Front Matter
The Editors would like to thank all reviewers of volume 16(1):

Agus Susatya - University of Bengkulu, Bengkulu, Indonesia
Agus Sutanto - Indonesian Tropical Fruit Research Institute (ITFRI), West Sumatra, Indonesia
Axel D. Poulsen - Royal Botanic Garden Edinburgh, Edinburgh, Scotland, UK
Andrew Powling - School of Biological Sciences, University of Portsmouth, Portsmouth, UK
Elham Sumarga - School of Life Sciences & Technology, Institut Teknologi Bandung, Bandung, Indonesia
Meekiong Kallu - University Malaysia Sarawak, Samarahan, Sarawak, Malaysia
Harry Wiriadinata - Herbarium Bogoriense, Indonesian Institute of Sciences, Bogor, Indonesia
Ulrich Meve - Lehrstuhl für Pflanzensystematik, Universität Bayreuth, Bayreuth, Germany
Mien A. Rifai - Akademi Ilmu Pengetahuan Indonesia (AIPI), Jakarta, Indonesia
HOYA NARCISSIIFLORA (APOCYNACEAE, ASCLEPIADOIDEAE), A NEW SPECIES FROM BORNEO

Received October 13, 2016; accepted February 2, 2017

SRI RAHAYU
Bogor Botanic Gardens, Center for Plant Conservation – LIPI, Jln. Ir. H. Juanda 13 Bogor, 16122, Indonesia. Email: srirahayukrb@yahoo.com

MICHELE RODDA
The Herbarium, Singapore Botanic Gardens, 1 Cluny Road, 259569 Singapore. Email: rodda.michele@gmail.com

ABSTRACT
RAHAYU, S. & RODDA, M. 2017. Hoya narcissiflora (Apocynaceae, Asclepiadoideae), a new species from Borneo. Reinwardtia 16(1): 5 – 10. — A new species of Hoya from Borneo is described, namely Hoya narcissiflora S. Rahayu & Rodda. The species has thin, non-succulent leaves similar to those of species in the Hoya campanulata group and shallowly campanulate corolla. It is compared with all other Bornean Hoya species possessing campanulate corollas.

Key words: Hoya campanulata, H. danumensis, H. jiewhoeana, H. sammannaniana, Indonesia, primary forest, West Kalimantan.

ABSTRAK

INTRODUCTION
Hoya R. Br. is the largest genus of Apocynaceae (Endress et al., 2014) and includes 350-450 mostly epiphytic climbers with a centre of diversity in tropical Asia (Rodda, 2015). The recently published guidebook to Hoyas of Borneo by Lamb & Rodda (2016) despite not being a complete revision was a first step towards a revision of Bornean Hoya. The checklist included in the book lists 72 Hoya species for Borneo, half of which endemic to the island. However, most of the information for the compilation of the book was obtained from collections gathered from Brunei, Sabah and Sarawak, and to a much lesser extent from Kalimantan. In consequence, the diversity of Hoya species in Indonesian Borneo is incomplete due to the scarcity of recent collections. The only information on Hoya diversity of Central Kalimantan is given by Rahayu (2006), who listed just nine species collected during expeditions to just a small part of Central Kalimantan. Lamb et al. (2014) suggested that 60 to 70 Hoya species may occur in Sabah alone, and it is becoming apparent that the diversity of Hoya of Borneo is expected to be comparable to or even exceeding that of the Philippines (Aurigue et al., 2013, 104 species) or of New Guinea (Forster, 1996, 74 species). Nonetheless new species have been described from West Kalimantan such as Hoya undulata S. Rahayu & Rodda (Rahayu et al., 2015) and H. sammannaniana A.L. Lamb, Gavrus, Eom & Gokusing (Lamb et al., 2014), also found in Sabah.

Hoya species are rarely found blooming in the wild and cultivation of wild collected plants has been a successful way to identify the species (Kleijn & van Donkelaar, 2001; Lamb et al. 2014; Rintz, 1978; Rodda & Simonsson-Juhonewe, 2016). Most Hoya species are epiphytic climbers with fleshy to succulent leaves. A few species however have thinner non-succulent leaves and often campanulate or urceolate corollas and are adapted to more moist environments. These may be more difficult to keep alive in mixed collections in botanic gardens and need much more care to bloom.

The first species with thin leaves that was described is H. campanulata Blume from Java (Blume, 1826). This species has not been collected in Borneo, but numerous other species in this group can be found on the island such as H. wallichii (Wight) C.M. Burton, Type: Singapore (Burton, 1996), H. danumensis Rodda & Nyhuus, Type: Sabah (Rodda & Nyhuus, 2009);
H. mappigera Rodda & Simonsson, Type: Peninsular Malaysia, Perak (Rodda & Simonsson-Juhonewe, 2012) and H. wongii Rodda, Simonsson & L. Wanntorp, Type: Brunai (Rodda et al., 2011) and H. samannaniana which has deep bell shaped corollas, type locality Sabah (Lamb et al., 2014).

Recently, we found a new thin leaved Hoya with shallowly campanulate flowers in West Kalimantan. The specimen was firstly seen for sale as an unidentified species at the Flora Show in Jakarta in October 2014. Based on the shape and thickness of the leaves it looked similar to H. samannaniana or also possibly to H. danumensis or H. campanulata. Pictures of the flowers were later uploaded on Facebook by Mr. Maskuran, and we realised that it represents a new species. Mr. Maskuran provided a live specimen collected from Sanggau, West Kalimantan that was cultivated at the Bogor Botanic Gardens. Pickled flowers were also sent to Bogor Botanic Gardens from the private collection of Melda Lazuardi in Jakarta, who obtained her plant from Mr. Maskuran. The morphological observation of the specimen was done in Bogor Botanic Gardens, while the observation of pollinia took place in the Singapore Botanic Gardens Herbarium.

**TAXONOMIC TREATMEANT**

*Hoya narcissiflora* S. Rahayu & Rodda spec. nov. Figs. 1 – 3. — Type: Indonesia, West Kalimantan, Sanggau, 100-300 m, on a slope close to a stream, primary forest “Hutan Adat”, Feb 2014 (cultivated at Bogor Botanic Gardens from vegetative material collected in the wild by Mr. Maskuran) Sri Rahayu J0705 (Holotype BO, isotype KRB).

**Diagnosis.** Similar to *H. danumensis* as both taxa have elliptic to oblong thin laminas and ovoid corona lobes. It can be separated from *H. danumensis* on the shape of the corona lobes that are less than 1.5 times as long as broad in *H. narcissiflora* vs. *H. danumensis* twice as long as broad in *H. danumensis*.

**Description.** Epiphytic climber, shrubby when young, with white latex in all vegetative parts, glabrous. Stems slender, lignified when old, internodes very variable in length, 0.5 – 10 cm long, 2.0 – 2.5 mm in diameter, green when young, grey-green when mature; leaves petiolate; petiole, 0.5 – 1.0 cm × 1.5 – 2.0 mm in diameter, channelled above, light green; lamina elliptic to oblong, thin, 5 – 12 × 2 – 4 cm, base cuneate without colleters, apex acute or acuminate, discolorous with upper side fresh to dark green, lower side paler green, young leaves pale green, venation pinnate, secondary veins 4 – 5 pairs. Inflorescence pseudo-umbellate, convex, 5 – 10 flowered; peduncle ageotropic, with a rachis turning positively geotropic, very short 4 – 6 × 1.5 – 2.0 mm in diameter, grey green, glabrous. Flowers weakly scented, produce visible nectar from the second day onwards, lasting 4 – 5 days in cultivation; pedicel positively geotropic, ca. 2.5 cm × ca. 1 mm in diameter, white-pale green, glabrous. Calyx lobes free, ovate to triangular with a round tip, 1.0 – 1.2 × 0.8 – 1.0 mm wide, creamy white or light green, glabrous, basal colleters one in each calyx lobe sinus, triangular, 2.3 – 2.7 × 1.5 – 1.7 mm. Corolla very shallowly campanulate, almost round in outline, flattened and slightly campanulate at the centre underneath the corona when in full bloom, white or very pale yellow; tube 10–14 mm in diameter, undulating and with a depression underneath each corona lobe, visible as a small hump on the outside in between the calyx lobes, glabrous outside, pubescent inside only underneath the corona; lobes broadly triangular, 6 – 9 × 3.5 – 5 mm, folded in the centre, apex acute, glabrous. Corona staminal, erect, 6 – 7 mm in diameter, 5.0 – 5.5 mm high, white or yellowish white; lobes upright, when observed from above round to ovoid, 2.2 – 2.5 × 1.0 – 1.2 mm, 5.0 – 5.5 mm tall, outer process concave with an acute tip, inner process apiculate; skirt located at the base of each coronal lobe, 1/3 of the corona length, thin, rhomboid with short acuminate apex at the centre, white or yellowish white; Anthers with apical round membranaceous appendage just exceeding the style-head apex. Pollinia elliptic oblong, 500 – 550 × 100 – 150 µm, narrowing towards the base, apex round, sterile edge prominent along the outer edge of the pollinium; corpusculum elliptic, 50 – 60 × 25 – 30 µm with an acute tip, caudicle almost rectangular, 90 – 100 × 20 – 25 µm, twisted at the base; concave, hyaline. Style-head 5 angled in cross section, style-head apex acute, 0.5 – 0.6 mm high, 1.4 – 1.5 mm broad at the base. Ovaries elliptic with narrower tip from the base, ca. 1.9 – 2 mm × ca. 0.7 mm at the widest area in the centre, light green, glabrous. Fruit and seed not seen.

**Distribution.** Only known from the type locality in West Kalimantan, close to Sanggau.

**Habitat and ecology.** *Hoya narcissiflora* has been observed in lowland primary forest at 100–
Hoya narcissiflora has channelled corollas, type locality Sabah (Lamb naniana, Sanggau, 100–300 m, on a slope close to a stream, primary forest "Hutan Adat", Feb 2014).

Similar to H. danumensis. Stems slender, lignified when old, intervascular climber. Nodes very variable in length, 0.5 – 10 cm long, petiolate; petiole, 0.5 – 1.0 cm × 1.5 – 2.0 mm in diameter, channelled to triangular with a round tip, 1.0 – 1.2 × 0.8 – 1.0 mm wide, creamy white or light green, glabrous.

Flowers pseudo-umbellate, convex, 5 – 10 flowered; peduncle age exceeding the style-head apex. Calyx ovate, 2.2 – 2.5 × 1.0 – 1.2 mm, glabrous, white-pale green, glabrous. Ovaries very short 4 – 6 × 1.5 – 2.0 mm in diameter, grey green, glabrous.

Corolla maturing and with a depression underneath each corona when in full bloom, white or very pale yellow; tube 10–14 mm in diameter, undulate–crenulate, one in each calyx lobe sinus, triangular, 6 – 9 × 3.5 – 5 mm, folded in the centre, triangular, 6 – 9 × 3.5 – 5 mm, folded in the centre, light green, glabrous. Anthers elliptic, 50 –  60 × 25 – 30 µm with an acute apex, glabrous.

Corona slightly campanulate, almost round in outline, flat-umbellate, convex, 5 – 12 × 2 – 4 cm, base cuneate without colleters, secondary veins 4 – 5 pairs. Corona lobes free, ovate, very short 4 – 5 days in cultivation; lobes broadly triangular, 2.3 – 2.7 × 1.5 – 1.7 mm.

Pollinia — Type: Indonesia, West Kalimantan that was cultivated at Bogor Botanic Gardens from vegetative material collected in the wild by Mr. Maskuran. Pickled flowers were uploaded on Facebook by Mr. Maskuran, and we realised that it represents a new species. Mr. Maskuran provided a live specimen collected from Sanggau, West Kalimantan that was cultivated at Bogor Botanic Gardens. Pickled flowers were obtained her plant from Mr. Maskuran. The morphological observation of the specimen was done — Type: Brunai (Rodda & Simonsson-son & L. Wanntorp,  Type: Brunai (Rodda Juhonewe, 2012) and

H. mappigera, who has deep bell-shaped corollas, type locality Sabah (Lamb naniana, Sanggau, 100–300 m, on a slope close to a stream, primary forest "Hutan Adat", Feb 2014).
Fig. 2. *Hoya narcissiflora*. Inflorescence from a plant in cultivation. A. From above. B. From underneath. (Photos: Maskuran)

Fig. 3. *Hoya narcissiflora*. Larger and smaller leaves. A. From above. B. From underneath. (Photos: Maskuran)
300 m above sea level on a slope near a small river. It was growing as an epiphyte on the main trunk of dipterocarp trees at about 1.5 m above ground, growing in deep shade (30% sunlight) and very high humidity (about 80%) (Maskuran, pers. comm.). Johansson (1975) categorised the various areas of the host plant occupied by epiphytes. The main stem of the host is indicated as the zone B. Different zones are correlated with the differential requirement for light, nutrients and water. According to Benzing (1990) some species are restricted to strongly illuminated sites, some to shady sites, while some avoid both strong light and deep shade and yet others have a wide range of tolerance. Occupying the B zone means that the species is adapted to moist shady habitats. In the wild the plants of H. narcissiflora were only found in deep shade. In cultivation however exposure to brighter light was necessary to trigger blooming (Sri Rahayu and Melda Lazuardi, pers. obs.).

**Etymology.** The epithet refers to the resemblance of the flowers to species of Narcissus, both in color and in general shape.

**IUCN conservation assessment.** This species is only known from a single locality in West Kalimantan. The preliminary conservation status of H. narcissiflora is therefore Data Deficient (DD, IUCN 2014). Ex situ collections are present in Bogor Botanic Gardens (from type locality) and several private collectors in Indonesia as Mr. Maskuran has been distributing cuttings from his original collection among the Hoya growers under the community Hoya Indonesia.

**Notes.** Borneo has numerous species with thin leaves and campanulate or urceolate flowers. Hoya mappigera, H. omlorii (Livsh. & Meve) L. Wanntorp & Meve (Wanntorp & Meve, 2011), H. sammannaniana, H. wallichii and H. wongii can be separated from H. narcissiflora because they have single flowers or few-flowered inflorescences. Hoya danumensis, H. devogelii Rodda & Simonsson (Rodda & Simonsson, 2011), H. gildingii Kloppenburg (Kloppenburg, 2002), H. jiewhoeana, H. nuttiana Rodda & Simonsson (Rodda & Simonsson-Jhunowe, 2013) and H. phyllura O. Schwartz (Schwartz, 1931) instead have convex umbelliform inflorescences with numerous flowers open concurrently.

Hoya narcissiflora can be separated from H. devogelii, H. gildingii, H. jiewhoeana, H. nuttiana and H. phyllura because these species have a pubescent corolla (only sparsely pubescent in H. phyllura) while the corolla of H. narcissiflora is glabrous. It can be separated from H. danumensis on the shape of the corona lobes in top view are ca. twice as long as broad in H. danumensis and less than 1.5 times as long as broad in H. narcissiflora. The corona lobes of H. narcissiflora are also taller and more erect than those of H. danumensis that are instead flat and spreading. The corona of H. narcissiflora, with its tall and erect lobes is also similar to that of Hoya chewiorum A. L. Lamb, Gavrus, Eimei & Gokusing and H. jiewhoeana. The flowers of the three species can be easily separated based on the corolla that is shallowly campanulate and glabrous in H. narcissiflora, reflexed and pubescent inside in H. chewiorum and campanulate pubescent inside in H. jiewhoeana.

**ACKNOWLEDGEMENTS**

We would like to thanks to Mr. Maskuran and Ms. Melda Lazuardi who provided material and information of the new species for study and cultivation in Bogor Botanic Gardens. We also thanks to Mr. Teguh (BBG) for assistant in pressing the materials. We would like to thank the curators of following herbaria BCU, BK, BKF, BM, BO, BRUN, FI, K, KEP, L, LAE, P, SAN, SAR, SNP, SING, UC and UPM, for allowing access and/or for providing high quality images of herbarium specimens.

**REFERENCES**


INSTRUCTION TO AUTHORS

Scope. *Reinwardtia* is a scientific irregular journal on plant taxonomy, plant ecology and ethnobotany published in June and December. Manuscript intended for a publication should be written in English.

Titles. Titles should be brief, informative and followed by author’s name and mailing address in one-paragraphed.

Abstract. English abstract followed by Indonesian abstract of not more than 250 words. Keywords should be given below each abstract.

Manuscript. Manuscript is original paper and represent an article which has not been published in any other journal or proceedings. The manuscript of no more than 36 pages by using Times New Roman 11, MS Word for Windows of A4 with double spacing, submitted to the editor through <reinwardtia@mail.lipi.go.id>. New paragraph should be indented in by 5 characters. For the style of presentation, authors should follow the latest issue of Reinwardtia very closely. Author(s) should send the preferred running title of the article submitted. Every manuscript will be sent to two blind reviewers.

Identification key. Taxonomic identification key should be prepared using the aligned couplet type.

Nomenclature. Strict adherence to the International Code of Nomenclature is observed, so that taxonomic and nomenclatural novelties should be clearly shown. English description for new taxon proposed should be provided and the herbaria where the type specimens area deposited should be presented. Name of taxon in taxonomic treatment should be presented in the long form that is name of taxon, author’s name, year of publication, abbreviated journal or book title, volume, number and page.

Map/line drawing illustration/photograph. Map, line drawing illustration, or photograph preferably should be prepared in landscape presentation to occupy two columns. Illustration must be submitted as original art accompanying, but separated from the manuscript. The illustration should be saved in JPG or GIF format at least 350 pixels. Legends or illustration must be submitted separately at the end of the manuscript.

References. Bibliography, list of literature cited or references follow the Harvard system as the following examples.

REINWARDTIA Author Agreement Form

Title of article : 

Name of Author(s) : 

I/We hereby declare that:

- My/Our manuscript was based on my/our original work.
- It was not published or submitted to other journal for publication.
- I/we agree to publish my/our manuscript and the copyright of this article is owned by Reinwardtia.
- We have obtained written permission from copyright owners for any excerpts from copyrighted works that are included and have credited the sources in our article.

Author signature(s) 

Date 

Name
<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dini Puspitaningrum, Wendy A. Mustaqim &amp; Marlina Ardiyani</td>
<td>A new record of Etlingera pauciflora (Zingiberaceae) in Java, Indonesia</td>
<td>1</td>
</tr>
<tr>
<td>Sri Rahayu &amp; Michele Rodda</td>
<td>Hoya narcissiflora (Apocynaceae, Asclepiadoideae), a new species from Borneo</td>
<td>5</td>
</tr>
<tr>
<td>Iyan Robiansyah</td>
<td>Predicting habitat distribution of endemic and critically endangered Dipterocarpus littoralis in Nusakambangan, Indonesia</td>
<td>11</td>
</tr>
<tr>
<td>Lulut Dwi Sulistyaningsih</td>
<td>A newly described and recorded infraspecific taxa of Musa borneensis Becc. (Musaceae) from Sulawesi, Indonesia</td>
<td>19</td>
</tr>
<tr>
<td>Jan-Firts Veldkamp &amp; Abdulrokhaman Kartonegoro</td>
<td>New species of Catanthera and Medinilla (Melastomataceae) from Halmahera, Indonesia and a new name for a Medinilla from Madagascar</td>
<td>25</td>
</tr>
<tr>
<td>Purwaningsih, Ruddy Polosakan, Razali Yusuf &amp; Kuswata Kartawinata</td>
<td>Phytosociological study of the montane forest on the south slope of Mt. Wilis, East Java, Indonesia</td>
<td>31</td>
</tr>
<tr>
<td>Ian M. Turner</td>
<td>A new combination for subspecies of Radermachera quadripinnata (Bignoniaceae)</td>
<td>47</td>
</tr>
</tbody>
</table>

Reinwardtia is a LIPI accredited Journal (792/AU3/P2MI-LIPI/04/2016)
http://e-journal.biologi.lipi.go.id/index.php/reinwardtia

Herbarium Bogoriense  
Botany Division  
Research Center for Biology – Indonesian Institute of Sciences  
Cibinong Science Center  
Jln. Raya Jakarta – Bogor, Km 46  
Cibinong 16911, P.O. Box 25 Cibinong  
Indonesia