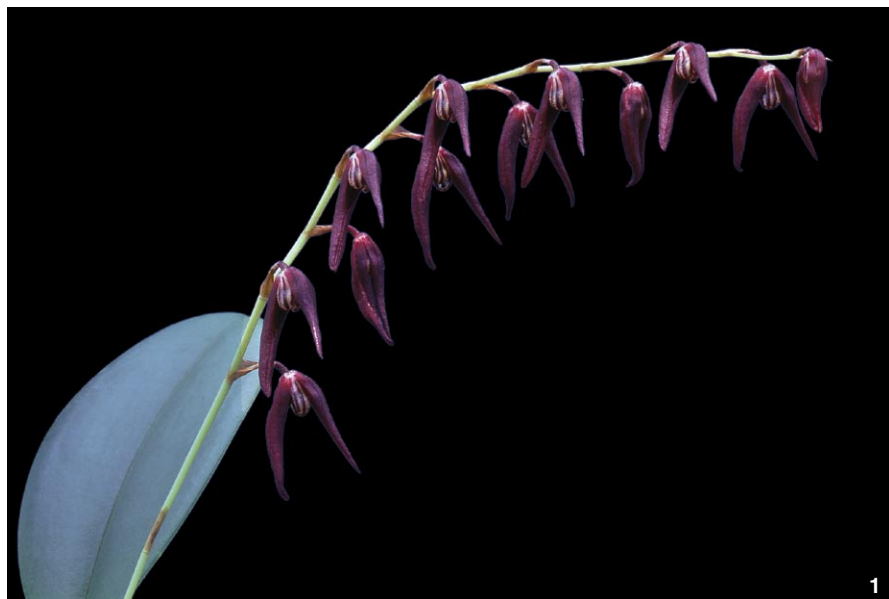


Dracontia

By Adam P. Karremans

The Little-Known Dragon Orchids



THE DRAGON ORCHIDS (GENUS *Dracontia*) represent a small group of mostly Central American species in the Pleurothallidinae. Their relatively large, uniquely shaped and diversely ornate flowers set them apart from their close relatives.



Adam P. Karremans

The first species of the group to have been discovered was the Jamaican native *Epidendrum racemiflorum*,¹ described by Olof Swartz in 1788. Most species, however, have been described in the last century and are most commonly from southern Central America. In 1859, John Lindley transferred *Epi. racemiflorum* to *Pleurothallis*, and subsequently several related species were described in that genus. In 1986, Carlyle Luer, MD, created *Pleurothallis* subgenus *Dracontia* for *Pleurothallis oblongifolia* (= *Epi. racemiflorum*) and 10 closely related species (Luer 1986). *Pleurothallis tuerkheimii*,² a species that German taxonomist Rudolf Schlechter named after Baron von Tuerckheim, who collected the plant in Guatemala, was selected as the type. The subgenus was revised by Luer in

1998 when he added six more names and created sections *Brodingnagia* and *Cylindria* (Luer 1998).

After the reclassification of the Pleurothallidinae by Pridgeon and Chase (2001), all species of subgenus *Dracontia* were transferred by the authors to a broader concept of the genus *Stelis*. However, the general floral morphology of *Dracontia* is distinct from species of *Stelis* in the strict sense. In 2004, not convinced with the placement of *Pths. tuerkheimii* and its relatives in a broader concept of *Stelis*, Luer elevated *Dracontia* to genus level (Luer 2004). Additional DNA information places species of *Dracontia* in a monophyletic and well-supported clade, closely related to species of *Effusiella* and *Salpistele*; altogether they form a clade sister to *Stelis* in its strict sense (Karremans 2010). The inclusion of species of *Dracontia* and related taxa makes it difficult (if not impossible) to morphologically define *Stelis* (Pridgeon 2005). Excluding those groups from *Stelis* makes it much easier to characterize, and is supported by DNA evidence and geographical distribution patterns (Karremans 2010).

The genus *Dracontia* is distributed from Mexico to Panama, with one species in the Greater Antilles. The highest diversity is found in Costa Rica and Panama, where 16 of the 17 described species have been reported to grow. All are epiphytic herbs or growing on terrestrial mosses, usually found in humid or seasonally dry forests. Most spe-

- [1] *Dracontia tuerkheimii*. Prominent bract and the multiflowered inflorescence. Pupulin 1462, collected in Dota, Costa Rica.
 [2] *Dracontia tuerkheimii*. Apex of the inflorescence with flowers and buds. JBL-11492, from Costa Rica.

cies grow at mid-to-high elevations, mostly between 2,620 and 5,900 feet (800–1,800 m), but can occur as low as 980 feet (300 m) or as high as 9,840 feet (3,000 m).

Plants of *Dracontia* generally bear successive blooming inflorescences consisting of fleshy flowers with long, thick, three-lobed, movable lips; convergent sepals forming a synsepal that is similar to the dorsal sepal; concave petals; a triangular column, which is apically dentate and much shorter than the lip; an incumbent, helmet-like and excessively large anther (in relation to pollinia size); ventral stigma covered by a bubblelike rostellum; and two flat and dry whale-tail-shaped caudicles, to name a few distinguishing features. They grow best at medium temperatures on wooden plaques with good drainage and aeration, and have to be given water daily.

The type species of the genus is the well-known *Dracontia tuerkheimii*, which possibly is the most common and widely distributed species in the genus, ranging from Mexico to Panama. However, the generic name derives from a different species. When Luer described the Costa Rican endemic *Dracontia dracontea* (Luer) Luer,³

¹Currently *Stelis multirostris* in the *World Checklist of Selected Plant Families*.

²Currently *Stelis megachlamys*.

³Currently *Stelis dracontea*.

the species on which he obviously based the generic epithet, he made allusion to the hairy, gaping mouth, with a warty, upturned tongue, which made the flower to look like a dragon's mouth.

Although most plants are medium sized, section *Brodingnagia* was made to accommodate two giant species from Costa Rica and Panama. Plants of *Dracontia grandis* (Rolfe) Luer⁴ and *Dracontia powellii* (Schltr.) Luer,⁵ can reach 40 inches (1 m) tall, make 20-inch- (0.5-m-) long inflorescences and have more than 50 flowers, making them unique in the genus and certainly a standout in the Pleurothallidinae. On the other hand, *Dracontia cobanensis* (Schltr.) Luer⁶ and *Dracontia carnosilabia* (A.H. Heller & A.D. Hawkes) Luer⁷ may be the smallest species in the genus. Plants of both can be found flowering at a size of about 2 inches (5 cm) tall. The first, described from Cobán in Guatemala, is similar to *Drc. tuerckheimii* in plant habit, having a conspicuous, papery, erect spathe, and flowers that open almost simultaneously; however, its flowers are much smaller and the lip is flat with prominent lateral lobes. In Costa Rica, most plants of *Drc. cobanensis* are tiny and normally have cleistogamous flowers (forming fruits without opening). *Dracontia carnosilabia* is known only from Nicaragua, Costa Rica and Panama, and is set aside from the rest by its two or three nonresupinate flowers per inflorescence and the thick white lip.

Section *Cylindria* has only one species, *Dracontia macrantha* (L.O. Williams) Luer,⁸

[3] *Dracontia dracontea*. Hairy sepals and warty tongue that resembles a dragon's mouth. Bogarín 616, collected in Heredia, Costa Rica.

[4] *Dracontia dracontea*. Successive inflorescence. Bogarín 616, collected in Heredia, Costa Rica.

[5] *Dracontia grandis*. Segment of the multiflowered raceme, purple form. Pupulin 7875, from Costa Rica.

[6] *Dracontia grandis*. Segment of the multiflowered raceme, greenish-yellow form. Pupulin 1275, collected at Bajos del Toro, from Costa Rica.

[7] *Dracontia powellii*. Segment of the multiflowered raceme. Pupulin 4498, collected in Coto Brus, Costa Rica.

⁴Currently *Stelis alta*.

⁵Currently *Stelis gigantea*.

⁶Currently *Stelis cobanensis*.

⁷Currently *Stelis carnosilabia*.

⁸Currently *Stelis cylindrata*.



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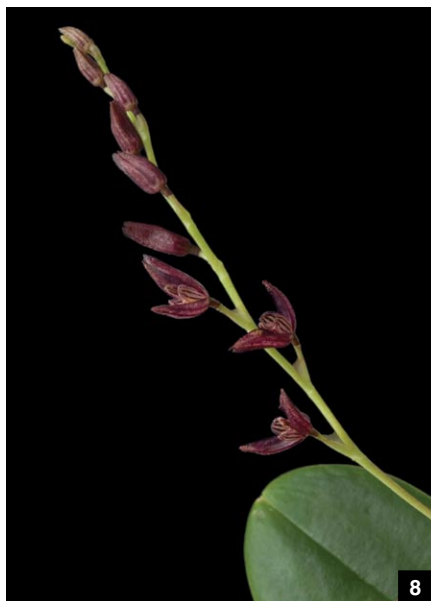
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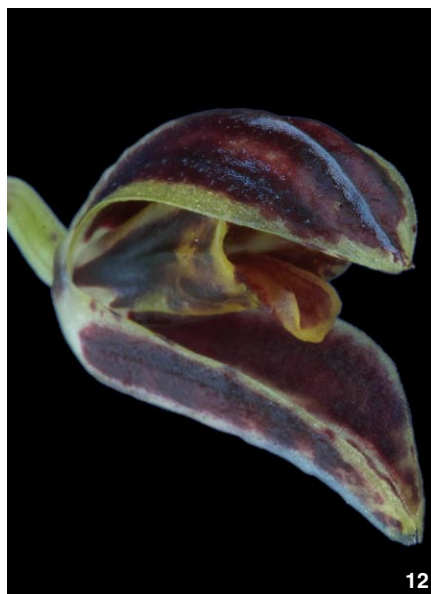
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from Costa Rica and Panama. It is immediately distinguished by the flat lip with longitudinally involute sides, making a long hollow tube. The relatively large flowers are yellowish, diversely spotted (maculate) with dark purple. Color-wise, diverse shades of purple dominate the flowers of *Dracontia* species; flowers are commonly completely or heavily maculate or suffused. *Dracontia papillifera* (Rolfe) Luer,⁹ a Costa Rican endemic, is an exception. It has a light-green flower with a yellow lip; only the external papillae of the petals are dark purple. Other exceptions are illustrated by the unnamed *Dracontia* sp. 1 from Costa Rica, which is completely greenish-yellow and *Dracontia* sp. 2, which has creamy-bronze-colored flowers. It is possible that the purple colors are related to pollination, especially when considering that closely related genera are diversely colored. Even so, yellow or “flava” forms of normally purple species are commonly found among the Pleurothallidinae, and such forms have been reported for *Drc. grandis* and *Drc. tuerckheimii*.

As mentioned before, species of *Dracontia* are diversely successively flowered, and the number of flowers open at once is characteristic of some species. When describing *Dracontia perennis* (Luer) Luer,¹⁰ the author noted that the species was able to produce flowers indeterminately, with one or two open at once but being able to produce dozens for several months. This kind of indeterminate inflorescence with one or rarely two flowers open at once is typical of *Dracontia tintinnabula* (Luer)

[8] *Dracontia cobanensis*. Inflorescence, Costa Rican tiny, purple and cleistogamous form. Bogarín 8884, collected in Moravia de Chirripó, Costa Rica.

[9] *Dracontia cobanensis*. Segment of the inflorescence, yellow form. From Mexico.

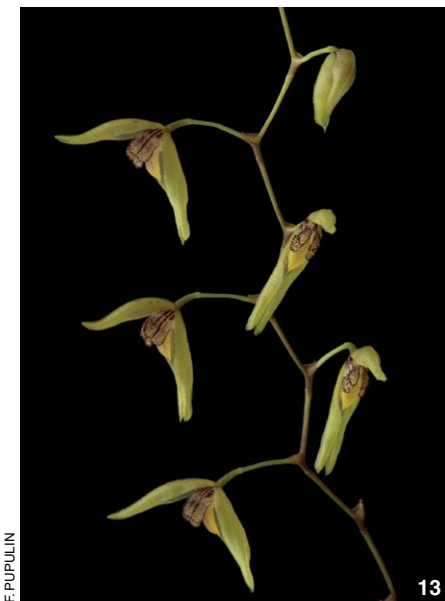
[10] *Dracontia carnosilabia*. Leaf and pendulous few-flowered inflorescence. M. Blanco 2802, collected in Guapiles, Costa Rica.

[11] *Dracontia macrantha*. Successive inflorescence. Karremans 2798, collected in Coto Brus, Costa Rica.

[12] *Dracontia macrantha*. Flower of the species. Karremans 4025, collected on Cerro Pando, Costa Rica–Panama border.

⁹Currently *Stelis papillifera*.

¹⁰Currently *Stelis perennis*.



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- [13] *Dracontia papillifera*. Several open flowers typical of this species. Bogarín 7163, collected in Cachí, Costa Rica.
- [14] *Dracontia papillifera*. Papillae on a single flower. Bogarín 7215, collected in Cachí, Costa Rica.
- [15] *Dracontia* sp. 1. Flowers on a successive multiflowered inflorescence. Bogarín 7698, collected in Coto Brus, Costa Rica.
- [16] *Dracontia* sp. 1. Inflorescence. Bogarín 7698, collected in Coto Brus, Costa Rica.
- [17] *Dracontia* sp. 1. Papillae and hairs of a single flower. From Bogarín 7698, collected in Coto Brus, Costa Rica.
- [18] *Dracontia* sp. 2. Single flower typical of the species. From Costa Rica.
- [19] *Dracontia tintinnabula*. Successive inflorescence with only one flower open at a time. Bogarín 7152, collected in Cachí, Costa Rica.



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Luer¹¹ and *Dracontia ramonensis* (Schltr.) Luer,¹² both endemic to Costa Rica. The first is unique in the flexuous inflorescences and the nutant flowers that face downward. The second, with a beautiful large flower, is unique in having an inornate lip, which appears shiny and slippery. *Dracontia pachyglossa* (Lindl.) Luer,¹³ which also has such an inflorescence, has the largest flowers of the genus, is relatively common in Mexico and Guatemala and has a papillose lip that thickens toward the apex.

Another group of Costa Rican endemic species produces successive inflorescences where two to five flowers are open at once. *Dracontia* sp. 3, with its narrow, linear-elliptic leaves and flowers parallel to the rachis, and a prominently curved ovary, is an example. Other such cases are *Dracontia ingramii* (Luer) Luer¹⁴ and *Dracontia* sp. 4. *Dracontia ingramii* is easily distinguished from all other species by the acuminate, slender leaves and dark flowers, but mostly by the L-shaped synsepal. It is a lowland species, found at elevations around 1,970 feet (600 m). *Dracontia* sp. 4 is known from around Cartago; it has long inflorescences, with normally nine purple-maroon flowers, yellowish petals and a thick, verrucose, obtuse lip.

Dracontia tuerckheimii is a good example of the third kind of inflorescence within the group; it produces long, multiflowered inflorescences, where dozens of flowers can be open at once, and even though successively opening, at some point all may be open simultaneously. The species is widespread and variable; for example, a yellow form has been described as *Drc. tuerckheimii* forma *viridiflavens* Roeth & Baumbach. However, no sketch

[20] *Dracontia ramonensis*. An open flower with its typical inornate lip and an almost fully developed bud. Pupulin 4900, collected in San Ramón, Costa Rica.

[21] *Dracontia ramonensis*. Successive inflorescence with only one large flower open at a time. Pupulin 5437, collected in San Ramón, Costa Rica.

[22] *Dracontia ramonensis*. Plant habit, and relatively large inflorescence and flower of the Costa Rican endemic. Pupulin 5437, collected in San Ramón, Costa Rica.

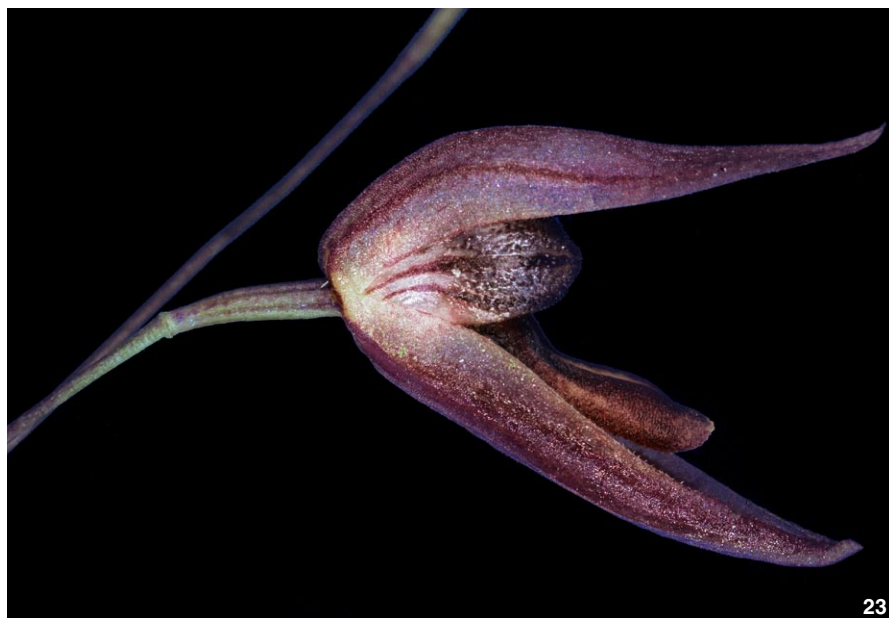
[23] *Dracontia pachyglossa*. Large, thick lip typical of the species on a single flower. From Mexico.

¹¹Currently *Stelis tintinnabula*.

¹²Currently *Stelis alajuelensis*.

¹³Currently *Stelis pachyglossa*.

¹⁴Currently *Stelis ferrelliae*.



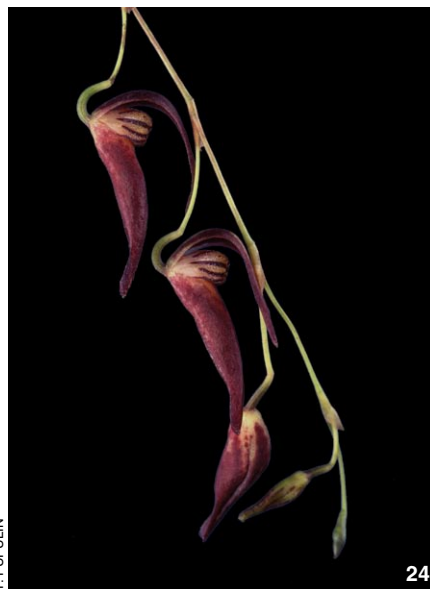
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was made nor was locality data provided, whereas *Stelis megachlamys* (Schltr.) Pupulin subsp. *teotepecensis* Soto Arenas was described from Guerrero, Mexico, as a consistently smaller-flowered and geographically segregate subspecies. (*Stelis megachlamys* is the accepted name for *Dracontia tuerckheimii*.) The ornamentation, color and shape of the lip are among the most useful distinguishing characters. *Dracontia conochila* (Luer) Luer¹⁵ is recognized by the cone-shaped lip, with relatively big basal lobes and a narrow apex, while *Dracontia* sp. 5 can be recognized by the whitish lip with three purple stripes and prominent white and purple papillae on the petals. Both are known only from Costa Rica. Meanwhile, Panamanian endemics *Dracontia fortuneae* (Luer & Dressler) Luer¹⁶ and *Dracontia thymochila* (Luer) Luer¹⁷ are unique within the genus. The first, from the Fortuna Dam cloud forest in Chiriqui, is set apart from any other species by the distichous (arranged in two rows on opposite sides of an axis) inflorescence and the long sepals. The second was described from an elevation of around 1,150 feet (350 m) in central Panama, which is not only the lowest elevation reported for the genus, but is also the southernmost.

Dracontia oblongifolia (Lindl.) Luer¹⁸ is the name currently used for the only species of the genus that grows in the Antilles. It is similar to the Central American *Drc. cobanensis*, and further study may reveal they are the same. The oldest name applicable to this species is *Epidendrum racemiflorum*, which was later transferred to *Pleurothallis* by Lindley. However, because the name *Pleurothallis racemiflora* was already occupied, the author used the next available name for the species, *Pleurothallis oblongifolia* Lindl. When Pridgeon and Chase (2002) transferred the species to genus *Stelis*, they were obliged to use a third name, *Pleurothallis multirostris* Rchb.f., as both *Stelis racemiflora* and *Stelis oblongifolia* were already occupied. In 2004, when making the new combination in *Dracontia*, Luer used the name *Dracontia oblongifolia*; however, as the combination in *Dracontia* for *Epi. racemiflorum* is not occupied, it should be used instead.

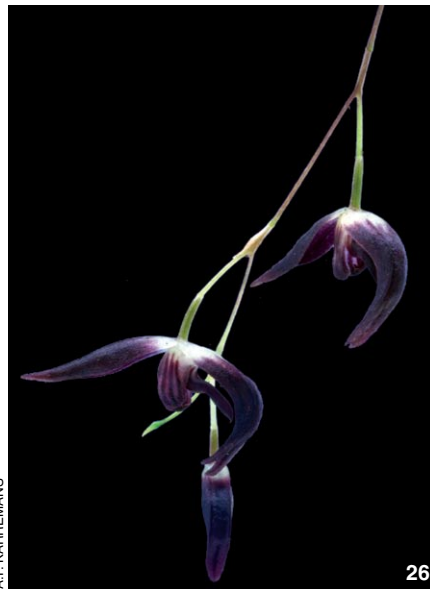
Finally, there are two curious species that deserve to be included here. *Pleurothallis mystax* Luer¹⁹ is a petite plant endemic



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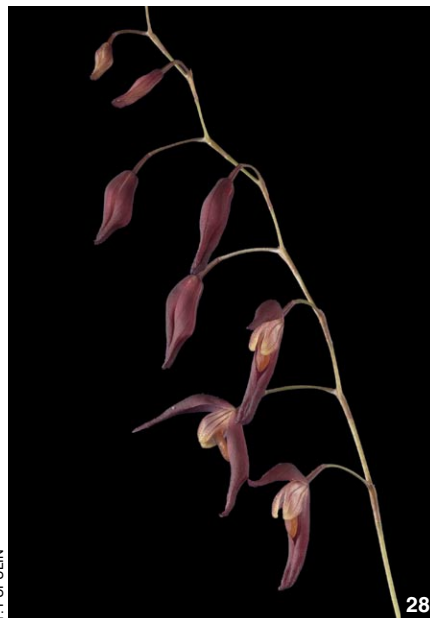
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- [24] *Dracontia* sp. 3. Flowers parallel to the rachis and the curved pedicels. Pupulin 3658, collected in Moravia de Chirripó, Costa Rica.
- [25] *Dracontia* sp. 3. A single flower of the successive inflorescence and the typical emarginate petals. JBL00819, collected in San Ramón, Costa Rica.
- [26] *Dracontia ingramii*. Successive inflorescence with typically dark flowers and L-shaped synsepals. Karremans 4326, collected at the type locality in the Braulio Carrillo National Park in Costa Rica.
- [27] *Dracontia* sp. 4. Single flower with its thick orange lip and papillose petals. From Costa Rica.
- [28] *Dracontia* sp. 4. Nine maroon-purple flowers in a successive inflorescence. Bogarín 5567, collected in Cachí, Costa Rica.

¹⁵Currently *Stelis conochila*.

¹⁶Currently *Stelis fortuneae*.

¹⁷Currently *Stelis thymochila*.

¹⁸Currently *Stelis multirostris*.

¹⁹Currently *Stelis mystax*.



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to Panama. It has a well-developed ramicaul, loosely sheathed, with a petiolate, elliptic leaf, from the base of which is born a successive-flowered inflorescence. The flowers are purple, and have elliptic three-veined petals that embrace the column, but most interestingly, a column that is much shorter than the thick, basally cylindrical lip, and a prominent, incumbent (not apical), helm-shaped anther. *Pleurothallis platystylis* Schltr.²⁰ is known from Mexico to Nicaragua, has medium-size plants to about 12 inches (30 cm) tall and a raceme longer than the leaves, with about 20 flowers. Noteworthy are the elliptic three-veined petals that embrace the short column, with a three-lobed lip that is slightly longer, and a prominent, helm-shaped anther. Both species have been described as *Pleurothallis* and then followed completely different routes to finally end up in *Stelis*. The monotypic genus *Mystacorchis* Szlach. & Marg. was made in 2001 to accommodate *Pths. mystax*, which was almost simultaneously transferred to *Stelis* by Pridgeon and Chase (2001), whereas *Pths. platystylis* has been placed in *Anathallis* (Pridgeon and Chase 2001), *Specklinia* (Luer 2004), *Effusiella* Luer (Luer 2007) and finally *Stelis*, by Solano and Soto Arenas (Solano 2008). While they have not yet been associated with genus *Dracontia*, in my view, they may be closer to the group than expected.

Several *Dracontia* species are still to be described. The five Costa Rican species named here as *Dracontia* sp. are cultivated at Lankester Botanical Garden and are in the process of being described,

while at least two more unnamed species have been spotted in herbarium material. Considering that they normally have narrow distributions and that the Talamanca Cordillera, the large mountain range shared between Costa Rica and Panama, which seems to be their center of diversity, is mostly unexplored, the genus is likely to increase to about double the current number of species

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- [29] *Dracontia* sp. 5. Whitish lip and papillae on a single flower. From Costa Rica.
- [30] *Pleurothallis mystax*. Single flower of this curious little Panamanian endemic. Bogarín 2988, collected in Bocas del Toro, Panama.
- [31] *Pleurothallis platystylis*. Bright yellow flowers typical of this species. From Mexico.

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²⁰Currently *Anathallis platystylis*.