

Stemma



Volume 3, #1 Winter, 2009

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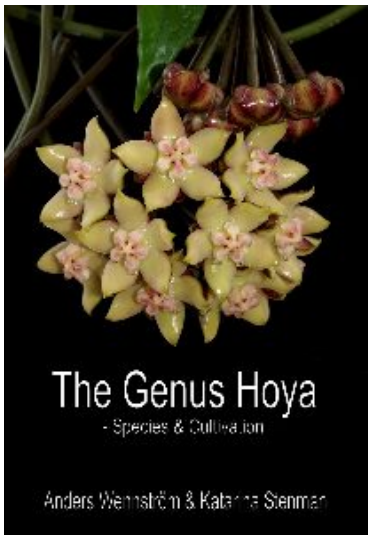
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Editor's Note

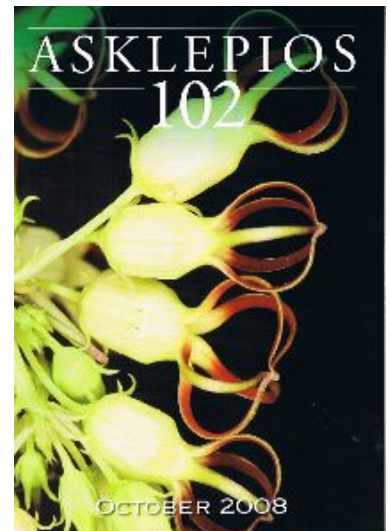
Four recent publications may be of interest to *Hoya* aficionados:



The Genus Hoya- Species & Cultivation by Anders Wennstrom & Katarina Stenman. In English. Available at: <http://www.freewebs.com/botanova/books.htm>. (This book is reviewed in this issue of ***Stemma*** on page 18.)

An article in ***Asklepios*** #102 by David Liddle and Paul Forster presents their interpretation of the species *Hoya australis* as six subspecies, including the newly described ssp. *melanesica*.

In English. Subscriptions and information on ordering back issues are available at <http://www.asclepiad-international.org/>



ASCLEP-HOYA

N°3

juillet / décembre 2008



LA REVUE DE L'ASSOCIATION FRANCOPHONE
DES AMATEURS DE HOYA (A.F.A.HO.)



"Les errements nous font cheminer vers la vérité"

Asclep-Hoya, La Revue De L'Association Francophone Des Amateurs De Hoya (A.F.A.HO.) has resumed publication with issue #3. In French. Subscription information may be obtained by contacting Alex Gavrus at: alex.gavrus@gmail.com

The *Thailand Hoya Club revue* finishes its first year in production with a checklist of modern *Hoya* publications and a travel article from founder Surisa Somadee. In Thai. THC is online at: <http://www.thailandhoyaclub.com>



A Look at *Hoya* Sections

part 3
by Mark Randal

Parts one and two of this series explored three hypothesized major groupings of similar species complexes within the genus *Hoya*. In part one of this series those complexes or sections similar to section *Acanthostemma* and section *Otostemma* (group 1- with flat or concave clusters of flowers with small, revolute corollas and coronas raised at the interior angle, lowered at the outer angle, and with broad translators) were detailed, as well as a group of complexes including section *Hoya* and the *Hoya pottsii* complex (group 2- with convex clusters of flowers with rotate or reflexed corollas, coronas which are mostly flat or with the exterior angles slightly raised, with small corpuscula relative to pollinia size and narrow translators). In the second part of this article a group of apparently related species complexes termed the "Australia/ New Guinea clade" (Wanntorp, 2006a& 2006b) was explored. These complexes (group 3) are characterized by having convex clusters of flowers with flat to flattened-campanulate corollas, corona segments with raised interior and exterior angles and with corpuscula relatively wider than those found in groups 1 or 2, and with pollinia with a distinct bump at the outer juncture with the translators).

In this portion of the article another group of potentially closely related species complexes is explored. These complexes (a possible group 4) seem to be epicentered in Thailand, peninsular Malaysia, and Borneo, some with outlying sister species occurring in the Philippines. Sections which are considered in this article as possibly belonging to this group are sections *Plocostemma*, *Latiretinacula*, *Oreostemma* and *Pachystelma*. One additional section, *Physostemma*, is presented here. Section *Physostemma* as currently defined seems to possess some traits common to both group 3 and group 4 as hypothesized here.

These sections are presented as they have been historically defined, with a few added species which seem to conform to the sectional descriptions. Much more research is needed on these groups, as there are many puzzling inter-connections and breaks in continuity between these groups, as well as between them and some complexes or sections presented here as belonging to group 3.

As with all of the sections or complexes presented in this article, it is important to remember that these are groupings which have been based on human interpretation of the morphology of the known species at the time of each complex's delineation. As further species are collected and studied and molecular testing is carried out on a broader range of species, our understanding of the true relationship among species in the genus *Hoya* will hopefully come to more closely reflect reality.

Of particular use in assessing the relevance of the sections presented in this installment of the article was the website for the **Swedish *Hoya* Society**:

www.swedishhoyasociety.com

This website contains a photo gallery with many fine photographs of the overall plant form and floral detail of many species discussed in this installment.

17: section *Physostemma* Blume

Etymology: “physo”=“bladder-like”, Gr. + “stemma”=“crown”, Gr.

Type species: *Hoya coriacea* Blume

Overall form: these species are vigorous, twining, plants with medium-sized, oblong-acute, relatively thin, penninerved leaves. Flowers are fuzzy, pale yellow to gold, medium-sized, and usually occur in large clusters. The flowers of most of these species are not strongly fragrant.

Distribution: Java, Borneo, the Malaysian peninsula and the Philippines.

Publication: Blume in *Rumphia* 4, 1849.

Original description: (Translated from Latin by MR)- “leaves of staminal corona almost inflated, margins revolute beneath divided by a longitudinal fissure.”

Revised descriptions: Burton in *The Hoya* 1995/96- “*Physostemma* differs from the following section” [*Plocostemma*- also the following section in this study- ed.], “in having inflated, rather than narrowly compressed lateral margins on the corona lobes and, usually, the outer extremities of the corona lobes are not nearly so upright. The pollinia of these hoyas are usually rather long and narrow and both the translators and the retinacula are unwinged.”

Salient features:

Pollinarium- the pollinaria examined for these three species appear to have relatively narrow, straight pollinia and relatively narrow corpuscula. The translators are long, narrow, attached relatively low on the corpuscula body, and the interior angle of their junction with the corpuscula’s vertical axis is broad.

Corona- the coronas of these three species vary in an interesting manner. The corona of *Hoya buotii* is very similar to the coronas of those species found in the *Hoya albiflora* Zipp. ex Blume (section *Pterostelma*) complex (ovate from above, with corona segments that are saddle-shaped in profile), while the corona of *Hoya fraterna* has similarities to those species placed in section *Plocostemma* (with corona segments with slightly raised inner angles and highly raised, rounded exterior angles). This may indicate that the species grouped into section *Physostemma* represent a genetic link between those two other complexes. More study, especially molecular testing, would seem to be necessary to further define the standing of section *Physostemma* as a coherent group inside the genus *Hoya*.

Corolla- the corollas of three of the species placed for this study into section *Physostemma* are densely pubescent, semi-campanulate to recurved, deeply divided, and occur in shades of yellow from pale chartreuse (*H. coriacea*) to a deep, rich gold (*H. fraterna*).

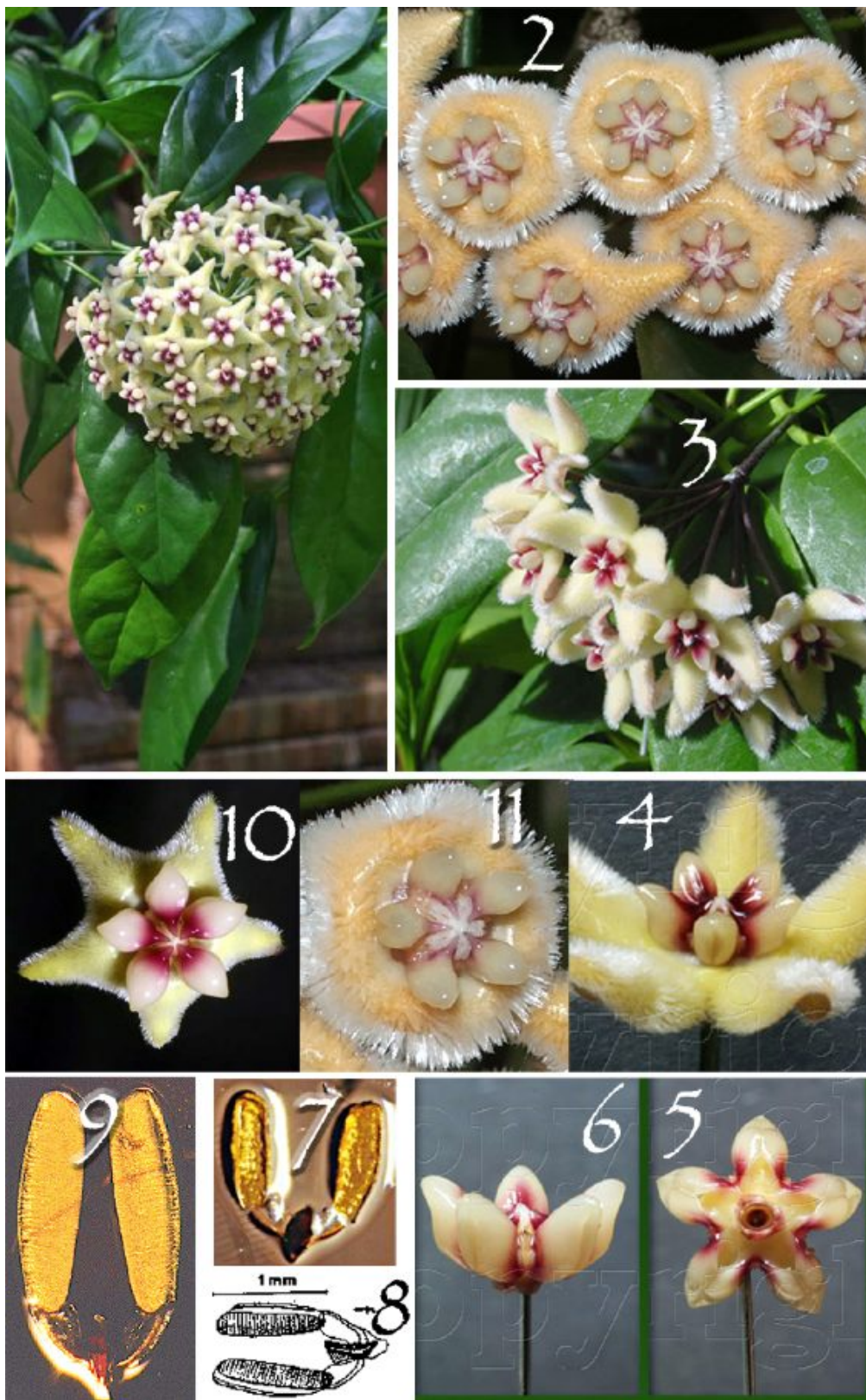
Raceme- convex to globular.

Species thought to belong in this section/complex:

<i>Hoya coriacea</i> Blume (type)	<i>Hoya fraterna</i> Blume	<i>Hoya buotii</i> D. Kloppenburg
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Taxonomic considerations: Section *Physostemma* was originally defined by Blume (1849) as containing the species *H. coriacea*. *H. fraterna* is mentioned there as a similar species. Schlechter seemed to have confused this section with Wight’s genus *Physostelma*, which he tried to move into the genus *Hoya* as a section in 1914.

Kloppenburg (1993) also accepted Schlechter’s mistaken grouping of the names *Physostemma* and *Physostelma*. Burton (1995/96) recognized this mistake and clearly distinguished between these two sectional names.



Section *Physostemma*. 1) *Hoya coriacea* (photo courtesy of Bob Ely. 2) *Hoya fraterna*. 3) *Hoya buotii* (photo courtesy of Monina Siar). 4, 5 & 6) Corona details of side and bottom of *H. buotii* (photos courtesy of Torill Nyhuus and the Swedish Hoya Society). 7) Pollinarium of *H. fraterna* (photo courtesy of Dale Kloppenburg). 8) Illustration of pollinarium of *H. coriacea* (Illustration by R. Rintz). 9) Pollinarium of *H. coriacea* (photo courtesy of Dale Kloppenburg). 10) *H. coriacea* (photo courtesy of Bob Ely). 11) *H. fraterna*.

18: section *Plocostemma* (Blume) Miquel

Etymology: “ploce”=“twisted or woven”,Gr. + “stemma”=“crown”,Gr.

Type species: *Hoya lasiantha* Korth. ex Blume

Overall form: the two species definitely included here (*H. lasiantha* and *Hoya praetorii*) are usually bushy shrubs when young, but under some conditions may become rampant twiners as mature plants. Leaves are large and relatively thin. Flowers are medium to large-sized, with reflexed, deeply divided corolla lobes. Flowers are extremely showy, orange or yellow, and not strongly scented.

Distribution: Borneo, Java, Sumatra, the Malaysian peninsula, Southern Thailand.

Publication: (as a genus) Blume in *Museum Botanicum Lugduno-Batavum*, 1849, (as a section) Miquel in *Flora van Nederlandsch Indie*, 1856.

Original description: (as a genus) (translated from Latin by MR) “Calyx five-parted. Corolla five parted, spreading or reflexed, within near base covered in matted hairs. Staminal corona five-parted, gynostegium attached almost sessile; corona lobes fleshy, erect, compressed, underneath folded together length-wise, interior angle tooth-like, produced onto the anther. Anthers membranaceous, terminated upon the stigma. Pollinia affixed at the base, erect, oblong, compressed, margined (on one side?). Stigma apiculate. Follicle...-- A twining shrub of the Indian Archipelago; leaves opposite, coriaceous, not conspicuously veined, glabrous; umbels many-flowered, peduncles produced at stem tips or interpetiolarly.”

(As a section) (translated from Latin by MR) “Corolla large, narrowly divided, inside bases covered in long, matted hairs; leaves of staminal corona erect, below folded inwards; stigma apiculate.--- Leaves most often thin to slightly fleshy, in a dried state membranaceous.”

Revised descriptions: Burton in *The Hoyan* 1995/96 “Corolla usually (but not always) large, usually (but not always) reflexed; corona lobes laterally compressed with both apexes erect and outer apexes much higher than inner apexes. Others have described the calyx as small. Compared to the calyx of some of the *Eriostemma* section, that is true. Those I’ve seen appear to be about the same size as those of *H. carnosa* and *H. australis* or only slightly smaller.”

Salient features:

Pollinarium- with narrow-ovate pollinia and relatively narrow corpuscula. Translators are narrow.

Corona- lobes are laterally compressed, tall, with interior and exterior angles raised.

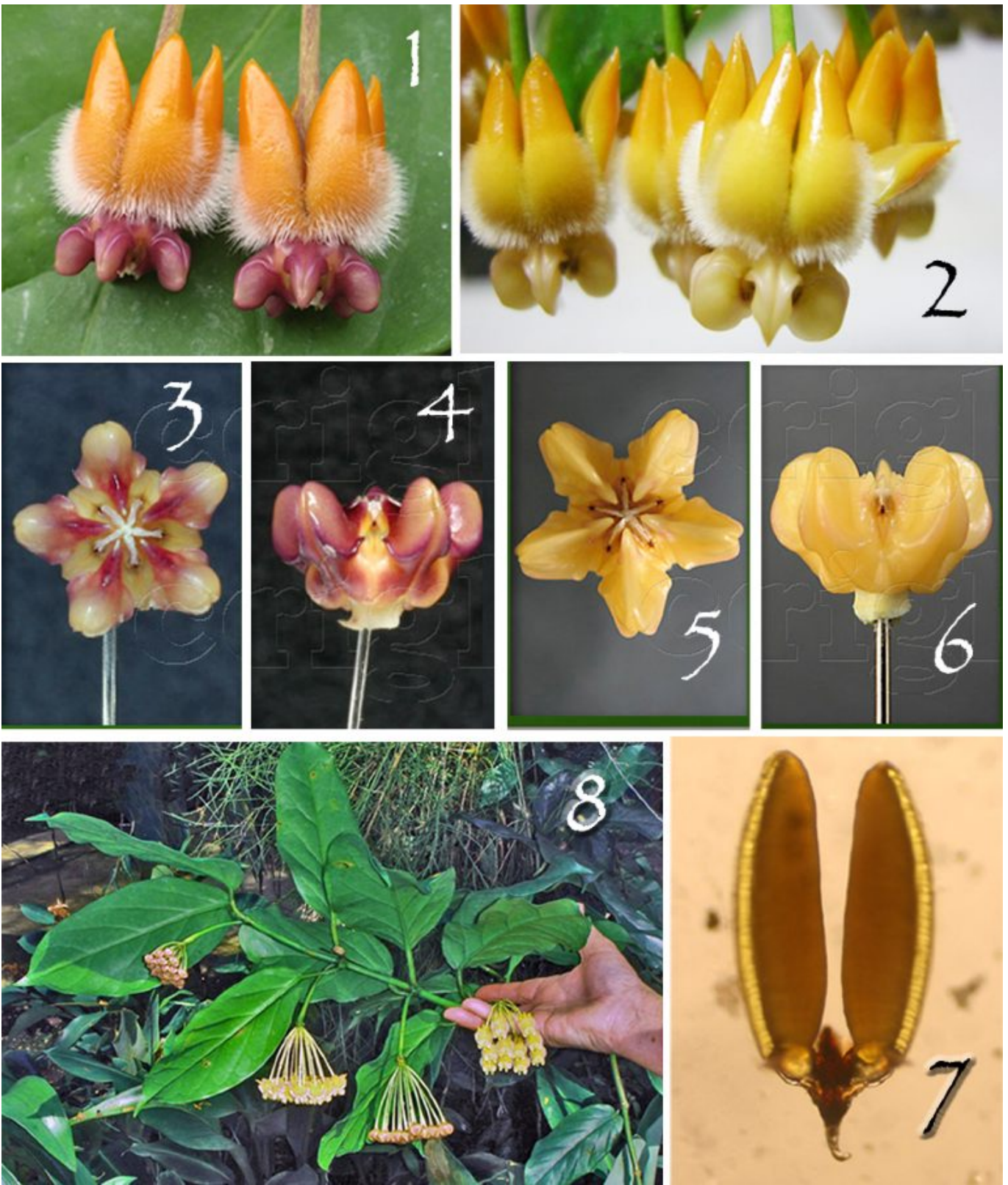
Corolla- deeply divided, reflexed, margins reflexed, with a tuft of long hair at the inside base of each lobe.

Raceme- loosely convex.

Species thought to belong in this section/complex:

<i>Hoya lasiantha</i> Korth. ex. Blume (type)	<i>Hoya praetorii</i> Miquel	
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Taxonomic considerations: section *Plocostemma* was placed into synonymy under genus and section *Pterostelma* by Hooker f. (1885). This appears to have been an error, as the original descriptions of genus *Pterostelma* and genus *Plocostemma* do not match in any convincing way. This apparent error was repeated by King & Gamble in 1910. Schlechter (1914) considered them as two distinct sections, as did Kloppenburg (1993). Either of these later publications should serve to technically separate the two sections from Hooker f.’s synonymization. Burton (1995/96) also accepted Hooker f.’s synonymization, and presented corroborating evidence based on a series of currently unsupportable assumptions (see “A Look at *Hoya* Sections” part 2, *Stemma* V.2, #4, pp. 27--32). Burton’s effort does not qualify as a technical publication, based on her own assertions, so there is no compelling evidence that the sections *Pterostelma* and *Plocostemma* could currently be considered as synonyms. Therefore, section *Plocostemma* remains technically valid.



Section *Plocostemma*. 1) *H. praetorii* (photo courtesy of Eddie Huey and epiforums.com). 2) *H. lasiantha* (photo courtesy of Rosita Pettersson). 3 & 4) Corona of *H. praetorii* (photos courtesy of Torill Nyhuus and the Swedish Hoya Society). 5 & 6) Corona of *H. lasiantha* (photos courtesy of Jeanette Karlsen and the Swedish Hoya Society). 7) Pollinarium of *H. lasiantha* (photo courtesy of Torill Nyhuus). 8) *H. lasiantha* (photo courtesy of Ted Green).

19: section *Latiretinacula* C.M. Burton (proposed)

Etymology: “lat”=“broad”, L., “retinaculum” (referring to the corpusculum).

Type species: *Hoya griffithii* Hook. f.

Overall form: the leaves of these species are large, oblong acute, slightly fleshy. The midrib is prominent, the veins are pinnate, nearly perpendicular to the midrib. Flowers are large to giant, shiny, in shades of maroon through pinks and mauves to creamy or greenish white. Flowers are said to be fragrant in situ, but are often not strongly fragrant in cultivation.

Distribution: Borneo, the Malaysian peninsula, southern China, the Philippines.

Publication (proposed): Burton in *The Hoya*, 1995/96

Original description (proposed) (translated from Latin by MR): “Sepals large; corona large, fleshy. Retinaculum short and wide.” Also from the same publication, in English: “This section is very near the following one” [*Amblyostemma*- ed.] “but has sepals similar to those of the previous section. [*Angustialatus*- ed.] “The corona is very thick, broadly rounded at the outer angle, almost flat on top, with the upper margins forming a ledge that extends beyond the sides. Sides are excised in the middle and the bottom third is broad with the sides turning under to form a channel beneath. Flowers in this section are medium to large. The retinaculum is quite short and broad in ratio to the pollinia, while the translators are rather slender.”

Revised descriptions: None.

Salient features:

Pollinarium- the corpusculum is relatively very large and wide compared to the pollinia and to the corpuscula of most *Hoya* species. The pollinia are about 3 times as long as wide.

Corona- lobes are laterally compressed, excised on the sides. The lobe from above appears rounded at the outer angle. The inner angle is raised to exceed the height of the outer angle. The upper surface of the lobe is keeled. Very similar morphologically to the coronas of section *Plocostemma* species.

Corolla- deeply divided, flattened-campanulate. The inner corolla is glabrous and shiny.

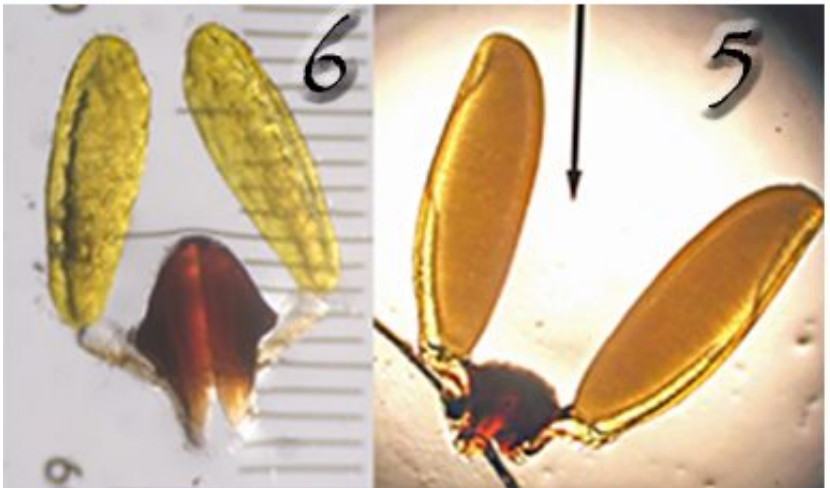
Raceme- convex.

Species thought to belong in this section/complex:

<i>Hoya griffithii</i> Hook. f. (type)	<i>Hoya imperialis</i> Lindl.	
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Taxonomic considerations: Burton’s description of this complex is not particularly useful, as it attempted to describe a collection of species which do not seem to belong together. *H. griffithii* and *H. imperialis* are very similar species in floral and vegetative morphology, yet *H. imperialis* was not included here. *Hoya polyneura* Hook. f. and *Hoya lobbii* Hook. f., which seem to be similar to one another in key floral traits, but not to *Hoya griffithii*, were included here as well.

This section is still quite useful, however, as the type species, *H. griffithii*, along with *H. imperialis*, do seem to constitute a distinct group of *Hoya* species with some similarities to three of the other sections discussed in this portion of this article. Key among the traits which unify the sections *Pachystelma*, *Oreostemma* and *Latiretinacula* are pollinaria with relatively large, broad corpuscula, and section *Plocostemma* is linked to section *Latiretinacula* by the very similar corona structure of the species contained in both sections.



Section *Latiretinacula* (proposed). 1) *H. griffithii* (photo courtesy of Torill Nyhuus). 2) *H. imperialis* (photo courtesy of Carol Noel). 3 & 4) Corona of *H. imperialis* (Photos courtesy of Jeanette Karlsen and the Swedish Hoya Society). 5) Pollinarium of *Hoya imperialis* (photo courtesy of Dale Kloppenburg- note the corpusculum is at an angle here). 6) Pollinarium of *H. griffithii* (photo courtesy of Torill Nyhuus & the Swedish Hoya Society).

20: section *Oreostemma* Schlechter

Etymology: "Oreo"="pertaining to mountains", Gr. & L., "stemma"="crown", Gr.

Type species: *Hoya oreostemma* Schlechter

Overall form: these species are epiphytic twiners. Leaves are medium to small sized, hard textured, and lack conspicuous veins. In some species (*Hoya mitrata* and *Hoya darwinii*) some leaves are produced which have been modified into structures which harbor various species of ants, suggesting a possible symbiotic relationship between these species and their companion species of ants. Flowers are small-medium sized, white or pale yellow, occasionally with pale pink markings.

Distribution: Borneo, the Malaysian peninsula, southern Thailand, Sumatra, the Philippines, New Guinea.

Publication: Schlechter in "Die Asclepiadaceen von Deutsch-Neu-Guinea". **Botanische jahrbucher fur Systematik, Pflanzengeschichte und Pflanzengeographie** 50 (sup.): 81--164.

Original description (translated from German by D. Kloppenburg & Dieter Paul): "*Oreostemma* is at present only known to me by the species here described, which is hereby delineated through the almost cylindrical fleshy corona scales with the outer parts almost completely bent perpendicularly upwards, so that the forward (moreover the other end) falls off abruptly to the anther apex. The blooms are midsize with small calyx, the corolla bent back strongly. Type of the section is *Hoya oreostemma* Schlechter."

Revised descriptions: D. Kloppenburg (As section *Rudimentalia*) (Translated from Latin by MR) "Umbels many flowered, flowers large, glabrous, shiny, corolla deeply lobed, tubes short; lobes ovate-cordate, reflexed. Corona segments erect, three-sided-conical, large, underneath deeply sulcate, pollinia almost compressed, rhomboid almost sessile, sterile margin short or rudimentary. ". In the same publication: "...retinaculum large broad, translators cone shaped, staminal head obconic."

Salient features:

Pollinarium- the pollinaria are roughly oval, approximately twice as long as wide. The corpuscula are very large relative to the pollinia size, compared to the vast majority of *Hoya* species. The pellucid edge of the pollinia are poorly developed in some species included here, difficult to see from many angles.

Corona: interior angles of corona segments nearly meet shortly above the anther head, the lobes are bent at their median at a nearly 90' angle so that the outer angles are raised high above the anther head. Inner surface of lobes are keeled or nearly so.

Corolla- deeply divided, segments usually sharply reflexed, in one case (*Hoya padangensis*) flattened-campanulate, glabrous, margins recurved.

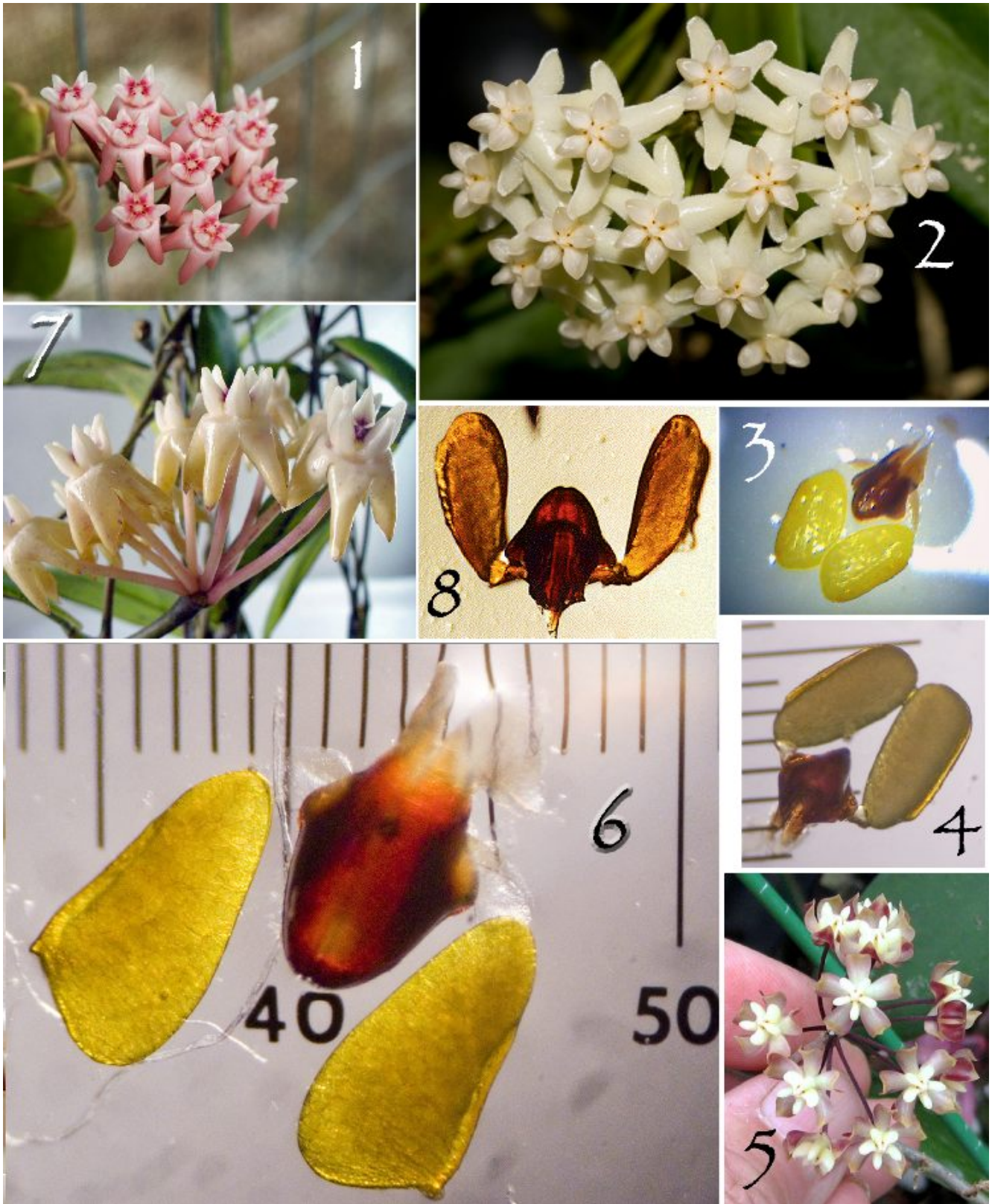
Raceme- convex.

Species thought to belong in this section/complex:

<i>Hoya oreostemma</i> Schltr. (type)(?)	<i>Hoya darwinii</i> Loher	<i>Hoya mitrata</i> Kerr
<i>Hoya greenii</i> D. Kloppenburg	<i>Hoya cagayanensis</i> Schltr. ex Burton	<i>Hoya padangensis</i> Schltr. (?)

Taxonomic considerations: *Oreostemma* as established by Schlechter only contains one species, *H. oreostemma*. Schlechter's illustration of this species matches closely to the species *H. darwinii* and *H. mitrata* in floral detail. *Hoya oreostemma* does not seem to be in cultivation, so it is impossible to compare live material of this species with the other species included here to confirm their likeness. Schlechter's illustration of the pollinarium of *H. oreostemma* is lacking in detail, as are most of Schlechter's pollinarium illustrations. Schlechter's pollinaria illustrations are usually nearly correct in their proportions, however, and these details do not match to the pollinaria of other species placed here.

Kloppenburg's publication of section *Rudimentalia* seems to be a synonym for section *Oreostemma*, based on Schlechter's illustration for the un-recollected *Hoya oreostemma*, but it is not possible to conclusively rule out the possibility that *H. oreostemma* may not belong grouped with *H. darwinii* and the other species included here. Supporting that theory is the fact that Schlechter's *H. oreostemma* hails from New Guinea, whereas the other species included here seem to have been collected no farther south than Borneo.



Section *Oreostemma*. 1) *H. darwinii* (photo courtesy of Antone Jones). 2) *H. cagayanensis* Schltr. (syn. *H. pimenteliana* D. Kloppenburg?). 3) pollinarium of *H. cagayanensis*. 4) Pollinarium of *H. padangensis* Schltr. (photo courtesy of Torill Nyhuus). 5) *H. padangensis* (photo courtesy of Carol Noel). 6) Pollinarium of *H. darwinii* (photo courtesy Torill Nyhuus). 7) *Hoya mitrata* (photo courtesy of Surisa Somadee and thailandhoyaclub.com). 8) Pollinarium of *H. mitrata* (photo courtesy of Dale Kloppenburg).

21: section *Pachystelma* C. M. Burton (proposed)

Etymology: “pachys”=“thick, stout”,Gr. + “stemma”=“crown”,Gr.

Type species: *Hoya mindorensis* Schltr.

Overall form: these species are twining, epiphytic plants with medium sized leaves. Flowers range from deep purplish black through true reds and pinks and pure white.

Distribution: Borneo, the Malaysian peninsula, southern Thailand, the Philippines.

Publication: Burton in *The Hoya* (1995/96)

Original description: “Corolla campanulate or reflexed. Corona lobes thick, margins compressed, exterior angles rising upwards, inner angles tooth-like incumbent upon the anthers.”

Revised descriptions: none.

Salient features:

Pollinarium- the pollinaria are roughly oval, approximately twice as long as wide. The corpuscula are very large relative to the pollinia size, compared to the vast majority of *Hoya* species. Similar to the pollinaria of those species included in this study in section *Oreostemma*.

Corona- lobes are tall and laterally compressed, the inner upper lobe surface is sharply keeled.

Corolla- reflexed. The inner corolla surfaces are covered in fine hair, causing the flowers to glisten in direct light.

Raceme- convex to globular.

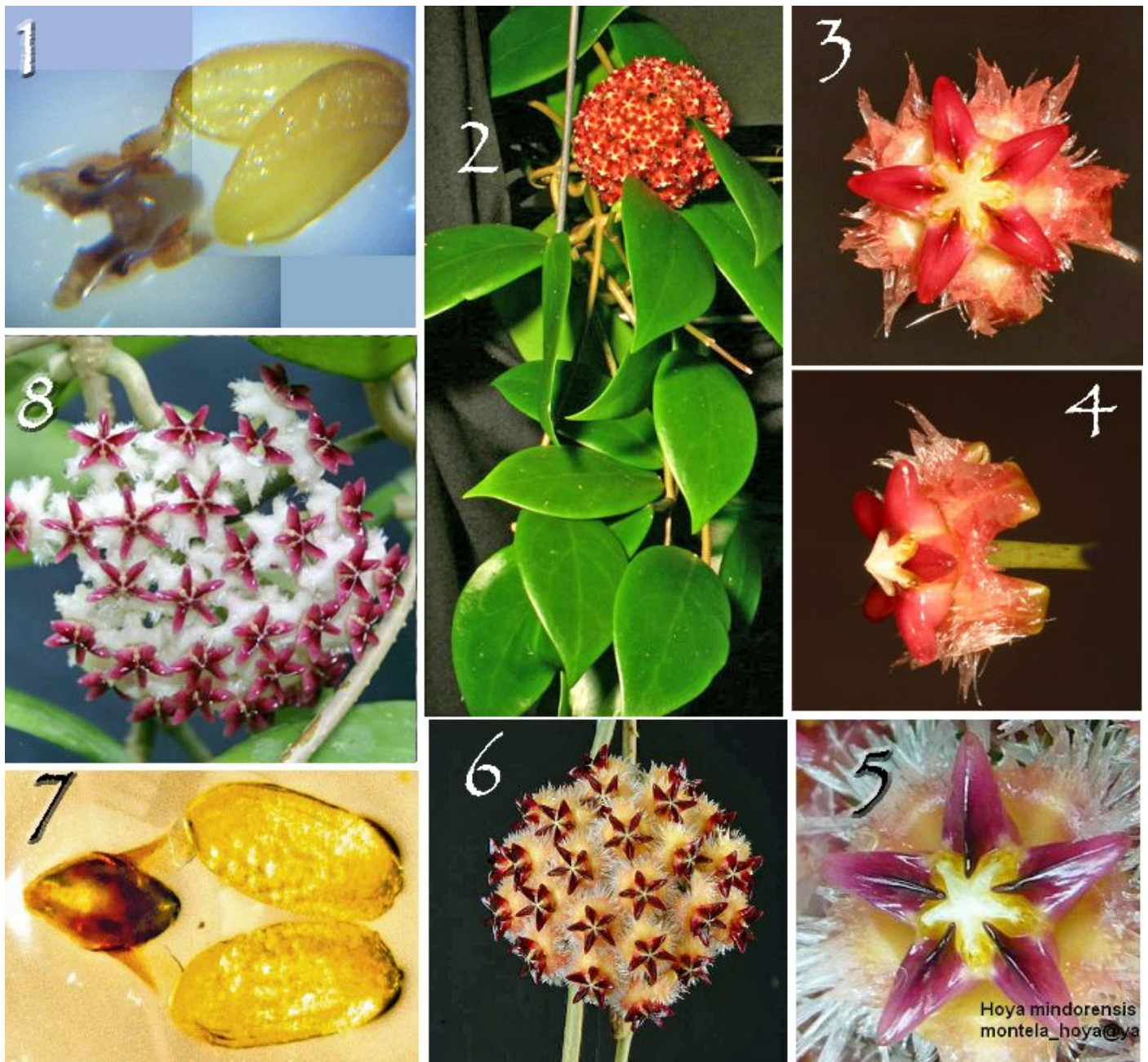
Species thought to belong in this section/complex:

<i>Hoya mindorensis</i> Schltr. (type)	<i>Hoya erythrostemma</i> Kerr	
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Taxonomic considerations: Burton also included the species *Hoya megalaster* Warb., *Hoya padangensis* Schltr. and *Hoya cagayanensis* Schltr. ex C.M. Burton in this section. *H. megalaster* seems to be more allied in floral, pollinarium and vegetative morphology to species grouped with *Hoya macgillivrayi* F.M. Bailey, despite *H. megalaster*'s superficially similar corona lobe structure to those of the species included here in section *Pachystelma*. *H. padangensis* and *H. cagayanensis* do bear many similarities to section *Pachystelma* species, but seem to correspond even more closely to species grouped into section *Oreostemma*. These two sections share many morphological characteristics, and it may be that *H. cagayanensis* and *H. padangensis* should be considered as intermediate species between the two groups, or that these two sections should be combined. *Hoya spartioides* (Benth.) D. Kloppenburg has certain morphological characteristics of corona and pollinarium structure which suggest a close genetic relationship to the other species included here (compare the photographic details, this page and next). *Hoya elliptica* Hook. f., which has been linked to *H. mindorensis* in the past (Burton 1995/96) also shares some coronal characteristics with *H. mindorensis*, although the details of the pollinaria of *H. elliptica* do not match well to those of the pollinaria of *H. mindorensis*.



Left: 1) *H. elliptica* (photo courtesy of Boon Leng). 2) Pollinarium of *H. elliptica* (photo courtesy of Dale Kloppenburg). 3) *H. spartioides* (photo courtesy of Torill Nyhuus). 4) Pollinarium of *H. spartioides* (photo courtesy of Dale Kloppenburg).



Section *Pachystelma* (proposed). 1) Pollinaria of *H. mindorensis*. 2) *H. mindorensis* (photo courtesy of Bob Ely). 3 & 4) *H. mindorensis* (photos courtesy of Bob Ely). 5) *H. mindorensis* (photo courtesy of Surisa Somadee and thailandhoyaclub.com). 6) *H. erythrostemma* (photo courtesy of David Liddle). 7) Pollinarium of *H. erythrostemma* (photo courtesy of Dale Kloppenburg). 8) *H. erythrostemma* (photo courtesy of Bob Ely). 🌸

- To be concluded in *Stemma* V.3, #2-

Reprint

Hoya lasiantha

(as *Plocostemma Lasianthum*)

from Curtis' *Botanical Magazine*,
1858, t. 5081

PLOCOSTEMMA LASIANTHUM.
Wooly-flowered Plocostemma.

Nat. Ord. ASCLEPIADEAE.-- Pentandria Digynia

Gen. Char. PLOCOSTEMMA, Bl. *Calyx* quinquepartitus. *Corolla* quinquefida, patens v. reflexa, intus ad basin stuposa. *Corona staminea* pentaphylla, gynostegio subsessili adnata; *foliolis* carnosis, erectis, compressis, subtus conduplicatas, angulo interiore in dentem antherae incumbentem producto. *Antherae* membrana stigmati incumbente terminatae. *Pollinia* basi affixa, erecta, oblonga, compressa, hinc marginata. *Stigma* apiculatum. *Folliculi* . . . --Frutices *Archipelagi Indica*, *volubiles*; *foliis oppositis, coriaceis, subvenosis, glabris*; *umbellis pedunculatis, terminalibus v. interpetiolaribus, multifloris*. Bl.

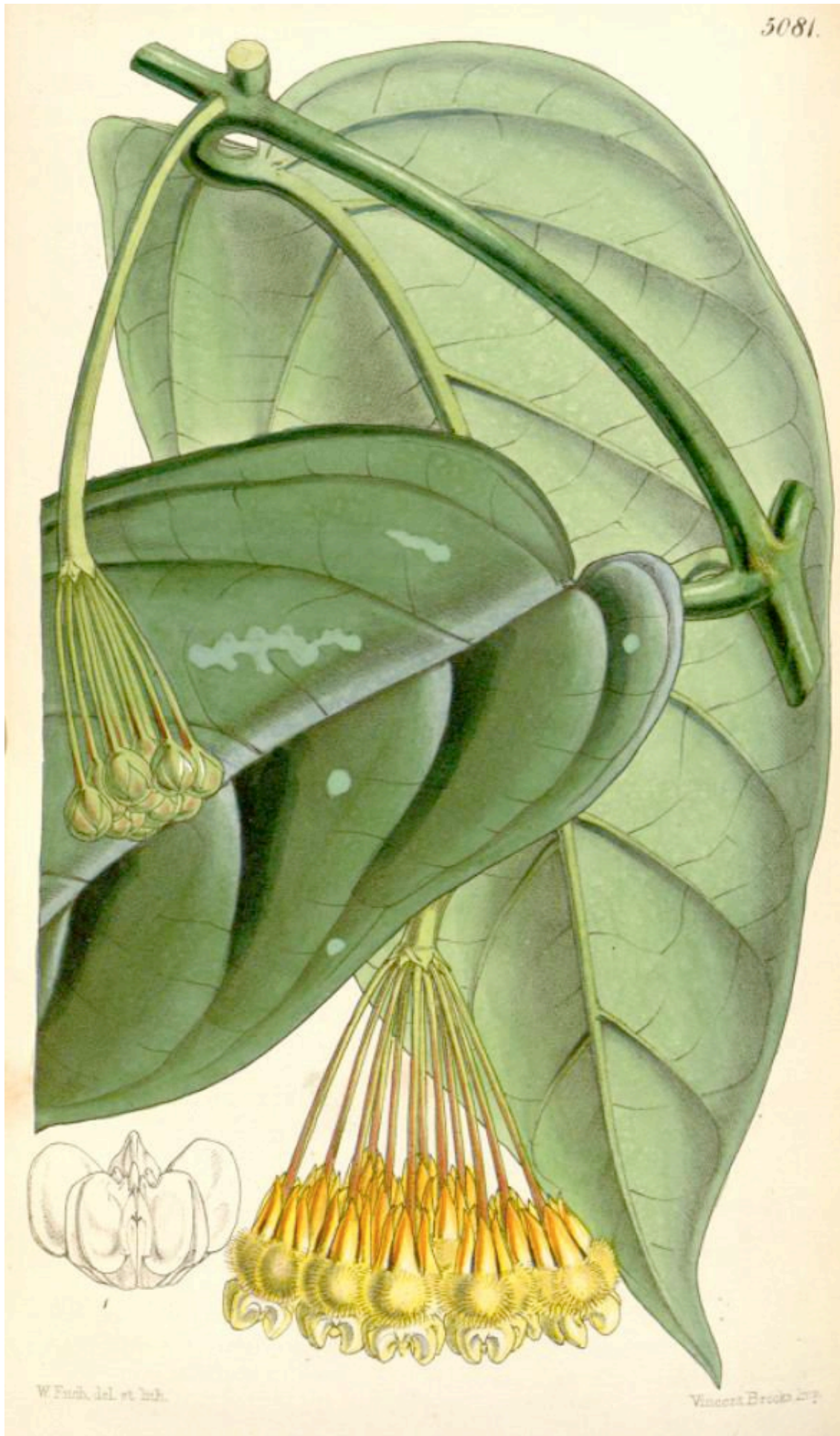
PLOCOSTEMMA *lasianthum*; *foliis ovalibus breviter cuspidato-acuminatis venosis, umbellis longe peduncuatis pendentibus, corolla reflexa intus ad basin dense stuposa.*

PLOCOSTEMMA *lasianthum*. *Blume in Rumphia*, v. 4. p. 30; *Mus. Bot. Lugd.-Bat.* v.1. p. 60. f. 14.
HOYA *lasiantha*. *Herb. Korthals.* (Blume).

We are favoured with this remarkable Asclepiadeous plant by Mr. low, of the Clapton Nursery, who imported it from Borneo. It proves to be a genus of the family allied to *Hoya* which Professor Blume has lately established in his 'Rumphia', and figured in his valuable 'Museum Botanicum Lugduno-Batavorum', differing from *Hoya*, but having the foliola of the staminal crown erect, compressed, conduplicate beneath, and the corolla at the base within densely wooly. The author characterizes two species, both natives of the Malay Islands; the present one peculiar, as far as yet known, to Borneo. It flowers with us in July.

Descr. A long-stemmed, climbing *shrub*, with quite the habit of a *Hoya*; the *branches* terete, dark-green, glabrous, as in every part of the plant, save the corolla. *Leaves* opposite, petiolate, a span long, oval, or rather ovate, subcordate at the base, apiculato-acuminate, thick, fleshy, dark-green, especially above, with occasionally a few pale blotches, veined; principal *veins* very distinct in the recent leaf. *Petiole* about an inch long, terete. *Peduncle* interpetiolarly in our specimen, long, pendent, thickened and dilated at the apex, where it bears an *umbel* or rather a *fascicle* of a considerable number of *flowers*, all hanging downwards, of a tawny-orange colour. *Calyx* small, five-lobed. *Corolla* rotate, of five ovate segments, which segments are strongly reflexed upon the pedicel, and the margins are recurved; the disc of the corolla cushioned, as it were, with a dense cottony mass, mixed with patent hairs. *Staminal crown* singularly large and as described above.

Fig. 1. Staminal crown, magnified. 🐦



Review

The Genus *Hoya*- Species and Cultivation

by Anders Wennstrom & Katarina Stenman

Review by Michele Rodda

Hoya collectors are an heterogeneous group. Some enjoy growing only a few plants on a windowsill while others focus on a limited range of species such as those bearing big flowers, those which are cool growing or those with perfume. A growing number of people have extensive collections and appreciate the differences between different clones of the same species and take interest in the complex and often misleading taxonomy of this group of plants.

A lot of information (and misinformation) is easily available online. Anything may be published online easily unlike in scientific journals, where information is peer reviewed. Those new to the subject matter put more faith in printed books rather in what they find on the internet. As a consequence it is more important and is expected that the material produced is accurate and checked.

Different people expect different things from a book on *Hoya*. Beginners are tempted by the pictures of species that they have never seen and would look for good information on growth requirement and propagation. More experienced growers would like to find out more about where the plants come from and what are the latest introductions they 'must have'. The most experienced growers would also expect a book where the nomenclature has been accurately checked.

The Genus Hoya- Species & Cultivation written by Anders Wennstrom and Katarina Stenman is a compact book (144 pages) and offers an introduction discussing *Hoya* taxonomy, biology and cultivation. The second part contains a range of illustrated *Hoya* species.

At first glance, the book gives a very good impression. Despite the limited number of pages there are many outstanding pictures of the flowers and the range of species presented is extensive (118).

Delving further into the book, it is apparent that it has been written for the widest possible audience. It tries to present scholarly subjects such as taxonomy and pollination biology using examples and simple language combined with the use of explanatory pictures. There are also basic cultivation and propagation notes.

Unfortunately, many scholarly concepts are not well explained. There is confusion between classification, nomenclature, taxonomy and phylogeny. Taxonomic and phylogenetic analysis use different tools and have different aims. Taxonomy is a science that studies plant names and adopts the rules of code of botanical nomenclature, while phylogeny is a science based on the reconstruction of the evolutionary history of organisms, using morphology and molecular (DNA) data. Furthermore, Linneaus' contribution to modern botany is not correctly explained. He described a new system to classify plants by subdividing them in classes using a jerarchical system. This was based on very few flower morphology characters.

The principles used to classify organisms has changed a lot since then. Linnaeus' classification system was not explained in *Species Plantarum* (1753) as the authors say, but in *Systema Naturae* (1735). In a different account, he also simplified the nomenclature. Consequently classification and nomenclature are two independent innovations introduced by Linnaeus.

The authors rightfully highlight the complexity of *Hoya* taxonomy and the importance of peer reviewed publications based on scientific work. However, they have not updated the nomenclature following the recent studies of Livia Wanntorp and co-authors. Her work proves the move of *Absolmsia spartioides*, *Madangia inflata* and *Micholitzia obcordata* to *Hoya* whilst providing phylogenetic and morphological evidence. These nomenclatural changes have not been adopted in the first part of the book, while in the species section, *Absolmsia spartioides* is treated as *Hoya spartioides*.

The *Hoya* distribution map drawn by the authors appears to be incorrect. It lacks the south of Japan where *Hoya carnosa* is found and extends across the whole of the Himalayan mountain range where no *Hoya* are found.

The variability of leaf and flower morphology is well explained to the beginner, who can therefore begin to understand the great variability displayed by *Hoya* species.

The cultivation techniques of *Hoya* are only partially illustrated. For example, soil and water needs are well explained but nothing is said about light, which is an important omission.

It is clear that the authors are very good growers and have been able to explain very well the subject of propagation, using clear illustrations whilst providing practical tips.

Regarding the species section in the Wennstrom & Stenman book, the 118 species are all presented with pictures of both flower and leaf. A brief description of the plant and the flower is given, followed by distribution range, notes of cultivation and names under which the same species has been previously sold. Together with very common species, real collector items have been presented such as *Hoya microphylla* and *Hoya spartioides*.

A few inaccuracies should be noted. *Hoya hypolasia* is not from Indonesia and Sumatra, but from Papua New Guinea. *Hoya chuniana* is referred to as the correct name for *Hoya chunii* because Chun did not collect the type specimen. However the botanical code of nomenclature does not impose any such change (see Recommendation 23A.1. and Orthography and gender of names Art. 60-62). *Hoya cagayanensis* is considered synonymous of *Hoya pimenteliana*. It is not explained that this is the opinion of the authors as *Hoya pimenteliana* has not, as of yet been published as a synonym of *Hoya cagayanensis*.

Overall there are many inconsistencies regarding author citation: Ping Tao Li is reported as P. T. Li or Lii. Hooker f. is sometimes reported as Hooker (his father). Christine Burton is C.M. Burton or CM Burton or Burton. Miquel is also cited as Miguel or Miq., and there are numerous other examples. Correct author citation may not appear a big issue to many readers, but it is important to remember that plant names are composed of three parts: genus, species and author.

The authors write as a last note that Daniel Solander, a Swedish botanist born 250 km from where they live, discovered the genus *Hoya* in Australia in 1770. Perhaps the meaning of this phrase has been changed by the translation, but this statement as presented is misleading. Daniel Solander did not “discover” the genus *Hoya*. He did make one of the first collections of a species later referable to *Hoya*, the specimen that the description of *Hoya australis* is based on. His species was not identified as *Hoya* by Solander, but was described by Traill, later in 1826. The genus *Hoya* was actually published by Robert Brown in 1810 when he transferred *Asclepias carnos*a L.f. to *Hoya* R.Br. and called it *Hoya carnos*a R.Br. The specimen that the description of *Hoya carnos*a is based upon was collected in China, also around 1770 (Jarvis, pers comm).

Being that the authors are keen *Hoya* growers and, more importantly, plant biologists, one would expect a book with very few taxonomic and nomenclatural mistakes. This is not the case.

This is the first English hardcover book on *Hoya* in almost twenty years and is worth buying for the great pictures and the number of species presented.

Hopefully the mistakes will be corrected in a forthcoming edition. 🐦

Department of Corrections

In *Stemma* V.2, #4 in the **Back Page** feature, the collection site for *Dischidia* aff. *lanceolata* was given as Bali, Indonesia, and the collector was listed as Ruard Van Donkelaar. Mr. Donkelaar wrote to *Stemma* to say, in reference to this collection:

“I did not collect this plant myself, it was collected by Ed de Vogel (Botanical Gardens Leiden) in 1991 in Bedugul Botanical Gardens at Bali. It is unsure if it comes from Bali originally merely because it grows in the Botanical Gardens. It could come from other locations. When I visited this Garden I looked for it but I could not find it over there. There are some natural habitats in and around the garden with mainly endemic vegetation. Possibly it grows there somewhere in the wilderness.

“IPPS 7385 is different from the *D. lanceolata* we know from West-Java. I collected *D. lanceolata* in 1990 on Java on Mt. Gedeh (Type Location). These plants (IPPS 4047, 4049, 4050, 4051) have a different flower shape, less urceolate, more conical.” 🐦

Source Material

Burton, C. M. 1995/96. "A tentative alternative arrangement of *Hoya* sections". The *Hoyan*. 17 (2 part 2):10--12. 17 (3 part 2): 14--18. 18 (1 part 2):3--5. 19 (2 part 2):9--11.

Blume, C. L. 1849. *Rumphia* 4: 29--33

Blume, C. L. 1849. *Museum Botanicum Lugduno-Batavum* 3: 43--46 & 4: 57--60

Kloppenburg, D. 1993. *Hoya Sections*

Miquel, F. A. W. 1856. *Flora van Nederlandsch Indie* 2: 513--527

Schlechter, R. 1914. "Die Asclepiadaceen von Deutsch-Neu-Guinea". *Botanische jahrbucher fur Systematik, Pflanzengeschichte und Pflanzengeographie* 50 (sup.): 81--164

Wanntorp, L. et al. 2006a. "Wax plants disentangled: A phylogeny of *Hoya* (*Marsdenieae*, *Apocynaceae*) inferred from nuclear and chloroplast DNA sequences". *Molec. Phylog. Evol.* 39: 722--733

Wanntorp, L. et al. 2006b. "Towards a Monophyletic *Hoya* (*Marsdenieae*, *Apocynaceae*): Inferences from the Chloroplast *trnL* Region and the *rbcl-atpB* spacer". *Syst. Bot.* 31(3): 586--596

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Hoya 'Rebecca' by Antone Jones

Synonyms: None

Country of Origin: N/A

Related/Similar Species: This plant is the resulting cross of *Hoya lacunosa* 'Langkawi Island' clone and *Hoya obscura*.

Flower Color: Light pink with yellow corona scales.

Flower Size: c. 6.35mm

Flower Form: Revolute

Scent: A perfect, wonderful blend of the perfume-like scent of *H. lacunosa* and the sweet candy-like fragrance of *H. obscura*. These smell amazing!

Leaf size: c. 2.5cm x 1.25

Collector: N/A

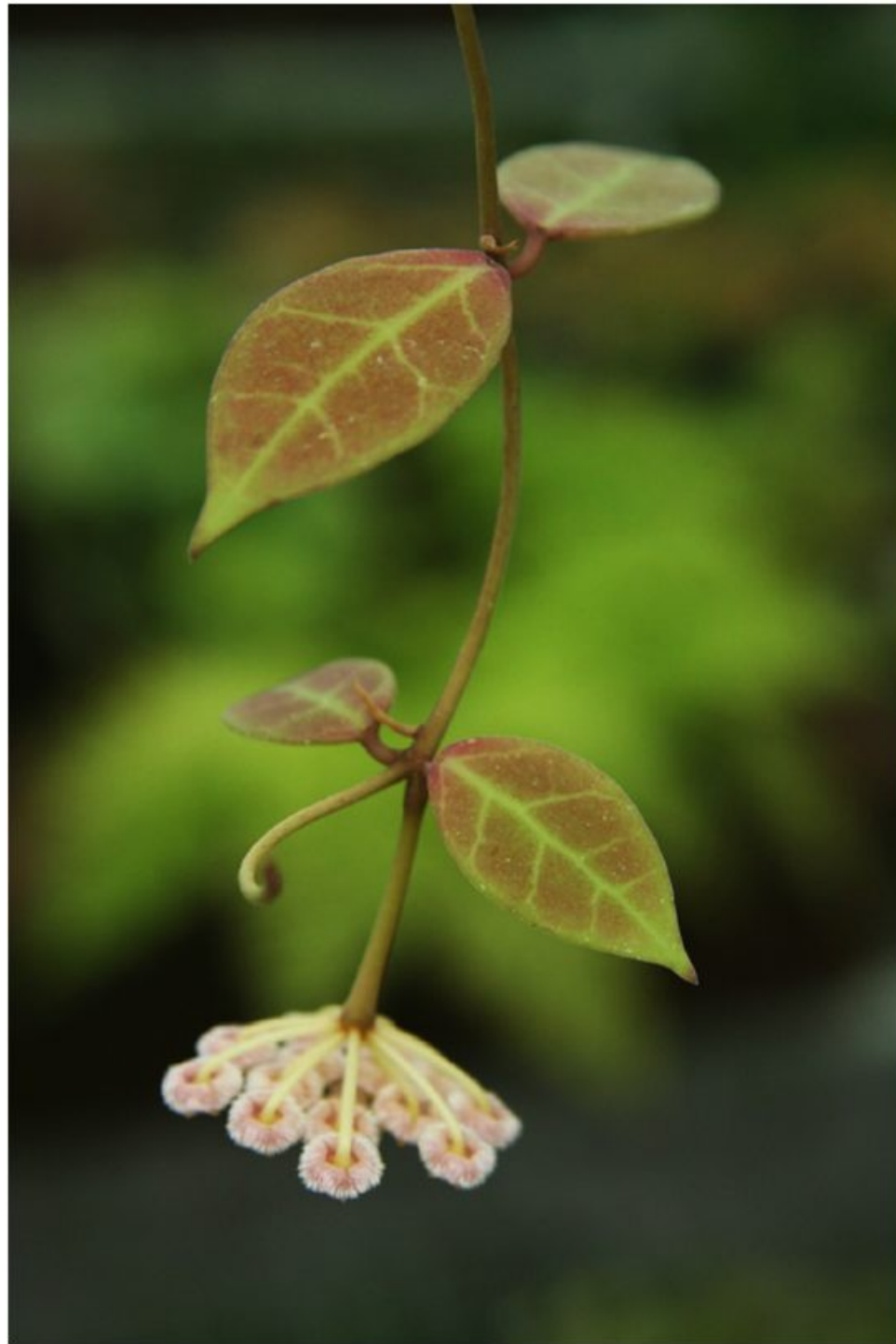
Temperature Range: 18C to 35C

Water Requirements: 'Rebecca' seems tolerant of rather dry soil but should be kept slightly damp (not wet) for best growing.

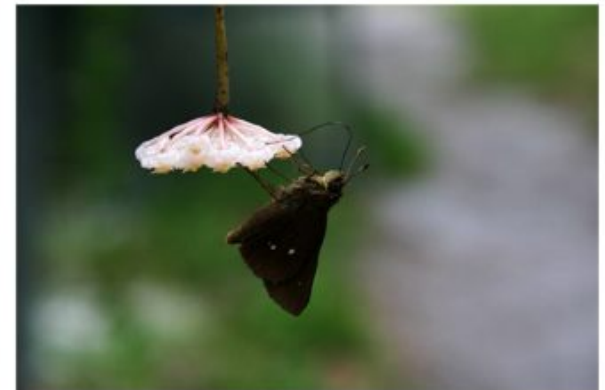
Light Requirements: Shade to sun. Foliage turns a beautiful red in bright light.

Cultivation Notes: *Hoya* cv. 'Rebecca' happened here at home by the grace of Mother Nature. I witnessed a moth feeding from my *H. lacunosa* 'Langkawi Island' plant. At this same time, my *H. obscura* was in bloom not 5ft from it. A few weeks later, I found a follicle on the *H. lacunosa* and decided to grow the seed. 'Rebecca' is a wonderful mix of the parent species. It has the nice small foliage of *H. lacunosa* coupled with the wonderful red coloration from *H. obscura*. The smell of the flowers is simply amazing. This plant was named for my close friend of over 10yrs, Rebecca Isaac. It has proven easy to grow just like its parents and isn't particularly fussy about anything. I would grow it in high light just to see the foliage turn red however. It's a very striking plant.

- Antone Jones



Left: leaves, flowers and peduncles of H. 'Rebecca'
Below top: flowers of H. 'Rebecca'.
Below lower: pollination of Hoya lacunosa 'Langkawi Island'.



All photos ©
Antone Jones.