A new species of Potentilla (Rosaceae): P. gageodoensis M. Kim

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ABSTRACT: A new species, Potentilla gageodoensis M. Kim found in Is. Gageodo, Jeollanamdo Province, Korea, is firstly named and described. This species is similar to its related species P. fragarioides in having several characteristics like pinnately compound leaves, pubescent leaf blades and leaf petioles, different leaflets size, absent stolons, etc., but is distinct from P. fragarioides which has thin leaf textures, 7-13 leaflets, elliptic terminal leaflets, small petal size, and ciliate leaflet margin by having thick leaf textures, 5 leaflets, broadly ovate terminal leaflets, large petal size, and densely white ciliate leaflet margin.

Keywords: Potentilla gageodoensis, P. fragarioides, Rosaceae

Yangzipsok (장미과)의 신종: 가거양지꽃
(Potentilla gageodoensis M. Kim)

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적 요: 전남 가거도에서 양지꽃속의 신종인 가거양지꽃(Potentilla gageodoensis M. Kim)을 새로이 발견하여 기재하였다. 가거양지꽃은 양지꽃속의 동물자식 화가 줄기, 암소엽, 탈원형이고 꽃잎이 흰색, 털이 긴 수 있으며, 잎은 두께가 적어 편평하며, 조각은 모양이 구분된다. 이러한 가거양지꽃은 잎은 두껍고 근생엽이 흔히 5장의 소엽으로 이루어졌으며, 잎의 모양은 광한형이고 꽃잎이 많이 크며, 잎겨미는 가프리오데스와 편평이 털이 짧게 모여 털이 있는 것처럼 보인다. 반면에, 양지꽃은 잎은 작고 근생엽은 흔히 7-13장의 소엽으로 이루어졌으며, 잎겨미는 가프리오데스와 편평이 적게 모여 털이 있는 것처럼 보인다. 편평이 적은 점에서 두 종이 틀림하게 차이가 난다.

주요어: 가거양지꽃, 양지꽃, 장미과

The genus Potentilla L. (Rosaceae) consists of approximately 500 species and is distributed primarily in temperate, arctic, and alpine zones of the Northern Hemisphere (Li et al., 2003). Potentilla are characterized by yellow petals, many stamens, carpels more than 10, and dry fruiting receptacle (Lee, 2007). Seventeen taxa of Potentilla are distributed in Korea (Lee, 2007). Of them, P. fragarioides L. and P. freyniana Bornm occur widely in Korea, while P. palustris (L.) Scop. and P. nivea L. are rather rare and sporadically distributed (Lee, 2006; Heo et al., 2013).

A new species of Potentilla was discovered for the first time in Is. Gageodo, Jeollanamdo Province in Korea. The new species shares several characters with its related species, P. fragarioides L., but it can be distinguished based on leaflet numbers (i.e., 5 (7)), leaf textures (i.e., thick), leaflet margin (i.e., densely white ciliate), petal size (i.e., large), etc. Thus, we named this new taxon as Potentilla gageodoensis M. Kim.

1. Potentilla gageodoensis M. Kim, sp. nov. (Fig. 1, 2, 3) Korean name: Ga-geo-yang-ji-kkot 가거양지꽃

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Herbs perennial. Roots numerous. Basal leaves 20-45 cm including petiole; stipules light-brown, spreading villous; leaf blade pinnately compound with 5 (7) leaflets; leaflets at intervals of 2-5 cm, shortly petiolulate or subsessile, green on both surfaces, broadly ovate, 2.5-8 × 2-6 cm, both surfaces pilose, margins serrate with densely white ciliate but entire near base. Flowering stems 1-3, ascending or spreading, 19-30 cm. Cauline leaves 3 leaflets, ovate, spreading pilose, margin serrate with densely white ciliate. Inflorescence cymose. Flowers 2.5-3.0 cm in diameter. Pedicel 1-3 cm, pilose. Sepals lanceolate, 4.5-5.5 × 1.5-2.5 mm; epicalyx segments oblanceolate, 4.8-5.3 × 1.8-2.3 mm. Petals yellow, obovate, apex emarginate, 0.8-1.1 × 0.6-1.3 cm. Style subterminal, 1 mm. Fruits achene, seeds subreniform, 1.0-1.2 × 0.6-0.8 mm. Fl. May, fr. June.

**Type Locality**: Is. Gageodo, Jeollanamdo Province, Korea.


**Flowering**: May

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**Fig. 1.** Photographs of *Potentilla gageodoensis* M. Kim at type locality. A. Adult plants with flowers; B. Front view of flower; C. Leaf; D. Pistils & Stamens; E. Side view of fruit; F. Seed.

**Fig. 2.** *Potentilla gageodoensis* M. Kim A. Adult plant with flowers; B. Flower; C. Sepals and epicalyx segments; D. Pistil; E. Stamen; F. Fruit; G. Seed; H. Basal leaf.

**Fig. 3.** Holotype of *Potentilla gageodoensis* M. Kim
A new species of Potentilla (Rosaceae): *P. gageodoensis* M. Kim

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### Distribution

southern Korea (Is. Gageodo).

### Etymology

The specific epithet is derived from Is. Gageodo where this new species is located.

### Habitats

A population of *Potentilla gageodoensis* M. Kim was found at woodlands in Is. Gageodo. This new species occurs under trees in forests dominated by *Machilus thunbergii* and *Castanopsis sieboldii*. This species also occurs with other herbaceous species dominated by *Trachelospermum asiaticum*, *Dryopteris erythrosora*, *Lilium lancifolium*, and *Isodon excisus* (Yun et al., 2012).

### Key to Potentilla gageodoensis and its related taxa.

1. Leaves ternately compound
2. Stolons absent ........................................ *P. nivea* 은양지꽃
2. Stolons present ........................................ *P. freyniana* 세잎양지꽃
1. Leaves pinnately compound
3. Leaflets lobed ......................................... *P. chinensis*박지꽃
3. Leaflets serrulate
4. Stolons present ........................................ *P. stolonifera* 제주양지꽃
4. Stolons absent
5. Leaflets lower surfaces glabrescent

6. Leaflets lower surfaces pilose or glaucous
6. Leaflets lower surfaces glaucous

6. Leaflets lower surfaces pilose
7. Leaflets 7-13, leaflet margin ciliate, leaf textures thin, terminal leaflets elliptic, petal length 0.5-0.7 cm ........................................ *P. fragarioides*양지꽃
7. Leaflets 5, leaflet margin densely white ciliate, leaf textures thick, terminal leaflets broadly ovate, petal length 0.8-1.1 cm ........................................ *P. gageodoensis*가거양지꽃

By applying the IUCN Red List criteria (IUCN, 2011), *Potentilla gageodoensis* M. Kim will be evaluated as the category of Endangered (EN) species, because of its small population of four hundred individuals found in Is. Gageodo.

### Acknowledgement

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### Literature Cited


### Table 1. Comparison of some morphological characters between *Potentilla gageodoensis* and its related species *P. fragarioides*.

<table>
<thead>
<tr>
<th>Characters</th>
<th><em>P. gageodoensis</em></th>
<th><em>P. fragarioides</em></th>
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<tr>
<td>Stolons</td>
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<td>Basal leaf length</td>
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<tr>
<td>Petiole color</td>
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</tr>
<tr>
<td>Leaflet numbers</td>
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<tr>
<td>Leaflet shape</td>
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<td>Leaflet width</td>
<td>2-6 cm</td>
<td>1-3 cm</td>
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<tr>
<td>Leaflet margin</td>
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<td>ciliate</td>
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<td>Leaflet hairs</td>
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<td>Flowering stem color</td>
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<td>greenish purple</td>
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<tr>
<td>Cauline leaves</td>
<td>3</td>
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<tr>
<td>Cauline leaves shape</td>
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<td>Flower diameter</td>
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<td>Epicalyx segment shape</td>
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