A New Hallucinogen from Andean Colombia: *Iochroma fuchsioides*

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While many hallucinogenic plants are widely employed, others are restricted in their use to a very limited geographic area or to one or several groups of people. These highly restricted hallucinogens are often understandably the least known and most in need of study in several fields of investigation. There are sundry examples, of which in the New World the following may well be listed: Lycoperdon spp., *Cytisus canariensis* (L.) O. Ktze., Rhynchosia spp., *Heimia salicifolia* (HBK.) Link, *Calea Zacatechichi* Schlecht. in Mexico; *Mimosa hostilis* (Mart.) Benth. in eastern Brazil; *Anadenanthera colubrina* (Vell.) Brenan in Argentina; *Tetrapteris methystica* R.E. Schult., Brunfelsia spp., *Maquira sclerophylla* (Ducke) C.C. Berg in the Amazon; *Justicia pectoralis* Jacq. in the upper Orinoco and northwest Amazon; Petunia spp., *Coriaria thymifolia* H. et B. ex Willd., *Gomortega Keule* (Mol.) I.M. Johnston, *Lobelia Tupa* L., *Desfontainia spinosa* R. et P. and *Latua pubiflora* (Griseb.) Baillon of the Andes; and others.

The need for further study most assuredly applies to one of the most recently discovered hallucinogens: a species of the poorly understood solanaceous genus Iochroma of the Andean regions of southern Colombia.

When I began my ethnobotanical research in southern Colombia in 1941, my attention was early called to a beautiful shrub abundantly cultivated in Sibundoy, a mountain-girt valley at about 6700 feet, east of the Colombian city of Pasto, where the resident Indians – Kamsás and Inganos – employ numerous hallucinogens in their magico-religious and medical rituals. This plant has been identified as *Iochroma fuchsioides* (HBK.) Miers.

The use of the vernacular name *borrachero,* the very special care given to the cultivation of the plant and vague reports from medicine-men all combined to suggest that *Iochroma fuchsioides* might be employed as an hallucinogen. It was not until recently, however, that reliable information has indicated that this species is indeed one of the numerous magico-religious narcotics used in the northern Andes.

In February 1946, I made a botanical collection (*Schultes 3208*) in the Valley of Sibundoy to which was attached the following annotation: "Leaves crushed and taken in water by medicine-men as a narcotic." Another collection (*Schultes et Villarreal 7489*) made in Sibundoy in May 1946, likewise indicated use of the plant as an hallucinogen.

In 1960, Bristol reported the narcotic use of Iochroma on one of his collections from Sibundoy (*Bristol 260*). In his final report on the ethnobotany of this area, however, presented as a doctoral thesis at Harvard University in 1965, Bristol indicated that "a report of narcotic use in 1960 (*Bristol 260*) is apparently incorrect."

A number of years later, in 1972, Weil visited Sibundoy to study medical practices of the Indians and reported the following concerning this enigmatic plant (letter to Schultes, 2 June 1972): "One thing that did come out of the afternoon: Salvador's (Salvador Chindoy) son was there, and he was a bit more gabby than his father about Iochroma. He said the root was

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Salvador Chindoy, famous medicine-man
of the Kamsá Indians, Sibundoy, Colombia.

Photo: R.E. Schultes

used in childbirth when a woman's own powers failed her and labor stalled after a time. An infusion of the root supposedly stimulates labor. He also said that the flower contained a 'mystery' and was used along with the stem to affect the mind. However, another *brujo* in town, named Pedro Juajibioy Chindoy (no relation) did not confirm these uses."

During field studies in 1974, I was able to discuss more thoroughly than before the role of *Iochroma fuchsioides* with the Kamsá medicine-man Salvador Chindoy in Sibundoy. This red-flowered shrub is assiduously cultivated in the medicinal garden surrounding Chindoy's house, and it is planted in an area dedicated solely to this species and the several atrophied forms of *Datura candida* Pasq. and to *Methysticodendron Amesianum,* R.E. Schult., both hallucinogenic narcotics which Chindoy employs extensively in his practice.

In earlier interviews over the years, Chindoy had indicated that *Iochroma fuchsioides* was employed for cholic, stomach ache or difficulties with digestion and with bowel functions. No hint of its use as a "super-medicine" enabling the medicine-man to diagnose through contact with the supernatural could be directly elucidated. In this recent interview, however, Chindoy offered the information that, in addition to its use for curing purely physical ills, a decoction of the leaves of *Iochroma fuchsioides* is sometimes taken in cases of especially difficult diagnosis, prophecy or divination. It is not employed unless the other "borracheros," which are considered weaker, fail to give results: the reason being that the medicine-man may be ill for at least a day following ingestion of the decoction.

When *Iochroma fuchsioides* is utilized hallucinogenically, a handful of rasped fresh bark from the stem and an equal amount of fresh leaves are boiled in water to make a tea, which, when cooled, is simply drunk. From one to three cupfuls of a strong decoction over a three hour period is said to be a usual dose for hallucinogenic use.

Chindoy further ventured the information that the medicine-men in the "old days" used *Iochroma fuchsioides* much more frequently. When an overdose of the decoction of this shrub causes excessive malaise or when the decoction is exceptionally potent, leading to an unduly long period of recuperation, medicine-men take a tea prepared from the sudorific *Hedyosmum translucidum* Cuatr., a shrub common in the high moors of *páramos* surrounding the Valley of Sibundoy.

In addition to its use in aiding in cases of difficult childbirth, this plant is utilized to relieve a number of physical ills. The bark of the roots and trunk are purgative, employed especially when there is internal bleeding. The root is rasped and eaten raw with salt when internal injury is suspected following a severe blow. The root, together with several other plant ingredients of unknown origin, is said to be utilized to combat "heart weakness" and dysentery.

In the Sibundoy area, *Iochroma fuchsioides* is known by a number of vernacular names. In Spanish, it is called *arbol de campanilla* (little bell tree, in allusion to the small, tubular flowers); *borrachera* (intoxicant); *borrachera andake* (this vernacular name is given also to one of the atrophied races of *Datura candida* which these Indians cultivate and use as a ritual hallucinogen and medicine); *flor de quinde* (humming bird flower, referring to the fact that the bird feeds on the flowers); *quatillo; nacadero* (spontaneous, because the plant springs up as a ruderal); *paguando.* In the Kamsá language, the name is *totubjansush; totubjansushe; tatujansuche; totufjansush; totubjanshve; tetajuanse; dotujuanseshe.*

Bristol seems to believe that this small tree may have been imported into the Sibundoy Valley. "Its status in the Valley of Sibundoy is uncertain: it occurs almost entirely within horticultural and dwelling areas, yet it is not known to have been purposely propagated there. Perhaps it is a ruderal species. The writer has not seen seedling plants, though the name *nacadero* may imply their existence."

The range of *Iochroma fuchsioides* (including *I. umbrosa*) as now known is restricted to the Andes of southern Colombia and northern Ecuador, but, if we are to judge from the number of collections in our herbaria, its center of distribution is the region between Pasto and the Valley of Sibundoy. There is no question but that it is most abundant in the Valley of Sibundoy, a condition which may well be attributed to the importance of the plant in local folk medicine. The type of *Iochroma fuchsioides* was collected in Loja, Ecuador.

Chemical analyses of *Iochroma fuchsioides* have not yet been published. Raffauf has had positive tests for alkaloids in the plant, and, judging from its botanical relationship, it would seem that the alkaloids are probably tropanes.

Iochroma Bentham is a genus of some 25 species of shrubs and small trees of the tropical parts of western South America. The generic name is conserved. In von Wettstein's classification of the Solanaceae, Iochroma belongs to section Solaneae, but according to Walpers it is closely related to Cestrum and belongs in section Cestrae. Sleumer includes it in Solaninae. Macbride reduces Iochroma to synonymy under Dunalia (without making the necessary new combination) on reasons that

Flowering branches of *Iochroma fuchsioides* (*Schultes 26304*) at Botana, near Pasto, Colombia.

Photo: R.E. Schultes

would appear to be trivial.

Examination of the material presently available seems to indicate the advisability of considering *Iochroma fuchsioides* and *I. umbrosa* as representing one species-concept. Consequently, the latter binomial is here reduced to synonymy under the former.

Iochroma fuchsioides (HBK.) Miers in Hooker Lond. Jour. Bot. 7(1848)346.
Lycium fuchsioides Humboldt et Bonpland pl. Aequin. 1(1808)147.
Chaenesthes fuchsioides (HBK.) Miers in Lond. Journ. Bot. 4(1845)337.
Lycium umbrosum Humboldt, Bonpland et Kinth Nov. Gen. et Sp. 3(1818)42.
Chaenesthes umbrosa (HBK.) Miers in Hooker Lond. Journ. Bot. 4(1845)337.
Iochroma umbrosa (HBK.) Miers in Hooker Lond. Journ. Bot. 7(1848)346.

Shrub or small tree, usually 10-15 feet but occasionally up to 18-20 feet tall, densely branched, unarmed. Branches red-brown, tomentellous. Leaves obovate-oblong, rather obtuse, 10-15 cm. long, 5.5-9 cm. wide, above more or less glabtous, beneath white-tomentellous, brown-tomentellous along veins; petiole brown-tomentellous, 20-30 mm. long. Flowers in axillary and terminal umbel-like clusters, multiflorous; pedicels ashy-tomentellous. Flowers red, 25-35 mm. long, usually 8-9 mm. but occasionally up to 11 mm. wide at mouth. Calyx bilobed, subglabrous, brown-tometellous, marginally very short and unequally 5-dentate, about 5 mm. long. Corolla campanulate-tubular, flaring conspicuously at mouth, tomentellous (rarely subglabrous) without, rather puberulent within. Stamens included or hardly exserted, with slightly swollen and pubescent filaments. Stigma greenish. Fruit baccate, red, ovate or pyriform, acute or acuminate, 15-25 mm. long, 6-15 mm. in diameter, invested with an enlarged calyx split to the base.

Flowering and fruiting branches of *Iochroma fuchsioides* (*Schultes et Villarreal 7489*) at Sibundoy, Colombia.

Photo: R.E. Schultes

Specimens examined

The specimens cited are preserved in the Economic Herbarium of Oakes Ames and the Gray Herbarium of Harvard University and/or in the Herbario Nacional de Colombia, Bogotá.

COLOMBIA: Comisaría del Putumayo, Valle de Sibundoy, vicinity of San Pedro. Alt. c. 2250 m. "Bush. Said to be poisonous. Corolla bright vermillion. Leaves crushed and taken in water by medicine-men as a narcotic: 'Can see things as with Yajé.' Kamsá name: *borrachera andake*; Spanish name: *borrachera*." February 12, 1942. *R.E. Schultes 3208.*

Same locality. Hill north of valley. Alt. 2220-2270 m. "*Borrachera.* Tall shrub. Flowers red." May 28, 1946. *R.E. Schultes et M. Villarreal 7489.*

Same locality. Alt. 2200 m. "Bush, Flowers red. 15 feet tall. *Borrachera.*" July 25, 1960. *R.E. Schultes 2253A.*

Same locality. "*Dotu-juan-seshe* (Kamsá). Narcotic. Protected tree, 2.5 m. Corolla red. August 12, 1960. *M.L. Bristol 260.*

Same locality. 1.5 km. from Sibundoy. "Medicinal. Tree 3.5 m. Corolla red. Style white. Stigma green. Berry ovate, somewhat red." June 26, 1963. *M.L. Bristol 1160.*

Same locality. 5 km. south of Sibundoy. Alt. c. 2200 m. "Tree 4 m. Corolla red, limb recurved, stigma green; fruit conic-ovoid, more or less red. *Totubjansushe.* Medicinal." July 12, 1963. *M.L. Bristol 1200.*

Same locality. 5 km. from Sibundoy. Alt. c. 2220 m. "*Totubjansush.* Medicinal. Arbol 5 m. Corteza cenizenta. Flores rojas." February 1, 1963. *P.J. Chindoy B52.*

Same locality. Huerto de Salvador Chindoy. Alt. 2200 m. "N.v. *guatillo, tetajanse* en Kamsá. Arbolito de 3 m. Floers rojas, tubulares. Frutos verdes. La corteza es medicinal para heridas." October 8, 1965. *H. García-Barriga, Y. Hashimoto et M. Ishikawa 18602.*

Same locality. "V.n. *totujansushe* (Kamsá). Tree 5 m. tall. Calyx red. Corolla red, slightly zygomorphic. Stamens cream. Leaves dull green. Fruit a berry, turning reddish at maturity. Commonly found in houseyards and along fencerows." November 11, 1968. *T. Plowman 2001.*

Same locality. "Bush 8 feet tall. Flowers red." May 5, 1972. *R.E. Schultes 26329.*

Same locality. "In garden of medicine-man Salvador Chindoy. Bush 6 feet tall. Flowers red." May 6, 1972. *R.E. Schultes 26349.*

Departmento de Nariño, Pasto, Agricultural Experiment Station, Alt. 2850 m. May 28, 1965. *H.W. Vogelmann 2001.*

Departmento de Nariño, Botana, near Pasto. Alt. 2800-3000 m. "Bush 8 feet tall along roadside. Flowers blood-red. Common name: *paguando.*" May 5, 1972. *R.E. Schultes 26304.*

Same locality. "Bush 20 feet tall. Flowers red." May 6, 1972. *R.E. Schultes 26355.*