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THE CONFUSING TAXONOMY AND NOMENCLATURE OF *SYZYGIUM CONFUSUM* COMPLEX (MYRTACEAE)

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ABSTRACT
WIDODO, P. & VELDKAMP, J. F. 2021. The confusing taxonomy and nomenclature of *Syzygiun confusum* complex (Myrtaceae). *Reinwardtia* 20(2): 43–49. — The taxonomic and nomenclatural confusions surrounding the *Syzygium confusum* complex are elucidated. For that purpose, type specimens are designated and circumscriptions are presented for each species. Typifications, newly characterized descriptions and illustrations are presented for *Syzygium korthalsii* Widodo, *S. confusum* (Blume) Bakh.f., *S. blumei* (Steudel) Merr. & L.M.Perry, *S. insigne* (Blume) Merr. & L.M.Perry. The new species *Syzygium sipirokense* Widodo & Veldkamp is described.

Key words: *Jambosa*, Malesia, Myrtaceae, Southeast Asia, *Syzygium*.

ABSTRAK
WIDODO, P. & VELDKAMP, J. F. 2020. Kekusutan taksonomi dan tata nama kompleks *Syzygium confusum* (Myrtaceae). *Reinwardtia* 20(2): 43–49. — Kekusutan taksonomi dan tata nama jenis seputar kompleks *Syzygium confusum* dicoba diuraikan dengan pemantapan penunjukan spesimen-spesimen tipenya. Selanjutnya perapian batasan takson yang termasuk jenis kompleks juga telah dilakukan. Oleh karena itu pemantapan nama dan pertelaan serta ilustrasi *Syzygium korthalsii* Widodo, *S. confusum* (Blume) Bakh.f., *S. blumei* (Steudel) Merr. & L.M.Perry, *S. insigne* (Blume) Merr. & L.M.Perry dan jenis baru *Syzygium sipirokense* Widodo & Veldkamp disajikan.

Kata kunci: Asia Tenggara, *Jambosa*, Malesia, Myrtaceae, *Syzygium.*

INTRODUCTION

In studying the Sumatran free petalled species of *Syzygium* one may have difficulty in identifying the species with narrow leaves, especially because some of their representatives are rare and hence poorly known (Backer & Bakhuizen van den Brink Jr., 1963:343). In April 1972, for the Flora Malesiana project, Bakhuizen van den Brink Jr. & van Steenis tentatively identified and annotated two specimens preserved in L (namely HLB no. 898.203-342 part of Herb *Blume s.n*. collected in Java without definite locality and HLB no. 898.203-344 collected around Bogor, Java by an unknown collector) as *Syzygium confusum* (Blume) Bakh.f. Another specimen (HLB no 898.203-345 collected in Mount Malintang, West Sumatra by Korthals) was tentatively identified by them as *Syzygium* cf. *confusum* (Blume) Bakh.f.

In 1846 Korthals had already identified his collection (HLB 898.203-345) as *Jambosa lanceolata* Korthals. Confusion arose when Blume (1849) proposed the name *Jambosa confusa* Blume for other material from Java and Sumatra, inferring that Korthals's name was superfluous, as *Jambosa lanceolaria* was an earlier name for Korthals's material, based on *Eugenia lanceolaria* Roxb. (1832). To rectify this, Blume (1850) proposed *Jambosa korthalsii* Blume as a new name for *Jambosa lanceolata* Korthals. Although these specific epithets are similar, they do not mean exactly the same thing because *lanceolarius* (= small tip of a spear) and *lanceolatus* (= lancet-shaped) and they are not confusable under the ICNafp (Turland *et al*., 2018). In this case, what is the nomenclatural status of Blume's proposed new name *Jambosa korthalsii* Blume? Is it a superfluous name? Korthals' specific epithet *lanceolatum* cannot be transferred to *Syzygium* because it is pre-empted by the combination *S. lanceolatum* (Lam.) Wight & Arn. (1834). It is clear, therefore, that there is a need to clarify this nomenclaturally confused situation.

In revising the taxonomy of the narrow leaves *Syzygium* in Sumatra (Widodo, 2011) we found that twigs, leaf shape, leaf base and apex more often than not offer valuable characters for deli miting species. Consequently, morphological variation in these characters in the *Syzygium confusum* complex will be given special attention.

During the course of this study, in BO we found specimens from Sumatra with characteristics very much like *Syzygium insigne* (Blume) Merr. & L.M.Perry and *S. blumei* (Steudel) Merr. & L.M.Perry (species also related to the *Syzygium confusum* complex) but with consistently varying characteristics. We take this opportunity to describe these specimens and propose a species new to science.

MATERIALS AND METHODS

Materials used in this research are herbarium specimens from Sumatra, Java, and Borneo preserved in the herbaria of BO, L and K. Procedures and methods of observations used in this study mostly followed those elaborated by Rifai (1976), de Vogel (1987), Widodo (2011) and Widodo (2012).

RESULTS AND DISCUSSION

Results of our renewed observations of morphological characters of *Syzygium confusum* complex are presented in Table 1. We found that combinations of these characters are of assistance for delimiting closely related species as can be observed in Table 1.

1. SYZYGIUM KORTHALSII Widodo. — Fig. 1.
Jambosa lanceolata Korth. Ned. Kruidk. Arch. 1: 199. 1846. [non *Syzygium lanceolatum* (Lam.) Wight & Arn., 1834]. – *Jambosa korthalsii* Blume, Mus. Bot. Lugd.-Bat. 1: 101. 1849 [1850], nom. superfl. – *Syzygium korthalsii* Widodo, Reinw. 13(3): 235–240 (2012). — TYPE: INDONESIA, West Sumatra, Gunung Malintang, *Korthals s.n.* (Holotype L! HLB no. 898.203-345), designated by Widodo (2012).

Tree diameter unknown. *Twigs* usually 4-angled to 4-winged, with smooth and whitish pale brown bark. *Leaves* relatively long compared to width, the leaf form very narrowly ovate, 30–45 cm by 2.5–5 cm, brown above and milky brown below when dry; leaf base cordate, leaf apex long narrowly acuminate; petiole *ca*. 3 mm long, swollen and corky, drying pale brown; midrib channelled on the upper surface and raised on the lower surface, pale brown when dry; major lateral veins consists of *ca*. 25 pairs, 1–1.5 cm apart, at an angle of 60°–70°, sometimes curved near the midrib and straight near the intramarginal veins; minor lateral veins absent or present, oil dots between 2 major lateral veins less than 20 per cm^2; intramarginal vein 1 or 2, faint, 1–3 mm from margin. *Inflorescence* a terminal cyme, but the flower with a pseudostipe 5–7 mm long, hypanthial cup funnel-shaped; sepals triangular, 5–6 mm long, 5 mm wide; petals unknown; style 35 mm long. *Fruits* unknown.

Distribution. *Syzygium korthalsii* is known from a limited area in West Sumatra, namely in Pariaman and in Gunung Malintang.

Notes. *Syzygium korthalsii* can be readily distinguished from other Sumatran species by its leaf form which is very narrowly ovate and almost linear, reaching approximately 45 cm long and only around 3.5 cm wide on average.

2. SYZYGIUM CONFUSUM (Blume) Bakh.f. — — Fig. 2.
Jambosa confusa Blume, Mus. Bot. Lugd.-Bat. 1: 101. 1849 (non *J. confusa* Blume ex Miq., Anal. Bot. Ind. 1: 27. 1850, *nom. inval*., in syn. sub *E. microbotrya* Miq., non pert.). *Syzygium confusum* (Blume) Bakh.f. in Bakhuizen v/d Brink Jr. & Koster, Blumea 12: 61. 1963. – *Eugenia dolichophylla* Koord. & Valeton, Meded. Lands Plantentuin 40: 78. 1900, "*doligophylla*" non *Eugenia dolichophylla* Kiaersk., En. Myrt. Bras. 157. 1893, nec *Syzygium dolichophyllum* (Laut. & K.Schum.) Merr. & L.M.Perry, J. Arn. Arb. 23: 249. 1942. – *Eugenia malayana* Gagnep. in Lecomte, Fl. Indo-China 2: 838. 1921. *Syzygium malayanum* (Gagnep.) I.M.Turner, Gard. Bull. Singapore 47: 378. Jul 1997 ("Dec 1995"); Singapore Natl. Acad. Sci. 22–24: 21. Aug 1997 ("1996"), *nom. superfl*. – *Syzygium amshoffianum* Merr., Philipp. J. Sci. 79: 366. 1951 ("1950"), nom. superfl. — TYPE: INDONESIA, Java without definite locality. Herb. *Blume s.n*. (Holotype L! HLB no. 898.203-342), tentatively identified/annotated as *Syzygium confusum* (Blume) Bakh.f. in April 1972 by Bakhuizen van den Brink Jr. & van Steenis.

Tree to 8 m tall. *Twigs* terete and slightly compressed near the nodes. Leaves narrowly lanceolate, 20–30 cm by 3–5 cm tapered gradually from the middle to apex; upper surface blackish brown, lower surface reddish brown when dry; leaf base

Table 1. Morphological differences between species of *Syzygium confusum* complex

No	Character	*S. korthalsii*	*S. confusum*	*S. blumei*	*S. insigne*	*S. sipirokense*
1	Twigs	4-angled to 4-winged	Terete and slightly compressed near nodes	Terete	Terete and 4-angled near nodes	4-winged
2	Leaf form	Very narrowly ovate	Narrowly lanceolate	Quite narrowly ovate	Narrowly ovate	Quite narrowly ovate to almost oblong ovate
3	Leaf apex	Long narrowly acuminate	Acute to acuminate	Acute to acuminate	Acute	Acuminate to apiculate
4	Leaf size	30–45 cm by 2.5–5 cm	20–44 cm by 3–5 cm	15–20 cm by 2–3 cm	4–10 cm by 1–2.75 cm	10–15 cm by 3–5.5 cm
5	Leaf base	cordate	Almost narrowly cuneate	Rounded or subcordate	Subcordate or almost rounded	Rounded or subcordate
6	Inflorescence	Peduncle unknown	Peduncle unknown	Peduncle very short 2–5 mm or sessile	Peduncle unknown	Peduncle 4-angled, drying black
7	Locality	Sumatra, Mount Malintang	Java	Java	Borneo, Martapura	Aceh, North Sumatra

narrowly cuneate, apex long acute to acuminate; petiole 10–13 mm long, slender or swollen, scaly, peeling off; midrib rounded below, pale brown when dry; lateral veins very faint on both the upper and lower surfaces *ca*. 30 pairs, 1–2 cm apart, at an angle of 60°–70°, oil dots a few per cm^2; intramarginal vein 1, very faint 1–2 mm from margin. *Inflorescence* simple or paniculate to 5 cm long, terminal, up to 21 flowers per inflorescence. Rachis terete and 4-angled, drying dark brown. Flowers with short ultimate inflorescence axis, pseudostipe and hypanthial cup 8–15 mm long, trumpet-shaped to turbinate. Sepals 4 free, semiorbicular, 3.5 mm long *ca*. 4 mm wide. Petals semiorbicular *ca.* 5.5 mm long and wide, a few gland dots. Stamens *ca*. 10 mm long. Style *ca*. 20 mm long. Ovary 2-locular. *Fruits* campanulate (immature).

Distribution. Java. In Sumatra, *Syzygium confusum* is known only from Batam Island.

Notes. Koorders & Valeton (1900) realised that Blume's specific epithet *confusa* could not be combined with *Eugenia* because it was pre-empted by *E. confusa* DC. (1828), so that he proposed the new combination *E. doligophylla*. This, however, is an orthographic variant of the earlier *E. dolichophylla* Kiaersk. (1893) as can be seen when Koorders himself corrected it (1912). It is not a misprint as was suggested by Henderson (1949: 50), as the spelling is consequently used throughout in the 1900 paper. This combination is therefore also a later homonym and illegitimate.

Gagnepain (1921) proposed the new name *E. malayana* for this species (Govaerts *et al.*, 2008), which Turner (1997a, b) used in *Syzygium*, overlooking the fact that *S. confusum* was required, and that this combination had already been made by Bakhuizen van den Brink Jr. & Koster (1963). Gagnepain's specimens (*Dussaud s.n., Harmand 1314* and *Thorel s.n.*) and his description based on them actually refer to *Syzygium megacarpum* (Craib) Rathakr. & N.C.Nair (Wuu Kuang Soh, TCD, *in litt.*).

Unaware of Gagnepain's action Merrill (1951) proposed yet another name: *Syzygium amshoffianum*, which is superfluous.

3. SYZYGIUM BLUMEI (Steud.) Merr. & L.M.Perry. — Fig. 3.

Eugenia angustifolia Blume, Flora 7(1): 291 (1824), [*nom. illeg*., non *Eugenia angustifolia* Lam., Encycl. 3: 203 (1789)]. – *Myrtus*

hypericifolia Blume, Bijdr. Fl. Ned. Ind.: 1082 (1826) [*nom. illeg*., non *Myrtus hypericifolia* Salisb., Prodr. Stirp. Chap. Allerton: 354 (1796)]. *Jambosa hypericifolia* (Blume) DC., Prodr. [A. P. de Candolle] 3: 287 (1828), *nom. illeg. Eugenia hypericifolia* (Blume) Koord. & Valeton, Meded. Lands Plantentuin 40, Bijdr. 6: 69 (1900) [nom. Illeg.] – *Eugenia blumei* Steudel, Nomencl. Bot. ed. 2. 1: 601 (1840). *Syzygium blumei* (Steudel) Merr. & L.M.Perry, Mem. Amer. Acad. Arts 18: 164 (1939). — TYPE: INDONESIA, Jawa, Bogor. (Holotype L! HLB no. 898.203-344). labelled as *Jambosa confusa*, and preidentified/ annotated as *Syzygium* cf. *confusum* (Blume) Bakh.f. by Bakhuizen van den Brink f. & van Steenis in April 1972.

Habit unknown. *Twigs* terete, glabrous, drying yellowish. *Leaves* sessile, glabrous, narrowly ovate, 6–19 cm long by 1.5–3 cm wide; leaf base rounded to subcordate, leaf apex acute to acuminate; major lateral veins 6–9 pairs, very faint on both surfaces; leaves drying greyish above and yellowish below. *Inflorescence* terminal and in leaf axil. Pedicel terminally solitary, 1 flower with shorter petals. Calyx 4 lobed, base attenuate. *Fruit* unknown.

Distribution. West Java, Mt. Salak.

Habitat & Ecology. Tropical rain forest.

4. SYZYGIUM INSIGNE (Blume) Merr. & L.M.Perry — Fig. 4.
Jambosa insignis Blume, Mus. Bot. Lugd.-Bat. 1: 100. 1849. *Syzygium insigne* (Blume) Merr. & L.M. Perry, Mem. Acad. Arts & Sci. 18: 163. 1939. Mem. Gray Herb. Harvard Univ. 4: 163. 1939; Masam., Enum. Phan. Born.: 530. 1942. – *Jambosa lancifolia* Miq., Anal. Ind. 1: 17. 1850; Fl. Ned. Ind. 1, 1: 427. 1855, nom. superfl. —TYPE: INDONESIA, Borneo, Martapoera. *Korthals s.n*. (Holotype L! HLB no. 898.203-347), accepted by Merrill (1921), Merrill & Perry (1939), and Masamune (1942).

Tree, height and diameter unknown. *Twigs* 4-angled. *Leaves* opposite, very shortly petiolate nearly two-ranked, narrowly ovate, leaf apex acute, base subcordate or almost rounded, 4–10 cm by 1–2.75 cm, transverse veins confluent in the inframarginal nerve, coriaceous, shiny above, and often impressed with inconspicuous dots, paler below. Racemes 1–3, terminal and solitary in the axils, short, few-flowered. *Flowers* showy, rather longly pedicellated, pink. Calyx about 2.5 cm, tube of the calyx turbinate, widened above, the limb with sort rounded flaps of 6–8-fid, lobes unequal, the outermost shorter, deciduous.

Distribution. Borneo.

Notes. Not to be confused with *Eugenia insignis* Thwaites from Sri Lanka, a "true" *Eugenia*. Miquel (1850: 17) did not mention *Eugenia insignis* Blume, but described *E. lancifolia* as new based on the same material, so that the name is superfluous. Though he realised it in 1855 (p. 427), he still retained his own epithet. Merrill (1921: 429) regarded *Jambosa insignis* and *J. lancifolia* as distinct species, repeating Blume's suggestion that more than one collection would be involved. Merrill & Perry (1939: 163) joined the two, but did not mention *Jambosa lanceolata* at all, probably because they were aware that this was a Sumatran species, whereas they were dealing with Bornean material.

5. **Syzygium sipirokense** Widodo & Veldkamp *spec. nov.* — Fig. 5.
— TYPE: INDONESIA, Sumatra, Tapanuli Selatan, Cagar Alam Sipirok, Nagurguran. *EA Widjaja 2012,* 19 March 1983 (Holotype BO!).

Small tree or shrub. *Twigs* winged near the nodes. *Leaves* sessile, opposite, lanceolate, 10–15 cm by 3 –5.5 cm, leaves upper surface dark brown, lower surface brown when dry. Major lateral veins 10–14; leaf base rounded or cordate; leaf apex acuminate to apiculate; intramarginal veins one, 1–2 mm from margin, channelled above, raised below. Inflorescence arises from the leaf axil, peduncle four-angled, slightly winged, slender, black when dry. *Flower* unknown. *Fruit* ovoid to oval, 8–12 mm long, 5–7 mm diameter, green-red.

Distribution. Aceh Province, Aceh Tenggara Regency. North Sumatra, Tapanuli Selatan, Cagar Alam Sipirok, Nagurguran.

Habitat & Ecology. Primary forest 700 m alt.

Etymology. The epithet *sipirokense* came from one of the areas where this specimen was collected.

Conservation Status. This species is known from two locations, namely Sipirok Nature Reserve in North Sumatra and Ketambe Research Station in Aceh. The IUCN Assessment (IUCN, 2020) is categorized as Critically Endangered (CR).

Fig. 1. *Syzygium korthalsii*. Leafy twig.

Fig. 2. *Syzygium confusum.* Leafy twig.

Fig. 3. A. *Syzygium blumei.* B. *Syzygium insigne.* C. *Syzygium sipirokense* Widodo & Veldkamp *spec. nov.*

Specimen Examined. Sumatra, Aceh, Ketambe Research Station. *Kramadibrata K 329, K 333*, 11 March 1982.

Notes. *Syzygium sipirokense* resembles *S. blumei*. However, the leaves of *Syzygium sipirokense* dry dark brown above and pale brown below, instead of drying greyish above and yellowish below as in *S. blumei*. Twigs of *Syzygium sipirokense* are 4-winged, while the twigs of *S. blumei* are terete.

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