

## *Corydalis cornupetala* Y.H. Kim et J.H. Jeong: A New Species of *Corydalis* sect. *Corydalis* (Fumariaceae)

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A new species of *Corydalis* sect. *Corydalis* (Fumariaceae), *Corydalis cornupetala* Y.H. Kim et J.H. Jeong is described from Gyeongsan-si, Gyeongsangbuk-do in Korea. This new species is distinguished from the other species of the sect. *Corydalis* by some flower characters such as, purplish white petal with two dark stripes and horn-shaped apex of outer petal. The linear leaflets of *C. cornupetala* are similar to the lineariloba type of *C. remota* Fisch. ex Max. or *C. namdoensis* B.U. Oh et J.G. Kim, but much longer and narrower. The linear or lanceolate bract of *C. cornupetala* is also distinctive from the elliptical shape of *C. remota* and *C. namdoensis*.

Key words: *Corydalis cornupetala*, *Corydalis* sect. *Corydalis*, Fumariaceae, new species

The genus *Corydalis* DC. (Fumariaceae) includes about 300 species of annual and biennial or perennial herbs (Oh *et al.*, 2004). South Korean taxa of the genus *Corydalis* were recently revised, and 18 species representing four sections and four subsections were recognized (Oh, 1999). Since then, three more new species of the section *Corydalis* had been described (Oh and Jang, 2002; Oh *et al.*, 2004; Oh and Choi, 2006). Therefore thirteen species are belonged to the sect. *Corydalis* in Korea, and they are distinguished from other sections by their perennial and solid tuber.

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**Table 1.** Comparison of major morphological characters among three species of *Corydalis* sect. *Corydalis*

Characters		<i>C. cornupetala</i>	<i>C. remota</i> <sup>a</sup>	<i>C. namdoensis</i> <sup>b</sup>
Tuber	width (cm)	1-2.8	1-2	1-2
Squamiform leaf	length (cm)	1-2	1-1.5	0.5-1.7
Leaf	blade shape	ternate to biternate	biternate to triternate	ternate to biternate
	leaflet shape	linear	very variable such as rotundiloba, pectinata, fumariaefolia, lineariloba types	very variable such as rotundiloba, pectinata, fumariaefolia, lineariloba types
	leaflet apex	entire	entire or lobate or parted	entire or lobate or parted
Bract	shape	lanceolate or linear	elliptic	elliptic
	apex	entire	slightly cleft	entire or cleft
	length (cm)	0.4-2.4	0.5-1.3	0.6-1
	width (cm)	0.1-0.4	0.2-0.6	0.2-0.5
Pedicel length (cm)	when flowering	0.5-1.4	0.4-1.9	0.5-1.9
	when fruiting	0.5-1.6	0.6-2.4	1.2-2.3
Flower	color	purplish white or pale purple with two striped pattern on outer petal	very variable blue to red-purple	white or whitish blue
	length (spur, cm)	1.7-2.3 (0.9-1.3)	1.9-2.3 (0.9-1.2)	1.2-1.6 (0.6-0.8)
	apex of lower part of outer petal	horn-shaped	emarginate or retuse	emarginate or retuse
Inflorescence	No. of flowers	6-28	2-12	2-15
Capsule	shape	flattened fusiform	linear, slightly curved	broadly flattened fusiform
	length (cm)	1.1-1.9	1-3.7	1.0-1.2
	width (cm)	0.3-0.5	0.2-0.3	0.5-0.6
Seed	arrangement	in two rows	in one row	in two rows
	length (mm)	1.3-1.8	2.0-2.1	1.8-2.0
	width (mm)	1.5-1.8	1.7-1.8	1.8-2.0

<sup>a</sup>Oh (1999); <sup>b</sup>Oh *et al.* (2004).

We describe *Corydalis cornupetala* Y.H. Kim et J.H. Jeong as a new species which was collected in 2006 from Jain-myeon, Gyeongsan-si, Gyeongsangbuk-do, Korea. This new species is distinguished from the other species of the sect. *Corydalis* by a number of unique characters such as purplish white petal with two dark stripes, and horn-shaped apex of upper and lower part of outer petal. *C. cornupetala* further differs from *C. remota* Fisch. ex Maxim. and *C. namdoensis* B.U. Oh et J.G. Kim, which usually occur together in Gyeongsan area, in some characters: The linear leaflets, one of the specific characters of *C. cornupetala* is much longer and narrower than the lineariloba type of *C. remota* and *C. namdoensis*. Moreover, the lanceolate or linear bract of the new species is distinctive from the elliptical shape of *C. remota* and *C. namdoensis*. The number of flowers on an inflorescence (6-28) of *C. cornupetala* is larger than that of *C. remota* (2-12) and *C. namdoensis* (2-15). The new species has flattened fusiform capsules with two rowed seeds which were described as a common characters of Korean endemic species in the sect. *Corydalis* (Oh, 1999). The characteristic features and differences among three species are summarized in Table 1.

All characteristics described here were measured from more than 50 specimens collected in the flowering season and the fruiting season. Of specimens collected in the flowering season, one was registered as holotype and 13 as isotypes. Eleven of specimens collected in the fruiting season were registered as paratypes. In total, 25 specimens are kept in Korea National Arboretum.

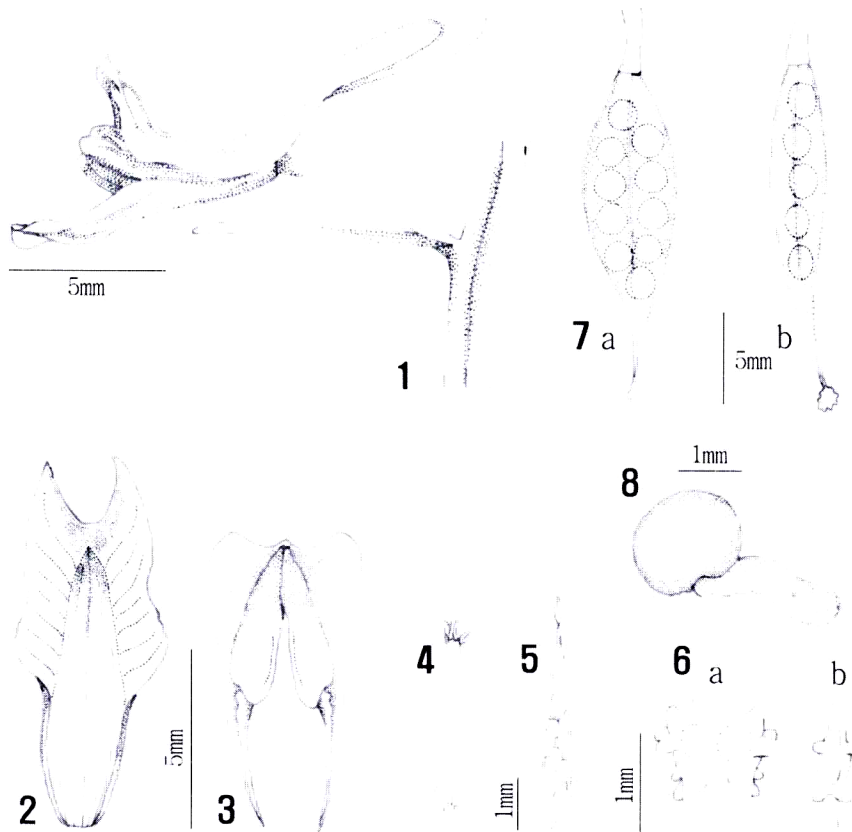
*Corydalis cornupetala* Y.H. Kim et J.H. Jeong, sp. nov. (Figs. 1 and 2)

Holotype: Korea. Gyeongsangbuk-do Province, Gyeongsan-si, Jain-myeon, Seobu-ri, 35°48'50"N, 128°49'15"E, 26 Mar. 2006, KHB1124435 (KH)

Isotypes: KHB1124436 to KHB1124447, KHB1124459 (KH)

Paratypes: KHB1124448 to KHB1124458 (KH)

Perennis, crescens et florens ab mense Martio usque ad mensem Aprilem, glabra. Rhizoma 0.7-9.1 cm longa, tubere sphaerico, 1-2.8 cm diam., colore facie interiori alba. Cataphyllum squamiforme singulum, 1-2 cm longum. Caules 1-5, e basi cataphylli exeuntes, 11-24 cm longi, 0.9-2.3 mm diam., fere teretes cross section. Folia caulina 2, petiolata; petiolis 0.2-2.5 cm longis; laminis 6-15 cm longis, ternatis usque biternatis; foliola integra, linearis, 2-12 cm longis, 0.1-0.5 cm latis. Inflorescentia terminalis, racema, floribus 6-28, florens ab mense Martio usque ad mensem Aprilem; bractae anguste lanceolatus aut linearis, 0.4-2.4 cm



**Fig. 1.** *Corydalis cornupetala* Y.H. Kim et J.H. Jeong. 1. Flower and bract, 2. Lower part of outer petal showing horn-shaped apex, 3. Inner petal with retuse apex, 4. Membraneous filament and anther, 5. Ovary and ovule arrangement, 6. Shape of stigma (a: front view, b: lateral view), 7. Fusiform capsule and seed arrangement (a: front view, b: lateral view), 8. Carunculate seed.

longae, 0.1-0.4 cm latae, integro, puncto adjunctis bracteae maximae; pedicellus floralis 0.5-1.4 cm, fructifer 0.5-1.6 cm longus. Flores purpurei albi, 1.7-2.3 cm longi; calcar 0.9-1.3 cm longo; petalo interiore apice retusus; parte inferiore folii externi forma cornu bovis



spherical, 1-2.8 cm in diam., inside color of tuber white. Squamiform leaf 1, 1-2 cm long. Stems 1-5 originated from base of squamiform leaf, 11-24 cm long, 0.9-2.3 mm in diam., nearly circular in cross section. Cauline leaves 2, petiolate; petioles 0.2-2.5 cm long; blade 6-15 cm long, ternate to biternate; leaflets entire, linear, 2-12 cm long, 0.1-0.5 cm wide. Inflorescences terminal, racemes, 6-28 flowered, flowering from March to early April; bracts lanceolate or linear, 0.4-2.4 cm long, 0.1-0.4 cm wide, entire, proximal bract largest; pedicels 0.5-1.4 cm long when flowering, 0.5-1.6 cm long when fruiting. Flowers purplish white, 1.7-2.3 cm long; spur 0.9-1.3 cm long; inner petal retuse at apex; lower part of outer petal horn-shaped at apex and usually constricted in the middle; stigma with 14 papillae. Fruits capsule, flat fusiform, 1.1-1.9 cm long, 0.3-0.5 cm wide. Seed flat, spherical, glossy, 1.3-1.8 mm long, 1.5-1.8 mm wide, arranged nearly in two rows in a capsule, caruncle twice as long as seed.

Korean name: 쇠뿔현호색 (Soe-ppul-hyeon-ho-saek)

*Corydalis cornupetala* occurs in two small separated sites in Gyeongsan-si, Gyeongsangbuk-do. It grows under the natural mixed stands of broad leaved trees. Other two *Corydalis* species, *C. remota* and *C. namdoensis*, which usually grow together in Gyeongsan area, are not found in these two sites of *C. cornupetala*. The habitat condition of *C. cornupetala* seems to different from that of *C. remota* and *C. namdoensis*. The new species prefers somewhat sunny and dry sites on the edge of the woods. On the other hand, the two species usually grow on wet sites near the valley in the forests. *Corydalis cornupetala* can be distinguished from *C. remota* and *C. namdoensis* by the following key.

### Key to the three species of *Corydalis* sect. *Corydalis*

1. Capsules linear, seed arranged in one row ----- *C. remota*
1. Capsules flattened fusiform, seed arranged in two rows ----- 2
  2. Outer petals (esp. lower part) horn-shaped apex, purplish white with two dark stripes; leaflets lineariloba type; bract lanceolate or linear; flowers 1.7-2.3 cm long, stigma with 14 papillae, the number of flowers 6-28 ----- *C. cornupetala*
  2. Outer petals retuse or emarginate, white or whitish blue; leaflets very variable such as rotundiloba, pectinata, fumariaefolia and lineariloba types; bract elliptic; flowers 1.2-1.6 cm long, stigma with 12 papillae, the number of flowers 2-15 ----- *C. namdoensis*

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## 쇠뿔현호색: 현호색속 현호색절의 1신종

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현호색과 현호색속 현호색절 1신종인 쇠뿔현호색이 한국의 경상북도 경산시에서 발견되어 기재되었다. 신종은 꽃의 색과 형태에서 다른 현호색속 현호색절에 속하는 종들과 뚜렷이 구별되는데, 꽃 색은 자줏빛이 도는 흰색이고, 위아래 외화판에 짙은 자주색 두 줄 무늬가 있으며, 아래 외화판 선단 모양이 쇠뿔형이다. 소엽은 선형으로 남도현호색 또는 현호색의 댓잎형 잎과 비슷하나 보다 좁고 길다. 포는 선형 또는 피침형으로 현호색과 남도현호색의 타원형과 구분된다.

주요어: 현호색과, 현호색속 현호색절, 신종, 쇠뿔현호색

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