

**Specimens observed:**

PERU - Kahn 3230 (USM), 3231 (K, P), 11 Jan 1992, 500 m, Pasco, Oxapampa, La Merced-Villa Rica road, Puerto Capelo village. Kahn 3232 (AAU, K, P, NY, USM), 13 Jan 1992, 400 m, Pasco, Oxapampa, Villa Rica-Iscozacin road, San Juan de Cacazu village. Smith 4045 (MO, P, USM), 15 May 1983, 10°09'S, 75°19'W, 350 m, Pasco, Oxapampa, Chuchurras River drainage, Belén on the Comparichimas River.

**Distribution:** In the central and southeastern piedmont of Peru, 380-800 m in elevation.

**Ecology:** In understory of forests on steep slopes, frequent in open areas.

**Uses:** Liquid endosperm of unripe fruit is drunk.

**Vernacular names:** chonta (P)

**Notes:** *Astrocaryum perangustatum* is characterized by the fruit being remarkably narrow basally, and the pinnae very wide (up to 11 cm), golden and satiny beneath.

**21. *Astrocaryum gratum* F. Kahn et B. Millán, sp. nov. (Fig. 51).**

Palma solitaria; differt a *Astrocaryum macrocalyx* Burret et *Astrocaryum perangustatum* Kahn et Millán annulo staminodiali deminuto vel 6 staminodiis dentiformibus.

Kahn F. & Llosa J.A. 2147, Peru (Holotype: P; Isotypes: CAY, K, USM).

A medium-sized, single-stemmed palm. Stem 3-10 m high, 17-20 cm in diameter, with some spines in groups; sheaths of dead leaves persistent on about 1 m under the crown. Leaves 8-12; sheath and petiole up to 2 m long, purplish, fibrous at margins, densely setose, armed with dense, flattened, black, up to 15 cm long spines on abaxial side, these shorter on lateral sides of petiole; rachis 4.6-5 m long, black-setose, with up to 3 cm long spines in groups of 2-3; pinnae 90-110 per side, regularly arranged in one plane; basal pinnae 105-131 cm long, 1.9-3 cm wide; median pinnae 134-145 cm long, 5-7 cm wide; apical pinnae 40-61 cm long, 2.5-12.5 cm wide. Inflorescence and infructescence erect; prophyll 1 m long, 11-12 cm wide, abaxial side with dense, dark brown, 3-5 mm long setae, adaxial side smooth or with dense, short setae; peduncular bract 90 cm long, inserted 40 cm from rachis, with scattered black and dense tawny setae, and flattened, black, 2-3 cm long spines at apex; peduncle 1.3 m long, section oval, 4 x 3 cm near rachis, 7 x 4 cm at base; rachis up to 70 cm long; rachillae many, proximal part glabrous, 2-4.5 cm long, distal part bearing staminate flowers in low density, 11.5-15 cm long, covered with transparent, clavate to globose hairs, one pistillate flower inserted 0.5-1 cm from the rachis. Staminate flower with sepals  $0.6-0.7 \pm 0.1$  mm long; petals 2.8 to  $2.9 \pm 0.2$  mm long, slightly connate basally; stamens 6; anthers  $1.3-1.5 \pm 0.1$  mm long; filament up to 1.3 mm long; pistillode 3-parted. Pistillate flower with calyx ovoid to pear-shaped, slightly 3-dentate, with a few minute setae, margin ciliate,  $6.4 \pm 0.4$  to  $9.6 \pm 0.7$  mm long; corolla urceolate, slightly shorter than calyx,  $5.4 \pm 0.4$  to  $9.1 \pm 0.5$  mm long, with setae or 0.5 mm long spines, margin ciliate; staminodial ring 0.9 to  $2.5 \pm 0.4$  mm, very short or reduced to 6 teeth; pistil wide basally and tapered into a slender style, brown-tomentose, with white setae; stigmas 3, 3-4 mm long. Fruit turbinate to obovate, depressed, 3.9-6.7 cm long, 2.7-3.9 cm wide, with a pedicel, up to 3.5 cm long; pericarp orange with brown to black, flexuous, 1-3 mm long setae; mesocarp fleshy, up to 1.2 cm thick; endocarp bony, turbinate, slightly acuminate and curved basally, 2.6-4.3 cm long, 1.7-2.3 cm wide; perianth with corolla cup-shaped, crenate, laciniate, or irregularly lobed, 9-18 mm long, staminodial ring wavy, 6-denticulate, 4-10 mm long, calyx deeply lobed, 5-12 mm long.

**Specimens observed:**

BOLIVIA - *Henderson & Salomon* 534 (NY), 7 Dec 1985, 15°58'S, 67°37'W, 800 m, Nor Yungas, ca. 4 km beyond San Pedro on road to Incahuara. Kahn 2400 (LPZ, P), 19 Aug 1989; Mejía s.n. (USM), Aug 1991; Moraes 922 (LPZ, NY), 22 Dec 1987: 14°30'S, 66°28'W, 250 m, Beni/Yacuma, Biological Station. PERU - Kahn & Llosa 2128 (NY, USM), 28 Sep 1987; 2143, 2144 (USM), 2147 (CAY, K, P, USM), 1 Oct 1987; Millán 118, 119, 120 (USM), 2-4 Apr 1992: Puerto Maldonado, Madre de Dios. Vargas 18574 (BH), 15 Jan 1967, 350 m, Madre de Dios, Tambopata, Concepción to lake Sandobal. Vargas 18718 (BH), 17 Jan 1967, 350 m, Madre de Dios, Tambopata, Barrola, De las Piedras River.

**Distribution:** In the southwestern parts of the Amazon basin.

**Ecology:** In forests on sandy soils, in secondary vegetation, in gallery forests in periodically flooded savannahs.

**Uses:** Liquid endosperm of unripe fruit is drunk; fleshy mesocarp is sweet and edible.

**Vernacular names:** chonta, chonta negra, chonta de macallo (B); huicungo (P).

**Notes:** *Astrocaryum gratum* differs from *Astrocaryum macrocalyx* and *Astrocaryum perangustatum* in the staminodial ring which is short, entire or reduced to 6 teeth in flower, and in its fruit with a long pedicel, the pericarp sparsely setose, and the mesocarp thick and fleshy. The rachis of its inflorescence, up to 70 cm, is the longest in the section *Ayri*. Its fruit is not remarkably narrow basally and its pinnae are whitish, not golden beneath as in *Astrocaryum perangustatum*. The calyx in fruit is not so deep and obconoidal as in *Astrocaryum macrocalyx*.

**22. *Astrocaryum chonta* Martius, Palmet Orbigny.: 84, t. 4, figs. 1-2, t. 29C, 1844 (Fig. 52, 53).**

Type specimen: d'Orbigny 15, Santa Cruz de la Sierra (?), not seen.

A medium-sized, single-stemmed palm. Stem up to 10 m high, 18-27 cm in diameter, unarmed with prominent leaf scars; sheaths of dead leaves persistent on about 1-2 m under the crown. Leaves 8-12-(16), up to 9.5 m long; sheath and petiole up to 2.3 m long, fibrous, armed with flattened, black, up to 20 cm long spines; rachis up to 7.6 m long, whitish-tomentose, with flattened, black, up to 10 cm long spines, arranged in groups in the middle part, distal part black-setose with scattered, 1-2 cm long spines; pinnae 80-130 per side, regularly arranged in one plane; basal pinnae 65-120 cm long, 0.5-3.4 cm wide; median pinnae 84-163 cm long, 4-8 cm wide; apical pinnae 23-48 cm long, 1.8-6 cm wide. Inflorescence and infructescence erect; prophyll 85 cm long, 12 cm wide, brown-setose, with a few flattened, black spines; peduncular bract up to 1.1 m long, covered with dense, soft, light to dark brown, 5 mm long setae, with whitish-floccose, flexuous, black, 2 cm long spines at apex; peduncle 1.1 m long; rachis up to 60 cm long; rachillae many, proximal part glabrous, 1-7 cm long, distal part bearing staminate flowers 6.5-10.5 cm long, covered with transparent, clavate hairs, one pistillate flower at base inserted 3-10 mm from rachis. Staminate flower with sepals small, 0.6 to 0.9 ± 0.1 mm long, connate basally; petals brown 2.5 ± 0.1 to 2.9 ± 0.2 mm long, slightly connate basally; stamens 6; anthers 0.7 to 1.4 ± 0.1 mm long; filament up to 1.9 mm; pistillode irregularly 3-parted. Pistillate flower with calyx truncate to cup-shaped, slightly setose, 3-denticulate, wide at mouth, margin ciliate,

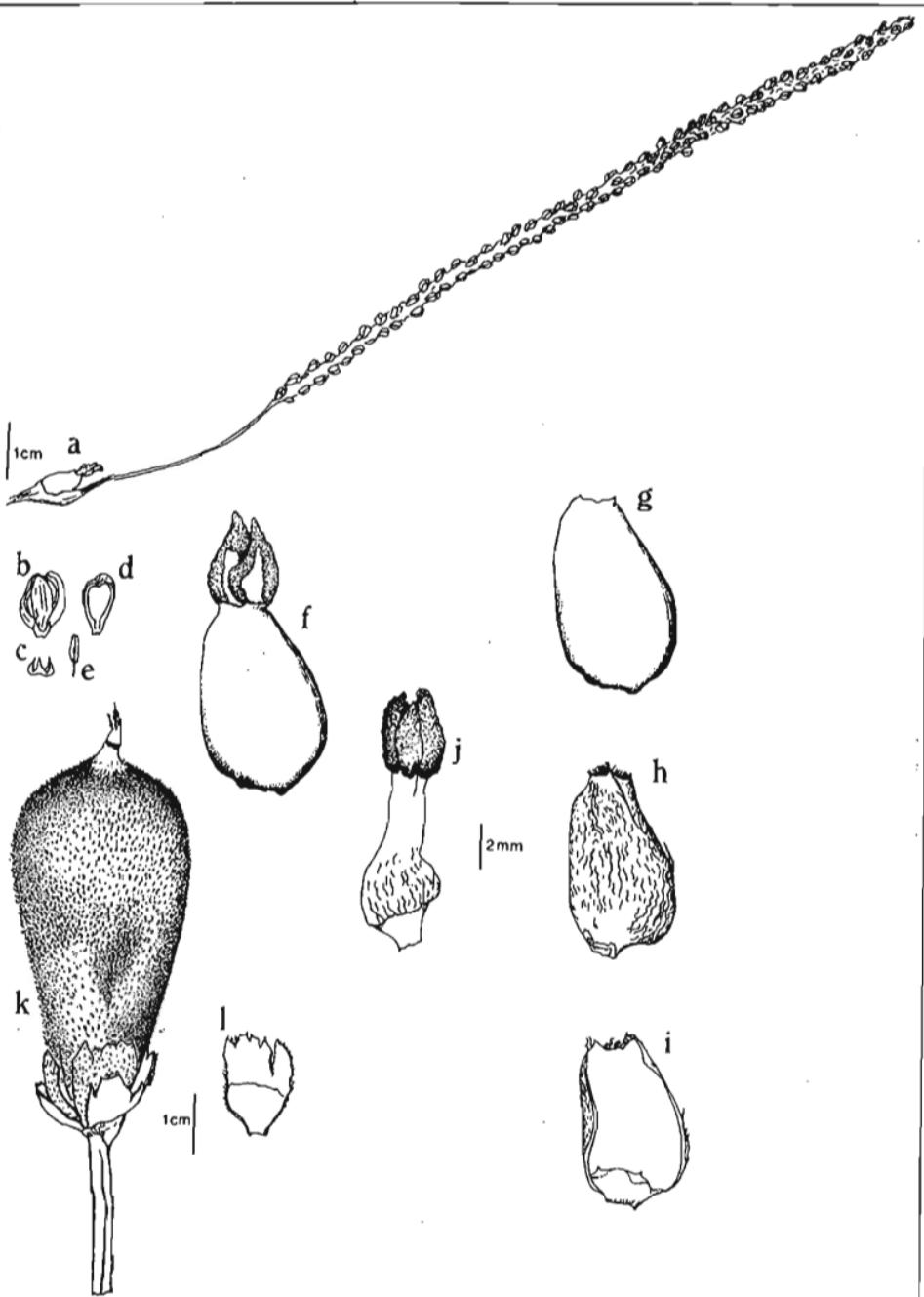


Fig. 51 - *Astrocaryum gratum* - a. rachilla; b. staminate flower; c. calyx; d. petal; e. stamen; f. pistillate flower; g. calyx; h. corolla; i. staminodial ring in corolla; j. pistil; k. fruit; l. perianth in fruit: corolla with staminodial ring. (b-j with same scale. Material used: Kahn 2400; Kahn & Llosa 2147; Millán 118)