

# Some Little-Known Hallucinogenic Plants of the Aztecs

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A substantial number of the mind-altering plants that are presently known had their origin in the New World. Before the arrival of the Spanish, many of them were used by the pre-Columbian Indians for magical, religious, and other purposes. The chroniclers of the sixteenth century recorded a considerable amount of information about these plants, but only a few hallucinogenic plants were transported to Europe. Some of these plants are well known—the *ololiuqui* and the *teonanácatl* are good examples—because their use persisted after the Spanish conquest, mostly in remote places, as the Spanish clergy did not appreciate the use of mind-altering plants.

The use of many well-known and lesser-known hallucinogenic plants has been described extensively by several authors, but their descriptions refer mainly to contemporaneous use of these plants (Luis Diaz 1977; Schultes & Hofmann 1973; Emboden 1972; Schultes 1965; Guerra & Olivera 1954). In the present article, the use of some little-known hallucinogenic plants by the Aztecs, the ruling tribe in Mexico at the time of the conquest, will be considered.

In the thirteenth century, the Aztecs were a relatively new culture. After a long migration through Mexico, the small tribe settled on an island in the lake of Tenochtitlan, where Mexico City is now located. Through treaties, adroitness, and frequent warfare they succeeded in becoming the most powerful tribe in Mexico, and ruled over a large part of Central America at the time of the arrival of the Spanish. The Aztecs are of special importance for two reasons. First, they absorbed the cultural requirements of other cultures, so that

one can learn about the pre-Columbian cultures via the Aztecs. Second, they were the militarily ruling tribe in Mexico at the time of the conquest, which implied an extensive contact with the Spanish. This contact not only refers to the military contact, but also to the information that was recorded by numerous chroniclers.

Some of the chroniclers' writings for the Aztec region were of outstanding quality, which also applied to their information about hallucinogenic plants. The most important chronicler was Sahagún, who obtained information about all aspects of Aztec life from indigenous informants. This information was written down in Nahuatl, the language of the Aztec, and was used by Sahagún (1956) to write a Spanish version. Another important source of information about hallucinogenic plants is the work of Hernández (1959), where about 3,000 medicinal and other plants were described. With regard to hallucinogenic plants, such chroniclers as Cardenas (1980) and Ruiz de Alarcon (1892) are also of importance.

## THE HALLUCINOGENIC PLANTS OF THE AZTECS: AN OVERVIEW

A number of Aztec hallucinogenic plants are well known in the sense that they have been adequately described and that the chemical constituents, which cause the mind-altering effects, have been identified and studied. Although many questions remain to be answered concerning these plant drugs, there is an abundance of literature about them. Apart from the plants that were used for preparing alcoholic drinks, the well-known hallucinogenic plants of the Aztecs

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**TABLE I**  
**AZTEC HALLUCINOGENS: PLANTS LITTLE KNOWN FOR THEIR HALLUCINOGENIC PROPERTIES**

| Indigenous Name | Synonyms                          | Botanical Name         | References                                                                                     |
|-----------------|-----------------------------------|------------------------|------------------------------------------------------------------------------------------------|
| cacahuacuauhitl | cacao                             | <i>Theobroma cacao</i> | Cardenas (1980);<br>López Austin (1974);<br>Anónima (1968);<br>Durán (1967);<br>Sahagún (1956) |
| eloxochitl      | eloxochicuauhitl                  |                        | López Austin (1974);<br>Sahagún (1956)                                                         |
| itzpacatl       |                                   |                        | Codex Ramirez (1979);<br>Manuscrit Tovar (1972);<br>Durán (1967)                               |
| itzpachtli      |                                   |                        | Sahagún (1956)                                                                                 |
| mixitl          |                                   |                        | Muñoz Camargo (1978);<br>Sahagún (1956)                                                        |
| piciétl         | tobacco                           | <i>Nicotiana</i> spp.  | Cardenas (1980);<br>Hernández (1959);<br>Sahagún (1956);<br>Monardes (1580)                    |
| poyomatli       |                                   |                        | Cardenas (1980);<br>Hernández (1959)                                                           |
| teonacaztli     | teonacazcuauhitl<br>huei nacaztli |                        | Relaciones Geograficas (1982);<br>Cardenas (1980);<br>López Austin (1974);<br>Sahagún (1956)   |
| thivimeezqua    |                                   |                        | Sahagún (1956)                                                                                 |
| xoxouhcapatl    | quauhoxouhqui<br>coaxoxouhqui     |                        | López Austin (1974);<br>Sahagún (1956)                                                         |
| yauhtli         | tzitziqui                         | <i>Tagetes lucida</i>  | Torquemada (1975);<br>Clavijero (1970);<br>Hernández (1959);<br>Sahagún (1956)                 |

were the ololiuqui or coatl xoxouhqui (*Turbina corymbosa*), the peyotl (*Lophophora williamsii*), the teonanácatl or teyhuinti (*Psilocybe* spp., *Stropharia* spp., *Panaeolus* spp.), the tlápatl or matul (*Datura* spp.), and the toloatzin, toloa or nacazcal (*Datura* spp.).

A second class of hallucinogenic plants is presented in Table I. They are lesser-known hallucinogenic plants, which means that little is known about their mind-altering constituents, but there are concrete descriptions made by the chroni-

clers with regard to their hallucinogenic properties. Some of them, such as the piciétl (*Nicotiana* spp.) were widely used by the Aztecs for their hallucinogenic properties (Elferink 1983; Robicsek 1978; Janiger & Dobkin de Rios 1976), but because their application changed in later years their use as a hallucinogenic is only known to those who are familiar with the work of the chroniclers. Some of the plants in Table I, such as the cacao, were used primarily for other purposes, and only special preparations had an inebriating effect. In Table II,

**TABLE II**  
**AZTEC HALLUCINOGENS: PLANTS WITH POORLY DESCRIBED PROPERTIES**

| Indigenous Name | Botanical Name            | References                          |
|-----------------|---------------------------|-------------------------------------|
| acxoyatic       |                           | Hernández (1959)                    |
| aquiztli        |                           | Hernández (1959);<br>Sahagún (1956) |
| atlepatli       |                           | Sahagún (1956)                      |
| quimichpatli    | <i>Schoenocaulon</i> spp. | Sahagún (1956)                      |
| tenxoxoli       |                           | Sahagún (1956)                      |
| tochtetepo      |                           | Sahagún (1956)                      |
| tzitzintlapatl  | <i>Datura</i> spp.        | Sahagún (1956)                      |

names of an intoxicating beverage are included from which the composition is not known: the itzpachtli and the itzpacaatl, which were both used to drug prisoners before they were sacrificed.

Table II also includes a number of little-known hallucinogenic plants that are poorly described or that are highly toxic. For example, the root of the acxoyatic, pulverized and taken in a cold drink, was supposed to be effective against fever and produced intoxication, but no details about the nature of the intoxication were provided. In a chapter about inebriating plants, Sahagún (1956) mentioned some plants that are highly toxic, and their practical use as hallucinogens is therefore doubtful. These include the atlepatli, which was used against a type of leprosy called xioli; the quimichpatli, which was applied as a rat poison and to remove rotten flesh; the tenxoxoli, which was used as an emetic and caused blood spitting; and the tochtetepo, a very poisonous plant used by the sorcerers. The aquiztli was mentioned by both Hernández (1959) and Sahagún (1956) as being intoxicating and causing madness. The tzitzintlapatl was described as a plant that resembles the tlápatl, and is thus probably a *Datura* spp.

### HALLUCINOGENS AND HUMAN SACRIFICE

The Aztecs used to offer many human sacrifices to their numerous gods. The Spanish were astonished by the large number of them, mostly prisoners of war or slaves. In some cases, the victim represented the god who was venerated, and up to his/her death the victim was venerated as such. The most common way of sacrificing was to open the chest, cut out the beating heart, and offer it to the god.

On only a few occasions did the chroniclers mention that

the captives were anesthetized before they were sacrificed. In most instances, the victim had to suffer through the entire experience. According to Torquemada (1975), Clavijero (1970), and Sahagún (1956), the plant yauhtli (*Tagetes lucida*) was used as an inebriating agent to anesthetize the victims who were burnt alive on the feast of Xiuhtecutli, god of the fire. Some slaves or prisoners were thrown into the fire before the image of the god, but before they died they were taken out of the fire and sacrificed in the usual manner by cutting out the heart. Yauhtli was applied to relieve their suffering, about which Sahagún wrote, "... after they had performed many ceremonies with them, they powdered their head with powders they call yauhtli, in order they lost their feeling and did not endure so much the death ...". The other chroniclers provided similar descriptions about the use of yauhtli (Torquemada 1975; Clavijero 1970).

Another example of the use of a hallucinogen in human sacrifice was provided by Durán (1967) and others (Codex Ramirez 1979; Manuscrit Tovar 1972; Acosta 1954) when they described the feast of the god Quetzalcoatl. Sometime before the ceremony, an Indian was chosen to represent the god who was to be venerated. The Indian was sacrificed in the ceremony, but before the event he had to dance and be merry because it was taken as a bad omen when the man became sorrowful. Durán wrote:

... they committed sorcery and very repugnant superstitions if they saw that the man became sorrowful, and that he did not dance with joy and satisfaction. They went immediately to procure sacrificial knives, washed off the human blood that adhered to them as a result of previous sacrifices, and with that they made a small cup of chocolate which was given to him as a drink. It is said that the beverage had this effect ... he

became almost unconscious and forgot what he was told. Then he returned to his usual cheerfulness and dance. . . . It is believed that he underwent the sacrifice with great joy and gladness, bewitched by the beverage. The drink was called itzpacatl.

There was another beverage that was used to drug the victim to be sacrificed. This drink, itzpachtli, was given to the victims who represented the goddess Coyotlinahual, and the purpose of the drink was that they did not fear death. The beverage caused insanity or drunkenness, so that the victim was without feeling. According to Sahagún (1956), some got so out of their senses that they even wanted to die.

The active principles of these beverages, the properties of which resemble one another so much that they could be the same, are not known. A hallucinogen was used only on a few occasions in human sacrifices, and the chroniclers stress that it was meant to avoid the fear of death, which was considered to be a bad omen. Therefore, it seems likely that this use of mind-altering drugs by the Aztecs was not for reasons of humanity, but that it had a magicoreligious meaning.

### THE MAGICORELIGIOUS CURE OF DISEASES

Magic and religion played an important role in Aztec medicine. Most chroniclers have neglected this aspect in their descriptions about the treatment of diseases. However, in the beginning of the seventeenth century, Ruiz de Alarcon (1892) wrote an extensive treatise about the role of magic and religion in the cure of a disease. In his work, much attention was paid to some hallucinogenic plants (ololiuqui, peyotl, piciétl, and yauhtli are mentioned frequently) and the way of curing the sick with medical incantations. The hallucinogenic properties as such did not play a role in the curing process, but due to their hallucinogenic properties these plants were seen by the Aztecs as minor gods, or plants that had some degree of divine nature. Because of their properties, the plants were invoked in medical incantations to obtain the cure of a disease, and at the same time the plant was applied to the patient.

From the work of Ruiz de Alarcon it appears that the most important plant in these practices was the ololiuqui, which could sometimes be replaced by the peyotl. The tobacco or piciétl was equally seen as a minor god. It was frequently invoked in medical incantations against a number of diseases: eye diseases, a swollen head, toothache, wounds, and to facilitate childbirth. It is remarkable that the yauhtli sometimes was used as a replacement for piciétl, and sometimes in combination with piciétl.

### PICIÉTL

The piciétl or tobacco (*Nicotiana* spp.) was widely used by the Aztecs, but for quite different purposes than in present-

day society. It was highly esteemed by the Aztecs, primarily for its medicinal and hallucinogenic properties. Its mind-altering effect was so pronounced and evident that it has been stressed as a predominant property by most of the chroniclers who described the piciétl. In recent times, several authors have reviewed the work of these chroniclers and have speculated about the cause of the differences in the effect as compared with the tobacco that is used nowadays (Elferink 1983; Robicsek 1978; Janiger & Dobkin de Rios 1975). Therefore, only some specific points will be dealt with here.

Support for the hallucinogenic properties of the piciétl is in fact the reason that a number of chroniclers (Cardenas 1980; Relaciones Geograficas 1979; Muñoz Camargo 1978) pointed to the strong resemblance between the effect of piciétl and that of the Spanish beleño or henbane (*Hyoscyamus niger*). Those who described the piciétl in some detail mentioned that the effect was highly dose dependent. In small doses, chewed with lime or taken as smoke through tubelike pipes, it was supposed to possess a wide range of medicinal properties. In higher doses, it caused a kind of drunkenness that could be accompanied by visions, dreams, and loss of consciousness (Cardenas 1980; Casas 1957; Sahagún 1956; Monardes 1580).

The hallucinogenic properties of tobacco were not due to unknown additions, nor was the tobacco mistaken for another plant. In later works, and even in early European herbals, hallucinogenic properties were ascribed to tobacco (Blankaart 1980; Alcedo 1967; Dodonaus 1563). A representative description about the indigenous use of piciétl as a hallucinogen has been presented by Monardes (1580):

... one of the miraculous things of this herb is the way in which the priests of the Indians used it. . . . when the Indians have an important affair, for which the Caciques or the notables of the village found it necessary to consult their priests, they went to the priest and explained the affair. In their presence the priest took some leaves of tobacco, set fire to it and inhaled the smoke into the mouth and the nose through a tubelike pipe, and by doing so he fell on the floor and was like dead. And he was so according to the quantity of smoke he had taken. When the herb had done its work and he recovered, he gave them answers according to the phantasies and illusions he had dreamed.

Although some of the Spaniards saw the hallucinogenic properties as something that had to do with the devil, they nevertheless wrote in praise of this plant because of the many diseases against which it was supposed to be active as a remedy (Cardenas 1980). At the end of the sixteenth century, it was regarded in Europe as a kind of wonder medicine and was applied against innumerable ailments, including asthma and syphilis (Monardes 1580). Among the Aztecs it was also applied against many diseases, but it was appreciated especially for some properties that resemble those of coca: It was highly effective against hunger, thirst, tiredness, and pain.

The piciétl, with reference to its hallucinogenic and medicinal properties, has been described by many chroniclers, but very extensive treatises have been written by Cardenas (1980), Hernández (1959), and Monardes (1580). Concerning the application of tobacco in the magicoreligious treatment of diseases, much information has been provided by Ruiz de Alarcon (1892).

### CACAO, TEONACAZTLI, AND ELOXOCHITL

It may be surprising that cacao is associated with hallucinogenic plants, but it deserves this place for two reasons. First, some preparations of cacao have been described as being hallucinogenic. Second, some other hallucinogenic plants were closely associated with cacao because they were taken in a cacao drink.

The Aztec informants of Sahagún were very definite in their statements that under some conditions cacao drinks had a mind-altering effect. For example, the informants of Sahagún, according to López Austin (1974), indicated that "... Cacahuacuahuil... its name is cacao... when the cacao is drunk in too large quantities, especially when it (the fruit) is young, when it is fresh, it inebriates people, takes possession of them, makes people drunk... makes them lose their heart, and makes them mad." Another chronicler (Anónimo 1968) also emphasized that immoderate use of chocolate results in derangement of the mind. Cacao was an essential constituent of the itzpacatl, which was described earlier, but it is uncertain whether the hallucinogenic properties of this beverage were due to cacao or to another (unknown) constituent.

Cardenas (1980) has provided an extensive treatise about the cacao, and the many ways the Mexicans used the drinks made of it. According to Cardenas, the way of preparing chocolate was of importance for the eventual effect. The cacao had harmful properties when the fruits were crude, but these injurious properties disappeared when the cacao beans were roasted. The flowers of teonacaztli were often added to the chocolate to give flavor to the drink. Cardenas praised the medicinal properties of the chocolate. Although the drink produced "spirit of life," he also warned that some preparations of cacao had quite unpleasant mind-altering properties, particularly melancholy.

The teonacaztli, or huei nacaztli, was described mostly in connection with cacao. The chroniclers called it an aromatic species or a rose (Tezozomoc 1975; Sahagún 1956). The informants of Sahagún, according to López Austin (1974), underlined the hallucinogenic properties of this plant: "... Teunacaztli (teunacacuahuil, huei nacaztli)... it is taken in cacao... it is a medicine: it drives away the fever. One does not drink it often, and not much, because it takes possession of the people, it inebriates the people just like mushrooms." According to the *Relaciones Geograficas de*

*Guatemala* (1982), a drink composed of cacao and teonacaztli was commonly given to the sick among the Indians because it was considered to be curative.

Another little-known hallucinogenic plant that is often associated with cacao is the eloxochitl. It is a flowering tree with large, pleasantly smelling flowers, which were held in high esteem by the Aztecs. They were added to the chocolate to improve the aroma of the drink. According to the Aztec informants of Sahagún, the resulting drink was intoxicating and harmful for the mind when taken in large quantities or when too many of the flowers were added to the cacao (López Austin 1974; Sahagún 1956).

According to some modern investigators (Luis Diaz 1977), the poyomatli, a hallucinogenic plant described by Cardenas (1980), Hernández (1959), and Sahagún (1956), is in fact identical with cacao. Although Luis Diaz (1977) has provided some arguments in favor of this hypothesis, the present author thinks it is unlikely that poyomatli and cacao are identical. All of the chroniclers who described poyomatli also described cacao, without any indication that the plants were identical.

### DISCOVERING THE UNKNOWN: XOXOUHCAPATLI, THIVIMEEZQUA, AND POYOMATLI

The arrival of the Spanish in 1519 did not come as a complete surprise. There were a number of bad omens, and leading Aztecs had visions of dramatic changes that were coming. The large number of soothsayers in all pre-Columbian cultures, including the Aztecs, is another example of the wish of these people to know the future. They used a number of mind-altering plants, not only to forecast the future, but also for practical purposes, such as finding a thief, recovering stolen properties, or diagnosing a disease.

The xoxouhcapatli was applied when a physician could not find out what the nature of the disease of the patient was or did not know which remedy to give. In such a situation, the physician gave the patient a drink with the seeds of the xoxouhcapatli. The patient became drunk and then told about the nature of the disease (López Austin 1971; Sahagún 1956). There is some confusion about this plant in the work of the chroniclers. The informants of Sahagún called xoxouhcapatli an ivy-resembling plant, with properties and names like those of the ololiuqui. Hernández (1959) and the Codex Badianus (1940) also described a xoxouhcapatli, but the plant had completely different properties.

In the work of Ruiz de Alarcon (1882), the ololiuqui has been ascribed related properties. His description is quite interesting: "... the ololiuqui is a seed like the lentils... the drink [made of it] deprives one of his reasons, and the faith which these unfortunate natives have in the seed, is amazing. Drinking it they consult it as an oracle, to know the things they want to know, and even things which are beyond human

TABLE III  
MIND-ALTERING PLANTS IN MEXICAN FOLK MEDICINE

| Indigenous Name                            | Botanical Name               | References                                                             |
|--------------------------------------------|------------------------------|------------------------------------------------------------------------|
| camotillo                                  | <i>Solanum tuberosum</i>     | Luis Diaz (1977);<br>Guerra & Olivera (1954)                           |
| chicalote                                  | <i>Argemone ochrodeuca</i>   | Guerra & Olivera (1954)                                                |
| cochitzapotl                               | <i>Casimiroa edulis</i>      | Pozo (1966)                                                            |
| cozticzapotl                               | <i>Lucuma salicifolia</i>    | Guerra & Olivera (1954)                                                |
| giüwa                                      | <i>Lycoperdon mixtecorum</i> | Schultes & Hoffman (1973)                                              |
| gisawa                                     | <i>Lycoperdon marginatum</i> | Schultes & Hoffman (1973)                                              |
| mescal beans                               | <i>Sophora secundiflora</i>  | Schultes & Hoffman (1973);<br>Emboden (1972);<br>Schultes (1970, 1965) |
| organo (cawe)                              | <i>Pachycereus</i> spp.      | Heffern (1975);<br>Schultes & Hoffman (1973)                           |
| pipiltzinzintli                            | <i>Salvia divinorum</i>      | Schultes & Hoffman (1973);<br>Emboden (1972)                           |
| piule (colorines)                          | <i>Rhynchosia</i> spp.       | Schultes (1970, 1965)                                                  |
| sinicuichi                                 | <i>Heimia salicifolia</i>    | Luis Diaz (1977);<br>Emboden (1972);<br>Schultes (1970)                |
| tecomaxochitl                              | <i>Swartzia nitida</i>       | Heffern (1975)                                                         |
| teuvetli                                   | <i>Elaphrium bipinnatum</i>  | Emboden (1972)                                                         |
| tlitiltzin                                 | <i>Ipomoea violacea</i>      | Schultes & Hoffman (1973);<br>Emboden (1972)                           |
| tsuwiri                                    | <i>Ariocarpus retusus</i>    | Heffern (1975)                                                         |
| tzompanquahuitl<br>(txompantle, colorines) | <i>Erythrina</i> spp.        | Emboden (1972);<br>Pozo (1966)                                         |

knowledge, such as the cause of diseases . . . which are attributed to sorcery, and to exclude this doubt and others, such as about stolen properties and about aggressors, they consult this seed by means of one of their deceitful physicians."

A number of hallucinogenic plants were used to find lost or stolen property or to find out who the thief was. One of these plants was the thivimeezqua, about which Hernández (1959) wrote, "... they say that when . . . one takes the crushed

bark of the root, one sees many visions, various images and monstrous figures, and one discovers the thief if something has been robbed out of the house." For the same purpose, the esqua or toloatzin (*Datura* spp.) was used: "... the Indians eat this root in the night to discover the things which they have lost or which have been robbed . . . and to be able to see the image of the thief." Hernández also noted that the Chichimecas, a tribe related to the Aztecs, used the peyotl not only to find out who robbed objects from another, but also when they

had to attack a rival tribe, because they were convinced that the eating of the peyotl gave them a presentiment of future events.

Some chroniclers referred only in general terms about the properties of mind-altering plants. This is the case with Cardenas (1980), when he reported about the poyomatli and other hallucinogenic plants: "... after taking the peyotl, the poyomatli, the ololiuhqui or the piciétl, the Indians see the devil who talks to them and reveals things which are going to happen in the future." Monardes (1580) gave a description that resembles that of Cardenas's. According to Hernández (1959), the Indians believed that the poyomatli could reveal secret things and future events.

### HALLUCINOGENIC PLANTS AND MALEVOLENT PRACTICES

The pre-Columbian Americans not only used plants to improve their conditions of life and to cure the sick, they also applied them to cause harm to those they disliked. According to various chroniclers, this had been a widespread practice in both Peru and Mexico. Although they frequently mentioned the use of plants for malevolent practices, they provided scant concrete information about the identity of these plants. From some hallucinogenic plants it is sure, and from others it is likely that they were used in sorcery and to cause harm. Sahagún (1956) reported that ololiuhqui was used by the Aztecs for that purpose: "... they give it in a drink to those they want to harm. Those who eat the seed see visions and frightening things. The sorcerers, and they who dislike others, give it to eat with the food, or to drink, to cause harm."

Besides the ololiuhqui, some other plants were described by Sahagún (1956) in his chapter about inebriating plants. Among these is the tochtetepo, which was apparently a very poisonous plant. According to the informants of Sahagún, the Aztec sorcerers bewitched other people with this herb.

Certain species of *Datura* are still known in contemporary folk medicine for their use in malevolent practices (Furst 1976). It seems likely that the Aztecs also applied these plants for the same purpose, but there is inadequate information about the nature of these practices and about which species of *Datura* were involved.

### MISCELLANEOUS HALLUCINOGENS

A number of *Datura* species were used by the Aztecs for medicinal and hallucinogenic purposes. The best known are tlápatl and the toloatzin, about which much has been written.

Sahagún (1956) reported in his chapter on inebriating plants about the tzitzintlápatl that had the same properties as the tlápatl. There is no further information available about this plant. However, in the same chapter, Sahagún described the mixitl as a toxic hallucinogen. It provokes thirst and vomiting, and interferes with talking. It takes away all forces

of the body: It is even impossible to open the eyes when they are closed. In spite of its toxicity, it seems to have been used by the Aztecs because of its hallucinogenic properties. Some authors have suggested that the mixitl is the same *Datura* species as the tlápatl. This suggestion is based on the equivocal description of Sahagún. Although the mixitl might have been a *Datura* species, it was certainly not a synonym for the tlápatl. Sahagún described the tlápatl and the mixitl separately, and with different properties. It is even more evident from the description by Muñoz Camargo (1978): "... and so they take things... with which they lose their senses, and with them they see terrible visions, and apparently [they see] the devil with these things, which is called peyotl, and another herb they call tlápatl, and another seed they call mixitl."

In Table III some mind-altering plants are enumerated that are or were used in Mexican folk medicine. They could have been used by the Aztecs as well, but references given by the chroniclers are scarce. Many of them have already been mentioned, but not for their mind-altering effects. In addition to the plants listed in Table III, there are a number of hallucinogenic plants in use in Mexico, which it is unlikely that the Aztecs used because they were brought to Mexico in later times. An extensive enumeration of psychoactive plants used in Mexican folk medicine is provided by Luis Diaz (1977). He also supplies the many names under which the well-known hallucinogenic plants were used.

In addition to their mind-altering effects, the hallucinogenic plants were appreciated by the Aztecs for their medicinal properties. Most important in this regard were the piciétl and the yauhtli, which were each prescribed against more than 20 diseases (Hernández 1959; Monardes 1580). Many hallucinogenic plants were used against gout (tlápatl, toloatzin, ololiuhqui, teonanacatl, peyotl, piciétl, mixitl, and xoxouhcapatl), against fever (tlápatl, toloatzin, ololiuhqui, teonanacatl, peyotl, piciétl, yauhtli, acxoyatic, and teonacatzli), and against syphilis (ololiuhqui, piciétl, and thivimeczqua). A remarkably large number of hallucinogenic plants was used as aphrodisiacs (ololiuhqui, teonanacatl, yauhtli, and cacao). This number is especially striking because the chroniclers described only a limited number of aphrodisiacs.

### CONCLUSION

There is little doubt that the plants mentioned by the chroniclers for their mind-altering properties were indeed used by the Aztecs for that purpose. There are nevertheless some cases where a correct interpretation of the data of the chroniclers presents difficulties. For example, this applies to the very toxic inebriating plants, such as tochtetepo. Sahagún (1956) pointed out that those persons who imbibe a beverage made from the plant will die. Nevertheless, it is described among the inebriating plants.

Another plant with a mind-altering effect that is difficult to verify is the yauhtli. Sahagún and others (Torquemada

1975; Clavijero 1970) were very clear in their descriptions: It was used to stupefy the victims who were to be sacrificed. Nevertheless there are some questions. The prisoners themselves probably did not give testimony to the action of yauhtli as they experienced it. Hernández (1959) provided a very detailed report about the properties of the yauhtli, but did not mention a mind-altering effect, although he did mention its use as an aphrodisiac and abortifacient, and in ameliorating dementia, anxiety, and many other diseases. Modern investigators (Neher 1968) of yauhtli have not been able to demonstrate a mind-altering effect, but the way in which yauhtli was applied was somewhat unusual and might have been of significance. The yauhtli was also an important plant in Aztec magic, as were some other hallucinogenic plants (Ruiz de Alarcon 1892). In contemporaneous folk medicine, a combination of wild tobacco (*Nicotiana rustica*) and yauhtli is used by the Huichol Indians because of a supposed hallucinogenic effect (Luis Diaz 1977).

As in most cultures, alcoholic beverages were for the Aztecs the most prominent source, in a quantitative sense, of mind-altering agents. The immoderate use of alcoholic drinks was strictly forbidden by the Aztecs, except for old people and on special occasions. Violation of this rule was severely punished. This attitude indicates that the use of beverages that changed the physical and mental ability of people were not allowed in Aztec society. Therefore, it seems likely that the use of hallucinogenic plants simply for pleasure was frowned on by the Aztecs. Support for this hypothesis is also the disdain, which is found in the description given by the Aztec informants of Sahagún regarding the use of hallucinogenic fungi by public women. These informants put thieves, adul-

terers, drunkards, and those who used intoxicating plants in the same group (Garibay 1961). Apparently there were some or many exceptions to the rule: On some occasions, alcoholic drinks and hallucinogenic plants were used for pleasure. For example, the merchants—a special class in Aztec society—sometimes used alcoholic drinks and hallucinogenic fungi that were taken in honey (Garibay 1961; Sahagún 1956). Sahagún reported about the "cañutos de humo" for which special sellers were present in the marketplace. These tube-like pipes were primarily used for smoking tobacco, but also were for smoking many other products: "... olorosos herbs, the bitumen called chapopotli, fungi, and the rose called poyomatli and others."

In spite of many exceptions, it seems likely that the hallucinogenic plants were primarily used by the Aztecs for magicoreligious purposes, sometimes with a semipractical background. In many reports of the chroniclers, hallucinogenic plants were mentioned in connection with priests or with sorcerer-physicians. The visions that were provoked by the hallucinogenic plants were seen by the Aztecs as a means to communicate with supernatural forces via the priest or the sorcerer. This communication was also supposed to yield information about semipractical matters, such as lost property, stolen goods, important decisions that had to be made, and the cause or treatment of a disease. The close association between the consumption of mind-altering plants and the contact with supernatural forces lives on in a number of contemporary Mexican tribes. Well-known examples are the use of the peyotl by the Huichols and the use of teonanacatl by the Mazatecs (Luis Diaz 1977; Heffern 1975; Schultes 1965).

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