



a pdf magazine  
devoted to Hoya  
and Dischidia  
cultivation,  
history and  
photography

# Stemma



Volume 2, #1

Winter, 2008

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## Editor's Note

### **Bonjour!**

**Stemma** is pleased to note that we are no longer the only organization in the *Hoya* world publishing digitally. Joining in this past summer (2007) is **Asclep-Hoya**, the revue of the AFAHO, the *Association Francophone Des Amateurs De Hoya*. The revue is published quarterly, and is one of the benefits of membership in this French language society.

Another perk is the online French *Hoya* forum Monforums, on the web at:

<http://hoyas.monforum.fr/index.php>

Photographs taken by AFAHO members are viewable online at the innovative website Flickr, a photo sharing resource:

[www.flickr.com/groups/hoyasmonforumfr](http://www.flickr.com/groups/hoyasmonforumfr)

Another Flickr pool with AFAHO content, open to the larger *Hoya* growing community:



[www.flickr.com/groups/hoyas/pool](http://www.flickr.com/groups/hoyas/pool)

Membership information for the AFAHO may be obtained by contacting Alexandre Gaurus at:

email: [kl55555@club-internet.fr](mailto:kl55555@club-internet.fr)

Please place "AFAHO" in the subject header. ☺



**Left:**

Photographs of *Hoya praetorii* Miq. from the **Asclep-Hoya** revue no. 1



# A Look at *Dischidia*

*Text and all photos by Antone Jones*  
(Antone is on-line at [www.dischidia.com](http://www.dischidia.com))



**Flowers of *Dischidia* sp. Geri**

Some of you are probably thinking to yourself, "Well... the title seems to be missing the word, *Hoya*." You'd be correct. In this article we are going to take an in depth look at the genus, *Dischidia*. We will uncover some of the mysteries that surround this sister genus of plants. So, go check on your plants and when you return, sit back, relax and enjoy the ride.

## General Info

*Dischidia* was first described by R. Brown in 1810. The type species for the genus is the ever common and widespread *Dischidia nummularia* R. Br. (pictured at right) which is also known as the Button Orchid Plant. The genus *Dischidia* currently comprises approximately 80 species all of which are epiphytic. They are found throughout SE Asia stretching from India (*D. bengalensis*) all the way to Australia (*D. nummularia*). *Dischidia* can be found in the wild



growing along side *Hoya*, often times occupying the same tree or even the same branch. Many species are myrmecodial (growing with ants) and have developed special foliage to accommodate their six legged friends. They can be found at sea level all the way up to over 2000m above sea level (*Dischidia astephana*).

Presently there are three recognized sections of the genus: *Ascidiophora*, *Conchophyllum* and *Dischidia*. Sect. *Ascidiophora* contains the pitcher leaved species i.e., *Dischidia major*, *D. vidalii*, and *D. complex* (*D. vidalii* pictured). These pitcher leaves are utilized by arboreal ants for various things from a place to store larva to a waste facility. The pitcher leaves obtain nutrient from the ants by a single root that



grows and spreads throughout the inside of the pitcher leaf. This is a great example of a symbiotic relationship; the ants get shelter and the plant receives nourishment. It has also been suggested that the pitcher leaves of *D. major* can also serve as a water reservoir if they are growing upside down. This would allow water retention when rain falls and collects inside the leaf.





**Top Left: *D. diphylla*, Top Right: *D. cleistantha*, Bottom: *D. imbricata***

*Sect. Conchophyllum* contains the shell leaved species which includes, *Dischidia diphylla*, *D. cleistantha*, *D. imbricata* and many more. These plants have developed flat foliage that grows extremely close to the surface they are growing on. What's interesting about this group is that not only do they provide nesting sites for arboreal ants like sect. *Ascidiophora* but the flat, sessile growth habit also creates the perfect environment for root development. Underneath each pair of leaves is dark, warm and moist. This also enables these species to withstand significant amounts of drought.

Sect. *Dischidia* contains all the other species which have laminate or “normal” foliage. This also includes the genus *Dischidiopsis* which is a genus of questionable validity; more on that later. Even though the species of this section don't have special foliar apparatuses, many of them are still myrmecodial. Species like *Dischidia rimicola* can be found growing directly out of the arboreal ant nests of the genus *Crematogaster*. It has been observed that the ants harvest the seeds of these plants. This explains the association perfectly. The ants bring the seeds to their nest; the seeds germinate and then grow from it.



**Left: *Dischidia litoralis* Right: *Dischidiopsis luzonica***

The genus *Dischidiopsis* contains a handful of species with *Hoya*-like foliage. The heaviest concentration occurs in the Philippine archipelago but are also found sparsely throughout SE Asia. One of the key features of the genus is that none of the flowers possess the anchor shaped coronal appendages that *Dischidia* do. Oddly, not all species have them either. The species of this genus have the same habitat, growth and general floral characteristics as *Dischidia* which is why its validity is in the air. I believe in the future, these plants will all be moved to *Dischidia*.

Some *Dischidia* have medicinal uses as well. The foliage of the shell leaved species, *Dischidia purpurea* are crushed and cooked in coconut oil. This is then used as pomade for eczema and herpes.



## Flowers and Foliage



***Dischidia astephana***

The flowers of *Dischidia* may not be as "flashy" as those of *Hoya* but that does not make them any less interesting. Many species have spectacularly colorful flowers while others have powerfully fragrant ones. Some have fairly large flowers like those of *Dischidia diphylla* (which also smell heavenly) while others are so minute one would almost require a hand lens to view them.

*Dischidia* flowers (like all Asclepiads) are 5-merous, meaning that they have five petals (flowers of *D. diphylla* pictured). They exist in a variety of shapes from the urceolate flowers of *Dischidia singularis* to the campanulate flowers of *Dischidia rhombifolia*. Some may bloom for many days up to a week or so while others seemingly last only a single day or just slightly more. Many are born on long peduncles where they can be seen by pollinating insects like those of *Dischidia purpurea*. Some may bloom in groups or singly as in *Dischidia hirsuta*. Anthesis\* isn't always apparent in many *Dischidia*. This is because there are many species that have flowers that appear closed. Those of *Dischidia vidalii* seem to appear closed constantly. Conversely, *Dischidia griffithii* has flowers that are widely divergent at anthesis, allowing full view of the gynostegium\*.





These flowers possess a few unique floral characters that set them apart from *Hoya* and the other genera of the family. Many of them contain hairs on the inside of the corolla. Some of them are quite visible by the naked eye as they cover the entrance to the corolla. Other species contain hairs further down the corolla tube only to be seen via dissection. Another neat feature of *Dischidia* flowers are the anchor shaped coronal appendages found in many species. These appendages are attached to the gynostegium. They can provide a means for identification as they are very differently sized and/or shaped between those species which have them.



**Undescribed species from Thailand**



**Left: *Dischidia lancifolia***



**Right: *Dischidia merrillii***

Pollination of the flowers is an area of grey in this genus. Not much research has been conducted on the specific vectors for pollinating them. In Rintz's account of the Malayan *Dischidia* (1980) he mentions that the likely pollinators of *Dischidia* would be lepidopterans (moths and butterflies). He continues to say that many believe ants would be vectors for pollination because so many *Dischidia* are associated with them, but any ant that would be small enough to fit inside the flower would be far too small to dislodge the pollinium\* and then insert it just right into the grooves formed by the anther margins. I have personally witnessed moths, butterflies, ants, wasps, bees and flies all feeding on the nectar of *Dischidia* flowers. This doesn't necessarily mean that they are all vectors for pollination but at least gives some insight into where to start. Pictured here is a wasp drinking nectar from *Dischidia bengalensis*.



The foliage of *Dischidia* exists in a wide range of shapes, sizes and vesture from the very large leaves of *Dischidia acutifolia* to the hairy foliage and stems of *Dischidia hirsuta* (hence the name). Some species are nearly impossible to distinguish from a *Hoya* when sterile because of their size, shape and thickness. *Dischidia superba* comes to mind. Its foliage is large, heavy, hard and dark green. *Dischidia*

*lancifolia*, *D. astephana* and *D. singularis* are particularly notable for their foliage and represent but a small sample of the variability and beauty found in this genus of plants.



***Dischidia acutifolia***





Top Left: *Dischidia hirsuta* Top Right: *Dischidia lancifolia* Center: *Dischidia singularis* Bottom: *Dischidia astephana*



## Identification



**Clone of *Dischidia acutifolia*. Compare with picture on page 10**

Identification of *Dischidia* can be an arduous and stressful task. Like *Hoya*, there are many clones of the same species in existence some of which have different looking foliage but identical flowers. Furthermore, new species and/or varieties are discovered every year which can add to the mayhem as well as the fact that so many are incorrectly identified or not identified at all due to the lack of info available.

Some important things to remember are that, like humans, there is variability in a single species. Some species contain clones with large glabrous foliage while other clones may be tiny and covered in dense hairs. Cultural influence can greatly change the look of foliage as well. Low light, lots of food and high humidity often will create large, dark green leaves while lots of light, little food and moisture will yield smaller, harder foliage. Temperature, light and nutrients can influence flower color and because of this it's sometimes important to ignore flower color and instead pay attention to flower morphology. The age of the plant can also confuse as some species' vesture changes with age. For example, often times some species start out with dense hairs on young foliage and then slowly drop the hairs as those leaves gain age. *Dischidia hirsuta* and *D. astephana* are two examples of this occurrence.

The best thing to do is to always label and keep records of your plants. Knowing the origins of what you have can be a powerful weapon in the battle for identification.

## Cultivation



### **Epiphyte walls festooned in *Dischidia***

As was mentioned earlier, *Dischidia* can be found in nature growing on the same tree as many *Hoya* species. This would lead to the idea that their cultural requirements are similar. If you've got a green thumb for *Hoya*, then you should have no problems growing most *Dischidia*. If your thumb is not so green, there are still some excellent species to grow and enjoy.

*Dischidia* are found most commonly growing epiphytically in the rainforest edges along streams, roads, on exposed limestone hills and beaches. This tells us that *Dischidia* appreciate moisture, air flow and light. So when we grow them at home, we must attempt to provide those 3 basic things which is easy to do.

*Dischidia* can be grown potted or mounted and do quite well either way. Growing these plants potted or in hanging baskets is the easiest and most common method as mounts can be difficult to maintain for those who live in arid regions. Potting mixes should drain very well but retain some moisture. A regular feeding schedule in the active growth months with any good orchid fertilizer will greatly benefit these plants.

In this section of the article I will detail some cultivation tips and general info for a few easy, moderate and difficult to grow species. There is a *Dischidia* for everyone from the expert to the novice. It should be noted that my comments here are based on experiences growing these plants outside and in a greenhouse in central Florida.

## Easy Species

*Dischidia* sp. Geri (hort) is an endemic to the Philippines. It has to be one of the most recognizable and/or common species available. This is no surprise as it is practically impossible to kill. The leaves are round and coin-like. The flowers are lantern shaped and white. The petals are held erect at anthesis. This species appreciates moisture and can handle being over watered better than any of them in my experience. It grows very well in indirect sun, damp not wet and well fed.



*Dischidia ruscifolia* Decne. Ex Becc. (commonly called the, "Million Hearts Vine") also hails from the Philippines. It is a shrubby species and doesn't twine so it is pretty much strictly a repelling grower. This species doesn't like too much root moisture and can handle quite a bit of sun. There is a tiny clone available that is also very fun to grow and has the same cultural requirements.

*Dischidiopsis luzonica* Schltr. is one of the best beginner species to grow. This is because not only is it hardy and indestructible but it also blooms very early in age and seems to stay in bloom constantly. This species does the best potted in a well draining mix, fed sparingly and kept damp not wet. It loves to be root bound and will fill a pot with roots in no time flat. *D. luzonica* is endemic to the Philippines and it grows FAST!



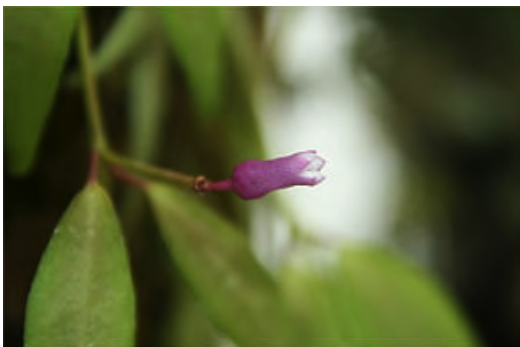


## Moderate Species

*Dischidia truncata* Decne. comes from the highlands of Java. It's a smaller climbing/twining species. The leaves have a beautiful broad lanceolate\* shape. The flowers are born on approximately one inch peduncles in small groups of four or five and are long, tubular, white and have pink/purple tips. Being that *D. truncata* is a highland species, it poses some cultural problems for those in warm climates but it is probably one of the more tolerant highland species. It does best for me kept shaded and damp but with decent air flow. It does equally well mounted or potted.



*Dischidia nummularia* R. Br. is very common and widespread in SE Asia and can be found nearly everywhere. The flowers are most often born singly on sessile peduncles, are white and have a ring of hairs that conceals the entrance to the corolla. There are many clones of this species and all are slightly challenging to grow for those of us who are trigger happy with the water. This species does best left to dry out completely before being soaked again. *D. nummularia* is highly tolerant of high light levels and seems to be more prone to blooming when grown "high and dry".



*Dischidia merrillii* Schltr. is a beautiful trailing species from the Philippines. The leaves are lanceolate, smooth, thin and oddly hard. The flowers are a livid purple and tubular in shape. Its closest relatives are *D. lancifolia* and *D. hirsuta*. *D. merrillii* can be a little challenging because it really needs very high humidity and this can be difficult for those in the drier areas. It also appreciates some root moisture, bright indirect sun and food. It will reward with multiple flower filled peduncles if these needs are met.

## Difficult Species

*Dischidia scortechinii* King & Gamble is a highland species from peninsular Malaysia. The foliage is lanceolate, has palmate venation and is rather thin and fragile. The flowers are white, tubular, have reflexed lobes and are born on short peduncles in groups of 4 or 5. This species is very sensitive to light and heat. *D. scortechinii* prefers bright shade, lots of humidity and temps no higher than 80 degrees F (27 degrees C). If you live somewhere very warm, its best to keep this plant constantly misted and in a shady area with decent airflow but take care not to over water the soil mix.



*Dischidia astephana* Scort. ex King & Gamble is a shell leaved species found in the mountain forests of peninsular Malaysia and Borneo. The foliage is notable for the small bumps and dense hairs. The flowers are red and blue and shaped like an onion. *D. astephana* (like many shell leaved species) seems to do best mounted but can be grown potted. It likes high light, moisture and cool temps. The foliage will blush a beautiful red in intense light.

Be careful with feeding as too much will create flimsy weak foliage that seems to have more problems with rot.

*Dischidia dolichantha* Schltr. is a wiry vine, highland species from peninsular Malaysia, Sumatra and Borneo. Its foliage is very similar to *D. scortechinii* but much smaller and slightly narrower. The flowers are very long, tubular and white with reflexed lobes. *D. dolichantha* is also culturally similar to *D. scortechinii* but seems to be slightly more forgiving with temps. This species seems to do much better potted vs. mounted because the thin stems rot when surrounded by damp moss.





I hope you have found this article enjoyable and most importantly informational. These plants are beautiful and fun to grow and as such, deserve the attention of anyone who enjoys growing *Hoya* or any plant. The various species can be fun to display and always attract attention when visitors arrive. So hop on the internet or go to your local garden center and try a species or two. You won't regret it! Happy growing!

-Antone

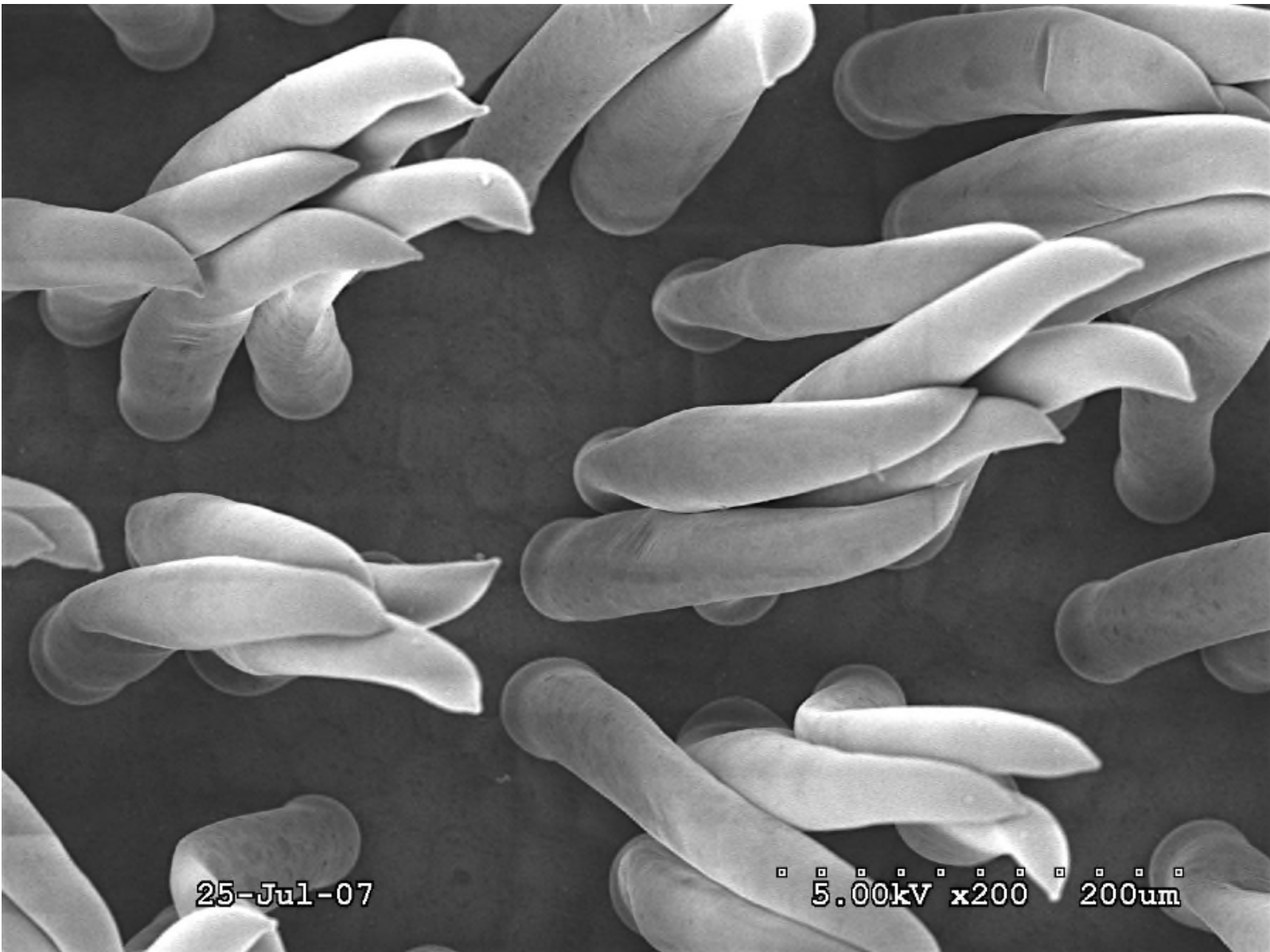


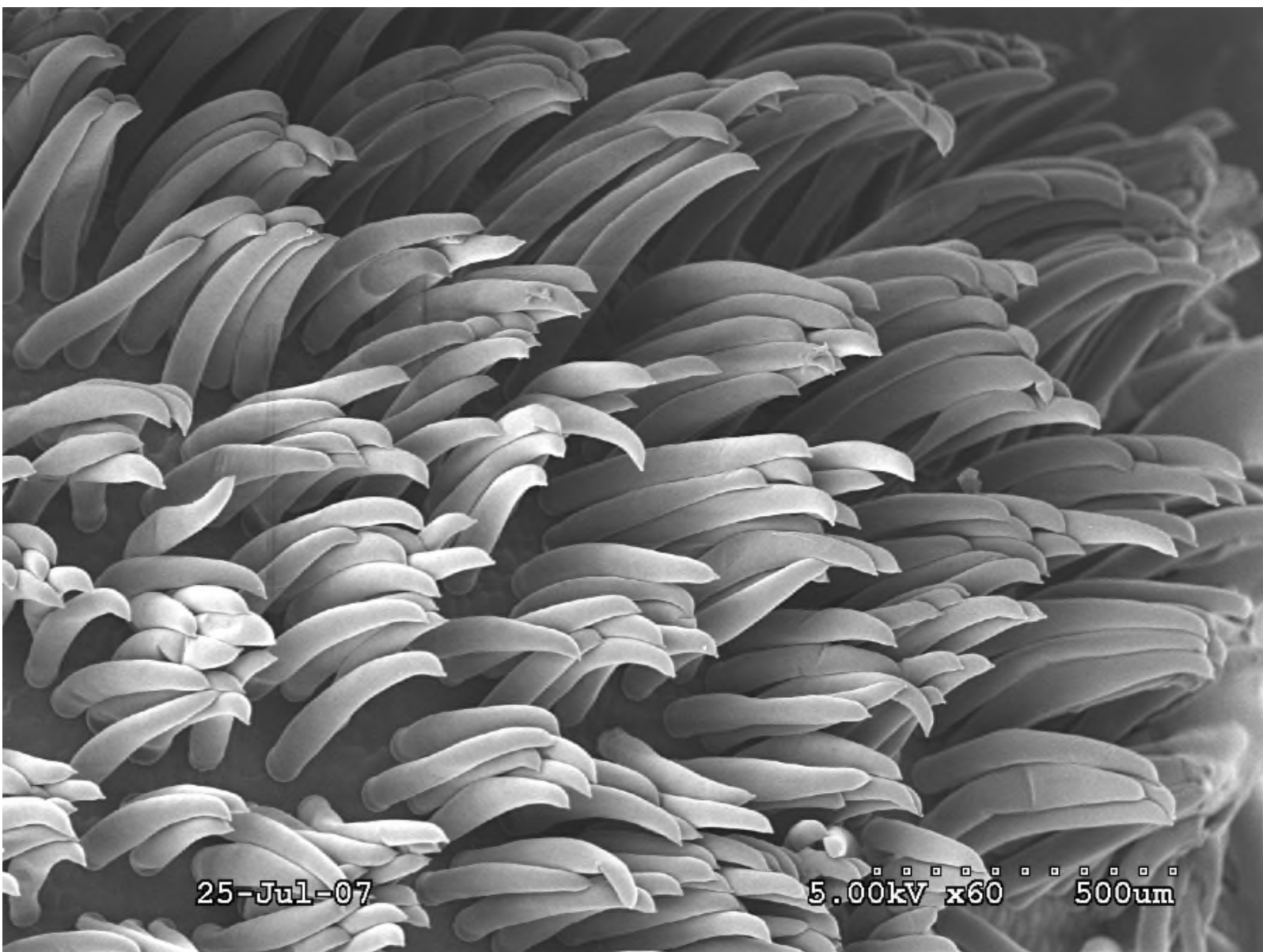


# Photography

Photos and text by Ed Gilding

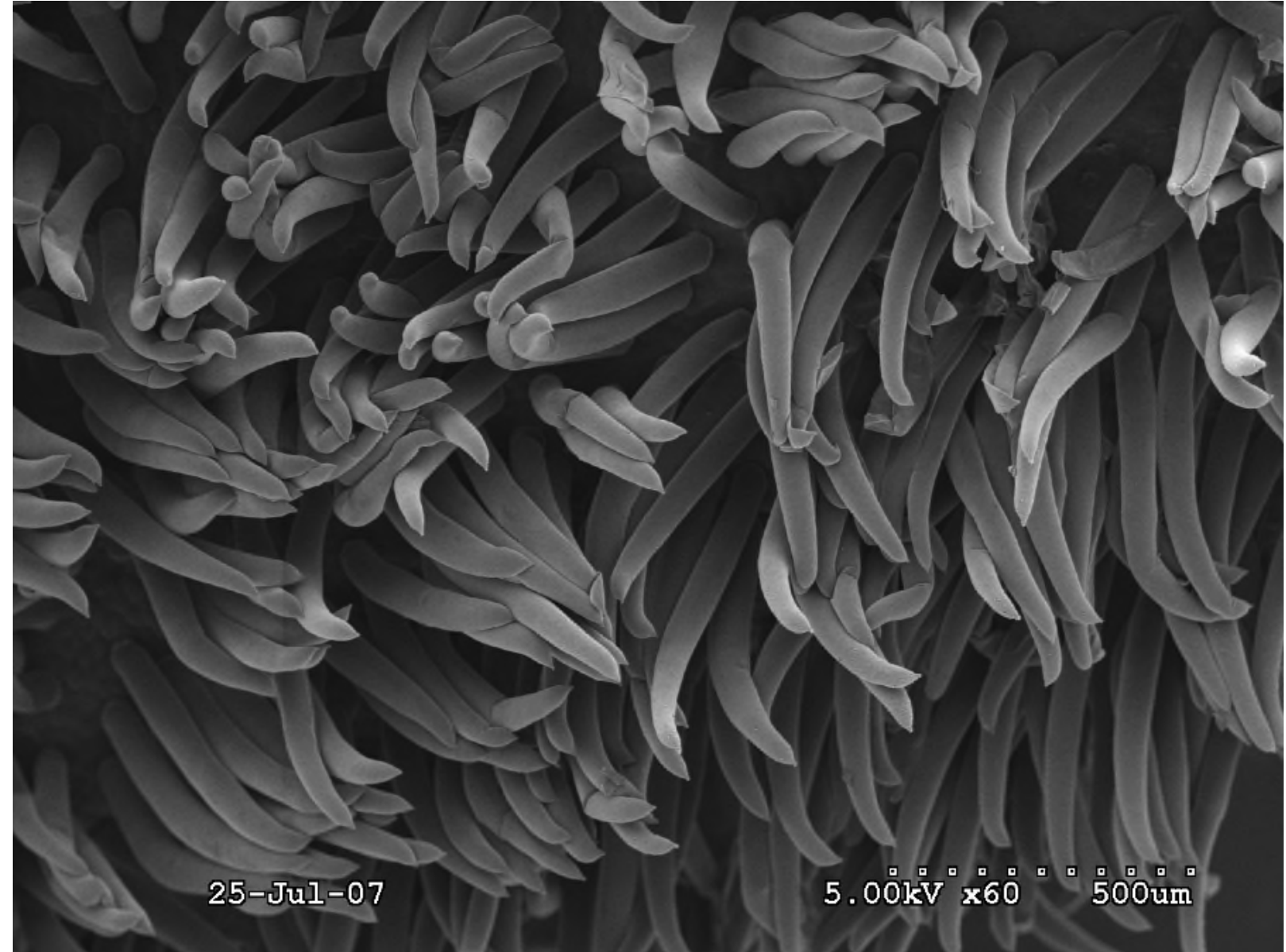
**(Editor's note-** This continuing feature in *Stemma* will focus on non-traditional photography and subjects as well as the beautiful floral photography created by many Hoya growers and collectors. The microphotographs featured in this issue were captured by Ed Gilding using a scanning electron microscope. These are 60x to 200x magnification images of the inner corollas of flowers of *Hoya carnososa* R. Br.)





The tall banana-like appendages appear (we would need to stain fixed tissue with a dye that lights up the nuclei to confirm this) to be single cells called trichomes, which are modified epidermal cells.





What is interesting is that it seems the trichomes form in small elongated bunches and appear to be very smooth (waxy exudates?\*) so that they form scales, as seen with the naked eye. 🍷

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Reprint: *Hoya Pottsii* Traill from Curtis' *Botanical Magazine*, 1835



**(Editor's note-** This is the first in a series of reprints of important publications of *Hoya* or *Dischidia* species from past botanical magazines and journals. This material is often available only in certain botanical libraries or herbariums, often in locations inaccessible to many researchers or hobbyists. The digitalization of these entries and their correspondingly wider accessibility is an important and exciting advance and is being enacted by many sources- the two most notable being the **Google Book Search** project ([www.books.google.com](http://www.books.google.com)) and the Missouri Botanical Garden ([www.botanicus.org](http://www.botanicus.org)). Google is working to digitalize and make searchable and viewable in their entirety an extraordinary number of non-copyrighted older texts, as well as excerpts of copyrighted works, and The Missouri Botanical Garden provides free and complete access to over 250 rare texts from the 18th and 19th centuries.)



( 3425 )

HOYA POTTSII. MR. POTTS'S HOYA

\*\*\*\*\*

*Class and Order.*

PENTANDRIA DIGYNIA.

( Nat. Ord. ---ASCLEPIADEAE. )

*Generic Character.*

*Massae pollinus* laeves, 10, erecto-conniventes. *Antherae* membrana terminatae. *Corona* staminea pentaphylla, foliolus depressis, angulo interiore producto in dentem antherae incumbenem. *Cor.* rotata. *Br.*

*Specific Character and synonyms.*

HOYA\* *Pottsii*; follis cordato-ovatis brevi-acuminatis supra trinerviis, corolla supra vix pubescente.

HOYA *Pottsii*. *Traill*, in *Hort Trans.* v. 7. p. 25. t. 1.?, *Loddiges*, *Bot. Cab. t.* 1609\*.

Cultivated in the stove of the Bot. Garden of Glasgow, where it flowers in May. it is much to be regretted that MR. TRAILL, in his otherwise valuable paper on the different species of HOYA, has not more precisely defined the characters between his HOYA *Pottsii* and H. *trinervis*. Our plant is undoubtedly the H. *Pottsii* of the Bot. Cabinet, but the colour of the flowers is different from that of Mr. TRAILL, and in this respect, as well as in some others, it agrees better with the *trinervis*, of which its author says, "It bears a great resemblance to H. *Pottsii*, from which, however, it may be principally distinguished by its larger and thinner leaves, the veins of which are more strongly marked, and also by the yellowish colour in the centre of the crown." May not the two varieties be one and the same plant? in ours, the

old leaves at the base of the plant are much thicker than the upper ones, and have the nerves more obsolete. From *H. carnososa* the species is best known by its larger, broader, three-nerved *leaves*, and the almost entire absence of down upon the upper surface of the corolla. It wholly wants the bright red spots in the inside of the crown and the rich smell certainly cannot be compared to that of a “rich plum-cake, or a combination of that of honey with the almond flavour of the Peruvian heliotrope,” (to which that of *H. carnososa* is likened by Sir J. E. SMITH,) but rather resembles that of strong and bad honey.

If we are correct in considering the plant to be the original *H. Pottsii*, it is a native of the vicinity of Macao, where a leaf was gathered by a zealous collector to the Horticultural Society, whose name it bears, and which, being given to Mr. SABINE, and planted, soon flourished. The *H. trinervis* was brought from China by Mr. JOHN DAMPER PARKS.

*DESCR.* *Stem* long, branched, twining, the extremities frequently leafless and rooting. *Leaves* ovato-cordate with a short acumen; when old, very thick, and between fleshy and coriaceous, convex below, and pale-green, with scarcely an appearance of nerves; above concave, deep-green, with one central and two lateral nerves, the middle one sometimes sending out very obscure lateral oblique ones, the margin slightly revolute. *Petioles* rounded, short, very thick; when old, clothed with a sort of pale-brown bark. *Peduncle* from the side of one of the petioles at its base, two inches long, bearing a compact almost globose *umbel* of flowers. *Calyx* with five short, broadly ovate teeth. *Corolla* rotate, of five broadly ovate, acute, very pale yellow-green lobes, quite glabrous below, above so slightly downy that the pubescence can only be seen by the assistance of a microscope. *Crown* of five large, depressed, fleshy, ovate, spreading, white leaves, between which the color is orange.

\* Named in honour of Mr. THOMAS HOY, gardener to His Grace the Duke of Northumberland.

\* The last citation should read “*Loddiges, Bot. Cab. t. 1969*”.



# *Hoya Pottsii* Traill

by Mark Randal



Lectotype illustration of *Hoya pottsii* from Transactions of the Horticultural Society, James Traill, 1830.

The species *Hoya pottsii* trail has a complex publication history and an uncertain relationship to the collections now in cultivation believed to represent this species. The type illustration for this plant (left), which appeared in 1830<sup>1</sup>, depicts a plant with trinerved\* leaves with acuminate\* tips. The flowers here have pale, reflexed corollas\* and concave-topped white coronas\* with raised apices and red markings on the inner corona. The stems appear rather thick as do the leaves, judging by the depicted leaf edges. The original type description for this species cites the collection locale as Macao, a district in extreme south-eastern coastal China, and the collector as John Potts, for whom it was named.

Since its original description, subsequent publications have placed *Hoya pottsii* into synonymy under other species names<sup>2</sup>, or conversely have placed other species into synonymy under *Hoya pottsii*<sup>3</sup>. The distribution has been defined variously as localized to southern China<sup>4</sup> or occurring primarily in Australia and New Guinea<sup>3</sup>.

In cultivation many *Hoya* with diverse floral and leaf morphology have received the label "*Hoya pottsii*", some appearing to be very similar to the type illustration with its trinerved leaves and some being very different, having pinnate\*, triplinerved\* or quintuplinerved\* leaves and differing floral characteristics.

Some botanists question whether any of the plants in cultivation match the type sheet of this species well enough to be labeled *Hoya pottsii*<sup>5</sup>.

### **Key publications of *Hoya pottsii* Traill**

*Hoya pottsii* was first described in ***Transactions of the Horticultural Society* 7** (1830) by James Traill. The material described here was cited as having been collected in the vicinity of Macao (SE China), although this claim has been questioned in later works<sup>3</sup>. *Hoya pottsii* was featured in a number of works through the 1830s and '40s, but little was added to the description in these publications, the text in these instances often being excerpted from the original publication. Two exceptions are the illustration that appeared in ***The Botanical Cabinet***<sup>6</sup> in 1833 and the illustration and description appearing in Curtis' ***Botanical Magazine*** in 1835<sup>7</sup> (this article is reproduced in its entirety in the [Reprint](#) section of this issue of ***Stemma***). Around this time several articles appeared which supported the collection of this species from southern China<sup>4,8</sup>.

This species received a major revision in the 1992 article "Taxonomic Studies on the Genus *Hoya* R. Brown in Papuasia" by Forster & Liddle<sup>3</sup> which appeared in the Australian botanical journal ***Austrobaileya***. Here the authors defined the distribution for this species as "Celebes, New Guinea and Australia", and placed the species *Hoya nicholsoniae* E. Muell., *Hoya hellwigiana* Warb. and *Hoya sogorensis* S. Moore into synonymy with *Hoya pottsii*. They also designated the plate which accompanied the original publication of *Hoya pottsii* in ***Transactions of the Horticultural Society* 7** as the lecto-type\* for this species.



**Illustration of *H. pottsii* from *The Botanical Cabinet*, 1833. This image is Photoshop reconstructed from a very poor photograph, the only image available to *Stemma*, so is not an exact reproduction.**



In **Blumea** 40 (1995)<sup>2</sup> a treatment of *Hoya verticillata* C. Don places *Hoya pottsii* and approximately a dozen other names as synonyms\* to *Hoya verticillata*. This work is based on the premise that *Sperlingia verticillata* (*Sperlingia* was a genus description written for the genus *Hoya* at about the same time, but beaten to publication by the genus description "*Hoya*"), one of two species described for that genus, was synonymous with a broad combined taxon\* of species which included *H. pottsii* and *H. acuta* Haw. (a species collected originally from eastern India with flowers similar to *H. pottsii*, but leaves bearing pinnate\* venation- see image page 32). The placing of *H. pottsii* as a synonym to *Hoya verticillata* does not seem to have been accepted by most botanists<sup>5,9,10</sup>, and does not often appear in this form in subsequent literature.

In 1995-96 **The Hoyan**<sup>12</sup> printed a series of articles attempting a tentative revision of the sectional divisions (where groups of species are put together based on similar physical characteristics) of the genus *Hoya*. There Christine M. Burton created a new sectional division, section *Hoya* subsection *lactisuccus* C. M. Burton, which had *Hoya pottsii* as its representative species.

The description for this subsection reads, in part, "foliage fleshy; sap milky; corolla lobes flat or reflexed; corona lobes more or less flat on top but often elevated at the outer tips". Other species placed in this section at the time were *Hoya aldrichii* Hemsl., *hoya bhutanica* Grierson & D. G. Long, *Hoya hellwigiana*, *Hoya nicholsoniae* (these first four listed as synonyms for *pottsii*), *Hoya benquetensis* Schltr., *Hoya bordenii* Schltr., *Hoya incrassata* Warb., *Hoya finlaysonii* Wight, *Hoya glabra* Schltr., *Hoya merillii* Schltr. and several others. Given that this study was published over 10 years ago, and was not intended to be an exhaustive placing of species known at the time, there are a great many more species that now would likely be placed here as well, such as *Hoya acuta*, *Hoya macrophylla* Blume, *Hoya pachyclada* Kerr, *Hoya wibergiae* D. Kloppenburg and many others. Even considering only the originally placed species, this subsection contains species which cover very nearly the entire range of the genus distribution for *Hoya* (see map page 27) and probably constitutes the largest group of morphologically similar *Hoya* species.

While this study was a preliminary attempt to revise the sections and despite sectional theory having fallen somewhat into disfavor following Burton's work and a revision by Dale Kloppenburg<sup>13</sup> a few years previous to the Burton study, this new grouping remains significant as it is the first time that these species, so similar in floral character, were officially recognized as a distinct taxon inside the genus *Hoya*.

In Thailand, most botanists currently seem to view *Hoya pottsii* and *Hoya acuta* as parts of a single variable taxon which they deem the "*Hoya parasitica* (Roxb) Wall. ex Traill complex"<sup>11</sup>. While the view of these two species as part of a wide, variable taxon (as in the **Blumea** article) may certainly be argued, the name *Hoya parasitica* is not a valid name for this complex or for any single species. A version of the name *Hoya parasitica* first appeared in 1814 as *Asclepias parasitica* in a catalog of plants of the East India Company's Botanical Garden at Calcutta<sup>14</sup>. This name appeared there only as a catalog entry, with no description. The name *Hoya parasitica* did not appear until 1824<sup>15</sup>, after the 1821 publication of the name *Hoya acuta*, which name *Hoya parasitica* was placed under synonymy to in 1898<sup>16</sup>.

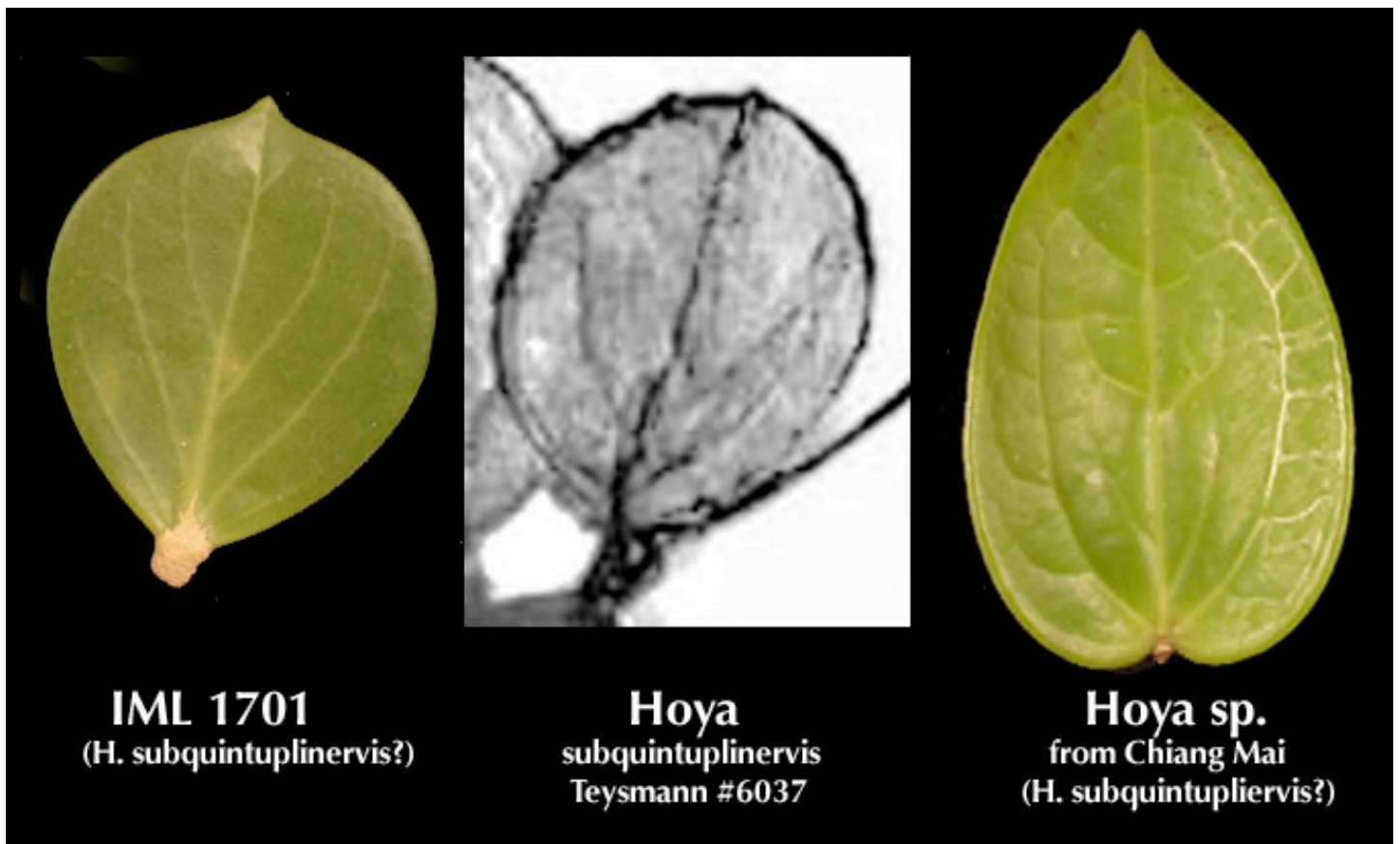


A map detailing the collection sites of some of the *Hoya* in subsection *lactisuccus*. The red border defines the distribution of the genus *Hoya*, based on historical and modern collections and citations. Collections of *H. pottsii* are in blue, *H. nicholsoniae* are in green, and the pink numbers are similar species thought to be closely related to both. (1)- Chiang Mai, Thailand, source of the pottsii collection depicted on pages 29 and 30. (2)- Macao, China, cited as the original collection vicinity of *H. pottsii*. (3)- *H. nicholsoniae*. (4)- *H. pottsii* IML1449. (5)- *H. pottsii* IML1193. (6)- *H. pottsii* IML1395 (7)- *H. acuta*. (8)- *H. bhutanica*. (9)- *Hoya rigida* . (10)- *H. cominsii*. (11)- *H. hellwigiana*. (12)- *H. samoensis*. (13)- *H. neocalidonica*. (14)- *H. neobudica*. (15)- *H. merillii*. (16). *H. finlaysonii*.

### Identity of *Hoya pottsii* in distribution and cultivation

In determining which populations in nature or collections in cultivation best match the type material and description of *Hoya pottsii*, it is necessary first to take a moment to discuss the determination of the plant present in cultivation as *Hoya* sp. from Chiang Mai.

This thick leaved, semi-succulent plant has been determined, by various authorities, to represent either the species *Hoya subquintuplinervis* Miq. or the species *Hoya pottsii*. In considering this determination it is necessary to consider one more plant, a truly succulent, round leaved plant which has also been sold as *Hoya pachyclada* GNT (Green Non-typical Form) and *Hoya* IML 1701. The botanists who consider *Hoya* sp. from Chiang Mai to be a collection of *Hoya pottsii* consider this plant (*H. pachyclada* GNT, IML1701) to be the true *Hoya subquintuplinervis*.



Here is a photo montage of (from left) a typical leaf from *Hoya* IML1701, a detail from herbarium sheet Teysmann #6037 labeled as a lectotype\* for *Hoya subquintuplinervis*, and a typical leaf from *Hoya* sp. from Chiang Mai.

When comparing these images please note that the lectotype detail shows a rounded leaf with several prominent veins branching off from the midvein ABOVE the leaf base. This form of branching is called triplinerved (with three main veins) or quintuplinerved (with five main veins). This compares very favorably with the leaf shape and venation of the leaf from IML 1701. The stem of the lectotype material is also extremely thick, which compares favorably with IML 1701 (see the entire lectotype sheet in Appendix A).

The representative leaf from *Hoya* sp. from Chiang Mai is, by contrast, ovate (egg-shaped) with a more pronounced acuminate\* tip and is prominently trinerved (three main veins, all arising from the same point at the leaf base). The resemblance of the leaves, stems and peduncles of the lectotype material to that of IML 1701 are blatant and would seem to preclude the determination of *Hoya* sp. from Chiang Mai as *Hoya subquintuplinervis*.

So what is *Hoya* sp. from Chiang Mai?





A comparison using a photograph of (left) a well-grown flowering specimen of *Hoya* sp. from Chiang Mai (*pottsii*) and (right) the lectotype illustration for *Hoya pottsii*. Photograph by Roy Bilbie of Brisbane, QLD, Australia.

Let's compare *Hoya* sp. from Chiang Mai with the lectotype of *Hoya pottsii*. Note that the leaves of each are ovate with an acute\* tip. In each there are three prominent veins that arise at the same point at the leaf base. The flowers of each are pale, with reflexed corollas and coronas which are broad in the middle, acute at either end and have a slightly concave flat top with the corona lobe apexes slightly higher than the center.

There are also some slight differences. The leaf bases of *Hoya* sp. from Chiang Mai are slightly rounded, while those of the *pottsii* lectotype are more acute. The underside of the leaves depicted in the *pottsii* lectotype are of a lighter color than the tops, while those of *Hoya* sp. from Chiang Mai are uniform in color on both surfaces, except where exposed to direct sun. The inner tip of each corona lobe of the *pottsii* lectotype is colored a deep red, giving each corona a distinct red central spot while those of *Hoya* sp. from Chiang Mai have a yellowish coloration in the central corona.



**Comparison of flower clusters of (left) closeup of *H. pottsii* lectotype and (right) photo of *H. sp.* from Chiang Mai (*pottsii*) by Roy Bilbie of Brisbane, QLD, Australia.**

The leaf base shape of the type illustration is depicted as slightly acute, but the written description cites the leaf base as being “cordate”, which matches well to *Hoya sp.* from Chiang Mai. While the type illustration has priority over the written description, both the written description and this painting were made from the same single clone of this species in cultivation at the time (see reprint), so this factor would not seem to be concrete, and can be (as are the color of the underside of the leaves and the coloration of the inner corona) considered variable minor traits within a species<sup>17</sup>. Stronger floral and leaf variation than this may be seen in the differing colors of flowers in various clones of *Hoya archboldiana* C. Norman and *Hoya imperialis* Lindl. and in the varying leaf size and shape within the species *Hoya australis* R. Br. ex J. Traill.

So the *Hoya sp.* from Chiang Mai seems to be properly determined as *Hoya pottsii* from Chiang Mai.

Chiang Mai is a region of northern Thailand approximately 1500km (just over 900 miles) southwest of the Macao region of southern China which is cited as the original collection area for *Hoya pottsii*.

There are several other collections of *Hoya pottsii* from this general region (Thailand, Malaysia and Vietnam) which match well with the *pottsii* type: *H. pottsii* IML 1395, from the Cameron Highlands, Malaysia and *H. pottsii* IML 1449 from southern Thailand both display the colorful leaves and red centered corona which is illustrated in the lectotype. *H. pottsii* IML1193 from Vietnam, with green tinted corollas and magenta centered coronas, also represents this species, although no collections from China itself seem to be identified in cultivation so far.



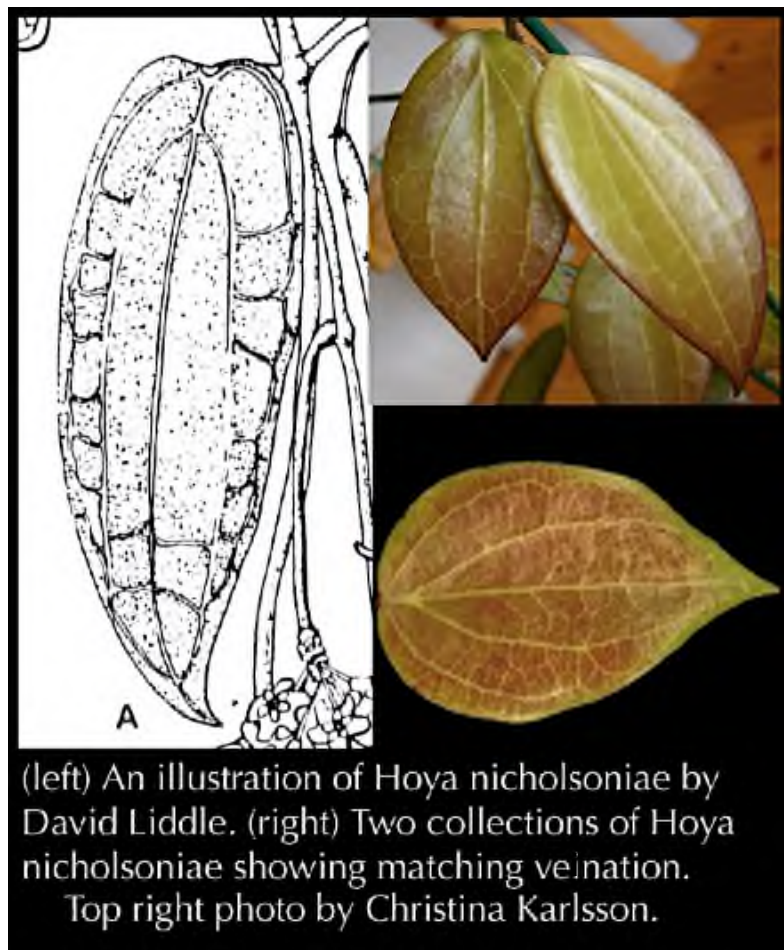


Above left: *Hoya pottsii* IML1395 from Malaysia.  
 (photo of IML1395 courtesy of David Liddle.)  
 Above right: *Hoya pottsii* IML1193 from Vietnam.

Now let's look at the *Hoya* native to Australia and New Guinea that have been placed into synonymy with *pottsii*.

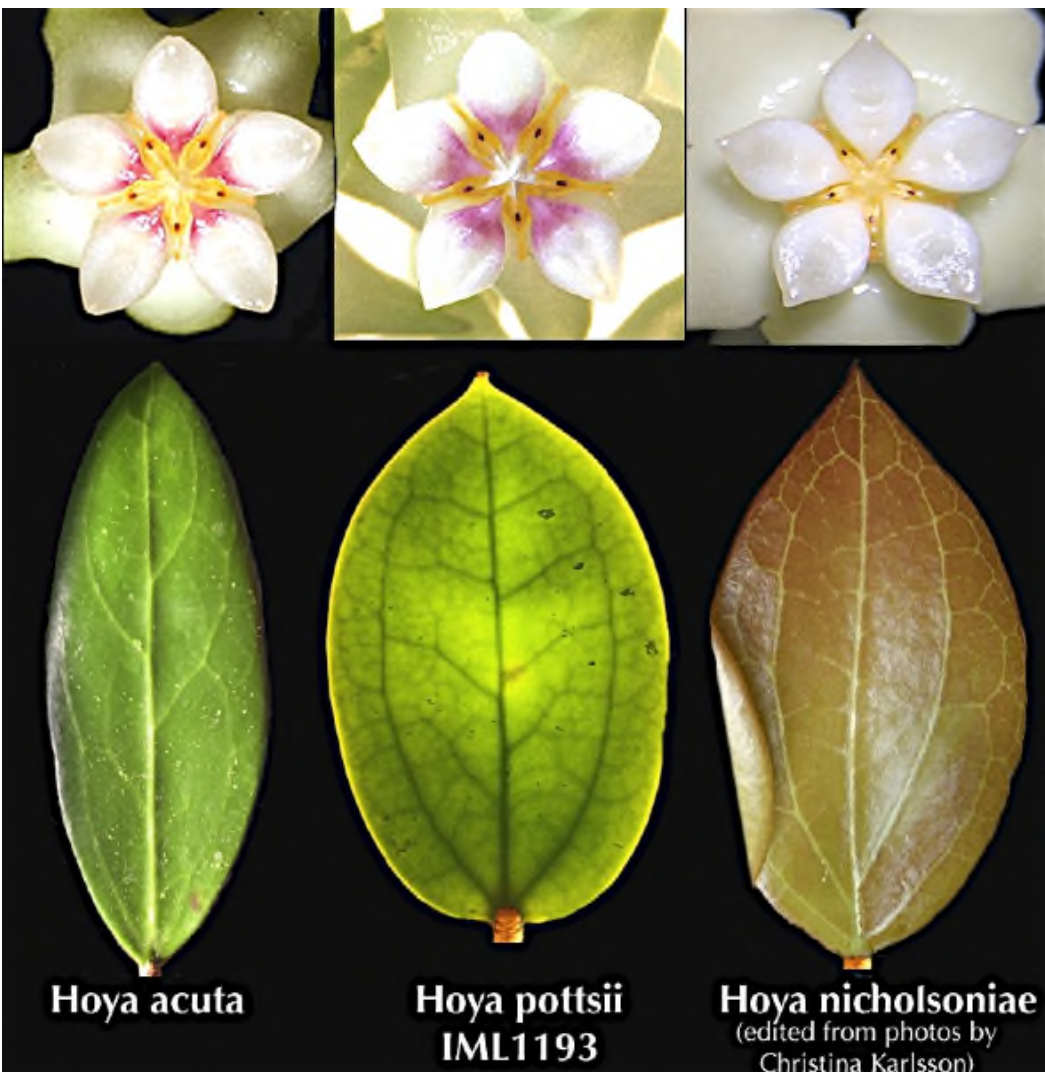
These collections were determined to be *Hoya nicholsoniae*<sup>18</sup> before they were placed in synonymy under *Hoya pottsii* by Forster and Liddle<sup>3</sup>. To the right is a montage of David Liddle's illustration of *H. nicholsoniae* showing triplinerved\* or quintuplinerved\* leaves and two collections of *nicholsoniae* with matching venation. This vein pattern does not match well to the type illustration of *H. pottsii*.

The floral characteristics of the *Hoya nicholsoniae* collections to date are rather varied. Some have highly rhombic\* corona segments with a distinctively flat-looking top, and a rather compact arrangement compared to the coronas of *pottsii* from Thailand and Vietnam.



(left) An illustration of *Hoya nicholsoniae* by David Liddle. (right) Two collections of *Hoya nicholsoniae* showing matching venation.  
 Top right photo by Christina Karlsson.





Other collections have corona segments which are extremely similar in shape and placement to those of the northern *pottsii* species (as well as to those of *Hoya acuta*- see photo comparison to the left). One collection, IML0039, has corona segments with rounded apexes. All of these collections have triplinerved veins, however, which distinguishes this group from the northern population of *Hoya pottsii*.

Are *H. pottsii* and *H. nicholsoniae* similar enough plants to be defined as the same species? A case may be made either way, and it seems that genetic testing may be a way to resolve this question. However, if the nature of a species were to be defined so broadly (accepting a variety of venation and corolla and corona detail as seen in the range

of these two populations) it seems there are many other *Hoya* species with similar minor differences in morphology which would also have to be placed into synonymy with *pottsii*, including (but not limited to) *Hoya acuta*, *Hoya bhutanica*, *Hoya hellwigiana* and south Pacific islands species similar to *Hoya cominsii* and *Hoya samoensis*, probably under the name *Hoya verticillata* G. Don, the first species believed to belong to this group to be described, as outlined in the 1995 *Blumea* paper. This kind of lumping, applied over the whole genus, would lead to radically fewer species names with a great deal of variation in each, and would probably result (due to labeling limitations) in the obscuration of the geographic origin of many plants in cultivation. Since this does not seem to be a desirable state of affairs, and since the attempt to move in this direction by the 1995 *Blumea* paper has lost seemingly all traction, it seems proper that these Australian and New Guinean species determined as *Hoya nicholsoniae* and then as *pottsii* should remain as *Hoya nicholsoniae*. 🐦

## Department of corrections

In the last issue of **Stemma** (V.1,#4), In the article “Propagating *Dischida*” on page 18, the photo labeled as “*Dischidia cornuta* aff.” should be labeled as “*Dischidia milnei*”.

Also in the last issue of **Stemma** in the [Department of Corrections](#), the subject of the correct plural form and capitalization of *Hoya* was discussed. **Stemma** there adopted the position that in its pages the plural would be written as *Hoya* instead of *Hoyas*, and would always be capitalized. Christine M. Burton wrote in with this comment:

“I think the spelling of *Hoya* depends on how it is used and which language. In Latin, I believe (based on other words with the same ending) that *Hoya* is plural and singular would be *Hoyum*. However, I have never seen it spelled that way so I'm probably wrong. If writing in English, I believe that *Hoya* is singular and *Hoyas* is plural.

I know that when writing *Hoya* and referring to the genus that the genus name is upper-cased but if referring to *hoyas* in general that the lower case is correct.”

Other sources **Stemma** consulted had varying takes on this question, and so it seems that this point may be debatable, and is certainly complex. **Stemma's** Latin is somewhat poorer than “rusty”, but we will continue to look into the matter. For the time being, and for consistencies sake, **Stemma** will maintain the capitalized genus name in all instances and “*Hoya*” as the plural form, though this admittedly does seem somewhat awkward at first. However, for contributed material **Stemma** will now leave the precise usage up to the contributing individual.

## Source Materials:

for ***Hoya Pottsii***: (1)- James Traill. 1830. *Transactions of the Horticultural Society* 7. pg.25. (2)- Veldkamp, J.F., R. van Donkelaar & R.D. Kloppenburg. 1995. *Blumea* 40. “Synonym of *Hoya*; *H. verticillata* correct for *H. parasitica*” . pgs. 425-428. (3)- P. I. Forster & D. J. Liddle. 1992. “Taxonomic Studies on the Genus *Hoya* in Papuasias”. *Austro-baileya* 3/4 pgs. 627-641. (4)- Tsiang. 1936. *Sunyatsenia* 3. pg. 171. (5)- R.D. Kloppenburg. 2001. The **Passport *Hoya* Series**. (6)- Loddiges. 1833. *The Botanical Cabinet*. t. 1969. (7)- 1835. Curtis' *Botanical Magazine*. t. 3425. (8)- J. Tsiang & P. T. Li. 1974. *Acta Phytotaxinomica* 12/1. pgs. 124-125. (9)- Burton, Christine M. 2001. *The Hoyan*. V.23,#1. pgs. 6-11. (10)- Burton, Christine M. 2005. **P. S. The Hoyan**. V.3, #4. (11)- Manit Kidyue et. al. 2006. “Variation within the *Hoya parasitica* (Asclepiadaceae) Complex in Thailand”. (12)- Burton, Christine M. 1995-96. *The Hoyan*. V.17 #2 part2:10-12, #3 part 2:14-18, V.18 #1 part2:3-6, #2 part2:9-13. (13)- R. D. Kloppenburg. 1994. ***Hoya Sections: a complete study with Modifications and Additions***. (14)- William Roxburgh. 1814. ***Hortus Bengalensis***. (15)- William Roxburgh & Nathaniel Wallich. 1824. ***Flora Indica***. pg. 36. (16)- James Britton.1898. ***Journal of Botany British and Foreign*** 36. pg. 418. (17)- Shai Meriri & Georgina M. Mace. 2007. “New Taxonomy and the Origin of Species”. **PLOS Biology**. (18)- P. I. Forster & D. J. Liddle. 1988. ***Hoya in Australia***. pg.17

## Glossary

**Acute-** the shape of the apex (tip) or base of a leaf, petal or corona where the tip tapers to a sharp point.

**Acuminate-** the shape of the apex (tip) or base of a leaf, petal or corona segment where the tip tapers to a sharp point in a concave manner.

**Anthesis-** the period during which a flower is open.

**Cordate-** heart-shaped, with the point upward and an emarginate base.

**Corolla-** the collective unit of all the petals of a flower.

**Corona-** (Latin for “crown”) the whorl of structures between the corolla and stamens. In asclepiads (*Hoya*, *Stapelia*, *Ceropegia*, etc.) comprised of five lobes or “scales”.

**Corona scale apex-** the outer tip of each corona lobe, away from the center of the flower.

**Exudate-** material that oozes out of a plant including gum, sap, resin, and latex.

**Gynostegium-** A structure formed from the fusion of the anthers with the stigmatic region of the gynoecium.

**Lanceolate-** Much longer than wide, broadest below the middle and tapering to the apex.

**Lectotype-** a representative (herbarium specimen or botanical illustration) chosen as the standard bearer of a species or subspecies.

**Nerves-** the conspicuous, mostly unbranched main veins of a leaf.

**Pollinia-** a pair of coherent masses of pollen grains. Singular: pollinium.

**Pinnate venation-** a pattern of veins with many side veins branching from a conspicuous, single main vein, resembling the structure of a feather.

**Quinquinerved-** having five main veins, all branching from the same point of the leaf base at the juncture with the pedicel.

**Quintuplinerved-** having five main veins- a midvein and two sets of other main veins branching from the midvein ABOVE the leaf base.

**Rhombic-** diamond shaped.

**Synonymy-** a section of a systematic presentation about an organism that lists all of the names that have been used for the organism, some of which may have been previously thought to represent different organisms. A combining of names under one more correct name.

**Taxon-** a group of similar organisms of any taxonomic rank.

**Trinerved-** a vein pattern with three main veins branching from the same point of the leaf base at the juncture with the pedicel.

**Triplinerved-** a vein pattern with three main veins- a midvein and two other prominent veins branching from the midvein ABOVE the leaf base,

**Vesture-** something that covers, like a garment. Also: a reference to general appearance.



Appendix A: lectotype for *Hoya subquintuplinervis* Miq. (Teysmann #6037)



Appendix B: illustration of *Hoya griffithii* Hook. f.  
from Curtis' *Botanical Magazine*, 1866. t. 6877



## Back Page: *Hoya griffithii* Hook. f.

text and photographs by Torill Nyhuus

(illustrated page 38 & [Appendix B](#))

**Country of Origin:** This noble species of *Hoya* was discovered by the botanist and collector, Dr. W. Griffith, in the Khasia Mountains of Eastern Bengal, between Assam and Silhet, and afterwards collected there by Sir Joseph Hooker. Elevation 2000 - 4000 feet. Also recently seen on Hainan in China with pale pink flowers.

**Related/Similar Species:** Based on floral characters *H. griffithii* seems to be related to *Hoya imperialis* Lindley. The flowers are visually similar to *Eriostemma coronaria* (Blume) Kloppenburg, though those two plants are not closely related.

**Flower Colour:** Cream white to pale pink. Has small pink spots at the back of the corolla lobes.

**Flower Size:** About 1½ inch (3.75cm) in diameter.

**Flower Form:** Rotate.

**Scent:** Yes, nice.

**Leaf size:** Oblong leaves 3 ½ - 6 inches (8 - 15cm) long, ¾ - 1¼ inch (2 - 3cm) broad, narrowed to an acuminate apex and an acute base, glabrous.

**Temperature Range:** The elevation where it was found tells us it would like a temperature of 20 – 25 ° C (68 - 77 ° F)

**Water Requirements:** *I got my cutting 2005. In spring 2007 I repotted my plant in a self watering pot where it grows better and bloomed in November with three umbels.*

**Light Requirements:** Bloomed here under artificial light .

**Cultivation Notes:** This plant isn't difficult to grow, but a slow grower. A problem is that it aborts the buds most of the time.

This species is a climber/twiner and needs a support to climb on.



