

THE GENUS *STACKHOUSIA* IN THE MALAY ARCHIPELAGO

by

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Stackhousia

SMITH, in *Transact. Linn. Soc. London*, IV (1798) 298. Most important literature: BENTHAM & HOOKER FIL., *Gen. pl.*, I, 1 (1862) 371; BENTHAM, *Fl. austr.*, I (1863) 404; in DE CANDOLLE, *Prodr.*, XV, 1 (1864) 499; PAX, in *ENGL. & PR., Nat. Pflanzenfam.*, III, 5 (1896) 233; BAILEY, *Queensl. Fl.*, I (1899) 263; PAMPANINI, in *Bull. Herb. Boiss.*, sér. 2, V (1905) 912; VI (1906) tab. 13.

Flowers regular, hermaphrodite. Calyx 5-merous, sepals usually more or less connate, rarely free. Corolla 5-merous, perigynous or nearly hypogynous; petals with long claws, rarely entirely free, usually free in the lower portion, connate in the upper portion of the claws; lobes 5, spreading, imbricate. Stamens 5, inserted on the margin of the calyx tube, free, usually different in length, included in the corolla tube. Ovary 2—5-, but usually 3-celled, each cell with one erect anatropous ovule; style with 2—5, usually 3, stigmatic lobes. Fruit with 2—5, usually 3, one-seeded cocci and a central columella; seed with membranous testa, fleshy albumen, straight embryo, short cotyledons, and inferior radicle. — Herbs, annual, or perennial with a rhizome. Leaves spread, entire, without stipules or with very small ones. Flowers in groups in the axils of bracts, the groups arranged in terminal racemes.

Distribution: Australia, nearly 19 species, Tasmania, 4 species, New Zealand and the Malay Archipelago, one species each. In the Malay Archipelago only:

Stackhousia intermedia BAILEY — *Stackhousia muricata* (non LINDLEY 1836) BENTHAM, Fl. austr., I (1863) 408, quoad Philipp.; in DE CANDOLLE, Prodr., XV, 1 (1864) 501, quoad Philipp.; FERN.-VILLAR, Noviss. Append. (1880) 47; VIDAL, Phan. Cuming. Philipp. (1885) 103; Rev. Plant. Vasc. Filip. (1886) 90; BAILEY, Queensl. Fl., I (1899) 264, quoad Philipp.; *Stackhousia intermedia* BAILEY, in Queensl. Agric. Journ., III, 4 (1898) 281; in Queensl. Fl., I (1899) 264; PAMPANINI, in Bull. Herb. Boiss., sér. 2, V (1905) 1149, cum forma *Philippinensi*; BAILEY, Compreh. Catal. Queensl. Pl. (1913) 100, fig. 81; DOMIN, in Bibl. Bot., XXII, 896 (1927); *Stackhousia viminea* (non SMITH 18...) VOLKENS, in Bot. Jahrb., XXXI (1902) 467; *Stackhousia viminea* var. *micrantha* [an BENTHAM, Fl. austr., I (1863) 408; in DE CANDOLLE, Prodr., XV, 1 (1864) 501?] LAUTERBACH, in SCHUM. & LAUTERB., Nachtr. Fl. Deutsch. Schutzgeb. Südsee (1905) 305; *Stackhousia intermedia* forma *Philippinensis* MERRILL, in Philipp. Journ. Sc., Bot., XI (1916) 286; in Enum. Phil. Fl. Pl., II (1923) 488; DOMIN, in Bibl. Bot., XXII, 897 (1927); *Stackhousia tenuissima* var. *ramosa* VAN STEENIS, in Nova Guinea, XIV (1927) 307 [an *St. tenuissima* PAMPANINI, in Bull. Herb. Boiss., sér. 2, V (1905) 1147?]

Probably annual, entirely glabrous. Root fusiformous, 4—5 cm long, nearly 1.5 mm thick above, attenuate, with fibrous ramifications. Stem erect, 6—50 cm long, 1.5 mm thick at the base, gradually attenuate towards the almost filiformous, angular tip, little branched and nearly always in the basal portion only, with erect branches, terete, striate, leafy in the lower portion, terminating into 1—20 cm long, spicate inflorescences. Leaves spread, on distances of 0.5—3 cm, linear, sessile with attenuate base, 0.75—2 cm long, 0.2—1 mm broad, the lower ones obtuse, the upper ones acute, thickish, without visible nervation or only the midrib visible. Flowers in groups of 2 or 3 (rarely single) in the axils of bracts, on distances of 0.3—2 cm, forming lax terminal racemes, the upper groups with 2 bracteoles and 1—3 flowers, the lower ones with more numerous bracteoles and up to 5 flowers; bracts roundish-ovate, strongly acuminate, fimbriate dentate, nearly 0.75—1 mm long, 0.5 mm broad, membranous with exception of the midrib; bracteoles like the bracts, but more strongly dentate and less acuminate; pedicels terete, 0.75—1.25 mm long, here and there indistinctly articulate. Calyx syntepalous, the tube short-campanulate or later more infundibuliformous, nearly 0.5 mm long, the lobes 5, ovate, acuminate, nearly 0.5 mm long, irregularly fimbriate-dentate, with membranous margin. Corolla inserted on the margin of the calyx-tube,

sympetalous, hypocrateromorphous, the tube cylindrical, nearly 2 mm long, 0.5 mm wide, divided into 5 petals in the lower portion over nearly 0.3 mm, the lobes strongly acuminate, ovate-oblong, nearly 0.75 mm long. Stamens inserted on the margin of the calyx-tube, free; filaments filiformous, slightly dorsiventrally flattened, the two shorter ones reaching to the middle, the three longer ones nearly to the margin of the corolla-tube; anthers oblong, very obtuse and emarginate at the base and the apex, nearly 0.6 mm long and half as broad, introrse, dithecic, quadrilocular. Ovary subglobose, 0.3—0.4 mm long and broad, 3-lobate and 3-celled, with one ovule in each cell. Style straight, 0.4 mm long, divided in its upper portion into 3 linear stigmata. Fruit composed of 3 cocci that are roundish-ovate, nearly 1.5 mm long, and 1 mm broad, with reticulate surface, and containing one seed. (Description from all the materials listed below.)

Among the specimens of *Stackhousia* from the Malay Archipelago examined by me, I cannot distinguish more than a single species. This species was identified by PAMPANINI (*l. c.*) with BAILEY'S *St. intermedia*, and, in my opinion, rightly. PAMPANINI did not examine other numbers than CUMING 976, and based on it a *forma Philippinensis*. MERRILL followed him in this respect, comprising, under this name, also specimens from Sumatra, Amboina, and the Caroline Islands. The distinctive characters, ascribed by PAMPANINI to this form, are of so little importance, that it seems impossible to distinguish it from other forms of the species.

VOLKENS (*l. c.*) mentions his numbers 396 and 488, from Yap, as *St. viminea* SMITH. I saw his no. 396, but in my opinion it is only *St. intermedia*.

LAUTERBACH (*l. c.*) determined SCHLECHTER 13854, BIRO 31, and NYMAN 1073, as *St. viminea* var. *micrantha* BENTHAM. I examined all these numbers and think they are *St. intermedia*. Probably LAUTERBACH determined his plants with BENTHAM'S monograph of the genus in his *Flora Australiensis*, or in DE CANDOLLE'S *Prodromus*, and in that case could not fail to arrive at *St. viminea* var. *micrantha*. With BAILEY'S key in the Queensland Flora, however, one arrives at *St. intermedia*. According to BAILEY, his *St. intermedia* has the leaves "very narrow, subulate, pointed", *St. viminea*, on the contrary, "oblong or linear". Also with PAMPANINI'S monograph one determines the same numbers as *St. intermedia*, as *St. viminea* is perennial, *St. intermedia* annual. Judging from the shape of the roots, our plants must be annual.

LAUTERBACH writes moreover: "Die Art ist von Australien und den

Philippinen, die Varietät von der Nordküste Australiens und den Karolinen bekannt“. I found neither the species mentioned from the Philippines, nor the variety from the Caroline Islands.

BENTHAM mentions *St. muricata* (ll. cc.) from the Philippines. He says (Fl. austr. I, p. 408): "This species, which we have also from the Philippine Islands, varies considerably and sometimes approaches *St. viminea*, but the leaves are never so broad, and the corolla lobes obtuse." From this, it is evident that he alludes to a form that is intermediate between *St. muricata* and *St. viminea*, i. e. *St. intermedia*. He furthermore says: "Some smaller specimens, like those from the Philippine Islands, are less branched and perhaps sometimes annual." This remark also indicates *St. intermedia*. Very probably BENTHAM examined no other specimens than those collected by CUMING.

According to PAMPANINI, the corolla lobes of *St. muricata* are obtuse, and this is not the case in the Philippine plants. Moreover he describes *St. muricata* as perennial, whereas all the specimens from the Malay Archipelago appear to be annual.

VIDAL (l. c.) cites the type number of *St. intermedia* f. *Philippinensis* (CUMING 976) as *St. muricata*. BAILEY cites BENTHAM literatim, and consequently mentions *St. muricata* for the Philippines. It is peculiar, that he does not mention the Philippine specimens under *St. intermedia*, which he describes immediately below.

VAN STEENIS (l. c.) bases *St. tenuissima* var. *ramosa* on the number GJELLERUP 499, distinguishing it from the species as follows: "Caulis filiformis, nonnunquam ramosus, circ. 1.5 mm crassus, 35—60 cm longus; folia 1.2—2.3 cm longa, spicae 12—15 cm longae, cocci ovati, distincte reticulati 1.2—1.5 mm longi." When determining GJELLERUP's plant with PAMPANINI's monograph, one must, indeed, arrive at *St. tenuissima*, based on a specimen of SCHULZ's no. 303, in the St. Petersburg Herbarium. Comparing, however, all the New Guinea plants listed below, including SCHULZ 303 from Adelaide, we must acknowledge that they are somewhat different from the other plants from the Malay Archipelago. The stems are longer, thinner, straighter, and bear only few leaves, sometimes no leaves at all, moreover the tepals are somewhat more triangular. But in the inflorescences, flowers, and fruits, no further differences of any importance can be discovered. I had not the opportunity to examine the specimen of SCHULZ's no. 303 in the Petersburg Herbarium, but I examined the same number from the Berlin-Dahlem Herbarium, which agrees with GJELLERUP's plant, with exception of the fact that it is quite leafless. These are the grounds on which I base

my opinion that PAMPANINI's *St. tenuissima* is the same as the New Guinea variety of *St. intermedia*. In this connection, I must point out that PAMPANINI, in his monograph, describes not only *St. tenuissima*, but also *St. virgata*, *St. aphylla*, and *St. micrantha*, as new species closely allied to *St. intermedia*, whereas for all these he only mentions slight differences. *St. aphylla* is even based on the same number as *St. tenuissima*, viz., SCHULZ 303, though on the specimen in the Brussels Herbarium. I therefore strongly doubt whether all these species are more than slight varieties of *St. intermedia*.

Distribution.

Sumatra: Batak Regions, BOORSMA s.n. (B); Karo Plateau near Koetabangoen, w. of Kabandjahé, on the Goenoeng Batoegadjah, 600—1400 m alt., 16 IV 1919, GALOENGI 245 (B, L), flowers yellow; Karo Plateau, Mosweg, km 125, 1918, BERNARD s.n. (B); Toba Plateau near Prapat, abandoned ladang, IV 1931, FREY-WYSSLING 58 (B); s. of Prapat, in grass vegetations, IV 1927, BEUMÉE A. 447 (B); near Sitorang, wet open place near swamp, 950 m alt., 21 V 1896, OUWEHAND 169 (B), corolla white, common; shooting-range near Lagoe-Boti, on dry sandy ground, 900 m alt., 1 III 1897, OUWEHAND 248 (B, L, U), stems longitudinally grooved, here and there with small black spots, calyx yellow-green, persistent, corolla yellow, leaves thickish, with one nerve; Plateau of Habinsaran, e.s.e. of Lake Toba, grassy wildernesses, especially on abandoned fields, 1200—1300 m alt., 11 V 1919, LÖRZING 6472 (B, L), not rare, flowers yellow, typical for grassy regions, especially when formerly cultivated; Middle-Habinsaran, near Parsoboeran, grassy wildernesses, 1070 m alt., 13 XI 1920, LÖRZING 7787 (B), flowers yellow.

Celebes: Dako, north coast near Gorontalo, between grass, 4 V 1909, ROTHERT s.n. (B).

Boeroe: 1859—1860, DE VRIESE & TEYSMANN s.n. (L); Kajeli, on grassy plains, TEYSMANN 1847 H. B. (B).

Amboina: ZIPPELIUS s.n. (L); VII—XI 1913, C. B. ROBINSON 1766 (B, BD, L); 1913, *idem*, s.n. (B); hilly ground between jalang, 100 m alt., 17 IV 1926, DOCTERS VAN LEEUWEN 8669 (B, L); Saparoca, in the woods, 11 V 1842, FORSTEN s.n. (L).

New Guinea: Cyclope Mts., 300 m alt., 16 VI 1911, GJELLERUP 499 (B, BD, L, U), type of *St. tenuissima* var. *ramosa* VAN STEENIS; Simbang, 20 VIII 1898, BIRO 31 (BD); on the Ramu River, I 1902, SCILLECHTER 13854 (B, BD); Finschhafen, 13 IX 1899, NYMAN 1073 (BD); Malolo Mission, Salamaua, Cogon trail hill, 800 ft alt., 17 VIII 1935, CLEMENS 2 (BD), flowers straw color, pale.

Australia: Thursday Islands, 14 V 1901, JAHNERI s.n. (B, L); "New Holland", anno 1770, BANKS & SOLANDER s.n. (BD); Port Darwin, 4 miles N.E., 1 II 1925, BLEESER 135 (BD); North Queensland, Kelsey Creek, MICHAEL 982 (B); Adelaide, 14 V 1896, SCHULZ 303, coll. SCHOMBURGK, type no. of *St. tenuissima* and *St. aphylla* PAMPANINI.

Philippine Islands: Luzon, Ilocos Norte Prov., Bangui, II—III 1917, BUR. SC. 27525 coll. RAMOS (B); Cagayan Prov., II 1909, FORESTRY BUR. 16584 coll. CURRAN (BD); Zambales Prov., Anuling, XI—XII 1924, BUR. SC. 44588 coll. RAMOS & EDAÑO (B); Sorsogon Prov., Sorsogon, HAENKE s.n. (BD); Culion Island:

X 1922, BUR. SC. 41330 coll. RAMOS (B, BD, L); Guimaras, 24 XII 1912, BUR. SC. 18009 C. B. ROBINSON (B, L).

Caroline Islands: Yap, mountain meadows, 29 I 1900, VOLKENS 396 (B, BD); *ibidem*, 13 III 1900, VOLKENS 488 (BD).

Palau Islands. Korrer, in a taro field, 1907, Father RAYMUNDUS 139 (BD), v.n.: *chouáhoródoch*; Korrer, 1910, Prof. KRAEMER s.n. (BD); Korrer, step-like formation with grass up to knee height, with some *Pandanus* trees, 20—30 m alt., 5 II 1914, LEDERMANN 14030 (BD), flower pale yellow, leaves grey-green, v.n.: *chamgētēlchorachab*.