Novelties in Erythroxylum (Erythroxylaceae) of the Greater Antilles

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Published By: Botanic Garden and Botanical Museum Berlin (BGBM)
URL: https://doi.org/10.3372/wi.33.33120
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Novelties in *Erythroxylum* (*Erythroxylaceae*) of the Greater Antilles

Abstract


Three new Antillean species of *Erythroxylum* are described: *E. mogotense* and *E. banaoense* from Cuba and *E. domingense* from Hispaniola. The main diagnostic characters are leaf morphology, stipules and number of flowers per axil. Phenology, ecology and chorology are also relevant criteria. *E. williamsii*, described from Venezuela, is a new record for Hispaniola.

Introduction

*Erythroxylum* is the largest and most difficult genus of *Erythroxylaceae*, with over 250 mostly neotropical species. It presents major taxonomic problems due, not only to the large number of its taxa, but also to the high variability of its vegetative features (those of the stems, twigs, brachyblasts and leaves), and conversely, the paucity of variation in reproductive structures (sepals, petals, stamens, ovaries and fruits). In the last few decades our knowledge of the genus has improved substantially, thanks to increasingly sophisticated studies. Notably, *Erythroxylum* has been treated in several country or local floras, both on the American continent and the Caribbean islands. According to these studies, the Antillean species of *Erythroxylum* are 33 in number.

Material and methods

Material (now in HAC) and observations gathered during 20 years’ field work form the basis of my treatments of *Erythroxylum* for the “Flora de la República de Cuba” and the “Flora de las Antillas Mayores”. In addition, 3200 specimens from 24 herbaria were studied (Cuba: HAC, HAJB, HPPR, HPVC, AJBC, HIPC, HMC; Dominican Republic: JBSD; Puerto Rico: UPR, UPRRP, MAPR, SJ; Jamaica: JJ, UCWI; Costa Rica: CR; Mexico: IEB, CREG, ENCB; USA: US, NY, F, FTG; Spain: MA; Sweden: S – abbreviations as in Holmgren & al. 1990).

The following parameters were found to be taxonomically relevant: (1) biological type, (2) leaf morphology, with strong emphasis on vein pattern, (3) stipules, (4) phenology, as observed in the field or inferred from specimen data, and (5) ecology and chorology of Antillean species. The Cuban vegetation units accepted here are those defined by Capote & Berazaín (1984); for Hispaniola, label data were used.
Fig. 1. *Erythroxylum mogotense*, holotype specimen.

Four taxa that could not be matched with species previously known from Cuba or Hispaniola are dealt with in the present paper, which presents their taxonomy, distribution and ecology. Three of them are species new to science, the fourth is an addition to the flora of Hispaniola.

**Erythroxylum** (sect. Archerythroxylum) **mogotense** R. Oviedo, sp. nova – Holotypus: Urquiola & al. 6475 (HAC 41418; isotypus: HPPR). – Fig. 1, 5A.

Proximum *Erythroxylo alaternifolio* A. Rich. et *E. flavicante* Borhidi, differt a priore ramis gracilibus flexuosis (nec robustis rectis) et foliis coriaceis ellipticis opacis 1.2 cm longis (nec papyraceis obovato-cuneatis lucidis 2-6 cm longis), ab altero foliis acutis vel leviter retusis dense reticulato-venosis (nec emarginatis et laxe reticulatis).

Semideciduous shrub, 0.5-2 m tall, diffusely branching from the base. Branches slender and flexuous; brachyblasts 1-2 cm long. Leaves few; stipules veinless, triangular-truncate, 1 mm long, entire, acute and mucronate; petioles channelled, 1-2 × 1 mm; lamina elliptic, 12 × 5-7 mm, coriaceous, dull green, base acute, margin revolute, tip acute to slightly retuse, mid-vein deeply impressed above, prominent beneath, venation reticulate, craspedodromous to semicraspedodromous, veinlets twice forked. Flowers borne single in the leaf axils on some of the brachyblasts; pedicel keeled, 2-2.5 mm long; sepals 5, 0.5 mm long, free almost to the base, abruptly acuminate. Drupe ellipsoidal, 5-7 × 3 mm, ridged.


**Distribution and habitat.** – Endemic and only known from the type gathering. Growing on a karstic limestone bluff (mogote), at 200-500 m above sea level. Flowering in May and June, fruiting in July.

**Etymology.** – From the Cuban word “mogote” for the locally characteristic karstic limestone bluffs.

**Erythroxylum** (sect. Rhabdophyllum) **banaoense** R. Oviedo, sp. nova – Holotypus: Bécquer & al. (HAC 41419). – Fig. 2, 5B.

*Erythroxylo rufo* Cav. proximum, a quo differt floribus 2-3(-4) (nec ≥ 4) fasciculatis, stipulis truncato-triangularibus 2.3 mm longis margine denticulatis (nec lanceolato-triangularibus 2.5-4 mm longis margine fimbriatis) et foliis elliptico-ovatis chartaceis 5-7 cm longis subtus opacis (nec oblongo-obovoids chartaceis 6-10 cm longis utrinque lucidis).

Evergreen shrub, 2-5 m tall. Branches erect. Stipules veined, triangular-truncate, 2.3 mm long, margin denticulate, tip 3-setulose; petiole somewhat channelled at the distal end, 5-7 × 1 mm; lamina ovate-elliptic, 5-7 × 2.5-3.5 cm, chartaceous, shiny above, dull green beneath, base acute, tip obtuse to slightly emarginate, veins prominent on both faces, venation craspedodromous-mixed. Flowers in fascicles of 2-3(-4); pedicels 1-1.5 × 1 mm; calyx 1-1.5 mm long, divided halfway into triangular, acuminate lobes with a somewhat fimbriate margin. Drupe oblong, 13-15 × 4-6 mm.

*Specimens seen.* – Cuba: Prov. Sancti Spíritus, SW escarpment of the Tetes de Juana (Pico Banao), Alturas de Banao, 700 m, 24.7.2000, Bécquer & al. (HAC 41419); id., Lomas de Banao, 5.1920, *Luna 553* (HAC, NY); id., Loma Mala, el Tibisial near Loma Gavilanes, Alturas de Banao, 650 m, 5.2000, Bécquer & Orozco (HAC 41420).
Distribution and habitat. – Endemic to the Banao and Trinidad Mts of Sancti Spíritus province, central Cuba. Growing on karstic limestone bluffs, in spiny xerophilous scrub on serpentine and in lowland rainforest, at 400-900 m above sea level, tolerating some anthropic influence. Flowering May to June, fruiting June to July.

Etymology. – From the Cuban toponym “Banao” (a village and mountain group in central Cuba).
Erythroxylum (sect. Eurysepalum) domingense R. Oviedo, sp. nova [E. minutifolium var. domingense Ekman in sched., ined.] – Holotypus: Leonard 4836 (US; isotypi: NY, US). – Fig. 3, 5C.

Proximum Erythroxylum minutifolium Griseb., sed differt ramis rectis rigidis teretibus (nec flexuosis costatis) simul cum foliis rufo-brunneis (nec grisaceis), stipulis 1-1.2 mm longis hastatis acuminatis (nec 0.7-1 mm longis basi truncatis apice bifidis) et foliis ovatis profunde emarginatis (nec orbicularibus leviter emarginatis) venatione perfecte actinodroma (nec [semi-]craspedodroma). E. barahonense O. E. Schulz & Ekman, quamvis etiam affine, discedit propter ramos flavido-grisaceos aliquanto crassiores breviore et rigidores, stipulas auriculato-hastatas margine cerino papyraceo cinctas et folia orbicularia obtusa chartacea (nec ut in nostro coriacea).

Evergreen shrub, 0.5-2 m tall. Branches long and slender, stiff, terete, spiny, reddish brown (same as the leaves). Stipules veinless, triangular-hastate, 1-1.2 mm long, acuminate and mucronate; petiole 1-1.2 × 0.5 mm, deeply channelled; lamina ovate, 5-7 × 3-5 mm, coriaceous, shiny, base obtuse, tip deeply emarginate, mid-vein deeply impressed above, prominent beneath, venation prominent on both surfaces, actinodromous-perfect, reticulate basally, with a narrowly acute angle of divergence. Flowers 1(-2) in the leaf axils, white to greenish; pedicel 5 mm long; calyx 1.5 mm long, cleft almost halfway into triangular, acute lobes. Drupe oblong, 5-6 × 2-3 mm, 4-keeled.

Specimens seen. – HISPANIOLA, HAITI: Vicinity of Piétonville, dry woodland on limestone, 350 m, 15.-28.6.1920, Leonard 4836, 4836a (NY, US [2×]); vicinity of Port-au-Prince, road from Piétonville to Port-au-Prince, 21.5.1929, Leonard & Leonard 15827 (US, NY); Massif des Matheux, Morne à Cabrit, near Croix-des-Bouquets, 500 m, 15.7.1924, Ekman 897 (S). — HISPANIOLA, DOMINICAN REPUBLIC: Arroyo Francés, serpentine hill c. 3 miles W of Puerto Plata, 50-150 m, 28.-29.10.1969, Liogier 16591 (S, NY); prov. Azua, Sierra de Ocoa, San José de Ocoa, el Cercado, 800 m, 18.3.1929, Ekman 11958 (S, US); prov. Independencia, serpentine mountain of Sierra Prieta, at town of Sierra Prieta (halfway between Villa Mella and Yamasa), 18°39’N, 69°58’W, < 254 m, 8.7.1981, Zanoni & al. 15346 (NY); prov. Independencia, Sierra Prieta, Villa Mella, scrub on serpentine, 150 m, 23.3.1974, Liogier & Liogier 21447 (NY); prov. Independencia, Sierra de Baorúco c. 9 km S of Puerto Escondido along the path to Caseta Forestal No. 1, 18°19’N, 71°34’W, 900-1000 m, 24.1.1987, Zanoni & al. 37818 (NY).

Distribution and habitat. – Endemic to Hispaniola. In dry scrubs or forests, on serpentine or limestone, at 50-1500 m above sea level. Flowering in March and June-July, fruiting in June and July.

Etymology. – Ekman’s unpublished varietal epithet, commemorating the Dominican Republic, has been adopted. It appears on the handwritten label of the gathering Ekman 11958. Erik Ekman, the famous Swedish collector and botanist, was thus the first to recognise the distinctness of the present taxon.

Erythroxylum (sect. Archerythroxylum) williamsii Standley ex Plowman in Brittonia 34: 453. 1982. – Holotype: Plowman 7770 (F; isotypes: F, G, GH, INPA, K, NC, NY, US, VEN). – Fig. 4, 5D.

Branches grey, terete, stiff and divaricate. Stipules triangular-sagittate, 1.5-3 mm long, margin fimbriate-ciliate, tip bisetulose; lamina obovate, 0.8-2.5 cm long, tip retuse, membranaceous to chartaceous, shiny, grey above, reddish brown beneath. Flowers 1-3 in each leaf axil. Drupe 5-8 mm long.

Fig. 3. *Erythroxylum domingense*, holotype specimen.
Fig. 4. *Erythroxylum williamsii*, specimen Marcano & Jiménez 4303 (US).
Distribution and habitat. – Believed to be endemic to Venezuela (Plowman 1982), this being the first record of the species for the Antilles (Hispaniola). Growing in dry habitats, at 50-100 m above sea level.

Note. – Material of this species collected in Hispaniola had been variously misnamed *Erythroxylum minutifolium* Griseb., *E. brevipes* DC. or *E. rotundifolium* Lunan.

Acknowledgements

I am deeply indebted to all the workers in Cuba and abroad who have supported me in my research, especially those in the herbaria I visited, for their kind attention and those who helped by means of specimen loans. I am also grateful to the collectors for contributing to my research work by their material.

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