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# NOVEL HALLUCINOGENS FROM EASTERN ECUADOR

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Recent ethnobotanical investigations have greatly advanced the scientific understanding of the identification, distribution and constituents of plant hallucinogens in the northwest Amazon. To date at least nineteen species employed as stimulants or narcotics have been reported from this region—a figure that represents approximately one-seventh of all known psychotomimetic plants (Schultes and Hofmann 1980). Although this remarkable concentration in part reflects floristic peculiarities, it is also a result of cultural characteristics of the indigenous tribes. Throughout the northwest Amazon, hallucinogenic plants are a very vital feature of religious, medical and magical aspects of life.

In the spring of 1981, whilst we were engaged in ethnobotanical studies in eastern Ecuador, our attention was drawn to a most peculiar use of hallucinogens by the Waorani, a small isolated group of some 600 Indians (cf. Davis and Yost, in press). Amongst most Amazonian tribes, hallucinogenic intoxication is considered to be a collective journey into the subconscious and, as such, is a quintessentially social event (Harner 1973, Reichel Dolmatoff 1971, 1975). The Waorani, however, consider the use of hallucinogens to be an aggressive anti-social act; so the shaman, or *ido,* who desires to project a curse takes the drug alone or accompanied only by his wife at night in the secrecy of the forest or in an isolated house. Under the influence of *mii* (*Banisteriopsis muricata* (Cav.) Cuatr.) the *ido* can call on the *wenae,* or malevolent spirits, to wreak evil, but there are no spirits whom he can contact to do good or to counter another *ido's* curse. This belief is an unusual exception to the Amazonian pattern in that only the *ido* who caused the calamity can cure it, which he does by drinking *mii* to communicate with his *wenae* to convince them to

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withdraw from the victim. It places the shaman in a precarious position, in that any agreement by the shaman to cure is a *de facto* admission of guilt; to agree to cure could easily end in death, so the accusation of being an *ido* is one that is usually met with defiant denial. Given this belief system, it is easy to see why the *ido* would inevitably choose to act clandestinely.

Of particular botanical interest is the fact that this peculiar cultural practise involves hallucinogenic plants, one rarely used and one until now unreported. The Waorani have two hallucinogens: *Banisteriopsis muricata* and an as yet undescribed basidiolichen of the genus *Dictyonema*. The former is morphologically very similar to other commonly used psychoactive malpighiaceous species such as ayahuasca, *Banisteriopsis Caapi* (Spr. ex. Griseb.) Morton. On the other hand, no basidiolichen has yet been reported to be employed as a hallucinogen.

*Mii, (Banisteriopsis muricata)* is the only hallucinogenic plant currently used by the Waorani. Although both of our collections (*Davis et Yost 967; 975*) were made on the edge of chacras (cultivated plots), the Waorani maintain that the plant is not cultivated and frequently point it out growing wild along the river banks.

The *ido* prepares the drug by scraping the bark of the liana and slowly boiling the brew; a procedure not unlike that followed in the preparation of *B. Caapi* as reported from elsewhere in the Amazon. Although only the shaman imbibes the drug, all adult Waorani clearly associate certain powers with it. A boy's uncle or grandfather may take a tiny piece of the liana and, using the windpipe from a toucan, piping guan or curassow as a blowgun, blow the wadded *mii* into the boy's lungs so that he will grow up to have powerful lungs and become a great hunter.

*Banisteriopsis muricata* has never been studied pharmacologically (García Barriga 1975), but it almost certainly contains psychoactive constituents. The Witoto of Pucu Urquillo on the Río Ampiyacu in Peru call this species *sacha ayahuasca*—"wild ayahuasca"—and say that it can be used in the same way as ayahuasca (*B. Caapi*), but that it is weaker.

The second hallucinogen recognised by the Waorani is a conspicuous but extremely rare species of lichenized basidiomycete.

It is a peculiar plant with a white hymenial layer and a bright green/blue upper surface. Dr. Mason Hale of the Smithsonian Institution has studied our collection (*Davis et Yost 1051*) and has suggested that it represents a new species of *Dictyonema*. Our Waorani informants called it nɇnɇndapɇ, a name which they apply to many fungi, but they insisted that this plant was once used in shamanistic ritual. It was last used some four generations ago—approximately eighty years—when "bad shaman ate it to send a curse to cause other Waorani to die". The drug was prepared as an infusion with various species of Bryophyta—*kigiwai*—and caused severe headaches and confusion when it was drunk.

Nɇnɇndapɇ is also reported to cause sterility and may be put into a child's drink to cause barrenness. At the moment, it is unclear whether this is a *post-hoc* explanation of why some women are sterile or whether it indicates the presence of active chemical constituents. Although no peculiar lichen acids have been reported from *Dictyonema*, the genus is very poorly known and certainly deserves phytochemical investigation. It may be difficult to gather adequate supplies for analysis; so rare is this species in Waorani land that one of us (JY) heard references to it for over seven years before encountering it in the forest.

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PLATE 31

Plate 31. *Dictyonema* sp. nov. Det. Mason Hale.