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"*Plantas con madre*": Plants that teach and guide in the shamanic initiation process in the East-Central Peruvian Amazon

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ABSTRACT

Aim of the study: We present and discuss a particular group of plants used by a diversity of healers in the initiation process and apprenticeship of traditional medicine, as practiced by Amazonian societies in East-Central Peru. Often, these plants are locally called *plantas con madre* (plants with a mother), and are thought to guide initiates in the process of seeking sacred knowledge, learning about plant usage, and understanding traditional medicine practices. We illustrate the diversity of plants used in the apprenticeship and practice of traditional medicine, and nurture the discussion to better understand the terminology used by Indigenous healers to describe plant uses and their practices.
Materials and methods: The study was conducted between 2003 and 2008 with the participation of 29 *curanderos* (healers; 23 men, 6 women), 3 apprentices and 4 herbalists. The participants belonged to four ethnic groups: 17 Mestizos, 15 Shipibo-Konibo, 1 Ashaninka, and 1 Matsiguenga; a Spanish apprentice and an Italian herbalist were also included in the study. The field data were collected using semi-structured interviews, participant observation, and the witnessing of numerous healing sessions. Oral informed consent was obtained from each participant.
Results: We identified 55 plant species belonging to 26 botanical families, which are used in initiation processes and apprenticeships of traditional medicine. This group of plants is administered under strict conditions during training and healing sessions called *dietas* (shamanic diets), with the supervision of one or more *maestros curanderos* (master healers). We observed that during the shamanic diets, *maestros curanderos* administered plants depending on the teachings or tools he/she was passing on, and were based on a particular sequence during the initiation process: (I) purification and cleansing species; (II) sensitivity and intuition; (III) strengthening; and (IV) protection and defence.
Conclusions: Traditional healers continue to be a primary source of health care for the majority of the population in the Amazon region. Our research suggests that the system of *dietas* and the *plantas con madre* are fundamental components of the everyday practice of traditional medicine, maintenance of cultural continuity and Indigenous cosmovisions in the Amazonian societies in East-Central Peru. This paper contributes to filling the gap in the understanding of the process of initiation among healers in this area of the world. The study offers evidence of the need to collaborate with Indigenous healers to improve the recognition of their medical practices, role in their societies, and the value of their tools and medicines. A respectful attitude and open exchange of ideas and information may contribute to a better understanding of the language used by traditional medical practitioners, their practice, and their worldviews.

1. Introduction

Shamans have been acknowledged in cultures around the world as those who are able to communicate with the spiritual realm, and therefore cure ailments and other problems afflicting the community (Eliade, 1964; Krippner, 1990; Schultes and Hofmann, 2000). Shamanism has played a fundamental role in traditional medical systems since ancient times. It provides a cosmology for holistic healing and re-establishing balance and harmony that helps to bear the confusion, pain and trauma of human existence (Hyman, 2007). While shamanic healing methods are still essential in many traditional societies, doctors, psychologists, psychiatrists and other health professionals are successfully integrating them into their practice. Shamanic techniques are being applied in the holistic treatment of drug addictions, serious illnesses and in psychotherapy (Krippner, 2000; Winkelman, 2001, 2004; Mabit, 2006, 2008;

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Almendro, 2008; Vuckovic et al., 2010). The chemistry and pharmacology of many plants used by traditional healers has been characterized and is well documented in the literature (Naranjo, 1979; Mckenna et al., 1986; Yritia et al., 2002; Riba et al., 2003, 2006; McKenna, 2004; Almeida Prado et al., 2009).

While conducting a study of the medicinal plants commercialized in the popular markets of the Peruvian Amazonian city of Pucallpa (Jauregui, 2008), the following words were frequently heard: "this plant has a mother and is dieted so it can teach you", referring to particular plants that have the capacity to teach the initiated the secrets of traditional medicine.

According to the beliefs of the Shipibo-Konibo inhabiting the region of Ucayali, the *ibos*, which means the *madres* (mothers), *dueños* (owners), or *espíritus* (spirits) of things and places, are the ones who guide the process of knowing and teach about the properties and applications of the plants. To access nature's wisdom, Indigenous people commit themselves to the practices of rigorous *dietas* (shamanic diets), in which each *ibo* or *madre* shares their knowledge with the apprentice. Belief in such spirits and their powers is widespread throughout South American cultures (Thomas et al., 2009) and other regions in the world.

The Shipibo-Konibo, an ethnic majority in the region, also uses the term *ibo rao*; *rao* is an ambiguous term used to refer to any object possessing power (Tournon, 2006). It is used to describe plants possessing the ability to heal (medicinal) and/or to kill (poisonous and toxic). On the other hand, plants that do not have power, that do not heal or kill, are called *raoma* (Arévalo, 1994; Tournon, 2006).

In the Ucayali region, plant with a *madre*, or occasionally with an *espíritu* (spirit), *alma* (soul), *dueño* (owner), or with a *diablo* (devil) is used to describe a group of plants, some with and some without psychotropic properties, used in shamanic initiation. We also observed the use of the concept "*plantas que enseñan*" (plants that teach), which is widespread among the inhabitants of the Peruvian Amazon (Luna, 1983, 1984a,b; Chaumeil, 1993; Desmarchelier et al., 1996a; Jauregui, 2008). The use of some of these concepts has also been observed among Indigenous people in Brazil (Albuquerque, 2001; Ferreira-Júnior et al., 2010), Colombia (Zuluaga, 1998), Venezuela (Rodd, 2002), Mexico (Schultes and Hofmann, 2000), Africa (Fernandez and Fernandez, 2001) and other parts of the world (Frazer, 1922).

Throughout the extensive ethnobotanical literature of the Amazonian River Basin, we found the widely dispersed use of the concept or notion of "plants that teach", although it usually refers more specifically to plants with psychotropic effects; often referred to as masters, doctors, holy, plants of the gods, entheogens, psychedelics, psychotropics, psychoactives, hallucinogens or what Winkelman (2001) calls psychointegrator plants. The following species are representative of this group of plants: *Anadenanthera peregrina* (L.) Speg., *Brugmansia suaveolens* (Humb. & Bonpl. ex Willd.) Bercht. & C. Presl, *Datura inoxia*, *Erythroxylum coca*, *Nicotiana rustica* and *ayahuasca* (*Banisteriopsis caapi* mixed with *Psychotria viridis*). Within the context of traditional Amazonian medicine, these species are used, among other things, to communicate with the spirits, possessing the characteristic of being able to modify or alter a person's state of consciousness (Spruce, 1908; Fischer, 1923; Eliade, 1964; Furst, 1979; Naranjo, 1979; Dobkin de Rios, 1984; Mckenna et al., 1986; Wilbert, 1987; Bianchi and Samorini, 1993; Cabieses, 1993; Jovel et al., 1996; Polia, 1997; Schultes and Hofmann, 2000; Rodd, 2002; De Feo, 2004; McKenna, 2004; Callaway, 2006; Mabit, 2006; Riba et al., 2006; Jauregui, 2008). However, plants with psychotropic properties represent only a small portion of a larger group of plants used in the initiation process and apprenticeship of traditional medicine in this region.

In the region of San Martín, Peruvian Amazon, Mabit (2008) uses the concept of master plants in his studies of traditional medicine and its applications in the treatment of drug dependency. He refers principally to ayahuasca as "the *mother* of all plants and axis of the Amazonian culture, which heads an entourage of other *master plants with mother* or spirit, whose essential function is to teach" (Mabit, 2008). However, Mabit does not mention which species comprise this entourage. We assume from his work that he is referring to the aforementioned group of plants with psychotropic properties.

Chaumeil (1983, 1993), in studies carried out in the High Amazon, considers the knowledge of traditional medicine, according to the Indigenous conception, to be transmitted through the "mothers or spirits of hallucinogenic plants". As we can repeatedly see, the concept of a plant that teaches is closely related to psychotropic plants, and does not include other species lacking this property.

Nevertheless, research carried out in the Central and Upper Amazon on traditional medicine practiced by Mestizo groups confirms that medical knowledge is transmitted by certain "plants with a mother", "often psychoactive", called "plant-teachers" (Luna, 1984b; Luna and Amaringo, 1991). These authors seem to accept that there are certain *plantas con madre*, not necessarily psychotropic, that transmit the knowledge of traditional medicine. Furthermore, in these studies, Amaringo, a respected Mestizo healer and world renowned painter, graphically describes the mothers of a group of species with no known psychotropic properties, such as: *Couroupita guianensis*, *Gallesia integrifolia*, *Hura crepitans*, *Minquartia guianensis* Aubl. or *Tynanthus panurensis*, which teach by means of strict and rigorous *dietas* (Luna and Amaringo, 1991).

1.1. Objectives

The objective of this paper is to present a group of plants employed in the initiation and apprenticeship of traditional medicine practiced by Amazonian Indigenous societies of the East-Central Peruvian Amazon. These plants are administered under the special conditions called *dietas*. Often, these plants are locally called *plantas con madre* (plants with a mother), a term that clearly expresses an Indigenous worldview, since they are thought to guide initiates in the process of seeking sacred knowledge, learning about plant usage, and understanding traditional medicine practices.

2. Materials and Methods

2.1. Area of study

The Ucayali region (07°20′23″ and 11°27′35″ latitude South; 70°29′46″ and 75°58′08″ longitude West) is situated to the east of the Andean Cordillera, in the central part of the Peruvian Amazon (Fig. 1), and principally takes its form from the floodplain of the Ucayali river (a total length of 1.771 km; 734 km in the region), which crosses from South to North. The region is composed of four provinces (Coronel Portillo, Padre Abad, Atalaya, and Purús) and 15 districts, distributed across three well-differentiated biogeographic zones: uppermost cloud forest (*ceja de selva*, lit. "jungle brow"), highland rainforest, and lowland rainforest.

In terms of surface area, the Ucayali is the fifth largest region in Peru, covering 102,410.55 km^2, equivalent to 7.9% of the national territory, and 13.2% of the country's Amazonian territory. It is the second largest Amazonian region in Peru, with a population of 432,159, 77% of which is concentrated in the city of Pucallpa, the capital of the region and of the Coronel Portillo province (INEI, 2007; GOREU, 2008).

The moist tropical climate consists of dry periods between July and August, and intense rainfall between November and March, reaching an annual average of 2000 mm. Temperatures fluctuate between 19.7 °C and 30.6 °C, averaging 26.7 °C annually,

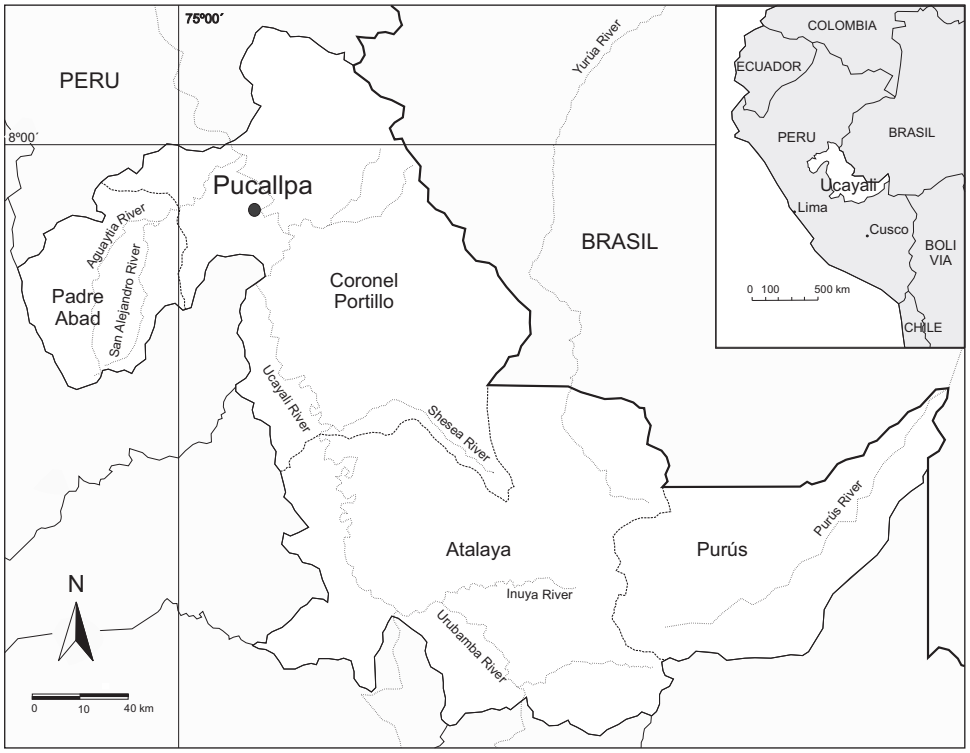

Fig. 1. Map showing the Ucayali region where the study was carried out.

registering the highest between May and August, and the lowest between December and March. The relative humidity is 82% (February–October), and 74% (June–August) (GOREU, 2008).

According to the regional census in the Ucayali region, the Indigenous population is 12.1%, distributed among 296 native communities and 11 ethnic groups, and belonging to two linguistic families: the Panos and Arawakas (INEI, 2007). The Indigenous communities are principally located on high ground adjacent to the Ucayali river and, to a lesser degree, along the tributary rivers: Urubamba, Purús, Yurúa, Inuya, Sheshea, San Alejandro and Aguaytia. Studies sponsored by the Interethnic Association for the Development of the Peruvian Amazon (AIDESEP, 2010) revealed the existence of at least 20,000 more, uncontacted, Indigenous people distributed along the headwaters of the principle tributary rivers of the Ucayali (GOREU, 2008). The majority groups of the region are Mestizos (345,727, 80%), followed by the Shipibo-Konibo (20,178, 4.7%), settled along the banks of the Ucayali and its tributaries; and the Ashaninka (9019, 2%), located at the headwaters of the rivers (INEI, 2007).

In the middle of the 19th century a slow and continuous possession of the high ground by the first Mestizo colonists and explorers took place in order to exploit the zarzaparrilla (*Smilax spruceana* A. DC.) trade. Thirty years later, drawn by rubber tree (*Hevea brasiliensis* (Willd. ex A. Juss.) Mull. Arg.) fever and trade, more Peruvian Mestizo colonists arrived from the province of San Martín, along with Brazilian citizens, who settled in the area. Trade, intensified by the exploitation of zarzaparrilla and rubber tree, created the expectation of easy wealth, which in turn led to the feverish activity of extraction and to migratory currents of colonizing Mestizos towards the province of Ucayali. These two purely extractive commercial phenomena did not last long or generate industry, but did give rise to the consolidation of the region, with the majority of the activity concentrated in the capital of Pucallpa (MPCP, 2006). Currently, the region is considered to be the timber centre of the country, due to the amount of industry in this sector, as well as one of the most dynamic areas of the Peruvian Amazon.

2.2. Data collection

Research carried out in the Amazonian region must take into account the presence of "acquiescence bias" among the population, above all during initial contact. The phenomenon, is defined as the tendency to respond positively, independently of the question, if questions are structured so that the answers are: agree/disagree, yes/no, or true/false, can significantly distort the results of a study (Landsberger and Saavedra, 1967; Johnson et al., 2005). This cultural phenomenon may be explained by the idiosyncrasy of the Amazonian villagers to sympathize with, please, satisfy, and avoid conflicts with the visitor-investigator (Almendro, 2008). The author who carried out the fieldwork observed that the more time spent with the participants, the less the effect of the tendency to acquiesce. On occasion, they were even reluctant to participate and withdrawn, which was understood as an indication that certain areas of knowledge may not be appropriate discussion material. In these cases, the researcher avoided such conversations as a matter of cultural respect.

Fieldwork lasted 18 months, distributed in periods of three months per year (June–August) from 2003 to 2008. A total of 36 participants were recruited for this study (28 men, 8 women; average age 62), including 29 healers who are locally respected for their traditional medicine knowledge and practice; 3 apprentices; and 4 herbalists. The participants belonged to four ethnic groups: Shipibo-Konibo (15), Ashaninka (1), Matsiguenga (1), and Mestizos (17); a Spanish apprentice and an Italian herbalist were also included in the study (Appendix A).

All participants were verbally informed in detail about the purpose and process of the study. Verbal informed consent was obtained from every participant and anonymity was maintained. Participants were asked to voluntarily confirm their willingness to participate in the study and were presented with the option to refuse to participate or withdraw from the study at any time. Only adult participants were recruited. Participants were informed of their right to ask for more detail about the information being col-

lected, and were given the opportunity to revise the information and make corrections or indicate if there was sensitive information that should not be disclosed in the study.

The severity of living conditions in this region, mainly in the urban areas, and the increasing demand for shamanic tourism, have led to the proliferation of fraudulent healers. They offer services in local newspapers and brochures, promising cosmic journeys and magic healing. Participants in this study were selected through peer referencing (Davis and Wagner, 2003) and based on their recognition and respect in their own communities and peripheral urban settlements.

During the initial phase of the project general ethnographic and ethnobotanical data on shamanic initiation were obtained using semi-structured interviews (Alexiades, 1996). Once the participants voluntarily agreed to collaborate more in depth in the study, open-ended interviews and casual conversations with the healers and apprentices were implemented (Thomas et al., 2009). They also were visited once each year from 2003 to 2008, which contributed to establishing strong relationships.

A questionnaire was designed to collect detailed information on plant species reported by the participants. The data included common name, part(s) used, medicinal uses, place and manner of collection, methods of preparation, and administration instructions. The role of each plant in the different stages of the initiation and apprenticeship process also was collected.

Participant-observation methodologies were used to gather information on healer's initiation. This is a method of qualitative research in which the researcher understands the contextual meanings of an event or events through participating and observing as a subject in the research. In the study, the author who carried out the fieldwork participated by ingesting about 15 *plantas con madre* under highly ritualized conditions, while guided and accompanied by 10 different healers. The diets lasted from two to six days for each plant. He also actively participated in traditional healing sessions including ayahuasca ceremonies. This immersion process helped us considerably to better comprehend the host culture's cosmology and to reflect on data previously presented in the literature. To eliminate potential biases during the research process and data collection, and to further gain cultural competency, he also engaged in numerous conversations with the participants to explore issues of plant preparations, usages, ceremonies, and the diet process.

A sample of each plant was collected and photographs were taken. A herbarium specimen of all species found in this study was created with the collaboration of the Veterinary Institute for Tropical and High Altitude Research (Instituto Veterinario de Investigaciones Tropicales y de Altura, IVITA), located in the city of Pucallpa. Voucher specimens were deposited as a permanent record in the herbarium of the aforementioned institution, belonging to the University of San Marcos (Universidad Nacional Mayor de San Marcos, UNMSM), in Lima. Taxonomic identification was carried out at the species level when possible. All specimens were identified entirely in Peru by the authors. The nomenclature of the plants, family, genus and species follows that of Brako and Zarucchi (1993). Neither species nor vegetable material was exported from the country during the course of the study.

3. Results and discussion

3.1. Definition of a planta con madre

According to the participants, the term *planta con madre* (plant with a mother) refers to a plant that has a mother, spirit or owner that teaches the secrets of traditional medicine, and it is administered according to the complex, strict, and rigorous system of discipline known as *dieta* (shamanic diets), which refers to the abstinence, not just of food and water, but also of particular activities and behaviours.

All healers interviewed, without exception, agreed that *plantas con madre* are the cornerstone of the learning and practice of traditional medicine, and more concretely of the Amazonian shamanic initiation. These are administered under strict conditions called *dietas* or *samati* in Shipibo-Konibo, with the supervision of one or more *maestros curanderos* (experienced master healer) who guide the initiates in the learning process. These *dietas* take place in the forest in secluded places where the initiate neither has contact nor communication with anyone except for his/her *maestro curandero*. There is another type of diet with exclusively therapeutic objectives that is prescribed by healers for patients as part of the treatment of an illness (Sanz-Biset et al., 2009), and that can last anywhere from a few days up to a year, depending on the severity of the illness. The dynamics of these diets are different from shamanic diets: they tend to be less strict, and in fact sometimes the plants used do not need to be those considered *plantas con madre*. We will therefore differentiate between shamanic diets and medicinal or therapeutic diets.

3.2. Shamanic diets

"The plants sing and speak to you if you listen to them with respect, and they allow you to see by way of visions and dreams" (EL) (see Appendix A for the abbreviations of the names used in the text).

In the Amazonian societies under study, we observed that during the traditional medicine apprenticeship, the initiates dedicate a fundamental part of the process to developing the capacity to "see", establishing contact with the spirit world. This capacity to see is an aspect of extreme importance in shamanic traditions (Eliade, 1964). Thus, it is not surprising that apprentices invest considerable time, resources, and effort in developing it (Harner, 1973). In the Peruvian east-central Amazon region the most important way to acquire this capacity is through shamanic diets.

Shamanic diets include four essential elements: (a) retreat and isolation in the forest, thus avoiding communication with other people, except with the *maestro curandero*; (b) the daily ingestion of one or more plants; (c) dietary restrictions on foods such as salt, sugar, fat, pork, game, acidic foods, garlic, chilli sauce, alcohol, cold drinks, and often a complete fast; and (d) sexual abstinence. There are also other precepts or taboos such as avoiding contact with fire or light rays during certain times of the day, depending on the plant that is being administered. When the diet permits the ingestion of certain fish, these must be cooked by women going through menopause, or by young girls who are not yet menstruating. Basically, during the diet, the initiates only eat plantains and occasionally fish, two foods particularly rich in tryptophan, which combined with rice, a source of carbohydrates, helps the brain to absorb the tryptophan and increases the serotonin levels (see Harner, 1972, 1973). Among other Indigenous groups in the Amazon, such as the Shuar of Colombia; the Tupinamba, Ipurina, and Trumai of Brazil; the Mojo of Bolivia; the Piro, Omagua and Cashinawa of Peru, initiates go through periods of isolation, fasting, and celibacy in order to access the spirit world (Polia, 1997). For the Yagua of Peru, contacting the mothers or vegetable spirits that they ingest is considered the only way of acquiring knowledge (Chaumeil, 1983).

Under these strict, rigorous, severe and austere conditions, the initiates go through a process of bodily, mental and spiritual cleansing which takes them to a state of purification, an essential step in order to communicate with the plant mothers. On one occasion, EL, a Mestizo healer, told us that "it purifies to such an extent that the body loses its human smell and some animals come so close that it becomes easy to hunt them"; "it is so effective that even the dogs are made to diet".

The plants that the initiates ingest under dietary conditions, according to the authors' observations, are chosen and administered following an order established by the *maestro curandero* with the purpose of purifying and cleansing the body and spirit; expanding consciousness, developing sensitivity and intuition; strengthening and increasing the body's defences and; acquiring special powers of protection and defence against "negative energies" and "bad spirits".

According to the participants, the length of a shamanic diet during the initiation process varies depending on each *maestro curandero*; it is usually between two to five years. The diet of each plant can last for weeks, months, or years, and is always accompanied by nocturnal sessions of ayahuasca, with a frequency of two to three times a week. The days chosen for these diets are usually Tuesday and Friday, a custom widely followed by Mestizo groups in the Peruvian Amazon (Mabit, 1988). On various occasions we observed that *plantas con madre* were added to ayahuasca at intervals, to obtain more heterogeneous and powerful concoctions (see also Chaumeil, 1993). In the successive nocturnal ayahuasca sessions that accompany the *dieta*, the visions produced become more and more intense and clear. Visions can also appear at any moment during the process, due, among other causes, to the extreme conditions of isolation, fasting, and the extreme fear of being annihilated in the numerous situations of authentic danger that the initiates experience in the *monte* (forest). By way of these visions and dreams, the initiates come to know the mother, owner, or spirit of the plant that will teach them how to use and administer the plant.

The apprentice also listens to and learns *ikaros* (shamanic songs or sacred melodies). These sacred melodies are transmitted directly from *maestro curandero* to apprentice, or by the plant mothers through visions and dreams (Giove, 1993). They have several functions or uses: (I) to communicate with the vegetable spirits or mothers of the plants and ask them for assistance in healing; (II) as vehicles for the transmission of healing energy and the shaman's power, singing or whistling (*ikarando*) directly to the medicine or remedy before offering it to the patient; and (III) in direct application to the patient's body during healing sessions. According to their beliefs, the healers visualize the energies within the patient in the form of complex polychromatic geometric patterns, and can act on them directly, thanks to the vibrations of the melodies, creating new patterns that help re-establish the balance lost due to the illness (EL). During the *dieta*, the initiates also acquire the phlegm or *mariri* produced in the stomach as a result of all the plants they have ingested, and which they will keep for their entire life. The *mariri* represents the physical and spiritual transference of powers from the mother of each plant dieted upon to the healer's body. On many occasions, the *maestros curanderos* also transfer their *mariri* directly from their mouths to that of their apprentices before dying (AA, EL, E, JF, KMI, MAR, MSR, NWD, PA, VRA).

Not every shaman-healer has followed diets for the same plants, and the length of the diet of each plant differs from one to another. Each healer has their preferences and specializes in a group of plants, which they use as their principal assistant in diagnosis and healing. For example, there are healers specialized in *Banisteriopsis caapi* and *Psychotria viridis* (*ayahuasqueros*), *Nicotiana rustica* (*tabaqueros*), *Datura inoxia* (*toeros*), *Strychnos* sp. (*camalongueros*), *Couroupita guianensis* (*ayahumeros*), and *Petiveria alliacea* (*mucureros*). In the study region there is a hierarchy and competitiveness that is merciless among the shamans, and is reflected in the "spiritual battles" that take place during ayahuasca sessions. The level of power achieved, the type of knowledge acquired, and success in healing, all depend on the length of the diets, and the number and type of plants with a mother ingested during the diets (JB, MAU, PA, RE, VS).

A ritual known as *cortar la dieta* (ending the diet) is used to bring the diet to completion. The *maestro curandero* uses *ikaros* (sings or whistles the sacred melodies) and blows over the initiate with smoke from *mapacho* tobacco (*Nicotiana rustica*), *Cinnamomum* sp. bark (*canela sacha*), or Florida Water (cologne), which he/she applies to the temples, crown of the head, and hands, considered vulnerable energy points on the initiate's body. Following this, the *maestro curandero* offers the initiate a pinch of salt, officially ending the diet, and later a chicken broth is often consumed. Finally, certain prescriptions are given, such as food restrictions and strict celibacy, with durations that can vary from three months to one year, depending on the *maestro curandero*. It is best for the initiates to remain in the forest, isolated for a few days, slowly adapting to the end of the diet so that it does not *se cruce* (cross) or *se tuerza* (twist). A diet is said to have *cruzado* or *torcido* when certain physical symptoms appear, such as general discomfort, vomiting, diarrhea, headaches, dizziness, tachycardia, and psychological symptoms such as anxiety, panic attacks, sensations of madness, delirious behaviours, and nightmares (EL, NT, JF).

The author who carried out the fieldwork of the study followed diets for different plants for short periods and observed that dreams are remembered more frequently and with more clarity. In some of remembered dreams, plants appeared accompanied by different entities, mostly anthropomorphic and zoomorphic, and sometimes with unidentifiable forms. Furthermore, during the day he surprised himself whistling and humming different melodies that he had never heard before, which accompanied him throughout the day and which he can still remember today. In some of the more challenging ayahuasca sessions, he sang these melodies as advised by the healers and was able to overcome difficult moments. Because the diets were limited in duration and he did not have the necessary training, upon waking he forgot most of what he had experienced and heard in his dreams.

3.3. Plantas con madre (plants with a mother)

In the study area, 55 species, administered to the apprentice by the healer under special conditions of a shamanic diet, have been identified (Table 1). These plants are also used by the healers, within the general practice of medicine, in the treatment of illnesses due to their medicinal and/or magical properties, although the methods of preparation and administration are different during the diets (Jauregui, 2008). They belong to twenty-six plant families: seven species from Moraceae, six from Fabaceae, five from Cyperaceae, three from Solanaceae and Euphorbiaceae, with the remaining families being represented by only one or two species. Tobacco (*Nicotiana rustica*) and ayahuasca, a brew composed of *Banisteriopsis caapi* and *Psychotria viridis*, are the species considered to be the most important and powerful in the Indigenous Amazonian cosmovision, always present in medical practice. They are well known by the population and are designated by the healers as "master plants". Ayahuasca and tobacco accompany and guide the healer's apprentice through every moment of the initiation process and apprenticeship in traditional medicine. The other *plantas con madre* have a more specific role and assist as co-adjuvants in the process (Almendro, 2008). The mothers of these plants show their healing powers mainly during ayahuasca ceremonies, but can appear also in dreams and visions during plant diets.

The plants are consumed in an order established by the *maestro curandero* and adapted to the needs and specific physical and psychological characteristics that the apprentice presents. Although the learning process of each initiate is individual and personalized, we have observed during the fieldwork that many of the healers interviewed share a common structure when it comes to the order in which this group of plants are administered during the diets. This order is designed according to the role that each plant with a mother plays in the apprentice's preparation and training. Therefore, we have grouped them into four categories: (I) purification

Table 1
Plantas con madre in the shamanic initiation process of East-Central Peruvian Amazon.

Scientific name (Voucher [a])	Vernacular name	Part used	Preparation	Administration	F^{b}	Category[c]
Annonaceae						
Unonopsis sp. (XJ 2859/4962)	Icoja roja	Bark	Decoction	Oral	27	III
		Bark	Decoction	Oral	21	I
Unonopsis aff. *spectabilis* Diels. (MC 5801/4888)	Icoja negra	Bark	Decoction	Oral	27	III
		Bark	Decoction	Oral	21	I
Apocynaceae						
Tabernaemontana angulata Mart. ex Müll. Arg. (MC 5802/4887)	Caballo sanango	Bark and trunk	Decoction	Oral	29	III
		Bark and trunk	Decoction	Oral	12	IV
Tabernaemontana sananho Ruiz & Pav. (XJ 2860/4963)	Uchu sanango	Bark	Decoction	Oral	28	III
Araceae						
Dracontium loretense K.Krause (MC 5013/4275)	Jergón sacha	Root	Decoction	Oral	26	IV
Xanthosoma violaceum Schott (MC 5797/4828)	Patiquina negra	Leaves	Macerated in water	Oral and bath	17	IV
Aristolochiaceae						
Aristolochia cauliflora Ule (MC 5763/4824)	Huancahui sacha, yawar panga	Leaves	Juice in water	Oral	29	I
Bignonaceae						
Mansoa alliacea (Lam.) A. Gentry (MC 5747/4957)	Ajo sacha	Root	Decoction	Oral and bath	29	III, IV
Tynanthus panurensis (Bureau) Sandwith (XJ 2829/4929)	Clavo huasca	Bark and trunk	Decoction	Oral	28	III
Bixaceae						
Bixa orellana L. (MC 5750/4959)	Achiote	Leaves	Infusion	Oral	14	II
Burseraceae						
Bursera graveolens (Kunth) Triana & Planch. (XJ 2853/4924)	Palo santo	Trunk	Decoction	Oral	17	IV
Celastraceae						
Maytenus ebenifolia Reissek (MC 7710/4872)	Chuchuhuasi	Bark	Decoction	Oral	29	III
		Bark	Decoction	Oral	21	I
Maytenus sp. (XJ 2827/4908)	Chuchuhuasi	Bark	Decoction	Oral	29	III
		Bark	Decoction	Oral	21	I
Chenopodiaceae						
Chenopodium ambrosioides L. (MC 5806/4848)	Paico	Leaves	Mashed for juice	Oral	23	I, II
Cyperaceae						
Cyperus articulatus L. (XJ 2842/4914)	Bufeo piri piri	Root	Crude and infusion	Oral	14	II
Cyperus sp. 1 (XJ 2841/4916)	Caballo piri-piri	Root	Infusion	Oral	9	II
Cyperus sp. 2 (MC 5743/4912)	Warmi piri-piri	Root	Infusion	Oral	11	II
Cyperus sp. 3 (MC 5809/4911)	Imán piri-piri	Root	Infusion	Oral	7	II
Cyperus sp. 4 (MC 5808/4910)	Campa piri-piri	Root	Infusion	Oral	10	II
Erythroxylaceae						
Erythroxylum coca Lam. (MC 5812/4896)	Coca	Leaves	Crude and infusion	Oral	23	II, III
Euphorbiaceae						
Hura crepitans L. (XJ 2863/4966)	Catahua	Bark	Decoction	Oral	25	III, IV
		Latex	Crude	Oral		I
Jatropha curcas L. (MC 5724/4900)	Piñón blanco	Aerial part	Mashed in water	Oral and bath	29	IV
		Aerial part	Infusion	Oral	16	I, III
Jatropha gossypiifolia L. (MC 5761/4901)	Piñón colorado	Aerial part	Mashed in water	Oral and bath	29	IV
		Aerial part	Infusion	Oral	17	I, III
Fabaceae						
Calliandra angustifolia Spruce ex Benth. (MC 5818/4839)	Bobinsana	Bark and root	Decoction	Oral	29	III, IV
Calliandra surinamensis Benth. (MC 7739/4842)	Bobinsana	Bark and root	Decoction	Oral	29	III, IV
Copaifera officinalis (Jacq.) L. (MC 5816/4838)	Copaiba	Bark and trunk	Decoction	Oral	26	III
Dipteryx micrantha Harms (XJ 2833/4846)	Shihuahuaco	Bark	Decoction	Oral	27	III
Ormosia velutina Rudd (MC 7694/4833)	Huayruro	Trunk and seeds	Decoction	Oral	24	III
		Seeds	Macerated in water	Oral	20	IV
Platymiscium stipulare Benth. (XJ 2852/4925)	Cuma ceba	Bark and trunk	Decoction	Oral	28	III

Table 1 (*Continued*)

Scientific name (Voucher [a])	Vernacular name	Part used	Preparation	Administration	FL[b]	Category[c]
Iridaceae						
Eleutherine bulbosa (Mill.) Urb. (MC 5714/4893)	Yahuar piri-piri	Root	Decoction	Oral	27	II
Lamiaceae						
Ocimum sp. (MC 5793/4800)	Aya albahaca	Leaves and seeds	Infusion	Oral	21	II
Lauraceae						
Cinnamomum sp. (XJ 2851/492)	Canela sacha	Bark	Decoction	Oral	23	IV
Lecythidaceae						
Couroupita guianensis Aubl. (MC 5781/4797)	Ayahuma	Bark and fruits	Decoction	Oral	29	III, IV
Loganiaceae						
Strychnos rondeletioides Spruce ex Benth. (XJ 2834/4932)	Achuni sanango	Bark, trunk and root	Decoction	Oral	27	III
Strychnos sp. (XJ 2845/4923)	Camalonga hembra-macho	Seeds	Macerated in water	Oral	29	I, IV
Malpighiaceae						
Banisteriopsis caapi (Spruce ex Griseb.) C.V. Morton (MC 5829/4943)	Ayahuasca	Bark and trunk	Decoction-brew	Oral	29	II,
		Bark and trunk	Decoction	Oral	23	III, IV
						I
Meliaceae						
Cedrela odorata L. (XJ 2849/4920)	Cedro	Bark and trunk	Decoction	Oral	22	III
Menispermaceae						
Abuta sp. (XJ 2825/4933)	Abuta	Bark and trunk	Decoction	Oral	29	III
					17	I
Moraceae						
Ficus insipida Willd. (S/NC/3345)	Ojé	Latex	Crude	Oral	29	I
		Bark and trunk	Decoction	Oral	16	III
Ficus schultesii Dugand (S/NC/3281)	Ojé	Latex	Crude	Oral	29	I
		Bark and trunk	Decoction	Oral	16	III
Ficus nymphaeifolia Mill. (XJ 2829/4880)	Zapote renaco	Bark and trunk	Decoction	Oral	24	III
Ficus sp. (XJ 2866/4969)	Came renaco	Bark and trunk	Decoction	Oral	26	III
Maquira coriacea (H. Karst.) C.C. Berg (XJ 2867/4970)	Capinuri	Bark and trunk	Decoction	Oral	24	III
Ogcodeia tamamuri J.F. Macbr. (XJ 2868/4971)	Tamamuri	Bark and trunk	Decoction	Oral	25	I
		Latex	Crude	Oral	28	III
Poulsenia armata (Miq.) Standl. (XJ 2869/4972)	Llanchama	Bark and trunk	Decoction	Oral	23	III
		Bark and trunk	Decoction	Oral	5	I
Olacaceae						
Heisteria acuminata (Humb. & Bonpl.) Engl. (XJ 2870/4973)	Chuchuhuasi	Bark	Decoction	Oral	27	III
		Bark	Decoction	Oral	21	I
Phytolaccaceae						
Gallesia integrifolia (Spreng.) Harms. (MC 5744/4862)	Ajos quiro	Bark and root	Decoction	Oral	27	III
Petiveria alliacea var. 1 (MC 5756/4859)	Mucura hembra	Leaves and root	Mashed in water	Oral and bath	29	IV
		Root	Juice in water	Oral	12	I
Petiveria alliacea var. 2 (MC 5726/4858)	Mucura macho	Leaves and root	Mashed in water	Oral and bath	29	IV
		Root	Juice in water	Oral	12	I
Rubiaceae						
Psychotria viridis Ruiz & Pav. (MC 5824/4948)	Chacruna	Leaves	Decoction-brew	Oral	29	II, III, IV
Uncaria guianensis (Aubl.) J.F. Gmel. (MC 5825/4946)	Uña de gato	Bark	Decoction	Oral	26	I
Uncaria tomentosa (Willd. ex Roem. & Schult.) DC. (MC 2718/1519)	Uña de gato	Bark	Decoction	Oral	26	I
Solanaceae						
Brunfelsia grandiflora D. Don (MC 5785/4938)	Chiric sanango	Bark and trunk	Decoction	Oral	29	III
		Root	Crude	Oral	15	II
Datura inoxia Mill. (MC 5786/4949)	Toé, floripondio	Leaves and flower	Juice and infusion	Oral and bath	29	II, IV
Nicotiana rustica L. (XJ 2872/4975)	Tabaco, mapacho	Leaves	Infusion	Oral	29	I, II, III, IV

[a] Specimen collected by MC: Mireya Clavo; XJ: Xabier Jauregui.
[b] The citation frequency indicates the number of participants who have cited a species as a '*plant with a mother*' within a use category.
[c] Category: I: purification and cleansing; II: sensitivity and intuition; III: strengthening; and IV: protection and defence.

and cleansing; (II) sensitivity and intuition; (III) strengthening; and (IV) protection and defence. One species can fulfill more than one function and can therefore belong to more than one group (Table 1).

3.3.1. Purification and cleansing

The first plants ingested during the diets are species that are well-known by the Amazonian societies and highly utilized in their traditional medicine due to their purgative, laxative, anthelmintic, and emetic properties. These plants are ingested by the apprentices at the start of the process so that they can purify themselves and prepare their bodies for meeting with the spirit of the vegetables or mothers of the plants.

In the first phase of the diet, the initiates go through a purgative process, a journey to the underworld inhabited by the *shacharunas* and *yacurunas* (spiritual entities in the native Amazonian cosmovision) (JF). In this period, deep fears, traumas, and negative patterns of the personality emerge and the initiates have to confront them and go through this by themselves. It is a process by which the initiates expand their consciousness with regard to themselves and the world around them (EL).

Twenty-one species have been registered as purification and cleansing *plantas con madre* (Table 1), the following being the most cited by the participants: *Aristolochia cauliflora*, *Ficus insipida*/*Ficus schultesii*, *Nicotiana rustica*, *Strychnos* sp. (cited by 29 participants), *Uncaria guianensis*, *Uncaria tomentosa* (26), *Hura crepitans*, *Ogcodeia tamamuri* (25), and *Banisteriopsis caapi* and *Chenopodium ambrosioides* (23).

Aristolochia cauliflora, in Quechua called *yawar panga* (leaves of blood), is a potent Amazonian emetic, known also as *huancahui sacha*, or *pish pish* in Shipibo-Konibo. It is also used by the healers in the treatment of bronchial infections. The juice of four to seven leaves is extracted and taken in the early hours of the morning before eating. Immediately, the *maestro curandero* or assistant places an empty bucket between the person's legs, along with a 2-l jug of lukewarm water, which must be continuously imbibed. After half an hour, the first sensations of a general discomfort, chills, shivers, dizziness and palpitations appear, accompanied by the first emesis. The effects last 3–6 h, during which time between 3–4 l of water must be consumed, and the person vomits between eight and ten times. During the most difficult moments of the session the healer approaches and blows tobacco smoke on the initiate's temples, forehead and hands in order to calm him/her. The first contact with the Amazonian plants was through *Aristolochia cauliflora* and we can testify that the end of the sessions brings with it a profound sensation of wellbeing, lightness, mental clarity and a tranquil and relaxed countenance that lasts for two or three days. According to the healers, the plant carries out a deep cleansing, both of the body and mind.

Currently, this plant is frequently used during the first phase in the treatment of drug addictions. The plant cleanses, detoxifies, eases withdrawal symptoms, and aids in the patient's physical recovery (J. Mabit pers. communication). Despite the risk of nephropathy linked to the use of some species of the genus *Aristolochia*, about one hundred species are used worldwide medicinally, especially for gastrointestinal problems (Heinrich et al., 2009).

Ficus insipida*/*Ficus schultesii are Moraceae trees that "prepare and cleanse the body", according to participants. The white latex of *Ficus insipida* has been used for centuries among Indigenous people and settlers in the neotropics, particularly in the Amazon region, for intestinal helminthiasis (Hansson et al., 1986; Phillips, 1990; Castner et al., 1998). They are known by the locals as *ojé* or *doctor ojé* and are called *shomi* in Shipibo-Konibo. These plants are most frequently used as an antiparasitic and are considered to be the most potent and effective intestinal anthelmintic in traditional Amazonian medicine (NT). During diets a teaspoon of the fresh latex is administered, and occasionally a decoction of the bark and trunk is also given, having purely purgative effects. This is a highly toxic medicine—in fact, many cases of intoxication have been registered in the city of Pucallpa (Hansson et al., 2005) and the surrounding areas, mainly due to the high doses administered by false and unspecialized healers. During the diet, healers recommend the observance of the following restrictions: isolation, partial or total fasting (depending on the healer), and sexual abstinence; and they often recommend the additional restriction of avoiding direct exposure to sunlight, which could have adverse consequences. There are healers specialized in the administration of *ojé* who are well-known and respected by the Amazonian population. NT informed us: "The mother of the *ojé* is a young lady who presents herself during the diet and caresses you in your bed". Its principal use is to expel intestinal worms. There are four varieties of *ojé*: large-leaved *ojé* (*Ficus insipida*), which is the most frequently used as it has less contraindications; red *ojé* (*Ficus schultesii*); *yanchama ojé* (*Poulsenia armata*); and *shacapa ojé* (not identified). *Ficus insipida* and *Ficus schultesii* are the species most utilized by healers. However, *Poulsenia armata* is not considered to be *ojé* by the majority of the participants, and its latex is used in the treatment of diseases related to the feminine genitalia, such as uterine cancer.

Lastenia Canayo (LC), a Shipibo-Konibo participant who has dedicated part of her life to drawing the "mothers" of the plants, describes the mother of *ojé* as "a big-mouthed doctor with round eyes and a black dress; she has three fingers on each hand, her feet are like fish hooks, she has a black hat and a long tail" (Canayo, 2004).

Presently, there are rural communities and peri-urban settlements where "*Doctor Ojé*" campaigns are held, consisting of the administration of the latex to the entire family or community in order to cleanse the intestine of parasites. The participants commented that livestock that eat the *ojé* fruit do not suffer from diseases related to intestinal parasites (see also Arévalo, 1994).

Nicotiana rustica is known as *mapacho* (strong tobacco cigarettes) or *rome* in Shipibo-Konibo, and is considered by the Indigenous people to be one of the most powerful and oldest plants. "A powerful plant with mother, it counteracts the body's negative energies. It teaches you to be a warrior in order to cleanse yourself of life's negative energies. The mother appears in dreams and visions as a man with short hair, large, strong, dark-skinned, and with a silver highly adorned tunic. The plant is taken at night and one experiences dizziness and convulsions for half an hour" (AA). Two participants described the mother of tobacco as twins who teach you *ikaros* and how to blow smoke on the sick (EL, ARC).

During the dietary regimen, an infusion of tobacco leaves is administered during the evening. The effects last between 2 and 4 h during which time between 3–4 l of water must be consumed continuously. Immediately after the ingestion of the infusion, one experiences a burning sensation from the throat to the stomach; heaviness, a deep feeling of discomfort, intense chills and the first emesis can appear. The symptoms can persist for the duration of the session. In the solitude of the forest, one eventually enters a dream state, followed later by a deep sleep. During the session there are also strong processes of expectoration and salivation. The healers describe these as normal, since the plant ingested cleanses the lungs and mucous membranes. It is also common to add several tobacco leaves to the ayahuasca brew to boost the effects of the *dieta*.

The tobacco plant's main function is to physically and spiritually cleanse the initiates of negative energies that they have accumulated during their lifetime. The mother of the plant, at the same time, offers protection, strengthens, and teaches the initiates through visions and dreams how to use the plant in different healing facets. A common ritual application technique is known as *sopladas* (blowing), where the healer smokes tobacco cigarettes (*mapacho*), and applies the smoke directly to the medici-

nal preparations in order to boost their healing properties, thereby transmitting the force of the vegetable spirit or mother of the plant directly to the remedy (EL, JF, PA). While the healer blows the tobacco smoke, he whistles and/or sings the *ikaros*, which are often reminiscent of prayers. This technique is also practiced directly on the patient in the treatment of some cultural syndromes produced by the interaction between humans and nature: *susto* or fear, *mal aire* (literally "bad air") and *cutipado* (revenge), where the healer blows the smoke onto different energetic points on the patient's body, such as the crown of the head, temples, and hands (Jauregui, 2008).

Another technique frequently practiced by the healers and learned during the diet process, consists of swallowing the tobacco smoke and mixing it with phlegm from the stomach or *mariri*. This technique is used to suck out the patients' *daño* (harm), an illness generally caused by *virotes* (invisible magic darts that materialize in the victim's body) hurled by wizards and sorcerers who carry out evil practices, often contracted by third parties (AM, AV, DA, EL, EU, JF, NWD, PA).

Recent pharmacological studies have pointed out the use of nicotine in the prevention of neurological ailments as Alzheimer's and Parkinson's diseases (Liu and Zhao, 2004).

Banisteriopsis caapi is a liana that is frequently taken as a decoction in the early stages of the dietary process due to its purgative properties. This form of administration of the plant is known by the Mestizo population as *purga* (purge). When it is used in the elaboration of a potion with psychoactive properties, it is known in the entire Peruvian Amazon River Basin by the Quechua term *ayahuasca* (spirit vine or vine of the souls), and it is considered the cornerstone of traditional Amazonian medicine.

In the traditional Amazonian medical system, blood is seen to be a potential storehouse of physical and spiritual impurities. Therefore, during the first phase of the learning process, the initiates clean and purify their circulatory systems. Many plants with a mother of this group were cited by the participants as fulfilling these functions are (e.g., *Abuta* sp., *Heisteria acuminata*, *Jatropha curcas*, *Jatropha gossypiifolia*, *Maytenus ebenifolia*, *Maytenus* sp., *Ogcoidea* sp., *Uncaria tomentosa*, *Uncaria guianensis*, *Unonopsis* sp., and *Unonopsis* aff. *spectabilis*).

3.3.2. Sensitivity and Intuition

After a lengthy and challenging cleansing and purification process, the initiates go through a phase where they consume a plant that increases the sensitivity and intuition they have already experienced thanks to the purifying plants in Group I. The most representative species in this category are well-known by the Indigenous people because "they make you see" (EL), and are used in diets to guide the initiates along their path of introspection and in their communication with the spirit world (JF). These species (*Banisteriopsis caapi*, *Psychotria viridis*, *Nicotiana rustica*, *Datura inoxia*—cited by 29 participants, and *Erythroxylum coca*—cited by 23) are widely recognized within the scientific field of ethnobotany and have been well documented for their capacity to induce non ordinary states of consciousness (Schultes and Hofmann, 2000).

Ten other species were registered during the survey and are included within this category as they are administered to the initiates under dietary conditions with the purpose of developing their sensory capacities. They include five species of the genus *Cyperus*, and *Brunfelsia grandiflora*, which contain traces of alkaloids, although it is unknown if these have psychoactive effects, along with the following four species: *Bixa orellana*, *Chenopodium ambrosioides*, *Eleutherine bulbosa*, and *Ocimum* sp.

During this phase, the initiates are also obliged to develop the capacity to "listen", a fundamental faculty that will help them learn one of the essential therapeutic resources within the healers' heritage, the *ikaros* or sacred shamanic melodies.

Banisteriopsis caapi and ***Psychotria viridis***. The entire system of traditional medicine revolves around these two main species that are used to elaborate a brew with psychoactive properties known as *ayahuasca*. The potion is elaborated via a lengthy decoction process using the trunk of *Banisteriopsis caapi* and the leaves of *Psychotria viridis*, and can take from four to 12 h, depending on each healer's technique. *Ayahuasca* accompanies and guides the initiates in their inner journey to the spirit world throughout the entire learning process. The brew is taken two or three times a week in highly ritualized nocturnal sessions directed by *maestros curanderos* who *convidan* (offer) it to the initiates and patients. During the decoction, the *maestro curandero* adds the plants with a mother that form part of the apprentices' diet at that time with a view to strengthen its properties and help the initiates to have clearer visions that will facilitate their communication with the plant "mothers". It is also common to see the healers add new plants to the decoction in order to study their properties as a form of investigation into new medicines and to expand their Indigenous pharmacopeia (Bristol, 1965; Schultes, 1972; Mckenna et al., 1986; Bianchi and Samorini, 1993).

The effects of *ayahuasca* vary depending on the preparation method, the quantity ingested, the number of plants combined, the context in which it is taken, the purpose it is being used for, the stage of life in which the person finds him/herself and, most importantly, the ceremonial control the healer wields during the session.

The experience of each ayahuasca session is different, however, they all develop in three different phases: (1) while one drinks a cup of the very dense, brown coloured, strong smelling and acrid tasting brew, one passes through a truly delicate moment on which the healers place a great deal of importance. The organoleptic characteristics of the brew transcend expectations our sensorial perceptions are accustomed to, lightly altering the ordinary state of consciousness; (2) once this first phase has passed, about half an hour later, sensations of dizziness and heaviness, similar to drunkenness arise (the healers use the term *mareación* to refer to this phase), signalling the first lightly psychoactive effects, where distortions in smell, hearing, and touch appear, and/or these are experienced as visual hallucinations in the form of complex geometric patterns in movement comprised of a multitude of colours. These effects tend to appear as the threshold that anticipates the visions themselves; (3) visions are an expression of the initiates' journey to their inner world and to the spirit world, where different scenes and spiritual entities may appear, depending on the initiate's religious, cultural and social imprint. In the case of the ethnic Amazonian groups, the entire framework of their cosmovision is expressed. Therefore, it is common among Indigenous people to have visions of serpents, jaguars, Amazon River dolphins, and eagles. However, in some cases, during the diet of *grandes palos* (large trees) we were told that they had visions of large black bulls against which they were fighting (DJ, MSR, NWD; all of these participants are Mestizos).

The visions mentioned most frequently among the participants were visits to remote cities with highly sophisticated designs-glass cities, underwater cities-guided visits to hospitals where they learned certain healing techniques, meetings with the *sachamama* (giant boa) and biographical situations of the initiate's past traumas that are relived with force.

Among foreigners and tourists who approach this medical system with curiosity, there is the false belief that *ayahuasca* is a panacea that cures all. Most of the healers, with their characteristic modesty, have emphatically affirmed that the mother of *ayahuasca* is the great master that shows, teaches, and guides people who approach the plant with humility, seriousness, and commitment, along the path of self healing; but the plant does not heal by itself.

Furthermore, elevating the humility that a true healer of the rainforest possesses, we should emphasize that they insistently repeat that they themselves do not heal, that they are only intermediaries, helpers and vehicles of transmission between the spirit and material worlds.

Their increasing popularity has led to clinical investigations of various aspects of the effects of ayahuasca in healthy volunteers (e.g., Yritia et al., 2002; Riba et al., 2003, 2006).

Brunfelsia grandiflora is a small bush belonging to the Solanaceae and is considered to be one of the most important medical plants in the northeast Amazon (Schultes, 1985). Studies have found traces of an alkaloid (scopoletin) in the plant, however, it is not known whether it has psychoactive effects (Schultes and Hofmann, 2000). The principal function of this species administered at this stage of the learning process is to aid in dreaming and remembering dreams, a fundamental ability that the initiates need to develop during their apprenticeship. As AA informed us: "the mother of *chiric sanango* (*Brunfelsia grandiflora*) is a man of fire who teaches you to be an upright healer. It is a vegetable that helps you to dream and not to forget your dreams".

In this phase of the diet, one imbibes a cup of the mashed root juice in water. Approximately 1 h after the plant is ingested the first effects appear in the form of intense shivers followed by a strong sensation of heaviness leading to a state of drowsiness, which lasts for several hours during which time the initiate occasionally experiences minor visions. The healers advise the initiate to pay special attention to their dreams during the diet and warn of the incompatibility of ingesting certain foodstuffs like fat, pork, and alcohol, which could have serious consequences, even leading to death. The participants also commented that if one does not follow the dietary restrictions scrupulously, skin discolourations might appear and remain for life.

Due to the fundamental role of the aforementioned *ikaros* within the practice of traditional medicine, the apprentices must learn to be more receptive, listen with greater attention, and soften their voice in order to achieve the correct vibrations that permit them to sing the *ikaros* properly. They must also learn the art of seduction, a skill that healers use with exquisite skill due to their good command and knowledge of psychological and cultural parameters.

A large number of the species administered that aid the apprentice in acquiring the aforementioned skills belong to a fascinating group of plants known popularly by the Shipibo-Konibo as *waste* and by other Indigenous groups as *piripiri* (Desmarchelier et al., 1996b; Valadeau et al., 2010). We recorded six different *piripiri*, corresponding to five species of the genus *Cyperus* (*Cyperus articulatus* and four other unidentified species of the genus), and *Eleutherine bulbosa (yawar piripiri*, Iridaceae). According to Tournon et al. (1986), there are about thirty different types (ethnic categories) of *piripiri* cultivated, and each one has a specific use, however, they belong to only three botanical species: *Eleutherine bulbosa*, *Cyperus articulatus* and *Cyperus prolixus* Kunth. The ethnic groups under study consider all the *piripiri* to have mothers and specifically, the Shipibo-Konibo participants classify them as *rao* plants, vegetables with a material and spiritual nature that have a spirit or *yoshin* (see Tournon, 2006).

These plants, belonging to the genus *Cyperus*, are cultivated by vegetative means in *chacras* (family vegetable gardens), and occasionally are collected in the wild. It has been observed that the cultivated *Cyperus* are sterile and that the rhizomes and stalks are infected by *Balansia cyperi* Edg., a fungus that probably produces the ergot alkaloids responsible for the biological activity of the *piripiri* (Plowman et al., 1990). Certain *piripiri* can be found in the popular markets in great demand by the local population. The part used is the rhizome (*papas*, literally potatoes), which is macerated in perfume and administered topically or in the form of baths. They are normally used in the magico-religious context as *puzangas* (love potions), to improve business, and in spiritual cleansing (Jauregui, 2008).

During this phase of sensitivity and intuition, the healer administers to the initiates, under the conditions of a diet, an infusion of three species without any psychoactive properties: *Ocimum* sp. (*aya albahaca*) and *Bixa orellana*, in order to improve and develop their visual capacity; and *Chenopodium ambrosioides* to improve their memory, a fundamental faculty in any learning process.

3.3.3. Strengthening

"If you want to work with the brew (ayahuasca) and the mothers of the vegetables, you have to make yourself strong with the *palos del monte* (rainforest trees)" (EL).

The initiates need to strengthen themselves both physically and spiritually in order to move forward in the learning process, and therefore the diet should consist mainly of *palos*, the large rainforest trees, the *jainoa onanti jihui*, which means "tree that teaches" in the Shipibo-Konibo language. The strength of the *palos* helps the initiate confront the delicate phases in the lengthy dieting process. The healers say that "the *palos* test you", since all types of temptations appear at this point, such as the possibility of using your powers to benefit yourself, of practicing black magic, and often of deciding to stop the diet. The *palos con madre* (trees with a mother), also known as *palos maestros* (teacher trees), require long and rigorous diets that can last for years. The participants insist that this period is very delicate and if the dietary restrictions are not followed exactly, the consequences can be fatal, occasionally leading to the initiate's death (AA, AU, DA, EL, JF, NWD, PA, RA, Mckenna et al., 1986). The most frequently administered parts of the *palos* are the bark, the trunk and the roots. During the diet these are ingested principally as a decoction, and occasionally macerated in water. A parallel form of administration is to add the plant part that is being dieted to the ayahuasca brew during the decoction, and in such cases we have observed that different plant parts are used, such as the root, leaves, flowers, fruit, and seeds. Some of the participants commented that the "plant with a mother" from which one wants to extract wisdom has to be ingested in small doses, beginning with the root, and followed by the bark, then the trunk, the leaves, and finally, the flowers and fruits, in order to domesticate the spirit and convert it into an ally or assistant (AA, EL, MAR, MSR, NWD, VSR).

Twenty-six species of strengthening plants have been identified, belonging to 12 families of which the most representative are Moraceae with 7 species and Fabaceae with 6 (Table 1). According to the participants, a healer must ingest at least 10 different *palos* under dietary conditions in order to acquire the sufficient level of knowledge to be able to successfully practice traditional medicine. There are highly respective healers who have managed to "diet" 40 different trees, and they are known as *maestros paleros* among the Mestizos.

The most cited species of "trees with a mother" administered under a dietary regimen to strengthen the initiates are: *Couroupita guianensis*, *Maytenus ebenifolia*, *Tabernaemontana angulata* (cited by 29 participants), *Ogcodeia tamamuri*, *Platymiscium stipulare*, and *Tabernaemontana sananho* (28), *Dipteryx micrantha*, *Heisteria acuminata*, *Strychnos rondeletioides*, *Unonopsis* sp., *Unonopsis* aff. *spectabilis* (27). These species reach great heights and robustness, and are used by healers in medicinal practice, principally in the treatment of illnesses related to the osteomuscular apparatus, such as arthritis, fractures, bruises, and hernias (Sanz-Biset et al., 2009). At medicinal plant stalls in popular markets of the region many "trees with a mother" are found to form part of certain alcoholic preparations popularly known as sieteraíces (seven roots, 7R) and veinteraíces (twenty roots, 20R). These preparations are elaborated using mixes of assorted roots, barks, and trunks, macerated in an alcoholic solution of cane aguardiente. Adults and the elderly are accustomed to drinking them every morning in small glasses. The

alcoholic preparations are prescribed by healers to treat bone problems in general and as tonics (Jauregui, 2008). Other species of large trees that are administered in strengthening diets are *Couroupita guianensis* and *Hura crepitans*. These two species are considered to be powerful "trees with a mother" that transmit their strength and teach the secrets of black magic to the initiates during the diet. They are not found as tonics in alcoholic preparations due to their toxicity, however, they are administered by healers in the diets.

Tabernaemontana angulata and *Tabernaemontana sananho* are two species belonging to a group of plants known as *sanangos*, a concept utilized in the Peruvian Amazon to designate certain species considered to be universal remedies or panaceas (Schultes, 1979). During the diet, a decoction of the bark and trunk is ingested. In phytochemical studies carried out on these two species, indolic alkaloids with psychoactive effects were found (Schultes and Hofmann, 2000). *Brunfelsia grandiflora*, another plant considered to be *sanango*, is administered during the diet due to its capacity to "take the cold out of the body" and strengthen a person's bones (EL). A decoction of the bark, trunk and roots is imbibed. *Strychnos rondeletioides*, popularly known as *achuni sanango*, is also administered during the diet to strengthen the initiates. This plant is considered by the population to be a potent sexual stimulant, and healers frequently use it in the treatment of arthritis.

3.3.4. Protection and defence

During the *palos* diet, the initiates gather complex paraphernalia of psychomagic techniques that the *maestro curandero* teaches them, as well as certain supernatural powers that the plant mothers transfer to them. This entire system of protection and defence will be actualized throughout the rest of the initiate's life in order to fight against the negative energies that often pursue healers, caused as much by nature itself as by other healers, wizards and sorcerers (PA). The knowledge acquired as to how to deal with natural forces confers on the apprentice a power that is so strong that in many cases it is not used in favour of the community and they are tempted to use it for their own benefit and to do harm. Power struggles among healers, wizards and sorcerers are frequent and manifest as much in the physical world, in the form of poisoning and attacks with weapons, as in the spiritual, in the form of *virotes* (magic darts) and "spiritual battles" that occur in the field of dreams and during ayahuasca sessions, where all the acquired magical-spiritual resources are displayed (EL, ML, PA, RSA).

Nineteen species were included in this category of protection and defence. The most cited were: *Banisteriopsis caapi*, *Calliandra angustifolia*. *Calliandra surinamensis*, *Couroupita guianensis*, *Datura inoxia*, *Jatropha curcas*, *Jatropha gossypiifolia*, *Mansoa alliacea*, *Nicotiana rustica*, *Petiveria alliacea*, *Psychotria viridis*, *Strychnos* sp. (cited by 29 participants), *Dracontium loretense* (26) and *Hura crepitans* (25).

During the apprenticeship, the initiates tend to relate more to certain plants than to others and eventually they specialize, depending mainly on their experiences with the plants and their mothers and on the direct influence of the *maestro curandero*. We found healers in the region who specialized in the use of *Bursera graveolens*, *Cinnamomum* sp., *Couroupita guianensis*, *Datura inoxia*, *Hura crepitans*, *Nicotiana rustica*, *Ormosia velutina*, *Petiveria alliacea*, *Strychnos* sp. and *Xanthosoma violaceum*. The "mothers" of these plants are considered to be powerful allies in the functions of protection and defence, as long as one has managed to establish a respectful relationship with them by means of the diets. These plants are used in traditional medicine principally in the treatment of magical-religious cultural syndromes, where spiritual cleansing and protection against negative energies are applied. Specifically, *Xanthosoma violaceum*, *Couroupita guianensis*, *Strychnos* sp., and *Hura crepitans* are highly respected and feared by the Amazonian population as they are related to witchcraft and sorcery.

Some species in this group, such as *Xanthosoma violaceum*, *Petiveria alliacea*, *Jatropha curcas*, *Jatropha gossypiifolia*, and *Mansoa alliacea*, are administered during the diets in the form of baths to protect the initiates from negative energies.

A Mestizo healer (AA) described the mothers of the following species: *Tabernaemontana angulata* as "a warrior with a sword and shield who teaches techniques of protection"; *Calliandra angustifolia* and *Calliandra surinamensis* as "a woman whose beauty shines and who always presents you with a talisman for protection. The woman wears a tunic full of gemstones and does not always appear in the same form"; and the mother of *Bursera graveolens* as "a very strong man who teaches you to love humanity and do good. He directs you along the right path with strength. He is tall with long hair, a beard, and a white tunic".

A Shipibo-Konibo participant (LC), described the following "mothers": *Xanthosoma violaceum* as "an important doctor. His body has a sort of leaf, his eyes are small, his ears are long, his arms short, and his feet like fish hooks"; *Petiveria alliacea* as "the mother has a fat body, with short arms and legs. His head has two horns that are his powers. His face is rosy and his mouth small and round"; *Couroupita guianensis* "is short and fat, his face in his chest, he has four fingers on each hand and foot. The fruit is medicine with which you can heal when we are sick with an illness and we do the following: we break open his fruits and rub our bodies with them and sleep alone so nobody can bother us, and then, our bodies' ills-caused by some wizard-go away"; the mother of *Hura crepitans* she calls *diablo* (devil) and describes as having "a pale, yellow body, with a bad odour and his whole body stinks because he is full of spots that gush water that stinks. His bark, leaf and resin are useful in curing illnesses that are well-known but can also bewitch/do harm"; *Ormosia velutina* as "a fat two-coloured – red and black – devil with a big belly and four arms. There are two types: male and female. The male has large eyes, his neck is destroyed and his head is just stuck on, and he has two long beards, one black and one red, but the female is completely red".

3.4. Dynamism in shamanic knowledge

The learning process has no end—healers are constantly learning and ingesting new plants, trying to discover new medicines and remedies, due to the appearance of new illnesses such as diabetes, different types of cancer, AIDS, and others. The participants commented that occasionally they retire alone to the forest in order to follow new plants diets and even the dust of certain rocks or objects of power found in nature and known as *encantos*. In Tournon (2006), the experience of two North American travellers is described: Herndon and Gibbon (1854) witnessed a group of healers from the Ucayali, five men and two women, arguing about the properties of a plant called *solimán del monte*, while they grated the bark and added it to the *masato*, an alcoholic drink made with yucca (*Manihot esculenta* Cranz). Four of the men died in three quarters of an hour and the rest fell ill. Various participants commented that a plant known by the same name is "dieted, because it makes you invisible to enemies and the forces of evil" (EL, GO, MAR, NWD, PA, VRA). We have been unable to identify this species.

4. Conclusions

In the Amazonian region of the Ucayali, *planta con madre* is a wide-ranging and frequently used concept that defines a group of plants that teach and guide the initiates in their apprenticeship and practice of traditional Amazonian medicine. They are, therefore, the most relevant medicinal and symbolic plants in the Indigenous health system. According to the participants' beliefs, knowledge is not transmitted orally by healers but through the mothers, spirits

or entities that inhabit the natural world. Therefore, the knowledge transmission is of a trans-verbal nature as it occurs via dreams, visions and *ikaros*.

The *plantas con madre* do not necessarily have to be species that produce psychotropic or psychoactive effects, although there is a small group known by many authors as master plants, which we include within this category and which play a fundamental role in the apprenticeship and training process. The use of these plants during the initiation process may reinforce cultural continuity, contribute to grounding Indigenous medical practices within their cosmologies and the environment, and nurture the social cohesion of local Indigenous communities. The role of the healer is also acknowledged as a teacher, leader, and spiritual guide. Healers dynamize their communities, they never stop learning and ingesting new plants. They seek for new medicines and remedies including new illnesses such as diabetes, cancer or AIDS.

These plants with a mother can be grouped into four categories, according to the role each plays in the apprentice's preparation and training. One species can serve more than one function, and therefore can belong to more than one group. The categories are: (I) purification and cleansing; (II) sensitivity and intuition; (III) strengthening; and (IV) protection and defence.

All the *plantas con madre* are considered to have medicinal and magical properties by the participants. However, the form of administration varies depending on whether they are applied as medicinal remedies in regular medicinal practice, or whether they are administered under the special conditions of shamanic diets during the apprentice's preparation and training process.

The system of shamanic diets requires a more in-depth examination as they form a fundamental part of the traditional medicine and cosmovisions of the Indigenous people in this region.

The initiation processes and apprenticeships of traditional medicine examined in this article belong to the traditional sacred Indigenous knowledge of the region. This knowledge has been transmitted from generation to generation as the product of an intimate relationship with nature from time immemorial. Its practice is based on a holistic vision, founded on three fundamental and inseparable pillars: culture, ecology and spirituality.

It is of vital importance that the scientific community approaches research with traditional cultures by having cultural sensitivity and appropriate research ethics frameworks, and recognizes the altruistic contribution of Indigenous knowledge to biomedicine, sustainability, conservation of biodiversity, and general scientific knowledge (Reyes-García, 2010). It is therefore fundamental that the benefits of this knowledge revert to the Indigenous people, and that more efforts are invested in the recognition of Indigenous rights. The protection and conservation of their traditional knowledge and practices including ceremonies, rituals, sacred places, and their environment is critical for the continuity of these traditional medical systems. This work should lead to a better understanding of how shamanic initiation contributes to Indigenous knowledge translation, transmission, and usage and to the development of culturally appropriate health services among Indigenous peoples.

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Appendix A. Participants (abbreviation, age, ethnic group, locality)

Healers

1. AA, 40 years old, Mestizo, Pucallpa.
2. AM, Shipibo-Konibo, Yarinacocha.
3. ARC, (76), Matsiguenga, Alto Urubamba.
4. AV, Shipibo-Konibo, Río Tamaya.
5. DA, (60), Shipibo-Konibo, Imiría.
6. DJ, (64), Mestizo, Pucallpa.
7. EL, (56), Mestizo, Yarinacocha.
8. E, (70), Shipibo-Konibo, Masisea.
9. JB, Shipibo-Konibo, Pucallpa.
10. JD, (64), Shipibo-Konibo, Pucallpa.
11. JF, Ashaninka, Pachitea.
12. JL, Shipibo-Konibo, Pucallpa.
13. KMI, Shipibo-Konibo, Pucallpa.
14. LTS, (67), Mestizo, Pucallpa.
15. MAC, (48), Mestizo, Pucallpa.
16. MAR, (43), Shipibo-Konibo, Pucallpa.
17. MAU, Shipibo-Konibo, Yarinacocha.
18. ML, Mestizo, Pucallpa.
19. MN, Shipibo-Konibo, Pucallpa.
20. MSR, Mestizo, Pucallpa.
21. NT, (83), Mestizo, Pucallpa.
22. NWD, (72), Mestizo, Yarinacocha.
23. OC, (83), Mestizo, Pucallpa.
24. PA, Mestizo, Pucallpa.
25. RE, (76), Shipibo-Konibo, Pucallpa.
26. RS, (69), Mestizo, Pucallpa.
27. RSA, Mestizo, Yarinacocha.
28. VRA, (51), Mestizo, Pucallpa.
29. VS, (49), Shipibo-Konibo, Alto Ucayali.

Apprentices

30. E, (58), Mestizo, Apprentice of the healer JB.
31. J, (40), Spanish, Apprentice of the healer MAU.
32. M, Shipibo-Konibo, Apprentice of the healer JB.

Others

33. G, (74), Mestizo Herbalist, Yarinacocha.
34. JRT, Mestizo Herbalist, Pucallpa.
35. LC, Shipibo-Konibo Artist, Yarinacocha.
36. SD, Sister, Italian, Specialist in medicinal plants, Pucallpa.

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