

NOTES ON OENOCARPUS (PALMAE) IN THE COLOMBIAN AMAZON

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Bernal, Rodrigo G., Gloria Galeano (Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Apartado 7495, Bogotá, Colombia) and Andrew Henderson (New York Botanical Garden, Bronx, NY 10458-5126). Notes on *Oenocarpus* (Palmae) in the Colombian Amazon. *Brittonia* 43: 154-164. 1991—Five species of *Oenocarpus* from the Río Caquetá, in the Colombian Amazon, are discussed. Two of them, *Oenocarpus simplex* and *Oenocarpus makeru* are described as new. *Oenocarpus bacaba* var. *parvus* is shown to be a synonym of *O. balickii*; this species and *O. minor* are recorded for the first time in Colombia. Some comments on the poorly known *O. circumtextus* are also given. The new findings support the inclusion of *Jessenia* in *Oenocarpus*.

Se discuten cinco especies de *Oenocarpus* de la región del río Caquetá, en la Amazonia Colombiana. Dos de ellas, *Oenocarpus simplex* y *Oenocarpus makeru* se describen como nuevas. *Oenocarpus bacaba* var. *parvus* es considerada un sinónimo de *O. balickii*, y esta especie, junto con *O. minor*, es registrada por primera vez en Colombia. Se da información adicional sobre *O. circumtextus*, una especie muy poco conocida. Los nuevos hallazgos respaldan la unión de *Jessenia* y *Oenocarpus*.

Key words: Palmae, *Oenocarpus*, *Jessenia*, Colombian Amazon.

Nine species were recognized by Balick (1986) in the most recent revision of the *Jessenia-Oenocarpus* complex. Two new varieties of *Oenocarpus bacaba* C. Martius from Venezuela were later added by Wessels Boer (1988), and a new species of *Oenocarpus* C. Martius from Peru was described by Kahn (1990). Four species were reported by Balick to occur in Colombia: *Jessenia bataua* (C. Martius) Burret, *Oenocarpus circumtextus* C. Martius, *Oenocarpus bacaba*, and *O. mapora* Karsten, the last with two subspecies. As a result of Balick's revision there has been a revival of interest in the group, particularly in its economic potential. Consequently there are abundant new collections. Recent exploration of the area of La Pedrera, on the Río Caquetá in the Colombian Amazon, in particular has revealed the existence of at least seven species in this group in that region: *Jessenia bataua*, *Oenocarpus bacaba*, *O. balickii* Kahn, *O. minor* C. Martius, *O. circumtextus*, *O. makeru*, and *O. simplex*, the latter two described here as new. *Oenocarpus mapora* Karsten, a common species throughout the northwestern Amazon, was not seen during the short visit to this area; nevertheless, it has been collected upstream along the Río Caquetá (Galeano, 1991), and its occurrence in the La Pedrera area seems likely. In any case, the presence of seven species within such a restricted area represents the highest diversity for this group known so far.

La Pedrera is located on the lower Río Caquetá in Colombia, some 30 km from the Brazilian border. The region is mostly covered with tropical wet forest (IGAC, 1977) usually developed on alluvial, acidic soils. Interspersed are rather large areas of rocky outcrops of granite or quartzite, marked by a peculiar flora that is physiognomically very different from that of the surrounding forest. The physiognomy of the flora is actually very similar to that of the mountains and savannas of the Guayana Highland (Huber, 1989). The area is poorly known botanically.

Comments on some of the species are made below, including description of the new taxa.

1. *Oenocarpus simplex* Bernal, Galeano, & Henderson, sp. nov. (Fig. 1)

TYPE: COLOMBIA. **Amazonas:** ca 2 km along the trail from La Pedrera to Tarapacá, 230 m, 10 Mar 1990, G. Galeano, R. Bernal, A. Henderson, N. Espejo, & S. Churchill 2027 (HOLOTYPE: COL!; ISOTYPES: AAU!, BH!, K!, NY!).

Foliis simplicibus spadicebusque simplicibus vel furcatis valde distincta.

Stems cespitose, 3–4 m tall, 1.5–1.8 cm diam, with 2 or 3 main stems and several basal shoots, smooth, brown, conspicuously ringed, the internodes 1.5–3 cm long. Leaves 5–8, reddish when young, erect; sheath 41–45 cm long, purplish to green, fibrous on the margins, with purplish scales; petiole 24–28 cm long, 5 mm diam, subterete, with deciduous scales like those of the leaf sheath; rachis 63–67 cm long; blade entire, narrowly cuneate, apically bifid for ca $\frac{1}{2}$ its length, 76–91 cm long, 14–18.6 cm at the widest point slightly below the bifurcation, the lobes ovate, cucullate, 15.5–16.5 cm long, including a narrow acumen, 3–4 cm long; primary veins 8–11 on each side, forming an angle of 6–8° with the rachis, abaxial surface whitish, waxy, with scattered, very short, white trichomes. Inflorescence interfoliar, erect at anthesis, pendulous in fruit, spicate or bifid, up to 73 cm long; prophyll bicarinate, acute at apex, chartaceous, 15–20 cm long, ca 1 cm wide, with scattered, purplish scales; peduncular bract cylindrical in the bud, expanded and flat at anthesis, 48–66 cm long, including a 3–4 cm long umbo, 1.8 cm wide, subcoriaceous, striate, with purplish scales; peduncle 16–37 cm long, 2–3 mm thick, with ferruginous scales, occasionally bifid at apex for 10–19 cm, and then the inflorescence with 2 pedunculate rachillae; rachilla 21–25 cm long, 3–5 mm in diam, with deep pits, yellowish at anthesis, reddish in fruit, with ferruginous scales; staminate flowers ovate-lanceolate, 3–4.5 × 1.5 mm; sepals connate at base, sometimes connate into a flattened, triangular calyx with concave sides, or into a strongly 3-carinate calyx, the lobes triangular, 0.8 × 0.5 mm; petals ovate-lanceolate, thick, 3 × 1.2–1.5 mm; stamens 6, the filaments undulate, inflexed at the apex, 1–1.5 mm long, anthers 1–1.5 mm long, bifid and inequilateral at base, the connective projected into a short point; pistillode 0.5 mm long; pistillate flowers ovoid when immature, ca 2.5 × 2 mm; sepals broadly imbricate, suborbicular, 2.5 mm high; petals broadly imbricate, suborbicular, cucullate, 1.5 mm high; gynoecium 1 mm long; fruit oblong-ellipsoid, 2.2–2.7 × 1.3–1.4 cm, with a prominent, cylindrical, slightly eccentric stigmatic residue, the epicarp purplish-black at maturity, with a thin layer of wax, the mesocarp with flat fibers; seed ovoid, 1.5 × 0.9 cm, the raphe branches loosely reticulate; endosperm homogeneous; eophyll in outline cuneate to obovate, bifid for $\frac{1}{4}$ its length, the lobes long-acuminate and sometimes cucullate, whitish abaxially.

Oenocarpus simplex is quite unlike any other species in the genus because of its small, undivided leaves and simple or bifid inflorescences, as well as its slender, canelike habit. However, its membership in *Oenocarpus* is unquestionable because of its leaves glaucous below, rachillae with deep depressions and becoming ferruginous after anthesis, sinuous filaments, and ellipsoid fruits with apical stigmatic residue (Table I). The long peduncle and persistent peduncular bract, as well as the slightly bifid eophylls, and the shape of the staminate sepals place this species in subgenus *Oenocarpopsis* (Burret) Balick, although its stem does not have the fibrous vestiture of leaf sheaths that is typical of *O. circumtextus*. The two known species in this subgenus (*O. circumtextus* and *O. simplex*) are remarkably different from one another, and from all species placed in subgenus *Oenocarpus*. In their small size, their leaves simple or with few broad pinnae, and their long pedunculate inflorescences, *O. circumtextus* and *O. simplex* evoke species of *Prestoea*, although, as pointed out above, their obvious relationships are with *Oenocarpus*. Also, the bifid eophylls are much more like those of *Prestoea*; species of subgenus *Oenocarpus* have eophylls with usually four pinnae radiating from a short rachis (Fig. 2a).

Oenocarpus simplex is a common palm in the area behind La Pedrera, where

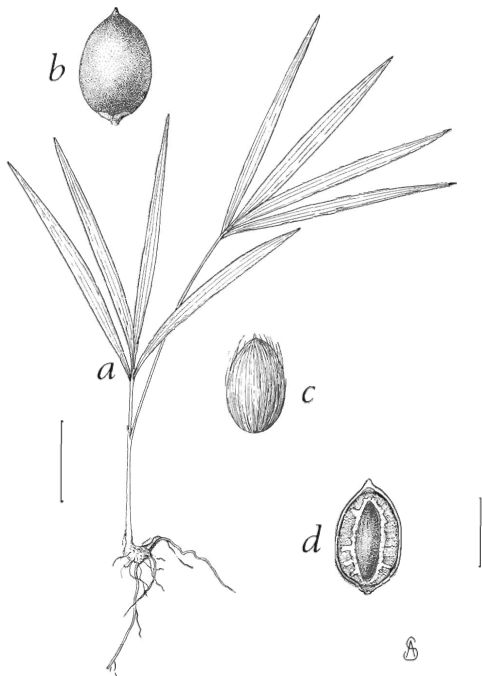


FIG. 2. A–D. *Oenocarpus makeru*. A. Eophylls (scale bar = 3 cm). B. Fruit. C. Seed with fibers. D. Fruit in longitudinal section (scale bar for B–D = 2 cm).

it grows in the understory of mature forest. It was also observed in mature forest near the mouth of the Río Miriti-paraná. Although several individuals were seen, none of them had pinnate leaves, which suggests that simple leaves are a constant character in this species.

2. *Oenocarpus makeru* Bernal, Galeano & Henderson, sp. nov. (Fig. 2)

TYPE: COLOMBIA. Amazonas: Río Caquetá, near the Chorro Córdoba, trail to the savanna, ca 250 m, 13 Mar 1990, G. Galeano, R. Bernal, A. Henderson, N. Espejo, & S. Churchill 2070 (HOLOTYPE: COL!; ISOTYPES: AAU!, BH!, HUA!, K!, NY!).

TABLE I

MORPHOLOGICAL DIFFERENCES BETWEEN *Jessenia*, SUBGENUS *Oenocarpus*, *Oenocarpus simplex*, *Oenocarpus circumtextus*, AND *Oenocarpus makeru*

	<i>Jessenia</i>	Subgenus <i>Oenocarpus</i>	<i>O. simplex</i>	<i>O. circumtextus</i>	<i>O. makeru</i>
Endosperm	ruminate	homogeneous	homogeneous	homogeneous	ruminate
Number of stamens	7-20	6	6	6	6
Anther connective	projected beyond anther	not projected beyond anther	projected/not projected beyond anther	projected/not projected beyond anther	not known
Filaments	straight or undulate; rarely curved at apex	apically inflexed	undulate, apically inflexed	apically inflexed	not known
Leaf under-surface	with sickle-shaped trichomes	with needle-like or hair-like trichomes	scattered, very short, white trichomes	glabrous	thin, loose, wool-like, waxy indumentum
Leaf sheath fibers	thin, short, hair-like, and stout knitting needle-like, to 1 m	straw-like or wiry to 30 cm	thin, short	thick, reticulate	coarse
Eophylls	bifid	with 4 pinnae on a short rachis	entire, bifid	entire, bifid	with 4 pinnae on a short rachis
Leaves	pinnate	pinnate	simple	pinnate	pinnate



FIG. 1. A-G. *Oenocarpus simplex*. A. Habit. B. Leaf. C. Inflorescence. D. Staminate flower. E. Staminate petal and two stamens. F. Staminate sepals. G. Stamens showing undulate filaments and produced connectives. H. Fruit. I. Seedling.