



Ayahuasca as Antidepressant? Psychedelics and Styles of Reasoning in Psychiatry

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ABSTRACT

There is a growing interest among scientists and the lay public alike in using the South American psychedelic brew, ayahuasca, to treat psychiatric disorders like depression and anxiety. Such a practice is controversial due to a style of reasoning within conventional psychiatry that sees psychedelic-induced modified states of consciousness as pathological. This article analyzes the academic literature on ayahuasca's psychological effects to determine how this style of reasoning is shaping formal scientific discourse on ayahuasca's therapeutic potential as a treatment for depression and anxiety. Findings from these publications suggest that different kinds of experiments are differentially affected by this style of reasoning but can nonetheless indicate some potential therapeutic utility of the ayahuasca-induced modified state of consciousness. The article concludes by suggesting ways in which conventional psychiatry's dominant style of reasoning about psychedelic modified states of consciousness could be reconsidered.

KEYWORDS: ayahuasca, psychedelic, hallucinogen, psychiatry, depression



INTRODUCTION

My psychiatrist asked me if I was still drinking ayahuasca. When I said "Yes," she said "Good, keep on drinking!"— A young man with a history of multiple suicide attempts, who recently converted to a Brazilian

ayahuasca religion, and who told me how ayahuasca and his religion had helped stabilize his chronic bipolar depression.

Through researching the ritual use of ayahuasca over the past five years, I have come to hear a number of testimonies of how this psychedelic decoction from the Amazon has helped people overcome depression and anxiety.¹ As knowledge of ayahuasca has spread around the globe over the last two decades, so too has the interest of people not from the Amazon in using ayahuasca for personal transformation and healing—particularly of psychiatric problems like substance dependence (Labate et al. 2010), as well as depression and anxiety (Cárdenas and Gómez 2004; Palladino 2010). Moreover, several decades after the cessation of clinical trials with psychedelics, a small cadre of researchers has recently reinitiated studies to assess the use of psychedelics in the treatment of mood and anxiety disorders—likely the most promising therapeutic indications for this class of drugs within conventional psychiatry (Vollenweider and Kometer 2010). “Conventional psychiatry” is here used to denote the dominant, professionalized psychiatry of the West, whose current theoretical orientation is highly biomedical. Like “folk psychiatries,” conventional psychiatry is a cultural system of beliefs and practices whose construction of the healthy and harmful, the normal and aberrant, can be productively analyzed and critiqued by the social sciences (Gaines 1992a).

In this article, I review the academic literature, and analyze selected publications, on ayahuasca’s psychological effects to determine how formal scientific discourse related to ayahuasca’s potential to treat mood and anxiety disorders is being shaped by socio-cultural factors. In particular, I focus on how researchers conducting different kinds of experiments with ayahuasca differentially negotiate the controversy around the idea that modified states of consciousness (MSCs) induced with ayahuasca may have psychotherapeutic benefits.² I choose to use here the term MSCs over the more common altered states of consciousness (ASCs) to avoid connotations of pathology and radical alterity, and to emphasize instead how changes in consciousness can occur with relatively more control and precision, as would be preferable in a clinical psychiatric setting.

I have focused this ethnopsychiatric study of the antidepressant properties of ayahuasca—rather than of more familiar MSC-inducing substances (Machado-Vieira et al. 2009; Grob et al. 2011; Mithoefer et al. 2011)—because of the incomparably rich body of folk knowledge of ayahuasca’s therapeutic effects stemming from its various ritual uses (Labate and Araújo 2004; Labate, Rose, and Santos 2009). This folk knowledge can offer alternative perspectives from which to problematize dominant interpretations and representations of how psychiatric healing may be possible via techniques that induce a MSC in the patient.



STYLES OF REASONING IN PSYCHIATRY

It has been repeatedly shown that, when carefully administered to patients and healthy volunteers in a controlled clinical setting, psychedelics can be consistently both physiologically and psychologically safe (Strassman 1984; Struderus et al. 2011); moreover, psychedelics are not dependence-forming (Nichols 2004). Therefore, I suggest that much of the controversy around the idea of using ayahuasca and other psychedelics to treat psychiatric patients originates from an ideology, a psychiatric “style of reasoning” (Young 2000:158), about psychedelic MSCs that is prevalent in conventional psychiatry today. Young expands Hacking’s (1992) concept of a style of reasoning in the laboratory sciences and applies it to clinical psychiatry, using it to explain the ontological stability of the “curiously non-malleable” episodic memories at the center of the diagnostic category of post-traumatic stress disorder. The nonmalleability of this form of memory is deemed curious because it contradicts both lay and expert knowledge of how memories can be modified over time; nevertheless, belief in this form of memory persists due to a style of reasoning (a set of “ideas, practices, raw materials, technologies and objects”) that is by definition both “self-authenticating” (providing its own epistemological parameters) and “self-vindicating” (adaptable to inconsistencies and other challenges; Young 2000:158). I argue that within conventional psychiatry there exists an analogous style of reasoning that ontologically stabilizes a “curiously non-malleable” healthy psyche, that is, a curiously nonpsychedelically modified healthy mind. In effect, this style of reasoning reinforces a black box around psychedelic MSCs that, contrary to both lay and expert knowledge, restricts the experiences induced by ayahuasca and by other “hallucinogens”³ to being seen as psychopathological and uncontrollable at worst, and illusory and hedonistic at best, but never healthy or therapeutic.

I should explain better what I consider to be so “curious” about the conventional psychiatric assertion that a healthy psyche is not one made malleable (or modified) by means of psychedelic drugs. Based on his investigation of how conventional psychiatry classifies what is healthy versus pathological, Gaines argues that what categorically unites the various disease entities of conventional psychiatry is an implicit cultural conception of how “self-mastery” (1992b:16) correlates with mental health. Of note, he provides the example of the “drugs . . . of the 1960s’ counterculture” (1992:16; i.e., psychedelics) as what conventional psychiatry would consider as a means of succumbing to a psychopathological lack of self-mastery. In this light, suggesting that a healthy psyche be nonpsychedelically modified makes sense. However, the concepts of self-mastery and mental health need not necessarily be associated with ordinary states of consciousness. For example, Bourguignon argues that a

healthy response to social stressors may include engaging in possession trance, a technique whereby one “achieves mastery by abdicating her own self” through an MSC (2005:385). Moreover, the history of conventional psychiatry is full of similar examples of how patients have attempted to master their existential condition and improve their mental health by temporarily entering a modified state of consciousness. These examples include, among others, electroconvulsive therapy, hypnosis, and narcotherapy; not to mention the “psychoalytic” and “psychedelic” therapies of the 1950s–70s (Passie 2007). Therefore, the idea that a mind made malleable by psychedelic drugs is necessarily an unhealthy mind is “curious” because (1) the consumption of psychedelic drugs can, in certain conditions, be safe; and (2) the modification of consciousness is known, at times, to lead to enhanced self-mastery and mental health.

A very clear articulation of the dominant style of reasoning about MSCs and its “curiously non-malleable” healthy psyche was recently audible in a public radio debate on psychedelic therapy research when Dr. Tracy Foose, co-chief of the Anxiety Disorders Program at the University of California San Francisco, stated:

Of course in psychiatry, ideally we're trying to treat depression, treat anxiety, and minimize the alteration that we're making to the individual, the alteration in their brain chemistry, and the alteration in their day-to-day experience, their sense of themselves, and I think that would be one of the distinctions between the drugs we use now, which are targeted to minimizing altering a person's internal experience, versus such an altering experience as being intoxicated with MDMA or with psilocybin. [Krasny 2010]

The ideal expressed by Dr. Foose for how depression should be treated in psychiatry parallels the ideal described by Gaines that conflates self-mastery with maintaining a continuous ordinary state of consciousness. It is an ideal that over the last few decades has grown within conventional psychiatry in part because, according to pharmacologist Dave Nichols, “in the scientific and medical communities, where one expects to find expertise on drugs, there is now a whole generation who knows almost nothing about hallucinogens other than the fact that they are subject to the strictest legal controls applied to any class of pharmacological agents” (2004:132). This generational knowledge gap has allowed conventional psychiatry’s dominant style of reasoning about psychedelic MSCs to become both fully self-authenticating and self-vindicating. It is self-authenticating because, as drugs which are “subject to the strictest legal controls,” psychedelics, by definition, have no accepted therapeutic use in the United States (Anonymous 1970), and hence, the study of their therapeutic use is, seemingly, illogical. It is self-vindicating because

often psychiatrists who believe that psychedelics have therapeutic potential have used psychedelics themselves, yet such beliefs about psychedelics gleaned from self-experimentation are discounted as subjective and unreliable; not to mention the fact that most evidence in support of psychedelics' therapeutic potentials can be readily disregarded for deriving from decades-old studies whose methodologies do not meet current clinical research standards.



PSYCHIATRIC LITERATURE ON AYAHUASCA

We have reviewed how the controversy around using ayahuasca to treat psychiatric disease is related to a particular style of reasoning about MSCs. Now we examine recent empirical research on ayahuasca's psychological effects that has implications for using ayahuasca in the treatment of depression and anxiety. This research is analyzed to see how it has been shaped by, and might inform, conventional psychiatry's style of reasoning about psychedelic MSCs.

Natural Laboratory Studies

The ethnopsychiatric study of ayahuasca, conducted in the form of Western investigators traveling to “natural laboratories” (Dobkin de Rios 1996:95)—communities where ayahuasca has an established, socially accepted use—and assessing ayahuasca usage in terms of contemporary psychiatric theories, dates back decades, and its findings range from ayahuasca's ability to uncover repressed memories (Álvarez de Toledo 1960) and facilitate “primitive group therapy” (Lemlij 1978), to its potency in addressing distress rooted in larger socio-political processes (Taussig 1987). Even when these studies do not specifically focus on depressed or anxious persons using ayahuasca for curative ends, publications of research done in this style can have important consequences for how ayahuasca's therapeutic properties are thought of in relation to conventional psychiatry's current style of reasoning on psychedelic MSCs.

In 2007, Santos et al. published a study conducted with nine psychologically healthy long-time members of a Brazilian ayahuasca religion, CEFLURIS (a.k.a. Santo Daime⁴), showing that when ayahuasca was consumed—following a double blind, placebo-controlled protocol carried out during a modified ritual—measures correlating with depression and panic decreased significantly. The reported rationale for the study was the serious lack of rigorous data on ayahuasca's effects on emotion, and that the brew might possibly affect users' emotional states, because of its harmala alkaloids, in ways similar to certain antidepressants. While this molecularized rationale was given without mentioning any of the available ethnographic evidence for

ayahuasca's effects on emotions, the experiment's design as a ritual modified to include standardized psychometric testing nevertheless demonstrated careful consideration of CEFLURIS' regard for the ayahuasca MSC and for the ritual setting as the appropriate context for guiding the brew's effects on the drinker's emotional experience.

Barbosa, Giglio, and Dalgalarondo (2005) and Barbosa et al. (2009) carried out a comprehensive prospective study of the psychological effects of ayahuasca consumption in naturalistic settings for which they collected psychological data on the participants just prior to their ever having drunk ayahuasca, then about one week after their first ayahuasca experience, and then six months thereafter. Findings of potential significance to ayahuasca's use as an antidepressant or anxiolytic therapy include that over half of the participants reported experiencing a peaceful state during their first time drinking ayahuasca; those who drank with CEFLURIS showed a significant decline in minor psychopathological symptoms; and almost 40 percent of all study participants reported receiving personal insights during the experience. The study also tested the hypothesis that set and setting significantly influence the ayahuasca experience and used differences in the two settings (CEFLURIS and União do Vegetal⁵) to explain some cross-group differences in the participants' phenomenological accounts of their experiences. Finally, although they cited mental health concerns and the increased use of ayahuasca by the expanding Brazilian ayahuasca religions as their rationale for conducting the study, the authors ultimately concluded that the naturalistic (extra-clinical) use of ayahuasca may prove to be psychologically beneficial and even suggested that some benefits might actually be more noticeable with increased frequency of ayahuasca consumption.

In terms of how these two studies⁶ may have been affected by conventional psychiatry's dominant style of reasoning about psychedelic MSCs, the stated rationales of the studies seem to have been molded to align with this style of reasoning in that they expressed concern for the lack of quantitative data on the psychological safety of ayahuasca use, although the investigators likely had prior personal knowledge of the safety of ayahuasca use in these contexts. Meanwhile, the studies' designs appear to have taken into consideration their collaborators' (CEFLURIS and UDV) probable claims that the ayahuasca MSC can be greatly affected by one's set and setting, leading the investigators to design their studies either in the form of a modified experiment-ritual or to include a test of the "set and setting" hypothesis itself. In turn, this attention to set and setting probably helped generate some of the observed psychological benefits of the ayahuasca experience, such as decreased hopelessness (Santos et al. 2007) and increased "serenity" (Barbosa, Giglio, and Dalgalarondo 2005:198), thus producing results that would not be expected using psychiatry's dominant style of reasoning about psychedelic MSCs.

Clinical Laboratory Studies

In comparison to natural laboratories, one notable aspect of studying ayahuasca in clinical laboratories is that the ayahuasca can be readily standardized and chemically and physically manipulated. Standardization is in line with psychiatry's dominant style of reasoning about psychedelic MSCs because it theoretically allows for greater control over the degree of MSC that is induced, which is especially significant with ayahuasca because the brew is often revered by folk users precisely for being "mysterious" and phenomenologically unpredictable. And the chemical and physical manipulation of ayahuasca would theoretically allow for a psychedelic component (e.g., DMT) to be removed, leaving behind a decoction much more palatable to psychiatry's dominant style of reasoning about MSCs. While clinical laboratory studies with ayahuasca have made attempts at standardization, they have also shown that the removal of MSC-inducing elements from the brew may not always be possible or desirable.

Riba and Barbanoj entitled their 2005 publication "Bringing Ayahuasca to the Clinical Research Laboratory," yet they were actually preceded by other researchers in studying ayahuasca and its pharmacological constituents in scientific laboratories. In 1930, Halpern found via self-experimentation that harmine caused excitation, the feeling of having one's "consciousness packed in ether," and a sensation similar to levitation (Sanchez-Ramos 1991). Later on, Plutarco Naranjo (1959) studied harmine extract in humans and found that its psychological effects differed more quantitatively than qualitatively from LSD-25 and mescaline. Rios et al. studied the "psycho-dysleptic" (1964:211) effects of harmine and ayahuasca on 32 subjects and found perceptual alterations and a lowering of psychological defenses with either substance. And finally, Claudio Naranjo reports administering harmine, a relatively "pure hallucinogen" (1967:390), to human volunteers and thereby producing a contemplative state accompanied by vivid imagery and a sensation of wonder—this apparently resulted in a reduction of neurotic symptoms in 8 of the 30 volunteers. These older studies suggest that harmine alone has psychedelic or at least psychedelic-like effects. This finding runs contrary to the currently widely accepted theory that ayahuasca's psychedelic effects are due to its DMT content (McKenna 2004); it also complicates attempts to prepare a MSC-free version of ayahuasca.

The research team led by Jordi Riba at Hospital Sant Pau in Barcelona, Spain, has studied the human psychopharmacology of ayahuasca for over a decade. They have used ayahuasca made by CEF LURIS, which they "lyophilize" (freeze-dry) and then put in easy-to-swallow capsules. While this laboratory has contemplated studying the effects of the individual alkaloids in humans as well as the effects of ayahuasca with higher concentrations of the harmala alkaloids (Riba and Barbanoj 2005), this does not seem to be

because they are intent on learning how to eliminate the psychedelic MSC from the ayahuasca experience. On the contrary, Riba et al. (2001b) demonstrate a real interest in the MSC, using subjective scales (e.g., the Hallucinogen Rating Scale) to rigorously qualify the content of these experiences and reporting such positive experiences as receiving insight into personal concerns, intensified emotional reactions, and sensations of euphoria, closeness to others, and oneness with the universe.⁷ Moreover, Riba et al. remark that it is “worth noting” that subjects reported experiencing a “lingering sensation of well-being after the resolution of the more intense psychotropic effects” (2001b:88). Through their use of standardized ayahuasca capsules and psychometric scales capable of registering the positive aspects of the ayahuasca MSC, Riba et al. have used methodological strategies in line with the style of reasoning against MSCs actually to demonstrate that ayahuasca can induce in healthy laboratory volunteers a MSC with characteristics of potential value in treating such depressive symptoms as ruminations, emotional numbing, and feelings of sadness and isolation—therapeutic benefits that might even last beyond the ayahuasca MSC itself.

Animal Models of Antidepressant Activity

Until 2011 the only published conventional psychiatric studies specifically to evaluate the effect of ayahuasca on depression had been done in animal models not in human patients.⁸ Whereas conventional psychiatry’s style of reasoning on psychedelic MSCs did not seem to have that great of an effect on how the previously reviewed studies on humans were conducted and interpreted, it does seem to have significantly influenced the approaches taken in these studies on animals.

The first text detailing how ayahuasca’s antidepressant properties were tested in animals was published by Lima et al. in 2006. The authors used a quantity of ayahuasca, given to them by a member of the União do Vegetal, that they characterized chemically and forced rats to drink. These rats were then, among other tests, used in one of the most classic of behavioral pharmacology assays for antidepressant effect, the forced swim test—a test of “behavioral despair”—wherein they showed an antidepressant response to ayahuasca. In their justification for doing the study, the authors make the expected claims that ayahuasca contains both harmala alkaloids, which inhibit the enzyme MAO—a property shared by some pharmaceutical antidepressants—and DMT—a compound whose chemical structure is similar to that of the neurotransmitter serotonin that is thought to be important in the neurobiology of depression. What is really interesting about Lima et al.’s experimental rationale is that they claim that ayahuasca is not only used in magico-religious rituals in Brazil but also that in traditional Brazilian medicine it is frequently used as an antidepressant, a claim that this author

has never come across before. This conspicuous claim is significant in that it highlights the readiness on the part of Lima et al. to translate folk understandings of ayahuasca's purported therapeutic properties into the domain of biomedicine. Although they relied both materially and conceptually on folk users of ayahuasca for the impetus to do their study, by testing ayahuasca in the forced swim test, an assay of strictly pharmacological antidepressant potential, Lima et al. were likely ignoring folk theories of how the brew works to enhance well-being, for instance, that insights derived from the combination of the MSC with a ritual context are crucial to ayahuasca's beneficial effects.

Another Brazilian research group, Fortunato et al. (2009, 2010a, 2010b), has used rats to study the antidepressant effects not of ayahuasca but of harmine alone, which they obtained from a chemical supply company. They report subjecting the medicated rats to the classic antidepressant behavioral assays forced swim test and chronic mild stress—a test of anhedonia—and finding antidepressant effects of harmine using both tests. Fortunato et al. are not the first to study harmine's antidepressant properties in animals (cf. Farzin and Mansouri 2006), but they are included in this analysis because their studies are part of a larger project that includes a pilot study to evaluate the antidepressant effects of ayahuasca in human patients (Osório et al. 2011). Interestingly enough, not only do none of the Fortunato et al. texts mention this fact, but in choosing their bibliographic references, the three texts progressively distance themselves from any association with human ayahuasca use at all. First of all, none of the texts makes references to the Lima et al. study just mentioned in which ayahuasca was used instead of harmine. Secondly, Fortunato et al. (2009) refer to the “ritual and medicinal” use of *Banisteriopsis caapi*, citing Sourkes (1999), and then they cite Santos et al. (2007) as a study of “healthy volunteers” showing that ayahuasca “attenuated hopelessness and panic-like symptoms.” However, Fortunato et al. (2010a) only cite Sourkes (1999), and then Fortunato et al. (2010b) make no direct reference to ayahuasca at all. This particular strategy of conscripting and disbanding selected bibliographic allies (Latour 1987) illustrates an attempt to molecularize and depsychedelicize the therapeutic effects of a substance that is traditionally understood to act on spiritual and psychosocial levels. This approach is taken to the extreme when Fortunato et al. supplement the rodent behavioral indicators of antidepressant activity with measures of molecules thought to have analogous functions in both rodent and human brains, like brain-derived neurotrophic factor (BDNF), which is thought to help neurons grow and resist damage. This is an example of the self-authenticating nature of psychiatry's dominant style of reasoning about MSCs in that the experiment is designed to allow harmine's antidepressant properties a molecular bridge of generalizability across species, thus providing a means of separating harmine from

its other possible psychoactive effects which might be detectable by behavioral measures.

While the pruning of references to human ayahuasca use can be seen as a rhetorical attempt at divorcing the therapeutic properties of a part of the brew from its psychedelic effects—because harmine is not thought to be psychedelic—it may be a misguided idea that harmine could be administered in the absence of DMT to depressed patients in order to avoid inducing a MSC.⁹ When administered to rodents, harmine may seem to be a non-controversial and non-MS-inducing compound, nevertheless Rodd reports that when ingested in sufficient amounts, the DMT-free preparations of *B. caapi* of the Piaroa Indians of Venezuela (assumed to be rich in harmala alkaloids) produce a particular MSC characterized by stimulant effects, increased visual acuity, and “sensations of heightened empathy and the ability to reason about those feelings” (2008:305).

In the end, conducting animal experiments to evaluate the psychopharmacological properties of ayahuasca and its chemical components is difficult, because the very question of whether animals experience anything close to what humans do when they ingest a psychedelic is still highly problematic (Langlitz 2007). For this reason, animal models may inherently create an experimental space wherein MSCs can be ignored, the concerns of conventional psychiatry’s style of reasoning on psychedelic MSCs can be laid to rest, and investigators can focus on a psychedelic drug’s effects that are less controversial and more easily discerned, such as its modulation of neurochemicals like BDNF. Ironically though, BDNF is a prime regulator of “neuroplasticity,” and so if BDNF truly is a molecular mediator of psychedelics’ antidepressant effects, as has been speculated (Vollenweider and Komater 2010), then even evaluating ayahuasca and other psychedelics in animals may suggest that their antidepressant effects do, after all, stem from making the brain more “plastic” and, perhaps, the mind more malleable.



CLOSING THOUGHTS

Interest in using psychedelics to treat psychiatric disorders like depression and anxiety has been slowly growing as of late, although this remains a controversial proposition, especially within conventional psychiatry where, I argue, a certain style of reasoning about psychedelic MSCs has taken hold over the past 40 years. This style of reasoning is based on the culturally determined premise that self-mastery and an ordinary state of consciousness are required to attain mental health. The self-authenticating and self-vindicating nature of this style of reasoning about psychedelic MSCs allows it to perpetuate the conventional psychiatric belief in a curiously nonmalleable

healthy psyche, that is, that a psychedelic-induced MSC is pathological. To see how this style of reasoning is influencing psychiatric research on ayahuasca's antidepressant and anxiolytic potential, I have analyzed how selected publications on ayahuasca's psychological effects deal with the controversial question of whether the psychedelic-induced MSC could have therapeutic value. These publications describe three main kinds of experiments—natural laboratory studies, clinical laboratory studies, and animal model studies—with each kind incorporating the principles of conventional psychiatry's dominant style of reasoning about MSCs to a different extent. The more abstracted from a context of folk use the kind of experiment is, the easier it is to remove conceptually any contribution of a MSC to ayahuasca's therapeutic potential. Nevertheless, the results from all three kinds of experiments suggest that the ayahuasca-induced MSC does have therapeutic potential in the treatment of depression and anxiety, for instance: (1) ritual ayahuasca users may experience decreased hopelessness and sensations of peace from drinking the brew, (2) standardized questionnaires can detect increased mood and sensations of well-being in healthy volunteers who are administered standardized doses of ayahuasca in a clinical laboratory, and (3) both ayahuasca and harmine can elicit antidepressant activity in rodent models. These findings suggest that today's predominant style of reasoning about psychedelic MSCs merits reconsideration.

To this end, it may be helpful to follow Kurland's analogy for LSD in therapy as resembling a scalpel (1967), and to reconceptualize therapies that employ psychedelics more along the lines of psychosurgery than traditional psychopharmacology. In psychosurgery, anesthetic drugs can be used to control the patient's level of sensation and awareness while a therapeutic intervention such as an excision is made. The surgical patient's consciousness is temporarily modified in order to undergo a treatment that is both more invasive and more immediately and precisely effective than pharmacotherapy. This process has clear parallels with the therapeutic uses of psychedelic MSCs in that, instead of using an anesthetic that decreases awareness, psycholytic therapy uses psychedelics as if they were "proesthetics" that increase the patient's awareness of their mind's workings. Meanwhile, psychedelic therapy uses psychedelics as if they were "supraesthetics" that bring the patient to a state of consciousness beyond the normal modes of thought and sensation. The therapeutic intervention in these cases would consist of the accompanying form of talk therapy before, during, and after the drug experience.

Of course as in surgery, therapy with psychedelics can go wrong and produce harmful results. For example, Lewis presents three case studies of North Americans who experienced what she sees as "spiritual emergencies" (2008:109) after drinking ayahuasca—which for one informant included the

marked deterioration of his preexisting depressive condition. Her informants were not able to find adequate treatment for these emergencies, she argues, because Western mental health professionals are not sufficiently trained in dealing with such cases of nonpathological spiritual crisis. The psychiatrist Daniel Freedman warned of this situation over 40 years ago when he wrote that “what often is lacking is the element of guidance, correction, reflection and structure which leads to authentic self-mastery; this may be the chief source of danger of LSD—the lack of structure and autonomy and the traumatic and potent intensity!” (1967:92). So, according to Freedman the psychedelic MSC itself is not pathological, rather it is the inadequate management of the MSC that will prevent the psychedelic user from achieving self-mastery.

Beyond the need to train clinicians to therapeutically manage MSCs, conventional psychiatry faces another challenge if it is to bring the use of psychedelics back into its purview: psychiatrists would need to keep close watch of the boundary between religion and medicine that is said to have been embarrassingly and detrimentally blurred in the 1960s, as exemplified by the rise of the figure of the therapist–guru (Neill 1987). Yet, with regard to ayahuasca research, blurring this boundary a bit may not be a bad idea after all. As Star and Griesemer use their concept of a “boundary object” (1999) to explain how cross-domain communication and collaboration was accomplished during the professionalization of the field of natural history, I suggest, as the science of ayahuasca becomes increasingly appropriated by professional psychiatry, that personal experience of the ayahuasca MSC could be a fruitful *boundary experience* used to aid the collaborative relations between conventional psychiatric and folk ayahuasca experts. Individual researchers will of course have to decide for themselves whether this is a strategy they will choose, but it very well may help them to gain the trust of their folk collaborators and possibly to complement the use of ethnographic data (Kerr 2002) on the folk users’ ayahuasca experiences to construct a more fluent translation of this foreign practice into clinical contexts.

Of note, there is no mention of investigator self-experimentation with ayahuasca in any of the texts analyzed in this article.¹⁰ Although self-experimentation is often done in psychedelic research—to satisfy both the ethical goal of being able to empathize with one’s research subjects and the technical goal of being able to validly interpret the resulting data—it is rarely mentioned in scientific publications for fear of the accusation of having lost one’s objectivity (Langlitz 2010). According to conventional psychiatry’s dominant style of reasoning on psychedelic MSCs, personal experience brings one’s objectivity, and hence also one’s self-mastery, into question. Interestingly although, among many Brazilian folk ayahuasca users, the title that is

reserved for the revered few who have enough experience drinking ayahuasca not only to use it wisely themselves, but also to teach others how to use it correctly, is none other than *mestre* (master).



NOTES

1. “Depression” is used in this article in the vernacular sense, referring to a mental illness characterized by symptoms that include decreased mood, pleasure, or concentration; fluctuations in energy; and suicidal ideation. Likewise, “anxiety” is used in the vernacular sense to mean a mental illness whose symptoms include severe apprehension, fear, and obsessions.
2. This article does not intend to provide a systematic, evidence-based review of ayahuasca’s effects on mental health; such a review, however, particularly one aimed at clinical psychiatrists in Brazil, is “badly needed” according to Luis Fernando Tófoli, M.D., director of the Mental Health Committee of the União do Vegetal, a Brazilian ayahuasca religion (Tófoli 2010).
3. For a discussion of the pathologization of peyote and its ability to make the mind more malleable, see Calabrese (2008).
4. See <http://www.santodaime.org>
5. See <http://www.udv.org.br>
6. For more studies in naturalistic settings, see Doering-Silveira et al. (2005), Grob et al. (1996), Halpern et al. (2008), and Riba et al. (2001a).
7. Negative experiences were also reported, such as sadness and anxiety.
8. See Osório et al. (2011).
9. For an example of how this approach is being taken in Parkinson Disease research, see Wang et al. (2010).
10. For an example of self-experimentation in psychopharmacological research with ayahuasca, see McKenna (2004:120).

REFERENCES CITED

- Álvares de Toledo, Luisa G.
1960 Ayahuasca. *Revista de Psicoanálisis* 17(1):1–9.
- Anonymous
1970 Controlled Substances Act, Pub.L. 91-513, Title II, Section 101, Oct. 27, 1970, 84 Stat. 1242 (21 U.S.C. 801 et seq.) <http://www.deadiversion.usdoj.gov/21cfr/21usc/index.html>, accessed January 10, 2012.
- Barbosa, Paulo C. R., Joel S. Giglio, and Paulo Dalgalarondo
2005 Altered States of Consciousness and Short-Term Psychological After-Effects Induced by the First time Ritual Use of Ayahuasca in an Urban Brazilian Context. *Journal of Psychoactive Drugs* 37(2):193–201.
- Barbosa, Paulo C. R., Irene M. Cazorla, Joel S. Giglio, and Rick Strassman
2009 A Six-Month Prospective Evaluation of Personality Traits, Psychiatric Symptoms and Quality of Life in Ayahuasca-Naïve Subjects. *Journal of Psychoactive Drugs* 41(3):205–212.
- Bourguignon, Erika
2005 Spirit Possession. In *A Companion to Psychological Anthropology: Modernity and Psychocultural Change*. Conerly Casey and Robert B. Edgerton, eds. Pp. 374–388. Malden, MA: Blackwell Publishing.
- Calabrese, Joseph D.
2008 Clinical Paradigm Clashes: Ethnocentric and Political Barriers to Native American Efforts at Self-Healing. *Ethos* 33(3):334–353.
- Cárdenas, Andrea V., and Augusto P. Gómez
2004 Consumo urbano de yajé (ayahuasca) en Colombia. *Adicciones* 16(4):1–11.
- Dobkin de Rios, Marlene
1996 Commentary on “Human Pharmacology of Hoasca”: A Medical Anthropology Perspective. *The Journal of Nervous and Mental Disease* 184(2):95–98.
- Doering-Silveira, Evelyn, Enrique Lopez, Charles S. Grob, Marlene Dobkin de Rios, Luisa K. Alonso, Cristiana Tacla, Itiro Shirakawa, Paulo H. Bertolucci, and Dartiu X. da Silveira
2005 Ayahuasca in Adolescence: A Neuropsychological Assessment. *Journal of Psychoactive Drugs* 37(2):123–128.

- Farzin, Davood, and Nazanin Mansouri
2006 Antidepressant-Like Effect of Harmine and Other Beta-Carbolines in the Mouse Forced Swim Test. *European Neuropsychopharmacology* 16:324–328.
- Fortunato, Jucélia J., Gislaïne Z. Réus, Tamires R. Kirsch, Roberto B. Stringari, Laura Sterz, Flávio Kapczinski, Joel P. Pinto, Jaime E. Hallak, Antônio W. Zuardi, José A. Crippa, and João Quevedo
2009 Acute Harmine Administration Induced Antidepressive-Like Effects and Increases BDNF Levels in the Rat Hippocampus. *Progress in Neuro-Psychopharmacology and Biological Psychiatry* 33:1425–1430.
- Fortunato, Jucélia J., Gislaïne Z. Réus, Tamires R. Kirsch, Roberto B. Stringari, Gabriel R. Fries, Flávio Kapczinski, Jaime E. Hallak, Antônio W. Zuardi, José A. Crippa, and João Quevedo
2010a Chronic Administration of Harmine Elicits Antidepressant-Like Effects and Increases BDNF Levels in Rat Hippocampus. *Journal of Neural Transmission* 117:1131–1137.
- Fortunato, Jucélia J., Gislaïne Z. Réus, Tamires R. Kirsch, Roberto B. Stringari, Gabriel R. Fries, Flávio Kapczinski, Jaime E. Hallak, Antônio W. Zuardi, José A. Crippa, and João Quevedo
2010b Effects of Beta-carboline Harmine on Behavioral and Physiological Parameters Observed in the Chronic Mild Stress Model: Further Evidence of Antidepressant Properties. *Brain Research Bulletin* 81:491–496.
- Freedman, Daniel X.
1967 Perspectives on the Use and Abuse of Psychedelic Drugs. In *Ethnopharmacologic Search for Psychotropic Drugs*. Daniel H. Efron, Bo Holmstedt, and Nathan S. Kline, eds. Pp. 77–102. Washington, D.C.: Public Health Service.
- Gaines, Atwood D., ed.
1992a *Ethnopsychiatry: The Cultural Construction of Psychiatries*. In *Ethnopsychiatry: The Cultural Construction of Professional and Folk Psychiatries*. Pp. 3–50. Albany: State University of New York Press.
- Gaines, Atwood D.
1992b From DSM-I to III-R; Voices of Self, Mastery and the Other: A Cultural Constructivist Reading of U.S. Psychiatric Classification. *Social Science and Medicine* 35(1):3–24.
- Grob, Charles S., Dennis J. McKenna, James C. Callaway, Glacus S. Brito, Edison S. Neves, Guilherme Oberlander, Oswaldo L. Saide, Elizeu Labigalini, Cristiane Tacla, Claudio T. Miranda, Rick J. Strassman, and Kyle B. Boone
1996 Human Psychopharmacology of Hoasca, a Plant Hallucinogen Used in Ritual Context in Brazil. *The Journal of Nervous and Mental Disease* 184(2):86–94.
- Grob, Charles S., Alicia L. Danforth, Gurpreet S. Chopra, Marycie Hagerty, Charles R. McKay, Adam L. Halberstadt, and George R. Greer
2011 Pilot Study of Psilocybin Treatment for Anxiety in Patients with Advanced-Stage Cancer. *Archives of General Psychiatry* 68(1):71–78.
- Hacking, Ian
1992 The Self-Vindication of the Laboratory Sciences. In *Science as Practice and Culture*. Andrew Pickering, ed. Pp. 29–64. Chicago: The University of Chicago Press.
- Halpern, John H., Andrea R. Sherwood, Torsten Passie, Kimberly C. Blackwell, and A. James Rutenber
2008 Evidence of Health and Safety in American Members of a Religion Who Use a Hallucinogenic Sacrament. *Medical Science Monitor* 14(8):SR15–SR22.
- Kerr, Catherine
2002 Translating “Mind-in-Body”: Two Models of Patient Experience Underlying a Randomized Controlled Trial of Qigong. *Culture, Medicine and Psychiatry* 26:419–447.
- Krasny, Michael
2010 Psychedelic Conference. Forum with Michael Krasny. KQED April 15. <http://www.kqed.org/a/forum/R201004150900>, accessed January 10, 2012.
- Kurland, Albert A., Charles Savage, John W. Shaffer, and Sanford Unger
1967 The Therapeutic Potential of LSD in Medicine. In *LSD, Man, and Society*. Richard C. DeRold and Russel C. Leae, eds. Pp. 20–35. Middletown: Wesleyan University Press.
- Labate, Beatriz C., and Wladimir S. Araújo, eds.
2004 *O uso ritual da ayahuasca*. 2nd edition. São Paulo, Brazil: Mercado de Letras.
- Labate, Beatriz C., Isabel S. de Rose, and Rafael G. dos Santos
2009 *Ayahuasca Religions: A Comprehensive Bibliography and Critical Essays*. Saline: MAPS.
- Labate, Beatriz C., Rafael G. dos Santos, Brian T. Anderson, Marcelo Mercante, and Paulo C. R. Barbosa
2010 The Treatment and Handling of Substance Dependence with Ayahuasca: Reflections on Current and Future Research. In *Ayahuasca, Ritual and Religion in Brazil*. Beatriz C. Labate and Edward MacRae, eds. Pp. 205–227. London: Equinox.

- Langlitz, Nicolas D.
2007 *Neuropsychedelia: The Revival of Hallucinogen Research since the Decade of the Brain*. Ph.D. dissertation, Department of Anthropology, University of California Berkeley.
- Langlitz, Nicolas D.
2010 The Persistence of the Subjective in Neuropsychopharmacology: Observations of Contemporary Hallucinogen Research. *History of the Human Sciences* 23(1):37–57.
- Latour, Bruno
1987 *Science in Action*. Cambridge: Harvard University Press.
- Lemlij, Moises
1978 Primitive Group Treatment. *Psychiatria Clinica* 11:10–14.
- Lewis, Sara E.
2008 Ayahuasca and Spiritual Crisis: Liminality as Space for Personal Growth. *Anthropology of Consciousness* 19(2):109–133.
- Lima, Leonardo M., Miller S. Ferreira, Ana A. Ávila, Fábio P. Perazzo, José M. Schneedorf, and José C. T. Carvalho
2006 Ayahuasca Central Nervous System Effects: Behavioral Study. *Arzteitschrift fur Naturheilverfahren* 47(7):376–480.
- Machado-Vieira, Rodrigo, Giacomo Salvatore, Nancy DiazGranados, and Carlos A. Zarate Jr.
2009 Ketamine and the Next Generation of Antidepressants with a Rapid Onset of Action. *Pharmacology and Therapeutics* 123:143–150.
- McKenna, Dennis J.
2004 Clinical Investigations of the Therapeutic Potential of Ayahuasca: Rationale and Regulatory Challenges. *Pharmacology and Therapeutics* 102:111–129.
- Mithoefer, Michael C., Mark T. Wagner, Ann T. Mithoefer, Ilsa Jerome, and Rick Doblin
2011 The Safety and Efficacy of \pm 3,4-Methylenedioxymethamphetamine-Assisted Psychotherapy in Subjects with Chronic, Treatment-Resistant Posttraumatic Stress Disorder: The First Randomized Controlled Pilot Study. *Journal of Psychopharmacology* 25(4):439–4452.
- Naranjo, Plutarco
1959 Estudio comparativo de la harmina, la dietilamida del ácido lisérgico (LSD-25) y la mescalina. *Revista de la Confederación Médica Panamericana* 6:1–8.
- Naranjo, Claudio
1967 Psychotropic Properties of the Harmala Alkaloids. In *Ethnopharmacologic Search for Psychotropic Drugs*. Daniel H. Efron, Bo Holmstedt, and Nathan S. Kline, eds. Pp. 385–391. Washington, D.C.: Public Health Service.
- Neill, John R.
1987 “More than Medical Significance”: LSD and American Psychiatry 1953 to 1966. *Journal of Psychoactive Drugs* 19(1):39–45.
- Nichols, David E.
2004 Hallucinogens. *Pharmacology and Therapeutics* 101:131–181.
- Osório, Flávia de L., Lígia R. H. de Macedo, João P. M. de Sousa, Joel P. Pinto, João Quevedo, José A. de S. Crippa, and Jaime E. C. Hallak
2011 The Therapeutic Potential of Harmine and Ayahuasca in Depression: Evidence from Exploratory Animal and Human Studies. In *The Ethnopharmacology of Ayahuasca*. Rafael G. dos Santos, ed. Kerala, India: Transworld Research Network. <http://www.tnres.com/ebookcontents.php?id=93>, accessed January 10, 2012.
- Palladino, Lisa
2010 *Vine of the Soul: A Phenomenological Study of Ayahuasca and its Effects on Depression*. Ph.D. dissertation, Program in Clinical Psychology, Pacifica Graduate Institute.
- Passie, Torsten
2007 Contemporary Psychedelic Therapy: An Overview. In *Psychedelic Medicine: New Evidence for Psychedelic Substances as Treatments*, vol. 1. Michael Winkelman and Thomas Roberts, eds. Pp. 45–68. Westport, CT: Praeger Security International.
- Riba, Jordi, and Manel J. Barbanoj
2005 Bringing Ayahuasca to the Clinical Research Laboratory. *Journal of Psychoactive Drugs* 37(2):219–230.
- Riba, Jordi, Antoni Rodríguez-Fornells, Rick J. Strassman, and Manel J. Barbanoj
2001a Psychometric Assessment of the Hallucinogen Rating Scale. *Drug and Alcohol Dependence* 62:215–223.
- Riba, Jordi, Antoni Rodríguez-Fornells, Gloria Urbano, Adelaida Morte, Rose Antonijoan, Maria Montero, James C. Callaway, and Manel J. Barbanoj

- 2001b Subjective Effects and Tolerability of the South American Psychoactive Beverage Ayahuasca in Healthy Volunteers. *Psychopharmacology* 154:85–95.
- Rios, Oscar, Max Hernandez, Moises Lemlij, and Federico Leon
1964 Estudios sobre la harmina y el ayahuasca. *Revista de Ciencias Psicológicas y Neurológicas* 1(2):211–233.
- Rodd, Robin
2008 Reassessing the Cultural and Pharmacological Significance of *Banisteriopsis caapi*: Preparation, Classification and Use among the Piaroa of Southern Venezuela. *Journal of Psychoactive Drugs* 40(3):301–307.
- Sanchez-Ramos, Juan R.
1991 Banisterine and Parkinson's Disease. *Clinical Neuropharmacology* 14(5):391–402.
- Santos, R. G., J. Landeira-Fernandez, R. J. Strassman, V. Motta, and A. P. M. Cruz
2007 Effects of Ayahuasca on Psychometric Measures of Anxiety, Panic-Like and Hopelessness in Santo Daime Members. *Journal of Ethnopharmacology* 112:507–513.
- Sourkes, Theodore L.
1999 "Rational Hope" in the Early Treatment of Parkinson's Disease. *Canadian Journal of Physiology and Pharmacology* 77:375–382.
- Star, Susan Leigh, and James R. Griesemer
1999 Institutional Ecology, "Translations," and Boundary Objects. In *The Science Studies Reader*. Mario Biagioli, ed. Pp. 505–524. New York: Routledge.
- Strassman, Rick J.
1984 Adverse Reactions to Psychedelic Drugs: A Review of the Literature. *The Journal of Nervous and Mental Disease* 172(10):577–595.
- Struderus, Erich, Michael Kometer, Felix Hasler, and Franz X. Vollenweider
2011 Acute, Subacute and Long-Term Subjective Effects of Psilocybin in Healthy Humans: A Pooled Analysis of Experimental Studies. *Journal of Psychopharmacology* 25(11):1434–1452.
- Taussig, Michael
1987 *Shamanism, Colonialism, and the Wild Man: A Study in Terror and Healing*. Chicago: The University of Chicago Press.
- Tófoli, Luís F.
2010 Mental Health Safety of Ayahuasca Religious Use: Results of an Epidemiological Surveillance System by the União do Vegetal in Brazil. Paper presented at the Psychedelic Science in the 21st Century Conference, San Jose, April 16.
- Vollenweider, Franz X., and Michael Kometer
2010 The Neurobiology of Psychedelic Drugs: Implications for the Treatment of Mood Disorders. *Nature Reviews Neuroscience* 11:642–651.
- Wang, Yan-Hong, Volodymyr Samoylenko, Babu L. Tekwani, Ikhlas A. Khan, Loren S. Miller, Narayan D. Chaurasiya, Md. Mostafizur Rahman, Lalit M. Tripathi, Shabana I. Khan, Vaishali C. Joshi, Frank T. Wigger, and Ilias Muhammad
2010 Composition, Standardization and Chemical Profiling of *Banisteriopsis caapi*, a Plant for the Treatment of Neurodegenerative Disorders Relevant to Parkinson's disease. *Journal of Ethnopharmacology* 128:662–671.
- Young, Allan
2000 History, Hystery and Psychiatric Styles of Reasoning. In *Living and Working with the New Medical Technologies*. Margaret Lock, Allan Young, and Alberto Cambrosio, eds. Pp. 135–162. Cambridge: Cambridge University Press.