

## A remarkable new *Medinilla* (Melastomataceae) from Celebes (Sulawesi), Indonesia

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**ABSTRACT.** A new species of *Medinilla* (Melastomataceae) from Celebes, Indonesia, is described. It is a terrestrial shrub or treelet with specialised leafless inflorescence-bearing, many-branched branches at the base of the boles. It is clearly distinct in habit, branch-, leaf-, flower- and fruit morphology from the few other species that are reported to have this type of flowering.

**Keywords.** Celebes, *Medinilla*, Melastomataceae

### Introduction

Dr. J.B.K Arsana (then of the Kebun Raya Eka Karya, Bali) in July 1996 found a curious species of *Medinilla* Gaud. (Melastomataceae) near the village of Dani in the Bukit Batu Setan Forest, near Enrekang, in the northern part of the S Celebes Province, Indonesia, at 550 m altitude (*E19960709*, EK, L). Two cuttings were brought to the Kebun Raya Eka Karya (“EK”) (planted at plot no. XV.B–242), at c. 1250 m alt. and from these all subsequent collections have been made. JFV and Dr. M.M.J. Van Balgooy (L) were kindly allowed to make a few cuts of branchlets, inflorescences, flowers, and fruits [*Van Balgooy 7520* (spirit), *7557*, *Veldkamp 8943*, also in spirit; L; collections from one of the two are *I Made Suja HK. 826* in EK, June 19th, 2007].

They are terrestrial erect shrubs with inflorescences borne on specialised leafless, incrassate, many-branched branches at and above ground level and sometimes somewhat higher up on the stems forming a dense mat around the base of the plants (Fig. 1).

Mr. A. Kurniawan (EK) and Dr. M.M.J. van Balgooy observed that they flower and fruit throughout the year. Apparently well-developed seeds are produced in great numbers, but although attempts were made, none have germinated. Cuttings, however, were quite successful.

### Inflorescence terminology

It is not quite clear what this kind of inflorescence is to be called. The terminology for inflorescences is quite confusing and sometimes contradictory. The type encountered here is a special kind of cauliflory (Fig. 2). Various terms have been suggested. Geocarp is too broad a term as it refers to all kinds of situations where diaspores are

associated with soil. Rhizocarpy is erroneous, as the flowers are not from specialised roots.

Flagelliflory is ambiguous as it is used in two meanings. Weberling (1989: 233–234) defined flagelliflory as when “the flowers or inflorescences hang down from the crown of the tree on long rope-like branches, and so are brought into an exposed position which allows the flowers (and fruits) to be visited by bats”, e.g., in the African Sausage tree, *Kigelia africana* (Lam.) Benth., Bignoniaceae.

In another usage, especially favoured by students of the Annonaceae and Moraceae, the term refers to specialised whip-like leafless branches arising more-or-less at ground level and spreading away, often covered by soil and fallen leaves for sometimes more than 10 m from the stem (Mildbread 1922: 116, Schatz & Wendt 2004). The latter approaches the present situation, were it not that the branches are specialised short shoots (brachyblasts), and not whip-like but more sausage-like, and do not spread so far. Van der Pijl (1982: 26–28) called it basicaulicarp (fruits at the base of the bole), but this does not exclusively indicate the presence of the brachyblasts.

Perhaps the nearest in meaning is what Mildbread (1922: 116) has called idiocladanthly (flowers on special branches): plants that flower on special leafless branches with distinct internodes, where related species have axillary solitary flowers. Curiously, Mildbread states that species with axillary panicles “of course” do not belong here, but does not explain what in his eyes the fundamental difference between solitary flowers and panicles would be.



**Fig. 1.** *Medinilla tapete-magicum* Cámara-Leret & Veldk. in the Kebun Raya Eka Karya, 15 January 2010. Note the other specimen in the back behind JFV. Photo credit: Mr. A. Kurniawan.

## Methods

The term “torus” in the flowers as used here is in the sense of Gleason (1939) for the ring of the hypanthium above the ovary upon which the petals and stamens are inserted. The length of the hypanthium was measured from the apex of the torus downwards to the attachment to the pedicel. Its width was taken at the middle of its length. Sepals were measured from the torus upwards. The width of the buds was taken at the widest part of the petals.

## Discussion

*Medinilla* is the largest genus of Melastomataceae in Malesia (c. 360 spp., with an endemicity of nearly 92%: Bodegom & Veldkamp 2001). The latest revision of the species of the family in the Dutch East Indies is by Bakhuizen van den Brink f. (1943, 1946, 1947), in which this species could not be found. More-or-less recent local revisions are available for Thailand (Renner et al., 2001), Java (Backer & Bakhuizen van den Brink f. 1964), while those for Borneo and The Philippines were treated by Regalado (1990, 1995). For the last area, he listed four species apparently with a similar flowering habit.

*Medinilla aurantiflora* Elmer (1911) from Negros, Panay, and Sibuyan is also an erect terrestrial shrub, as documented by Regalado (1995: 153, t. 11). It differs by the branchlets having soft, yellow, stellate to plumose deciduous hairs, auriculate leaf bases, axillary inflorescences clustered on woody tubercles, 4-merous flowers, hypanthia that are 6–7 mm long, pink to orange red petals, subequal stamens with larger filaments, and fruits that are crowned by persistent calyx lobes. Elmer described the inflorescences as “from near the base of the stem or stems, clustered on gnarly ligneous tubercles 1.5 dm long, more or less branched, the ultimate one ascendingly curved” and compared it to *M. cauliflora* Merr. (1910; non Hemsl., 1895). Merrill described the inflorescences as “on the trunk below the leaves, of very short, congested branches, forming a compact mass c. 8 cm diameter or less, the branches stout, each bearing many, subdistichous, crowded, oblong-ovate, 9–10 mm long bracts which are acute or obtuse, some empty, some subtending flowers”. Altogether this is quite different from our species. Because of the homonymy Merrill’s species was renamed *M. trunciflora* Merr. (1913) and synonymised by Regalado (1995: 153, t. 11!) with *M. aurantiflora*.

*Medinilla polillensis* C.B.Rob. (Robinson 1911a) from Bohol, Catanduanes, Leyte, S Luzon, and Polillo, is terrestrial, but scandent, rooting in the nodes, branchlets quadrangular, winged, leaves with the transverse veins adaxially faintly distinct, abaxially absent, inflorescences cauline, the flowers more often 3, disposed umbellately, or in two whorls each of three, flowers 4-merous, hypanthia 7–8 mm long, petals c. 12 mm long, filaments c. 6 mm long, anthers c. 6 mm long.

We were not able to study *M. pinnatinervia* Merr. (Merrill 1913) from Luzon (Cagayan, Pamplona) [lectotype: *Ramos 7483*, designated by Regalado (1995: 152), isotype in US: 00344975]. It obviously is quite different, too, by being an epiphytic scandent shrub, leaves anisophyllous, 9(–11)-pli-nerved, the larger ones distinctly petiolate, 20–25 × 8–10 cm, the smaller ones subsessile, c. 10 × 4 cm, and fruits crowned by persistent calyx lobes. Merrill described the inflorescences as “cauliflorous,

racemose” and “from the stem below the leaves, of many-flowered, short, rather dense, solitary or fascicled racemes 5 cm long or less”. He compared it to *M. loheri* Merr. (Merrill 1913) and *M. disparifolia* C.B.Rob. (Robinson 1911b). Unfortunately its flowers are unknown, and because of the pinninerved leaves it is possibly not a *Medinilla* at all. Regalado (1995: 152) noted that he had seen four collections, also all without flowers, and accepted it without a query as belonging to *Medinilla*. He described the inflorescence as “fascicled on old wood”.

*Medinilla radificiflora* Quisumb. & Merr. (Quisumbing & Merrill 1928) differs by the young branches being densely stellate tomentose, and having 11–14-plinerved leaves that are 15–24 × 8.5–13.5 cm in size, with an obtuse to cordate base. Its inflorescences are cymose, apparently borne on the roots (?), erect, densely and many-flowered, repeatedly dichotomously branched, with peduncles up to 7 cm long. The flowers are 4-merous, the buds c. 16 mm long, the hypanthium 8–10 mm long, with marginal teeth 1.25–1.5 mm long, petals 10–11 × 8 mm, purplish, and stamens of unequal length.

The new species here is also not to be confused with *M. radificiflora* C.Y.Wu (1979) from Yunnan. The inflorescences of that species, judging from the illustration, are reminiscent of our *Medinilla*, but it is *Pseudodissochaeta lanceata* M.P.Nayar from S. China (Hainan, Yunnan). The record for Vietnam by Hô (1992; “*lanceolata*”) might well be an undescribed species.

***Medinilla tapete-magicum* Cámara-Leret & Veldk., sp. nov.**

*Frutex vel arbuscula terrestris erectus. Ramuli subtereti. Foliorum axillae setis furfuraceis, plantae cetera glabrae. Folia opposita isomorpha longe petiolata, laminis ellipticis ad oblongis 7-plinervis, basi acuta. Inflorescentiae densae ramis specialibus efoliatis incrassatis multibrachiatis e caulis basi vel supra ortae interdum aliquantum superiores plus minusve tegetes circumcirca formantes. Flores 5-meri. Hypanthium urceolatum dentibus marginalibus minutis ad absentibus. Fructus tenuiter vallati subglobosi 6–7 mm diam. TYPE: Van Balgooy 7557 (holo L), Eka Karya Botanical Gardens, Bali (plot no. XV.B–242), 7 May 2007.*

Erect terrestrial shrub or treelet, c. 1.5 m tall, twigs subterete, lenticellate, younger branches ferruginous, old branches (when dry) white and lenticellate, leaf axils with furfuraceous bristles, plant otherwise glabrous. **Petioles** terete, 2.5–5 cm × 2 mm, lenticellate. **Leaves** opposite, subequal, elliptic to oblong, 8–17 × 4–8 cm, 3–6 times as long as the petioles, base acute, margin entire, glabrous, apex acute to acuminate, texture pergamentaceous, above glaucous, underneath laxly ferruginous along veins and reticulations, 7-plinerved, distalmost primary nerves 1.5–3 mm away from the preceding pair, submarginal vein conspicuous, secondary nerves conspicuous on both surfaces, angle of divergence from midvein right angle or nearly so, tertiary nerves conspicuous. **Inflorescences** borne on specialised leafless incrassate many-branched branches up to 50 cm long at and above ground level and sometimes somewhat higher up on the stems forming a kind of dense mat of more than 1 meter diameter around the base of the plants. **Bracts** not found. Bracteoles minute. **Flowers** borne in dense basiflorous inflorescences of many-flowered cymes. Peduncles 15–20 mm long. **Pedicels** in fruit 7–10 mm long. **Mature floral buds** 6–7 × 2–3 mm. **Flowers**

5-merous. **Hypanthium** urceolate,  $2 \times 2$  mm, covered with crystals (cystoliths). **Torus** 1–1.5 mm long, marginal teeth minute or absent, apex glabrous. **Petals** obliquely diamond-shaped,  $4\text{--}5 \times 2$  mm, pink, glabrous, with conspicuous veins. **Stamens** 10, all of equal length. **Filaments** 2 mm long. **Anthers** 3 mm long, opening with 1 terminal pore, lateral appendages recurved in anthesis, 0.5–1 mm long, dorsal spur rectangular, 0.75–1 mm long. **Style** 4 mm long, glabrous, stigma punctate, glabrous. **Fruit** globose, 6–7 mm diam., purple, fleshy, glabrous, inside filled with jelly; calyx teeth absent. **Seeds** numerous, c. 0.5 mm long, surface minutely punctate. (Fig. 1–5)

**Distribution.** Sulawesi, Enrekang, Bukit Batusetan, c. 550 m alt. (c.  $3^{\circ}33'S$   $119^{\circ}46'E$ ), cultivated in the Eka Karya Botanical Garden, Bali, plot XV.B–242, c. 1250 m alt.

**Habitat.** Rain forest, on clayey soil, 550(–1250) m alt.

**Collectors' notes.** Shrub in February 2004 c. 1 m tall (*Van Balgooy* 7520, L), in January 2010 c. 1.5 m (*Veldkamp* 8943, L), innovations brown pubescent, twigs lenticellate, inflorescences basiflorous, flowers reddish white, pink, anthers yellow, fruits red turning purple, fleshy, juicy.

**Eponymy.** The epithet *tapete-magicum* is for the “magic tapestry” formed by the inflorescences at the base of the stems.



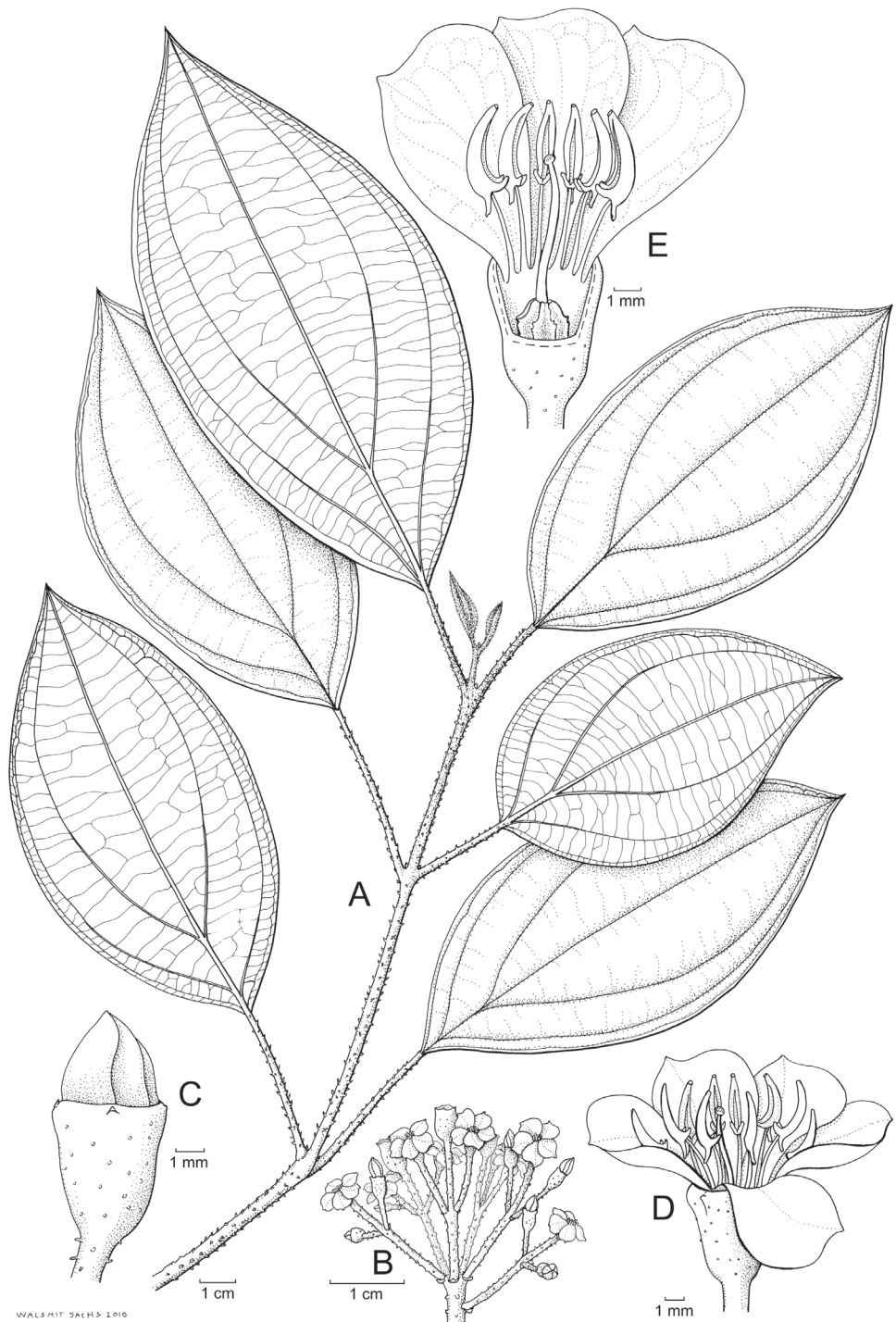
**Fig. 2.** *Medinilla tapete-magicum* Cámara-Leret & Veldk. Close-up of inflorescences. Photo credit: Irawati.



**Fig. 3.** *Medinilla tapete-magicum* Cámara-Leret & Veldk. Branchlets and leaves. Photo credit: J.F. Veldkamp.



**Fig. 4.** *Medinilla tapete-magicum* Cámara-Leret & Veldk. Flower, bud, and very young fruits. Photo credit: J.F. Veldkamp.



**Fig. 5.** *Medinilla tapete-magicum* Cámara-Leret & Veldk. **A.** Leaf-pairs along a branch. **B.** Partial inflorescence. **C.** Flower bud. **D.** Open flower. **E.** Flower, 2 petals and 4 stamens removed. **A, C–E:** *E19960709* (L), **B:** *Veldkamp 8943* (L). Drawn by: A. Walsmit Sachs-Jansen.

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