. It is remarkable and significant that at least 72 different indigenous tribes of Amazonia, however widely separated by distance, language, and cultural differences, all manifested a detailed common knowledge of *ayahuasca* and its use.*

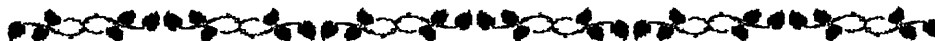
Both the plant and the medicine prepared from it are called '*ayahuasca*' in most of the Peruvian Amazon. In this cyber-treatise we distinguish the *ayahuasca* vine (*Banisteriopsis caapi*) from the medicinal brew (*ayahuasca* combined with a companion plant such as chacruna) by capitalizing the name of the prepared medicine, i.e. *Ayahuasca*.

*from Schultes and Raffauf, *The Healing Forest*.



Biochemistry

Principal active biochemicals: the beta-carbolines harmine, harmaline, and tetrahydroharmine are present in the bark, stems, and trunk of *B. caapi* (= *B. inebrians*), and other species of *Banisteriopsis*. Tetrahydroharmine occurs in greater concentration in *B. caapi* than in other plants bearing harmala alkaloids such as *Peganum harmala* (Syrian rue). This may account for the distinctly different psychotropic effects of these plants.



What is Ayahuasca?

The word "*Ayahuasca*" refers to a medicinal and magical drink incorporating two or more distinctive plant species capable of producing profound mental, physical and spiritual effects when brewed together and consumed in a ceremonial setting. One of these plants is always the giant woody liana vine called *ayahuasca* (*Banisteriopsis caapi* or other species). The other plant or plants combined with *ayahuasca* generally contain

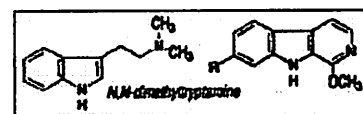
dimethyltryptamines. The plants most often used are the leaves of *chacruna* (*Psychotria viridis* and other species) and oco yagé (*Diplopterys cabrerana*).

This drink is widely employed throughout Amazonian Perú, Ecuador, Colombia, Bolivia, western Brazil, and in portions of the Río Orinoco basin. It has probably been used in the western Amazon for millennia and is rapidly expanding in South America and elsewhere through the growth of organized syncretic religious movements such as Santo Daime, União do Vegetal (UDV), and Barquinia, among others.

In traditional rainforest practice, other medicinal or visionary plants are often added to the brew for various purposes, from purely positive healing (*blancura*) and divination to malevolent black magic (*brujeria, magia negra or rojo*).

The oldest known object related to the use of **ayahuasca** is a ceremonial cup, hewn out of stone, with engraved ornamentation, which was found in the Pastaza culture of the Ecuadorean Amazon from 500 B.C. to 50 A.D. It is deposited in the collection of the Ethnological Museum of the Central University (Quito, Ecuador). This indicates that **ayahuasca** potions were known and used at least 2,500 years ago. Its antiquity in the lower Amazon is likely much greater.

The **Ayahuasca** medicine usually contains both beta-carboline and tryptamine alkaloids although some indigenous Amazonian cultures, i.e. Yagua and others, prepare a ceremonial drink from the **ayahuasca** vine alone.



The beta-carbolines (harmine, harmaline, and tetrahydroharmine) are obtained from the **ayahuasca** vine (*Banisteriopsis caapi*). Harmine and harmaline are visionary at near toxic levels, but at modest dosage typically produce mainly tranquility and purgation. Tetrahydroharmine is present in significant levels in **ayahuasca**. It may be responsible for some of its more profound effects compared to analogue plants such as Syrian rue (*Peganum harmala*). The ratio of these harmala alkaloids in **ayahuasca** varies greatly from one geographical area to another in the Amazon basin. The proportions in which they are present likely accounts for the varied effects reported by shamans from different 'kinds' of **ayahuasca** even though all are botanically classified as *Banisteriopsis caapi*.

See '**Botanical Species and Shamanic Varieties of *Banisteriopsis***.'

Harmala alkaloids are short term monoamine oxidase inhibitors which render tryptamines orally active by temporarily reducing levels of monoamine oxidase in the body which otherwise rapidly destroys them. The combination of specific serotonin reuptake inhibitors (SSRIs, such as Prozac), and most other antidepressants, with **Ayahuasca** or other MAO inhibitors can cause life support emergencies or death.

The principal **ayahuasca** compounds have a common indole structure which, through several mechanisms, influences certain functions of the central nervous system (CNS). The relevant factor is the biochemical similarity of these compounds to the neurotransmitter serotonin (5-HT). The harmala alkaloids in **ayahuasca**, primarily harmine and tetrahydroharmine, reversibly inhibit the neuronal enzyme monoamine oxidase (MAO).

This allows DMT to be active when ingested orally. It also facilitates accumulation of biogenic amines, such as 5-HT, which are normally metabolized by MAO. DMT is a very powerful visionary substance when smoked in its pure form or taken orally in **Ayahuasca**. However it is incorrect to characterize the **Ayahuasca** experience as merely a DMT experience activated by a beta carboline MAO inhibitor. The holistic processes at work are far more complex.

Tryptamines (specifically N,N-dimethyltryptamine = DMT) are derived most commonly from the leaves of **chacrana** (*Psychotria viridis* and *P. carthaginensis*). Research is underway to better understand the biochemical, psychotropic, and medicinal properties of various species of *Psychotria*.

In some areas and practices, *oco yagé* (*Diplopterys cabrerana* = *Banisteriopsis rusbyana*), also called chaliponga, chagraponga, and huambisa, or other plants are used in addition to or instead of chacruna.

Both N,N-dimethyltryptamine and 5-methoxy-N,N-dimethyltryptamine are present in the leaves of *Diplopterys*. The latter compound occurs in relatively low proportion but significantly increases the power and duration of the **Ayahuasca** experience.



Psychotria viridis in fruit

5-methoxy-N,N-dimethyltryptamine is not present in *Psychotria*.

Diplopterys leaves are 5-10 times more alkaloid-rich than an equivalent amount of *Psychotria* so fewer leaves are used.

Oco yagé is favored by shamans in Ecuador and southern Colombia, but chacruna is far more commonly used in Perú where many species and botanical variations of the genus *Psychotria* are recognized by curanderos and used for varied purposes (see **chacrana**).

The leaves of either plant are not psychoactive if eaten or smoked due to the relatively low alkaloid content and rapid breakdown of alkaloids by monoamine oxidase, a natural human enzyme.

Chacrana and oco yagé are similar in their contribution to the **Ayahuasca** brew, but there are differences in their experiential and spiritual qualities. These differences are evident only to those who know the scope of effects of which each plant is capable. Both bring light and vision to the experience. Chacrana harmonizes with the power of **ayahuasca** while oco yagé adds power with light (the 5-meo-dmt effect). The 'mareación' (**Ayahuasca** state) produced with chacruna normally lasts four to five hours, while that with oco yagé often lasts over six hours.

The relatively low concentration of 5-methoxy-N,N-dimethyltryptamine in oco yagé contributes a strong effect. Though it does not particularly enrich the visionary experience per se, some find in it a powerful propellant for shamanic soul flight. This probably accounts for the longer-lasting effect of **Ayahuasca** containing oco yagé.

In northeastern Brazil, the psychoactive plant combined with **ayahuasca** is called Jurema, *Mimosa hostilis*, a common flowering leguminous tree. The bark from the roots of *M. hostilis* contains the highest recorded concentration of tryptamines.



Ayahuasca and Serotonin Normalization

The UDV Study

A controlled study conducted with 2 groups, the first composed of **ayahuasca** drinkers from the União do Vegetal (UDV), and a second control group was undertaken in Manaus, Brazil. The study included physical and psychological evaluations in addition to analysis of biological specimens.

Blood platelets were collected from UDV members who had used **ayahuasca** for at least 10 years, and who had not consumed the drink for at least one week. **Ayahuasca** is rarely consumed more frequently than every other week by most practitioners.

Blood platelets were also collected from the control group. 5-HT uptake activity was measured in platelets by displacing [3 H]citalopram with unlabelled paroxetine. A statistically significant ($p= 0.006$) difference was found between the two groups; the tea drinkers had a higher density (Bmax) of 5-HT uptake sites when compared to the control group and literature values, with an overall increased regulation of about 25% (Callaway et al. 1994).

Increased regulation of 5-HT uptake is significant because of its implications regarding contemporary medical theory of depressive disorders. Increased serotonergic activity is exactly what current medications attempt to provide for depressive conditions. Inasmuch as this neurological change appears to be precipitated by **ayahuasca**, further studies are urgently needed to determine minimal effective dosage, onset time, and post-treatment effectiveness.

Should it be found that **ayahuasca** produces a normalization of the 5-HT (serotonin) uptake, then an important new treatment for depression disorders may be on the horizon which offers lasting benefit from occasional medication with virtually no negative side effects. Full and lasting remission from severe chronic depression has been frequently noted empirically from treatment with **Ayahuasca** but has not been documented scientifically due to inadequate research.



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