

Calea zacatechichi - Dream Herb

- Compositae - Northern South America, Mexico



Excerpted from "Psychopharmacologic Analysis of an Alleged Oneirogenic Plant: Calea zacatechichi" by Lilian Mayagoitia. Jose-Luis Diaz and Carlos M. Conteras
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Summary

Calea zacatechichi is a plant used by the Chontal Indians of Mexico to obtain divinatory messages during dreaming. At human doses, organic extracts of the plant produce the EEG and behavioral signs of somnolence and induce light sleep in cats. Large doses elicit salivation, ataxia, retching and occasional vomiting. The effects of the plant upon cingulum discharge frequency were significantly different from hallucinogenic- dissociative drugs (ketamine, quipazine, phencyclidine and SKF-10017). In human healthy volunteers, low doses of the extracts administered in a double-blind design against placebo increased reaction time and time-lapse estimation. A controlled nap sleep study in the same volunteers showed that Calea extracts increased the superficial stages of sleep and the number of spontaneous awakenings. The subjective reports of dreams were significantly higher than both placebo and diazepam, indicating an increase in hypnagogic imagery occurring during superficial sleep stages.

Introduction

Dreams are important in mesoamerican cultures. They are believed to occur in a realm of suprasensory reality and, therefore, are capable of conveying messages (Lopez-Auatin, 1980). The use of plant preparations in order to produce or to enhance dreams of a divinatory nature constitutes an ethnopharmacological category that can be called "oneiromancy" and which justifies rigorous neuropharmacological research.

There are several plants used in Indian communities of Mexico to obtain divinatory messages from dreams. Several puffball mushrooms (*Lycoperdon* spp.), wrongly reported as hallucinogens (Ott et al., 1975), are eaten fresh by Mixtec Indians before going to bed in order to dream (Diaz, 1975, 1979). Nahuatl Indians from the Sierra de Puebla use an as yet unidentified species of *Salvia*, known by the name of Xiwit, for the same purpose (Tim Knab, pers. commun.). The plant known as Bakana to the Tarahumara Indians, which has been reported to be an analgesic, antipsychotic and divinatory agent (Bye, 1979), was later found to be employed for dreaming during night sleep (William Merrill, pers. commun.). Finally, *Calea zacatechichi* Schl. (Compositae) is used in the same context by the Chontal Indians of Oaxaca.

C. zacatechichi is a plant of extensive popular medicinal use in Mexico (Diaz, 1976). An infusion of the plant (roots, leaves and stem) is employed against

gastrointestinal disorders, as an appetizer. cholagogue, cathartic. antidysentery remedy, and has also been reported to be an effective febrifuge. With other aromatic Compositae, dry *C. zacatechichi* is used as insecticide (Diet, 1975). There is also some information concerning psychotropic properties of this plant that require further clarification (Schultes and Hofmann, 1973).

The pioneer study on the appetizer properties of *zacatechichi*, conducted at the Institute Medico Nacional of Mexico, mentioned some psychoactive effects (Sandoval, 1882). MacDougall (1968) reported that a Chontal informant knew that the leaves of the plant were to be either smoked or drunk as an infusion to obtain divinatory messages. Subsequent interviews with MacDougall's informant and active participation in ceremonial ingestion revealed that the plant is used for divination during dreaming (Diaz, 1975). Whenever it is desired to know the cause of an illness or the location of a distant or lost person, dry leaves of the plant are smoked, drunk and put under the pillow before going to sleep. Reportedly, the answer to the question comes in a dream. A collection of interviews and written reports concerning the psychotropic effects of these; preparations on 12 volunteers has been published (Diaz, 1975, 1979). Free, reports and direct questioning disclosed a discrete enhancement of all sensorial perceptions, an increase in imagery, mild thought discontinuity, rapid flux of ideas. and difficulties in retrieval. These effects were followed by somnolence and a short sleep during which lively dreams were reported by the majority of the volunteers. These preliminary observations suggested that the psychotropic effects of the plant were similar to those interesting from ethnobotanical. psychological and neuropharmacological of the "cognodysleptic" drugs, whose prototype is marihuana (*Cannabis saliva*)(Diaz, 1979). The possible effects upon dreaming are the most perspectives .

C. zacatechichi is a shrub measuring 1-1.5 m in height. The plant has many branches with oviform and opposite leaves (3-5 cm long and 2-4 cm wide). The leaves show serrated borders, acute endings and a short petiole. They are rugose and pubescent. The inflorescence is small and dense (comprising around 12 flowers each) with the pedicels shorter than the heads (Martinet, 1939). The plant grows from Mexico to Costa Rica in dry savannas and canyons (Schultes and Hoffmann, 1973). The name of the species comes from Nahuatl "zacatechichi" which means "bitter grass" and is the common name of the plant all over Mexico. It is also known with the Spanish names of "zacate de perro" (dog's grass), "hoja madre" (mother's leaf) "hoja de dies" (Cod's leaf), and thle-pela-kano in Chontal Diaz, 1975).

Several sesquiterpene lactones had been isolated from the plant. Calaxin and ciliarin were identified by Ortega et al. (1970), and the germacranolides, 1B-acetoxy zacatechinolide and l-oxo zacatechinolide, by Bohlmann and Zdero (1977). Quijano et al. (1977, 1978) identified caleocromenes A and B and caleins A and B. while Ramos (1979) found caleicins I and II. Herz and Kumar (1980) isolated acacetin, o-methyl acacetin, zexbrevin and an analogue, as well as several analogues of budlein A and neurolenin B, including calein A. *C. zacatechichi* samples show differences in chemical composition, which has led Bohlmann et al. (1981) to suggest that chemical taxonomy may help to reclassify the genus. Further taxonomic work is required since our Chontal informant distinguishes between "good" and "bad" varieties according to their psychotropic properties.