

A New Variety of *Geranium* (Geraniaceae) from Korea: *G. koraiense* Nakai var. *hallasanense* B.-J. Woo & S.-J. Park

Bok-Ju Woo and Seon-Joo Park*

Department of Biology, College of Sciences, Yeungnam University, Gyeongsan 712-749, Korea

Abstract A new variety, *Geranium koraiense* var. *hallasanense* B.-J. Woo & S.-J. Park, is described here from Jeju Island, Korea. The new variety is distributed only in Jeju Island, and readily distinguished from the other varieties of *G. koraiense* by its shape of radical leaf division, rounded or undulate petal apex, glabrous petal veins, densely pubescent stems, and stylar portion pubescent with trichomes in basal 1/4 portion. A key to the varieties of *G. koraiense* is provided.

Key words: *Geranium*, *Geranium koraiense* Nakai var. *hallasanense*, new variety, Jeju Island

Geranium L., belongs to the tribe Geranieae of family Geraniaceae (Boissier, 1867; Edgeworth and Hook, 1974; Melchior, 1964), and is distributed in temperate and tropical alpine regions of the world (Lawrence, 1951; Porter, 1959; Willis, 1973). Some taxa are valuable for ornamental and medicinal uses (Thomas, 1960). The genus *Geranium* has been divided into three subgenera, 14 sections, and 20 informal groups (Yeo, 2001); the Korean *Geranium* comprises one section representing five informal groups including *Erianthum*, *Krameri*, *Koreanum*, *Palustre* and *Wilfordii* (Park, 1997).

During the course of a systematic study on the Korean species of *Geranium*, we found a new variety of *G. koraiense* Nakai from Jeju Island, Korea, and describe it here. The new variety, *G. koraiense* var. *hallasanense* B.-J. Woo & S.-J. Park, belongs to *Koreanum* group, and it is distinguished from the typical form by its linear shape of radical leaf lobes, densely pubescent stems, relatively long petals (1.53-1.62 cm long), glabrous petal veins, stylar portion ca. 4.3-4.5 mm long (Table 1, Fig. 1).

*To whom correspondence should be addressed.

Tel: 82-53-810-2377, Fax: 82-53-810-4618

E-mail: sjpark01@yu.ac.kr

G. koraiense Nakai var. *hallasanense* B.-J. Woo & S. Park, var. nov.

Perennis herba. Planta 45.6-48.9 cm longa. Caulis pilis dense. Folia opposita, Stipulae 3.2-4.6 mm longae, 1.8-2.7 mm latae. Peduncululi 82.0-83.8 mm longi. Pedicelli 36.6-39.7 mm longi. Bracteeae lineae lanceolatae. Sepala 11.7-12.0 mm longa, 3.3-4.2 mm lata, mucrone 1.6-2.1 mm longa. Petala 15.3-16.2 mm longa, 11.7-12.2 mm lata, vena trichoma absentia, Stylus pars 3.8-4.3 mm longus, stylus pilis ad 1/4 (Fig. 1).

Korean name: Hal-la-i-jil-pul

Distribution: Korea, Jeju Island

Type: Korea. Jeju Prov., Jeju Island, Jeju City, Ara-1-dong (33° 25' 51.62" N, 126° 33' 28.65" E), August 26, 2004, B.-J. Woo & S.-J. Park 2040816 (holotype, YNUH).

Perennial herbs, 45.6-48.9 cm tall. Roots with compact root stock. Stems strigose, with short rhizomes. Leaves opposite; cauline leaves 3.3-4.9 cm long, 4.0-6.2 cm wide, divided as far as 3/4 into 3 lobes; lobes oblong, each with 3 small teeth; tips of teeth and lobes obtuse; radical leaves 3.4-4.3 cm long, 6.5-7.5 cm wide, divided as far as 1/2 into 7 lobes; lobes similar to those of cauline leaves; petioles decreasing rapidly upwards, 3.9-4.4 mm long in upper cauline leaves, 4.2-6.0 cm long in lower cauline leaves, 16.6-22.8 cm in radical leaves; stipules up to 3.2-4.6 mm long, 1.8-2.7 mm wide, green but becoming brown when mature, pilose, separate. Flowers 2, in cymes, nodding in bud, facing upward at anthesis; peduncles 8.2-8.4 cm long; pedicel 3.7-4.0 cm long; bracteoles 3.9-4.8 mm long, linear lanceolate; sepals 1.17-1.20 cm long, 3.3-4.2 mm wide; sepals 1.6-2.1 mm long, green outside, red inside; petals 1.53-1.62 cm long, 1.17-1.22 mm wide, apex rounded or undulate, base broadly cuneate, purplish pink, veins 5, veins trichome absent, dark purple; outer filaments 6.1-8.3 mm long, inner ones 8.5-9.9 mm long; anthers 2.5-3.3 mm long, 1.1-

Table 1. Comparison of the three varieties of *Geranium koraiense*

Character	var. <i>koraiense</i>	var. <i>chejuense</i>	var. <i>hallasanense</i>
Petal shape	rounded or undulate	cleft (M shape)	round or undulate
Petal length (mm)	10.1-13.7	16.2-21.2	15.3-16.2
Trichome on petal vein	present	absent	absent
Stem trichomes	sparse	dense	dense
Length of stylar portion (mm)	4.0-4.2	5.1-5.3	4.3-4.5
Stylar trichomes	up to 1/4	up to 1/2	up to 1/4
Broadest portion of radical leaf division	end (even overlap)	middle	1/4

2.4 mm wide, dark brown; styles 0.95-1.07 cm long, tomentose at base, stylar portion 4.3-4.5 mm long; stigma 5-cleft; trichomes on the base of stylar portion.

Paratypes: Korea. Jeju Prov., Jeju Island, Jeju City, Ara-1-dong (33° 25' 51.62" N, 126° 33' 28.65" E), August 26, 2004, B.-J. Woo & S.-J. Park 2050858, 2050859 (YNUH).

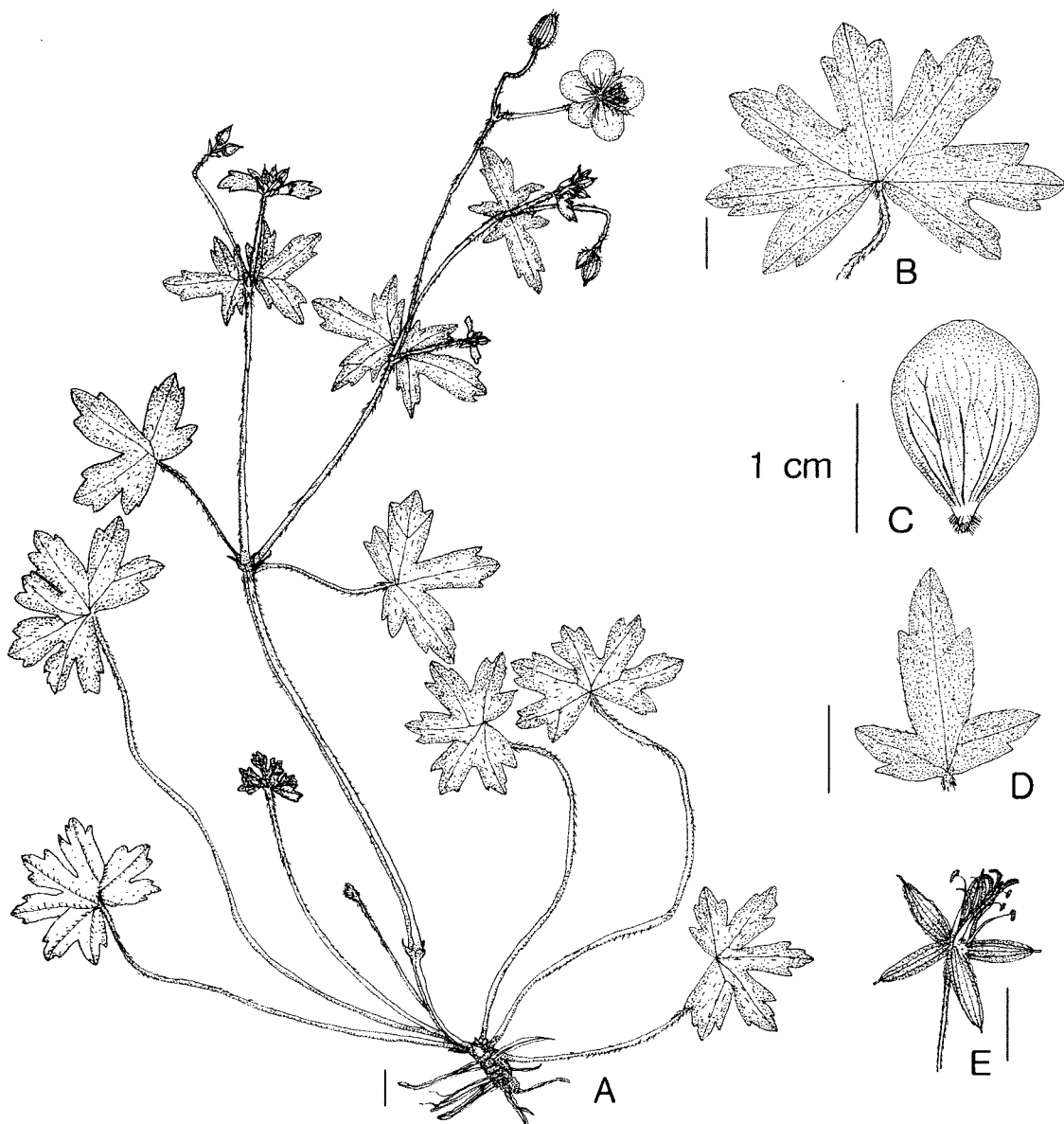


Fig. 1. *Geranium koraiense* Nakai var. *hallasanense* B.-J. Woo & S.-J. Park. A, General habit. B, Radical leaf. C, Petal. D, Upper leaf. E, Flower. Scale bars = 1 cm.

Geranium koraiense var. *hallasanense* is found only in Jeju Island, Korea, in which the population is composed of a few individuals. Vegetation near the habitat of this variety comprises *Agrostis clavata* var. *nukabo* Ohwi, *Oxalis corniculata* L., *Lotus corniculatus* var. *japonicus* Regel and *Setaria viridis* (L.) Beauv.

Geranium koraiense var. *koraiense*, var. *chejuense* S. J. Park & K. J. Kim and var. *hallasanense* are endemic to Korea, and these varieties can be distinguished by the following key.

Key to the varieties of *Geranium koraiense*

1. Radical leaves divided into 7 lobes; petal apex rounded or undulated; stylar trichomes on the basal 1/4 of stylar portion.
 2. Stems sparsely pubescent; radical leaf lobes slightly overlapping; petals 1.0-1.37 cm long; trichomes on petal vein; stylar portion 4.0-4.2 mm long, -----
----- var. *koraiense*
 2. Stems densely pubescent; radical leaf lobes not overlapping; petals 1.53-1.62 cm long; no trichome on petal vein; stylar portion 4.3-4.5 mm long -----
----- var. *hallasanense*
1. Radical leaves divided into 5 lobes; petal apex cleft; stylar trichomes on the basal 1/2 of stylar portion -----
----- var. *chejuense*

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