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## Two New Species of *Chamaedorea* from Honduras

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Since the publication of the monograph of *Chamaedorea* (Hodel 1992a) and subsequent articles adding several new species (Hodel 1992b, 1995), field studies in Honduras have enabled us to describe and name two additional new species, both from cool, wet, cloud forest near the Guatemalan border.

***Chamaedorea moliniana*** Hodel, J. J. Castillo & Zúñiga **sp. nov.** (Figs. 1–4).

Subgeneris *Chamaedoropsi* Oerst. inflorescentiis masculis solitariis, floribus masculis solitariis petalis patentibus apicaliter. *C. parvisectae* Burret affinis sed petiolis longioribus, pinnis angustioribus longilanceolatis numerosis bis tot quot, rachillis femineis gracilioribus differt. Typus: Honduras, Cortes, Montaña San Ildefonso, *Hodel et al. 1273* (holotypus BH; isotypi AGUAT, EAP).

Solitary, slender, erect, to 3 m tall (Fig. 1). Stem to 1.75 cm diam., green, ringed, upper portion often clothed in persistent brown, dried leaf sheaths, internodes to 15 cm long, usually first flowering when appearing stemless (Fig. 2), then overall height ca. 1 m and stem abbreviated, subterranean, to 15 cm long, slightly curved, brownish, rough, prominently ringed, nodes congested, internodes 3–15 mm long. Leaves 3–5 (Fig. 1), ascending-spreading, pinnate, bright green; sheaths to 20 cm long, tubular in basal  $\frac{3}{4}$ , obliquely long-open in apical  $\frac{1}{4}$ , slightly thickened, longitudinally striate especially when dry; petioles to 50 cm long (Fig. 1), slender, slightly grooved or flattened and green adaxially, rounded and lighter green abaxially, finely longitudinally striate when

dry; rachis to 65 cm long, bright dark green, strongly attenuate apically, angled adaxially, rounded abaxially; pinnae 17–20 per side, lower middle ones longest, these to  $26 \times 3$  cm, apical pair  $10\text{--}13 \times 0.75\text{--}1$  cm, basal ones  $16\text{--}19 \times 1\text{--}1.5$  cm, all pinnae straight, only very slightly falcate, thin-papery, long-acuminate, contracted basally, lower margin briefly decurrent on rachis, lowest pinnae deflexed, each pinna with a conspicuous midrib flanked by 2–4 secondary nerves on either side, tertiary veins numerous, faint, midrib and secondary veins drying green adaxially, shiny yellow abaxially. Inflorescences 1–2 per plant, infrafoliar, ascending, breaking through old persistent sheaths on stemmed plants (Fig. 1), arising from ground or leaf litter when plants appear stemless (Fig. 3), to 65 cm long, shorter than leaves; peduncles ascending, to 62 cm long, straight, to 1 cm wide at base, 1–2 mm diam. at apex, green in flower, orange in fruit where exposed; bracts 8–9, prophyll and 2nd bract to 1 cm long, 3rd to 1.5 cm, 4th to 4 cm, 5th to 8 cm, 6th to 13 cm, 7th to 17 cm, 8th to 19 cm, often a rudimentary 9th bract to 1.5 cm long 3–4 cm below rachis, staminate with uppermost bract not exceeding peduncle, pistillate with uppermost large bract exceeding peduncle and extending well onto rachis, bracts tubular, brown in flower and fruit, thin-papery, longitudinally nerved, lower 7 bifid, acute to acute-acuminate, upper one(s) obliquely long-open, acute-acuminate. Staminate rachis to 3 cm long, 1–2 mm diam., drying flattened, finely longitudinally striate; up to 8 rachillae (Figs. 1–3), these to 15 cm long, slender, 0.75–1



mm diam., drooping, green in flower, drying with fine, thin,  $\pm$  transparent longitudinal ridges or wings. Staminate flowers in dense spirals, 0.25–0.75 mm distant,  $\pm$  superficial, leaving narrowly elliptic scars to 2 mm long, flowers at anthesis 2.5  $\times$  2.5 mm, globose, yellowish; calyx 2  $\times$  0.5 mm, low-cupular, scarcely lobed, sepals connate in basal  $\frac{1}{2}$ – $\frac{2}{3}$ , broadly rounded apically, thin; petals 2.5  $\times$  2 mm, ovate, valvate, distinct, spreading, erect, acute, thin, exceeding pistillode; stamens 1.5 mm high, shorter than pistillode, filaments 0.74 mm long, slender, anthers 0.5–0.75 mm long, oblong, dorsifixed near base; pistillode 1.75–2 mm high, columnar, truncate. Pistillate rachis to 2 cm long, 1.5–2 mm diam., green in flower, orange and drying with faint thin longitudinal ridges in fruit; up to 4 rachillae (Fig. 4), these to 8 cm long, 1–2 mm diam., green in flower,

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1. Old, mature, stemmed plant of *Chamaedorea moliniana*, Hodel et al. 1273 (holotype); cool, wet, cloud forest, Cortés, Honduras. Note long petioles and drooping staminate rachillae.
2. Stemless but flowering staminate plant of *Chamaedorea moliniana*, Hodel et al. 1273, Cortés, Honduras.







orange in fruit, straight or slightly curved in life, drying strongly undulate and with faint thin longitudinal ridges. Pistillate flowers in moderate spirals, 1–4 mm distant, sunken, leaving elliptic depressions 2.5 mm long, flowers 1 × 2 mm, depressed-globose; calyx 0.5 × 2 mm, low-cupular, scarcely lobed, sepals connate and/or imbricate nearly to apex, straight apically; petals 1 × 1.25–1.5 mm, broadly triangular, imbricate in basal ½, erect, acute, faintly nerved adaxially when dry; pistil 0.8 × 1.75 mm, subglobose, stigma lobes long, recurved, thick, acute, just shorter than petals. Fruits 10 mm diam., ± globose, black; seed 8 × 7 mm. Eophyll bifid.

*Distribution:* HONDURAS. Cool, wet, cloud forest; 1,700 m elevation.

*Specimens Examined:* HONDURAS. Cortés:

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3. Staminate inflorescence arising from the leaf litter from a stemless plant of *Chamaedorea moliniana*, Hodel et al. 1273, Cortés, Honduras. 4. Infructescence of a stemless plant of *Chamaedorea moliniana*, Hodel et al. 1272, arising from near the ground; cool, wet, cloud forest, Cortés, Honduras. Note seedling with pinnate leaf to left of fruits.



Montaña San Ildefonso, *Hodel et al.* 1272 (AGUAT BH EAP), 1273 (holotype BH; isotypes AGUAT EAP).

The specific epithet of the new species honors Dr. Antonio Molina (1926–) of the Escuela Agrícola Panamericana, long a collector of numerous, significant, and excellent specimens of Central American plants.

*Chamaedorea moliniana* is closest to *C. parvisecta* but the latter differs in its much fewer (7–10 vs. 17–20) and broader pinnae, shorter petioles, and thicker pistillate rachillae. In the key to subgenus *Chamaedoropsis* (Hodel 1992a, p. 120), *C. moliniana* would key out next to *C. parvisecta*.

The habit of *Chamaedorea moliniana* is unusual, but not without parallel in the genus. Seedlings develop pinnate leaves at a very early stage (Fig. 4), perhaps as early as the second leaf. Soon plants develop normal, adult-sized leaves but lack a visible stem. However, plants actually possess a short, curving, rooting, subterranean stem with highly congested nodes, and begin to produce smaller, few-branched inflorescences during this "stemless" phase. Later, after perhaps as many as several years, they produce a visible, elongated stem to several meters tall with larger, much-branched inflorescences.

Plants of the two stages are easily mistaken as distinct species since their habit and inflorescences can differ dramatically. Other species of the genus exhibiting this or a similar phenomenon include *Chamaedorea dammeriana* and *C. macrospadix* from Costa Rica and Panama, *C. anemophila* from Panama, *C. volcanensis* from Guatemala, *C. parvisecta* from Guatemala and Mexico, and *C. queroana*, *C. radicalis*, and *C. whitelockiana* from Mexico (Hodel 1992a, 1994).

***Chamaedorea frondosa*** Hodel, J. J. Castillo & Zúñiga **sp. nov.** (Figs. 5–8).

Subgeneris *Chamaedoropsi* Oerst. inflorescentiis masculis solitariis, floribus masculis solitariis petalis patentibus apicaliter. Species insignis habitano fruticoso, foliis numerosis bifidis obscure nervatis inflorescentiis erectis ramosis, a speciebus nobis notis bene distincta; *C. pumilae* H. A. Wendl. affinis sed rachillis masculis erectis differt. Typus: Honduras, Cortés, Montaña San Ildefonso, *Hodel et al.* 1274 (holotype BH; isotypes AGUAT, EAP, F, MO).

Solitary, erect or briefly decumbent then erect, to 70 cm tall (Figs. 5,6,8); stem short, 1.2–1.5 cm diam., prominently ringed, internodes 1.8 cm

long. Leaves 12–15(–20), erect-spreading (Figs. 5,6,8), bifid,  $\pm$  thick,  $\pm$  coriaceous; sheaths to 10 cm long, long-open, deeply split opposite petiole, tubular and completely encircling stem in basal  $\frac{1}{3}$  only; petioles to 11 cm long, green and grooved adaxially, pale green and rounded abaxially; blades to  $42 \times 12$  cm, long-oblong, rich forest green, infrequently very slightly mottled, incised apically to  $\frac{1}{4}$ – $\frac{1}{2}$  its length, apical lobes conspicuously toothed on outer margins, rachises of blades to 32 cm long, 10–12 primary nerves on each side of rachis, 1 secondary vein between each pair of 2 primary, tertiary veins numerous and faint, all nerves  $\pm$  obscure adaxially but raised, pale and more conspicuous abaxially. Inflorescences 3 per plant, interfoliar, erect in flower, sometimes nodding in fruit; peduncles to 40 cm long, 2–5 mm diam. at apex, 4–10 mm wide at base and  $\pm$  flattened, green, straight and erect in flower, orange where exposed and nodding in fruit; bracts 5, prophyll to 3 cm long, 2nd bract to 8 cm, 3rd to 11 cm, 4th and 5th to 14 cm, 5th one exceeding peduncle, all tubular, tightly sheathing, papery, longitudinally nerved, lower ones acute and obliquely open, upper ones acuminate and long-open, sometimes a thin 6th bract to 3 cm long subtending lowest rachilla; staminate spicate or with up to 5 rachillae, these to 23 cm long, 1–1.5 mm diam., erect (Fig. 7), longitudinally angled when dry, green in flower. Staminate flowers in moderately dense spirals, 0.6–1 mm distant, superficial, leaving elliptic scars  $0.5 \times 1$  mm, flowers at anthesis  $4 \times 2.5$ –3 mm, obovoid; calyx  $1 \times 3$  mm, cuplike, shallowly lobed, sepals connate nearly to apex,  $\pm$  straight or only briefly acute apically; petals  $4$ – $4.5 \times 2.5$  mm, ovate, valvate, spreading, distinct nearly to base and there briefly connate; stamens 2.5–3 mm high, just shorter than pistillode, filaments 1 mm long, flattened, 0.2–.25 mm wide, anthers 1.75 mm long, elliptic, bilobed, dorsifixed near base; pistillode 3 mm high, shorter than petals, columnar. Pistillate inflorescence spicate (Fig. 8), rachis or flower-bearing portion to 14 cm long, orange in fruit and 1.5–2 mm diam. Pistillate flowers in moderate spirals, 2–4 mm distant, superficial or only slightly sunken, leaving elliptic scars 2 mm long, flowers post-anthesis  $2 \times 2$  mm, globose; calyx  $1 \times 2$  mm, moderately lobed, sepals connate and/or imbricate in basal  $\frac{1}{2}$ – $\frac{1}{3}$ , rounded apically; petals  $2 \times 2$  mm, broadly obovate, cup-shaped, imbricate in basal  $\frac{3}{4}$ , faintly nerved abaxially when dry, acute or slightly mucronate and erect api-





cally; pistil 1.75 × 0.75 mm, oblong-globose, stigma lobes short. Fruits 6–7 mm diam., ± globose, black; seeds 5–6 mm diam., globose. Epiphyll bifid.

*Distribution:* HONDURAS. Cool, wet, cloud forest; 1,700 m elevation.

*Specimens Examined:* HONDURAS. Cortés: Montaña San Ildefonso, *Molina 8192* (EAP); *Hodel et al. 1274* (holotype BH; isotypes AGUAT EAP F MO), *1275* (AGUAT BH EAP).

The epithet of the new species is from the Latin *frondosus*, meaning leafy and refers to the numerous leaves, sometimes as many as 20, in its crown. Indeed, individual plants of *Chamaedorea frondosa* may have more leaves than any other species in the genus. Only *C. tuerckheimii* approaches *C. frondosa* in the number of leaves in its crown. By virtue of its leafy habit, *C. frondosa* is one of the most remarkable and handsome of the numerous,



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5. *Chamaedorea frondosa*, *Hodel et al. 1275*; cool, wet, cloud forest, Cortés, Honduras. 6. *Chamaedorea frondosa*, *Hodel et al. 1275*, Cortés, Honduras.





dwarf, bifid-leaved species in the genus. Its numerous leaves and dwarf stature give it an attractive, full, bushy appearance.

Florally, *Chamaedorea frondosa* is probably closest to members of the *C. pumila* complex of species, including *C. pumila*, *C. minima*, and *C. sullivaniorum*. However, the last three differ in their crowns of fewer leaves, the conspicuously nerved and corrugated leaf blades, and the pendulous staminate rachillae. The obscurely nerved, fairly thick blades of *C. frondosa* are not too unlike those of *C. geonomiformis* and *C. tenella* but the last two species have fewer leaves and pendulous staminate rachillae. In the key to subgenus *Chamaedoropsis* (Hodel 1992a, p. 120), *C. frondosa* would key out next to *C. rigida*, *C. stricta*, and *C. volcanensis*, which differ in their drooping or pendulous staminate rachillae, and *C. queroana*, which differs in its blades apically incised to more

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7. Erect, staminate rachillae of *Chamaedorea frondosa*, Hodel et al. 1275, Cortés, Honduras. 8. Fruiting plant of *Chamaedorea frondosa*, Hodel et al. 1274 (holotype); cool, wet, cloud forests, Cortés, Honduras.



than one-half their length and its infrafoliar inflorescences.

The publication of these two new species, along with our "rediscovery" of *Chamaedorea donnell-smithii* (Hodel et al. 1994) and the recent discovery of *C. tuerckheimii* in Honduras, brings to 17 the total number of species of the genus in the country. They are:

- C. arenbergiana*
- C. brachypoda*
- C. costaricana* (*C. quezalteca*)
- C. seifrizii* (*C. donnell-smithii*)
- C. elatior*
- C. ernesti-augusti*
- C. frondosa*
- C. geonomiformis*
- C. moliniana*
- C. neurochlamys*
- C. nubium*
- C. oblongata*
- C. pinnatifrons*
- C. sartorii*
- C. tepejilote*
- C. tuerckheimii*
- C. woodsoniana*

The restricted distribution of the two new species named and described here may be more apparent than real. Generally, Honduras is poorly

collected, and further field work there may prove rather revealing and fruitful, especially for *Chamaedorea*. Several little explored, isolated, mountain-top cloud forests in Honduras (such as the Montaña San Ildefonso), arising from the extensive, seasonally dry pine forest like islands in a sea, could easily harbor their own new species and/or new records for *Chamaedorea*.

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