

Notes on the Flora of Taiwan (25)—The Genus *Scaevola* L. (Goodeniaceae)⁽¹⁾

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Abstract: The two species of *Scaevola* in Taiwan are revised. The nomenclature of the plants previously identified as *S. sericea* is updated as *S. taccada* and a more complete description of *S. hainanensis* is also given.

KEY WORDS: *Scaevola*, Taiwan, Pollen, Revision.

The genus *Scaevola* L., consisting of about 96 species, mostly Australian, is distributed in the tropical regions. There are two species in Taiwan.

This paper is the precursor to the revision of the family Goodeniaceae for the Flora of Taiwan, second edition, volume 4. A literature review of Carolin *et al.* (1992), Green (1991), Hong *et al.* (1976) and Li (1978) suggests that the Taiwan plants previously identified as *S. sericea* should be *S. taccada*. In addition, *S. hainanensis*, a rare species in Taiwan, has been reexamined in the field. All materials studied are deposited in TAI-herbarium. The illustrations were based on the specimens marked with an asterisk (*).

The writer greatly appreciates Mr. D. S. Hong for his help in the field collection of *S. hainanensis*, and Mr. M. J. Wu for preparation of scanning electron micrographs.

Key to species

1. Shrub creeping; leaves linear-spathulate; flowers solitary; drupes black at maturity
..... (1) *S. hainanensis*
1. Shrub erect; leaves spathulate; flowers in cymes; drupes pale brown at maturity
..... (2) *S. taccada*

1. *Scaevola hainanensis* Hance in J. Bot. 1878: 229. 1878; Li in Fl. Taiwan 4: 767. 1978.

海南草海桐 Fig. 1: 1-6, Fig. 2

A creeping fleshy shrub; stem repent (Lawrence, 1955), 6-8 mm in diameter, with short lateral spreading branches, glabrous, the young branchlets hirsute. Leaves sessile, fascicled, often crowded at the ends of branchlets, linear-spathulate, obtuse at apex, attenuate at base, 2-4 cm long, 2-4 mm broad, entire, the midrib absent or obscure, shinning-green, fleshy, glabrous. Flowers axillary, solitary, sessile to short-petiolate, bibracteate, 8 cm wide; calyx adnate to the ovary, 5-lobed, the lobes triangular and persistent, the tube glabrous, 4 mm long, green; corolla zygomorphic, 1-lipped, 5-lobed, pale pinkish purple then becoming

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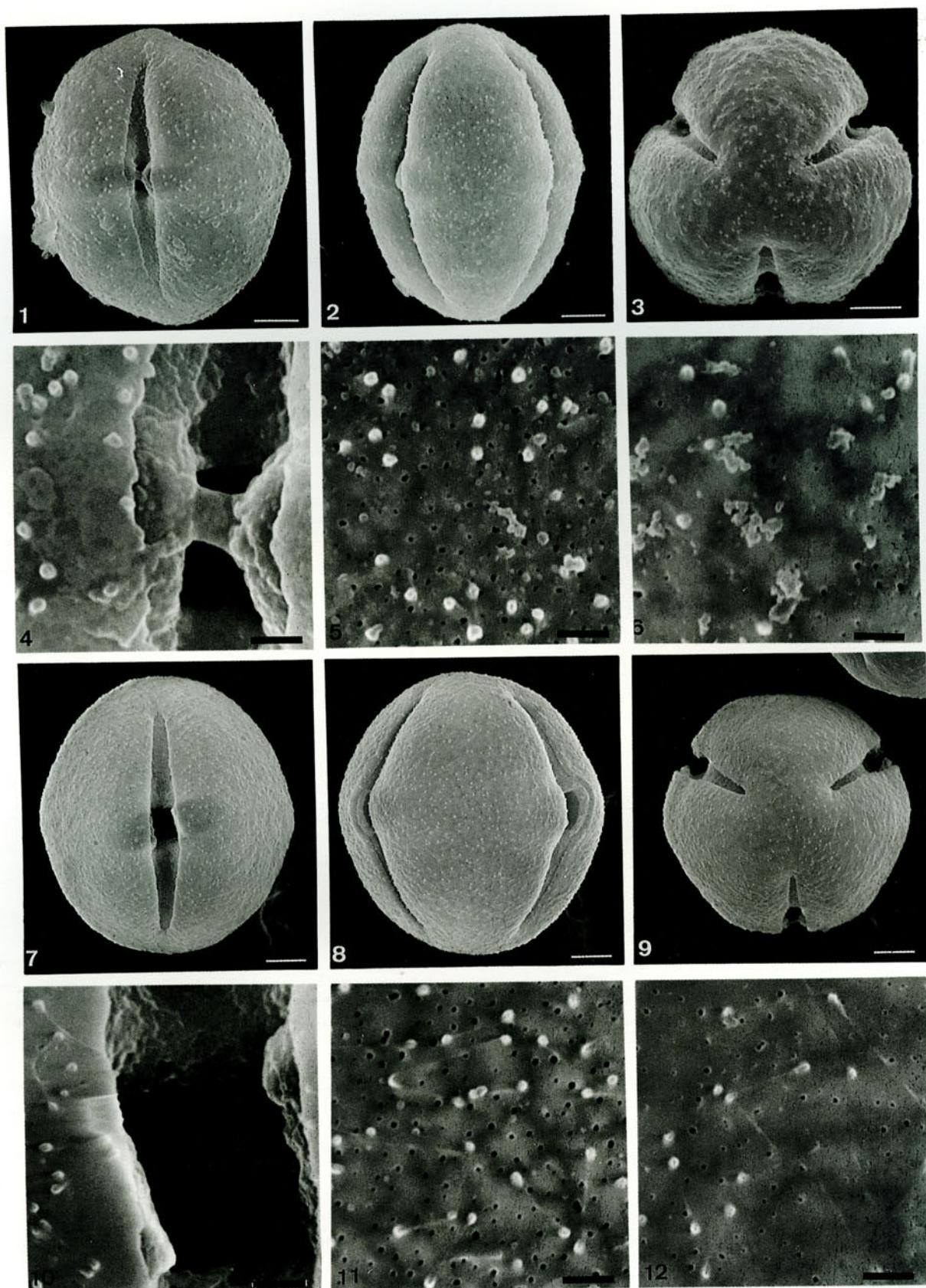


Fig. 1. Pollen grains of *Scaevola hainanensis* Hance (1-6) and *S. taccada* (Gaertner) Roxb. (7-12). 1-2 and 7-8, equatorial views; 3 and 9, polar views; 4 and 10, apertures, showing the os with connecting endosexinous layer between colpi in *S. hainanensis* (4), and showing open os in *S. taccada* (10); 5 and 11, mesocolpium areas showing gemmate process and microperforated ornamentation; 6 and 12, apocolpium areas showing gemmate processes and microperforated ornamentation; white bar = 5 μm ; black bar = 1 μm .

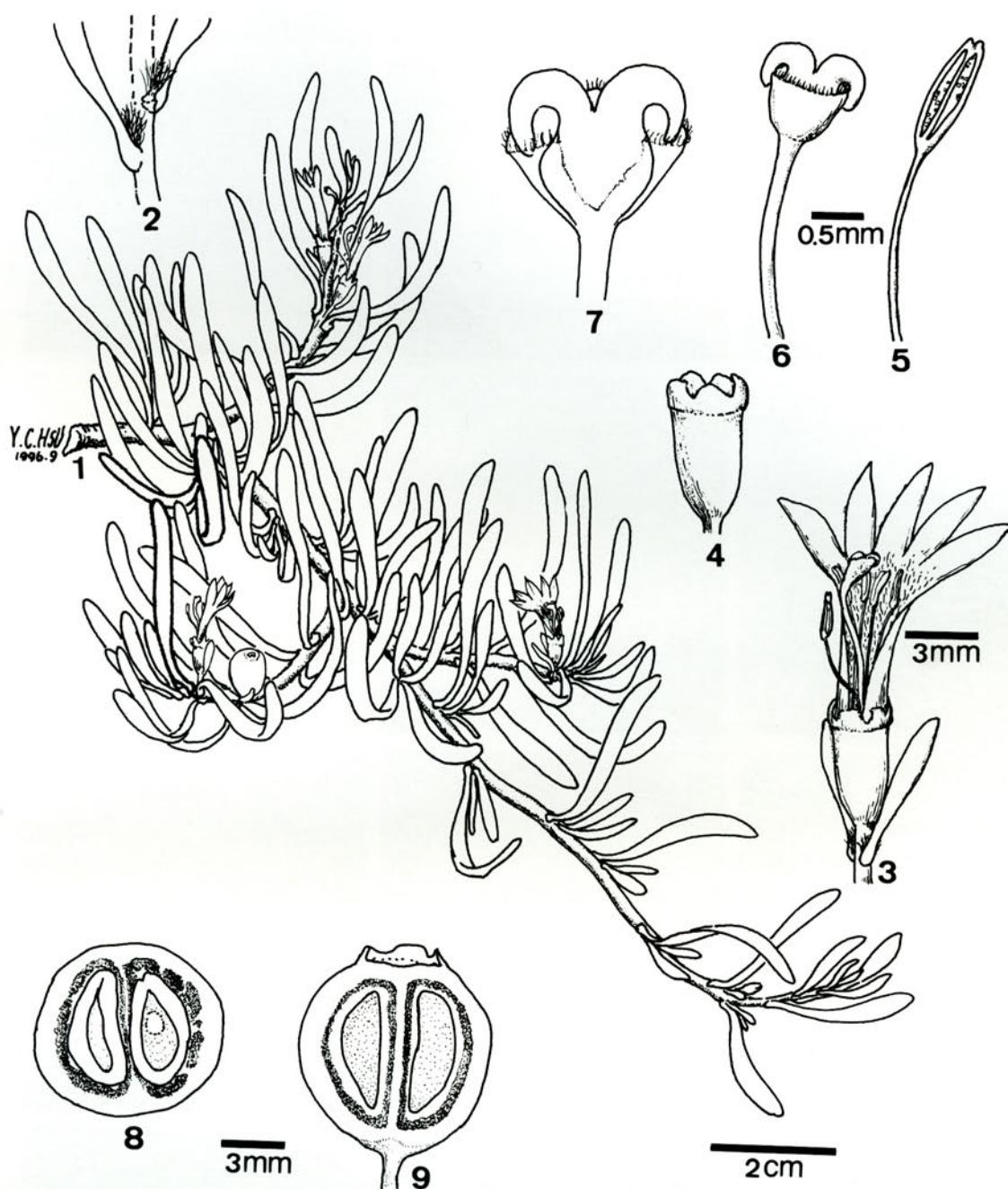


Fig. 2. *Scaevola hainanensis* Hance (GOODENIACEAE) 1. habit; 2. portion of stem with axillary hairs on the basal part of leaves; 3. flower; 4. flower with corolla, pistil, and stamens removed; 5. stamen; 6. stigma enclosed by a hairy style cup; 7. stigma with open hairy cup; 8. cross section of drupe; 9. longitudinal section of drupe.

white, glandular and spinulate-hairy inside, the lobes elliptic, unwinged, 5 mm long, the tube 6 mm long; stamens 5, adnate to the basal part of corolla lobes; anthers 1 mm long; pollen grains 3-colporate, prolate-spheroidal to subprolate, $35 \times 27-30 \mu\text{m}$, the amb circular, 27.5 μm wide, the colpi as long as P axes, the aperture common type, the ora transversally parallel, the exine with gemmate processes and microperforated ornamentation, the sexine LO-pattern; style reflexed, the apex dilated to enclose the stigma with a marginal hairy cup; stigma bilobed, recurved; ovary green, glabrous, 2-celled, one ovule per cell, the placentae basal. Drupe ellipsoid, 6-7 mm long, 4-6 mm across, pale green but black at maturity.

This species ranges from Indochina, Hainan to Taiwan. In Taiwan, it grows only on saline sand of southwestern coastal beach, between Sinkang to Chianggun, and is apparently a rare species.

YUNLIN: Sinkan, Chen 2505. CHIAYI: Tungshih (Tosseko, see Huang *et al.*, 1993), Yamazaki 25535. TAINAN: Chianggun, Huang *et al.* 16804*.

This species is characterized by its repent stem; leaves linear-spathulate, 2-4 cm long and 2-4 mm broad; flowers solitary; calyx-lobes triangular; corolla unwinged with single spinulate hairs; stigmatic cup hairy on margin; and drupes black at maturity.

2. *Scaevola taccada* (Gaertner) Roxb., Hort. Bengal. 15. 1814; Green in Taxon 40: 121. 1991. 草海桐(水草) Fig. 1:7-12, Fig. 3

Lobelia taccada Gaertner, Fruct. Sem. Pl. 1: 119. t. 5. 1788.

Scaevola sericea Vahl, Symb. Bot. 2: 37. 1791; Li in Fl. Taiwan 4: 765. pl. 1194. 1978.

Scaevola koenigii Vahl, Symb. Bot. 3: 36. 1794; Matsum. & Hayata in J. Coll. Sci. Univ. Tokyo (Enum. Pl. Form.) 22: 213. 1906.

Scaevola koenigii Vahl var. *glabra* Matsum. in Bot. Mag. Tokyo 14: 57. 1900.

An erect shrub, to 5 m tall; branches usually glabrous. Leaves spirally arranged, sessile, mostly crowded at the ends of branchlets, oblanceolate to spathulate, apex obtuse to rounded but emarginate when fresh, long-attenuate at base, entire or sinuate to dentate, 7-25 cm long, 4-10 cm broad, chartaceous of, more or less fleshy, glabrous or sometimes short-tomentose, the midrib prominent on both surfaces. Inflorescence a cyme, 4-7 cm long, with few flowers, the flowers 2-2.5 cm long, 1.8-2.2 cm wide, pedicellate, the pedicels 1-2 cm long; calyx adnate to the ovary, the tube 4-5 mm long, the lobes persistent, narrowly oblong, 2-3 mm long but spathulate in fruit, 4-6 mm long; corolla pale greenish-yellow with pinkish purple at margin and midrib, becoming white to brownish-yellow, the tube densely pubescent inside, 1.4 cm long, 5-lobed, the lobes narrowly elliptic, 1 cm long, 2 mm wide, winged, both corolla lobes and wing with two kinds of hairs, the short ones simple-spinulate, the long, thick ones branching at the apex or pseudo-stellate hairs (Carolin *et al.*, 1992), the wing undulate, white; stamens 5, adnate to the basal part of corolla tube; pollen grains 3-colporate (Huang, 1972), prolate-spheroidal, 37-37.5 x 33.5-35.5 μm , the amb circular, 32.5 μm wide, the others characters as above species; style hairy, reflexed, apex dilated to enclose the stigma with a hairy cup; stigma bilobed, recurved; ovary 2-celled; ovule one per cell; the placentae basal. Drupe globular, 0.8-1.3 cm across, green but pale brown at maturity, longitudinally striped when dry.

This species is widely distributed in Madagascar, southeastern Asia, tropical Australia, Micronesia, Melanesia, Hawaii and Taiwan. In Taiwan, it grows along sandy and rocky beaches of the whole island.

TAIPEI: Shihmeng, Huang 16816*; Paishawan, Huang 16817. TAINAN: Wilson 9845. PENGHU: Makung, Huang 6905. KAOHSIUNG: Tungshatao (Pratas Is.), Huang *et al.* 16530, 16582, 16638; Taipingtao (Aba Itu Is.), Huang *et al.* 16353. PINGTUNG: Kenting, Huang *et al.* 16857. TAITUNG: Lanyu, Huang 6423, Miyake s. n. 1899 (Type of *S. koenigii* var. *glabra* Matsum.); Lutao, Huang 6935. HUALIEN: Keng & Kao 2584.



Fig. 3. *Scaevola taccada* (Gaertner) Roxb. (GOODENIACEAE) 1. habit; 2. longitudinal section of flower; 3. stamen; 4. pistil; 5. branched (pseudo-stellate) hairs on the throat of corolla tube and corolla lobes; 6. spinulate hairs inside corolla tube; 7. cyme; 8. longitudinal section of drupe, showing the basal placentae.

This species is characterized by its erect stem; spatulate leaves, 7-25 cm long and 4-10 cm broad; flowers in cymes; calyx lobes narrowly oblong; corolla winged with spinulate and pseudo-stellate hairs; stigmatic cup hairy outside and drupes pale brown at maturity.

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台灣植物誌之觀察(25)－草海桐屬(草海桐科)⁽¹⁾

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摘要

訂正兩種台灣之草海桐屬(*Scaevola*)植物。草海桐之學名更新為 *S. taccada*；海南草海桐(*S. hainanensis*)之特徵描述亦有增補。

關鍵詞：草海桐屬，台灣，花粉，訂正。

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