

Notes on the Flora of Taiwan (32) — Miscellaneous notes on Lamiaceae of Taiwan

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ABSTRACT: This paper is a precursor to a revision of the family Lamiaceae for the Flora of Taiwan volume four. Twenty taxa including a recombination, *Salvia formosana* (Murata) Yamazaki var. *matsudae* (Kudo) T.C.Huang & J.T.Wu **comb. nov.**, and 19 revised names are provided. SEM micrographs of pollen grains and nutlets and chromosome numbers of some taxa are provided.

KEY WORDS: Cytology, Palynology, Lamiaceae (Labiatae), Taxonomy, Taiwan.

INTRODUCTION

While studying Lamiaceae for the second edition of the Flora of Taiwan in recent years, some floras of neighboring areas such as Flora Reipublicae Popularis Sinicae (Wu and Li, 1977), Flora of China (Li and Hedge, 1994), Flora of Japan (Murata and Yamazaki, 1993), and Flora Malesiana Labiatae (Keng, 1969) were used for comparison. These recent floras enhanced our revisional work on the Taiwanese Lamiaceae. Since detailed description for each taxon will be available in the December 1998 issue of the Flora of Taiwan, volume 4, we report here only characteristics of the pollen grains, nutlet morphology, and chromosome numbers for some taxa in order to save space.

MATERIALS AND METHODS

Materials were examined from both fresh field collections and from dried voucher specimens at TAI for the morphological studies including pollen features and chromosome counts. Pollen grains were prepared by the method proposed by Erdtman (1952). The acetolyzed grains were dehydrated in an ethanol series and dried in the air. After drying, the grains were coated with gold and microphotographs were taken with a Hitachi S-520 SEM. The root tips were pretreated with 0.002 M 8-hydroxyquinoline for 4-5 hours at a temperature of 18-20 °C, then fixed in 1:3 acetic: ethanol overnight and hydrolyzed in pectinase

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and squashed in propionic orcein. Chromosome counts were made with the aid of a Leitz DMRB.

RESULTS AND DISCUSSION

1. *Bostrychanthera deflexa* Benth. in Benth. & Hook. f., Gen. Pl 2: 1216. 1876.

Fig.1 毛藥花

Chelonopsis deflexa (Benth.) Diels in Engl. Bot. Jahrb. 29: 544. 1890; Huang & Cheng in Fl. Taiwan 4: 452. 1978.

This species is an erect herb or suffruticose plant, up to 100 cm tall; calyx campanulate, 5-toothed, glabrous or sparsely puberulent near margin of teeth. Pollen grains are 3-colpate and isopolar; sexine with microperforation (Figs. 1 a-c). Nutlets black, drupelike, spherical, exocarp fleshy, thickened, cuticular when dry. Chromosome number $2n = 32$ (Fig. 1d).

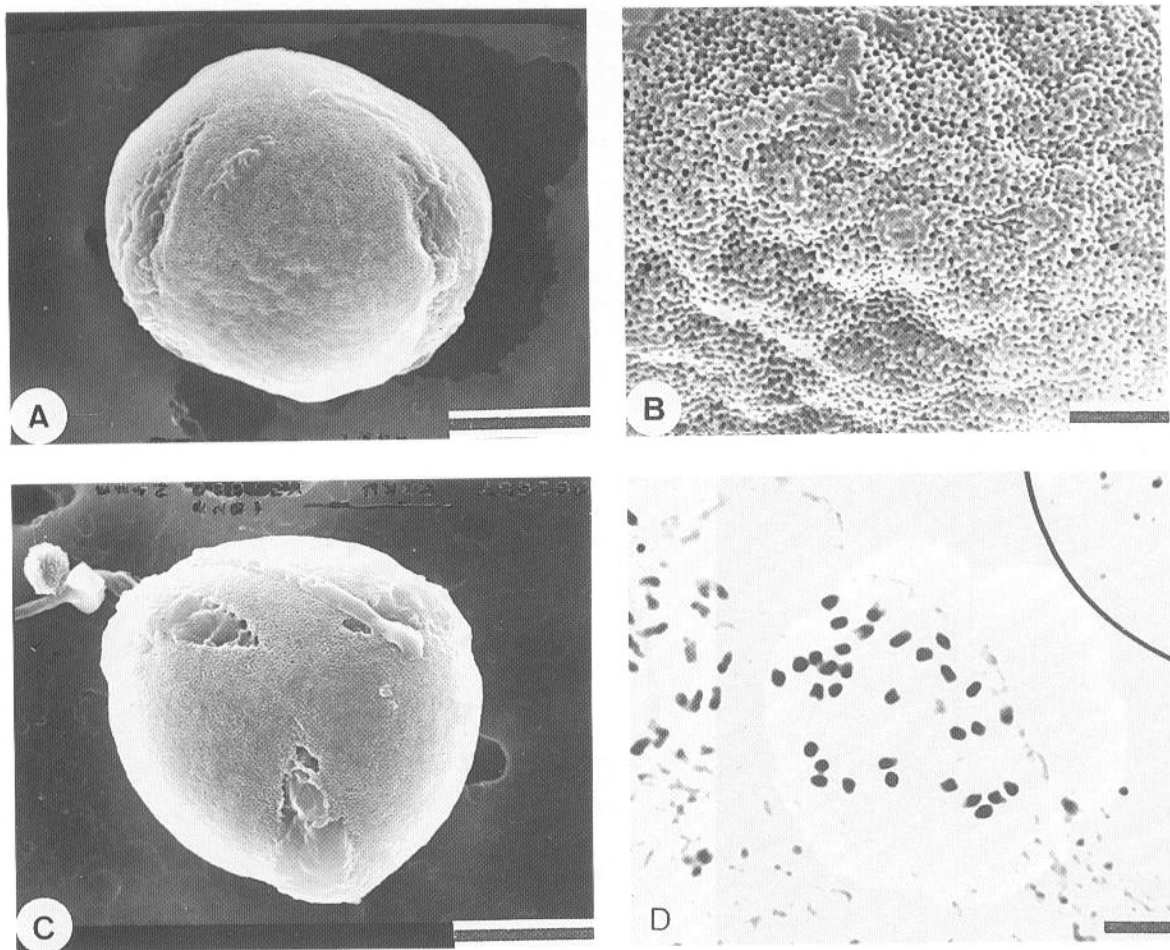


Fig 1. SEM micrographs of *Bostrychanthera deflexa* Benth. A-C: Pollen grains; D: Chromosome number $2n = 32$. Scale bar = $5 \mu\text{m}$, except $2 \mu\text{m}$ in B.

The above characteristics fit the criteria of Hsuan and Wu (Fl. Reipubl. Popu. Sin. 65(2): 122. 1977) who stated that the genus *Bostrychanthera* differs from *Chelonopsis* by its drupe-like nutlet and succulent thick exocarp and an equally 5-toothed calyx.

2. *Coleus formosanus* Hayata in Matsum. & Hayata, Enum. Pl. Form. 320. 1906; Murata & Yamazaki, Fl. Jap. 3a: 309. 1993.

Fig. 2 蘭嶼小鞘蕊花

Coleus scutellarioides (L.) Benth. var. *crispipilus* (Merr.) auct.non Keng: Huang & Cheng in Fl. Taiwan 4: 460. 1978.

This species is characterized by the pollen grains 6-colpate, isopolar; sexine finely

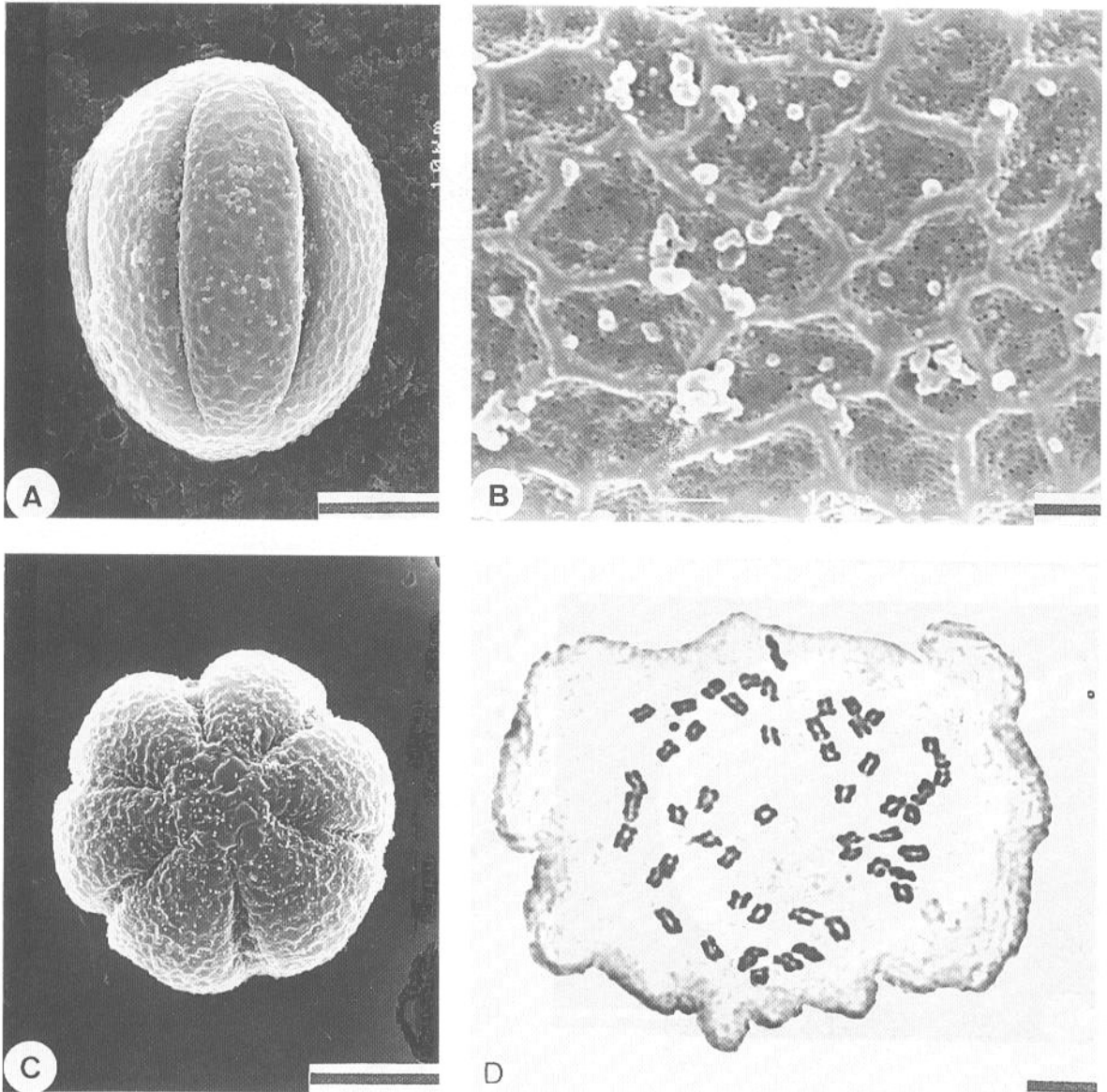


Fig. 2. SEM micrographs of *Coleus formosanus* Hayata. A-C: Pollen grains; D: Chromosome number $2n=50$. Scale bar= A and C=10 μm , B=1 μm , D=5 μm .

reticulate, with microperforations (Figs. 2a-c). Nutlet *ca.* 0.8 mm wide, orbicular, slightly compressed, smooth or slightly reticulate. Chromosome number $2n = 50$ (Fig. 2d). We accept the treatment of Murata and Yamazaki (Fl. Japan 3a: 309. 1993) who stated that *Coleus formosanus* as a distinct species differs from *C. scutellarioides* (L.) Benth. by its smaller, thicker and more densely puberulent leaves, stout inflorescences, short peduncles and pedicels, verticillasters with many crowded flowers, more densely hairy calyx and the lips subequal, growing on rocks near the sea, and not cultivated nor escaped plants.

3. **Coleus amboinicus** Lour. Fl. Cochinch. 372. 1790; Keng in Gard. Bull. Singapore 24: 50. 1969. Fig. 3 到手香

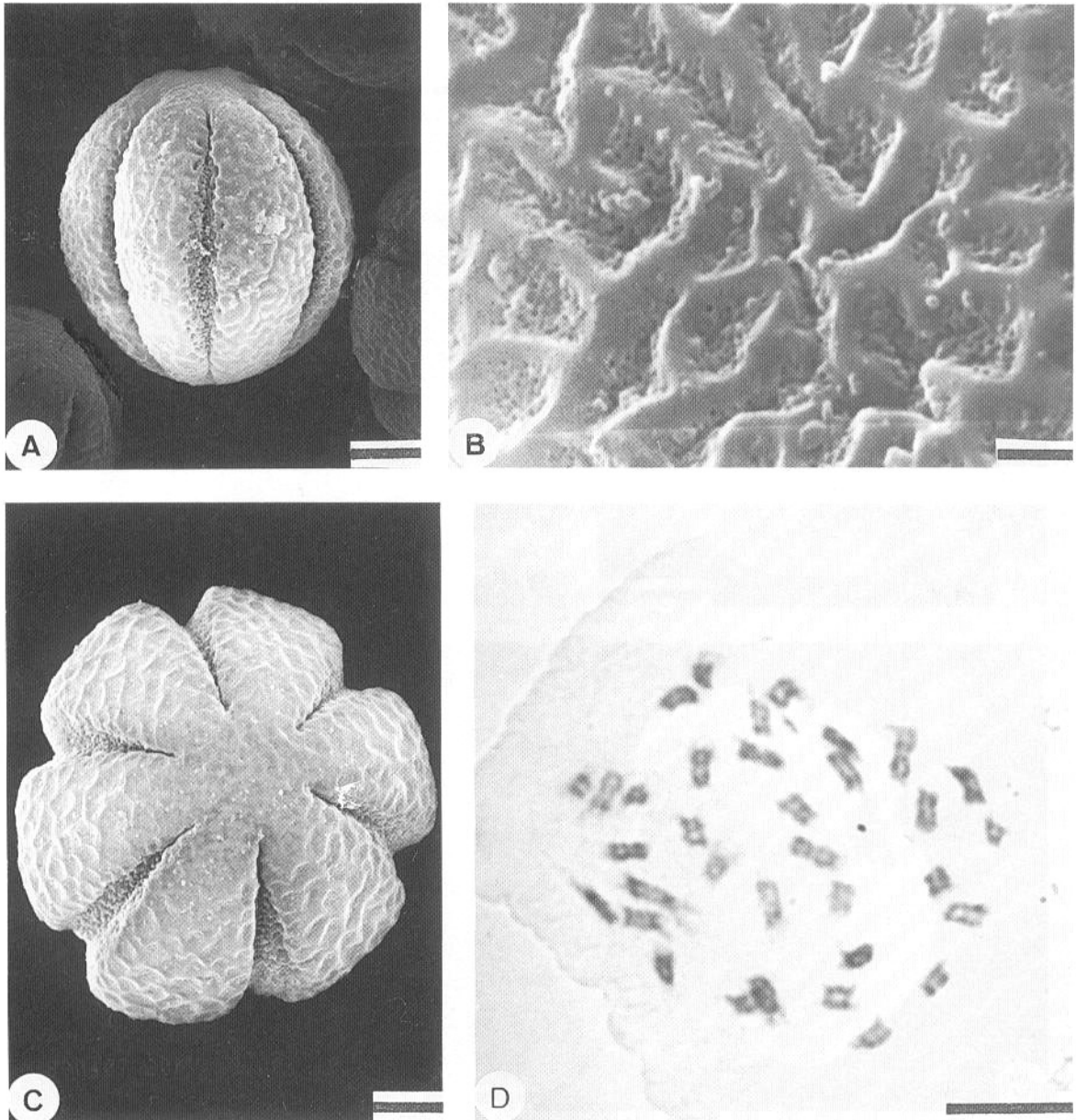


Fig. 3. SEM micrographs of *Coleus amboinicus* Lour. A-C: Pollen grains; D: Chromosome number $2n=34$. Scale bar= $5 \mu\text{m}$, except $1 \mu\text{m}$ in B.

Pogostemon cablin auct. non (Blanco) Benth.: T. C. Huang & Y. C. Jeng in Fl. Taiwan 6: 124. 1979.
Plectranthus amboinensis (Lour.) Spreng., Syst. 2: 690. 1825; M. T. Kao, Popular Herbal Remedies.
 Taiwan. 3: 136. 1996. (as *P. amboinicus*)

This species is characterized by the pollen grains 6-colpate, isopolar; sexine finely reticulate, with microperforations. Chromosome number $2n = 34$ (Fig. 3). Huang and Jeng (Fl. Taiwan 6: 124. 1979) listed this cultivated species as *Pogostemon calbin*. However, based on the boat-shaped lower lip of the corolla and the filaments fused below into a short tube around the base of the style, this species differs from *Pogostemon calbin* and is in fact, *Coleus amboinicus*, which is widely cultivated in southern Taiwan as a medicinal plant.

4. **Comanthosphace formosana** Ohwi in Acta Phytotax Geobot. 4: 67. 1935.

Fig.4 台灣白木草

Leucosceptrum stellipilum (Miq.) Kitamura & Murata var. *formosana* (Ohwi) Kitamura & Murata in Acta Phytotax. Geobot. 20: 171. 1962; Huang & Cheng in Fl. Taiwan 4: 481. 1978.

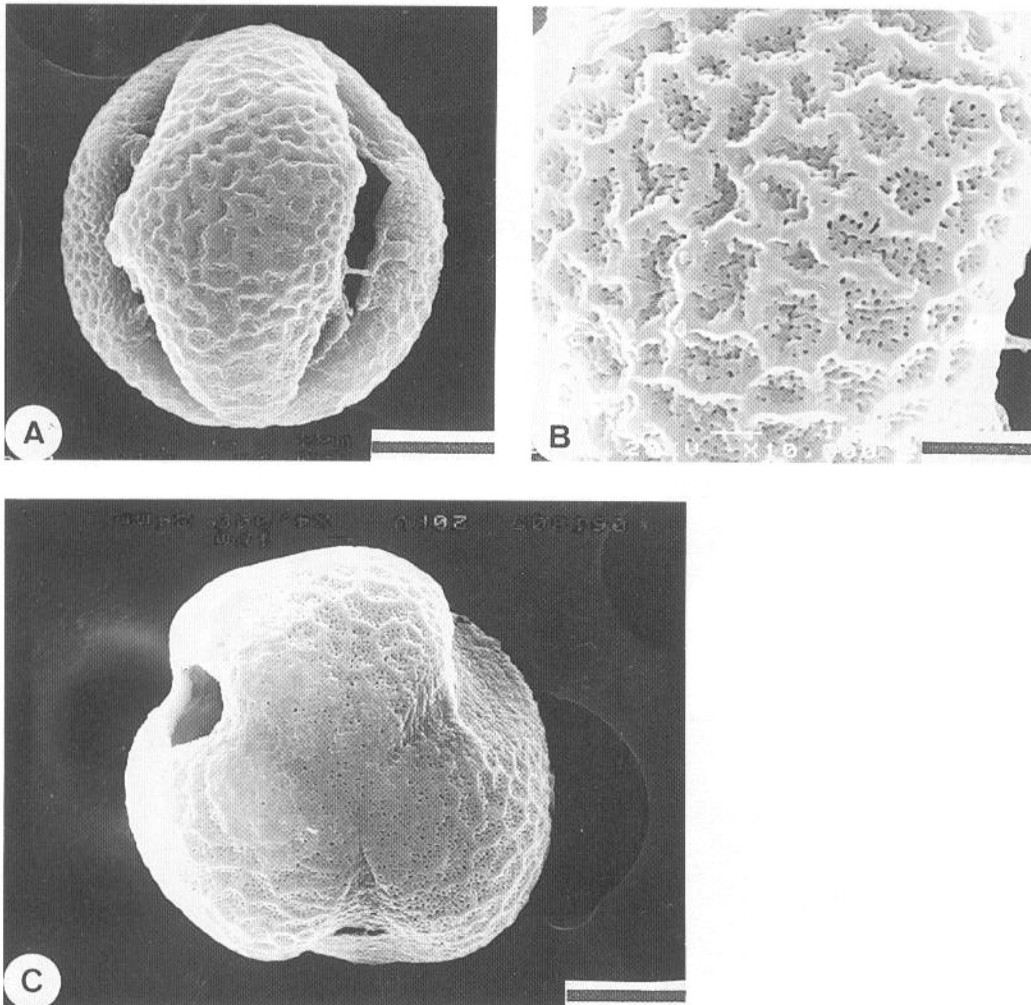


Fig 4. SEM micrographs of pollen grains of *Comanthosphace formosana* Ohwi. Scale bar=5 μ m, except 2 μ m in B.

This species is suffruticose, to 1.5 m tall and plant, covered with simple white stellate hairs. The campanulate calyx has teeth broadly triangular and equal or nearly so; the corolla tubular, densely stellate hairy in the throat; filaments glabrous. The pollen grains are 3-colpate and isopolar; sexine finely reticulate, with microperforations (Fig. 4). The cylindrical nutlets are becoming 3-angled at maturity.

Since these characteristics agree with criteria of Li and Hedge (Fl. China 17: 54. 1994) who stated that the genus *Comanthosphace* differs from *Leucosceptrum* by its slightly unequal calyx teeth, villous annulate inside the corolla tube, glabrous filaments, and the herbaceous or subshrub habit.

5. ***Elsholtzia strobilifera*** Benth., Labiat Gen. Spec. 163. 1833; Li & Hedge, Fl. China 17: 252. 1994. 球花香薷

Elsholtzia yushania Ying, Color. Ill. Fl. Taiwan 1:571. 1991. *syn. nov.*

Acrocephalus indicus auct. non. (Burm. f.) O. Ktze.: Huang & Cheng in Fl. Taiwan 4: 441. *pl. 1062.* 1978 p.p.

Herbs annual. Stem to 15 cm tall; branches and stem brown, crisped white pilose. Leaves ovate, 0.5-2.5 cm long, 0.3-2 cm wide, herbaceous, purple at least abaxially, sparsely fine pilose brownish glandular, densely pilose on veins, apex acute, base broadly cuneate, margin serrulate petiole 2-12 mm long, densely pilose. Spikes terminal, cylindrical, 1-4 cm long; verticillasters 6-10-flowered; bracts united into a shallow cup at each node, each mucronate, densely overlapping, membranous, many veined, abaxially sparsely fine pilose, yellow glandular, more or less purplish, margin ciliate; calyx tubular, membranous, transparent, ca. 2 mm long, sparsely pubescent, golden glandular outside, glabrous inside; teeth subequal, lanceolate, margin ciliate; corolla white, 3-4 mm long, sparsely puberulent outside, glabrous inside; tube slender, funelform; upper lip emarginate; middle lobe of lower lip longer and wider, margin entire; stamens included; nutlets yellowish, ellipsoid.

Distributed in India, Nepal, China and Taiwan; Taiwan growing on open roadside in central mountain from 2500 to 3500 m.

CHIAYI: Mt. Ali, T.-C. Huang 1761, C.-S. Feung & M.-T. Kao 4092, Y. Kudo & S. Suzuki s. n. Dec. 25, 1938, Y.-C. Jeng 2263, Sasaki s. n. Dec. 7, 1993; Tataka to Piyuanshanchuang, C.-I. Peng 9004; Yushan, Ying s. n. Oct. 20, 1991 (Type of *E. yushania* Ying, NTUF!)

6. ***Gomphostemma callicarpoides*** (Yamamoto) Masamune in Trans. Nat. Hist. Soc. Form. 32: 4. 1942; Huang & Cheng in Fl. Taiwan 4: 464. 1978. Fig. 5 台灣錐花

Taitonia callicarpoides Yamamoto in J. Soc. Trop. Agr. Taiwan 10: 278. f. 45, 46. 1938.

Gomphostemma formosana Masamune in Trans. Nat. Hist. Soc. Form. 32: 4. 1932; Huang & Cheng in Fl. Taiwan 4: 465. 1978. *excl. pl. 1071. syn. nov.*

This species is suffruticose, to 1 m tall. The pollen grains are 3-colpate, isopolar, and the sexine microperforated. Chromosome number $2n = 34$ (Fig. 5).

Li and Hedge (Fl. China 17: 74. 1994) mentioned that *Gomphostemma formosana* differs from *G. callicarpoides* only by the coarsely serrate leaf margin with teeth 2-5 mm long and that they may prove to be inseparable. Based on field observations the leaf size and teeth are

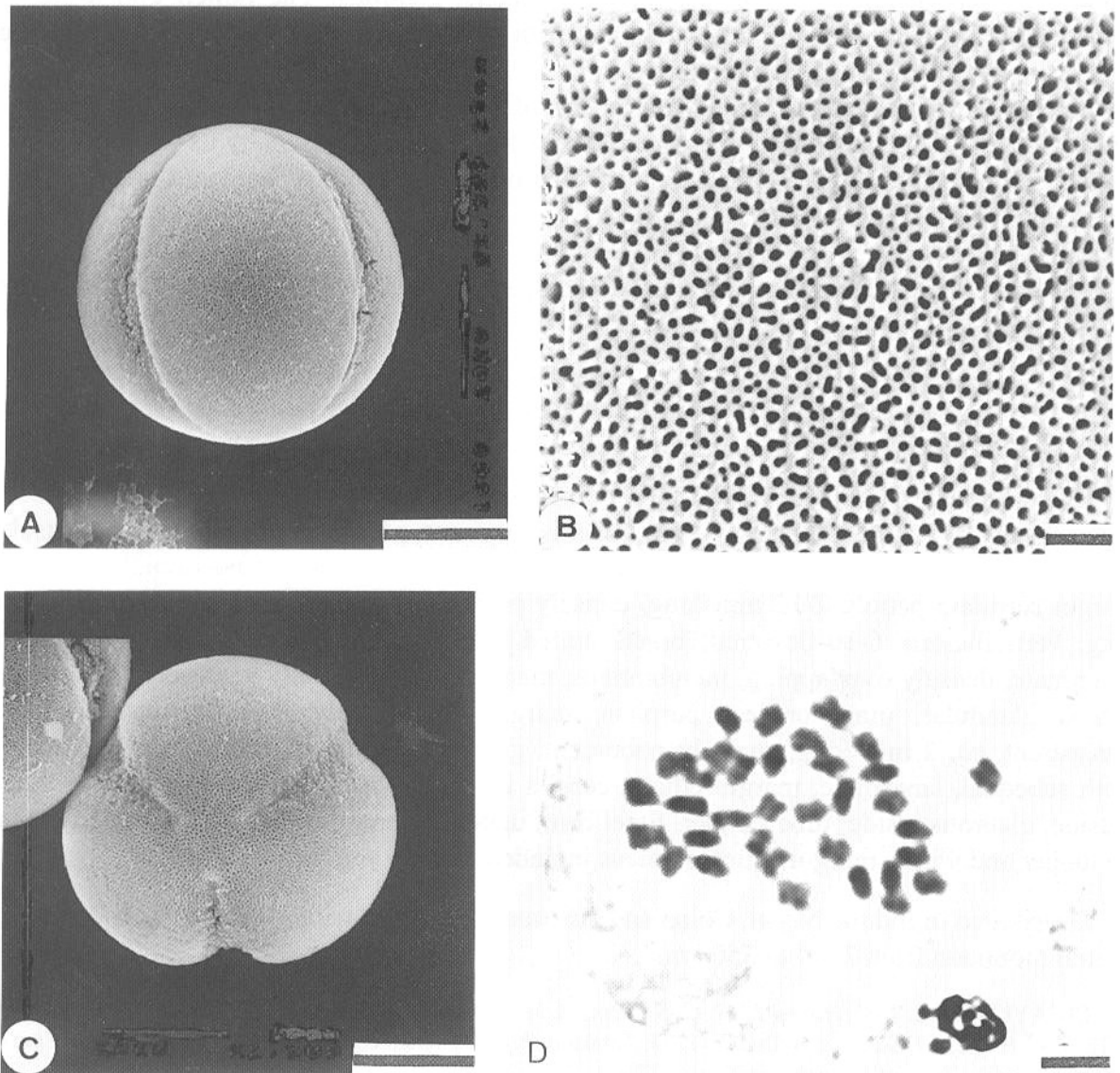


Fig. 5. SEM micrographs of *Gomphostemma callicarpoides* (Yamamoto) Masamune. A-C: Pollen grains; D: Chromosome number $2n=34$. Scale bar A and C = $10\ \mu\text{m}$, B = $1\ \mu\text{m}$, D = $5\ \mu\text{m}$.

variable even in the same individual. These taxa should therefore be treated as synonymous.

7. ***Isodon amethystoides*** (Benth.) H. Hara, J. Jap. Bot. 60: 233. 1985; Li, in J. Arnold Arb. 69(4): 301. 1988.

Fig. 6 香茶菜

Plectranthus amethystoides Benth., Labiat. Gen. Spec. 45. 1832.
Plectranthus daitonensis Hayata, Icon. Pl. Form. 8: 107. f. 36-1. 1919.

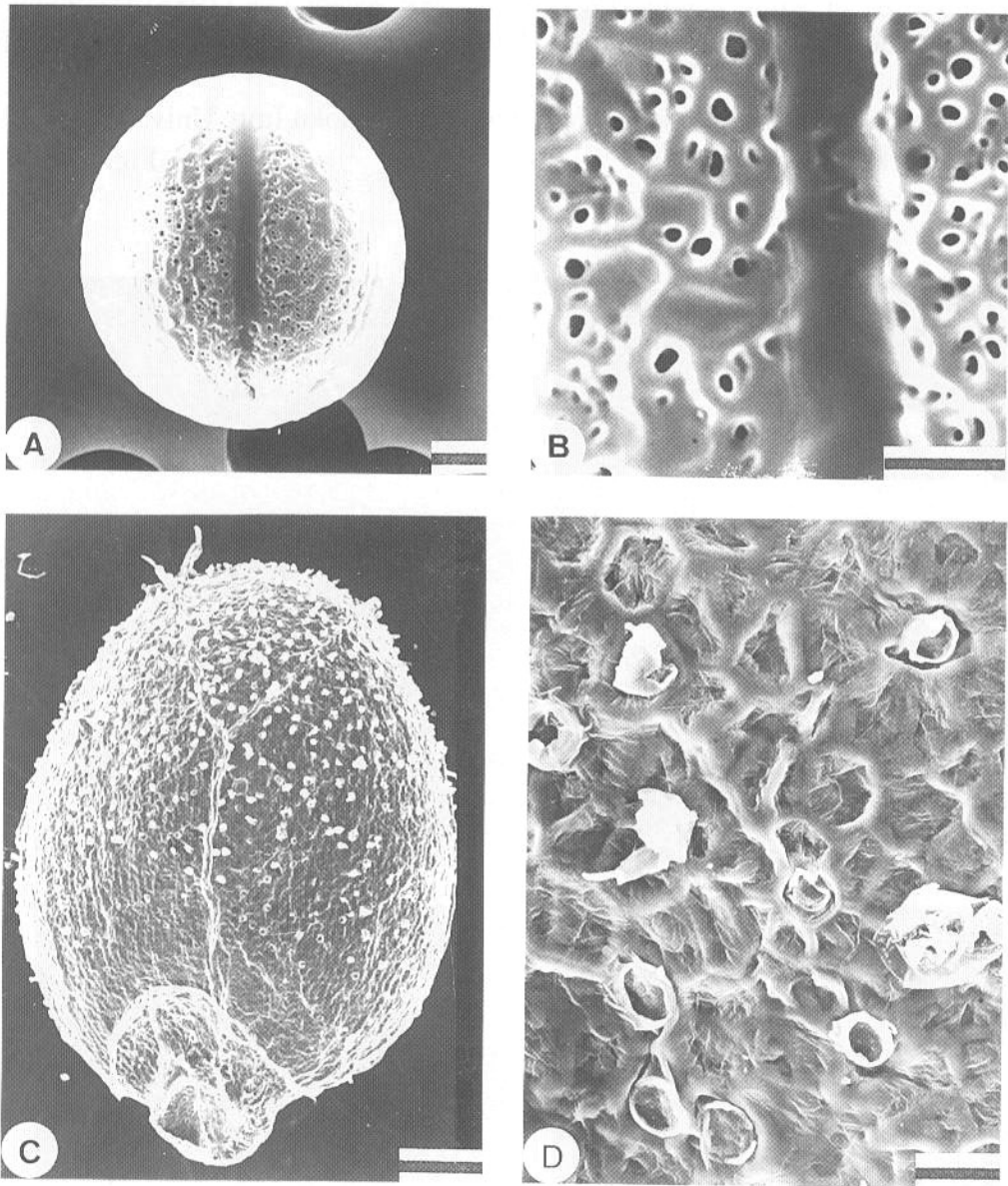


Fig. 6. SEM micrographs of *Isodon amethystoides* (Benth.) H. Hara. A-B: Pollen grains; C-D: Nutlet. Scale bar A=5, B=2, C=250, and D= 25 μ m.

Amethystanthus daitonensis (Hayata) Nemoto, Fl. Jap. Sup. Pl. 628. 1939.

Isodon daitonensis (Hayata) Kudo in Mem. Fac. Sci. Agr. Taihoku Imp Univ. 2: 126. 1929. (Lab. Sino-Jap. Prodr.)

Rabdosia daitonensis (Hayata) Hara in J. Jap. Bot. 47(7): 194. 1972; Huang & Cheng in Fl. Taiwan 4: 506. 1978.

Isodon koroensis Kudo in J. Soc. Trop. Agr. 3: 110. 1931.

Amethystanthus koroensis (Kudo) Nemoto, Fl. Jap. Sup.Pl. 629. 1936.

Rabdosia koroensis (Kudo) Hara in J. Jap. Bot. 47(7): 196. 1972; Huang & Cheng in Fl. Taiwan 4: 506. 1978.

This species is an erect perennial herb. The pollen grains are 6-colpate and isopolar; the sexine is double reticular (Figs. 6a, b). The nutlets are ovoid, ca. 2 mm long and yellowish

brown, with yellow or white glands (Figs. 6c, d). We accept Li's (1988) treatment *Isodon koroensis* Kudo and *Plectranthus daitoensis* Hayata as synonyms of *I. amethystoides* Benth.

8. ***Isodon macrocalyx*** (Dunn) Kudo in Mem. Fac. Sci. Taihoku Imp. Univ. 2: 138. 1929; Li in J. Arnold Arb. 69 (4): 383. 1988.

Fig.7 大萼香茶菜

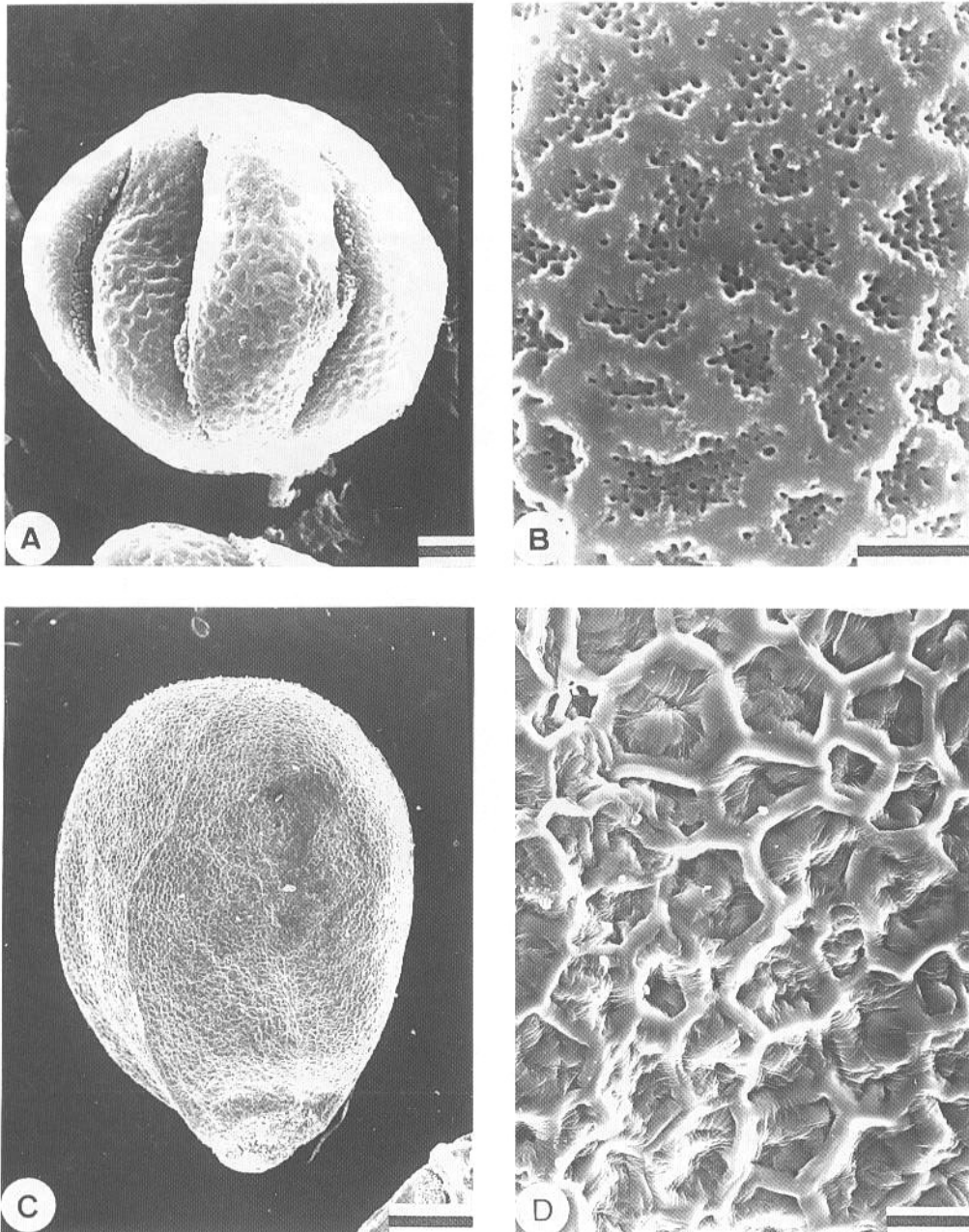


Fig 7. SEM micrographs of *Isodon macrocalyx* (Dunn) Kudo. A-B: Pollen grains; C-D: Nutlet. Scale bar A=5, B=2, C=250, and D= 25 μ m.

Amethystanthus taiwanensis Masamune in Trans. Nat. Hist. Soc. Form. 30: 409. 1940.

Rabdosia taiwanensis (Masamune) Hara in J. Jap. Bot. 47(7): 201. 1972; Huang & Cheng in Fl. Taiwan 4: 507. 1978.

This species is a perennial herb. The pollen grains are 6-colpate and isopolar. The sexine is finely reticulate, with microperforations (Figs. 7 a, b). The nutlets are ovoid, ca. 1.5 mm long, brown glabrous (Figs. 7c, d).

We accept Li's (1988) treatment as indicated above .

9. *Isodon serra* (Maxim.) Kudo, Mem. Fac. Sci. Taihoku Imp. Univ. 2: 125. 1929; Li in J. Arnold Arb. 69 (4): 305. 1988. Fig. 8 鋸葉香茶菜

Plectranthus serra Maxim., Mélanges Biol. Bull. Phys.-Math. Acad. Imp. Sci. St.-Pétersbourg 9: 426. 1875.

Plectranthus lasiocarpus Hayata in Journ. Coll. Sci. Univ. Tokyo 30(1): 224. 1911.

Amethystanthus lasiocarpus (Hayata) Nemoto, Fl. Jap. Sup. Fig 629. 1936

Isodon lasiocarpus (Hayata) Kudo in Mem. Fac. Sci. Agr. Taihoku Imp Univ. 2: 125. 1929. (Lab. Sino-Jap. Prodr.).

Amethystanthus lasiocarpus (Hayata) Nemoto var. *brevistaminfer* (Kamikoti) Masamune, List. Vasc. Fl. Taiwan 111. 1954.

Rabdosia lasiocarpa (Hayata) Hara in J. Jap. Bot. 47(7): 197. 1972; Huang & Cheng in Fl. Taiwan 4: 507.1978.

This species is an erect perennial herb. The pollen grains are 6-colpate and isopolar. The sexine is double reticular (Figs. 8a, b). The nutlets are broadly ovoid, 1.5 mm long, rounded and with whitish barbs at the apex (Figs. 8c, d). We accept Li's (1988) treatment indicated above.

10. *Lamium tuberiferum* (Makino) Ohwi in J. Jap. Bot. 12: 327. 1936; Murata & Yamazaki, Fl. Jap.3a: 293. 1993. Fig. 9 塊莖小野芝麻

Leonurus tuberiferus Makino in Bot. Mag. Tokyo 19: 146. 1905.

Matsumurella tuberifera (Makino) Makino in Bot. Mag. Tokyo 29: 279. 1915; Kudo in Mem. Fac. Sci. Agr. Taihoku Imp. Univ. 2: 195. 1929. (Lab. Sino-Jap. Prodr.).

Lamium kelungense Hayata, Icon. Pl. Form. 8: 91. 1919.

Lamium uraiense Hayata, Icon. Pl. Form. 8: 89. 1919.

Lamium chinense auct. non Benth.: Huang & Cheng in Fl. Taiwan 4: 474. pl 1075. 1978.

This species is a stoloniferous herb. The pollen grains are 3-colpate and isopolar. The sexine is double reticulate (Figs. 9a, b). The nutlets are trigonous and smooth. This species is near *Lamium chinense* Benth., but is a small herb (10-20 cm tall) with small ovate-rhombic leaves (0.8-3.5 x 0.7-3.0 cm), and spotted lower corolla lip. Thus, we accept the treatments of Li and Hedge (1994) and Murata and Yamazaki (1994) as indicated above.

11. *Leonurus japonicus* Houtt., Nat. Hist. Fig 8: 366. t. 57. f. 1. 1778; Murata & Yamazaki, Fl. Jap. 3a: 293. 1993. Fig. 10 益母草

Leonurus sibiricus auct non L.: Huang & Cheng in Fl. Taiwan 4: 476. 1978.

Leonurus sibiricus L. var. *albiflora* auct. non Miq.:Huang & Cheng in Fl. Taiwan 4: 476. 1978.

Leonurus sibiricus L. f. *albiflora* auct. non Miq.: Hsieh in Yang, Nom. Pl. Taiwan 827. 1969.

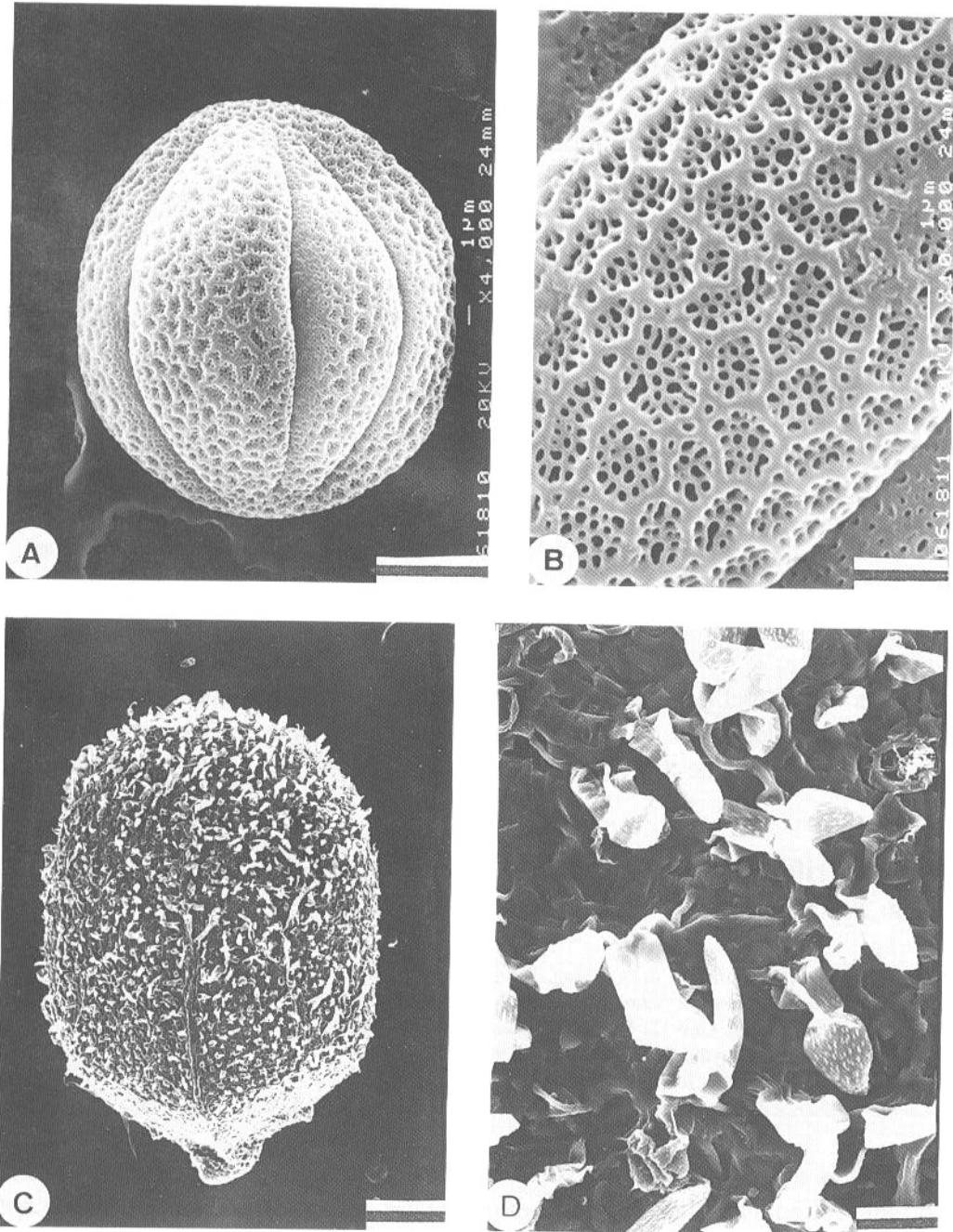


Fig. 8. SEM micrographs of *Isodon serra* (Maxim.) Kudo. A-B: Pollen grains; C-D: Nutlet. Scale bar A=5, B=2, C=250, and D= 25 μ m.

This species is an herb, to 1 m. The pollen grains are 3-colpate and isopolar. The sexine is double reticulate (Figs. 10 a-c). The nutlets are trigonous and smooth or very minutely hairy, *ca.* 2.5 mm long and 1.5 mm wide. Chromosome number $2n = 20$ (Fig. 10d). We accept the treatment of Li and Hedge (Fl. China 17: 162. 1994) who stated that *Leonurus*

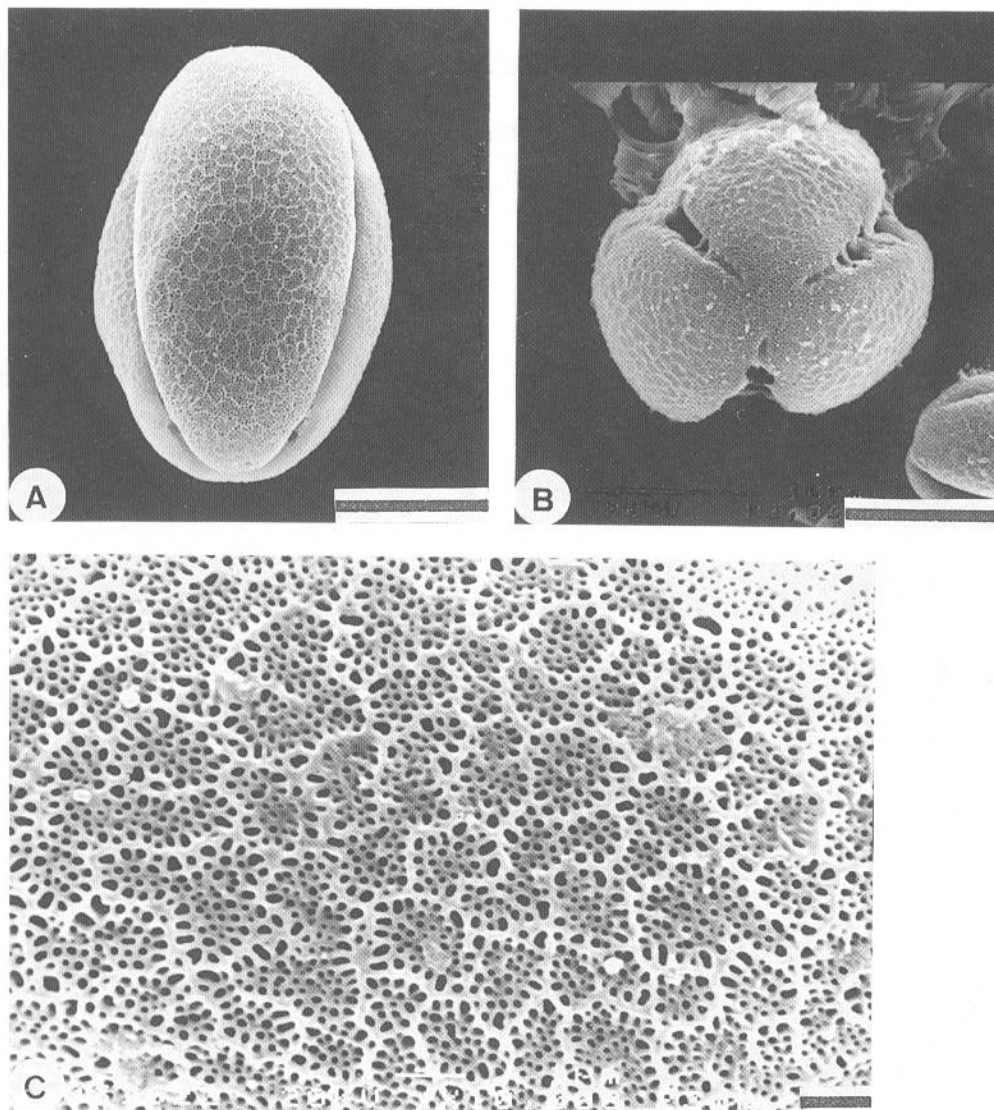


Fig. 9. SEM micrographs of pollen grains of *Lamium tuberiform* (Makino) Ohwi. Scale bar= 10 μ m, except 1 μ m in C.

japonicus Houtt. differs from *L. sibiricus* L. by the leaf lobes more than 3 mm wide, corolla short (1-1.2 cm long), upper and lower lips of corolla equal length and calyx appressed puberulent.

12. ***Leucas chinensis*** (Retz.) R. Br., Prodr. 504. 1810.

白花草 Fig. 11

Leucas mollissima Wall. var. *chinensis* Benth. in DC., Prodr. 12: 525. 1848; Huang & Cheng in Fl. Taiwan 4: 478. 1978.

Leucas takaoensis Hayata, Icon. Pl. Form. 8: 88. 1917; Huang & Cheng in Fl. Taiwan 4: 480. 1978.

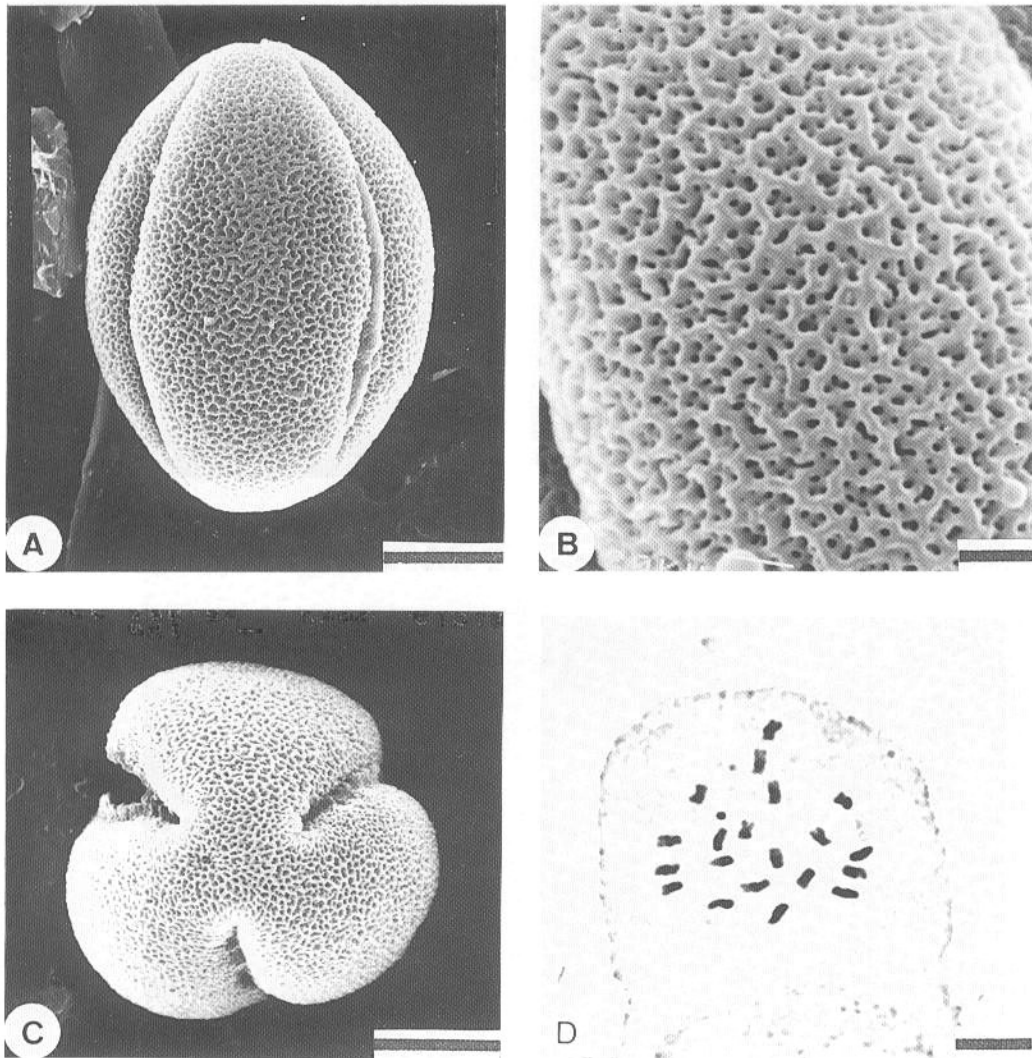


Fig. 10. SEM micrographs of *Leonurus japonicus* Houtt. A-C: Pollen grains; D: Chromosome number $2n=20$. Scale bar= $5\ \mu\text{m}$, except $1\ \mu\text{m}$ in B.

This species is an herb, to 50 cm tall. The pollen grains are 3-colpate and isopolar. The sexine finely reticulate (Figs. 11 a-c). The nutlets are 3-angled, the base cuneate, the apex truncate and slightly concave, smooth, *ca.* 1.5 mm long and 1 mm wide. Chromosome number $2n = 28$ (Fig. 11d). We accept the conclusion of Murata and Yamazaki (Fl. Japan 3a: 297. 1993) that plants in Japan, the Ryukyus, and Taiwan are conspecific. Li and Hedge (Fl. China 17: 142. 1994) stated that *Leucas chinensis* differs from *L. mollissima* (including three varieties) by its small, appressed silky to tomentose leaves, these characteristics are very variable from our field observations.

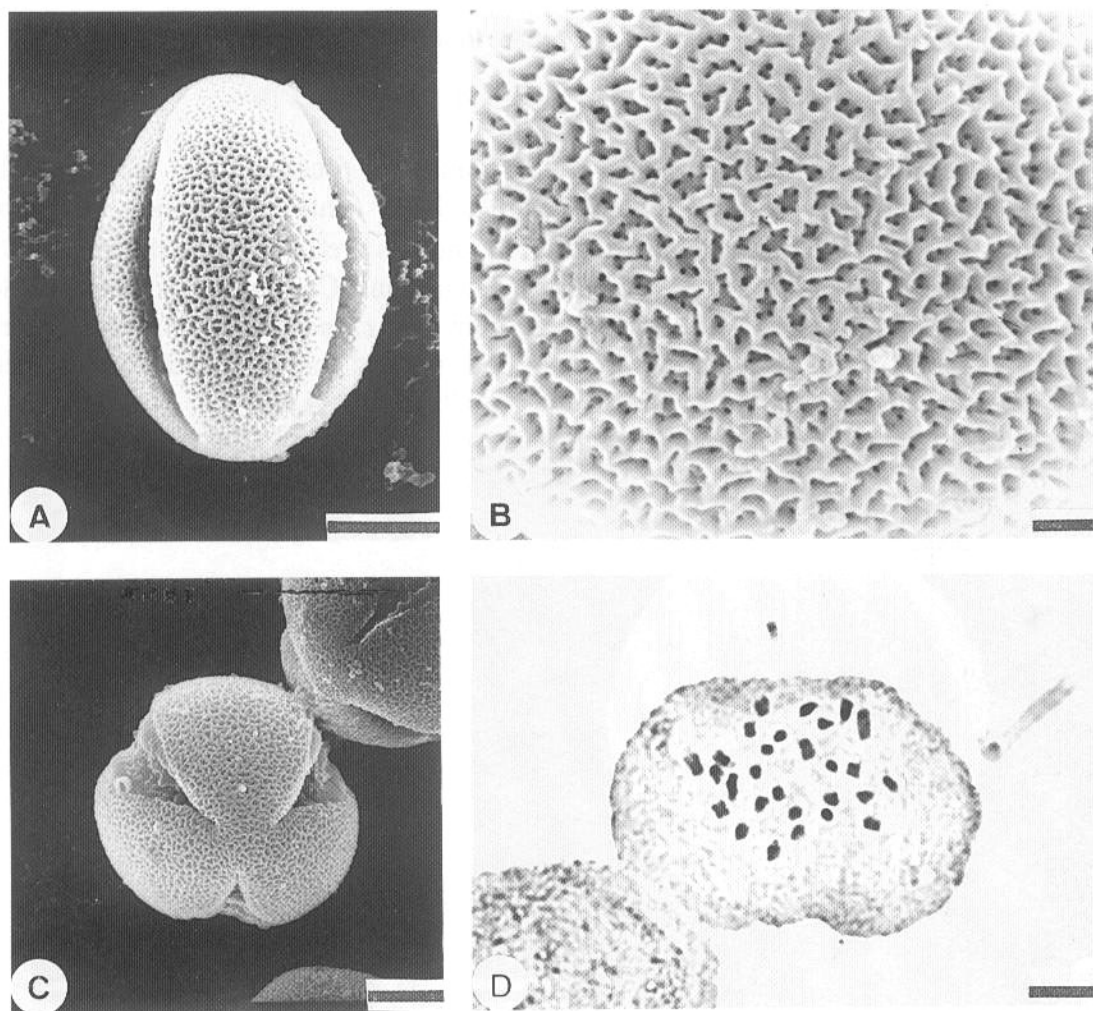


Fig. 11. SEM micrographs of *Leucas chinensis* (Retz.) R. Br. A-C: Pollen grains; D: Chromosome number $2n=28$. Scale bar=5 μm , except 1 μm in B.

13. ***Lycopus lucidus*** Turcz. in Bull. Soc. Nat. Moscow 11: 99. 1838.

地笋

Lycopus lucidus Turcz. var. *formosana* Hayata, Icon. Pl. Form. 8: 102. 1919; Huang & Cheng in Fl. Taiwan 4: 482. 1978.

Lycopus lucidus Turcz. var. *hirtus* Regel in Men. Sci. St.-Petersbourg. (Tent. Fl. Ussurai.) 7(4-4): 115.1861; Huang & Cheng in Fl. Taiwan 4: 482. 1978.

This species is an herb, to 70 cm. The nutlets are obovate, rounded-truncate at apex, broadly cuneate at base, smooth, *ca.* 2 mm long. We accept the treatment of Murata and Yamazaki (Fl. Japan 3a: 281.1993) that plants of Taiwan and Japan belong to the same species.

14. **Mesona chinensis** Benth., Fl. Hongkong. 274. 1861; Yamamoto in J. Soc. Trop. Agr. 6(3): 556. 1934; Mori in Masamune, Short Fl. Form. 184. 1936. Fig. 12 仙草

Mesona procumbens Hemsl. in Ann. Bot. 9:155. pl.7. 1895; Huang & Cheng in Fl. Taiwan 4: 486. pl. 1079. 1978.

Mesona elegans Hayata in J. Coll. Sci. Univ. Tokyo (Enum. Pl. Form.) 22: 305. 1906.

This species is an herb, to 50 cm. The pollen grains are 6-colpate and isopolar. The sexine is double reticulate, secondly reticulae with a large central hole and 5-7 small microperforations around the hole (Figs. 12 a-c). The nutlets are obovoid, striate, 0.7-0.8 mm long. Chromosome number $2n=32$ (Fig. 12d). Huang and Cheng (Fl. Taiwan 4: 486. 1978) separated plants of *Mesona procumbens* from *M. chinensis* by its arched and appendaged filaments, but these features appear in both species and we therefore treat them as conspecific, as in the treatment of Li and Hedge (Fl. China 7: 294. 1994).

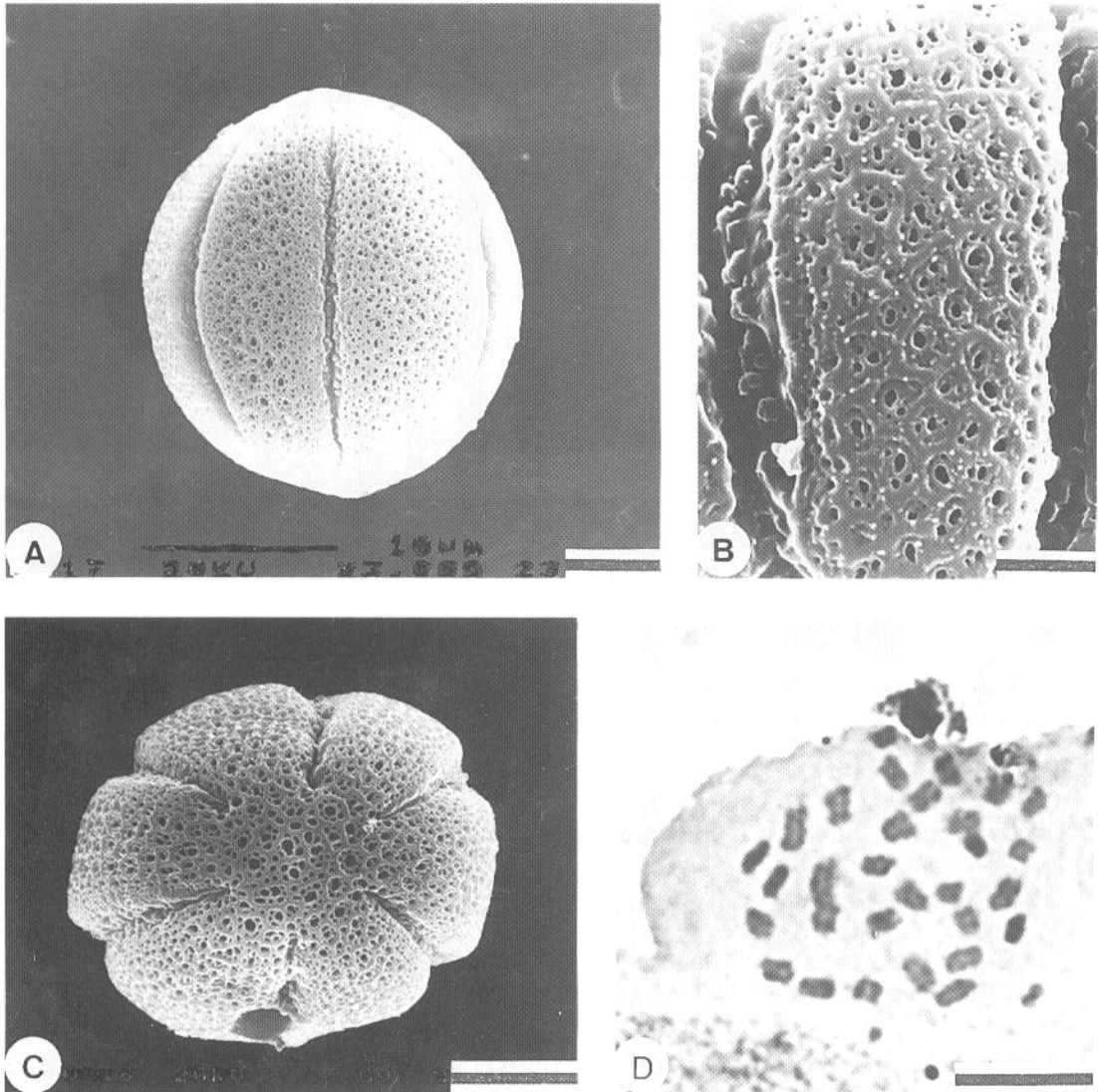


Fig. 12. SEM micrographs of *Mesona chinensis* Benth. A-C: Pollen grains; D: Chromosome number $2n=32$. Scale bar=5 μ m, except 2 μ m in B.

15. ***Origanum vulgare*** L., Sp. ed. 1: 590. 1753; Hayata in J. Coll. Sci. Univ. Tokyo (Fl. Mont. Form.) 25(1): 182. 1908; Harley in Kew Bull. 49(1): 151. 1994. Fig.13 野薄荷

Origanum vulgare L. var. *formosanum* Hayata, Icon. Pl. Form. 8: 102. 1919; Huang & Cheng in Fl. Taiwan 4: 493. pl. 1081. 1978.

Micromeria formosana Marquand in Hook. Icon. Pl. 33: t. 3230. 1934.

This species is an herb, to 70 cm tall. Pollen grains are 6-colpate and isopolar. The sexine is finely reticulate (Figs. 13 a-c). The nutlets are ovoid, compressed, smooth, ca. 0.5 mm wide. Ietswaart (1980), in a revision of *Origanum*, treated specimens from Taiwan as *O. vulgare* L. Harley (1994) concluded that *Micromeria formosana* is a synonym of *O. vulgare* L. Harley (1994) concluded that *Micromeria formosana* is a synonym of *O. vulgare* based on the type specimen deposited at Kew. Their treatments are accepted here.

16. ***Paraphlomis javanica*** (Bl.) Prain in Ann. Bot. Gard. Calc. 9: 59. 1901. *in obs.*

Fig.14 假糙蘇

Leonurus javanicus Bl. Bijdr. 828. 1826.

Phlomis rugosa Benth. in Wall. Pl. As. Rar. 1: 63. 1830.

Paraphlomis rugosa (Benth.) Prain in Ann. Bot. Gard. Calc. 9: 60. 1901. pl. 74; Huang & Cheng in Fl. Taiwan 4: 498. 1978.

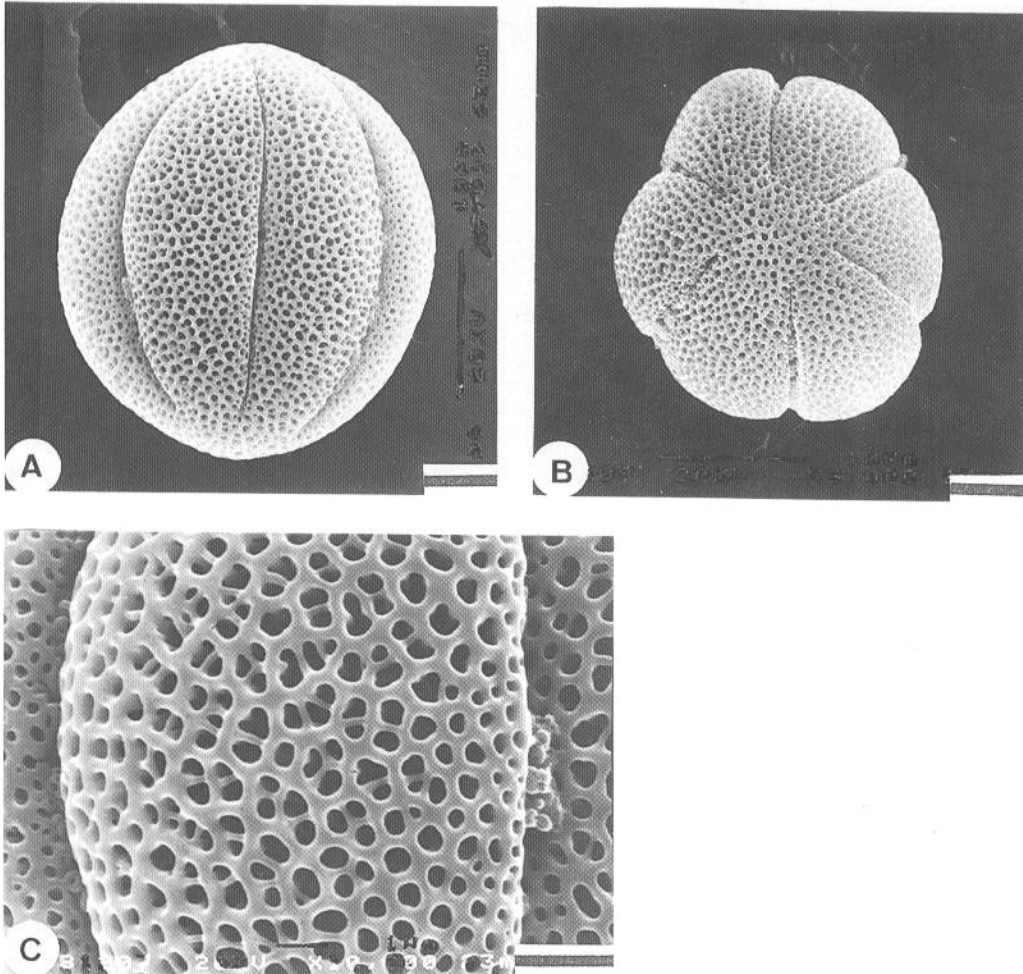


Fig.13. SEM micrographs of pollen grains of *Origanum vulgare* L. Scale bar= 5 μ m, except 2 μ m in C.

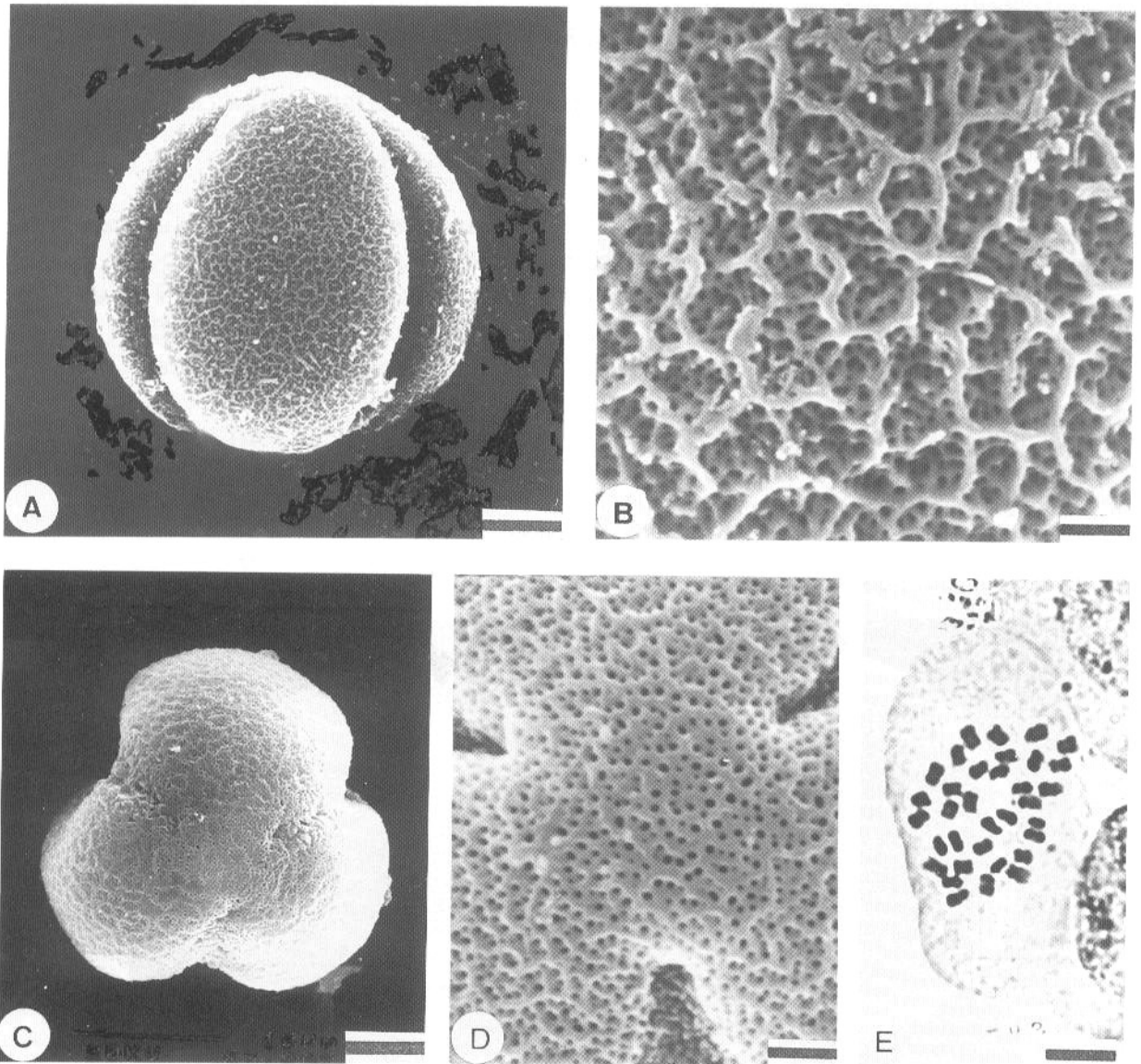


Fig. 14. SEM micrographs of *Paraphlomis javanica* (Bl.) Prain. A-D: Pollen grains; E: Chromosome number $2n=34$. Scale bar= $5\ \mu\text{m}$, except $1\ \mu\text{m}$ in B and D.

Lamium gesneroides Hayata, Icon. Pl. Form. 8: 92. 1919.

Lamium longipetiolata Hayata, Icon. Pl. Form. 8: 92. 1919.

Paraphlomis javanica (Bl.) Prain var. *henryi* (Yamamoto) C.-Y. Wu & H.-W. Li, Act. Phytotax. Sin. 13(1): 72-73. 1975. *syn. nov.*

Paraphlomis rugosa (Benth.) Prain var. *henryi* Yamamoto in Journ. Soc. Trop. Agr. Taiwan 6: 555. 1934.

This species is an herb, to 1.5 m tall. The pollen grains are 3-colpate and isopolar. The sexine is double reticulate (Figs. 14 a-d). The nutlets are black, obovoid, 6 mm long, acute and triquetrous below, rounded above. Chromosome number $2n = 34$ (Fig. 14e). Keng (1969) stated that *Paraphlomis javanica* (Bl.) Prain and *Paraphlomis rugosa* (Benth.) Prain are the

same species, and this opinion is accepted here.

17. **Prunella vulgaris** L. subsp. **asiatica** (Nakai) Hara var. **nanhutashanensis** S.-S. Ying

南湖夏枯草

Prunella vulgaris L. var. *nanhutashanensis* S.-S. Ying in J. Chin. For. 8(4): 137. 1975.

Prunella vulgaris L. subsp. *asiatica* (Nakai) Hara var. *taiwaniana* Yamazaki f. *taiwanalpina* Yamazaki, Fl. Jap. 3a: 299. 1993.

These are dwarf endemic plants with small dense hairy leaves found only on Nanhutashan.

18. **Salvia formosana** (Murata) Yamazaki in J. Jap. Bot. 44: 319. 1969. 台灣紫花鼠尾草

Salvia ranzanensis Makino var. *formosana* Murata in Acta Phytotax. Geobot. 14: 188. 1952.

Salvia japonica Thunb. subsp. *taipingshanensis* Wu & Huang in Taiwania 20(1): 77. 1975, *nom. nud.*

Salvia japonica Thunb. var. *taipingshanensis* (Wu & Huang) Huang & Wu in Taiwania 20(2): 220. f. 4. 1975, *nom. nud.*

This plant is an herb, to 50 cm tall. Nutlets ellipsoid, 1.2–1.6 mm long. They are found in the northern part of the island only and are endemic to Taiwan.

19. **Salvia formosana** (Murata) Yamazaki var. **matsudae** (Kudo) T.-C. Huang & J.-T. Wu, **comb. nov.** 蕨葉紫花鼠尾草

Salvia matsudae Kudo in Journ. Soc. Trop. Agric. 3: 226. 1931.

Salvia filicifolia auct. non Merr.: Yamazaki in J. Jap. Bot. 44(10):319. 1969.

Salvia japonica Thunb. var. *filicifolia* auct. non (Merr.) Metcalf & Stibbal: Yamazaki in J. Jap. Bot. 44(10):319. 1969.

Salvia japonica Thunb. subsp. *taipingshanensis* Wu & Huang var. *filicifolia* (Merr.) Wu & Huang in Taiwania 20(1): 77. 1975, *nom. nud.*

Salvia japonica Thunb. var. *taipingshanensis* (Wu & Huang) Huang & Wu f. *filicifolia* (Merr.) Huang & Wu in Taiwania 20(2): 220. 1975, *nom. nud.*

This endemic herb, to 60 cm tall, is characterized by the 3(-5) pairs of bipinnately to tripinnately compound leaves, cleft pinnules, irregularly parted; bracteoles linear-lanceolate, puberulent, 6 mm long; calyx 5–7 mm long; and purple corolla 9–10 mm long.

This variety differs from *S. filicifolia* of mainland China by its purple flower. Flowers of the latter are reported to be yellow (Wu, C.-Y. 1977. *Salvia filicifolia* Merr. In: Wu and Li. 1977. Flora Reipublicae Popularis Sinicae. Vol. 66(2): 186-188). This variety also differs from variety *formosana* by its cleft or irregularly parted pinnules where as the latter has pinnules with a regular serrate margin.

20. **Stachys arvensis** L. Sp. Pl. ed. 2. 814. 1762; Kudo in Mem. Fac. Sci. Agr. Taihoku Univ. 2: 192. 1929; Li and Hedge, Fl. China 17: 184. 1994.

Sideritis lanata auct. non L.: Huang & Cheng in Fl. Taiwan 4: 525. 1978.

An annual herb, covered with septate hairs, 15–40 cm high; stems and branches erect, sometimes tufted at base. Leaves petiolate; petioles puberulent, 0.5–1.5 cm long; blades ovate to broadly ovate, base rounded to subcordate, apex obtuse or rounded, margins serrate, both surfaces sparsely puberulent, densely so on veins and veinlets, 1.5–4 cm long, 1.3 cm wide. Inflorescence axillary cymes, sometimes forming loose terminal racemose cymes. Flowers pedicellate; petioles sparsely puberulent; calyx campanulate, 3–5 mm long, puberulent, 5-10-teethed, subequal, lanceolate-triangular, apex acute; corolla red nearly included, 4–6 mm long, upper lip broadly ovate, lower lip 3-lobed, central lobe reniform, 2 lateral lobes broadly ovate; filaments minutely hairy; style gynobasic; stigma bifid. Nutlets ovoid, slightly granulate, 1–1.2 mm wide.

Distributed in Russia, Europe, China, North America and South America. Naturalized weed in northern Taiwan as weeds.

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台灣植物誌之觀查(32)—台灣唇形科植物之雜報

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摘 要

唇形科近年來在分類上有很多訂正，本文共整理 20 個分類群，其中包含 1 個新組合名稱 *Salvia formosana* (Murata) Yamazaki var. *matsudae* (Kudo) T.-C. Huang & J.-T. Wu **comb. nov.** 和 19 個新訂正學名。部份分類群並報導其花粉、染色體或小堅果之資料。

關鍵詞：雜報、唇形科、分類學、臺灣。

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