



## A new species of *Daphne* (Thymelaeaceae): *D. jejudoensis* M. Kim

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### 팔꽃나무속(팔꽃나무과)의 신종: 제주백서향 (*Daphne jejudoensis* M. Kim)

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**ABSTRACT:** A new species, *Daphne jejudoensis* M. Kim, has been named and described from Seonheul, Jeju Province, Korea. *Daphne jejudoensis* shares several characteristics (white calyx colors, long calyx tube, ever-green leaves, leathery leaf textures, etc.) with its related species *D. kiusiana*, but it is distinct from *D. kiusiana* which has a hairy calyx tube and lobes, short calyx lobes, oblanceolate leaves (with acute apex), and a different distribution (coastal region in Geojeodo Is.) by having a glabrous calyx tube and lobes, long calyx lobes, elliptic leaves (with acuminate apex), and by its distribution (inland region in Jeju Is.).

**Keywords:** *Daphne jejudoensis*, *Daphne kiusiana*, Thymelaeaceae

**적 요:** 제주도 선흥에서 팔꽃나무속의 신종인 제주백서향(*Daphne jejudoensis* M. Kim)을 발견하여 기재하였다. 제주백서향은 꽃이 백색이고 잎은 상록성이며 긴 꽃받침 통을 가져 백서향(*D. kiusiana*)과 유사하다. 그러나 제주백서향은 꽃받침 통과 열편에 털이 없고 장타원형(점첨두) 잎을 가지며 제주도의 중산간지역에서 자라는 반면에, 백서향은 꽃받침 통과 열편에 털이 있고 도피침형(급첨두) 잎을 가지며 거제도의 해안가에서 자라는 점에서 두 종이 뚜렷하게 차이가 난다.

**주요어:** 제주백서향, 백서향, 팔꽃나무과

The genus *Daphne* L. (Thymelaeaceae) consists of approximately 95 species and is distributed primarily in regions of the SE Asia including China, Korea, and Japan, and also Europe (Hong, 2007; Wang et al., 2007). The genus *Daphne* are characterized by shrubs which are 0.5-2 m tall, 8 stamens, headlike short raceme inflorescence, and drupe fruits (Hong, 2007). Four taxa of *Daphne* are distributed in Korea (Lee, 1980; Lee, 1996; Lee, 2006; Hong, 2007). Of the four taxa, *Daphne genkwa* Siebold & Zucc. occurs near the seashore of southern

areas in Korea, while *D. kiusiana* Miq. is rather rare and sporadically distributed in Korea (Geojeodo Is.), Japan, and China.

A new species from Seonheul, Andeog, and Mureung in Jeju Province, Korea was discovered. Until now, this new species was misidentified as *Daphne kiusiana* Miq. (Chung, 1957; Lee, 1980; Lee, 1996; Lee, 2006). In this paper, we named this new taxon *Daphne jejudoensis* M. Kim and described several morphological features relative to its related species *D. kiusiana* and *D. odora* Thunb. The new species shares several characteristics with its related species, but it can be distinguished based on calyx surface (i.e. glabrous), calyx tube (i.e., long size), calyx lobes (i.e., long size), leaf shape (i.e., elliptic), distribution (i.e., Jeju Is.), etc.

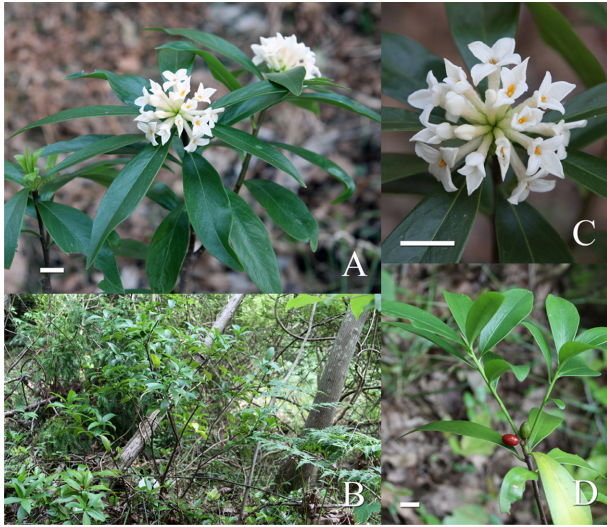
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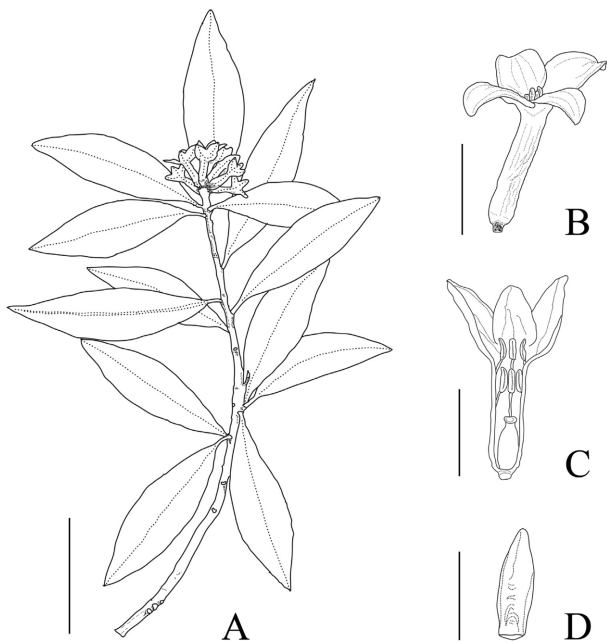
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***Daphne jejuensis* M. Kim, sp. nov.** (Figs. 1-3)Korean name: **Jeju-Baek-Seohyang 제주백서향**

Shrubs evergreen, 60-90 cm tall. Branches purplish brown, slender, glabrous. Leaves alternate; petiole 2-3 mm, glabrous; leaf blade elliptic, 7.0-8.5 × 1.7-2.5 cm, leathery, both surface glabrous, base cuneate, apex acuminate; veins 6-8 pairs. Inflorescence terminal, headlike short raceme, 12-16 flowered;



**Fig. 1.** Photographs of *Daphne jejuensis* M. Kim at the type locality. A. Branches with flowers; B. Habitat; C. Flower; D. Fruit. Scale bars 1 cm in A, C and D.



**Fig. 2.** *Daphne jejuensis* M. Kim A. A branch with flowers; B. Flower; C. Inner view of flower; D. Bract. Scale bars 5 cm in A; 1 cm in B and C; 0.5 cm in D.

bracts lanceolate 5-6 × 1.5-3.0 mm, glabrous. Flowers bisexual, fragrant. Calyx white; tube 12-14 mm, exterior glabrous; lobes 4, ovate, 6-7 mm, base auriculate, apex obtuse. Petals absent. Stamens 8, lower whorl inserted just above middle of calyx tube, upper whorl in throat; filaments 0.4-0.6 mm; anthers oblong, 2-3 mm. Disk annular. Ovary oblong, glabrous; style short; stigma capitate. Drupe red, globose, 8-10 mm. Flowering March, fruit June.

**Holotype:** Seonheul, Jeju Province, Korea. March 15, 2013. *M. Kim 130201*. Herbarium of Jeonbuk National University (JNU).

**Isotype:** Seonheul, Jeju Province, Korea. March 15, 2013. *M. Kim 130201* (5 sheets, JNU).

**Paratype:** Jeju (Jocheon). Jan. 16, 1991. *H. Kim* (JNUB); Jeju (Gujoa). Jan. 16, 1998. *M. Moon* (JNUB); Jeju (Andeog). Mar. 7, 2002. *Y. Kang* (KB); Jeju (Andeog). March 16, 2013. *M. Kim 130207* (JNU); Jeju (Mureung). March 16, 2013. *M. Kim 130208* (JNU); Jeju (Seonheul). June 3, 2013. *M. Kim 130213* (JNU).

**Distribution:** Seonheul, Andeog, and Mureung in Jeju Province, Korea.

**Etymology:** The specific epithet is derived from Jeju Is. where this new species is located.

**Habitats:** *Daphne jejuensis* M. Kim was discovered in



**Fig. 3.** Holotype of *Daphne jejuensis* M. Kim

Table 1. Comparison of morphological characters among *Daphne jejudensis* M. Kim, *D. kiusiana* and *D. odora*.

Characters	<i>D. jejudensis</i>	<i>D. kiusiana</i>	<i>D. odora</i>
Plant height	60-90 cm	50-120 cm	70-90 cm
Habitat	inland region	coastal region	.
Twig	slender	slender	stout
Twig internode	5-10 mm	1-5 mm	5-20 mm
Leaves on old branches	present	absent	absent
Leaf shape	elliptic	oblanceolate	oblanceolate
Leaf blade length	7.0-8.5 cm	7.5-9.0 cm	6.5-8.0 cm
Leaf blade width	1.7-2.5 cm	2.5-3.5 cm	2.0-2.8 cm
Leaf apex	acuminate	acute	acute
Pediceel	glabrous	glabrous	pubescent
Bract margin	glabrous	glabrous	pubescent
Calyx color	white	white	pale red-purple
Calyx exterior	glabrous	hairy	glabrous
Calyx tube length	12-14 mm	8-10 mm	8-9 mm
Calyx lobe length	6-7 mm	3-4 mm	6-8 mm
Fruit length	8-10 mm	9-11 mm	.
Distribution	Jejudo Is.	Geojedo Is.	cultivated

broad-leaved forest regions in Seonheul, Jejudo Province, Korea. The new species occurs rarely in evergreen woodlands dominated by *Castanopsis cuspidata* (Thunb.) Schottky, *Machilus thunbergii* Siebold & Zucc., and *Cudrania tricuspidata* (Carriere) Bureau ex Lavallee. This species also lives with other herbaceous species dominated by *Semiaquilegia adoxoides* (DC.) Makino, *Viola grypoceras* A. Gray, and *Dryopteris lacera* (Thunb.) Kuntze.

### Key to *Daphne* taxa in Korea.

1. Calyx exterior glabrous
  2. Leaves deciduous; calyx tube 4-5 mm; inflorescence ebracteate
 

..... *D. pseudomezereum* var. *koreana* 두메닥나무
  2. Leaves evergreen; calyx tube 8-14 mm; inflorescence bracteate
    3. Calyx pale red-purple; calyx tube 8-9 mm; leaves oblanceolate ..... *D. odora* 서향
    3. Calyx white; calyx tube 12-14 mm; leaves elliptic
 

..... *D. jejudensis* 제주백서향
1. Calyx exterior hairy
  4. Calyx purple; leaves deciduous
 

..... *D. genkwa* 팔꽃나무
  4. Calyx white; leaves evergreen
 

..... *D. kiusiana* 백서향

Populations of the new species, *Daphne jejudensis* M. Kim were discovered at Seonheul, Andeog, and Mureung in Jejudo Province, Korea. *Daphne jejudensis* shares several characteristics (white calyx colors, long calyx tube, evergreen leaves, leathery leaf textures, etc.) with its related species *D. kiusiana* Miq., but it is distinct from *D. kiusiana* which has a hairy calyx tube, short calyx lobes, oblanceolate leaves (with acute apex), and a different distribution (coastal region in Geojedo Is.) by having a glabrous calyx tube, long calyx lobes, elliptic leaves (with acuminate apex), and by its distribution (inland region in Jejudo Is.)(Table 1, Appendix). Thus, the authors described this taxon as a new species of the genus *Daphne*.

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**Appendix. Examined specimens of *Daphne* taxa in Korea.*****D. jejuensis* M. Kim 제주백서향**

**Jeju:** Seonheul. Mar. 15, 2013. *M. Kim 130201* (JNU); Andeog. Mar. 16, 2013. *M. Kim 130207* (JNU); Mureung. Mar. 16, 2013. *M. Kim 130208* (JNU); Seonheul. Jun. 3, 2013. *M. Kim 130213* (JNU).

***D. kiusiana* Miq. 백서향**

**Kyeongnam:** Geojedo Is. Mar. 30, 2013. *M. Kim 130209* (JNU); Geojedo Is. Jun. 8, 2013. *M. Kim 130214* (JNU).

***D. odora* Thunb. 서향**

**Kyeongnam:** Geojedo Is. Mar. 30, 2013. *M. Kim 130210* (JNU).

**Jeonbuk:** Jeonju. Feb. 20, 2013. *M. Kim 130190* (JNU).

***D. genkwa* Siebold & Zucc. 팔꽃나무**

**Jeonbuk:** Byeonsan. Mar. 28, 2013. *M. Kim 130211* (JNU).

***D. pseudomezereum* var. *koreana* (Nakai) Hamaya 두메 닻나무**

**Kangwon:** Mt. Deoghang. Apr. 1, 2013. *M. Kim 130212* (JNU).