

Research paper

The globalization of ayahuasca: Harm reduction or benefit maximization?

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Abstract

Ayahuasca is a tea made from two plants native to the Amazon, *Banisteriopsis caapi* and *Psychotria viridis*, which, respectively, contain the psychoactive chemicals harmala alkaloids and dimethyltryptamine. The tea has been used by indigenous peoples in countries such as Brazil, Ecuador and Peru for medicinal, spiritual and cultural purposes since pre-Columbian times. In the 20th century, ayahuasca spread beyond its native habitat and has been incorporated into syncretistic practices that are being adopted by non-indigenous peoples in modern Western contexts. Ayahuasca's globalization in the past few decades has led to a number of legal cases which pit religious freedom against national drug control laws. This paper explores some of the philosophical and policy implications of contemporary ayahuasca use. It addresses the issue of the social construction of ayahuasca as a medicine, a sacrament and a "plant teacher." Issues of harm reduction with respect to ayahuasca use are explored, but so too is the corollary notion of "benefit maximization."

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Introduction

In February 2006, the United States Supreme Court ruled that religious freedom may trump U.S. drug laws with respect to the ceremonial use of ayahuasca, a tea indigenous to the Amazon and long revered by its peoples (Hollman, 2006). The case of *Gonzales v. O Centro Espirita Beneficente União do Vegetal (UDV)* addressed the question of whether 'hoasca,' which contains the Schedule I substance dimethyltryptamine, could legally be consumed as a sacrament by the Brazilian-based UDV church according to the provisions of the Religious Freedom Restoration Act (RFRA). Passed by Congress in 1993 in response to the question of whether the Native American Church had the freedom to use ceremonially the scheduled drug peyote, the RFRA established that the limits of drug laws in the United States were at the boundaries of religious liberty.

The U.S. ayahuasca case is just one of several similar ones in countries such as Australia, Italy, the Netherlands and

Spain. The issues raised by these court actions centre not only on religious freedom, but also on the substance in question: ayahuasca. Although somewhat obscure in pantheon of psychoactive substances, ayahuasca has begun to thrive beyond the Amazon. Practitioners, policy-makers and researchers face significant challenges in responding to psychoactive substance use that resists traditional conceptualizations and categorizations of illegal drug "abuse." In this article, I briefly describe ayahuasca, its effects and its traditional and contemporary uses. I next explore some philosophical and policy issues raised by the "globalization" of ayahuasca, the burgeoning world-wide interest in and use of the tea. This discussion leads to a questioning of the deficit model of drug use implicit in the term "harm reduction" with respect to ayahuasca, which arguably warrants a re-framing such that policy discussions address the corollary concept of "benefit maximization."

Ayahuasca and its effects

"Ayahuasca" is a word from the language of the Quechua people, a group indigenous to the Amazonian regions of

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Peru and Ecuador (Metzner, 1999). Translating as “vine of the soul,” ayahuasca refers both to *Banisteriopsis caapi*, a liana found in Western parts of the Amazon basin, and to a decoction prepared from *B. caapi* that typically contains other admixture plants. One of the most common admixtures to the ayahuasca tea is the leaf of *Psychotria viridis*, a plant from the coffee family. To avoid confusion, in this article the plant will be referred to by its botanical name, *B. caapi*, and the common tea preparation of the combination of *B. caapi* and *P. viridis* simply as ayahuasca.

The synergy between the respective psychoactive chemicals in *B. caapi* and in *P. viridis* is a remarkable pharmacokinetic interaction. The *B. caapi* vine contains harmala alkaloids, such as harmine and tetrahydroharmine, which are short-acting reversible monoamine oxidase (MAO) inhibitors. MAO inhibitors are a pharmacological class of antidepressant chemicals that function by preventing the breakdown of the monoamine neurotransmitters in the brain (Julien, 1998). *P. viridis* contains dimethyltryptamine, or DMT, a potent hallucinogen which is active when taken parenterally, but not orally (Shulgin, 1976). This is because the gastrointestinal tract also contains the enzyme monoamine oxidase, which metabolizes orally ingested DMT long before it can reach the brain. However, when DMT is ingested in conjunction with an MAO inhibitor – as is the case with the ayahuasca tea – its immediate metabolism is delayed, thus enabling it to reach the brain (McKenna & Towers, 1984; Ott, 1999). From a biomedical perspective, then, ayahuasca’s unique effects are a function of the combination of DMT and the potentiating psychoactive harmala alkaloids (McKenna, Towers, & Abbott, 1984). In contrast, the explanation of ayahuasca’s effects by Amazonian indigenous peoples reflects a paradigm involving spiritual domains and supernatural forces, an account corroborated if not validated by the phenomenology of the ayahuasca experience.

The extensive range of ayahuasca preparations in the pharmacopoeias of different indigenous peoples throughout the Amazon region indicates that its use long predates first contact with Europeans. The variety of names given to *B. caapi*, such as *yagé*, *caapi*, *natem*, *oni*, *nishi*, also suggests widespread historic use (Luna, 1986). However, the legacy of colonialism in South America, as with so many other parts of the world, has irredeemably impacted indigenous peoples and their traditions, including cosmologies in which ayahuasca has played a central role (Whitten, 1981). Colonial and religious authorities tended to condemn ayahuasca shamanism as diabolical and discouraged its practice (Taussig, 1986; Vickers, 1981). Nevertheless, the ritual use of ayahuasca among indigenous peoples of the Amazon continues to the present day, albeit with varying degrees of Christian syncretism through past and present influence of missionaries in the region (Luna, 1986). Likewise, cross-cultural transfer of ayahuasca healing knowledge among indigenous peoples and to non-indigenous people continues to occur (Gray, 1997; Luna, 2003; Pollock, 2004); this includes mes-

tizo *vegetalistas* who offer alternative health treatments to urban dwellers in countries such as Peru (Dobkin de Rios, 1973).

The specifics of traditional Amazonian ayahuasca practices – as with the name for the tea itself – vary across different cultural groups, but there are some common elements, most notably a ceremonial context for its consumption. Rituals are conducted by an experienced healer, or *ayahuascero*, who has undergone many years of training to become adept in administering the brew. Preparation for this role includes long periods of isolation, sexual abstinence and adherence to strict dietary taboos involving certain foods or meats. Some of these behavioural directives apply also to participants in the ritual who will drink, as they risk invoking untoward spiritual forces if these are violated. Rituals invariably incorporate chanting or singing of *icaros* – special songs through which healing, divination or connecting with spirits may be effected – and often include an accompanying use of other sacred plants, such as tobacco (Demange, 2002; Luna, 1986). In many respects, ayahuasca is a paradigmatic entheogen, or psychoactive substance used for spiritual purposes (Ruck, Bigwood, Staples, Ott, & Wasson, 1979; Tupper, 2002).

Ayahuasca’s psychoactive effects are qualitatively similar to those of other drugs from the same pharmacological class, such as LSD and psilocybin, yet they are also phenomenologically unique. The effects generally begin 30–40 min after ingestion, peak by about 2 h and have completely subsided by 6 h (Riba et al., 2003). Ayahuasca produces moderate cardiovascular stimulation, including moderate increases in heart rate and diastolic blood pressure (Riba et al., 2003). Users report sensations of visual or auditory stimulation, synaesthesia, psychological introspection and strong emotional feelings ranging from occasional sadness or fear to elation, illumination and gratitude (Shanon, 2002). The tea itself has a bitter taste and cannot be described as pleasant to drink. Emesis, or vomiting, is not uncommon during the ayahuasca experience, an effect which is generally regarded as a spiritual or physical cleanse.

The long-term effects of ayahuasca on regular drinkers have not yet been well studied by medical scientists, as the tea has remained relatively obscure until the last few decades of the 20th century. Preliminary small-scale investigation on members of Brazilian ayahuasca churches suggests that the tea is not physiologically or psychologically harmful when used in ceremonial contexts (Barbosa, Giglio, & Dalglarrondo, 2005; Callaway et al., 1999; Grob et al., 1996; Riba & Barbanoj, 2005). Shanon (2002) has analysed the phenomenology of the ayahuasca experience from the perspective of cognitive psychology, work that suggests many avenues of future psychological research. Evidence for ayahuasca dependence is lacking; indeed, some have suggested ceremonial ayahuasca use may have therapeutic applications as an adjunct to treatment for addictions (Mabit, 2002; McKenna, 2004; Winkelman, 2001).

Contemporary ayahuasca uses

In addition to continued ayahuasca use among traditional indigenous and mestizo denizens of the Amazon, other types of ayahuasca practices have arisen in modern times. The inevitable mixing of indigenous and dominator cultures in South America over time has resulted in hybridities of ayahuasca use that continue to evolve through the forces of globalization. Brazil has been the source of several syncretistic religious movements that combine elements of indigenous ayahuasca use, African spiritualism and Christian liturgy. These include the Santo Daime, founded in the 1930s by Raimundo Irineu Serra; the União do Vegetal, founded in 1961 by José Gabriel da Costa; and the Barquinha, a group, which split from the Santo Daime in 1945 (MacRae, 2004). As with traditional indigenous ayahuasca practices, these modern groups incorporate a strong ritual context in their uses of ayahuasca. Towards the end of the 20th century, chapters of the Santo Daime and the União do Vegetal started to be established beyond Brazilian borders, in such countries as in Australia, Canada, France, Germany, Japan, the Netherlands, Spain and the United States.

The Santo Daime is both the oldest and the most internationally active of the syncretistic Brazilian ayahuasca churches. Its origins trace back to the 1920s, when its founder – a Brazilian rubber tapper named Raimundo Irineu Serra or Mestre Irineu – encountered the tea through contact with Amazonian indigenous peoples in remote forests of the Brazilian frontier state of Acre (Alverga, 1999). The Santo Daime remained obscure and geographically isolated in the rural Amazon for many decades. However, when Mestre Irineu died in 1971, the church split into several different factions, one of which – the Eclectic Center of the Universal Flowing Light, or CEFLURIS – has been central in the Santo Daime's subsequent expansion (MacRae, 2004). From the 1970s, CEFLURIS has attracted middle-class Brazilians and international visitors to its rituals and established chapters in urban Brazilian centres and more recently overseas (MacRae, 1998). After a period of legal vicissitudes, in which the status of ayahuasca was uncertain, the Brazilian government in 1991 determined that the benefits of its ritual use outweighed any potential risks and recognized the rights to sacramental use of the tea by groups such as the Santo Daime and the UDV.

As a result of expansion into countries unprepared for the policy conundrums posed by non-indigenous entheogenic substance use, the Santo Daime and its adherents have faced legal action in several different countries in the past decade, including the Netherlands, Spain and Italy. In the Netherlands, as with the UDV case in the United States discussed above, the courts ruled in favour of religious freedom and the Santo Daime was granted the right to use its sacrament legally in Holland (Adelaars, 2001). In Canada, a chapter of the Santo Daime in the province of Quebec has applied for an exemption to the Canadian Controlled Drugs and Substances Act in hope of obviating a costly legal battle;

the Canadian government is still considering the application (J.W. Rochester, personal communication, February 7, 2006). These cases epitomize the struggle between groups seeking the legitimation of the sacramental use of ayahuasca and governments in liberal democratic states endeavouring to uphold both religious freedom and punitive drug laws.

The forces of information and communications technology have also provided avenues for the expansion of use of ayahuasca-like preparations. A quick Internet search results in scores hits for websites selling live cuttings or dried samples of *B. caapi*, *P. viridis* and numerous other plants, such as *Mimosa hostilis* and *Peganum harmala*, that are botanical sources for dimethyltryptamine and harmala alkaloids. The Internet also abounds with information (and misinformation) about how to prepare ayahuasca-like brews and “trip reports” of first-hand accounts of experiences individuals have had with these (Halpern & Pope, 2001). Predictably, some amateur psychonauts or self-styled kitchen shamans have harmed themselves through experimenting with ayahuasca analogues in recreational contexts (Brush, Bird, & Boyer, 2003; Sklerov, Levine, Moore, King, & Fowler, 2005). However, it should be noted that reported adverse outcomes are extremely rare and have been sequelae to uncontrolled use of non-traditional preparations (Callaway et al., 2006).

Ayahuasca tourism has also become a cultural phenomenon in the Amazon at the turn of the 21st century. With growing awareness of ayahuasca in developed Northern countries has come the concomitant desire among some to seek “authentic” ayahuasca experiences in countries such as Peru, Ecuador and Brazil (Dobkin de Rios, 1994; Winkelman, 2005). The effects of ayahuasca tourism on both the local people and the economies of these regions are open to interpretation, but are significant and continuing to grow. Some indigenous healers in the Amazon have expressed concern about the ill-trained or manipulative locals who may exploit naïve or undiscerning travellers and potentially cause inadvertent harm through careless administration of ayahuasca (Dobkin de Rios, 2005).

The expansion of ayahuasca use can be expected to continue as public awareness of the tea grows and as it becomes further available both through commercial sales and through spiritual communities. Accounts of ayahuasca experiences and the tea's purported spiritual and health benefits are beginning to appear in mainstream English news media stories (Creedon, 2001; Montgomery, 2001; Salak, 2006). Some of the effects of ayahuasca – for example, its tendency to provoke vomiting and its sometimes heavy emotional and psychological effects – may discourage casual experimentation. However, its relative obscurity and lack of negative associations from the demonizing of such hallucinogens as LSD, psilocybin and peyote in the late 1960s and early 1970s, as well as growing interest in alternative medicines and therapeutic practices, may increase ayahuasca's uptake among the general public. Thus, ayahuasca presents unexpected challenges to judicial systems and policy-makers, who struggle

to balance tensions between criminal justice, public health and human rights interests.

Constructing ayahuasca—ontology

One of the conundrums ayahuasca presents for contemporary drug policy is ontological. Ontology is a branch of metaphysics that involves the philosophical analysis of existence and the categorization of reality. Modern drug laws and policies are ontologically predicated on a mechanistic view of the universe, as they are socio-political extensions of the modernist project of scientific materialism. According to this view, drugs and their effects can be wholly explained by the sciences of biochemistry and psychopharmacology. Reinerman and Levine (1997) identify this as pharmacological determinism, the belief that a drug's effects are caused solely by its pharmacological properties, irrespective of psychological idiosyncrasies or social context. However, a constructivist perspective acknowledges that beyond this, drugs are powerful cultural constructs. The effects they produce on human consciousness and behaviour are functions not just of their biochemistry, but also of the rich symbolic and social meanings they are given.

From a constructivist perspective, drugs cannot be fully understood merely by analyzing their chemical structures and how these interact with neurophysiological systems. One needs to consider also the meanings underlying their growth, production, preparation, consumption and categorization, all of which can vary across cultures and over time. For example, the concept of “medicine” is a cultural construction that in contemporary Western societies is given meaning through the powerful institutions of medical practitioners and systems. Particular substances are deemed medicines not by any properties inherent in them, but by virtue of their being blessed as such by members of powerful professional classes (i.e. physicians and pharmacists). Lysergic acid diethylamide (LSD) had this blessing in the 1950s and early 1960s, when it was considered a promising psychiatric medication, but was quickly delegitimized when its non-medical use became headline news and the subject of moral panic (Dyck, 2005; Littlefield, 2002; Sessa, 2005). Alcohol was also once deemed a medicine, whereas today in most societies it is a recreational (or sometimes ceremonial) substance, except in some Muslim states, where it is a dangerous prohibited drug (Baashar, 1981; Heron, 2003). Indeed, the common phrase “alcohol and drugs” betrays a lingering implicit ontological commitment to the notion that alcohol is something other than a drug.

Ayahuasca quintessentially defies the simplistic categorization of being merely a “drug”—or, in the terminology of the U.S. National Institute on Drug Abuse, a “drug of abuse.” Indeed, ayahuasca has been culturally constructed by its various users as a medicine, a sacrament and a “plant teacher.” In the Amazon, ayahuasca is considered a master plant, both a diagnostic tool and a force for healing (Demange, 2002;

Luna, 1984). Along with tobacco, it is one of the most important substances in the pharmacopoeias of Amazonian folk healers (Bennett, 1992). Yet ayahuasca has also come to be culturally constructed as a sacrament by religions such as the Santo Daime and the UDV. For their adherents, the tea is considered a divine gift allowing contact with forces and energies from which humans are ordinarily cut off in our quotidian lives. And ayahuasca is quintessentially a “plant teacher,” a natural divinatory mechanism that can provide esoteric knowledge to adepts skilled in negotiating its remarkable effects. These conceptualizations pose a challenge to modern Western drug policies and laws, which are premised on a rationalist/positivist ontology that constructs psychoactive substances essentially as chemicals and their effects as simply mechanistic.

Ayahuasca, globalization and public policy

The policy implications of contemporary ayahuasca practices can be usefully explored by regarding them as a cultural manifestation of globalization. By the term globalization, I refer to the economic, political, technological and cultural transactions and integrations resulting from the increased ease of movement for people, goods and ideas at the turn of the 21st century. As Collier and Ong (2005) observe, “[g]lobal phenomena ... have a distinctive capacity for decontextualization and recontextualization, abstractability and movement, across diverse social and cultural situation and spheres of life” (p. 11). Thomas (2005) cites the resurgence of religion – including the spread of new religious movements and cultural and religious pluralism – as one of the “megatrends” of the 21st century. In response, states and faith communities alike “are being forced more than ever before, to define, defend or redefine the social boundaries between the sacred and the profane in the face of modernization and globalization” (Thomas, 2005, p. 26). The evolving spiritual practices whose nexus is the ayahuasca tea exemplify well these trends and tensions of globalization.

Ayahuasca has begun its ascendancy into popular global consciousness at a time of unprecedented interpersonal and intercultural knowledge exchange. One issue this raises is that of cultural appropriation. I would be remiss not to acknowledge humbly that ayahuasca is an exemplar of indigenous knowledge, a shamanic technology or cognitive tool that has long been what may best be described as intellectual property of the native peoples of the Amazon. Accordingly, its commodification, commercialization and secularization are concerning trends. The issue of intellectual property came to public attention in the 1990s when representatives of Amazonian tribes formally protested against the U.S. patent office, which had naïvely granted a patent on ayahuasca to an American pharmaceutical entrepreneur—it was subsequently rescinded (Fecteau, 2001). However, dismissing the growth of interest in ayahuasca as merely appropriation is somewhat simplistic. The genesis of the Brazilian ayahuasca churches

– which are in many respects primary drivers of ayahuasca’s globalization – was arguably a by-product of cross-cultural fertilization (MacRae, 2004). There is also reason to believe that, in the age of wikis, file-sharing and the open source movement, the concept of intellectual property is rapidly becoming a quaint anachronism, a development that concerns corporations and academics as much as it does indigenous peoples.

Curiously, in the 1960s, ayahuasca largely stayed off the Western cultural radar despite increased popular interest in visionary plants such as peyote and psilocybin mushrooms. Unlike only a few decades ago, however, the collective mindscape of the early 21st century is being expanded and shaped by revolutionary information and communications technologies (Friedman, 2005). Thus, insofar as ayahuasca is being variously and simultaneously culturally constructed in the (post)modern world, novel forces are at play. For example, authorities whose interests might be served by the dissemination of inaccurate or deprecatory representations of ayahuasca – as they have been countless times in the past for other illegal drugs – are hard-pressed to challenge the size and scope of factual information easily available to the lay public. The use of the Internet by ayahuasca aficionados allows for a diversity of thought and expression about the tea and its effects that poses significant challenges to policy-makers.

It is my contention that the policy issues presented by contemporary ayahuasca practices are not easily dealt with from the traditional framing of modern drug policies. Schön (1993) proposes that the framing of policy solutions for social issues is constrained by underlying, often implicit, “generative” metaphors. With respect to non-medical psychoactive substance use, two dominant constructions of the problem are identified by Marlatt (1996): drug use as a moral issue and drug use as a disease. The first constructs some drugs as intrinsically malevolent, imbuing them with agency and the power to override human free will. Implicit in this “malevolent agents” metaphor is the notion that people who use drugs are wicked and need to be punished; it is this generative metaphor that underpins the global regime of prohibition of (some) drugs. The second dominant metaphor constructs psychoactive substances as pathogens. This metaphor has become the predominant one in the field of public health, where it is prevalent in the discourses of treatment and prevention. With the “pathogens” metaphor, drug use is constructed as a disease against which youth need to be inoculated and for which people who use need to be treated.

The two dominant metaphors underlying current drug policies – “malevolent agents” and “pathogens” – are particularly unhelpful in framing policies with respect to entheogenic substance use. Ayahuasca’s long tradition of uses as a medicine, sacrament and plant teacher poses a challenge to such simplistic metaphorical categorizations. Rather, I submit that a shift to a generative metaphor of drugs as “tools” offers a much more nuanced way of conceiving of the risks and benefits posed by ayahuasca practices. Rather than essentializing psychoactive substances as inherently dangerous,

to regard them as tools – ancient technologies for altering consciousness (Eliade, 1964; Winkelmann, 2000) – allows for a realistic assessment of their potential benefits and harms according to who uses them, in what contexts and for what purposes. To be sure, as with the use of any tool, there are risks associated with ayahuasca use, especially for those who are not prepared for its effects or who treat it as a toy. However, both traditional and contemporary ceremonial ayahuasca practices suggest benefits that the tool metaphor better accounts for in terms of policy considerations.

The philosophy of harm reduction is also further illuminated by a shift to the generative metaphor of drugs as tools. To the extent that policy-makers or practitioners emphasize a behaviour’s potential risks, the harm reduction policy approach is justified. However, the tool metaphor for psychoactive substances warrants a corollary notion of “benefit maximization,” the other side of the harm reduction coin. Instead of approaching drug policy from a deficit perspective – implied by the “malevolent agents” and “pathogens” metaphors – the tool metaphor opens discursive avenues for realistic policy considerations of benefits as well as harms. Although harm reduction has been a valuable concept in challenging abstinence-based approaches to non-medical drug use and shifting policy to a more humane public health perspective, its limitations become apparent with the “drugs as tools” generative metaphor. Along these lines, the Health Officers Council of British Columbia (2005) has incorporated the concept of beneficial substance use in a recent policy discussion paper arguing for government regulation of currently illegal drugs; the paper explicitly makes reference to ceremonial use of ayahuasca (p. 5).

A traditional harm reduction approach to ayahuasca would emphasize similar general types of cautions as those for LSD, psilocybin or other psychedelic drugs. These include knowing and trusting the source of the substance, controlling set and setting (e.g. psychological preparation and physical surroundings), having a “sitter” who can be mindful of safety, not driving or engaging in other risky activities while under the influence, and discouraging use by individuals with underlying psychiatric disorders. It would also include specific cautions regarding diet and combining medications. The MAO-inhibitor effects of harmala alkaloids in the ayahuasca tea warrant dietary restrictions for foods containing the monoamine compound tyramine. Tyramine eaten in combination with MAO inhibitor drugs may result in hypertensive crisis. Likewise, selective serotonin reuptake inhibitors can have potentially harmful interactions with MAO inhibitors, so people taking these kinds of medications are advised to avoid ayahuasca (Callaway & Grob, 1998). Interestingly, indigenous ayahuasca practices in the Amazon also universally incorporate strict dietary and behavioural protocols (Andritzky, 1989).

A benefit maximization approach to ayahuasca use, by contrast, would involve the creation of policies to provide legitimate access to ayahuasca in ceremonial settings. This process would include considering a variety of policy levers

at the disposal of public health authorities to ensure the minimization of risk (Haden, 2004). Such an approach might begin with the formalization of the harm reduction protocols listed above. It might also include enacting provisions to ensure ayahuasceros or spiritual leaders are skilled and competent in leading rituals (either through self-regulation or certification), inspecting and licensing facilities or centres where ayahuasca ceremonies are conducted, and regulating production of the tea to ensure it conforms to specified purity or potency (as is currently done in some countries with other natural health products). A benefit maximization approach would certainly entail further research into both the short- and long-term effects of ayahuasca and the social practices in which it is used, which may in turn provide further policy direction.

Conclusion

The growing interest in and use of ayahuasca by modern non-indigenous peoples poses significant conceptual challenges regarding drugs and drug policies. Ayahuasca has a rich history of use as a medicine, sacrament and plant teacher, cultural constructions that do not readily fit contemporary drug policy frames. The globalization of ayahuasca in the latter part of the 20th and the early 21st centuries is a phenomenon that demands reconsideration of some of the metaphysical and sociological presuppositions of contemporary drug policies. Already several legal cases have opened the door to granting religious freedom to the ceremonial use of ayahuasca. Accordingly, policy-makers would be well advised to consider other policy tools than criminalization to balance the competing interests of criminal justice, public health and human rights. With respect to harm reduction theory, the contemporary uses of ayahuasca lend weight to the corollary notion of benefit maximization.

References

- Adelaars, A. (2001, 21 April). *Court case in Holland against the use of ayahuasca by the Dutch Santo Daime Church* [Retrieved May 24, 2006 from: http://www.santodaime.org/community/news/2105_holland.htm].
- Alverga, A. P. (1999). *Forest of visions: Ayahuasca, Amazonian spirituality, and the Santo Daime tradition*. Rochester, VT: Park Street Press.
- Andritzky, W. (1989). Sociopsychotherapeutic functions of ayahuasca healing in Amazonia. *Journal of Psychoactive Drugs*, 21(1), 77–89.
- Baashar, T. (1981). The use of drugs in the Islamic world. *British Journal of Addiction*, 76(3), 233–243.
- Barbosa, P. C. R., Giglio, J. S., & Dalgalarondo, P. (2005). Altered states of consciousness and short-term psychological after-effects induced by the first time ritual use of ayahuasca in an urban context in Brazil. *Journal of Psychoactive Drugs*, 37(2), 193–201.
- Bennett, B. C. (1992). Hallucinogenic plants of the Shuar and related indigenous groups in Amazonian Ecuador and Peru. *Brittonia*, 44(4), 483–493.
- Bogenschutz, M. P. (2000). Drug information libraries on the Internet. *Journal of Psychoactive Drugs*, 32(3), 249–258.
- Brush, D. E., Bird, S. B., & Boyer, E. W. (2004). Monoamine oxidase inhibitor poisoning resulting from Internet misinformation on illicit substances. *Journal of Toxicology: Clinical Toxicology*, 42(2), 191–195.
- Callaway, J. C., McKenna, D. J., Grob, C. S., Brito, G. S., Raymon, L. P., Poland, R. E., et al. (1999). Pharmacokinetics of hoasca alkaloids in healthy humans. *Journal of Ethnopharmacology*, 65, 243–256.
- Callaway, J. C., & Grob, C. S. (1998). Ayahuasca preparations and serotonin reuptake inhibitors: A potential combination for severe adverse reactions. *Journal of Psychoactive Drugs*, 30(4), 367–369.
- Callaway, J. C., Grob, C. S., McKenna, D. J., Nichols, D. E., Shulgin, A., & Tupper, K. W. (2006). A demand for clarity regarding a case report on the ingestion of 5-methoxy-*N,N*-dimethyltryptamine (5-MeO-DMT) in an ayahuasca preparation. *Journal of Analytical Toxicology*, 30(6), 406–407 [Letter to the editor].
- Collier, S. J., & Ong, A. (2005). Global assemblages, anthropological problems. In A. Ong, & S. J. Collier (Eds.), *Global assemblages: Technology, politics and ethics as anthropological problems* (pp. 2–21). Oxford: Blackwell Publishing.
- Creedon, J. (2001, September/October). Ayahuasca: Sacred tea from the Amazon. *Utne Reader* (pp. 56–60).
- Demange, F. (2002). *Amazonian vegetalismo: A study of the healing power of chants in Tarapoto, Peru*. Unpublished Masters thesis. London, England: University of East London.
- Dobkin de Rios, M. (1973). Curing with ayahuasca in an urban slum. In M. Harner (Ed.), *Hallucinogens and shamanism* (pp. 67–85). Oxford: Oxford University Press.
- Dobkin de Rios, M. (1994). Drug tourism in the Amazon. *Anthropology of Consciousness*, 5(1), 16–19.
- Dobkin de Rios, M. (2005). Interview with Guillermo Arrévalo, a Shipibo urban shaman, by Roger Rumrill. *Journal of Psychoactive Drugs*, 37(2), 203–207.
- Dyck, E. (2005). Flashback: Psychiatric experimentation with LSD in historical perspective. *Canadian Journal of Psychiatry*, 50(7), 381–388.
- Eliade, M. (1964). *Shamanism: Archaic techniques of ecstasy* (W.R. Trask, Trans.). New York: Pantheon Books.
- Fecteau, L. M. (2001). The ayahuasca patent revocation: Raising questions about current US patent policy. *Boston College Third World Law Journal*, 69, 74–75.
- Friedman, T. L. (2005). *The world is flat: A brief history of the twenty-first century*. Farrar, Straus and Giroux.
- Gray, A. (1997). *The last shaman: Change in an Amazonian community*. Providence, RI: Berghahn Books.
- Grob, C. S., McKenna, D. J., Callaway, J. C., Brito, G. C., Neves, E. S., Oberlander, G., et al. (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.
- Haden, M. (2004). Regulation of illegal drugs: An exploration of public health tools. *International Journal of Drug Policy*, 15(4), 225–230.
- Halpern, J. H., & Pope, H. G. (2001). Hallucinogens on the Internet: A vast new source of underground drug information. *American Journal of Psychiatry*, 158(3), 481–483.
- Health Officers Council of British Columbia (2005). *A public health approach to drug control in Canada* [Retrieved May 24, 2006 from: <http://www.csdp.org/research/bchoc.pdf>].
- Heron, C. (2003). *Booze: A distilled history*. Toronto: Between the Lines.
- Hollman, K. H. (2006, March/April). Quiet case may have far-reaching impact. *Liberty Magazine* [Retrieved May 24, 2006 from: <http://www.libertymagazine.org/article/articleview/562/1/89/>].
- Julien, R. M. (1998). *A primer of drug action: A concise, non-technical guide to the actions, uses, and side effects of psychoactive drugs* (8th ed.). Portland, OR: W.H. Freeman & Company.
- Littlefield, C. (Director) (2002). *Hofmann's potion* [Motion picture documentary]. Canada: National Film Board of Canada.
- Luna, L. E. (1984). The concept of plants as teachers among four mestizo shamans of Iquitos, northeastern Peru. *Journal of Ethnopharmacology*, 11(2), 135–156.
- Luna, L. E. (1986). *Vegetalismo: Shamanism among the Mestizo population of the Peruvian Amazon*. Stockholm: Acta Universitatis Stockholmiensis.

- Luna, L. E. (2003). Ayahuasca: Shamanism shared across cultures. *Cultural Survival Quarterly*, 27(2) [Retrieved April 15, 2006, from: <http://209.200.101.189/publications/CSQ/csq-article.cfm?id=1659>].
- Mabit, J. (2002). Blending traditions: Using indigenous medicinal knowledge to treat drug addiction. *MAPS Bulletin*, 12(2), 25–32 [Retrieved April 18, 2006, from: <http://www.maps.org/news-letters/v12n2/12225mab.pdf>].
- MacRae, E. (1998). Santo Daime and Santa Maria—The licit ritual use of ayahuasca and the illicit use of cannabis in a Brazilian Amazonian religion. *International Journal of Drug Policy*, 9(5), 325–338.
- MacRae, E. (2004). The ritual use of ayahuasca by three Brazilian religions. In R. Coomber, & N. South (Eds.), *Drug use and cultural contexts 'beyond the West': Tradition, change and post-colonialism* (pp. 27–45). UK: Free Association Books.
- Marlatt, G. A. (1996). Harm reduction: Come as you are. *Addictive Behaviors*, 21(6), 779–788.
- McKenna, D. J. (2004). Clinical investigations of the therapeutic potential of ayahuasca: Rationale and regulatory challenges. *Pharmacology & Therapeutics*, 102, 111–129.
- McKenna, D. J., & Towers, G. H. N. (1984). Biochemistry and pharmacology of tryptamines and beta-carbolines: A minireview. *Journal of Psychoactive Drugs*, 16(4), 347–358.
- McKenna, D. J., Towers, G. H. N., & Abbot, F. (1984). Monoamine oxidase inhibitors in South American hallucinogenic plants: Tryptamine and beta-carboline constituents of ayahuasca. *Journal of Ethnopharmacology*, 10(2), 195–223.
- Metzner, R. (1999). Introduction: Amazonian vine of visions. In R. Metzner (Ed.), *Ayahuasca: Hallucinogens, consciousness, and the spirit of nature* (pp. 1–45). New York: Thunder's Mouth Press.
- Montgomery, C. (2001, 10 February). High tea. *The Vancouver Sun*.
- Ott, J. (1999). Pharmahuasca: Human pharmacology of oral DMT plus harmine. *Journal of Psychoactive Drugs*, 31(2), 171–177.
- Pollock, D. (2004). Siblings and sorcerers: The paradox of kinship among the Kulina. In N. L. Whitehead, & R. Wright (Eds.), *Darkness and secrecy: The anthropology of assault sorcery and witchcraft in Amazonia*. Durham, NC: Duke University Press.
- Reinarman, C., & Levine, H. G. (1997). *Crack in America: Demon drugs and social justice*. Berkeley: University of California Press.
- Riba, J., & Barbanoj, M. J. (2005). Bringing ayahuasca to the clinical research laboratory. *Journal of Psychoactive Drugs*, 37(2), 219–230.
- Riba, J., Valle, M., Urbano, G., Yritia, M., Morte, A., & Barbanoj, M. J. (2003). Human pharmacology of Ayahuasca: Subjective and cardiovascular effects, monoamine metabolite excretion, and pharmacokinetics. *Journal of Pharmacology and Experimental Therapeutics*, 306(1), 73–83.
- Ruck, C., Bigwood, J., Staples, D., Ott, J., & Wasson, R. G. (1979). Entheogens. *The Journal of Psychedelic Drugs*, 11(1–2), 145–146.
- Salak, K. (2006). Peru: Hell and back. *National Geographic Adventure* [Retrieved April 13, 2006 from: <http://www.nationalgeographic.com/adventure/0603/features/peru.html>].
- Schön, D. A. (1993). Generative metaphor: A perspective on problem-setting in social policy. In A. Ortony (Ed.), *Metaphor and thought* (2nd ed., pp. 137–163). Cambridge: Cambridge University Press.
- Sessa, B. (2005). Can psychedelics have a role in psychiatry once again? *British Journal of Psychiatry*, 186(6), 457–458.
- Shanon, B. (2002). *The antipodes of the mind: Charting the phenomenology of the ayahuasca experience*. Oxford: Oxford University Press.
- Shulgin, A. (1976). Profiles of psychedelic drugs. I. DMT. *Journal of Psychedelic Drugs*, 8(2), 167–168.
- Sklerov, J., Levine, B., Moore, K. A., King, T., & Fowler, D. (2005). A fatal intoxication following the ingestion of 5-methoxy-*N,N*-dimethyltryptamine in an ayahuasca preparation. *Journal of Analytical Toxicology*, 29(8), 838–841.
- Taussig, M. T. (1986). *Shamanism, colonialism, and the wild man: A study in terror and healing*. Chicago: University of Chicago Press.
- Thomas, S. M. (2005). *The global resurgence of religion and the transformation of international relations: The struggle for the soul of the twenty-first century*. Palgrave MacMillan.
- Tupper, K. W. (2002). Entheogens and existential intelligence: The use of plant teachers as cognitive tools. *Canadian Journal of Education*, 27(4), 499–516.
- Vickers, W. T. (1981). Ideation as adaptation: Traditional belief and modern intervention in Siona-Secoya religion. In N. E. Whitten (Ed.), *Cultural transformations and ethnicity in modern Ecuador* (pp. 705–730). Urbana, IL: University of Illinois Press.
- Whitten, N. E. (1981). Amazonia today at the base of the Andes: An ethnic interface in ecological, social and ideological perspectives. In N. E. Whitten (Ed.), *Cultural transformations and ethnicity in modern Ecuador* (pp. 121–161). Urbana, IL: University of Illinois Press.
- Winkelman, M. (2000). *Shamanism: The neural ecology of consciousness and healing*. Westport, CT: Bergin & Garvey.
- Winkelman, M. (2001). Alternative and traditional medicine approaches for substance abuse programs: A shamanic perspective. *International Journal of Drug Policy*, 12(4), 337–351.
- Winkelman, M. (2005). Drug tourism or spiritual healing?: Ayahuasca seekers in Amazonia. *Journal of Psychoactive Drugs*, 37(2), 209–218.