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Revision of the genus *Oreomyrrhis* Endl. (Apiaceae) in Taiwan

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Abstract. Based on a taxonomic study of the genus *Oreomyrrhis* in Taiwan three species are recognized, all endemic to Taiwan: *O. involucrata* Hayata; *O. taiwaniana* Masamune (previously reduced to synonymy under *O. involucrata*); and, *O. nanhuensis* C. H. Chen & J. C. Wang sp. nov. *Oreomyrrhis nanhuensis* is so far known only from exposed gravelly grasslands on the high-altitudinal region (ca. 3,400-3,700 m) of Mt. Nanhutashan in Taroko National Park. The number and shape of pinnatifid-lobes of leaflets, morphology of involucral bracts, and color of flowers are shown to be the most useful characters for separating Taiwanese species. A key to taxa, discussion of taxonomic characters, description, illustration, geographical distribution, specimens examined, and taxonomic notes are provided for each taxon. The chromosome number of n=6 is observed for the new species *O. nanhuensis*.

Keywords: Apiaceae; Chromosome number; Lectotypification; New species; *Oreomyrrhis*; Revision; Taiwan; Taxonomy; Umbelliferae.

Introduction

Oreomyrrhis Endl. (Apiaceae) consists of about 25 species distributed around the Pacific basin, which includes Mexico, South America, New Zealand, Tasmania, New Guinea, Borneo, and Taiwan. Taiwan is the northernmost limit in the distribution of the genus. Most species are locally endemic, high mountain plants, but near the South Frigid Zone, *Oreomyrrhis* occurs at sea level. The most recent world monographic treatment is by Mathias and Constance (1955).

In Taiwan, two species, *Oreomyrrhis involucrata* and *O. gracilis*, were published by Japanese taxonomists Hayata (1911) and Masamune (1931) respectively. Thereafter Masamune (1938) reduced *O. gracilis* to the rank of variety under *O. involucrata*, and described another new species, *O. taiwaniana*, and an additional variety, *O. involucrata* var. *pubescens*. Later, Mathias and Constance (1955) recognized only two species, *O. involucrata* and *O. taiwaniana*, from Taiwan in their monographic study. They referred to Hiroe's view (their pers. comm.) that these two species should be included in the same species, but Hiroe (1958, 1979) finally decided to keep the two taxa as distinct species. The treatment of Mathias and Constance was adopted by Liu et al. (1961) and Liou (1979). These two taxa were later treated as synonymous in the Flora of Taiwan (Liu and Kao, 1977) and its subsequent edition (Kao, 1993).

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Materials and Methods

Materials used in the present studies were collected from the central mountain at high altitudes in Taiwan, and deposited in the herbarium TNU. In addition, specimens from the herbaria HAST, TAI, TAIF, TI were also examined. For the cytological observation, young flower buds collected in the field were fixed in a mixture of absolute alcohol and acetic acid (3:1/v:v), the anthers stained by aceto-carmine and squashed. The chromosome count reported here was obtained from more than two individual plants.

Taxonomic Characters

According to the original description, Masamune (1938) distinguished *Oreomyrrhis taiwaniana* from *O. involucrata* by noting its rather stout plant body, glabrous leaves, and shorter involucral bracts. Mathias and Constance (1955) mentioned that the peduncles, bracts, height of stylopodium and style, fruit number per umbel, and fruit shape, are different between these two species. Liu et al. (1961) argued that the cross section of fruits, especially vittae numbers, are the most important character in separating Taiwanese *Oreomyrrhis*. After a detailed observation of gross morphology, the characters shown to be useful for the taxonomic treatment in Taiwan are concisely discussed below.

Habit

The plants of the genus in Taiwan are small herbs, usually less than 12 cm tall (Figures 1A, D, G). Following our observation of the robust taproot and other field research,

we infer that *Oreomyrrhis taiwaniana* and *O. nanhuensis* are perennial herbs, the lower parts of which persist through the snow season on high mountains. In contrast, *O. involucrata*, is a less robust plant, always with a slender taproot, and so is probably an annual.

Leaves

The leaves of *Oreomyrrhis* are radical, pinnate to bipinnate with opposite leaflets. For Taiwanese taxa, each leaf of *O. involucrata* usually contains 7 or 9 leaflets, while those of the other two species comprise 9 or 11. Furthermore, the number and shape of pinnatifid-lobes of leaflets provide convenient characters for identification (Table 1). *Oreomyrrhis involucrata* has 6-9 ovate to lanceolate pinnatifid-lobes per leaflet. The leaflets of *O. taiwaniana* have 14-16 lanceolate pinnatifid-lobes, and *O. nanhuensis* leaflets have 19-23 lanceolate to narrow lanceolate lobes.

Furthermore, leaf hairiness is different among the Taiwanese species. The whole leaf of *Oreomyrrhis taiwaniana* is essentially glabrous. The abaxial side of the *O. nanhuensis* leaf is hirsute, but the adaxial side is almost glabrous. However, the hairiness of *O. involucrata* is variable. After our observations of *O. involucrata* in the field and herbarium, we find that the leaves are almost glabrous when the plants grow at 2,400-3,400 m in elevation, but those of some plants at higher altitudes (>3,400 m) are hirsute (Table 1).

Peduncle

The peduncles of *Oreomyrrhis taiwaniana* and *O. nanhuensis* are rather stout, ranging from (0.6-) 0.9 to 1.3

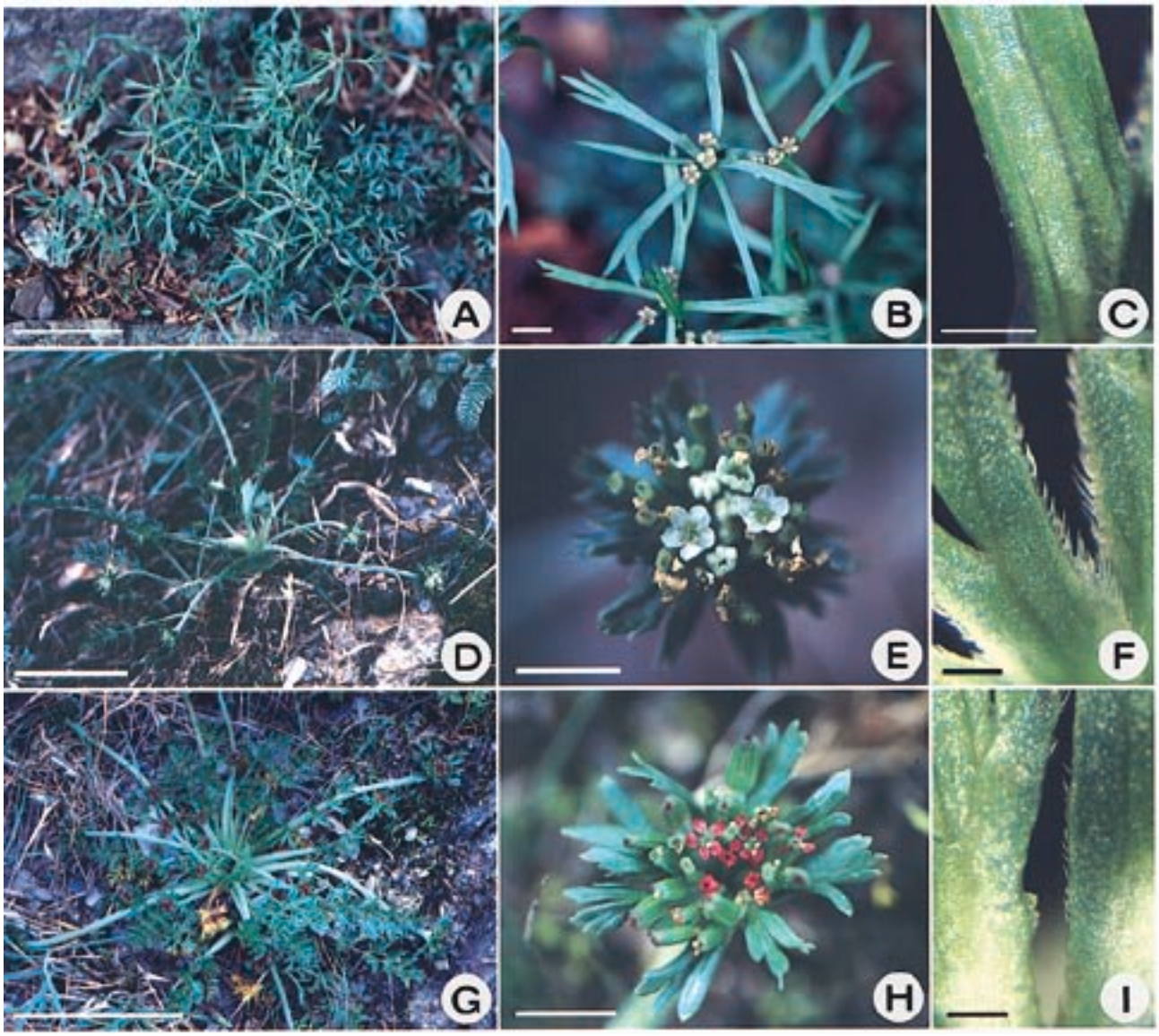

Figure 1. Taiwanese *Oreomyrrhis.* A-C, *O. involucrata;* D-F, *O. nanhuensis;* G-I, *O. taiwaniana.* A, D, G, Habit, Bar=5 cm; B, E, H, Inflorescence, Bar=5 mm; C, F, I, The base of bracts, Bar=1 mm.

Table 1. A comparison of taxonomic characters among Taiwanese *Oreomyrrhis*.

Taxa	Lobe number of leaflet	Hairiness on abaxial side of petiole	Length of bract	Bract margin	Petal colour	Number of fruits per umbel
O. involucrata	6-9	Glabrous to hirsute	> 1 cm	Softly hispid	Basically white	Usually < 10
O. nanhuensis	14-16	Densely hirsute	< 1 cm	Stiff hair	White	10-25
O. taiwaniana	19-23	Glabrous	< 1 cm	Softly hispid	Purple	10-25

(-1.5) mm in diameter. Compared with these two taxa, *O. involucrata* is thinner, ranging from (0.4-) 0.6 to 0.9 (-1.1) mm. The peduncle of the former two species is spreading to spreading-ascending while the latter is ascending to erect.

Involucre

Every involucre of *Oreomyrrhis involucrata* consists of about 4-8 bracts while those of *O. nanhuensis* and *O. taiwaniana* have about 6-10 bracts. The morphology of involucral bracts is a useful taxonomic character. Of the Taiwanese taxa, *O. involucrata* has oblanceolate to linear bracts >1 cm long, a unique, easily recognized character (Figures 1B, 3.3). In contrast, the other two species have obovate bracts < 1 cm (Figures 1E+H, 5.3, 6.3). Additionally, the bracts of all Taiwanese taxa are softly hispid (<0.3 mm) along the margin, but *O. nanhuensis* can be distinguished from the other two taxa by having stiffer and longer hispid hairs (up to 0.5 mm) along the base of bract margin (Figures 1C, F, I, Table 1).

Flowers

The flower of *Oreomyrrhis nanhuensis* is about 2.5-3 mm in diameter, the largest in the Taiwanese taxa. Those of *O. involucrata* and *O. taiwaniana* are about 2-2.5 mm and 1.5-2 mm in diameter, respectively. Furthermore, the petal colors provide useful characters for taxonomy: *O. taiwaniana* is purple, *O. nanhuensis* is white, *O. involucrata* is also white but sometimes with pale-purple speckles (Figures 1B, E, H, Table 1).

Oreomyrrhis nanhuensis and *O. taiwaniana* are essentially equal in the length of stylopodium and style, mostly less than 0.6 mm, and usually shorter than *O. involucrata*, most of which are 0.6-1 mm long.

Fruits

In *Oreomyrrhis involucrata*, the number of flowers and fruits per umbel is usually less than 10. Both of the other two species in Taiwan are usually 10-25 (Table 1). The fruits of Taiwanese taxa are more or less lop-sided at maturity, a feature particularly apparent in *O. involucrata*. The fruit morphologies of *O. nanhuensis* and *O. taiwaniana* are rather similar. The fruit ribs of *O. nanhuensis* and *O. taiwaniana* are similar, but *O. involucrata* has somewhat narrower ones.

Vittae number was observed and described by Mathias and Constance (1955) and Hiroe (1958, 1979). This was considered by Liu et al. (1961) to be crucial in separating the Taiwanese taxa. However, the descriptions in these two accounts are contradictory, and the application of vittae in the classification of the genus could have been overemphasized. *Oreomyrrhis involucrata* was described to have 1-3 vittae in the interval and 2-several on the commissure by Mathias and Constance (1955) and Hiroe (1958, 1979), but it was described to have a solitary vitta in the interval and 2 on the commissure by Liu et al. (1961). On the other hand, *O. taiwaniana* was described as having only one vitta in the interval and 2 on the commissure by the former, but as having 1-3 vittae in the interval and mostly 2 or 3 on the commissure by the latter. We have made a comprehensive comparative study of this feature. As a result, we found that all the Taiwanese taxa usually have solitary (occasionally 2, rarely 3) vitta in the interval and 2 (occasionally 3) on the commissure. Furthermore, we re-examined the two specimens cited as *O. taiwaniana* by Liu et al. (1961). One (*Y. Shimada 2513C*) of them has a solitary vitta in the interval, but 2 or 3 were occasionally observed. The other sheet (*Suzuki ST17360*), actually *O. nanhuensis*, bears immature fruits only, so the character could not be observed clearly. In conclusion, based on our observation of Taiwan species, vitta number is shown to have intraspecific variation but no interspecific distinction. So it can not be reliably used in classifying Taiwanese species as suggested by Liu et al. (1961).

Cytology

The chromosome numbers in *Oreomyrrhis* are consistent, chiefly n=6 or $2n$=12 (Mathias and Constance, 1955; Bell and Constance, 1960; Constance et al., 1976), with an exceptional report of n=7 (Mathias and Constance, 1955). For the Taiwanese taxa, only *O. involucrata* of n=6 was reported by Liu et al. (1961). The authors report here the chromosome number of n=6 from the new species *O. nanhuensis* (Figure 2). The chromosome number supports the consideration of basic number x=6 upon previous records. The cytological data of *O. involucrata* and *O. taiwaniana* are still lacking.

Taxonomic Treatment

Oreomyrrhis Endlicher, Gen. Pl. 10: 787. 1839; Bentham & Hooker, Gen. Pl. 1: 897. 1867; Mathias & Constance, Univ. Calif. Publ. Bot. 27: 355. 1955; Hiroe, Umbelliferae World 376. 1979. 山薰香屬

(Description refers only to Taiwanese taxa)

Perennial or biennial herbs, often cespitose, usually with taproots, branching only or near the base, glabrous

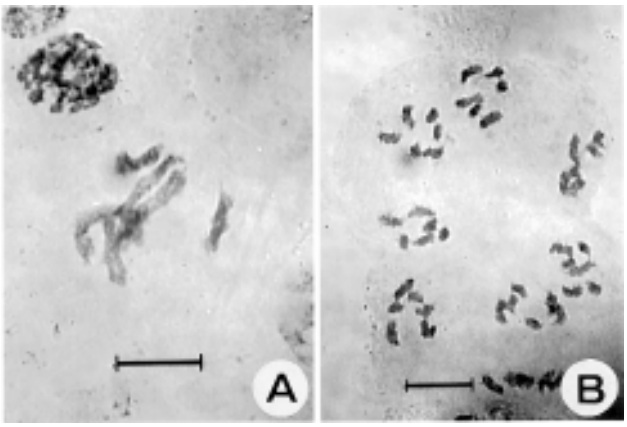

Figure 2. Chromosomes of *Oreomyrrhis nanhuensis*, *n*=6. A, Diakinesis; B, Anaphase II. Bar=10 μm.

to hoary-tomentose. Leaves radical, 1-2 pinnate. Inflorescence a simple terminal umbel. Peduncles slender to stout; involucral bracts 4-10, linear-lanceolate to obovate, entire to pinnatifid; pedicels stout to filiform, spreading-ascending or spreading. Calyx teeth obsolete. Petals oblong to ovate, acute apex, glabrous white to purple. Stamens exserted, white to purple. Stylopodium more or less conical; styles short, slender. Carpophore stout, divided to the base or bifid. Fruits oblong to ovoid, slightly compressed laterally. Seed subterete, sulcate.

About 25 species in Mexico, South America, Australia, New Zealand, New Guinea, Borneo, and Taiwan. Three species are found in Taiwan. Type species—*Oreomyrrhis andicola* (Kunth) Hook. f.

Key to Taiwanese Oreomyrrhis

1. Involucral bracts >10 mm long; leaflet with 6-9 pinnatifid-lobes ..... 1. *O. involucrata*
1. Involucral bracts <10 mm long; leaflet with >14 pinnatifid-lobes.
   2. Leaflet with 19-23 pinnatifid lobes; abaxial side of petioles densely hirsute; bract margin with stiff hispid hairs at base; petals white..... 2. *O. nanhuensis*
   2. Leaflet with 14-16 pinnatifid lobes; abaxial side of petioles mostly glabrous; bract margin softly hispid at base; petals purple ..... 3. *O. taiwaniana*

1. Oreomyrrhis involucrata Hayata, J. Coll. Sci. Univ. Tokyo 30: 128. 1911; Mathias & Constance, Univ. Calif. Publ. Bot. 27(6): 411, f. 24, f-h. 1955; Hiroe, Umbelliferae Asia. 49. 1958; Liu, Chao & Chuang, Quart. J. Taiwan Mus. 14(1-2): 34, pl. 9, f. 22, pl. 13, f 10. 1961; Liu & Kao in Li et al., Fl. Taiwan 3: 960, pl. 885. 1977, pro parte; Liou in Shen & Sheh, Fl. Reipubl. Popul. Sin. 55(1): 94, f. 42, 1-3. 1979; Hiroe, Umbelliferae World. 401. 1979; Kao in Huang et al., Fl. Taiwan 2nd ed. 3: 1032. 1993, pro parte.—TYPE: Taiwan (Formosa), in monte Morrison (Niitaka-yama), ad 12000 ped. alt., 20 Oct 1906, *T. Kawakami et U. Mori 2249* (lectotype: TI!, here designated; isolectotype: TAIF!). 山薰香 Figure 3

Oreomyrrhis gracilis Masamune, J. Soc. Trop. Agric. 3: 20. 1931.—TYPE: Taiwan, Sikayotaizan ca. 3,300 m alt., 7 Jul 1930, *Masamune 1239* (holotype: TAI!).

Oreomyrrhis involucrata var. *gracilis* (Masamune) Masamune, Trans. Hist. Soc. Formosa 28: 139. 1938.

Oreomyrrhis involucrata var. *pubescens* Masamune, Trans. Hist. Soc. Formosa 28: 138. 1938.—TYPE: Taiwan, Tyuosenzan Be Sipau no sita 2,800 m, 28 Jul 1936, *T. Suzuki 16258* (lectotype: TI!, here designated; syntype: Taiwan, Mount Morrison, 3 Nov 1905, *S. Nagasawa 756*, TI!).

Herb 6-10 cm. Leaves radical, bipinnate, glabrous to hirsute, oblong; blades 2-4.5 × 1-2 cm; with 7 or 9 obovate to oblanceolate leaflets; leaflets 5-15 × 4-10 mm, with 6-9 pinnatifid lobes; lobes ovate to lanceolate, 3-5 × 0.5-1.5 mm; petioles slender, 2-4.5 cm long, about equal to the blades, glabrous or sparsely hirsute. Peduncles 1-10, slender, ascending to erect, 4-10 cm long, with soft retrorse hairs. Involucre of 4-8 linear to oblanceolate bracts, entire to deeply incised; bracts 12-25 × 1-2 mm, softly hispid along margin and upper midrib. Flowers usually less than 10 but seldom up to 15, 2-2.5 mm across. Pedicels unequal, 3-5 mm long, hispid, much shorter than the involucre; calyx teeth obsolete; petals ovate, white or with pale-purple speckles, 0.7-0.9 mm long. Stamens white or with pale-purple speckles. Stylopodium conical, styles short. Fruits usually less than 10, oblong, ca. 4 × 1-1.5 mm, tapering slightly toward apex, usually lopsided, glabrous, with 5 prominent, obtuse ribs. Vittae 1(2) in the intervals, 2 (3) on the commissure. Flowering May-Aug, Fruiting Jun-Nov.

Additional specimens examined. **TAIWAN.** HSINCHU HSIEN: Tapachienshan, elev. 2,700-3,500 m, *Kuoh 3323* (TAI); same loc., *Kao 8538* (TAI); same loc., 2 Jul 1976, *Yang s. n.* (TAIF); TAICHUNG HSIEN: Chika to 369 Shanchuang, elev. 2,400-3,200 m, *Wang et al. 4495* (TAI); Chika lodge to E. peak of Hsuehshan, elev. ca., 3,100 m, *Peng 7915* (HAST); same loc., 23 Oct 1936, *Mori s. n.* (TI); same loc., *Suzuki 5386* (TAI); same loc., 23 Jul 1932, *Sasaki s. n.* (TAI); same loc., 25 Oct 1936, *Mori s.n.* (TAI); Wuling Farm to Hsingta Camp, elev. 1,900-3,200 m, *Wang et al. 4022* (TAI); Hsingta Camp to Pintienshan, elev. 3,250-3,536 m, *Chen et al. 277* (HAST); same loc., elev. 3,200-3,536 m, *Wang et al. 4047* (TAI). NANTOU HSIEN: Tienchih to Nengkaopeifeng, elev. ca. 3,100 m, *Chiu et al. 3420* (HAST, TAIF); Tienchih to boundary stone tablet, elev. 2,400-2,800 m, *Liao et al. 1361* (HAST, TNU); Tienchih to Yunhai, elev. 2,346-2,840 m, *Kao 5876* (TAI); Tienchih to Nengkao Pass, elev. ca. 2,850 m, *Tamura & Koyama 23351* (TI); Tienchih to Nengkao, *Huang et al. 5780* (TAI); Nengkao, 25 Aug 1929, *Sasaki s. n.* (TAI); Chuntashan, elev. ca. 3,000 m, *Liu et al. 949* (HAST); Hohuanshan, elev. ca. 2,950 m, *Clark et al. 237* (TAIF); Hohuanshan, Wuling to Kunyang, elev. 3,000-3,275 m, *Peng 8264* (HAST); Hsiukuluanshan to Tashuiku, *Suzuki 13547* (TAI). CHIAYI HSIEN: Yushan, *Kao et al. 4000* (HAST); same loc., *Tseng et al. 4000* (TAI); same loc., elev. ca. 11,000 feet, *Kawakami & Sasaki 18671* (TAIF); same

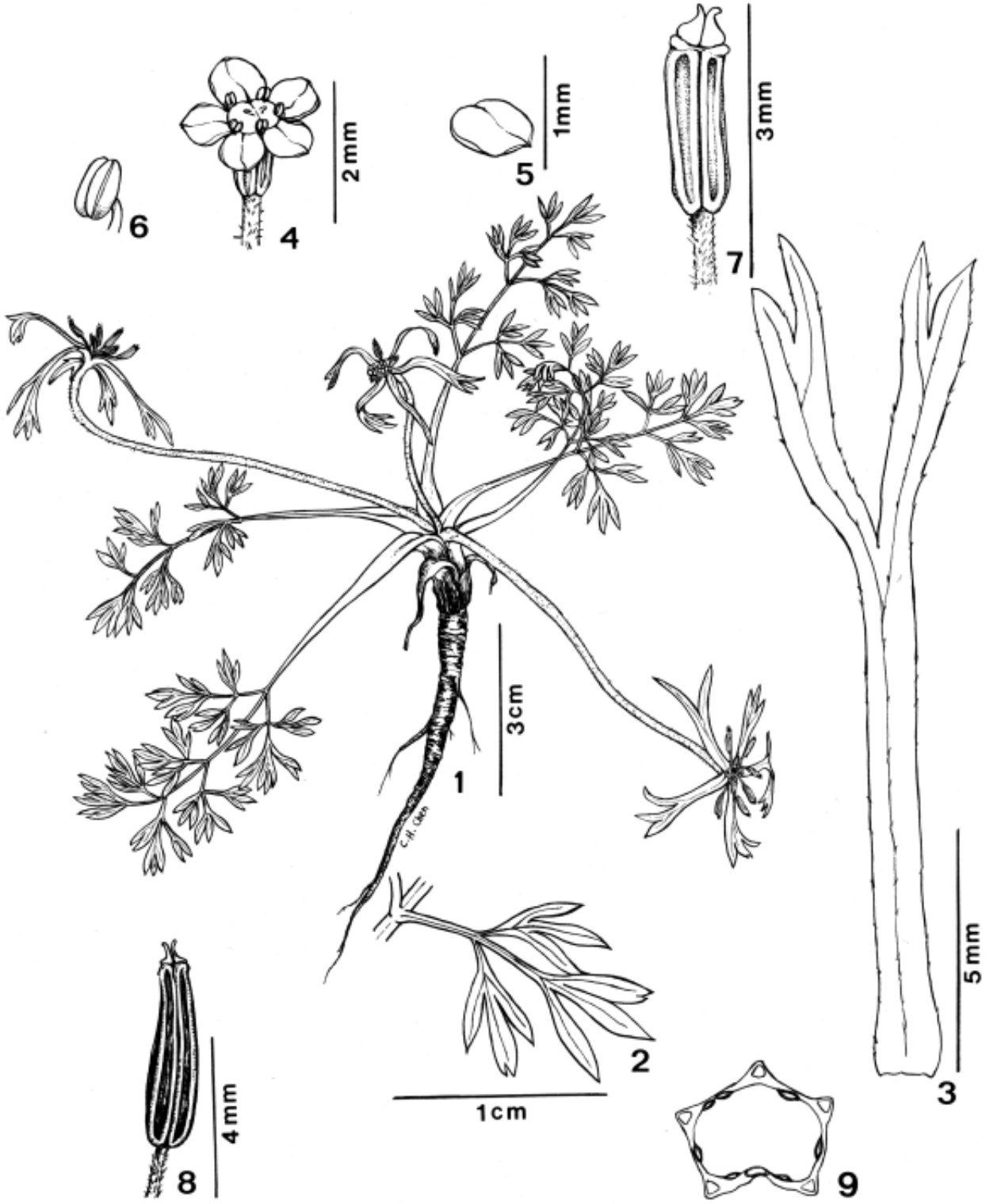

Figure 3. *Oreomyrrhis involucrata* Hayata. 1, Habit; 2, Leaflet; 3, Adaxial view of bract; 4, Flower; 5, Petal; 6, Stamen; 7, Pistil; 8, Fruit; 9, Cross section of fruit. (*C. H. Chen et al. 2376*)

loc., elev. ca. 3,600 m, *Yamazaki & Yamazaki 827* (TI); same loc., *Saito 7446* (TI); same loc., *Suzuki 13225, 13295* (TAI); same loc., Aug 1927, *Sasaki s. n.* (TAI); same loc., elev. ca. 3,500 m, *Chuang & Kao 4509* (TAI); Lulinshan, elev. ca. 2,600 m, *Chao & Kao 6257* (TAI); Tataka to Paiyun Lodge, elev. ca. 3,356 m, *Lu 14785* (TAIF); Paiyunshanchuang, elev. 3,400-3,700 m, *Cheng 2331* (TAIF); Paiyun to Yushan, *Hsu & Kuoh 7359* (TAI); same loc., elev. 3,500-3,997 m, *Hsu 6294* (TAI); Paiyun lodge to Yushan main peak, elev. 3,600-3,700 m, *Peng 14410* (HAST); same loc., elev. 3,500-3,900 m, *Peng 9553* (HAST). ILAN HSIEN: Nanhutashan, elev. ca. 3,300 m, 24 Jul 1963, *Tamura et al. s. n.* (TI); same loc., elev. ca. 2,700 m, *Yamazaki et al. 315* (TAI, TI); same loc., elev. ca. 3,500 m, *Suzuki et al. 17445* (TAI); same loc., elev. ca. 3,000 m, *Suzuki et al. 17595* (TAI); same loc., 17 Jul 1937, *Suzuki s. n.* (TAI); Chiliting to Nanhushanchuang, elev. 2,780-3,000 m, *Hsu 5920* (TAI); Yunlengshanchuang to Shenmachenshan, elev. 2,800-3,200 m, *Chen et al. 2376* (TNU). HUALIEN HSIEN: Sunghsuehlou, *Huang 2665* (HAST, TNU). TAITUNG HSIEN: Takuanshan, elev. 2,600-3,200 m, *Peng 11757* (HAST).

Distribution and habitat. Endemic to Taiwan, in the northern and central parts of the Central Mountain Range, also found in the Hsuehshan Mountain Range (Figure 4).

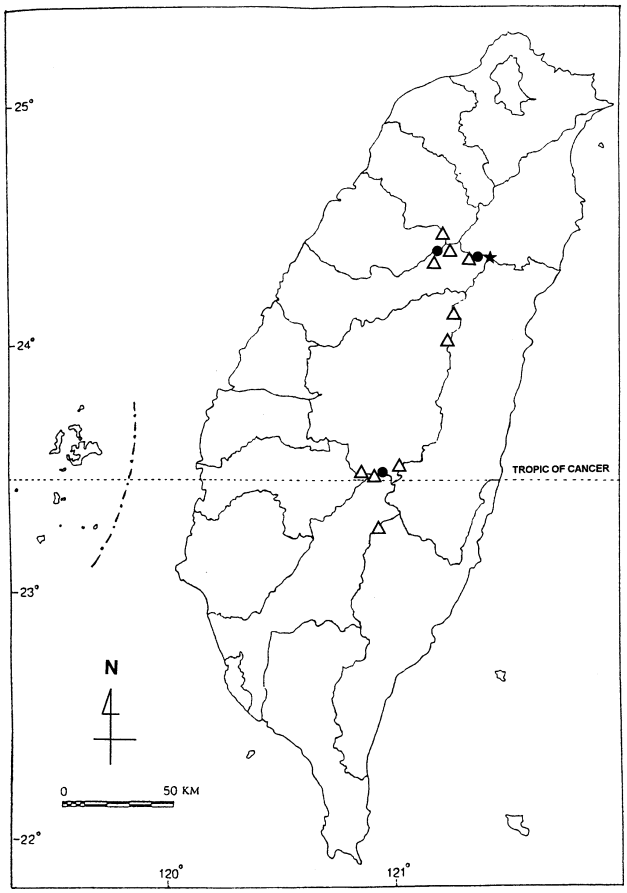

Figure 4. Distribution of *Oreomyrrhis involucrata* (triangles), *O. taiwaniana* (circles), and *O. nanhuensis* (star).

Usually at semishady or shady place in grasslands on the floor of coniferous forest, in range from 2,400 to 3,800 m in elevation.

Notes. According to the opinion of Masamune (1938), the pubescence and the length of the involucral bracts could be used for the subdivision in *Oreomyrrhis involucrata*. He described two varieties under the species, *O. involucrata* var. *gracilis* characterized by longer bracts, and *O. involucrata* var. *pubescens* characterized by pubescent leaves. Later taxonomists (Mathias and Constance, 1955; Liu et al., 1961) considered the characters were probably ecological variants, unworthy of taxonomic designation, and treated them as one species. We agree with their opinion in the present study. As mentioned above, the plants are usually glabrous but sometimes hirsute at higher altitudes and exhibit continuous variation. This species can be distinguished easily from the congenors in Taiwan by having much longer involucral bracts (>1 cm).

2. Oreomyrrhis nanhuensis C. H. Chen & J. C. Wang, sp. nov.—TYPE: Taiwan, Ilan Hsien, Tatung Hsiang, Taroko National Park, Nanhutashan cirque, elev. ca. 3,400-3,600 m, 23 June 1998, *C. H. Chen et al. 2402* (holotype: TNU). 南湖山薰香 Figure 5

Species *O. taiwaniana* Masamune affinis, sed exter petiolis saturate hirsutus, foliolo cum 19-23 lobis, bracteae cum dispositus spinis secus marginatus basim, corolla albi, major petalis, differt.

Herbs, 6-12 cm. Leaves radical, bipinnate, glabrous, oblong; blades 3-5 × 1-1.5 cm; with 9 or 11 obovate to oblanceolate leaflets; leaflets 6-1.2 × 4-8 mm, with 19-23 pinnatifid lobes; lobes lanceolate to narrow lanceolate, 3-5 × 0.5-1 mm; petioles slender, 3-5 cm long, about equal to the blades, adaxial surface glabrous, abaxial surface densely hirsute. Peduncles 1-10, spreading to spreading-ascending, 5-10 cm long, with dense, soft retrorse hairs. Involucre of 6-10 obovate bracts, hirsute on the back; bracts deeply incised at apex, 4-7 × 2-3 mm, hispid along margin, densely hispid near the base or on lower midrib, with 0.3-0.5 mm stiff hispid hairs along the base of margin. Flowers 10-25, 2.5-3 mm across, shorter than the involucre; calyx teeth obsolete; petals ovate, white, 0.9-1.2 mm long. Stamens white. Stylopodium conical, styles short. Pedicels unequal, 2-5 mm long, hispid. Fruits usually10-25, oblong-ovate, 4-4.5 × 2 mm, tapering on apex, sometimes slightly lopsided, glabrous, with 5 prominent, obtuse ribs. Vittae 1 (2) in the intervals, 2(3) on the commissure. Flowering Jun-Aug, Fruiting Jul-Sep.

Additional specimens examined. **TAIWAN.** TAICHUNG HSIEN: Nanhutashan, elev. 3,400-3,500 m, *Wang 877* (HAST); same loc., *Yamazaki et al. 600* (TI); same loc., elev. ca. 3,500 m, *Suzuki et al. 17360* (TAI); Nahushanchuang to top of Mt. Nanhutashan, elev. 3,450-3,740 m, *Hsu 6014* (TAI).

Distribution and habitat. Endemic to Taiwan, rare, in the northern part of the Central Mountain Range, known

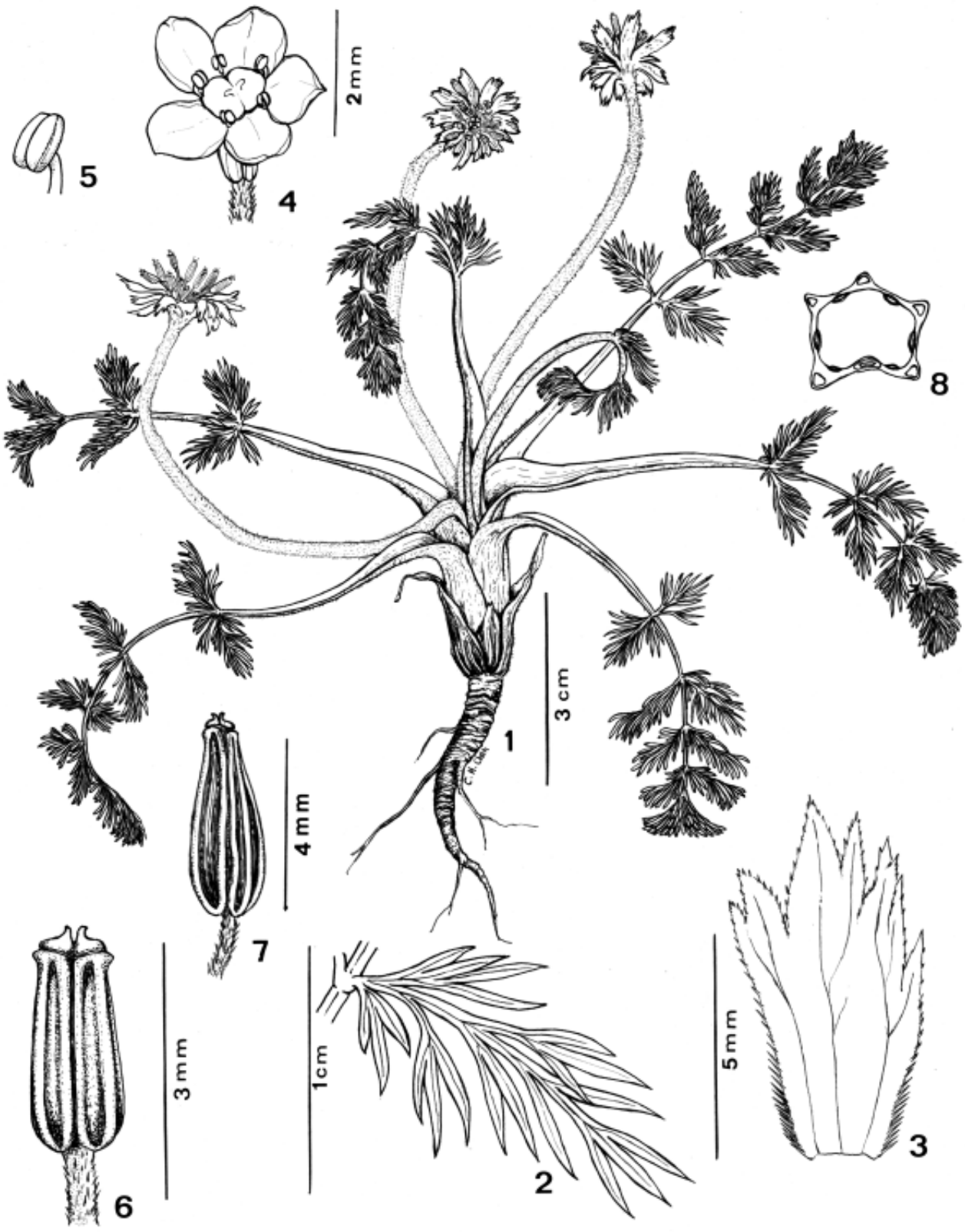

Figure 5. *Oreomyrrhis nanhuensis* C. H. Chen & J. C. Wang. 1, Habit; 2, Leaflet; 3, Adaxial view of bract; 4, Flower; 5, Stamen; 6, Pistil; 7, Fruit; 8, Cross section of fruit. (*C. H. Chen et al. 2402*)

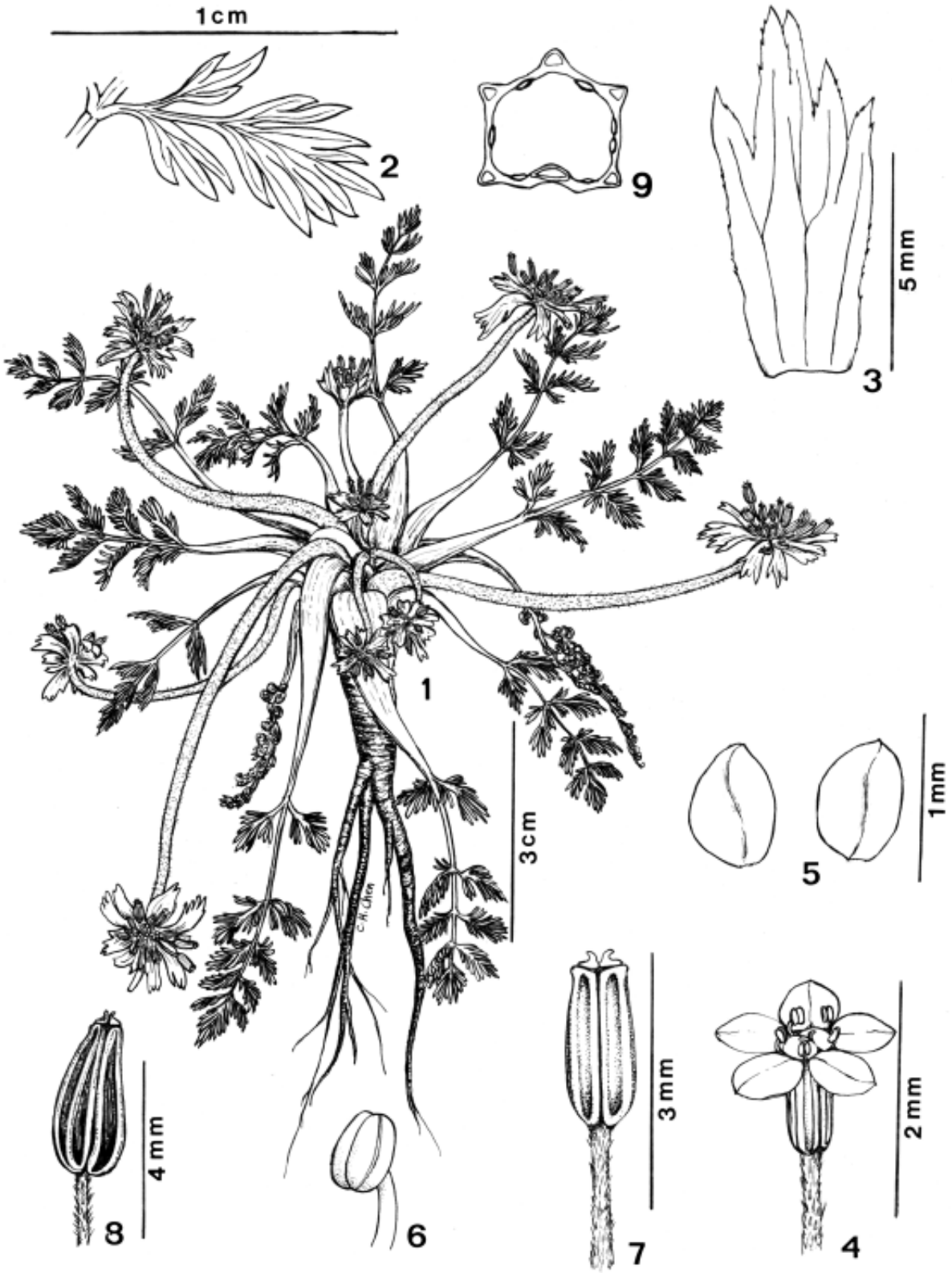

Figure 6. *Oreomyrrhis taiwaniana* Masamune. 1, Habit; 2, Leaflet; 3, Adaxial view of bract; 4, Flower; 5, Petals; 6, Stamen; 7, Pistil; 8, Fruit; 9, Cross section of fruit. (*C. H. Chen et al. 2401*)

only on cirque of Mt. Nanhutashan (Figure 4). On exposed place in gravelly grasslands, and usually mixed with other heliophytic herbs, including *Viola biflora* L., *Potentilla leuconota* D. Don, *Thalictrum rubescens* Ohwi, and *Euphrasia nankotaizanensis* Yamamoto, between 3,400 to 3,700 m in elevation.

Notes. Oreomyrrhis nanhuensis is most similar to *O. taiwaniana*. Most specimens of *O. nanhuensis* in Taiwanese herbaria were misidentified as *O. taiwaniana*, perhaps because they were collected at fruiting stage and lacked the characters of flowers. *Oreomyrrhis nanhuensis* can be easily distinguished by the following characters: abaxial side of petioles densely hirsute, leaflets with 19-23 pinnatifid lobes, bracts with stiff and longer hispid hairs along the base of margin, flowers white, and petals larger. Among them, the hairiness on abaxial side of petioles is stable and easily observed. It would be the most convenient character to distinguish them.

3. Oreomyrrhis taiwaniana Masamune, Trans. Nat. Hist. Soc. Formosa 28: 139. 1938; Mathias & Constance, Univ. Calif. Publ. Bot. 27(6): 413, f. 24, d-e. 1955; Hiroe, Umbelliferae Asia. 50. 1958. Liu, Chao & Chuang, Quart. J. Taiwan Mus. 14(1-2): 34, pl. 9, f. 23, pl. 13, f. 11. 1961; Liou in Shen & Sheh, Fl. Reipubl. Popul. Sin. 55(1): 96, f. 42, 4-5. 1979; Hiroe, Umbelliferae World. 402. 1979.— TYPE: Taiwan, Nankotaizan, 17 Jul 1937, *S. Suzuki s. n.* (holotype: TAI!). 台灣山薰香 Figure 6

Perennial herbs up to 10 cm. Branches only near the base. Leaves radical, bipinnate, mostly glabrous, oblong; blades 1.5-3 × 1-1.5 cm; with 9 or 11 obovate to oblanceolate leaflets; leaflets 4-8 × 3-5 mm, with 14-16 pinnatifid lobes; lobes lanceolate, 2-3 × 0.5-1 mm; petioles slender, 1.5-3 cm long, about equal to the blades, glabrous. Peduncles 1-20, spreading to spreading-ascending, 4-8 cm long, with densely soft retrorse hairs, ascending to erect. Involucre of 6-10 obovate bracts, hirsute on the back; bracts deeply incised at apex, 5-9 × 2-3 mm, softly hispid (<0.3 mm) along margin, hispid near the base or on lower midrib. Flowers 10-25, 1.5-2 mm across, shorter than the involucre; calyx teeth obsolete; petals ovate, purple, 0.5-0.7 mm long. Stamens purple. Stylopodium conical, styles short. Pedicels unequal, 2-5 mm long, hispid. Fruits usually 10-25, oblong-ovate, 3.5-4 × ca. 2 mm, tapering on apex, sometimes slightly lopsided, glabrous, with 5 prominent, obtuse ribs. Vittae 1(2) in the intervals, 2(3) on the commissure. Flowering Jun-Aug, Fruiting Jul-Sep.

Additional specimens examined. **TAIWAN.** TAICHUNG HSIEN: Hsuehshan, elev. 3,500-3,884 m, 23 Aug 1995, *Yang s. n.* (TAIF); same loc., *Simada 2513A*, *2513C* (TAI); Hsuehshan cirque to the peak of Hsuehshan, elev. 3,500-3,886 m, *Lin et al. 1377* (TNU). NANTOU HSIEN: Paiyun lodge to Yushan main peak, elev. ca. 3,850 m, *Peng 14381* (HAST). CHIAYI HSIEN: Yushan, elev. 3,800-3,900 m, 6 Sep 1969, *Kuo & Tu s. n.* (TAI). ILAN HSIEN: Nahutashan, 22 Aug 1969, *Yamazaki et al. s. n.* (TAI); same loc., *Suzuki 18080* (TAI); Chiliting to Nanhushanchuang, elev. 3,000-3,400 m, *Hsu 5990* (TAI); Yunlengshanchuang to Nanhu Cottage, elev. 2,700-3,400 m, *Chen et al. 1023* (TNU); Shenmachenshan to Nanhupeifeng, elev. 3,400-3,600 m, *Chen et al. 2401* (TNU).

Distribution and habitat. Endemic to Taiwan, rare, in the northern and central parts of the Central Mountain Range, also found in the Hsuehshan Mountain Range (Figure 4). Usually in exposed grasslands and on gravelly slopes, often mixed with other heliophytic herbs, including *Ranunculus junipericola* Ohwi, *Veronica morrisonicola* Hayata, *Berberis morrisonensis* Hayata, *Lonicera kawakamii* (Hayata) Masamune, and *Anaphalis nepalensis* (Spreng.) Hand.-Mazz., between 3,200-3,900 m in elevation.

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台灣產山薰香屬之分類訂正

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本文針對台灣產山薰香屬植物進行分類研究，結果將台灣產種類區分為三種，均為台灣特有種。先前於台灣植物誌中將台灣山薰香（*Oreomyrrhis taiwaniana* Masamune）併入為山薰香（*O. involucrata* Hayata）之異名，在此處理為獨立之兩分類群；另發現一新種－南湖山薰香（*O. nanhuensis* C. H. Chen & J. C. Wang），截至目前為止，此新種僅發現於太魯閣國家公園內的南湖大山，生長於高海拔（約 3,400 至 3,700 公尺）的開闊碎石草地上。本研究顯示，小葉的羽狀裂瓣數目和形狀、總苞片的形態、以及花的顏色，提供台灣產種類相當重要之分類依據。本文並提供種之檢索表，各分類群的描述、繪圖、地理分布及分類注釋。此外，並報導南湖山薰香的染色體數目為 *n*=6。

關鍵詞：繖形科；染色體數目；選定模式；新種；山薰香屬；分類訂正；台灣；植物分類。