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A new species of *Amyris* (Rutaceae) from southern Ecuador

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Abstract

A new species, *Amyris karlita*, from southern Ecuador is described, illustrated and contrasted with closely related species. It is characterized by the following combination of characters: glabrous unifoliolate leaves with lamina elliptic, ovate-lanceolate or oblong-elliptic, 6–11 cm long, 4–6 cm wide, with apex acuminate or emarginate; secondary veins in 10–13 pairs, more or less convergent, inconspicuous, branched towards the margin; stamens 8, 4 short alternating with 4 longer. The new species grows in the semi-deciduous forests of southern Ecuador, between 1400 and 1700 m.

Key words: aromatic, unifoliolate, emarginated, semi-deciduous forests

Introduction

The genus *Amyris* Browne (1756: 208) includes between 40–58 species (Gereau 1991, Pennington *et al.* 2004, The Plant List 2014). Approximately half of the species have unifoliolate leaves and most of them grow in Central America and Mexico (Gereau 1991). Since 1991, four unifoliolate species have been described from Ecuador and Peru; additionally, two species of these countries are known to have imparipinnate leaves. All these species are distinguished, mostly by the shape and venation of their leaves.

During an expedition to the seasonal rainforests of the province of Loja in southern Ecuador, distinctive material that did not match any previously known species in *Amyris* was collected. For confirmation of this new entity, type images for all species available in the database of Global Plant Initiative (<http://plants.jstor.org/>) herbarium specimens at Ecuador's National Herbarium (QCNE), and the relevant literature were consulted. The collections did not match any currently described species and therefore a new species is herein proposed.

Amyris karlita W.Palacios, *sp. nov.*

Diagnosis:—*Amyris karlita* is distinct from other species of the genus by a combination of characters: unifoliolate leaves, 6–11 × 4–6 cm, pinnate venation, and emarginate or acuminate apex and stamens 8(or 10), alternating short and long. (Figure 1)

Type:—ECUADOR. Loja: Cantón Macará, Sabiango, Achima-Cerro Jatumpamba, sitio El Fondo, aprox. 1700 m, agosto 2010 *W. Palacios* 17324 (holotype QCNE!, isotype to be distributed to QCA, MO, AAU, NY).

Tree to 18 m tall; dbh to 50 cm. Inner bark creamy-yellow and very aromatic. Terminal twigs clustered, cylindrical, browns. Leaves unifoliolate, alternate, spiral, 6–11 × 4–6 cm, elliptic, ovate-lanceolate or oblong-elliptic, glabrous, shiny above; apex acuminate or emarginate and in this case slightly recurved; base obtuse; secondary veins 10–13 pairs, more or less convergent, inconspicuous, forked towards the margin; intersecondary and secondary nerves very similar; tertiary nerves inconspicuous; margin entire; glandular dots translucent on leaves; petioles 1–3(–4) cm long, up to half as long as the lamina, thickened and curved at the apex. Inflorescence an axillary or terminal panicle, up to 8 cm long, with lateral branches up to 2.5 cm long; bracteoles ovate, 0.7–1 mm long. Flowers hermaphrodite, gland-dotted; calyx patelliform, 4-lobed, approx. 1 mm long, lobes broadly ovate, shortly fused at the base; petals 4, free, elliptic or oblong-elliptic, 2–2.5 mm long, white; stamens 8(or 10), alternating short and long; disc glandular, orange, prominent between the stamens and pistil; pedicels 1.5–3 mm long, articulate at base.

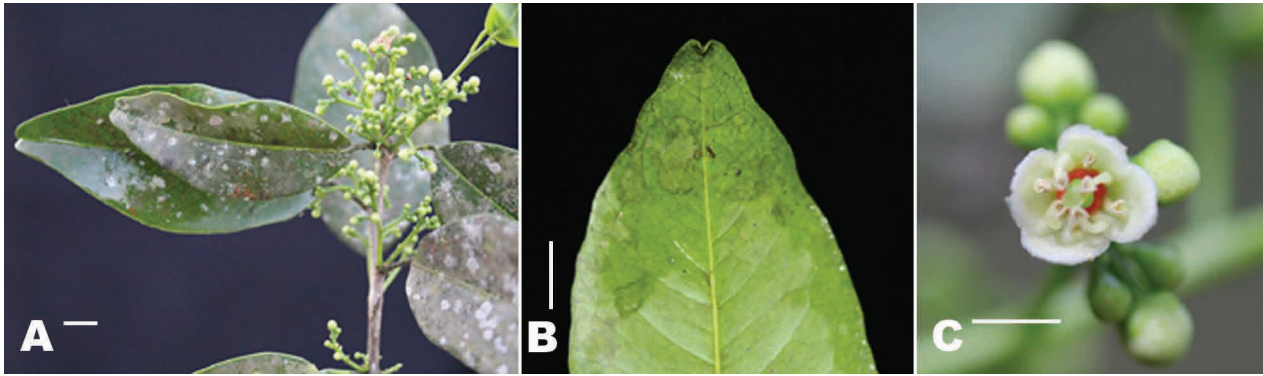


FIGURE 1. *Amyris karlita*. A. habit (bar = 1 cm); B. leaf abaxial side, notice emarginated tip (bar = 2 cm); C. flower (bar = 2 mm). Photographs by W.A. Palacios.

Etymology:—Specific epithet is dedicated to my daughter Karlita.

Distribution and habitat:—*Amyris karlita* grows between 1400 and 1700 m, where trees are laden with mosses in semideciduous forest. Typical trees include *Juglans neotropica* Diels (1906: 398), *Pouteria lucuma* Ruiz & Pavon (1802: 17) Kuntze (1898: 195) and *Monactis holwayae* Blake (1922: 419) Robinson (1976: 37). This type of forest that is part of the Huancabamba bioregion, located between Ecuador and Perú, is very scarce and ecologically important because of the presence of several endemic species (Lozano 2002). The area receives rainfall between January and April, and corresponds to the *ecosistema bosque montano bajo semideciduo de Catamayo-Alamor* (Ministerio del Ambiente del Ecuador 2013).

Etnobotany & vernacular names:—The common name of *A. karlita* is “guallache serrano” and local people appreciate the high quality and rot-resistant wood. The inner bark and wood are aromatic and expel a delicious citrus scent; wood retains the smell even after several years after having been cut.

Phenology:—The flowering period occurs between August and September. Fruits have not been observed.

Specimens examined (Paratypes):—ECUADOR. Loja: Macará, Sabiango, Achima, Cerro Jatumpamba, aprox. 1700 m, 29 August 2009, *W. Palacios 16872* (QCNE!); August 2014, *W. Palacios 17609* (QCNE!), *W. Palacios 17610* (QCNE!), *W. Palacios 17612* (QCNE!), *W. Palacios 17616* (QCNE!). Duplicates of these specimens to be distributed to AAU, MO and QCA.

Discussion

There are 19 species with unifoliolate leaves within *Amyris*; six of them occur in South America: *A. ignea* Steyermark (1952: 272) of northwest of South America and five between Ecuador and Peru: *A. sandemanii* Sandwith (1950: 3496), *A. macrocarpa* Gereau (1991: 231), *A. crebrinervis* Gereau (1991: 229), *A. amazonica* Cornejo & Kallunki (2009: 116), and *A. centinelensis* Cornejo (2009: 161). The distribution and diagnostic features of these species are presented in Table 1. Unifoliolate species of Mesoamerica and Mexico showed less affinity with *A. karlita* than those listed in Table 1.

The new species has very distinctive leaflets. In particular, their size (6–11 × 4–6 cm), shape (basically elliptical), venation (very thin and inconspicuous secondary veins) and acuminate or emarginate apex distinguish *A. karlita* from its congeners. A species known from northern Colombia and western Venezuela (Gereau 1991), *A. ignea*, shares with *A. karlita* the feature of an emarginate apex, but that species has either unifoliolate or trifoliolate leaves with ovate leaflets. Another distinguishing feature of the new species is the alternating large and small stamens. Although this feature is known for the genus (Pennington *et al.* 2004), it is a relatively rare feature.

TABLE 1. *Amyris karlitae* comparison with related species.

Species	Distribution, habitat	Shape / size of leaflets	Venation
<i>A. karlitae</i>	Montane forests, semideciduous, southern Ecuador.	Elliptic, 6–11 × 4–6 cm.	Pinnate; secondary veins very fine and inconspicuous, 10–13 pairs.
<i>A. sandemanii</i>	Dry forests, above 2000 m, Peru.	Oblong, 3–6 × 1–2.5 cm	Brochidodromous; secondary veins very fine and inconspicuous, 9–12 pairs.
<i>A. macrocarpa</i>	Moist forests of the western Amazon of Peru and Ecuador.	Oblong, 9–16 × 3.5–5 cm.	Brochidodromous; secondary veins 7–11 pairs.
<i>A. crebrinervis</i>		Oblong-lanceolate, 16–18 × 4–7 cm.	Brochidodromous; secondary veins 23–26 pairs.
<i>A. amazonica</i>		Lanceolate to lanceolate-elliptic, 21–32 × 7.5–13.2 cm.	Brochidodromous; 26–30 pairs of secondary veins.
<i>A. centinelensis</i>	Premontane moist forests of the central coast, Ecuador.	Ovate-lanceolate to lanceolate 15–21 × 6.2–7.5 cm.	Brochidodromous; secondary veins 13–16 pairs.

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