

DE PLANTIS TOXICARIIS E MUNDO NOVO TROPICALE
COMMENTATIONES XXXV: MISCELLANEOUS NOTES ON
BIODYNAMIC PLANTS OF THE NORTHWEST AMAZON

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(Accepted May 7, 1985)

Summary

This paper continues ethnopharmacological notes on biodynamic plants employed by Indians of the Amazon region as medicines, poisons or narcotics.

Introduction

Field work to salvage ethnobotanical knowledge in the northwest Amazon has not been commensurable with the rapidity of the disappearance of this folk lore as a result of increasing acculturation. Many native languages of the region are becoming extinct, and the natives, knowing no Spanish names for their plants, are losing even their acquaintance with the local flora. This paper, a continuation of numerous ethnobotanical contributions on the plants of the northwest Amazon, offers, amongst other ethnobotanical notes, a number of local native names of plants of this rich flora.

During several of my trips to the Amazon area, spot field tests were made on plants for alkaloids. Most of these plants have never been chemically studied; in fact, many of the genera and even families of these species are phytochemically unknown. While spot tests, especially those conducted under field conditions, are initial, exploratory and often crude, they do offer — especially with the paucity of phytochemical knowledge of such a rich, yet poorly known, flora — leads which may be of help to investigators interested in the chemical constituents of plants and their possible biodynamic significance. Most of the tests for alkaloids were carried out jointly with Prof. Robert F. Raffaaf, then associated with Smith, Kline and French Co. of Philadelphia.

The voucher specimens cited below are preserved in one or more of the following institutions: the Economic Herbarium of Oakes Ames or the Gray Herbarium, both of Harvard University; in the Herbario Nacional de Colombia in Bogotá; or in the New York Botanical Garden.

To several of my colleagues and students who have made available data, I express my deep appreciation: Professor Robert F. Raffaaf of Northeastern

University, Boston, Mr. Melvin Shemluck, Dr. James L. Zarucchi and Mr. E. Wade Davis.

The families are arranged in accord with the Engler-Prantl system, and the genera are listed alphabetically under the families.

CYATHEACEAE

Sphaeropteris sp.

ECUADOR: Provincia Napo, confluence of Ríos Quiwado and Tiwaeno. April 20, 1981. *Davis et Yost 964*.

The Waorani call this fern *toyaba*. The sap is employed topically for toothache. It is gathered and, when it thickens, it is applied to the raw nerve.

LOMARIOPSISIDACEAE

Lomariopsis nigropaleata Holttum in Kew Bull. 39 (1940) 618, f. 4-5. COLOMBIA: Comisaría del Vaupés, Río Makú-Paraná. "Lowland forest" June 1-8, 1970. *Silverwood-Cope 25*.

The Makú Indians of the Río Piraparaná have an unusual name for this fern: *mik-bakat-ku*, meaning "cutting oneself open medicine." According to the collector, the "leaves [are] rubbed in the hands with spittle or water and placed on cut. Stops blood flow and promotes rapid healing."

GNETACEAE

Gnetum nodiflorum Brogniart in Duperrey, Voy Bot. 1 (1828) 12.

COLOMBIA: Comisaría del Vaupés, Río Macaya, Cachivera del Diablo. May 14, 1943. *Schultes 5436*. Río Kananarí. "Fruit reddish when ripe. Vine." July 8, 1951. *Schultes et Cabrera 13423*.

The Indians of the Colombian Vaupés roast the seed for food. A Puinave medicine man reported that a gummy decoction of the bark is employed externally as hot as possible to reduce swellings caused apparently by muscular injury or "torn tendons." The Puinave name of the plant is *tap-kam'*; the Taiwano call it *hoo-roo'*.

PALMAE

Jessenia Bataua (Mart.) Burret in Notizbl. 10 (1928) 300, 302.

ECUADOR: Provincia Napo, confluence of Ríos Quiwado and Tiwaeno, April 20, 1981. *Davis et Yost 1004*.

The Waorani call this palm *potawe*. The adventitious roots are employed medicinally to treat stomach pains, wounds, headache and diarrhoea.

Mauritiella cataractarum Dugand in Rev. Acad. Col. Cienc. 8 (1951) 385.

COLOMBIA: Comisaría del Vaupés, Río Apaporis, Soratama. "In clumps, 5-10 together. Stems devoid of spines. Fruit ripens brown, smaller than usual species." June 21, 1951. *Schultes et Cabrera 12792*.
An oil boiled from the ripe fruits is employed to relieve pain from sprains

it is rubbed warm on the affected muscle. The Puinave name is *kee*. The Kuripako Indians call the tree *ka-da-na'-ree-pe*.

It is probable that the oil from the fruits of other species of *Mauritiella*, as well as of those of *Mauritia*, are similarly used.

ARACEAE

Anthurium sp.

ECUADOR: Provincia Napo, confluence of Ríos Quiwado and Tiwaeno.

April 20, 1981. *Davis et Yost* 962.

The Waorani crush the leaves of this *Anthurium* and apply the sap to a bot fly infestation to kill and make the larva easier to extract.

Philodendron cuneatum Engler in Bot. Jahrb. 6 (1885) 281.

COLOMBIA: Comisaría del Vaupés, Río Kananarí, Cerro Isibukuri. "Spathe green on both sides. Spadix white." November 30, 1951. *Schultes et Cabrera* 14761.

The crushed leaves of *Philodendron cuneatum* are mixed with grease and applied to skin diseases.

Philodendron fragrantissimum (Hook.) Kunth, Enum. Pl. 3 (1841) 49.

COLOMBIA: Comisaría del Vaupés, Río Pacoa. "Spathe blood red outside. Epiphyte." February 7, 1952. *Schultes et Cabrera* 15214.

The natives of the Río Apaporis rub the fragrant inflorescence, crushed and mixed with a fat, on boils and other skin infections. The Barasana know this plant as *koo-too'-ka-hě*.

Philodendron bylaeae Bunting in Acta Bot. Ven. 10 (1975) 298.

COLOMBIA: Comisaría del Amazonas, Río Miritiparaná, Caño Guacayá. "Spathe green outside, red inside. Spadix red. Leaves astringent." March 2-8, 1952. *Schultes et Cabrera* 15776.

The Yukuna Indians of the Río Miritiparaná crush the astringent leaves and petioles to mix with *fariña* (the meal of *Manihot esculenta*) as a vermifuge.

COMMELINACEAE

Geogenanthus ciliatus Brückner in Notizbl. 11 (1931) 224.

ECUADOR: Provincia de Pastaza, Río Chico, village of Río Chico. August 1979. *Shemluch et Ness* 166.

The Kechwa name of this plant is *supi-panga*. According to the collectors, the leaf is patted on the buttocks of one suffering from flatulence.

HAEMODORACEAE

Schiekia orinocensis Meissner, Gen. (1842) 397.

COLOMBIA: Comisaría del Vaupés, Río Vaupés, Cerro de Mitú. September 7, 1951. *Schultes et Cabrera* 13898. — Río Vaupés, between Mitú and

Javareté. May 14—24, 1953. *Schultes et Cabrera 19267*.

Because of its red-orange root, this plant has a number of uses amongst the natives of Mitú. The raw stem of the plant is chewed to relieve bleeding gums. Some natives assert that a tea of the lowermost stem and root is drunk "for poor blood". Obviously both uses represent a "Doctrine of Signature" type utilization. Other Indians, especially the Kubeos, value the crushed leaves and stems in food as a strong vermifuge.

ZINGIBERACEAE

Renalmia Asplundii Maas in Acta Bot. Néerl. 24 (1975) 474.

ECUADOR: Provincia Napo, confluence of Ríos Quiwado and Tiwaeno, April 13, 1981. *Davis et Yost 933; 1024*.

The Waorani call this plant *teentemo* ("snake leaf"). The stem is pounded fresh, and the pulp is mixed with water and drunk once a day to prevent swelling from snake-bite (from the fer-de-lance); it may be taken twice daily for internal bleeding and to prevent swelling.

Renalmia thyrsoidea (R. et P.) Poeppig et Endlicher, Nov. Gen. et Sp. 2 (1838) 25, t. 134.

ECUADOR: Provincia Napo, confluence of Ríos Quiwado and Tiwaeno. April 13, 1981. *Davis et Yost 935*.

Amongst the Waorani, the stem is crushed fresh, mixed with water and drunk once a day to prevent swelling from the bite of the fer-de-lance. The plant is called *teentekage* ("snake's hair").

MARANTACEAE

Calathea sp.

COLOMBIA: Comisaría del Putumayo, Quebrada Caucaya. May 18, 1942. *Schultes 3837*.

This plant is said to be "medicinal", but more definite information on its use and preparation was not available in the field. Since there is as yet hardly any knowledge of the chemistry of the Maranthaceae, the use of a species for biodynamic ("medicinal") purposes may be significant.

Calathea altissima (P. et E.) Koernicke in Bull. Soc. Nat. Mosc. 35, pt. 1 (1862) 141.

COLOMBIA: Comisaría del Amazonas, Río Apaporis, Soratama.

"Flower cream-coloured." December 14, 1951. *Schultes et Cabrera 14909*.

The Karapaná Indians of the Río Kananarí crush the leaves of this abundant plant to make a poultice for drying up festering sores.

Calathea cyclophora Baker in Kew Bull. (1895) 18.

COLOMBIA: Comisaría del Vaupés, Río Vaupés, Cachivera de Tatú.

Schultes, Raffauf et Soejarto 24372. — Río Kuduyarí, Yapobodá. June 25, 1958. *García-Barriga, Schultes et Blohm 15868*.

A decoction of the underground parts of this plant is given orally in the belief that it counteracts the effects of snake bite.

Calathea Veitchiana Hooker fil., Bot. Mag. 91 (1865) t. 5535.

PERU: Departamento de Loreto, Río Nanay, Chiriara. Herb. 1.2 m. tall in forest. Leaf dark green above with light green markings along midrib and margin; reddish purple beneath; pulvinus pale greenish brown. Peduncle reddish; floral bracts pale green above, red beneath. Flowers white."

February 28, 1969. *Plowman et Tina* 2572.

The name of this plant in Peru is reported to be *pulma*. According to the collectors, it is "mixed with *ayahuasca* [*Banisteriopsis* spp.] to see visions."

Ishnosiphon obliquus (Rudge) Koernicke in Nouv. Mem. Soc. Nat. Mosc. 11 (1859) 341.

COLOMBIA: Comisaría del Amazonas, Río Amazonas, vicinity of Leticia. "Height 12 feet. Nether surface of leaves whitish. Flowers yellow, calyces reddish." August 29—September 12, 1966. *Schultes, Raffauf et Soejarto* 24019.

All parts of this collection are alkaloid-negative with a Dragendorff spot-test.

PIPERACEAE

Peperomia glabella (Sw.) A. Dietrich var. *melanostigma* Dahlstedt in Kgl. Sv. Vet. Akad. Handl. 33, pt. 2 (1900) 122.

COLOMBIA: Comisaría del Putumayo, Mocoa. December 6, 1942. *Schultes et Smith* 2059.

This herb is a presumed remedy for conjunctivitis. In the Colombian Putumayo, it is widely employed in the form of a decoction used as a soothing bath to relieve this most common eye ailment.

The Spanish name of the plant in the region is *flor de mal*; the Ingano names are *tre-gwen* and *givanan*.

Piper conejoense Trelease et Yuncker, Piper. N.S. Am. 1 (1950) 46, fig. 35.

ECUADOR: Provincia Napo, confluence of Ríos Quiwado and Tiwaeno. April 13, 1981. *Davis et Yost* 939.

The Waorani call this plant *yakabe* and employ it to blacken the teeth to prevent decay.

MORACEAE

Coussapoa cinnamomea Cuatrecasas in *Caldasia* 7 (1956) 288.

COLOMBIA: Comisaría del Amazonas, Trapecio Amazónica, Río Loretoyacu. October, 1945. *Schultes* 6693.

The Tikuna Indians pound the leaves and fruits of this tree to use, mixed with mud, as a minor fish poison.

Helicostylis scabra (Macbr.) C.C. Berg in *Acta Bot. Néerl.* 18 (1969) 464.

COLOMBIA: Comisaría del Vaupés, Río Apaporis, Raudal de Yayacopi.

"Enormous tree. Latex white. Fruit green, edible." February 18, 1952. *Schultes et Cabrera 15466*.

The Makuna call this tree *mee'-o* and utilize the latex, which they maintain is toxic, in alleviating cases of extreme intestinal parasitism. The latex is said to be bitter and is mixed with warm chicha. Very small doses must be taken.

The Puinaves, who call the tree *han-shee-ma'*, do not know of its use as a vermifuge but value it as an anti-fungal agent when repeatedly painted and dried on infected parts of the skin.

Helicostylis tomentosa (P. et E.) Rusby in Mem. Torr. Bot. Club 6 (1896) 120.

COLOMBIA: Comisaría del Amazonas, Leticia. November 1948. *Schultes et López 10400j*.

The latex of this tree is considered by Indians of the Leticia area to be toxic if ingested.

Pourouma cecropiaefolia Martius, Reise Bras. 3 (1831) 1130.

COLOMBIA: Comisaría del Vaupés, Río Makú-Paraná. "Lowland forest. June 1-8, 1970. *Silverwood-Cope 14*.

The Bara-Makú Indians of the Río Paraparaná refer to this plant as *we-wit'-kat-ku*, signifying "no children medicine." According to the collector "scrapings of the root [are] rubbed in water and given to women to cause permanent sterility." Since the collection consists merely of sterile seedling material, the identification must be accepted as tentative.

Pourouma cecropiaefolia is cultivated widely in the western Amazon as a fruit tree. The leaves are burned, and the ashes are mixed with pulverized toasted coca leaves (*Erythroxylon Coca*) as an alkaline admixture to this narcotic preparation.

Maquira calophylla (P. et E.) C.C. Berg in Acta Bot. Néerl. 18 no. 18 (1964) 464.

COLOMBIA: Comisaría del Amazonas, Río Amazonas, Leticia. "Tall tree 90 feet, columnar. Highland forest." September 1963. *Schultes s.n.*

The inhabitants of Leticia report that the latex of this tree is caustic and poisonous.

Pseudolmedia laevigata Trécule in Ann. Sc. Nat., ser. 3, 8 (1847) 129, t. 5

COLOMBIA: Comisaría del Amazonas, Río Apaporis. Soratama. "Fruit red, soft, Small tree." February 4, 1952. *Schultes et Cabrera 15147*.

A tea made from the fruits of *Pseudolmedia laevigata* is esteemed by the Indians of the middle Apaporis as an excellent stimulant of the appetite.

MYRISTICACEAE

Dialyanthera parvifolia Markgraf. in Notizbl. 9 (1926) 964.

ECUADOR: Provincia Napo, confluence of Ríos Quiwado and Tiwaeno. April 21, 1981. *Davis et Yost 1008*.

Amongst the Waorani Indians, who call this treelet *ayepewe*, the bark is crushed and rubbed on the skin for mites and fungal infections.

Iryanthera elliptica Ducke in Journ. Wash. Acad. Sci. 26 (1936) 219.

ECUADOR: Provincia Napo, confluence of Ríos Quiwado and Tiwaeno.
April 24, 1981. *Davis et Yost 1020*.

The Waorani Indians value this plant to kill mites and treat fungal infections.

Iryanthera juruensis Warburg in Verhandl. Bot. Ver. Brandenburg 47 (1905) 137.

COLOMBIA: Comisaría del Amazonas, Río Amazonas, Leticia. August-September 1966. *Schultes, Raffauf et Soejarto 24105*.

ECUADOR: Provincia Napo, confluence of Ríos Quiwado and Tiwaeno.
April 22, 1981. *Davis et Yost 1014*.

PERU: Departamento Loreto, Río Ampiyacu, village of Tierra Firme.
April 27, 1977. *Plowman, Schultes et Tovar 7059A*.

The Waorani shred the inner bark and use the "resin" for treating fungal infections. The "sap" is dripped over the infected area. It is said to "kill the fungus just as the dart poison." The Waorani name is *wingimokawe*.

The collection *Schultes, Raffauf et Soejarto 24105* is alkaloid-negative with a Dragendorff spot-test on fresh leaves.

Known in Peru as *cumala*, *Iryanthera juruensis* is one of the myristicaceous trees of the region which is not employed by the Bora Indians in preparing their hallucinogenic paste. The reason is the lack of alkaloids in this species.

Iryanthera macrophylla (Benth.) Warburg in Nov. Acta Acad. Leop.-Carol. 68 (1897) 155.

PERU: Departamento Loreto, Río Ampiyacu, Pucu Urquillo. April 18, 1977. *Plowman, Schultes et Tovar 6919*.

The bark of *Iryanthera macrophylla* is said by the Witoto Indians to be one of the myristicaceous sources of their hallucinogenic paste.

A chemical analysis of this collection indicates the presence in the bark exudate of 5-methoxydimethyltryptamine.

Iryanthera paraensis Huber in Bol. Mus. Goeldi 5 (1909) 358.

ECUADOR: Provincia Napo, confluence of Ríos Quiwado and Tiwaeno.
April 21, 1981. *Davis et Yost 1005*.

The Waorani, who know this species as *wekaiwe*, scrape off, pound and topically apply the bark, which rapidly turns red, to eliminate mites and treat fungus infections.

Iryanthera Tessmannii Markgraf in Notizbl. 10 (1928) 236.

PERU: Departamento Loreto, Río Amazonas region of Iquitos, Uchpacano.
January 30, 1968. *Tina et Tello 2048*.

According to the collectors, this tree is medicinal for diarrhoeas: "Crush

up 25 grams of fresh bark of *cumala roja* and mix with a big cup of water, then filter it and drink all the liquid you get (must be a big cup) twice a day, during two days. Repeat it [whilst] diarrhoea continues. Only bark is used, not the other parts of the plant."

Iryanthera tricornis Ducke in Trop. Woods, no. 31 (1932) 11.

BRAZIL: Estado do Amazonas, Río Purús, vicinity of Jamamadi. Indian village, Río Apitua. July 1, 1971. *Prance, Maas et al. 13938.*

The collectors report that the "trunks" of this forty-foot tree, known locally as *balo*, are "used for making blow-pipes."

Iryanthera Ulei Warburg in Verh. Bot. Ver. Prov. Brand. 47 (1905) 137.

COLOMBIA: Comisaría del Vaupés, Río Apaporis, Soratama. September 28, 1961. *Schultes et Cabrera 14168.*

PERU: Departamento Loreto, Río Itaya, San Antonio. July 30, 1966.

Martin et Lau-Cam 1185.

The bark of this large tree is reduced to ashes by the Taiwanos and mixed with clay for making pottery.

In Peru, the "resin" of the bark is "put on cotton and applied to roof of mouth for 'patco', a disease where a white substance appears in a child's mouth."

Osteophleum platyspermum (A.DC.) Warburg in Nova Acta Acad. Leop.-Carol. 68 (1897) 162.

BRAZIL: Estado do Amazonas, Rio Negro, vicinity of Manáos, Reserva Ducke. April 11-14, 1972. *Schultes et Rodrigues 26126A.* — Rio Uneiuxi, Makú Indian village 300 km above mouth. October 23, 1971. *Prance, Maas et al. 15571.*

PERU: Departamento Loreto, Provincia Maynas, Río Ampiyacu, village of Tierra Firme. April 27, 1977. *Plowman, Schultes et Tovar 7095.*

The bark of *Osteophleum platyspermum*, locally called *cumala*, is one of the myristicaceous trees which the Boras do not use to prepare their hallucinogenic paste. A chemical analysis of the collection indicates that tryptamines are absent.

In the region of Manáos, the leaves are burned, and the smoke is inhaled for treating asthma. The Makú Indians of the Rio Uneiuxi, who call the tree *tugnebañpe* "drink the sap as a cure for coughs and colds."

Virola peruviana (A DC.) Warburg in Nova Acta Acad. Leop.-Carol 68 (1897) 188.

COLOMBIA: Comisaría del Amazonas, Río Amazonas, Leticia. October 9, 1961. *Idrobo 4699.*

ECUADOR: Provincia Napo, confluence of Ríos Quiwado and Tiwaeno. April 24, 1981. *Davis et Yost 1019.*

PERU: Departamento Loreto, Iquitos region, Picuruyacu, August 4, 1966. *Martin et Lau-Cam 1203.*

Amongst the Waorani, the inner bark is twisted to extract the sap which is applied to mites and infections of the skin. According to the collectors, the Waorani name *nankitawæ* "refers to the specific plant, but the generic term for infections and mites is *awamonkawæ*; *wangka* means sores." Another Waorani name which they report for this tree is *tegidewæ* in the Kento down-river dialect.

The collection *Idrobo 4699* gave a strongly positive alkaloid test with Dragendorff reagent.

In the Iquitos region of Peru, the "resin is used to stop bleeding from cuts."

URTICACEAE

Urea baccifera (L.) Gaudichaud in Freycinet, Voy. Bot. (1826) 497.

ECUADOR: Provincia Napo, confluence of Ríos Quiwado and Tiwaeno.

April 14, 1981. *Davis et Yost 956*.

Amongst the Waorani, who call this plant *wento*; the fruit is used "for all pain of aching muscles, arthritis, ant strings, azteca ants, fire ants and conga ants. It is also used to punish children and to confer strength."

The same uses for *Urea laciniata* Wedd. are reported for the Kofán of Ecuador (*Pinkley 171*).

PROTEACEAE

Euplassa saxicola (R. E. Schult.) Steyermark in Fieldiana, Bot. 28, no. 1 (1951) 217.

Roupala saxicola R.E. Schultes in Bot. Mus. Leafl., Harvard Univ. 13 (1949) 300, t. 33.

COLOMBIA: Comisaría del Vaupés, Río Macaya, Cerro Chiribiquete.

"Small tree. Fruit yellow." May 15-16, 1943. *Schultes 5457*.

Amongst the Karijonas of the upper Río Vaupés, the seeds of this small tree are considered to be toxic when ingested.

This species has been placed in a related genus, in accord with recent studies by Steyermark.

Panopsis rubescens (Pohl) Pittier in Contrib. Fl. Venez. 22 (1923) 1.

COLOMBIA: Comisaría del Amazonas, Río Amazonas, Soratama. "Small tree. Flowers white." August 16, 1951. *Schultes et Cabrera 13543*.

The leaves and stems of this tree are considered to be "medicinal" by Indians of the middle Apaporis region, but the specific uses were not elucidated; use of the plant, however, is stated to be dangerous, since it has the reputation of debilitating the patient.

Panopsis is reported to be one of the genera of the Proteaceae which accumulates minerals (Hegnauer: *Chemotaxonomie der Pflanzen* 5 (1969) 410).

OLACACEAE

Heisteria Spruceana Engler in Martius, Fl. Bras. 12, pt. 2 (1872) 15.

COLOMBIA: Comisaría del Vaupés, Río Apaporis, Jinogojé. "Small tree. Fruit yellow. Bracts red." June 20, 1952. *Schultes et Cabrera 16762*.

Amongst the Indians of the Ríos Apaporis and Piraparaná, this small tree is considered to be medicinal. Repeated applications of a warm, strong infusion of the leaves and branches are employed to reduce swelling and pain from sprains of the knees, ankles and wrists, especially those brought on from long paddling.

In the Makuna language, the plant is called *hě-ta'-soo-tee*; in Puinave, *choo-he-oo'-it* and *kön-pep'* ("tree of the coro-coro bird"); and in Tanimu *wy-ee-na-go'*.

Minquartia guianensis Aublet, Hist. Pl. Guian. Franc. Suppl. 4 (1775).

ECUADOR: Provincia Napo, confluence of Ríos Quiwado and Tiwaeno. April 20, 1981. *Davis et Yost 1002*.

The Waorani pound the bark in water to prepare a fish poison. They call the plant *kobakedwe*.

ANNONACEAE

Guatteria sp.

ECUADOR: Provincia Napo, confluence of Ríos Quiwado and Tiwaeno. April 20, 1981. *Davis et Yost 1011*.

Amongst the Waorani Indians, who know this plant as *menedowe* ("jaguar tree"), the bark is crushed and mixed with water, then rubbed on the head and shoulders to reduce fevers.

Guatteria Duckeana R. E. Fries in Acta Hort. Berg. 12 (1939) 468.

COLOMBIA: Comisaría del Vaupés, Río Vaupés, Cachivera de Tatú. "Tree 45 feet. Flowers green." October 10, 1966. *Schultes, Raffauf et Soejarto 24377*.

All parts of this tree are strongly alkaloid-positive with a Dragendorff spot test.

Guatteria dura R. E. Fries in Acta Hort. Berg. 12 (1939) 499.

COLOMBIA: Comisaría del Vaupés, Río Kuduyarí. "Tree 18 feet. Flowers yellow-green, cauliflorous." October 10, 1966. *Schultes, Raffauf et Soejarto 24391*.

The bark of this tree is strongly alkaloid-positive with a Dragendorff test; the leaves are slightly positive.

Guatteria modesta Diels in Notizbl. 9 (1924) 139.

PERU: Departamento de Loreto, Ushpacano, 2 hours from Iquitos. "Tree 10 m., 10 cm. diameter." January 12, 1968. *Tello et Tina 2037*.

This tree is known in the Peruvian Amazon as *carahuasca*. It is the source of a preparation thought to be contraceptive. The collectors' notes state: "Chop up the bark (only bark is used, not the other parts of the plant) and boil it in water for one minute; then take it out from the fire and leave it until it is tepid. Start to drink 1 cup in the morning and another at the

evening (it must be prepared about 6 o'clock). This preparation must be drunk during the menstruation, until it finishes. This prevents not to have baby."

Xylopia amazonica R. E. Fries in Acta Hort. Berg. 12 (1939) 562.

COLOMBIA: Comisaría del Amazonas, Río Apaporis, Soratama. "On highlands. Large tree. Flowers white. September 28, 1951. *Schultes et Cabrera 14146*.

Indians along the Río Apaporis take a tea made of the leaves and stems to induce sleep.

Xylopia aromatica (Lam.) Martius, Fl. Bras. 13, pt. 1 (1841) 43.

COLOMBIA: Comisaría del Amazonas, Leticia. August 17, 1964.

Fernández-Pérez 6856. — Río Igaraparaná, La Chorrera, June 6, 1942. *Schultes 3951*.

Comisaría del Vaupés, Río Vaupés, Mitú and vicinity. September 27–October 20, 1966. *Schultes, Raffauf et Soejarto 24179*. Río Vaupés, Urania. October 12, 1966. *Schultes, Raffauf et Soejarto 24393*.

The Witotos of the Río Igaraparaná value a weak tea of the leaves as a strong diuretic taken to reduce edema of the legs; according to the natives, it must be used with extreme caution. The seeds are dried and kept for use as carminatives by Indians suffering from digestive problems.

The collection *Fernández-Pérez 6856* was strongly alkaloid-positive with a Dragendorff spot test. *Schultes, Raffauf et Soejarto 24393*, on the other hand, was only slightly positive.

MONIMIACEAE

Siparuna sp.

ECUADOR: Provincia Napo, confluence of Ríos Quiwado and Tiwaeno.

April 13, 1981. *Davis et Yost 923*.

The Waorani crush the leaves and fruit and rub the material on the face and head for fevers and headache.

LAURACEAE

Nectandra globosa (Aubl.) Mez in Jahrb. Bot. Gard. Berlin 5 (1889) 415.

COLOMBIA: Comisaría del Amazonas, Río Amazonas, Leticia. "Large tree along shore. Height 80–90 feet, corpulent. Bark smooth, light brown. Flowers white, slightly aromatic." August 29–September 12, 1966.

Schultes, Raffauf et Soejarto 24124.

The bark of this tree is alkaloid-positive with a Dragendorff reagent spot-test; the leaves and twigs are alkaloid-negative.

Ocotea opifera Martius in Spix et Martius, Reise Bras. 3 (1831) 1128.

COLOMBIA: Comisaría del Vaupés, Río Vaupés, Mitú and vicinity. "Tree 30 feet tall. Fruit green. Fruits pulverized to mix with coca powder for certain dances." September 27–October 20, 1966. *Schultes, Raffauf et Soejarto 24421*.

The fruits are pulverized and mixed with coca powder for certain dance to make the effects of the coca "stronger." The leaves are alkaloid-negative in a spot-test with the Dragendorff reagent.

Ocotea simulans C. K. Allen in Mem. N.Y. Bot. Gard. 10 (1964) 99.
COLOMBIA: Comisaría del Vaupés, Río Vaupés, Mitú and vicinity. September 27—October 20, 1966. Small tree. Flowers yellowish. Leaves and twigs slightly alkaloid-positive. *Schultes, Raffauf et Soejarto 24174*. Same locality and date. *Schultes, Raffauf et Soejarto 24200*.

The leaves of *Ocotea simulans* are roasted and pounded with coca leaves for certain ceremonies. The reason for using the leaves of this lauraceous plant is said to be that the admixture imparts a more pleasant taste.

The leaves and twigs reacted positively to a spot test for alkaloids with Dragendorff reagent.

CAPPARIDACEAE

Crataeva Bentharii Eichler in Martius, Fl. Bras. 13, pt. 1 (1865) 265.
COLOMBIA: Comisaría del Amazonas, Río Amazonas near mouth of Río Loretoyacu. "Small tree. Flowers basally green; long filaments purple." September 13—15, 1966. *Schultes, Raffauf et Soejarto 24133*.

PERU: Departamento de Loreto, Iquitos region, Moyuy. "Small tree, 5 m. Flowers pale green." July 26, 1966. *Martin et Lau-Cam 1133*.

This tree, locally called *tamara* in Peru, is poisonous if taken internally, according to the collectors of the Peruvian collection. The fruit or bark are mixed with water and used to wash the skin for "lobosisso", a plague which turns the skin black.

The leaves and twigs of collection *Schultes, Raffauf et Soejarto 24133* are alkaloid positive with a Dragendorff spot test; the bark is negative.

In Brazil, the leaves and roots are said to be employed as a tonic and stomachic, and the juice of the leaves is used externally to relieve rheumatism (LeCointe, P.: *A Amazonia Brasileira* 3 (1934) 112).

Crataeva Tapia Linnaeus, Sp. Pl. (1753) 444.

COLOMBIA: Comisaría del Amazonas, Río Amazonas, near mouth of Río Loretoyacu. September 13—15, 1966. *Schultes, Raffauf et Soejarto 24156*.

The leaves of *Crataeva Tapia* are said by the Witoto Indians to be an effective stomachic in tea form.

CRASSULACEAE

Bryophyllum pinnatum Aschers et Schweinfurth, Ill. Fl. Egypte ex Mem. Inst. Egypt. 2 (1887) 79.

PERU: Departamento of Loreto, Iquitos, Uchpacano. "Cultivated herb." July 23, 1966. *Martin et Lau-Cam 1116*.

According to the collectors, this herb, known in Peru as *paichecara*, is

medicinally used: the leaves are mixed with a small amount of aguardiente and applied to the temples for headache, and a decoction of the leaves is drunk for "intestinal irritations."

CHRYSOBALANACEAE

Hirtella bullata Benth in Hooker, Journ. Bot. 2 (1840) 216.

COLOMBIA: Comisaría del Vaupés, Río Karurú. "Flowers white." April 12-15, 1953. *Schultes et Cabrera 19161*.

The bark is prepared in a tea to treat sore throats due to prolonged "gripa" (influenza).

In the Amazon of Brazil the bark of *Hirtella bracteata* Mart. et Zucc. is considered to be astringent (Le Cointe: loc. cit., 130).

Hirtella guainiae Spruce ex Hooker fil. in Martius, Fl. Bras. 14, pt. 2 (1867) 31.

COLOMBIA: Comisaría del Vaupés, Río Vaupés, Javareté. "Low bush. Flowers pale pink." May 14-24, 1953. *Schultes et Cabrera 19421*.

A tea of the bark is recommended as a gargle for sore throat.

Hirtella racemosa Lamarck var. *hexandra* (Willd. ex R. et S.) Prance in Fl. Neotrop., no. 9 (1972) 328.

COLOMBIA: Comisaría del Vaupés, Río Vaupés, between Mitú and Javareté, Arara Cachivera. "Low bush. Fruit dark red." May 14-24, 1953. *Schultes et Cabrera 19398*.

The bark and leaves of this bush are prepared in a tea which is taken as hot as possible "to open the throat" in cases of extreme respiratory ailments.

Licania apetala (E. Mey.) Fritsch in Ann. K.K. Naturh. Hofmus. Wien 4 (1889) 54.

COLOMBIA: Comisaría del Vaupés, Río Kananarí, Cerro Isibukuri. Tree. Diameter 15 in; height 75 feet. August 3, 1951. *Schultes et Cabrera 13276*.

In Spanish, this tree is called *cabio*. The Puinave name is *wan-choo'*; Kabuyari, *ka'-ve*; Kuripako, *ka'-ve*; Taiwano, *hna'-mwa*.

The bark is burned, and the ashes are mixed with clay to make strong ceramic pots.

Licania heteromorpha Benth in Mart. ex Hook. fil. Prance in Fl. Neotrop., no. 9 (1972) 108.

COLOMBIA: Comisaría del Vaupés, Río Kananarí. August 6, 1951. *Schultes et Cabrera 13416*. — Río Vaupés, Mitú and vicinity. "Fruit brown; large tree." September 27-October 20, 1966. *Schultes, Raffauf et Soejarto 24198*.

The leaves and fruits are slightly alkaloid-positive with a Dragendorff spot-test.

LEGUMINOSAE

Anadenanthera peregrina (L.) Spegazzini in Physis 9 (1923) 313.

In the Rio Negro area of Brazil, this tree, the seeds of which are the source of an hallucinogenic snuff called *paricá* or *yopo*, is today extremely rare. The tree grows most appropriately in open grasslands or savannahs never in heavy forests. The species is now very common in the upper Orinoco area and in the savannahs of the Rio Branco. It is rarely seen in the Rio Negro, where apparently it was once frequently cultivated.

Over a century ago, Spruce reported: "I first gathered specimens of the Paricá (or Niopo) tree in 1850 in Santarém at the junction of the Tapajóz and Amazon, where it had apparently been planted. In the following year I gathered it on the little river Jauauarí — one of the lower tributaries of the Rio Negro — where it was certainly wild." (A. R. Wallace [Ed.]: Notes of a Botanist on the Amazon and Andes 2 (1908) 426).

In my several years in the Rio Negro basin, I never encountered *Anadenanthera peregrina*, but Dr. Ghillean T. Prance located trees near the mouth of the Rio Uné, a small affluent of the Rio Negro. Dr. Prance writes: "The trees are in a field beside the river, where they grow in a group. They are regularly visited each year by a group of Yanomamo who harvest them."

It is interesting that certain plants, common enough apparently along the Rio Negro a century ago, are now nearly non-existent in the area. Another example is the guaraná plant, *Paullinia Cupana*, which, in Spruce's time, was apparently frequent all along the Rio Negro — obviously planted. Today, it is hardly ever seen along this river and, if so, is planted only as a curiosity.

Campsiandra laurifolia Benthham in Hooker, Journ. Bot. 2 (1840) 94.

COLOMBIA: Comisaría del Vaupés, Mitú and vicinity. "Flowers bright red, fragrant. Bush 9—10 feet." September 27—October 20, 1966. *Schultes et Raffauf et Soejarto 24247*.

PERU: Departamento de Loreto, Iquitos region. Río Itaya, San Antonio July 1966. *Martin et Lau-Cam 1189*. Departamento de Loreto, Provincia Maynas, Río Ampiyacu, Pebas. "Forest. Tree. 10 m. tall. Buds green." April 23, 1977. *Plowman, Schultes et Tovar 6990* (Alpha-Helix Amazon Expedition, Phase VII, 1977).

This species is alkaloid-negative with a Dragendorff reagent test (*Schultes et Raffauf et Soejarto 24247*).

In Peru, the common name of the tree is *huacapurana*. In the region of Iquitos, an alcoholic elixir is taken twice a day to allay malaria. The Witoto Indians on the Río Ampiyacu value the bark pulverized to aid in curing wounds.

Enterolobium sp.

ECUADOR: Provincia Napo, confluence of Ríos Quiwado and Tiwaeno. April 20, 1981. *Davis et Yost 1026*.

The Waorani crush the bark for use as a fish poison. Crushed and made

into an infusion, it is applied to the skin as a fungicide. The vernacular name amongst these Indians is *kenimowe*.

Hymenaea oblongifolia Huber in Bol. Mus. Goeldi 5 (1909) 386.

COLOMBIA: Comisaría del Amazonas, Río Miritiparaná, Caño Guacayá.
April 24, 1952. *Schultes et Cabrera 16257*.

Hymenaea oblongifolia, locally known as *jutar* in the Río Miritiparaná, is credited by the Yukuna Indians with medicinal properties. The resin is carefully gathered for use in fungal infections of the feet; it is painted on daily for a period of several weeks.

Hymenaea parvifolia Huber in Bol. Mus. Goeldi 5 (1909) 385.

COLOMBIA: Comisaría del Amazonas, Río Apaporis, Soratama. July 10, 1951. *Schultes et Cabrera 13003*.

The Taiwano Indians of the Río Kananarí have the same use for the resin of *Hymenaea parvifolia* as the Yukunas of the Río Miritiparaná have for that of *H. oblongifolia*.

Lonchocarpus Nicou De Candolle var. *languidus* (Aubl.) F. J. Hermann in Journ. Wash. Acad. Sci. 37 (1947) 111, fig. 1c.

ECUADOR: Provincia Napo, confluence of Ríos Quiwado and Tiwaeno.
April 20, 1981. *Davis et Yost 979*.

This forest liana is one of the fish poisons of the Waorani Indians. The root is employed.

Lonchocarpus Urucu Killip et Smith in Journ. Wash. Acad. Sci. 20 (1930) 81, fig. 4.

ECUADOR: Provincia Napo, confluence of Río Quiwado and Tiwaeno.
April 13, 1981. *Davis et Yost 968*.

Called *meneko* by the Waorani, the Indians employ the wood as a fish poison.

Mimosa pudica Linnaeus, Sp. Pl. (1753) 518.

ECUADOR: Provincia Pastaza, Río Chico, affluent of Río Pastaza, Village of Río Chico. "White flower." August 1979. *Shemluck et Nees 211*.

The Kechwa name for this plant in Ecuador is *punyosisa*. According to the collectors, the leaves are put in pillows for the elderly and children who cannot sleep.

Spartium junceum Linnaeus, Sp. Pl. (1753) 708.

ECUADOR: Provincia Azuay, along Río Tarquí, near Tarquí, 8300-9000 feet alt. "Erect shrubs to 3 m. Stems bright green. Floral parts bright yellow. An exceeding common escape on almost all dry slopes in the Cuenca area." March 7, 1945. *Camp E-2025*.

Provincia Canar, near village of San Marcos, northeast of Azogues.

"Shrubs to 1.5 m. Flowers yellow. The flowers are used to adorn the Mother of God." April 1, 1945. *Camp E-2501*.

This introduced shrub, known in highland Ecuador as *retama*, is believed to have abortifacient properties. According to Camp, "an infusion of the roots is taken by women who do not want children." The dried flowers are also "smoked as a cigarette for asthma."

GERANIACEAE

Geranium rhomboidale Moore in Gentes Herb. 8, fasc. 3 (1951) 255, t. 10

COLOMBIA: Comisaría del Putumayo, Páramo de San Antonio between La Laguna de La Cocha and the Valley of Sibundoy. Alt. 3000–3200 m. February 13, 1942. *Schultes 3238*. — Road from Sibundoy to Pasto, between La Maria and Páramo de San Antonio, Atl. 2900–3180 m. June 1, 1946. *Schultes et Villarreal 7825*.

In the Sibundoy Valley, the crushed leaves of *Geranium rhomboidale* are considered to have styptic properties.

SIMAROUBACEAE

Picramnia sp.

ECUADOR: Provincia Napo, confluence of Ríos Quiwado and Tiwaeno. April 20, 1981. *Davis et Yost 1032*.

The crushed flowers provide a purple dye. The Waorani name of the plant is *degintai-gip-enii*.

Picramnia Spruceana Engler in Martius, Fl. Bras. 12, pt. 2 (1874) 238.

ECUADOR: Provincia Napo, confluence of Ríos Quiwado and Tiwaeno. April 20, 1981. *Davis et Yost 1012*.

The Waorani know this plant as *degintai-gipenii*. They soak the reddish fruits and leaves overnight to produce a purple dye.

MELIACEAE

Trichilia cf. *singularis* C. DeCandolle in Martius, Fl. Bras. 11, pt. 1 (1878) 217.

COLOMBIA: Comisaría del Vaupés, Río Makú-Paraná. "Lowland forest." June 1–8, 1979. *Silverwood-Cope 16*.

The Makú Indians living near the Río Paraparaná know this plant as *ebep-ku-na*, signifying "poison medicine."

According to the collector "scrapings from stem and roots rubbed with water and drunk. This potion causes the taker to vomit out any poison he has been given to eat or drink."

Since the voucher collection is sterile, a definitive determination is not possible.

DICHAPETALACEAE

Tapura peruviana K. Krause ex Macbride var. *petioliflora* Prance in Fl. Neotrop., no. 10 (1972) 54.

COLOMBIA: Comisaría del Putumayo, Río Guineo, near Villagarzón.
November 21, 1968. *Plowman* 2042.

In the Colombian Putumayo, this plant is known as *calentura-caspi* ("fever-tree") or *chiric-caspi* (the same meaning). It is employed as a febrifuge.

CYRILLACEAE

Cyrilla racemiflora Linnaeus, Mant. 1 (1767) 50.

BRAZIL: Estado do Amazonas, Río Negro basin. Middle course of Río Curicuriari. January 1948. *Schultes et López* 9718.

COLOMBIA: Comisaría del Vaupés, Río Kuduyarí, Cerro Yapobodá. October 28, 1957. *Schultes et Cabrera* 14472. — Río Kananarí, Cerro Isibukuri. "Tree 10 feet tall." January 23–25, 1952, *Schultes et Cabrera* 15034. — Río Kubiyú, Savannah Kañendá. "Tree 20 ft. tall. Flowers whitish." September 27–October 20, 1966. *Schultes, Raffauf et Soejarto* 24263.

This plant is alkaloid negative with a Dragendorff spot-test.

The Indians of the Río Curicuriari in Brazil crush the leaves of *Cyrilla racemiflora* and vigorously rubbed the mass on sprains and muscular pains for relief.

CELASTRACEAE

Maytenus laevis Reissek in Martius, Fl. Bras. 11, pt. 1 (1861) 19.

COLOMBIA: Comisaría del Vaupés, Río Kubiyú, Savannah Kañendá. "Small tree. Flowers white." September 27–October 20, 1966. *Schultes, Raffauf et Soejarto* 24266.

This species is the famous *chuchuhuasca* of the Peruvian Amazon. The bark is believed to be a strong stimulant when taken in infusion.

ICACINACEAE

Pouraqueiba sericea Tulasne in Ann. Sci. Nat., ser. 3, 11 (1849) 172.

COLOMBIA: Comisaría del Vaupés, Río Piraparaná, Caño Teemeña. September 9, 1952. *Schultes et Cabrera* 17319. — Río Vaupés, between Mitú and Javaraté, Tipiaca. May 14–24, 1953. *Schultes et Cabrera* 19278. Comisaría del Amazonas, Río Karaparaná, El Encanto. March 20–April 2, 1970. *Schultes* 26084. — Río Amazonas, Leticia. August 29–September 12, 1966. *Schultes, Raffauf et Soejarto* 24012. — Same locality and date. *Schultes, Raffauf et Soejarto* 24055. — Same locality and date. *Schultes, Raffauf et Soejarto* 24082.

PERU: Departamento Loreto, Río Nanay, Mishana. February 19, 1969. *Plowman* 2491.

All Dragendorff spot-tests on this plant proved to be alkaloid-negative.

The tree and its fruit are widely known in Colombia and Peru by the Brazilian name *umarí*. In the Colombian Amazon, it is called *wa-mö'* by the Barasanas; *how* by the Puinaves; *mwa-mö'* by the Gwananos; *ma-mö-hoy-yë'*

by the Kubeos; and *ně-ka'-soo* (fruit) and *ně-ka'-na* (tree) by the Witotos.

The fruit is widely esteemed in the western Amazon, and the sparse pulp is frequently prepared in the form of a fermented chicha.

This species is apparently a cultigen unknown in the wild state.

SAPINDACEAE

Cupania scrobiculata Richard in Acta Soc. Hist. Nat. Paris 1 (1792) 109.

COLOMBIA: Comisaría del Vaupés, Río Vaupés, Mitú and vicinity. "Shrub Fruit red." September 27—October 20, 1966. *Schultes, Raffauf et Soejarto 24298*.

This plant is alkaloid-negative with a Dragendorff spot-test.

TILIACEAE

Luebeopsis Schultesii Cuatrecasas in Bot. Mus. Leaflet, Harvard Univ. 15 (1951) 49, t. 17.

COLOMBIA: Comisaría del Amazonas, Río Igaraparaná, La Chorrera and vicinity. June 4—10, 1942. *Schultes 3925*. — Same locality and date. *Schultes 3972*.

The Witotos call this beautiful species *mo-sě'-go-na*. The bark is boiled, and the resulting astringent tea is valued by the Witotos as a remedy for sore throat. The seeds are said to be roasted and eaten.

Mollia gracilis Spruce ex Bentham in Journ. Linn. Soc. Bot. 5 (1861) 59.

COLOMBIA: Comisaría del Amazonas, Río Loretoyacu. October 1946, *Schultes et Black 8431*.

The leaves in a hot tea are valued by the Tikunas as a treatment for "vomito negro", the selvatic form of yellow fever.

Mollia lepidota Spruce ex Bentham in Journ. Linn. Soc. Bot. 5, Suppl. 2 (1861) 59.

COLOMBIA: Comisaría del Vaupés, Río Apaporis, Soratama. September 25, 1951. *Schultes et Cabrera 14151*.

A tea of the bark of *Mollia lepidota* is esteemed by the Indians of the Apaporis River in treating stomach troubles resulting from food poisoning.

Triumfetta altheoides Lamarck, Encycl. 3 (1789) 420.

PERU: Departamento de Loreto, region of Iquitos. "Small shrub, 1 m.; flowers pale orange; stamens orange; fruit green, turning brown." July 26, 1966. *Martin et Lau-Cam 1160*.

According to the collectors, this shrub is known as *caballusa* and is "use for uterine complaints."

MALVACEAE

Malachra rudis Bentham, Pl. Hartweg. (1845) 164.

COLOMBIA: Comisaría del Vaupés, Río Vaupés, on summit of Cerro

Mitú. "Low shrub, 3 feet." September 27—October 20, 1966. *Schultes, Raffauf et Soejarto 24342.*

A spot-test for alkaloids with Dragendorff reagent was negative for this collection.

Sida cordifolia Linnaeus, Sp. Pl. (1753) 684.

COLOMBIA: Comisaría del Amazonas, Río Amazonas, Leticia. "Bush in secondary growth. Flowers pink." August 29-September 12, 1966.

Schultes, Raffauf et Soejarto 24085.

This collection gives an alkaloid-negative reaction to a Dragendorff spot-test.

BOMBACACEAE

Bombax coriaceum Martius, Nov. Gen. et Sp. 1 (1826) 93.

COLOMBIA: Comisaría del Vaupés, Río Karurú, Mesa de Yambí, Savannah

Goo-ran-hoo-dá. "Flowers white. Bush 2½ feet tall." April 15—16, 1953. *Schultes et Cabrera 19158.* — Río Kubiyú, Savannah Kañendá. "Bush 3 feet." September 27—October 20, 1966. *Schultes, Raffauf et Soejarto 24280.*

Bombax coriaceum gave an alkaloid-negative reaction to a spot-test with Dragendorff reagent.

Bombax globosum Aublet, Hist. Pl. Guian. Franç. 2 (1775) 701, t. 281.

COLOMBIA: Comisaría del Vaupés, Río Kananarí, Cerro Isibukuri.

"Large tree, 60—70 feet tall. Flowers yellow-white, petals yellow towards tip." September 29, 1951. *Schultes et Cabrera 14700.*

The "wool" from the fruit is mixed with resins or latexes and painted on wounds or ulcers as a kind of protective "skin." The Taiwanos call the tree *ka-ně-wee'-rě.*

Bombax Munguba Martius, Nov. Gen. et Sp. 1 (1826) 93, t. 99.

PERU: Departamento de Loreto, region of Iquitos, Moyuy. "Tree 25 m.

tall; fruit red." July 26, 1966. *Martin et Lau-Cam 1135.*

According to the collectors, a decoction of this plant, locally known as *punga, punga blanca* or *huina caspi*, is taken in Peru for snake bite.

Matisia cordata Humboldt et Bonpland, Pl. Aequin. 1 (1805) 9, t. 2.

COLOMBIA: Comisaría del Amazonas, Río Amazonas, near mouth of

Río Loretoyacu. "Tree 60 feet tall. Flowers yellow." September 13—15, 1966. *Schultes, Raffauf et Soejarto 24111.* — Same locality and date.

Schultes, Raffauf et Soejarto 24117.

The results of a spot-test for alkaloids with Dragendorff reagent gave the following results: bark doubtful; leaves positive.

Septotheca Tessmannii Ulbrich in Notizbl. 9 (1924) 129. Fig. 3.

COLOMBIA: Comisaría del Amazonas, Río Boiauassú, Trapecio Amazónico
 "Enormous tree with buttress roots. Flowers yellow-green, mucilaginous.
 November 1945. *Schultes* 6788. Same locality. "Sepals green-yellow.
 Tree 80 feet tall with great buttresses. Very common." October 27, 1946
Schultes 8612.

This anomalous member of the Bombacaceae is called *zapoterana* or *zapotilla* in the Trapecio Amazónico. It is a very rare element of the flora of this area.

STERCULIACEAE

Sterculia roseiflora Ducke in Arch. Inst. Bio. Veg. Rio Janeiro 2 (1935) 57.

COLOMBIA: Comisaría del Vaupés, Río Apaporis, Soratama and vicinity.

"Large tree. Flowers fragrant, reddish purple. On high land." September 28, 1951. *Schultes et Cabrera* 14143. This tree is locally known as *turí*. The stems are boiled in water to make an unusually strong diuretic tea.

MARCGRAVIACEAE

Souroubea guianensis Aublet var. *cylindrica* Wittmack in Martius, Fl. Bras. 12, pt. 1 (1878) 253.

COLOMBIA: Comisaría del Vaupés, Río Piraparaná, Caño Teemeña, Savannah O-koo'-më-gaw. "Bush. Growing from sand. Flowers green-yellow." September 6, 1952. *Schultes et Cabrera* 17238. — Río Piraparaná, Caño *E-ree-ee'-hö-mee-ö-kee*. September 18, 1952, *Schultes et Cabrera* 17510.

This species has been previously known only from British Guiana and Colombia. Amongst the Indians of the Río Piraparaná, a decoction of the leaves is given warm to induce sleep.

GUTTIFERAE

Caraipa sp.

COLOMBIA: Comisaría del Vaupés, Río Apaporis, Raudal Yayacopi. February 18, 1952. *Schultes et Cabrera* 15478.

Schultes et Cabrera 15478 is a sterile specimen and, therefore, cannot be identified to species. The latex is reportedly spread on the skin to relieve conditions of itching and a burning sensation.

Caraipa sp.

COLOMBIA: Comisaría del Vaupés, Río Apaporis, Raudal de Jerijerima. "Small tree." August 26, 1952. *Schultes et Cabrera* 17037.

Kubitzki, who has studied this specimen, believes that it may represent an undescribed species, but, since it lacks complete fruit, a definite disposition of the material is not possible.

The Tawainos and Makunas employ the "sap" of this plant to hasten the healing of skin sores. The Makuna name is *oo'-mö*.

Caraipa Duckeana Kubitzki in Mem. N.Y. Bot. Gard. 29 (1978) 124.

COLOMBIA: Comisaría del Vaupés, Río Kananarí, Cerro Isibukuri. "Latex white." January 23-25, 1952. *Schultes et Cabrera 15085*.

The Taiwano Indians state that the "sap" of this plant, applied to skin eruptions, is a certain cure.

Caraipa parvielliptica Cuatrecasas in Rev. Acad. Col. Cienc. 8, no. 29 (1950) 64.

COLOMBIA: Comisaría del Vaupés, Río Kananarí, Cerro Isibukuri. "Small tree." September 29, 1951. *Schultes et Cabrera 14692*.

The Puinave Indians know *Caraipa parvielliptica* as *choo-ně'-ka* and employ the latex to relieve skin irritations. A similar use of this species was recently reported for the Taiwanos of the Río Kananarí (*Schultes: Bot. Mus. Leaf., Harvard Univ. 29 (1983) 50*).

Lorostemon colombianum Maguire ex R.E. Schultes in Bot. Mus. Leaf., Harvard Univ. 18 (1958) 159.

COLOMBIA: Comisaría del Vaupés, Río Apaporis, Jinogojé (at mouth of Río Piraparaná) and vicinity. "Tree 6 m. high. Flowers outside red, greenish at base and red-spotted above; calyx green. Latex yellow." September 25, 1952. *Schultes et Cabrera 17619*. — Río Rikapuyá (tributary of Río Apaporis below mouth of Río Piraparaná). "Small tree 6 m. tall. Latex yellow. Flowers red. September 25-26, 1952. *Schultes et Cabrera 17638*.

The Puinave call this small tree *boo-kwan'*; the Makuna know it as *chee-hän'-hoo*; and the Makú of the Río Piraparaná refer to it as *tee-ran-ken'*.

Lorostemon stipitatus Maguire in Mem. N.Y. Bot. Gard. 10 (1963) 130.

COLOMBIA: Comisaría del Vaupés, Río Piraparaná, lower course. "Medium-sized tree. Sparse white latex." March 9, 1952. *Schultes et Cabrera 15910*.

The Makuna Indians of the Río Piraparaná know this tree as *o-hě'-wo-bök*.

Maburea exstipulata Benth. subsp. *Duckei* (Huber) Kubitzki in Mem. N.Y. Bot. Gard. 29 (1979) 138.

COLOMBIA: Comisaría del Amazonas, Río Amacayacu. September 1946. *Schultes 8251*.

A tea of the leaves has the local reputation of being good "for the blood."

Moronobea coccinea Aublet, Hist. Pl. Guian. Franç. (1775) 788, t. 313, exclud. figs. a-f.

COLOMBIA: Comisaría del Amazonas, Río Caquetá, La Pedrera and vicinity, Quebrada Tonina. "On high land. Large tree. October 5, 1952. *Schultes et Cabrera 17728*.

Comisaría del Vaupés, Río Vaupés, Mitú and vicinity. "Columnar tree 1½ feet in diameter. Height 90 feet. Crown sparse, all at top. Bark thick,

soft, roughish, brown outside, sandy inside. Latex abundant, yellow. Wood yellowish white. Flowers rose-red. September 8, 1951. *Schultes et Cabrera 13960*.

In the Vaupés, the Tukanó name of this tree is *woo-ha'-pee-ka-ně*, and the Taiwano call it *go-he'*. The Kabuyari in La Pedrera know it as *mau'-pa*. The Yukuna call the plant *koo-pee'*; the Kuripako, *koo-a'-see*; the Puinave, *boo-kwan'*; and the Tanimuka, *ree-ka'-wa-ree-ka*.

Moronobea riparia (Spr.) Planchon et Triana var. *fimbrillata* R. E. Schultes in Bot. Mus. Leaflet, Harvard Univ. 17 (1955) 15, pl. 5 (upper fig.).

COLOMBIA: Comisaría del Vaupés, Río Guainía, Puerto Colombia.

"Flowers greenish white. Stigmas and pistil bright green. Latex bright yellow. Bark thick, scaly, dark brown, corky. Tree storeyed. Height 40 feet. Diameter 14 inches." October 31–November 2, 1952. *Schultes, Baker et Cabrera 18206*. — Same locality and date. *Schultes, Baker et Cabrera 18210*.

The Puinave name of this beautiful variety is *möw*; the Kuripako call it *ma-ra'-kě*. In Spanish, the tree is known by the general term *breo* and in Lingua Geral as *i-rai'-kee*.

Platonia insignis Martius var. *formosa* R. E. Schultes in Bot. Mus. Leaflet, Harvard Univ. 17 (1955) 18.

COLOMBIA: Comisaría del Vaupés, Río Piraparaná, Raudal de La Olla.

"Tree 25 m. Columnar. Bark grey-brown, rough with scales. Flowers salmon-pink, petals curl out at edge. Receptacle thick, same colour. Latex cream-coloured. On rocks at falls. Crown not large." August 28, 1952. *Schultes et Cabrera 17062*. — Río Vaupés, mouth of Río Kerarí.

"Flowers salmon-pink. Columnar tree, diameter 28 inches. Latex resinous yellow. Anthers yellow. Bark shaggy, rich brown. Wood whitish. Latex used to light houses. Just above high water line. May 14–15, 1953. *Schultes et Cabrera 19342*.

The Tanimuka name of this plant is *oo-ka'-o-ree-kě*; the Yukunas call it *hě-pě'-la*. Amongst the Desana of the Río Vaupés, it is known as *ko-mě-pee'-go-rě*, while the neighbouring Tukanos refer to it as *ko-pai'-yo-ree*. In the related Makuna language, the name is *gö-he'-ree-ka*. The Puinave call it *kö*.

The seeds of *Platonia insignis* have an oil content of 0.5% (Hegnauer: loc. cit., 4 (1966) 221).

Symphonia globulifera Linnaeus fil., Suppl. (1781) 302.

COLOMBIA: Comisaría del Vaupés, Río Piraparaná, Caño Oo-moo'-ña.

"Large tree, 60 feet. Latex yellow. Bark brown." September 3, 1952. *Schultes et Cabrera 17163*.

The Makuna Indians of the Río Piraparaná burn the bark and apply the ashes to wounds. A similar use in the Río Apaporis has been reported for this species (*Schultes: Bot. Mus. Leaflet, Harvard Univ. 26 (1978) 234*).

Symphonia microphylla R. E. Schultes in Bot. Mus. Leafl., Harvard Univ.
17 (1955) 20, pl. 10.

COLOMBIA: Comisaría del Vaupés, Río Apaporis, Raudal Jerijerimo.
"Flowers red. Tree 45 feet. Latex yellow." November 27, 1951. *Schultes*
et Cabrera 14662.

The Indians of the Río Apaporis burn the bark to apply the ashes to
wounds that will not heal. The native names of this tree are: Puinave, *kö*;
Kuripako, *mai'-ne*; Yukuna, *main*. In Spanish, it is known as *brea*.

Symphonia utilissima R. E. Schultes in Bot. Mus. Leafl., Harvard Univ. 17
(1955) 22, pl. 10.

COLOMBIA: Comisaría del Vaupés, Río Apaporis, Jinogojé. August 17,
1952. *Schultes et Cabrera* 16885.

The Indians of the Río Apaporis employ ashes of the bark to help dry
open and festering wounds. The Makuna call it *go-he'-ree-ka*; the Tanimuka,
ma-ñe' and *ree-ka-va'*; the Yukuna, *main*; and the Puinave *kö* and *kö'-la*.
In Spanish, there is no distinction among the species of *Symphonia* — all
are called *brea*.

LECYTHIDACEAE

Lecythis sp.

COLOMBIA: Comisaría del Vaupés, Río Kuduyarí, middle and lower
course. Alt. about 700–800 feet. "Small tree. Flowers white. *Turí*."
October 16, 1952. *Schultes et Cabrera* 17883.

The bark of this tree is burned and the ashes are mixed with clay for
pottery making. The Kubeos call the tree *ka'-ma-kö*. The name of the tree
in Lingua Geral is *turí*.

ERICACEAE

Satyria panurensis (Benth.) Bentham et Hooker fil., Gen. Pl. 2 (1876) 568.
COLOMBIA: Comisaría del Vaupés, lower course of Río Piraparaná. March
9, 1952. *Schultes et Cabrera* 15912.

The root is reputedly very bitter and is chewed by the Makú Indians to
relieve pain of the gums due to rotting teeth.

MYRSINACEAE

Conomorpha citrifolia Mez in Pflanzenr. 4, Fam. 236 (1902) 256.
COLOMBIA: Comisaría del Vaupés, Río Piraparaná, Raudal Na-hoo'-gaw-hě.
"Flowers whitish yellow. Small tree along bank." September 1952.

Schultes et Cabrera 17593.

The bark of this tree is rasped into chicha to give the drink a peppery
taste.

The Puinave Indians call the plant *yoom-da'-ka* ("tree of the devil").

Conomorpha cf. *obovata* Mez in Bull. Herb. Boiss., ser. 2, 5 (1897) 535.
 COLOMBIA: Comisaría del Vaupés, Río Macú-Paraná. "Lowland forest."
 June 1-8, 1970. *Silverwood-Cope* 3.

The Bara-Makú of Caño Castaño call this plant *maw-ye'-at-puh* ("tooth bewitched root"). Scrapings from the root are placed on the tooth to allay the pain.

THEOPHRASTACEAE

Clavija sp.

ECUADOR: Provincia Pastaza, Río Chico. July 26, 1980. *Shemluch* 348.

The seed and root are employed in the village of Río Chico for treating diarrhoea.

APOCYNACEAE

Rhigospira quadrangularis (Muell.-Arg.) Miers, Apocyn. S. Am. (1878) 68.

COLOMBIA: Comisaría del Vaupés, Río Macaya. "Slender tree, 50 feet tall. Very abundant thick, white latex similar to but not that of juansoco. Bark thin, smooth with black-grey patches. April 1-7, 1943. *Schultes* 5357.

According to Dr. James L. Zarucchi, this collection, reported as *Neocoum Duckei* (*Schultes* in Acta Bot. Néerl. 15 (1966) 182), is now correctly called *Rhigospira quadrangularis*. It is used, under the local name *caimo morado*, to adulterate the latex of *Couma macrocarpa* Barb.-Rodr. in the upper Río Apaporis basin of Colombia. The tree is locally also called *palo de leche*.

Tabernaemontana Sananho Ruiz et Pavón, Fl. Peruv. 2 (1799) 22, t. 144.

PERU: Departamento de Loreto, Maucallacta, Río Parapapura. "Tree 3-4 meters. Flowers greyish white. *Yacu zanango*." January 1935. *Klug* 3942.

COLOMBIA: Comisaría del Amazonas. Río Loretoyacu, near Puerto Nariño around Laguna Dolfus. "N.v.-sanango. Hierba de hasta arbustiva de 3 m. Flores blancas." August 19, 1964. *Fernández-Pérez* 6867.

The collection *Fernández-Pérez* 6867 proves to be highly positive with a Dragendorff reagent test for alkaloids.

SOLANACEAE

Browallia speciosa Hooker in Bot. Mag. (1847) t. 4339.

COLOMBIA: Comisaría del Putumayo, Mocoa. December 3-7, 1942. *Schultes et Smith* 2018.

Amongst the Inganos, the leaves are chewed and packed around decayed and aching molars.

Brunfelsia Chiricaspi Plowman in Bot. Mus. Leafl., Harvard Univ. 23 (1973) 255, t. 17.

COLOMBIA: Comisaría del Putumayo, Umbría. "Forest. Shrub 1.5 m. Flowers sky-blue. Medicinal." October–November 1930. *Klug 1810*. — Forest 2 km southwest of San Pedro, road between Mocoa and Puerto Asís. November 28, 1968. *Plowman et Juajibioy 2081*. — Río Guamués, Santa Rosa. December 2, 1968. *Plowman 2092*. — Same locality, Santa Rosa. "A cold sensation is induced when any part of plant is ingested." November 28, 1966. *Pinkley 563*.

This shrub is known in the Putumayo as *chircaspi* and *sanango*. The Kofán Indian name is *covi-tsontinbako*.

The Kofáns, Inganos and other tribes of the Putumayo add the leaves of *Brunfelsia Chircaspi* to the narcotic drink prepared from the bark of *Banisteriopsis*. A wild plant, this species is preferred to the cultivated *B. grandiflora* subsp. *Schultesii* (Plowman loc. cit. 258).

Brunfelsia grandiflora D. Don in N. Edin. Phil. Journ (1829) 86.

COLOMBIA: Comisaría del Putumayo, Río Guineo, west of Villagarzón.

Cultivated. Shrub 3 m. high. Corolla violet, fading to white. Fruit subglobose capsular, 13 mm. diameter. November 21, 1968. *T. Plowman 2040*. — Same locality and date. *Plowman 2041*. — Río Guamués, Santa

Rosa. "Shrub 4 m. tall. Cultivated in 'plaza' of Kofán village. Trunk c. 10 cm. diameter. Corolla deep violet, fading to white. Odorless."

December 1, 1968. *Plowman 2091*. — Puerto Limón. "Cultivated shrub

3 m. tall in yuca plantation. Said to have been brought from nearby mountains. Corolla deep violet, fading to white. Fruit clusters inhabited

by ants." December 16, 1968. *Plowman 2151*.

ECUADOR: Provincia Napo, Tena. September 28, 1966. *Pinkley 460*.

Provincia Pichincha, Santo Domingo de los Colorados. November 18,

1974. *Plowman et Davis 4458*.

PERU: Departamento San Martín, Provincia Mariscal Cáceres, Distrito

Tocache Nuevo. June 16, 1970, *Schunke V. 4051*.

This shrub, known in the Putumayo as *chircaspi* or *picuru-chircaspi*, is widely employed in the form of a tea as a febrifuge in the westernmost Amazon. In Ecuador, the name *diamelo* is reported from Santo Domingo de los Colorados. The Peruvians know it as *chirisanango sacha*.

Brunfelsia grandiflora D. Don subsp. *Schultesii* Plowman in Bot. Mus. Leafl., Harvard Univ. 23 (1973) 259, t. 19.

COLOMBIA: Comisaría del Amazonas, Río Amazonas, Leticia. January 29, 1969. *Plowman, Lockwood, Kennedy et Schultes 2310*. — Río Loretoyacu, February 5, 1969. *Plowman, Lockwood, Kennedy et Schultes 2404; 2405; 2406; 2407*.

Comisaría del Putumayo, Río Putumayo, Puerto Ospina. November 2 1940. *Cuatrecasas* 10795. — Mocoa. December 26, 1940. *Cuatrecasas* 11275. — Camino Viejo, San Antonio, Mocoa. November 13, 1968. *Plowman et Juajibioy* 2008; 2009; 2010. — Mocoa. November 14, 1968. *Plowman et Juajibioy* 2018; 2019. — Pepino. November 29, 1968. *Plowman et Juajibioy* 2039. — Buena Vista. September 28, 1972. *Maniguaje* (for Langdon) 33.

Departamento del Cauca, Río Caquetá, Puerto Limón. December 20, 1968. *Plowman* 2171; 2174; 2175; 2183; 2184.

Intendencia del Meta, San Martín August 21, 1946. *Uribe* 1353.

ECUADOR: Provincia Napo, Tena. September 28, 1966. *Pinkley* 457, 458 459.

PERU: Departamento Loreto, Río Amazonas, Iquitos. January 24, 1932. *Mexia* 6444. — Alto Nanay. February 24, 1968. *Simpson et Schunke* 71. — Río Nanay, Samito. February 19, 1969. *Plowman et Tina* 2494; 2495 2499; 2518. — Río Nanay, Shiriana, February 21, 1969. *Plowman et Tin* 2533; 2534.

This cultivated bush represents one of the most important medicinal plants of the northwest Amazon. It has a number of local names referring to its property of causing sensation of chills when ingested in the form of an infusion or decoction, since the term *chiric* means "cold" in Ketchwa. In Ecuador, it is called *chiriguayuca*. The Peruvian name is *chircaspi*. In the Colombian Putumayo, there are names signifying what are recognized by native users as different "strains": *picuri chiricaspí*, *salvaje chiricaspí*, *pienc chiricaspí*, *chircaspí picudo*; in the Leticia area, it is referred to simply as *sanango*, signifying a medicinal plant; in the llanos area of the Colombian *Orinoquia* (*Uribe* 1353), the bush is known as *chiriquey*. The Siona Indians of the Colombian Putumayo call it *bi-a-huhu-hai* (*Maniguaje* 33).

In addition to their use as a febrifuge, the leaves of *Brunfelsia grandiflora* subsp. *Schultesii* are added to the hallucinogenic drink *ayahuasca* or *yajé* prepared from the bark of *Banisteriopsis Caapi* or *B. inebrians*. This addition greatly increases the effects of the drink and prolongs the intoxication.

Another medicinal use of this plant is as an anti-rheumatic: an infusion is ingested for several days to allay the effects of what is commonly described as "rheumatism."

Capsicum chinense Jacquin, Hort. Vindob. 3 (1776) 38, t. 67.

COLOMBIA: Comisaría del Vaupés, Río Kananarí, Cachivera Palito. July 25, 1951. *Schultes et Cabrera* 13138.

ECUADOR: Provincia Napo, confluence of Ríos Quiwado and Tiwaeno. April 18, 1981. *Davis et Yost* 993; 994. — Río Aguarico, Dureno. June 1966. *Pinkley* 259.

The Waorani, who called this pepper *giimo* and use the cultigen as a stomach remedy. A shaman's wife also administers this plant to help over-

come the effects of an intoxication with the hallucinogen *Banisteriopsis*. It is not employed as a spice in food.

The Kofán name is *t-ot-oa-kuma*, according to *Pinkley 259*.

Capsicum frutescens Linnaeus, Sp. Pl. (1753) 189.

COLOMBIA: Comisaría del Vaupés, Río Kananarí. "Cultivated. Fruit red."

July 25, 1951. *Schultes et Cabrera 13139*. — Soratama. "Small bush. Flowers green-yellow, anthers dark purple. Fruit said to ripen red. Cultivated. August 27, 1951. *Schultes et Cabrera 13752*.

The natives of the Río Apaporis eat the fruit raw to relieve flatulence.

Capsicum pubescens Ruiz et Pavón, Fl. Peruv. 2 (1799) 30.

COLOMBIA: Comisaría del Putumayo, Valle de Sibundoy. May 29, 1946.

Schultes et Villarreal 7598. Same locality. "Shrub, straggling 2.5 m. Corolla broadly ascending, purple with white base; stamens and style purple; stigma green. Fruit green, curved, 7 × 4 cm., crumpled, 2-3 ca pellate. Indian garden; infrequent. June 12, 1963. *Bristol 1115*. —

"Climbing 4 m. Pedicels erect and arching downward. Corolla purple with star-shaped white base, 5 segments; centres of segments outside nearly white. Fruit oblong, red. August 22, 1963. *Bristol 1335*.

The Kamsá Indians call this species of *Capsicum totsha'*, according to *Bristol*.

Cestrum lorentense Francey in Candollea 6 (1935) 225.

COLOMBIA: Comisaría del Amazonas, Río Loretoyacu. "Bush. Flowers greenish yellow." September–November 1944. *Schultes 6018*.

This bush is considered to be toxic by the Tikuna Indians.

Cestrum Humboldtii Francey var. *tenuiflorum* Francey in Candollea 6 (1935) 394.

COLOMBIA: Comisaría del Putumayo, Valle de Sibundoy. April 14, 1963.

Bristol 1043 — Same locality. May 27, 1963. *Bristol 1043*. Same locality.

June 15, 1963. *Bristol 1123*. Same locality. November 11, 1968. *Plowman 2002*.

The Kamsá Indians know this 15-foot tree as *shuangusha* and consider the purplish black fruit as poisonous.

Cyphomandra endopogon Bitter in Engler, Bot. Jahrb. 54, Beibl. 119 (1916) 16.

COLOMBIA: Comisaría del Putumayo, Río Sucumbios, Conejo. Bush. Leaves for dyeing pots black. Flowers green; anthers white. Fruits round, green, hard." April 2-5, 1942. *Schultes 3652*.

Comisaría del Amazonas, Puerto Nariño, mouth of Río Loretoyacu. August 19, 1964. *Fernández-Pérez 6863*.

A spot test for alkaloids with Dragendorff reagent was weakly positive (Fernández-Pérez 6863).

Iochroma fuchsoides (HBK.) Miers in Hooker, Journ. Bot. 7 (1848) 345.
COLOMBIA: "Arbol 5 m. Corteza cenizenta. Flores rojas. Kamsá = *Totubansush*. Medicinal." Sibundoy. February 1, 1963. *Chindoy* 52.

Iochroma is reputedly a medicinal and an hallucinogenic narcotic genus (Schultes: Journ. Psyched. Drugs 9 (1977) 45-49).

This collection is said by a Kamsá medicine-man to be "medicinal", but the specific uses were not available.

Iochroma gesnerioides (HBK.) Miers in Hooker, Journ. Bot. 7 (1848) 346.
COLOMBIA: Comisaría del Putumayo, Sibundoy; hill north of valley. Alt. 2220-2270 m. May 28, 1946. *Schultes et Villarreal* 7489. — Same locality. Alt. 2000 m. "Arbolito de 3 m. Flores rojas, péndulas. June 12, 1956. *Idrobo* 2235. — Same locality. October 8, 1965. *García-Barriga, Hashimoto et Ishikawa* 18602.

According to *Idrobo* 2235, this small tree, known in Kamsá as *totuphan sche*, is medicinal for treating pulmonary tuberculosis and, mixed with *Pilea involucrata* (Sims.) Urban, is applied to muscular swellings. *García-Barriga et al.* 8602 report the Kamsá name as *tetajansé* and state that the bark is used medicinally in treating wounds.

The small tree is called *guatillo* in Spanish.

Iochroma umbrosa Miers in Hooker, Lond. Journ. Bot. 7 (1848) 346.
COLOMBIA: Comisaría del Putumayo, Sibundoy. Hill north of Valley of Sibundoy. Alt. 2220-2270 m. "Tall shrub. Flowers red." May 28, 1946. *Schultes et Villarreal* 7489.

In the Valley of Sibundoy, this shrub is called *borrachera*, a term signifying that the plant is intoxicating but its actual use for psychoactive purpose has not yet been verified.

The use of *Iochroma fuchsoides* as a narcotic in the same region has been indicated above. There are several species of *Iochroma* in the southern Andes of Colombia and adjacent Ecuador, and it would not be surprising that they may be employed for similar effects.

Juanulloa ochracea Cuatrecasas in Brittonia 10 (1958) 148.
COLOMBIA: Comisaría del Putumayo, Río Caquetá, Puerto Limón. "Growing in secondary growth near chacra. Climbing shrub 3 m. tall, epiphytic on fallen tree trunk. Calyx red; corolla tube yellow, slightly zygomorphic, lobes recurved; stigma greenish." December 20, 1968. *Plowman* 2176.

Comisaría del Caquetá, Río Apaporis, Cerro de El Castillo. Shrub. Yellow flowers very fragrant. January 16, 1944. *Gutiérrez et Schultes* 620.

The natives of the uppermost Apaporis basin indicate that this curious plant has "magical properties."

Markea coccinea Richard in Act. Soc. Hist. Nat. Par. 1 (1792) 107.
 COLOMBIA: Comisaría del Vaupés, Alto Río Vaupés. January 1944.
Gutiérrez et Schultes 575. — Lagos de Pasos. February 19, 1944.
Gutiérrez et Schultes 859.

The red flowers of this vine are valued by the Karijona Indians of the uppermost Río Vaupés for use in magical ceremonies. The exact purpose in the magic was not ascertained.

Nicotiana Tabacum Linnaeus, Sp. Pl. (1753) 180.
 COLOMBIA: Comisaría del Amazonas, Río Igaraparaná, La Chorrera.
 "Flowers whitish pink; height 4 feet." June 4-10, 1942. *Schultes* 3917.

Comisaría del Vaupés. 1968. *Reichel-Dolmatoff s.n.*
 In the Herbario Nacional Colombiano, the collection *Reichel-Dolmatoff s.n.* has a most significant ethnobotanical annotation which is here presented.

"Barasana name — *wai-munoh*. Cultivated. Seeds planted in chacras. Young seedlings brought back and planted in beds around house. Beds are specially prepared and often have termites' nest mixed into the soil. The young seedlings are protected from sun with small cut palm fronds, but the mature plant grows without shade. Full grown plant about 4½-5 ft. high. The large leaf collected is about ¾ full size (i.e., maximum size). Flowers pink and white. . . No other plants in association. The leaf, flower head and seeds come from three *different* plants growing side by side, but the Indians said that they were all the same kind of tobacco. The plant is used to make snuff and smoking tobacco. 1) The leaves are dried in the sun and then pounded in mortar with the ash of burnt *yarumo* [*Cecropia sclerophylla*] leaves. This is then passed through a bark cloth sieve to make a fine powder which is blown up the nose as snuff. 2) The leaves are heated on a piece of broken pot *without* water till soft. They are then pounded in a mortar and then formed into a round cake within a frame and dried in front of a fire. The tobacco is rolled in the leaves of 'wild banana' [probably a species of *Heliconia*] and smoked in cigars."

Saracha procumbens (Cav.) Ruiz et Pavón, Fl. Peruv. 2 (1799) 43, t. 180.
 COLOMBIA: Comisaría del Putumayo, Valle de Sibundoy. May 29, 1946.
Schultes et Villarreal 7615. — Same locality. "Herb 1 m. Corolla yellowish green, ascending. Fruit subglobose, 1 cm., purple." January 17, 1963.
Bristol 475. — Same locality. "Herb 1 m. Calyx green, ribs dark; corolla yellow-green, rotate on broadly ascending; fruit 9 × 7 mm., with dark circumferential line. Indian garden, protected; very infrequent." July 7, 1963. *Bristol* 1191.

This herb, which, according to Bristol, grows wild but "is protected when spontaneous in cornfield," is called *chuftanguemesha* in Kamsá. That it is

protected may suggest a ceremonial use, but no economic value has been reported for the species.

Solanum appresum Roe in Brittonia 24 (1972) 263.

COLOMBIA: Comisaría del Putumayo, Mocoa. "Flowers violet; anthers yellow. Bush." December 3-7, 1942. *Schultes et Smith 2035*. In Mocoa the berries of this bushy *Solanum* are considered toxic if ingested.

Solanum grandiflorum Ruiz et Pavón, Fl. Peruv. 2 (1799) 35, t. 168.

COLOMBIA: Comisaría del Amazonas, Río Loretoyacu, Puerto Nariño. "Waste places in full sun. Small tree, 3 m. tall. Flowers violet. Fruits dully dark green at maturity." May 9, 1972. *Plowman 3224*. — Leticia. September 1946. *Schultes 8174*. — Puerto Nariño. January 2, 1972. *Smith 5047*.

The fruit is employed as soap for washing clothes. It is also valued in treating tumors.

Solanum lanceaefolium Jacquin, Coll. 2 (1788) 286.

COLOMBIA: Comisaría del Amazonas, Río Loretoyacu. October 30-31, 1946. *Black et Schultes 46-254; 46-276*.

This species is said to be poisonous.

Solanum liximitante R. E. Schultes in Bot. Mus. Leafl., Harvard Univ. 19 (1962) 248, t. 36.

COLOMBIA: Comisaría del Amazonas, Río Loretoyacu, Puerto Nariño. October 5, 1972. *Glenboski C-84*. Comisaría del Putumayo, Río Putumayo, between Puerto Asís and Puerto Legujamo. October 14-15, 1965. *García-Barriga, Hashimoto et Ishikawa 18696*. — Río Sucumbios, Conejo. April 2-5, 1942. *Schultes 3494*. — Road between El Pepino and Mocoa. July 23, 1960. *Schultes 22556*.

Comisaría del Vaupés, Río Vaupés, Miraflores. January 29, 1944. *Gutiérrez et Schultes 706*. — Río Kananarí, Cerro Isibukuri, at base. June 13, 1951. *Schultes et Cabrera 12418*. — Río Apaporis, between Ríos Kananarí and Pacoa. December 1-15, 1951. *García-Barriga 13969*. — Río Vaupés, Piracuara. November 27, 1952. *Romero-Castañeda 3801*. — Río Kuduyarí, near Savannah de Yapobodá. June 23-25, 1958. *García Barriga, Schultes et Blohm 16017*.

This cultivated bush, up to 9 feet tall, has edible red fruits. It is known as *coconilla* in the Río Loretoyacu region, as *cucuma* or *uilla* in the Putumayo. The Siona Indians call it *chirí*.

Solanum mammosum Linnaeus, Sp. Pl. (1753) 187.

COLOMBIA: Comisaría del Amazonas, Río Karaparaná. El Encanto. May 22-28, 1942. *Schultes 3808*.

Comisaría del Putumayo, Río Putumayo, Puerto Ospina. "Fruit bright yellow." March 23-25, 1942. *Schultes 3450*. — Río Sucumbios, Conejo.

"Cockroach killing plant. Fruit yellow. Flowers purple; anthers yellow."

April 2-5, 1942. *Schultes* 3651.

Amongst the Kofán Indians, the ripened fruits of *Solanum mammosum* are left in numerous places in their houses to alienate cockroaches.

Solanum ovalifolium Humboldt et Bonpland ex Dunal, *Solan. Syn.* (1816) 37.

COLOMBIA: Comisaría del Putumayo, Sibundoy. May 28, 1946.

Schultes et Villarreal 4518. -- Same locality. October 30, 1962. *Bristol* 321.

This 12-foot tree is considered "medicinal" by the Indians of Sibundoy. The fruits are used as soap. The common name is *gujaco* or *ujaco*.

Solanum rugosum Dunal in De Candolle, *Prodr.* 13, 1 (1852) 108.

COLOMBIA: Comisaría del Amazonas, Río Caquetá, La Pedrera. April 1944. *Schultes* 5878.

Comisaría del Vaupés, Río Vaupés, Miraflores. February 2, 1944.

Gutiérrez et Schultes 724.

In the vicinity of La Pedrera, the natives consider the leaves and roots of this plant as toxic.

Solanum sessiliflorum Dunal, *Solan. Syst.* (1816) 43.

ECUADOR: Provincia Napo, confluence of Ríos Quiwado and Tiwaeno.

April 13, 1981. *Davis et Yost* 918.

The Waorani rub the juice into the scalp to cleanse and polish the hair. It is drunk to prevent vomiting following scorpion stings, and, when boiled, it is rubbed on spider bites to heal necrotic tissue.

Solanum straminifolium Jacquin, *Misc.* 2 (1781) 298.

COLOMBIA: Comisaría del Amazonas, Río Caquetá, La Pedrera. April 1944. *Schultes* 5883.

Comisaría del Vaupés, Río Apaporis, Mouth of Río Pacoa. "Cultivated.

Flowers white; purple anthers. Fruit ripens red. Petals purple outside."

June 17, 1951. *Schultes et Cabrera* 12586. -- Río Piraparaná. August

28-31, 1952. *García-Barriga* 14256. -- Río Vaupés, Cachivera de Yuru-

parí. October 24-26, 1952. *García-Barriga* 14946. -- Piracuara. Novem-

ber 27, 1952. *Romero-Castañeda* 3777. -- Río Kuduyarí. September 6-8,

1956. A. S. *Barclay, Schultes et Cabrera* 587; 617.

This 6-foot bush with striking white flowers and red berries is cultivated as a source of edible fruits. It is called *kobuiá* in Kubeo; *mai'-ya-vee* in Kuripako; *e-to-pa-a* in Tukano.

Solanum subinerme Jacquin, *Enum. Pl. Carib.* (1762) 15.

COLOMBIA: Comisaría del Amazonas, Río Igaraparaná, La Chorrera. June 4-10, 1942. *Schultes* 3902.

Comisaría del Vaupés, Río Vaupés, Mitú. September 27—October 20 1966. *Schultes, Raffauf et Soejarto 24244*.

The Witoto Indians of La Chorrera put the ripened fruit into fermented cassava (*Manihot esculenta*) to give it a peppery taste.

The leaves of the collection *Schultes, Raffauf et Soejarto 24244* are alkaloid-positive with a Dragendorff spot-test.

Solanum Topiro Humboldt et Bonpland ex Dunal, Solan. Syn. (1816) 10.

COLOMBIA: Comisaría del Amazonas, Río Caquetá, La Pedrera. April 1944. *Schultes 5881*. — Río Loretoyacu. September 1946. *Schultes et Black 8394*. — Same locality. August 14, 1972. *Glenboski C-21*.

Comisaria del Putumayo, Río Putumayo, between Puerto Asís and Puerto Leguizamo. "Lulo grande." October 14—15, 1965. *García-Barrig Hashimoto et Ishikawa 18704*.

Comisaría del Vaupés, Río Apaporis, mouth of Río Pacoa. Flowers greenish white. Fruit orange-red, hairy. Bush. Cultivated. June 17, 1951. *Schultes et Cabrera 12602*. — Río Vaupés, Yavareté. November 12, 1952. *Romero-Castañeda 3686*. — Río Vaupés, Mitú. June 22—30, 1958. *García-Barriga, Schultes et Blohm 15771*.

This commonly cultivated fruit bush is called *lulo*, *tupiru* or *topiro* in the Colombian Amazon. The Kuripakos refer to it as *ma-rě'-da*.

RUBIACEAE

Calycophyllum acreanum Ducke in Arch. Inst. Biol. Veg. Rio Jan. 2 (1935) 70.

ECUADOR: Provincia Napo, confluence of Ríos Quiwado and Tiwaeno. April 28, 1981. *Davis et Yost 1041*.

The Waorani call this plant *oo-yowe*. The shredded bark is placed in water and applied to fungal infections known as *wangga*.

Duroia Linnaeus fil.

In an earlier paper (*Schultes: Bot. Mus. Leaflet*, Harvard Univ. 22 (1969) 151—156), I indicated that the native uses of a number of species of *Duroia* argued for increased chemical investigation of the genus. Furthermore, reports from natives (*Schultes; loc. cit.*) affirming the poisonous properties of the seeds of several species calls attention to the need for phytochemical studies guided by ethnopharmacological observations.

Additional notes are herewith appended.

Duroia hirsuta (P. et E.) K. Schumann in Martius, Fl. Bras. 6, pt. 6 (1889) 367.

COLOMBIA: Comisaría del Putumayo, Río Caquetá, Puerto Limón: February 27, 1942. *Schultes 3320*.

ECUADOR: Provincia Napo, confluence of Ríos Quiwado and Tiwaeno. April 15, 1981. *Davis et Yost 966*.

The Waorani know this treelet as *owekawe*. They rub the pheromes of the ants living in the swollen parts of the stem on the inside of the cheeks "to relieve the pain of too much use of the blowgun".

The Kofán Indian name of *Duroia hirsuta* in the Putumayo is *sha-ka-ker-na'sè*. The Spanish names in the region are *taruquillo* and *solimán*.

The use of the caustic bark of this small tree to make a blue-black mark on the arms has been previously reported (Schultes: Bot. Mus. Leaflet, Harvard Univ. 29 (1983) 364).

Duroia kotchubaeoides Steyermark in Mem. N.Y. Bot. Gard. 12 (1965) 201.
COLOMBIA: Comisaría del Vaupés, Río Guainía, Puerto Colombia and vicinity. "Small tree. Flowers white." October 31–November 2, 1952, Schultes, Baker et Cabrera 18211.

A Dragendorff spot test for this species is alkaloid-negative. The seeds are said by the natives to be poisonous when eaten.

Duroia petiolaris (Spr.) Hooker fil. ex K. Schumann in Martius, Fl. Bras. 6, pt. 6 (1889) 364.
COLOMBIA: Comisaría del Amazonas, Trapecio Amazónico, Río Loretoyacu. October 1945. Schultes 6727.

The Tikuna Indians assert that the seeds of this species are dangerously toxic if ingested.

Duroia saccifera (Mart.) Hooker fil. ex K. Schumann, in Martius, Fl. Bras. 6 (1889) 362, t. 146, fig. 1.
COLOMBIA: Comisaría del Amazonas, Río Apaporis, Soratama and vicinity. March 26, 1952. Schultes et Cabrera 16063.

A spot test with Dragendorff reagent indicates that this collection is doubtfully alkaloidal. The seeds are said by the natives to be toxic if ingested.

Ixora acuminatissima Mueller-Argoviensis in Flora 58 (1875) 454.
COLOMBIA: Comisaría del Vaupés, Río Negro, San Felipe. "Flowers pink." November 6, 1952. Schultes, Baker et Cabrera 18290.

The non-indigenous population of the upper Río Negro believe that the reddish flowers of *Ixora acuminatissima* are "good for poor blood."

Pentagonia spathicalyx K. Schumann in Martius, Fl. Bras. 9, pt. 6 (1889) 302.

ECUADOR: Provincia Napo, confluence of Ríos Quiwado and Tiwaeno. April 15, 1981. Davis et Yost 971.

The Waorani, who call this plant *boyamo* ("sting ray leaf"), drink a tea of the fruit in the treatment of wounds inflicted by the tail of the sting ray. The leaf has the shape of the sting ray.

Sipanea glomerata Humboldt, Bonpland et Kunth var. *paucinervia* Steyermark in Mem. N. Y. Bot. Gard. 17 (1967) 282.

COLOMBIA: Comisaría del Vaupés, Río Negro, San Felipe. October 26, 1952. *Schultes, Baker et Cabrera 18065; 18094; 18113.*

The leaves of *Sipanea glomerata* var. *paucinervia* are believed by the non-indigenous people of the uppermost Río Negro to have "purgative and vomitive" properties when taken in the form of a decoction.

Sipaneopsis rupicola (Spr. ex Schumann) Steyermark in Mem. N.Y. Bot. Gard. 17 (1967) 285.

COLOMBIA: Comisaría del Vaupés, Río Macaya, Cerro Chiribiquete. May 15-16, 1943. *Schultes 5448.*

This collection is the type of *Rondeletia rupicola* Spruce ex Schumann var *chiribiquetana* R. E. Schultes.