

# PLANT BASED ASSISTED THERAPY FOR THE TREATMENT OF SUBSTANCE USE DISORDERS - PART 2. BEYOND BLURRED BOUNDARIES

Politi, M., Friso, F. & Mabit, J. (2019). Plant based assisted therapy for the treatment of substance use disorders - part 2. Beyond blurred boundaries.. *Revista Cultura y Droga*, 24 (28), 19-42.  
DOI: 10.17151/culdr.2019.24.28.2.

MATTEO POLITI\*  
FABIO FRISO\*\*  
JACQUES MABIT\*\*\*

Recibido: 30 de enero 2019  
Aprobado: 22 de marzo 2019

## ABSTRACT

**Objective.** This article aims to offer a vision of the centers at a global level that use derivatives of plants or animals for the treatment of substance use disorders, and to offer a reflection on the concept of drugs as medicinal or toxicant agents depending on the context of use, culture and policy. **Methodology.** Some practices coming from Africa, Asia, Europe and the Americas were considered, carrying out a research based on scientific literature, exchange of information with treatment centers, internet search and the personal experience of the authors. **Results and Discussion.** Different cases of the use of natural medicines are described including psychoactive derivatives of *Tabernanthe iboga* and *Bufo alvarius*. **Conclusions.** The blurred boundaries between considering drug consumption as a crime or as a health issue could be overcome by being inspired by the ancient wisdom of traditional medicines.

**Keywords:** plant-based assisted therapy, substance use disorders (SUDs), drug addiction, traditional and complementary medicines.

---

\* PhD in Chemistry and Technologies of Bioactive Substances. Scientific Director of Takiwasi Center, Tarapoto, Peru. E-mail: [matteo.politi@takiwasi.com](mailto:matteo.politi@takiwasi.com).  [orcid.org/0000-0002-1185-8569](https://orcid.org/0000-0002-1185-8569). **Google Scholar**

\*\* Communications Degree. Communications Manager of Takiwasi Center, Tarapoto, Peru. E-mail: [comunicaciones@takiwasi.com](mailto:comunicaciones@takiwasi.com).  [orcid.org/0000-0001-5427-956X](https://orcid.org/0000-0001-5427-956X). **Google Scholar**

\*\*\* Medical Doctor. Executive President of Takiwasi Center. Tarapoto, Peru. E-mail: [takiwasi@takiwasi.com](mailto:takiwasi@takiwasi.com).  [orcid.org/0000-0003-3412-3167](https://orcid.org/0000-0003-3412-3167). **Google Scholar**



## TERAPIA ASISTIDA POR PLANTAS PARA EL TRATAMIENTO DE LOS TRASTORNOS POR USO DE SUSTANCIAS - PARTE 2. MÁS ALLÁ DE LOS LÍMITES BORROSOS

### RESUMEN

Objetivo. Este artículo pretende ofrecer una visión de los centros a nivel global que utilizan derivados de plantas o animales para el tratamiento de trastornos por uso de sustancias y ofrecer una reflexión sobre el concepto de drogas como agentes medicinales o tóxicos según el contexto de uso, cultura y política. Metodología. Hemos considerado algunas prácticas provenientes de África, Asia, Europa y las Américas, realizando una investigación basada en literatura científica, intercambio de información con centros de tratamiento, búsquedas en Internet y la experiencia personal de los autores. Resultados y discusión. Se describen diferentes casos de uso de medicinas naturales, incluyendo derivados psicoactivos de la *Tabernanthe iboga* y *Bufo alvarius*. Conclusiones. Las fronteras borrosas entre considerar el consumo de drogas como un crimen o un problema de salud podrían superarse inspirándose en la antigua sabiduría de las medicinas tradicionales.

**Palabras clave:** terapia asistida por plantas, trastornos por uso de sustancias (TUS), drogadicción, medicinas tradicionales y complementarias.

### INTRODUCTION

After a first article focused on the major centers in the Americas that use traditional herbal medicine or their derivatives in the treatment of Substance Use Disorders (SUDs) (Politi, Friso & Mabit, 2018), we shifted our focus to other practices around the world with a similar aim. We address this article to this special issue on “Drug and Frontiers” falling in the sub-topic “Ancient Medicine and Globalization”. There is in fact an evident trend in recent years toward the integration of many traditional practices into the modern medical system (Mabit & González, 2013; Campos Navarro, 2016; Sen & Chakraborty, 2017) including the practices using

psychoactive plant medicines and altered state of consciousness as healing tools, with the consequence of border crossing phenomena involving peoples and knowhow (Thomas, Malcom & Lastra, 2017; Bogenschutz & Ross, 2018).

As pointed out throughout the first part of this research (Politi et al., 2018), it is striking to observe that most of psychoactive plants used in SUD treatment are considered illicit drugs in developed countries and, in some cases, they become drugs of abuse as a result of being decontextualized from the original ways of use. This clearly indicates that the problem does not lie in the plants themselves, but has to do with the people, i.e. culture, and their way of approaching and using them. One wonders if a change in this paradigm could result in a (positive) change in results. Psychoactive drugs express their hedonistic potentialities after the development of a completely profane setting of drug use, while the archaic way of perceiving and elaborating drug effects mainly determined their use as being for supernatural purposes and excluded recreational purposes (Nencini, 2002).

In 2001, Portugal, after two decades of war on drugs that resulted in dramatic raise in drug consumption (one in every 100 Portuguese was experiencing heroin addiction), overdose deaths and drug-related crime (Aleem, 2015; Ferreira, 2017), made a u turn and became the first country to decriminalize the possession and consumption of all illicit substances. Rather than being arrested, those caught with a personal supply might be given a warning, a small fine or the obligation to appear before a local commission to be told about treatment, harm reduction, and support services that were available to them. The opioid crisis soon stabilized, and the following years saw dramatic drops in problematic drug use, HIV and hepatitis infection rates, overdose deaths, drug-related crime and incarceration rates. HIV infection plummeted from an all-time high in 2000 of 104.2 new cases per million to 4.2 cases per million in 2015. The data behind these changes has been studied and cited as evidence by harm-reduction movements around the globe. Not all of these positive results should be credited solely to a new law. The significance of this change and its stability in the following years (and through several governments) has to do with an enormous cultural shift, and a change in how the country viewed drugs and the problem of addiction. Identifying drug use as a health problem instead of a crime resulted in a cascade of positive social changes. This has been observed in several studies. More liberal drug policies may actually encourage the adoption of harm reduction strategies such as health service engagement (Benfer et al., 2018).

Despite evidence of the benefits of harm reduction over prohibition, many countries continue to resist a public health approach to drug use. One of the obstacles in this paradigm shift are long-standing cultural beliefs and social stigma associated with drug use (Babor et al., 2010). Prohibition policies and mistrust towards certain healing practices that use psychoactive plants impede the access to high-quality and high-success rate treatment for people for which conventional treatment have revealed to be unsuccessful. Despite that, today we can observe an increasing number of herbal, alternative and complementary medicine practices that spread around the world with promising results (Winkelman, 2014; Sarkar & Varshney, 2017; Hohmann, Bradt, Stegemann & Koelsch, 2017; Grant et al., 2016; Garland & Howard, 2018).

- *Main Research Objectives*

This article aims to give an overview of centers at a global level that use traditional herbal medicine, their derivatives or additional therapies in the treatment of SUDs, mentioning the most promising initiatives. In general, there are few proposals of centers formally constituted and with published scientific data. Most of the initiatives rely on personal experiences and researches, which have nonetheless the potential to be replicated at a larger scale.

Moreover, this article intends to point out the border crossing phenomenon related in particular to the globalization of certain traditional medical practices, and the integration of certain complementary approaches into the mainstream medical system.

## **MATERIALS AND METHODS**

While the first part of the present study was focused on herbal medicines and its derivatives hailing specifically from the Americas, for this second article on the topic of plant based assisted therapy we have considered as well a few practices hailing from Africa, Asia and Europe. To carry out this research one of the founders of the Takiwasi Center and co-author JM has been interviewed and his knowledge, contacts and experiences on drug addiction treatment centers have been gathered. Takiwasi is a center for the rehabilitation of drug addicts and research on traditional medicines that has been applying the Ayahuasca brew therapeutically for over

25 years (Frecska, Bokor & Winkelman, 2016). Its protocol integrates traditional Amazonian plant medicine, complementary and alternative practices and spiritual activities with the Western approaches to health care (Mabit, 2007).

Scientific literature and internet searches were also used to complete, increase and confirm the overall information acquired. Based on this, some of the information presented in this article refers to the use of medicinal plants and complementary practices in the treatment protocols of each center. Updated literature review has been also performed to describe the current the political context on drug addiction. In this case, rather than a global overview, a reflection is provided with the aim of stimulating a discussion on the impact that certain cultural viewpoints, which determine specific boundaries, can have and will have when approaching the topic of SUDs.

## RESULTS AND DISCUSSION

### **Ibogaine-assisted treatment**

The root bark of Iboga (*Tabernanthe iboga*), an endemic plant of the West African rain forest, has been used for a very long time in Central and West Africa. In low doses, the plant serves as a stimulant to maintain alertness; for example, hunters use it to promote vigilance while stalking prey (Naranjo, 1969). In larger doses, it is a hallucinogen, traditionally used for religious purposes by shamans, for example in ceremonies of initiation into adulthood. It induces trance and is considered to reveal one's purpose of life and their role in a society (Fernandez, 1982).

The alkaloid ibogaine contained mostly in the root bark has been adopted in Western society as one of the major herbal derivative for drug dependence treatment (Brown, 2013; Schep, Slaughter, Galea & Newcombe, 2016; Paskulin et al., 2006). Treatment of patients requires large doses of the alkaloid to cause hallucinations, an alleged integral part of the therapy. Howard Lotsof was the first person to observe the therapeutic effect of Iboga in detoxification from heroin. After a personal experience with the plant, by the mid 1980's he had arrived at its origin, coinciding with the territory of equatorial Gabon, where the religious animist system Bwiti uses Iboga as an initiatory tool and sacrament. Lotsof started treating a group of

addicts with ibogaine in a non-formal way. The group, known as the Junkie Bond, was composed by drug user activists who undertook self-treatments, establishing and improving a protocol for ibogaine administration. Lotsof later originated patents (e.g. US Patent 4499096, HS Lotsof, Rapid method for interrupting the narcotic addiction syndrome) for the use of ibogaine in substance use disorder treatments for opioids, cocaine, amphetamine, alcohol, and nicotine<sup>1</sup>.

In more recent years, Iboga has come to be used as a non-addictive recreational drug by a small number of people in Europe and North America. This experimentation, while frequently illegal, has led to interest in Iboga by drug addiction researchers. Iboga reportedly has the effect of ending cravings for addictive substances, both illegal (such as heroin) and legal (such as nicotine). Today, there is a burgeoning scientific literature about Iboga, fueled by researchers who experiment with Iboga and Iboga-like compounds and try to more precisely elucidate Iboga's biochemical effects on the brain. Iboga is gaining scientific respectability and is becoming a hot pharmaceutical property. Patent applications on Iboga stretch back to 1985, and have been made more recently by Myriad Genetics and by Washington University, one of the most prominent biomedical research campuses in the US (McGown, 2006).

As far as we know, despite being Iboga one of the ancient medicines that has been used and studied for longer for anti-drug addiction application, no related discussion on benefit sharing has been developed (McGown, 2006), and one wonders if any recognition has been given back to the religious system where the use of this medicine was born. The same concern could be applied to all ancient medicines that are currently being used in clinical practices and studied by academic researchers around the world. The Convention on Biological Diversity signed by 150 government leaders dates back to the 1992 Rio Earth Summit. A step in this direction has been made with the Nagoya Protocol on Access and Benefit Sharing signed in 2010, but despite the existence of these norms we still don't have any news or information on what has been really given back to all the indigenous peoples around the world that have generously (or naively) given access to these extremely valuable resources. This somehow reflects the inconsistency of international politics, and well describes the concept of blurred boundaries we are proposing here, in this case applied to society and politics: sometimes such boundaries appear as impenetrable walls blocking the

---

<sup>1</sup> <https://www.ibogainealliance.org/about/howard-lotsof/>

natural freedom of movement on the Land of human beings, other times those walls vanish and become moving walkways for the benefit of multinational companies.

The clinical application of Iboga and ibogaine is currently widespread in Europe, South and North America, although with some legal constraints. In Bolivia the Centro Boliviano de Solidaridad VIDA uses ibogaine since 2017 as the first step in its addiction recovery (Politi et al., 2018), followed by Ayahuasca and Wachuma ritual sessions. In Holland, the Iboga Experience<sup>2</sup>, has been working for over 10 years with Iboga and other plant medicines from all over the world that, taken in a ritual ceremonial context, help participants to get rid of addictive habits. In 2009, through its medical regulatory body Medsafe, New Zealand became the first country in the world to make ibogaine legally available via prescription (Medsafe, 2009), and its treatment outcomes for opioid dependence have been recently observed in a twelve-month follow-up observational study (Noller, Frampton & Yazar-Klosinski, 2018). In Brazil, the government of state of São Paulo has decreed that ibogaine can be administered in a medical environment with adequate protections for the patient (Conselho Estadual de Políticas Sobre Drogas, 2016). Bruno Rasmussen Chaves, M.D., has been administering ibogaine for 20 years in Brazil collaborating with private clinics and hospitals and participated in a study that confirmed that the supervised use of ibogaine accompanied by psychotherapy can facilitate prolonged (1 year) periods of abstinence (Schenberg, Comis, Chaves & Silvera, 2014). In Canada and Mexico ibogaine is legal but unregulated and in the latter the number of clinics and treatment facilities that offer ibogaine in their protocol is growing (Levinson, 2018).

- *Crossroads treatment center*

Opioid use disorder (OUD) is currently an epidemic in the United States and ibogaine is reported to have the ability to interrupt opioid addiction by simultaneously mitigating withdrawal and craving symptoms. Since ibogaine is illegal in the United States, more and more US citizens travel to foreign countries in search for treatment, a truly crossing borders phenomenon caused by international political inconsistency. One of the most famous centers that offers ibogaine and 5-MeO-DMT therapy is the

---

<sup>2</sup> <http://www.iboga-experience.nl>

Crossroads Treatment Center<sup>3</sup>, co-founded by Martin Polanco, MD, and based in Northern Mexico.

The treatment protocol differs significantly between Crossroads and other ibogaine treatment facilities (Camlin et al., 2018). The ibogaine-assisted detoxification occurs in a residential setting and lasts one week. Crossroads admits men and women aged 18–60 years (Davis et al., 2017). Individuals with severe psychiatric conditions including psychotic, bipolar and eating disorders are excluded from treatment. Among other medical exclusions, we find: history of heart disease, pulmonary embolism, deep vein thrombosis, severe respiratory conditions, obesity, gastrointestinal disorders. Patients are also excluded from treatment if they have used alcohol, amphetamines, cocaine, or psychiatric medications in the prior week. For most, their primary substance use problem is related to heroin or prescription opioid use. Prior to treatment at the clinic, applicants undergo a physical examination onsite with one of the staff physicians. The treatment consists of administration of ibogaine hydrochloride (Voacanga-derived). Dosing ranges between 15 mg/kg and  $\pm 5$  mg/kg, depending on weight and severity of polysubstance use. All patients receive medical monitoring throughout the treatment followed by a short residential stay that includes psychological support and aftercare planning. Crossroads has board-certified physicians specialized in emergency medicine and paramedics on site at all times while patients are in residence.

One of the authors (JM) had the chance to personally experience as well the ritual use of Iboga, observing that, as in the case of Ayahuasca, the Bwiti tradition offers today forms of religious syncretism with elements of the Catholic tradition. Other comparisons that can be made are the following: with Iboga, the visionary phenomena far exceed what was experienced with other plants; the rules that accompany the intake of Iboga (sexual abstinence, food restrictions, isolation) are similar to those of a plant diet, a healing practice derived from traditional Amazonian medicine (Politi, 2018); the integration process in everyday life seems to be slower than with Ayahuasca. Finally, the problems posed to the traditional use of Iboga are the same as those posed to the traditional use of Ayahuasca and have to do with the globalization of this ancient medicine: on one side, the local knowledge degeneration towards a business model; on the other side, the invasion of Westerners animated by economic interests, or driven by the illusion of becoming shamans in a few

---

<sup>3</sup> <https://crossroadsibogaine.com/>

weeks, or wishing to add this sacred plant to their collection of drugs to experiment (Mabit, 2002).

### **Border crossing in the therapeutic use of Ayahuasca**

Several studies demonstrated the potential of the psychoactive Amazonian brew Ayahuasca in addressing substance addiction (Talin & Sanabria, 2017) thus generating interest among more and more researchers, doctors and psychologists, and leading to the establishment of many centers in Latin America and all over the world that use Ayahuasca in their treatment protocol (Politi et al., 2018). During its process of globalization and migration from the Amazon jungle to the Western world, Ayahuasca has encountered different legal and cultural responses according to the country of destination and the border crossed and, as pointed out by Óscar Calavia Sáez (Labate & Cavnar, 2018), one of the most decisive controversies around this plant is the boundary between culture and nature, the difference between what can be a subject of intellectual property and pharmaceutical patents and what cannot, the separation between what is just a plant and what is considered an illegal drug. In Peru, an important step in the legal recognition and safeguard of this ancient herbal medicine has been made in 2008 with the recognition of the traditional use of the Ayahuasca brew as National Cultural Heritage. This solid legal framework has allowed the emergence of various plant-based healing centers that welcome patients with SUD and other mental health disorders. It also permits government agencies such as DEVIDA (National Commission for Development and Life without Drugs) to endorse research projects on Ayahuasca and its use in the treatment of addiction, as in the case of the ongoing ATOP (Ayahuasca Treatment Outcome Project) international research project. At the other end, we find France, the only country in which Ayahuasca is explicitly prohibited. Several countries, in which Ayahuasca use is in a legal vacuum, float in the middle, as in the case of Spain. These blurred boundaries put therapists and users in an uncertain and dangerous position, with no guarantee that the treatments are provided in the most clinically appropriate way.

- *The Oxígeme process*

In Madrid, Spain, psychologist Manuel Almendro, PhD has created the Oxígeme process<sup>4</sup>, where he receives addicted patients and people who have experienced

---

<sup>4</sup> <http://www.oxigeme.com>

side effects provoked by negative Ayahuasca experiences<sup>5</sup>, among others. The fundamental idea of this process that has been applied for over thirty years is to articulate modern therapeutic techniques with very ancient practices of Traditional Amazonian Medicine (TAM)<sup>6</sup> which are administered by highly qualified healers. The methodology consists in applying two main cycles (Almendro & López, 2016): the first cycle will serve to the patient as an introduction to the protocol. Therapies include individual and group treatment that involves caring for body, mind, emotions and consciousness, plus meditation-mindfulness processes, psycho-corporal techniques and treatment of family and genealogical processes. The second cycle offers a full immersion in TAM through the use of teacher plants such as Ayahuasca and others healing practices inspired by TAM (Luna, 1984). In both cycles the treatment has to follow a rigorous and scientific methodology that relies on psychologists and doctors, a field hospital, medication, continuous guidance, and questionnaires, among other tools. Oxígeme also uses instruments that allow the staff to monitor the psychological process as well as the cerebral, biochemical and blood responses. Treatment is aimed at psychoneurotic diseases, addictions, as well as somatic discomforts, especially pathologies such as cancers, strokes, and rare diseases. The concept behind this process is that, behind every pathology, there are suspicious psychological and psychosomatic components that normally are not investigated in a methodical way (Almendro & López, 2016).

## Outlook on Medical Cannabis and SUDs

Cannabis (*Cannabis sativa*) is probably the plant that most represents this dual nature of being considered, on one side, an illegal drug, and on the other side, a potential medical resource. This is a topic of great interest in today's society as we observe that more and more countries are opening to its medical and/or recreational use and strong controversies surrounding legal, ethical, and societal implications associated with its use constantly arise (Bridgeman & Abazia, 2017). Cannabis is the

---

<sup>5</sup> In Spain, a similar initiative that aims at accompanying people who experience negative side effects due to "bad trips" with Ayahuasca is being promoted by ICEERS Foundation (International Center for Ethnobotanical Education, Research and Services), Barcelona, Spain, <http://www.iceers.org/>

<sup>6</sup> The archaeological evidence of ayahuasca use first pointed out by Plutarco Naranjo in Ecuador (Naranjo 1986) has been supported by other evidences found in peri-Amazonian areas, and reported by several researchers (Bouso Saiz, 2012; Carod-Artal & Vázquez-Cabrera, 2006; Llagostera et al., 1988) that were able to verify the millennial use of shamanic snuffs (rapé), mescaline cactus and ayahuasca. The oldest records of the possible use of ayahuasca have been found in the desert of Azapa, in the north of Chile, with remains of harmine found in the hair of two mummies of the Tiwanaku period, datable between 500 and 1000 AD. (Olgade et al., 2009).

most commonly cultivated, trafficked, and abused illicit drug worldwide according to the World Health Organization (WHO, 2016). At the same time Cannabis may help treat a range of illnesses by decreasing pain, inflammation and muscle control problems, controlling refractory epilepsy, and possibly even treating mental health disorders and addictions<sup>7</sup>. The legislative changes and media attention have set the scene for the advancement of clinical trials in several areas. As an example, a recent study suggests that medical Cannabis treatment has a significant favorable effect on patients with fibromyalgia (Habib & Artul, 2018).

The therapeutic use of Cannabis could serve as a tool for psychologists and mental health professionals to deal with several disorders their patients have, and addiction treatment is thought to be a prominent context in which mental health care providers may encounter the use of Cannabis (Walsh et al., 2017). In its clinical application under a harm reduction perspective, Cannabis may serve as a substitute for alcohol and other drugs as it may be preferred due to its perceived lack of harm, more acceptable side effects and relative effectiveness (Reiman, 2009). On a pharmacological level, a study in 2009 found that injections of THC, the primary active chemical in Cannabis, helped eliminate dependence on opiates such as morphine and heroin in test animals (Morel, Giros & Daugé, 2009). Recent studies suggest that the legalization of medical Cannabis might also be associated with decreased prescription opioid use and related overdose deaths (Bradford, Bradford, Abraham & Bagwell Adams, 2018; Wen & Hockenberry, 2018), which are currently considered an epidemic in the US (Merica, 2017).

## **Asian Herbal Therapies**

Herbal medications to treat illnesses such as drug addiction are widely used in Asia. The antidrug medication Heantos 4 is a Vietnamese herbal traditional medication used for treatment of drug addiction (Cain et al., 2016). It was composed and prepared first by Mr. Tran Khuong Dan in the early 1990's as a water extract in liquid form. The identity of the 13 plants used in the mix doesn't appear to be in the public knowledge for commercial reasons (Aldhous, 2005). Since 1995 the Vietnam Academy of Science and Technology (VAST) has cooperated with Dan's group of researchers for further scientific developments of Heantos. Moreover, in some major cities in Malaysia some traditional Chinese medicine shops sell concoctions

---

<sup>7</sup> <https://www.drugabuse.gov/publications/drugfacts/marijuana-medicine>

known as “Four-days-breaking-smoking-habit-medical mixture” or “Hong Kong concoction” to be used to break the habit of smoking tobacco, opium or heroin smoking (Heggenhougen, 1984). The herbal ingredients of each concoction may vary, with the more complex containing over 40 ingredients, and these are mixed with poppy shells to face withdrawal symptoms. Herbal medicines have been used as well in China for more than 200 years for the treatment of drug addiction (Lu et al., 2009). In recent times, studies have shown that plants such as *Panax ginseng* may be useful for the prevention of opioid abuse and dependence, *Rhizoma corydalis* may be used to prevent relapse and inhibit drug craving and the alkaloids of *Uncaria rhynchophylla* appear to have positive effects on methamphetamine and ketamine addiction (Zhu, Zhang, Huang & Lu, 2017). Finally, several studies suggest that Kudzu (*Pueraria lobata*) can decrease alcohol consumption and limit alcohol withdrawal symptoms (Lukas et al., 2005; Penetar, Toto, Lee & Lukas, 2015). Probably, the most recognized case of an Asian treatment center using herbal medicine for drug addiction treatment is represented by the Tham Krabok Monastery in Thailand.

- *Tham Krabok, Buddhism and medicinal plants in the treatment of SUDs*

Far from the clinic-like style of Crossroads, in Thailand, in the Buddhist Monastery of Tham Krabok, for more than 50 years, the monks-healers have been treating heroin addicts with impressive results, using local medicinal plants. The development of the Tham Krabok Monastery and its therapeutic activities is directly linked to the charismatic personality of its leader, Abbot Phra Chamroon Parnchand (Mabit, 1993). At first a police colonel, he left the force to be ordained a monk in the esoteric sect of the Tudong monks at the age of 27. In 1957 he formed a group with 9 Tudong monks and set to live in the caves of the Prong Prab hills. Due to the cylindrical shape of the caves, these are called “bamboo caves” or “tham krabok” in Thai language. The group gave birth to the current monastery (wat in Thai). In 1959 the Thai Government decreed the prohibition of the consumption of opium. Due to the influence of Chinese merchants, there has been a traditional consumption of opium in Thailand for a long time. Overnight many people, even elderly, found themselves in illegality. Some sought advice from the monks in order to abandon their opium use. From 1960 to 1962, counting only on 60 monks the monastery of Tham Krabok attended ten thousand addicts, although there was no record of patients or advertising of the treatment at that time. The treatment protocol was developed and improved until its current formula was obtained. It has been the same for the past 50 years. A strictly confidential register of patients is now established,

which allows for the discreet reception of addicts of all kinds: from the indigenous tribes of the Golden Triangle in the Northwest of Thailand, to the opium smoker, the young heroin addict from the suburbs of Bangkok, the police or government official inhaling cocaine, the European “junkie” wandering in Asia, etc. The Monastery has treated more than 110,000 people since it started its program in 1959 (Silva, 2017).

The treatment begins with a “sajja” ceremony in which patients take a sacred vow never to use drugs again. Then the purification begins with medicinal plants. Patients drink, for at least five days in a row, a strong herbal medicine that induces vomiting. Vomiting is followed by a daily herbal steam bath to aid the detoxification process. Patients, having fasted for at least half a day, lay squatted in a row and receive about 2 liters of the famous yotak, a decoction of about 100 plants, roots and medicinal barks. Most of the medicinal plants used grow around the Monastery, the rest (20%) comes from different parts of the country. After ten days, it is considered that the basic treatment has ended and the patients can request to leave. However, they are advised to stay another month to allow time for the relocation of their future perspectives. In 1975, Phra Chamroon Parnchand became famous when he received the Ramón Magsaysay award, considered the equivalent of the Nobel Prize for Asian countries, for having healed thousands of drug addicts with a treatment based on medicinal plants and spirituality, showing great effectiveness despite being an unorthodox method.

### **Interest in other herbal remedies around the world**

Preliminary research on several other plant therapies has shown promise in providing potential treatment options for addiction (Meletis & Zabriskie, 2008). The benzoflavone moiety contained in *Passiflora incarnata* L. commonly known as Passiflower allegedly produces positive results in the reversal and tolerance of several addictive psychotropic drugs in animal models (Dhawan, 2003), particularly preventing withdrawal effects and decreasing anxiety in alcohol-addicted mice (Dhawan, Kumar & Sharma, 2002). The Velvet Bean (*Mucuna pruriens*) seed has been shown to contain a significant level of levodopa (l-dopa), the precursor to dopamine, so this plant may enhance moderate neurotransmitter levels in substance withdrawal (Manyam, Dhanasekaran, & Hare, 2004). Laboratory experiments with various preparations of Kanna (*Mesembryanthemum tortuosum*) have revealed anti-stress, antidepressant, narcotic, anxiolytic and anti-addictive effects (Terburg et al., 2013). Indigenous to southern Africa where it has traditionally been used to elevate

mood and relieve hunger, Kanna has already crossed the border towards modern applications when, in 2013, a standardized extract became available as a mood-enhancer and anxiolytic botanical supplement (Ujváry, 2014). Other plants worth mentioning include St. John's Wort (*Hypericum perforatum*) that allegedly has positive effects on depression, alcohol withdrawal and smoking cessation (Meletis & Zabriskie, 2008) and Sweet Flag (*Acorus calamus*) that is recommended for reducing cravings and helping with nicotine withdrawal (Yarnell & Abascal, 2001).

Among these newly researched plants, Kava (*Piper methysticum*) may be the most promising. Kava is a large-leaved shrub indigenous to the South Pacific Islands where the rootstocks of the plant are extracted by water to prepare a mildly narcotic beverage that is an integral part of local social life (Ujváry, 2014). Kava has become popular in the west as an anti-anxiety agent. In recent decades, kava root extracts became available worldwide as dietary supplements and over-the-counter medicines for anxiety, depression and insomnia (Sarris et al., 2013). A preliminary study also found that, thanks to its active ingredients such as kavapyrones, Kava may reduce the craving associated with addiction to alcohol, tobacco, cocaine, and heroin (Steiner, 2001).

### **Animal derivatives for the treatment of SUDs**

Products of animal origin are very important in the development of new medicines in general and venomous animal species that have been studied throughout the years have already offered inventions protected as industrial property on drug discovery (De Marco Almeida et al., 2015). In recent years we could observe a growing interest aimed at two species of amphibians that could have a potential application in the treatment of SUDs: *Bufo Alvarius* and Kambô (*Phyllomedusa bicolor*).

- *Bufo alvarius* and controversies around its use

Otac, the Seri Comcáac word for toad, has been adopted as a term for the gland secretions of *Bufo alvarius*. This is the only known toad species whose glands contain the neurotransmitter molecule bufotenine, 5-MeO-DMT and the enzyme capable of methylating it. By inhaling the substance released by the glands of *B. alvarius* the effect on neural receptors is immediate. Although some archeological and iconographic evidence suggests that the toad might have been considered sacred

by the Olmecs, Mayans & Aztecs, it is not possible yet to affirm or deny that this psychoactive substance was used by Mesoamerica cultures in the prehispanic era, given the limited sources and research that exist in this field (Cortina, 2018a). Currently *B. alvarius* is proposed by many health practitioners as it could serve as a healing technique, to assist people in recovering from a range of mental health problems, including addiction and other psychological afflictions such as Post-Traumatic Stress Disorders (PTSDs) and depression, but also as a trigger for human development (Hinojosa, 2017). The therapeutic use of *B. alvarius* is spreading more and more along with the controversies around it. Excessive doses are forced into the patients, side effects as psychological traumas have been reported, and its use in *New Age* retreats in combination with ibogaine and Ayahuasca is considered as dangerous, with at least two death cases documented in the medical literature provoked by the combination of *B. alvarius* and harmalines, compounds present in Ayahuasca (ICEERS, 2017). The development of a safe practice as well as the essential need to ensure conservation and sustainability acts -extinction threat is considered imminent (Cortina, 2018b)- are fundamental to those working towards the recognition of *B. Alvarius* as addiction treatment therapy.

- *Detoxifying with Kambô*

Another animal derived practice considered as potential resource in SUD treatment is the frog Kambô (name in Brazil) or Acaté<sup>8</sup> (in Peru), which glands secretion is ancestrally used in ritual ceremonies of purification in the traditional medical system of the Matsés ethnic group<sup>9</sup> (Daly et al., 1992; Romanoff, 2004) and today is used in numerous countries in the context of neoshamanism medicine practices, including South America countries as Brazil, Colombia and Peru. The Kambô ceremony consists in the healer burning or cutting the skin most often on the arms or chest of the participant with a tiny stick from a fireplace. Subsequently, the secretion which has been previously collected from the Kambô frog back is applied to the fresh wound. This provokes an immediate reaction that consists in heart throbbing, sweating and nausea that lead to severe vomiting and lasts around 15 minutes (den Brave, Bruins &

---

<sup>8</sup> Acaté Amazon Conservation is an NGO that defends the Matsés culture and, under the direction of Dr. Christopher Herndon PhD, has created together with the Matsés healers the first indigenous medicine encyclopedia ever produced in Matsés (panoan) language in order to prevent bio-prospectors from ever understanding it.

<sup>9</sup> A handful of regional Panoan Amazonian ethnic groups including the Amahuaca, Katukina, Kaxinawá, Kulina, Yawanawá, and Marubo also use this frog species for similar practices in their cultures, see: <https://ancestraltransmission.xapiri.com/part-2>

Bronkhorst, 2014). Kambô is used by indigenous people for hunting purposes (Daly et al., 1992) and as a medicine against snake bites, malaria, yellow fever and to enhances physical and sexual strength (den Brave et al., 2014). Although scientific literature doesn't report its use in SUDs treatment, Kambô application shows short- and long-term effects that can be beneficial for a person looking for detoxification, especially in cases of addiction to opiate or prescription pills, given the fact that Kambô is considered to reduce physical pain and could be used as an alternative to painkillers<sup>10</sup>. More and more centers can be found on the internet offering this medicine in their treatment protocol<sup>11</sup> for its alleged capacity to generate state of alertness and good mood, enhance resistance to tiredness, hunger and thirst and strengthen the immune system (Gorman, 1993). The pharmaceutical industry has showed interest in the medicinal properties of the frog secretion and the broad dissemination and popularization of Kambô has raised a series of accusations about who is the rightful owner of the knowledge around the frog and this practice, which led the Katukinas indigenous people of Brazil to accuse the pharmaceutical companies of biopiracy for patenting the frog peptides (Labate & Coffaci de Lima, 2014).

## CONCLUSION

As observed in the first part of this research (Politi et al., 2018), the personal experience of an individual going through issues of drug abuse and getting cured by a natural element such as a plant, has led the very same person to set out on very important and revolutionary discoveries and initiatives. This is the case of Iboga and might be the case for *B. alvarius*, presented in this article. When talking about Iboga, (and *S. Divinorum* or Psylocibe mushrooms mentioned in Part 1 (Politi et al., 2018)) scientific research and pharmaceutical activity are focused towards the study of their primary psychoactive alkaloids or analogues. It is striking that even in very recent papers, ibogaine is still considered as it “*may provide a useful prototype for discovery and development of innovative pharmacotherapy of addiction*” (Brown & Alper, 2017). Considering that Iboga has been studied since the beginning of the 60s, the fact that it is still perceived as an area of innovative research gives an idea of the gap between the accessibility of traditional/complementary medicine practices and the requirements imposed by the modern pharmaceutical industry to

---

<sup>10</sup> <https://psychedelictimes.com/kambo/>

<sup>11</sup> Some examples: Centro Savia Terra ([www.saviaterra.com](http://www.saviaterra.com)); Medicina Kambo (<https://www.medicinakambo.cl/>); Rainforest Healing Center (<https://rainforesthealingcenter.com/kambo-ceremony/>).

develop a prescription drug. On the other hand, the accumulation of scientific studies on the active principles of this plant and its therapeutic applications don't make up for the critical lack in terms of benefit sharing. The globalization of an ancient medicine and the process that leads it to cross cultural and social borders has to go hand in hand with a process of fair recognition towards the original sources from which this medicine comes. This has partly occurred in the case of Peru with the protection offered by the recognition of the traditional use of the Ayahuasca brew as National Cultural Heritage, but it is still an isolated case. Despite the existence of international norms, we don't have clear information on what has been given or intended to be given back to all the indigenous peoples around the world that have given Western researchers and experts open access to their valuable resources.

With the case of Cannabis, we could observe that a crucial topic is how one approaches these plants, since this can lead them to be considered toxic, medicinal, recreational or sacred depending on the political/cultural contexts and borders (or walls) crossed. In this border crossing phenomenon, the intake setting is getting more and more separated from the original ritual and religious framework, considered necessary in the indigenous traditions and that seems to have a crucial role in the effectiveness of the therapy when this is applied in an addiction treatment context. Once again, we can affirm that the plant itself is not toxic. Toxic (or intoxicated) are the people who use it wrongly and put themselves at risk. The etymology of the word *pharmakon* from the ancient Greek, related with the word drug, means at the same time remedy and poison. This depends on the way it is used. In the Andean-Amazonian worldview we have the notion of "plant that teaches" or "master plant" that refers specifically to plants with psychotropic effects (Luna, 1984). Coca (*Erythroxylum coca*) and Tobacco (*Nicotiana rustica*) are two typical examples. However, the plant teaches only those who respect it and this respectful approach is manifested in the ritual. Without it, the inversion or perversion of the relationship to the sacred carries the risk of leading to addiction.

The trend in recent years toward the integration of many traditional medical practices, including ancient herbal medicine, into modern system, is expressed in a border crossing phenomenon involving peoples and knowhow that nonetheless faces the risk of being rejected from the culture or context of destination for falling into the category of illicit drugs. This is mainly due to the predominance at the global level of prohibition policies and mistrust towards healing practices that use psychoactive plants that impede these therapies to propagate and become available to more

people in need of a real and effective cure. The US-like model of war on drugs is dramatically failing, with consequences such as the largest epidemic of deaths from opioid overdose in history. When talking about drug use, an enormous cultural shift is much needed and, as the Portugal case shows, a public health approach could be a promising way to respond to this issue.

## References

- Aldhous, P. (2005). Drug rehabilitation: Cold turkey, Vietnamese style. *Nature*, 433 (7026), 568–569.
- Alem, Z. (2018). *14 years after decriminalizing all drugs, here's what Portugal looks like*. Recovered from <https://mic.com/articles/110344/14-years-after-portugal-decriminalized-all-drugs-here-s-what-s-happening#.mhCFjMGkf>.
- Almendro, M. & López, E. (2016). Beyond Frontiers: Meditative Practice, Clinical Practice and Scientific Research. *J Psychol Psychother*, 6, 281.
- Conselho Estadual de Políticas Sobre Drogas. (2016). *126 (8), Seção I quinta-feira. São Paulo: Diário Oficial Poder Executivo*. Recovered from <https://www.ibogainealliance.org/wp-content/uploads/2016/01/CONSELHO-ESTADUAL-DE-POL%C3%8DTICAS-SOBRE-DROGAS.pdf>.
- Babor, T., Caulkins, J., Edwards, G., Fischer, B., Foxcroft, D. & Humphreys, K. (2010). *Drug policy and the public good*. New York: Oxford University Press.
- Benfer, I., Zahnow, R., Barratt, M., Maier, L., Winstock, A. & Ferris, J. (2018). The impact of drug policy liberalisation on willingness to seek help for problem drug use: A comparison of 20 countries. *International Journal of Drug Policy*, 56, 162–75.
- Bradford, A. C., Bradford, D., Abraham, A. J. & Bagwell Adams, G. (2018). Association Between US State Medical Cannabis Laws and Opioid Prescribing in the Medicare Part D Population. *JAMA Intern Med*, 178 (5), 667-72.
- Bogenschutz, M. P. & Ross, S. (2018). Therapeutic Applications of Classic Hallucinogens. *Current topics in behavioral neurosciences*, 36, 361-391.
- Bouso Saiz, J. C. (2012). *Personalidad, Psicopatología y rendimiento neuropsicológico de los consumidores rituales de ayahuasca* (tesis doctoral). Universitat Autònoma de Barcelona, Barcelona, España.
- Bridgeman, M. B. & Abazia, D. T. (2017). Medicinal Cannabis: History, Pharmacology, and Implications for the Acute Care Setting. *Pharmacology & Therapeutics*, 42 (3), 180-8.

- Brown, T. (2013). Ibogaine in the treatment of substance dependence. *Curr Drug Abuse Rev*, 6 (1), 3-16.
- Brown, T. & Alper, K. (2017). Treatment of opioid use disorder with ibogaine: detoxification and drug use outcomes. *American Journal of Drug and Alcohol Abuse*, 13 (41).
- Cain, S. M., Ahn, S., Garcia, E., Zhang, Y., Waheed, Z., Tyson, J. R., Yang, Y., Sung, T. V., Phillips, A. G. & Snutch, T. P. (2016). Heantos-4, a natural plant extract used in the treatment of drug addiction, modulates T-type calcium channels and thalamocortical burst-firing. *Molecular Brain*, 9 (94).
- Camlin, T. J., Eulert, D., Horvath, A. T., Bucky, S. F., Barsuglia, J. P. & Polanco, M. (2018). A phenomenological investigation into the lived experience of ibogaine and its potential to treat opioid use disorders. *Journal of Psychedelic Studies*, 2 (1), 24-35.
- Campos Navarro, R. (2016). Salud Intercultural en América Latina. In R. Campos Navarro (Ed), *Antropología médica e Interculturalidad* (pp. 36-44). México: McGraw-Hill ed.
- Carod-Artal, F. J. & Vázquez-Cabrera, C. B. (2006). Mescalina y ritual del cactus de san Pedro: evidencias arqueológicas y etnográficas en el norte de Perú. *Revista de Neurología*, 42 (8), 489-498.
- Cortina, A. (2018a). *Esclareciendo al Bufo Alvarius*. Recuperado de <https://drogaspoliticacultura.net/cultura/esclareciendo-el-bufo-alvarius/>
- Cortina, A. (2018b). *Controversies around toad medicine*. Recuperado de <http://chacrana.net/controversies-around-toad-medicine/>
- Daly, J. W., Caceres, J., Moni, R. W., Gusovsky, F., Moos, M., Seamon, K. B., Milton, K. & Myers, C. W. (1992). Frog secretions and hunting magic in the upper Amazon: identification of a peptide that interacts with an adenosine receptor. *Proc Natl Acad Sci U S A*, 89 (22), 10960-3.
- Davis, A. K., Barsuglia, J. P., Windham-Herman, A. M., Lynch, M. & Polanco, M. (2017). Subjective effectiveness of ibogaine treatment for problematic opioid consumption: Short- and long-term outcomes and current psychological functioning. *Journal of Psychedelic Studies*, 1 (2), 65-73.
- De Marco Almeida, F., Monteiro de Castro Pimenta, A., Oliveira, M. C. & De Lima, M. E. (2015). Venoms, toxins and derivatives from the Brazilian fauna: valuable sources for drug discovery. *Acta Physiologica Sinica*, 67 (3), 261-70.

- den Brave, P. S., Bruins, E. & Bronkhorst, M. W. (2014). Phyllomedusa bicolor skin secretion and the Kambô ritual. *The journal of venomous animals and toxins including tropical diseases*, 20, (40).
- Dhawan, K. (2003). Drug/substance reversal effects of a novel tri-substituted benzoflavone moiety (BZF) isolated from *Passiflora incarnata* Linn.-a brief perspective. *Addict Biol*, 8, 379-86.
- Dhawan, K., Kumar, S. & Sharma, A. (2002). Suppression of alcohol-cessation-oriented hyper-anxiety by the benzoflavone moiety of *Passiflora incarnata* Linneaus in mice. *J Ethnopharmacol*, 81, 239-44.
- Fernandez, J. W. (1982). *Bwiti: An Ethnography of The Religious Imagination in Africa*. Princeton: Princeton University Press.
- Ferreira, S. (2017). *Portugal's radical drugs policy is working. Why hasn't the world copied it?*. Recovered from <https://www.theguardian.com/news/2017/dec/05/portugals-radical-drugs-policy-is-working-why-hasnt-the-world-copied-it>.
- Frecska, E., Bokor, P. & Winkelman, M. (2016). The Therapeutic Potentials of Ayahuasca: Possible Effects against Various Diseases of Civilization. *Front. Pharmacol*, 7 (35).
- Garland, E. L. & Howard, M. O. (2018). Mindfulness-based treatment of addiction: current state of the field and envisioning the next wave of research. *Addict Sci Clin Pract*, 13 (1), 14.
- Gorman, P. (1993). *Making Magic*. Recovered from <http://www.artoftransformations.com/files/Making-Magic-by-Peter-Gorman.pdf>.
- Grant, S., Kandrack, R., Motala, A., Shanman, R., Booth, M., Miles, J., Sorbero, M..., & Hempel, S. (2016). Acupuncture for substance use disorders: A systematic review and meta-analysis. *Drug Alcohol Depend*, 163,1-15.
- Habib, G. & Artul, S. (2018). Medical Cannabis for the Treatment of Fibromyalgia. *Journal of Clinical Rheumatology*, 24 (5), 255–258.
- Heggenhougen, H. K. (1984). Traditional medicine and the treatment of drug addicts: three examples from southeast Asia. *Medical Anthropology Quarterly*, 16 (1), 3-7.
- Hinojosa, O. R. (2017). OTAC: Toad Medicine and its Role in Modern World. Paper presented at the International Transpersonal Conference, Prague.
- Hohmann, L., Bradt, J., Stegemann, T. & Koelsch, S. (2017). Effects of music therapy and music-based interventions in the treatment of substance use disorders: A systematic review. *PLoS One*, 12 (11).

- ICEERS. (2017). *Risks associated with combining Bufo Alvarius with ayahuasca*. International Center for Ethnobotanical Education Research and Service. Recovered from <http://news.iceers.org/2017/05/alert-bufo-alvarius-and-ayahuasca/>.
- Labate, B. & Cavnar, C. (2018). *The Expanding World Ayahuasca Diaspora: Appropriation, Integration and Legislation*. London: Routledge.
- Labate, B. & Coffaci de Lima, E. (2014). Medical Drug or Shamanic Power Plant: The Uses of Kambô in Brazil. *Ponto Urbe [Online]*, 15. DOI: 10.4000/pontourbe.2384.
- Levinson, J. (2018). Opioid addicts are turning to a clinic in Mexico to break their addiction, but there's a catch. *GlobalPost*. Recovered from <https://www.pri.org/stories/2018-03-06/opioid-addicts-are-turning-clinic-mexico-break-their-addiction-theres-catch>.
- Llagostera, A., Torres, M. C. & Costa, M. A. (1988). El complejo psicotrópico en Sclor-3 (San Pedro de Atacama). *Estudios Atacámegos*, 9, 61-98.
- Lu, L., Liu, Y., Zhu, W., Shi, J., Liu, Y., Ling, W. & Kosten, T. R. (2009). Traditional medicine in the treatment of drug addiction. *American Journal of Drug and Alcohol Abuse*, 35, 1-11.
- Lukas, S. E., Penetar, D., Berko, J., Vicens, L., Palmer, C., Mallya, G., Macklin, E. A. & Lee D. Y. (2005). An extract of the Chinese herbal root kudzu reduces alcohol drinking by heavy drinkers in a naturalistic setting. *Alcoholism Clinical and Experimental Research*, 29 (5), 756-62.
- Luna, L. E. (1984). The Concept of Plants as Teachers Among Four Mestizo Shamans of Iquitos, Northeast Peru. *Journal of Ethnopharmacology*, 11, 135-156.
- Mabit, J. (1993). Adicción y shamanismo budista - El monasterio de las cuevas del bambú. *Revista Takiwasi*, 2, 57-78
- Mabit, J. (2002). *Interview de Jacques Mabit par Evelyne Sarah Mercier*. Paris, France: ES Mercier.
- Mabit, J. (2007). Ayahuasca in the treatment of addictions. M. J. Winkelman. & T. B. Roberts. (Eds), *Psychedelic Medicine New Evidence for Hallucinogenic Substances as Treatments* (pp. 87-103). Westport, CT: Praeger Publishers.
- Mabit, J. & González, J. (2013). Hacia una medicina transcultural. Reflexiones y propuestas a partir de la experiencia en Takiwasi. *Journal of Transpersonal Research*, 5 (2), 49-76.
- Manyam, B. V., Dhanasekaran, M. & Hare, T. A. (2004). Neuroprotective effects of the antiparkinson drug Mucuna pruriens. *Phytother Res*, 18, 706-12.

- McGown, J. (2006). *Out of Africa: Mysteries of Access and Benefit Sharing*. Richmond, South Africa: African Centre for Biosafety.
- Medsafe. (2009). *Minutes of the 42nd Meeting of the Medicines Classification Committee*. Recovered from <http://www.medsafe.govt.nz/profs/class/Agendas/agen42.htm>.
- Meletis, C. D. & Zabriskie, N. (2008). Natural Approaches to Treating Addiction. *Alternative and Complementary Therapies*, 14 (6), 275-81.
- Merica, D. (2017). *Trump declares opioid epidemic a national public health emergency*. Recovered from <https://edition.cnn.com/2017/10/26/politics/donald-trump-opioid-epidemic/index.html>.
- Morel, L. J., Giros, B. & Daugé, V. (2009). Adolescent Exposure to Chronic Delta-9-Tetrahydrocannabinol Blocks Opiate Dependence in Maternally Deprived Rats. *Neuropsychopharmacology*, 34 (11), 2469-76.
- Naranjo, C. (1969). Psychotherapeutic possibilities of new fantasy-enhancing drugs. *Clinical Toxicology*, 2, 209-24.
- Naranjo, P. (1986). El Ayahuasca en la arqueología ecuatoriana. *América Indígena*, 46 (1), 117-127.
- Nencini, P. (2002). The shaman and the rave party: social pharmacology of ecstasy. *Substance Use & Misuse*, 37 (8-10), 923-39.
- Noller, G. E., Frampton, C. M., & Yazar-Klosinski, B. (2018). Ibogaine treatment outcomes for opioid dependence from a twelve-month follow-up observational study. *The American Journal of Drug and Alcohol Abuse*, 44 (1), 37-46.
- Ogalde, J. P., Arriaza, B. T. & Soto, E. C. (2009). Identification of psychoactive alkaloids in ancient Andean human hair by gas chromatography/mass spectrometry. *Journal of Archaeological Science*, 36 (2), 467-72.
- Paskulin, R., Jamnik, P., Živin, M., Raspor, P. & Štrukelj, B. (2006). Ibogaine affects brain energy metabolism. *European Journal of Pharmacology*, 15 (552), 11-4.
- Penetar, D. M., Toto, L. H., Lee, D. Y. & Lukas, S. E. (2015). A Single Dose of Kudzu Extract Reduces Alcohol Consumption in a Binge Drinking Paradigm. *Drug Alcohol Depend*, 153, 194-200.
- Politi, M. (2018). *Healing and Knowledge with Amazonian Shamanic Diet. Psychedelic Plant Medicine*. Recovered from <https://chacrana.net/healing-knowledge-amazonian-shamanic-diet/>.

- Politi, M., Friso, F. & Mabit, J. (2018). Plant based assisted therapy for the treatment of substance use disorders - part 1. The case of Takiwasi Center and other similar experiences. *Revista Cultura y Droga*, 23 (26), 99-126. DOI: 10.17151/culdr.2018.23.26.7.
- Reiman, A. (2009). Cannabis as a substitute for alcohol and other drugs. *Harm Reduction Journal*, 6 (35).
- Romanoff, S. (2004). El uso de la medicina del sapo. In S. Romanoff (Ed), *Matsesën Nampid Chuibanaid. La vida tradicional de los Matsés* (pp. 120-122). Lima, Perú: CAAAP.
- Sarkar, S. & Varshney, M. (2017). Yoga and substance use disorders: A narrative review. *Asian J Psychiatr*, 25,191-6.
- Sarris, J., Stough, C., Bousman, C. A., Wahid, Z. T., Murray, G., Teschke, R., Savage, KM..., Schweitzer, I. (2013). Kava in the treatment of generalized anxiety disorder: A double-blind, randomized, placebo-controlled study. *J Clin Psychopharmacol*, 33 (5), 643-8.
- Schenberg, E. E., Comis, M. A., Chaves, B. R. & Silveira, D. X. (2014). Treating drug dependence with the aid of ibogaine: A retrospective study. *Journal of Psychopharmacology*, 28 (11), 993-1000.
- Schep, L., Slaughter R., Galea, S. & Newcombe, D. (2016). Ibogaine for treating drug dependence. What is a safe dose? *Drug and Alcohol Dependence*, 166 (1), 1-5.
- Sen, S. & Chakraborty, R. (2017). Revival, modernization and integration of Indian traditional herbal medicine in clinical practice: importance, challenges and future. *Journal of Traditional and Complementary Medicine*, 7 (2), 234-244.
- Silva, J. (2017). *Fighting addiction at a Thai monastery*. Recovered from <https://www.reuters.com/article/thailand-drugs-temple-int-idUSKBN18617D>.
- Steiner, G. G. (2001). Kava as an anticraving agent: Preliminary data. *Pac Health Dialog*, 8, 335-9.
- Talin, P. & Sanabria, E. (2017). Ayahuasca's entwined efficacy: An ethnographic study of ritual healing from "addiction". *The International Journal on Drug Policy*, 44, 23-30.
- Terburg, D., Syal, S., Rosenberg, L. A., Heany, S., Phillips, N., Gericke, N., Stein, D. J. & Van Honk, J. (2013). Acute effects of Scelletium tortuosum (Zembrin), a dual 5-HT reuptake and PDE4 inhibitor, in the human amygdala and its connection to the hypothalamus. *Neuropsychopharmacology*, 38 (13), 2708-16.

- Thomas, K., Malcolm, B. & Lastra, D. (2017). Psilocybin-Assisted Therapy: A Review of a Novel Treatment for Psychiatric Disorders. *Journal of Psychoactive Drugs*, 49 (5), 446-455.
- Ujváry, I. (2014). Psychoactive natural products: overview of recent developments. *Ann Ist Super Sanità*, 50 (1), 12-27.
- Walsh, Z., Gonzalez, R., Crosby, K. S., Thiessen, M., Carroll, C. & Bonn-Miller, M. O. (2017). Medical cannabis and mental health: A guided systematic review. *Clinical Psychology Review*, 51,15-29.
- Wen, H. & Hockenberry, J. M. (2018). Association of Medical and Adult-Use Marijuana Laws With Opioid Prescribing for Medicaid Enrollees. *JAMA Intern Med*, 178 (5), 673-9.
- WHO. (2016). *Management of substance abuse: cannabis*. World Health Organization. Recovered from [www.who.int/substance\\_abuse/facts/cannabis/en.2016](http://www.who.int/substance_abuse/facts/cannabis/en.2016).
- Winkelman, M. (2014). Psychedelics as medicines for substance abuse rehabilitation: evaluating treatments with LSD, Peyote, Ibogaine and Ayahuasca. *Curr Drug Abuse Rev*, 7 (2),101-16.
- Yarnell, E. & Abascal, K. (2001). Botanical Remedies for Nicotine Addiction. *Alternative and Complementary Therapies*, 7 (6), 337-40.
- Zhu, W., Zhang, Y., Huang, Y. & Lu, L. (2017). Chinese Herbal Medicine for the Treatment of Drug Addiction. *Int Rev Neurobiol*, 135, 279-95.