

A NEW SPECIES OF *DRACONTIUM* (ARACEAE) FROM PANAMA
WITH NOTES ON THE SAPROMYOPHILOUS POLLINATION SYNDROME

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The genus *Dracontium* is one of the most poorly known members of the Araceae in Central America. Individual plants are usually rare and in addition the solitary leaf is deciduous during the dry season. During the several years spent in field work on Barro Colorado Island, I was never able to locate plants of *Dracontium* although they had been seen by others. The species which occurs there was collected by Dr. Robert Dressler on June 30, 1972. At that time no inflorescence was present. Later the tuber was transferred to the Missouri Botanical Garden by Dressler where it has flowered. Later Dressler collected a living specimen of the species near Archote in Colón Province northwest of Barro Colorado Island, and I collected the species in the vicinity of the Summit Hills Golf Club in the Canal Zone. (Croat 27794 MO). The species has proven to be new to science and is described in honor of Dr. Dressler.

***Dracontium dressleri* Croat sp. nov.**

Planta tuberosa unifoliata; tuber ovoideum, ca. 9 cm longum et 7 cm latum, apice rotundato; petiolus ad 1 m longus, cylindraceus, subsucculentus, serpentis modo ornatus, maculis brunneolis et viridibus; lamina profunde tripartita incisa, 2-4-pinnata vel sub-5-pinnata, segmento media ad 1 m longo, segmentis oblongis vel lanceolatis, apicibus acuminatis, basi acutata et decursiva, 2-20 cm longa, 1-7.5 cm lata; pedunculus ca. 2 cm longus, ca. 1 cm diametro; spatha membranacea, purpurea, concava, ca. 10 cm longa, ca. 4 cm lata; spadix ca. 2.7 cm longus, 7-9 mm diametro, appendicibus decem, apicalibus, gracilibus; flores hermaphroditi; tepalis plerumque 5 vel 6, staminibus 5-9, ad 2.2 mm longis; fructus ignotus.

TYPE: PANAMA: CANAL ZONE: Barro Colorado Island, near end of Zetek Trail, Dressler s.n. June 30, 1972 (HOLOTYPE: MO-2133073).

DISTRIBUTION: Apparently endemic to Panama.

A more complete description in English follows:

Terrestrial, consisting of a single large leaf arising from an underground tuber, tuber ovoid, ca. 9 cm long and 7 cm wide or larger, the upper part rounded. Leaf 2- to 4-pinnate to sub-5-pinnate, glabrous; petiole fleshy, to 6.5 cm diam. near the base and 3 cm diam. at the apex, 1-1.8 m long, with a reptilian pattern of green blotched with dark brown and pale green and with irregular short protuberances, these especially close in the lower half; blade thin, with 3 principal divisions, the middle section to 1 m long, the lateral sections somewhat shorter, leafy mostly in the outer $\frac{2}{3}$, the rachises smooth or with protuberances, faintly patterned like the petiole; leaflets 3.5-20 cm long, 1-7.5 cm wide, gradually acuminate at the apex or bilobed with 2 acuminate lobes, acute at the base and decurrent along the rachis, the lateral veins of ultimate segments arcuate-ascending, loop-connected, occasionally interconnected with an equally prominent cross-vein, all major veins impressed on the upper surface, raised on the lower surface, the recurrent part of the blade \pm erect on the upper side of petiole and irregularly lobed. Inflorescence arising from the apex of the tuber before the leaf is pro-

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duced; peduncle ca. 2 cm long and 1 cm thick, subtended abaxially by a lanceolate sheath; sheath ca. 5 cm long and 2 cm wide, acuminate at the apex, with an obscure medial vein, at first violet-purple, soon drying and turning brown; peduncle subtended adaxially by a cataphyll ca. 2 cm long, this bearing 2 prominent ribs on its outer surface; spathe \pm oblong in face view, ca. 10 cm long, arcuate in side view, convolute in the lower third and to 2.5 cm wide, broadened above, to 4 cm wide, becoming tapered at the apex and curving forward to form a portico over the mouth of the spathe, the tip cuspidate-acuminate, outer surface of the spathe dull, violet-purple, tinged with green, bearing $15 \pm$ equidistant veins, inner surface of the spathe shiny, smooth, dark violet-purple except for a weakly transparent area around the spadix, this ca. 4 mm wide at any point, the tube of the spathe roomy within; spadix dark violet-purple throughout, short-stipitate, the stipe ca. 7 mm long and 6 mm diam., the fertile part ca. 2 cm long, 7-9 mm diam., bearing 10 slender appendages at the apex ca. 5 mm long (Fig. 2); flowers bisexual, closely spiralled in ca. 10-12 rows; tepals 4-8 (usually 5 or 6), biseriate, ca. 2 mm long, broadened and arched inward at the apex, the upper edge truncate, irregularly shaped, mostly triangular to diamond-shaped, ca. 1.5-2.5 mm wide, thickened except along the irregular distal margin; stamens usually free, 5-9, to 2.2 mm long, opposite tepals and emerging slightly above them at anthesis, crowded together by the tepals to form a single locus of pollen; filaments fleshy and swollen toward the apex, broader than the anthers; anthers linear-elliptic, ca. 4 mm long, vertically dehiscent, the thecae touching at the apex, separated at the base; pollen light-brown, the grains oblong-elliptic, monosulcate (Fig. 5), clinging together in a mass but the mass of pollen not tacky; filaments of the inner whorl sometimes fused laterally forming a tube around the pistil, the tube white, streaked with violet-purple; pistil violet-purple, ca. 1.6 mm long; ovary \pm oblong, pale-colored, incompletely 2- or 5-locular; ovules solitary; style eccentric, darkly colored, tapered to a slender apex. Fruits unknown, those of the genus surrounded by the perianth as in *Anthurium*; seeds rounded to reniform, somewhat compressed.

The new species is most easily distinguished by its almost sessile inflorescence (Fig. 1). In his treatment of *Dracontium* for Das Pflanzenreich, Engler (1911) includes only 2 species which have peduncles shorter than the spathe. Both *D. polyphyllum* L. and *D. asperum* C. Koch, which are illustrated, are markedly different from *D. dressleri*.

Dracontium dressleri is similar to *D. soconuscum* Matuda (Matuda, 1949), but that species has a peduncle 10-15 cm long versus 2 cm long in *D. dressleri*. It also differs in having a hemispherical tuber and a spadix 3-4 cm long versus an ovoid tuber and a spadix ca. 2.5 cm long.

The bulb transferred from BCI to the Missouri Botanical Garden began to produce an inflorescence during May. The inflorescence persisted on the plant for about one month, but flowers underwent anthesis for less than a week. Most flowering activity occurred in less than a week. The last flowers to open were those restricted to the lowermost whorl of the spadix. During the peak of its flowering activity, the inflorescence emitted a strong odor which smelled like mildew from a damp rag. The inflorescence presents a typical fly-pollinated syndrome (sapromyophily) with a foul aroma, a purplish-colored spathe, and easy access to the flowers (Faegri and van der Pijl, 1966). The species also has a transparent window around the spadix at the base of the spathe tube. This is unapparent from the outside, but can



Fig. 3. Showing leaf emergence and withering of spathe $\times .4$



Fig. 4. Leaf segment $\times .4$

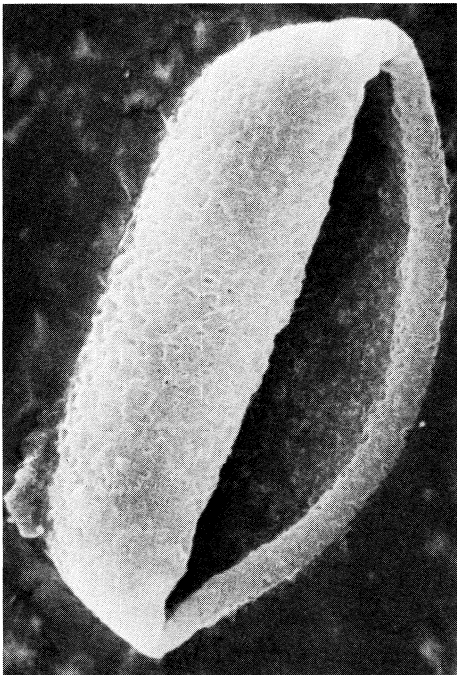


Fig. 5. Pollen grain $\times 1800$

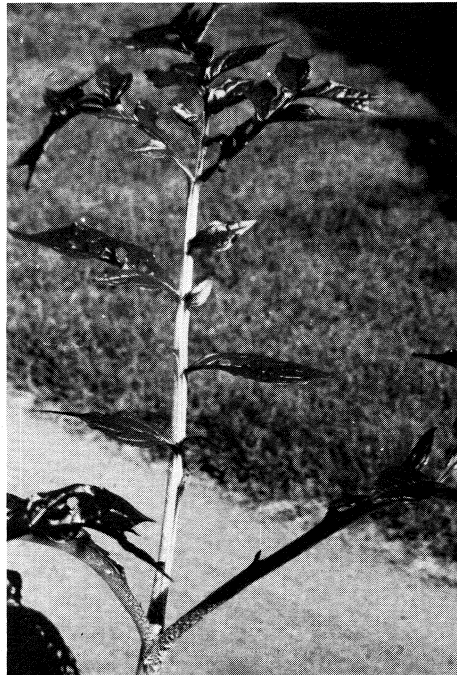


Fig. 6. Leaf showing branching of segments $\times .25$

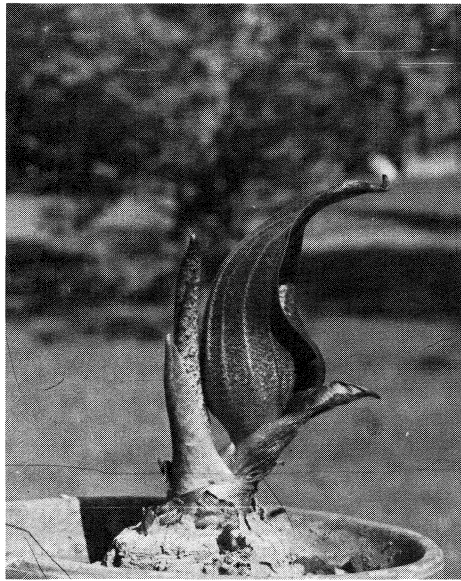


Fig. 1. Side view of spathe with new leaf emerging $\times .4$

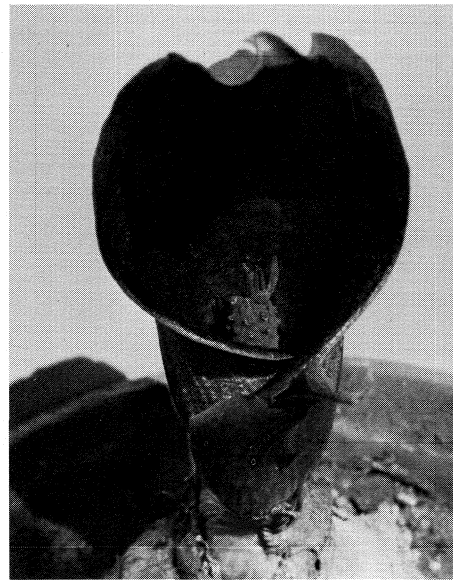


Fig. 2. Front view of inflorescence showing spadix and spadix appendages $\times .6$

be seen easily from within if the front of the spathe is closed off. The inner surface of the spathe is very smooth, perhaps making it difficult for an insect visitor to crawl out.

Tiny flies were observed visiting the inflorescence during anthesis at the Missouri Botanical Garden, but pollination did not occur. Toward the end of anthesis the plant began developing a new leaf. It had grown 145 cm within 20 days from the time the leaf emerged from its sheath. The blade did not enlarge appreciably until the petiole neared its maximum length on the 10th day (Figs. 3, 4 & 6).

LITERATURE CITED

- Engler, A.** 1911. Araceae-Lasioideae in *Das Pflanzenreich*.
Faegri, K. and L. van der Pijl 1966. *The principles of pollination ecology*. Pergamon Press, London. 248 pp.
Matuda, E. 1949. A new *Dracontium* from southern Mexico. *Amer. Midl. Nat.* 41: 494-495.