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## Hallucinogenic Plants and Their Use in Traditional Societies - An Overview

- **Author:** [Wade, Davis](#)
- **CSQ Issue:** [9.4 \(Winter 1985\) Drugs and Tribal People](#)

The passionate desire which leads man to flee from the monotony of everyday life has made him instinctively discover strange substances. He has done so, even where nature has been most niggardly in producing them and where the products seem very far from possessing the properties which would enable him to satisfy this desire.

Thus early in this century did Lewis Lewin, perhaps the preeminent pioneer in the study of psychoactive drugs, describe the primal search that led to man's discovery of hallucinogens. Strictly speaking, a hallucinogen is any chemical substance that distorts the senses and produces hallucinations - perceptions or experiences that depart dramatically from ordinary reality. Today we know these substances variously as psychotomimetics (psychosis mimickers), psychotaraxics (mind disturbers) and psychedelics (mind manifesters); dry terms which quite inadequately describe the remarkable effects they have on the human mind. These effects are varied but they frequently include a dreamlike state marked by dramatic alterations "in the sphere of experience, in the perception of reality, changes even of space and time and in consciousness of self. They invariably induce a series of visual hallucinations, often in kaleidoscopic movement, and usually in indescribably brilliant and rich colours, frequently accompanied by auditory and other hallucinations" - tactile, olfactory, and temporal. Indeed the effects are so unearthly, so unreal that most hallucinogenic plants early acquired a sacred place in indigenous cultures. In rare cases, they were worshipped as gods incarnate.

The pharmacological activity of the hallucinogens is due to a relatively small number of types of chemical compounds. While modern chemistry has been able in most cases successfully to duplicate these substances, or even manipulate their chemical structures to create novel synthetic forms, virtually all hallucinogens have their origins in plants. (One immediate exception that comes to mind is the New World toad, *Bufo marinus*, but the evidence that this animal was used for its psychoactive properties is far from complete.)

Within the plant kingdom the hallucinogens occur only among the evolutionarily advanced flowering plants and in one division - the fungi - of the more primitive spore bearers. Most hallucinogens are alkaloids, a family of perhaps 5,000 complex organic molecules that also account for the biological activity of most toxic and medicinal plants. These active compounds may be found in various concentrations in different parts of the plant - root, leaves, seeds, bark and/or flowers - and they may be absorbed by the human body in a number of ways, as is evident in the wide variety of folk preparations. Hallucinogens may be

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smoked or snuffed, swallowed fresh or dried, drunk in decoctions and infusions, absorbed directly through the skin, placed in wounds or administered as enemas.

To date about 120 hallucinogenic plants have been identified worldwide. On first glance, given that estimates of the total number of plant species range as high as 800,000, this appears to be a relatively small number. However, it grows in significance when compared to the total number of species used as food. Perhaps 3,000 species of plants have been regularly consumed by some people at some period of history, but today only 150 remain important enough to enter world commerce. Of these a mere 12-15, mostly domesticated cereals, keep us alive.

In exploring his ambient vegetation for hallucinogenic plants, man has shown extraordinary ingenuity, and in experimenting with them all the signs of pharmacological genius. He has also quite evidently taken great personal risks. Peyote (*Lophophora williamsii*), for example, has as many as 30 active constituents, mostly alkaloids, and is exceedingly bitter, not unlike most deadly poisonous plants. Yet the Huichol, Tarahumara and numerous other peoples of Mexico and the American Southwest discovered that sundried and eaten whole the cactus produces spectacular psychoactive effects.

With similar tenacity, the Mazatec of Oaxaca discovered amongst a mushroom flora that contained many deadly species as many as 10 that were hallucinogenic. These they believed had ridden to earth upon thunderbolts, and were reverently gathered at the time of the new moon. Elsewhere in Oaxaca, the seeds of the morning glory (*Rivea corymbosa*) were crushed and prepared as a decoction known at one time as *ololiuqui* - the sacred preparation of the Aztec, and one that we now realize contained alkaloids closely related to LSD, a potent synthetic hallucinogen. In Peru, the bitter mescaline-rich cactus *Trichocereus pachanoi* became the basis of the San Pedro curative cults of the northern Andes. Here the preferred form of administration is the decoction, a tea served up at the long nocturnal ceremonies during which time the patients' problems were diagnosed. At dawn they would be sent on the long pilgrimages high into the mountains to bathe in the healing waters of a number of sacred lakes.

Lowland South America has provided several exceedingly important and chemically fascinating hallucinogenic preparations, notably the intoxicating yopo (*Anadenanthera peregrina*) and ebene (*Virola calophylla*, *V. calophylloidea*, *V. theiodora*) snuffs of the upper Orinoco of Venezuela and adjacent Brazil and the ayahuasca-caapi-yagé complex (*Banisteriopsis caapi*) found commonly among the rainforest peoples of the Northwest Amazon. Yopo is prepared from the seeds of a tall forest tree which are roasted gently and then ground into a fine powder, which is then mixed with some alkaline substance, often the ashes of certain leaves. Ebene is prepared from the blood red resin of certain trees in the nutmeg family. Preparations vary but frequently the bark is stripped from the tree and slowly heated to allow the resin to collect in a small earthenware pot where it is boiled down into a thick paste, which in turn is sundried and powdered along with the leaves of other plants. Ayahuasca comes from the rasped bark of a forest liana which is carefully heated in water, again with a number of admixture plants, until a thick decoction is obtained. All three products are violently hallucinogenic and it is of some significance that they all contain a number of subsidiary plants that, in ways not yet fully understood, intensify or lengthen the psychoactive effects of the principal ingredients. This is an important feature of many folk preparations and it is due in

part to the fact that different chemical compounds in relatively small concentrations may effectively potentiate each other, producing powerful synergistic effects - a biochemical version of the whole being greater than the sum of its parts. The awareness of these properties is evidence of the impressive chemical and botanical knowledge of the traditional peoples.

In the Old World may be found some of the most novel means of administering hallucinogens. In southern Africa, the Bushmen of Dobe, Botswana absorb the active constituents of the plant kwashi (*Puncratium trianthum*) by incising the scalp and rubbing the juice of the onion-like bulb into the open wound. The fly agaric (*Amanita muscaria*), a psychoactive mushroom used in Siberia, may be toasted on a fire or made into a decoction with reindeer milk and wild blueberries. In this rare instance the active principals pass through the body unaltered, and the psychoactive urine of the intoxicated individual may be consumed by the others. Certain European hallucinogens - notably the solanaceous belladonna (*Atropa belladonna*), henbane (*Hyoscyamus niger*), mandrake (*Mandragora officinarum*) and datura (*Datura metel*) - are topically active; that is the active principals are absorbed directly through the skin. We now know, for example, that much of the behavior associated with the medieval witches is as readily attributable to these drugs as to any spiritual communion with the diabolic. The witches commonly rubbed their bodies with hallucinogenic ointments. A particularly efficient means of self-administering the drug for women is through the moist tissues of the vagina; the witch's broomstick or staff was considered a most effective applicator. Our own popular image of the haggard woman on a broomstick comes from the medieval belief that witches rode their staffs each midnight to the sabbat, the orgiastic assembly of demons and sorcerers. In fact, it now appears that their journey was not through space but across the hallucinatory landscape of their minds.

There is in the worldwide distribution of the hallucinogenic plants a pronounced and significant discrepancy that has only inadequately been accounted for but which serves to illustrate a critical feature of their role in traditional societies. Of the 120 or more such plants found to date, over 100 are native to the Americas; the Old World has contributed a mere 15-20 species. How might this be explained? To be sure it is in part an artifact of the emphasis of academic research. A good many of these plants have entered the literature due to the efforts of Professor R.E. Schultes and his colleagues at the Harvard Botanical Museum and elsewhere, and their interest has predominantly been in the New World. Yet were the hallucinogenic plants a dominant feature of traditional cultures in Africa and Eurasia, surely they would have shown up in the extensive ethnographic literature and in the journals of traders and missionaries. With few notable exceptions, they don't. Nor is this discrepancy due to floristic peculiarities. The rainforests of West Africa and Southeast Asia, in particular, are exceedingly rich and diverse. Moreover, the peoples of these regions have most successfully explored them for pharmacologically active compounds for use both as medicines and poisons. In fact, as much as any other material trait the manipulation of toxic plants remains a consistent theme throughout sub-Saharan African cultures. The Amerindian, for their part, were certainly no strangers to plant toxins which they commonly exploited as fish, arrow and dart poisons. Yet it is a singular fact that while the peoples of Africa consistently used these toxic preparations on each other, the Amerindian almost never did. And while the Amerindian successfully

explored his forest for hallucinogens, the African did not. This suggests the critical fact that the use of any pharmacologically active plant - remembering that the difference between hallucinogen, medicine and poison is often a matter of dosage - is firmly rooted in culture. If the peoples of Africa did not explore their environment for psychoactive drugs, surely it is because they felt no need to. In many Amerindian societies the use of plant hallucinogens lies at the very heart of traditional life.



To begin to understand the role that these powerful plants play in these societies, however, it is essential to place the drugs themselves in proper context. For one, the pharmacologically active components do not produce uniform effects. On the contrary, any psychoactive drug has within it a completely ambivalent potential for good or evil, order or chaos. Pharmacologically it induces a certain condition, but that condition is mere raw material to be worked by particular cultural or psychological forces and expectations. This is what our own medical experts call the "set and setting" of any drug experience. Set in these terms is the individual's expectations of what the drug will do to him; setting is the environment - both physical and social - in which the drug is taken. This may be illustrated by an example from our own country. In the northwest rainforests of Oregon are a number of native species of hallucinogenic mushrooms. Those who go out into the forest deliberately intending to ingest these mushrooms generally experience a pleasant intoxication. Those who inadvertently consume them while foraging for edible mushrooms invariably end up in the poison unit of the nearest hospital. The mushroom itself has not changed.

Similarly the hallucinogenic plants consumed by the Amerindian induce a powerful but neutral stimulation of the imagination; they create a template, as it were, upon which cultural beliefs and forces may be amplified a thousand times. What the individual sees in the visions is dependent not on the drug but on other factors - the mood and setting of the group, the physical and mental states of the participants, his own expectations based on a rich repository of tribal lore and, above all in Indian societies, the authority, knowledge and experience of the leader of the ceremony. The role of this figure - be it man or woman, shaman, curandero, paye, maestro or brujo - is pivotal. It is he who places the protective cloak of ritual about the participants. It is he who tackles the bombardment of visual and auditory stimuli and gives them order. It is he who must interpret a complex body of belief, reading the power in leaves and the meaning in stones, who must skillfully balance the forces of the universe and guide the play of the winds. The ceremonial use of hallucinogenic plants by the Amerindian is (most often) a collective journey into the unconscious. It is not necessarily, and in fact rarely is, a pleasant or an easy journey. It is wondrous and it may be terrifying. But above all it is purposeful.

The Amerindian enters the realm of the hallucinogenic visions not out of boredom, or to relieve an individual's restless anxiety, but rather to fulfill some collective need of the group. In the Amazon, for example, hallucinogens are taken to divine the future, track the paths of enemies, insure the fidelity of women, diagnose and treat disease. The Huichol in Mexico eat their peyote at the completion of long arduous pilgrimages in order that they may experience in life the journey of the soul of the dead to the underworld. The Amahuaca Indians of Peru drink yage that the nature of the forest animals and plants may be revealed to their apprentices. In eastern North America during puberty rites, the Algonquin confined adolescents to a longhouse for two weeks and fed them a beverage based in part on datura.

During the extended intoxication and the subsequent amnesia - a pharmacological feature of this drug - the young boys forgot what it was to be a child so that they might learn what it meant to be a man. But whatever the ostensible purpose of the hallucinogenic journey, the Amerindian imbibes his plants in a highly structured manner that places a ritualistic framework of order around their use. Moreover the experience is explicitly sought for positive ends. It is not a means of escaping from an uncertain existence; rather it is perceived as a means of contributing to the welfare of all one's people.

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