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DE PLANTIS TOXICARIIS E MUNDO NOVO TROPICALE COMMENTATIONES XXIX.

A SUSPECTED NEW AMAZONIAN HALLUCINOGEN

RICHARD EVANS SCHULTES

I

During my ethnobotanical studies in the northwestern Amazon of Colombia, I gathered ethnopharmacological data on many plants employed by the numerous tribes of the area. It was not always possible to investigate thoroughly certain reports—especially an occasional report of a medicine man or practitioner of curing through the use of mind-altering agents.

In previous publications, I have indicated that further work of an ethnobotanical nature in the northwest Amazon is urgently needed before acculturation obliterates much of the local and traditional folk lore and the practices of medicine men. I have also stated my belief that there are minor hallucinogenic plants left to identify and study which are still in use in the remote fastnesses of this jungle area.

One such problem, for example, concerns the identification of a forest liana with a milky latex—probably a member of the Apocynaceae—utilized in Amazonian Colombia in special ceremonies as a kind of caapi which is the name of the widely used hallucinogenic drink prepared from *Banisteriopsis Caapi.* (Spr. ex Griseb.) Morton.

II

There are, however, other fascinating leads which the ethnobotanist must follow while there is yet time. These leads concern members of the rubiaceous genus Pagamea, especially the shrub *P. macrophylla* Spruce ex Bentham.

This plant, found growing in the white sand *caatinga* vegetation which is very common in the basin of the Ríos Apaporis and Vaupés and their tributaries, is esteemed by medicine men

of the Barasana and Makuna tribes of the Río Piraparaná of Colombia. I did not witness its use during my field research amongst these Indians, but I did obtain what may be valuable reports concerning the plant.

The Barasana are heavily habituated to the use of coca. Aged men of this tribe frequently suffer from stomach or intestinal bleeding, a condition which, although it might have sundry causes, they attribute—and probably quite correctly—to the long and excessive use of coca powder. In an effort to alleviate this trouble, they recommend a hot tea of the leaves and bark of *Pagamea macrophylla,* which they call *ma-nu-su-ka-ta (Schultes et Cabrera 17581).* This use represents a popular and probably frequent medicinal application of the plant. The nomadic Makús of the Río Piraparaná, who know this species as *ma-na-shu-ke-ma,* recognize that the plant has toxic properties but do not use it.

There is, however, another—and perhaps much more important—use of *Pagamea macrophylla.* The leaves are pulverized and aspirated in the form of a snuff by medicine men during ceremonies of divination. Does this plant product have hallucinogenic properties? Does it merely tranquilize the medicine man? Is it a stimulant? Or is it simply a ceremonially significant use with no biochemical basis?

Pagamea macrophylla *Spruce ex Bentham* in Journ. Linn. Soc. 1 (1857) 110.

Tree, usually 10–20 feet tall. Branches thick. Leaves subcoriaceous, ovate to oblong-elliptic, short-acuminate, mostly 16–22 cm. long. Stipules membranaceous, acuminate, up to 3.5 cm. long, deciduous. Panicle thrysoid, trichotomous, densely flowered. Flowers rather large, sessile: calyx cupuliform, up to 4 mm. long; corolla greenish, 4-fid, lobes densely villose within; anthers linear, stipitate; style filiform, semi-2-fid.

COLOMBIA: Comisaría del Vaupés Río Piraparaná Caño Paca, "Small treelet." September 19, 1952 *Richard Evans Schultes et Isidora Cabrera 17581.*

The only genus of the Rubiaceae known to be hallucinogenically used in Psychotria, the leaves of several species of which contain tryptamines and are used as additives to the narcotic drink caapi or ayahuasca. This ethnobotanical reference

—that Barasana medicine men snuff *Pagamea macrophylla* in ceremonies—is certainly not proof that the plant has hallucinogenic properties. It is, however, sufficient indication that a member of this alkaloid-rich family may represent an hitherto undected psychoactive agent and to warrant phytochemical study of the species.

III

Pagamea is a genus of rubiaceous trees and shrubs with 20 to 23 species of tropical northern South America. It has been suggested that Pagamea belongs more properly in the Loganiaceae (Standley in Field Mus. Nat. Hist. Bot. 13 (1936) 144). It was described in 1775 by Aublet from French Guiana. The leaves are opposite, with deciduous stipules connate in a kind of sheath. The axillary or terminal inflorescences are borne in the form of small heads, spikes, racemes or panicles. The hermaphroditic flowers are usually 4- to 5-merous. The dentate or lobate calyx, sometimes truncated, is persistent. The corolla lobes in bud are valvate. The stamens number four to five. The ovary is superior, 2- to 5-locular, with one ovule per locule. The fruit is a drupe.

In Venezuela, the species of Pagamea are known as *ajo de paloma* ("garlic of the dove"). For Colombia and Brazil, no common names of Pagamea are reported in Spanish or Portuguese.

Species of this genus are restricted to the northwestern part of the Amazon, the adjacent areas of the upper Orinoco and the Guianas. They appear to be in general associated with the Venezuelan-Guianan land mass. In the Colombian Amazonia, they occur on the flat quartzitic mountains of Cretaceous age in the Vaupés and Apaporis River basins or with the sandy remnants of these eroded mountains.

IV

The Kubeo Indians living on affluents of the Río Vaupés in Colombia have an interesting use for *Pagamea coriacea* Spruce ex Bentham, a species related closely to *P. macrophylla*. They heat the blue-black fruits in oil from the palm *Jessenia Bataua*

(Mart.) Burret to prepare a medicine which is dropped into the ears for what appears to be a fungal infection of the ear-drum (*Schultes et Cabrera 19169:* Río Karurú, Mesa de Yambí, Savannah Goo-ran-hoo-dá, Comisaría del Vaupés: *Schultes 22611:* Río Kuduyarí, Savannah Yapobodá, Comisaría del Vaupés.

The Taiwanos of the region of the Raudal de Jirijirimo on the Río Apaporis in Amazonian Colombia value the plant as an efficaceous remedy for reestablishment of the ability to walk following attacks which, in age, appear to deprive Indians of the free use of the legs. The cause of this curious but not uncommon condition is not known. The bark of the young branches is scraped and, in fresh condition, is boiled into a decoction which must be drunk over a period of two or three weeks. Administration of this tea is reported to result in strong stimulation of the afflicted patient and frequently in his ability to regain muscular use of the legs (*Schultes et Cabrera 12467, 14933, 14953:* Río Apaporis, Raudal de Jirijirimo, Comisaría del Vaupés).

V

In view of these several interesting ethnopharmacological reports, a phytochemical study of the genus Pagamea would appear to be fully warrented.

Little is known of the chemistry of Pagamea. Da Rocha et al. (in Inst. Nac. Pesquisas Amaz. Química, no. 12 (1968) 42) reported that the stems and leaves of *P. coriacea* are alkaloid-negative, yet a spot-test which I made on fresh leaves with Dragendorff reagent was positive (*Schultes et Cabera 19921*).

PLATE 9.