

## *Arisaema thunbergii* subsp. *geomundoense* S.C.Ko (Araceae), a new subspecies from Korea

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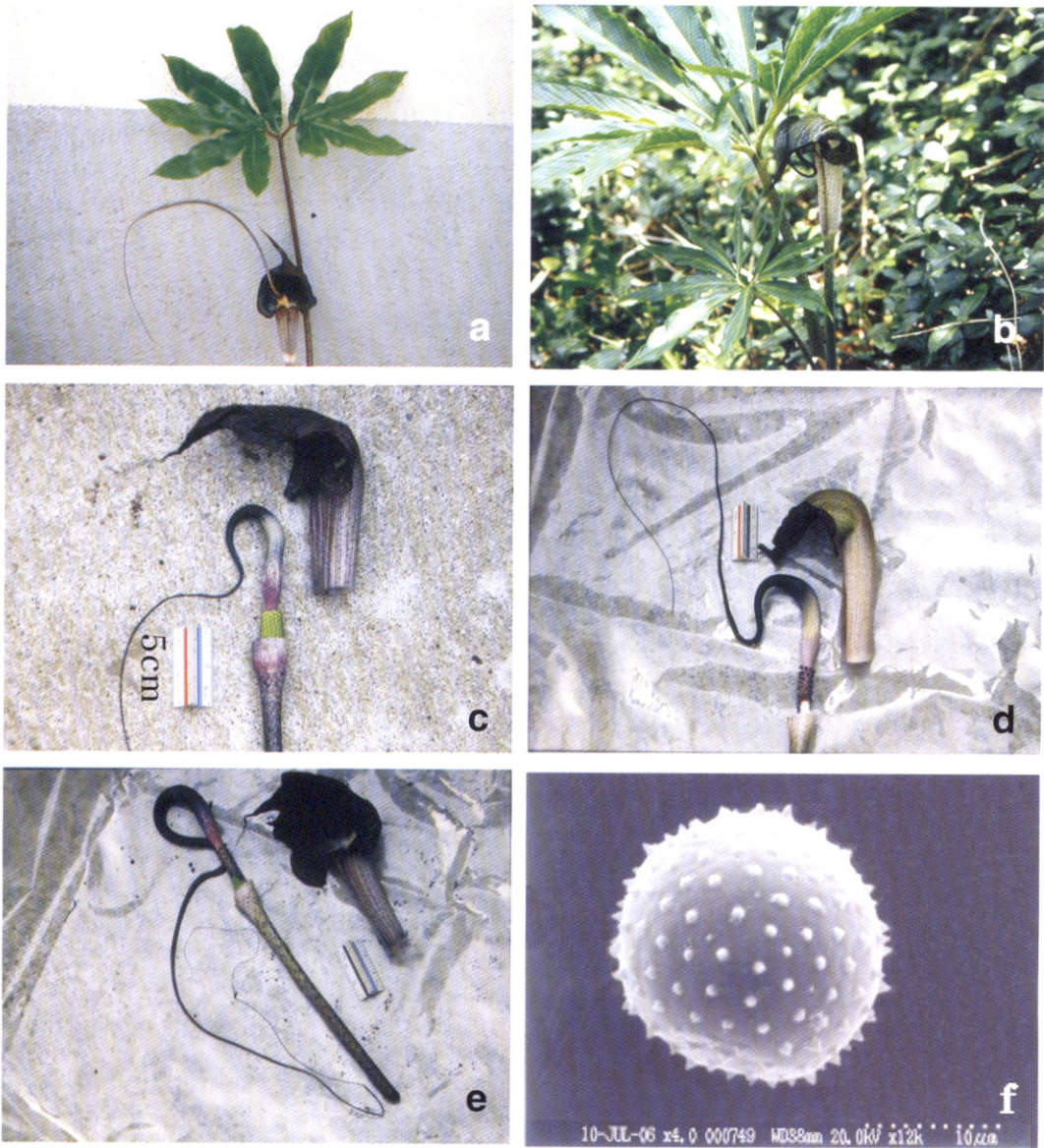
*Arisaema thunbergii* subsp. *geomundoense*, a new taxon in *Arisaema* sect. *Tortuosa* subsect. *Flagellarisaema* (Araceae), from Isl. Geomun-do, Dadohae National Park, Korea, is described. It is distinct from subsp. *thunbergii* in having bright purple enlargement at the base of spadix appendage, and in having wrinkled enlargement at the base of spadix appendage from subsp. *urashima*.

Key words: *Arisaema*, sect. *Tortuosa*, subsect. *Flagellarisaema*, *Arisaema thunbergii* subsp. *geomundoense*, new subspecies

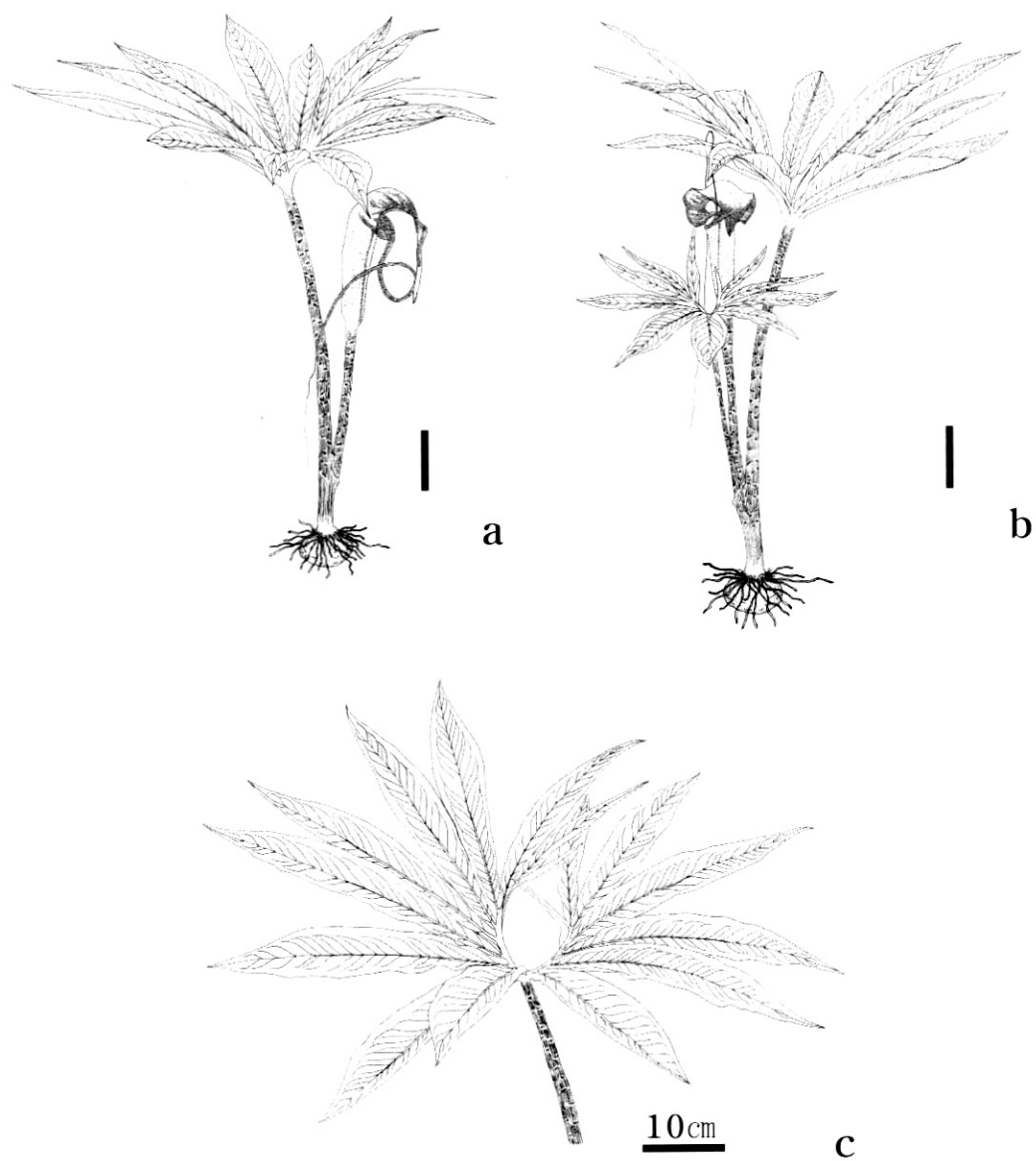
Murata (1984, 1990) divided sect. *Tortuosa* Engler in the genus *Arisaema* into two subsections, subsect. *Tortuosa* and *Flagellarisaema*. Within sect. *Tortuosa*, two species, *A. thunbergii* in the subsect. *Flagellarisaema* and *A. heterophyllum* in the subsect. *Tortuosa*, have been reported from Korea (Lee, 1980, 2003; Lee, 1996). *Arisaema thunbergii* subsp. *thunbergii* in Korea shows such diagnostic characters as one leaf, and creamy white and wrinkled enlargement at the base of spadix appendage (Fig. 1, a), while subsp. *urashima*, distributed only in Japan, has one, rarely two leaves, and dark purple and smooth enlargement at the base of spadix appendage. During field researches on Isl. Geomun-do of Dadohae National Park, Korea in 1986 (Ko *et al.*, 1987) and 2006, however, we found individuals of *A. thunbergii* with one or two leaves, and dark to bright purple and wrinkled enlargement at the base of spadix appendage. After a considerable comparative study on the specimens of subsect. *Flagellarisaema*, we concluded those individuals should be named a new subspecies. Here we described them

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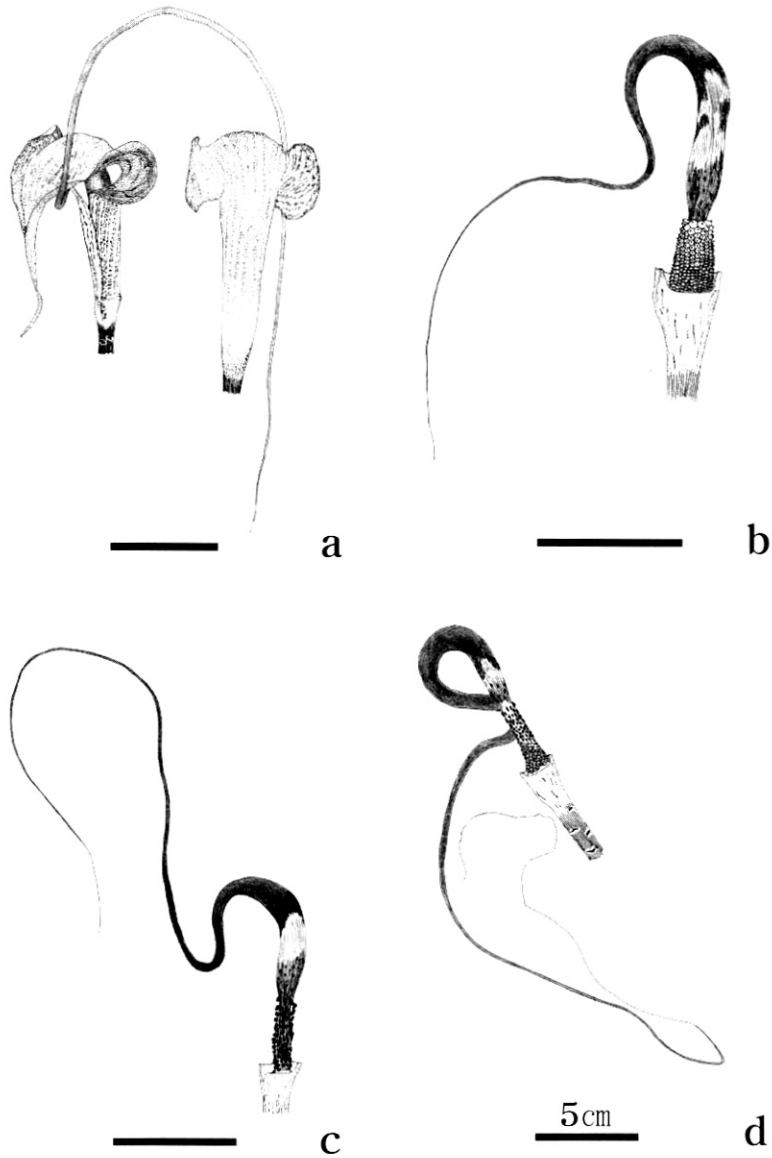
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**Fig. 1.** Photographs of *Arisaema thunbergii*: a, habit of subsp. *thunbergii*; b-f, subsp. *geomundoense*—(b) habit, (c) pistillate flower, (d) staminate flower, (e) monoecious flower (above ♂, below ♀), (f) pollen grain.



**Fig. 2.** Drawings of *Arisaema thunbergii* subsp. *geomundoense*: a, habit of one-leaved plant; b, habit of two-leaved plant; c, leaflets arrangement.



**Fig. 3.** Drawings of *Arisaema thunbergii* subsp. *geomundoense*: a, spathe and spadix appendage; b-d, inflorescence and spadix appendage—(b) pistillate flower, (c) staminate flower, (d) monoecious flower (above ♂, below ♀).

as a new subspecies of *A. thunbergii*.

***Arisaema thunbergii*** Blume subsp. ***geomundoense*** S.C.Ko, subsp. nov. (Fig. 1, b–f; Fig. 2, a–c; Fig. 3, a–d).

Type: Korea. Jeollanam-do, Yeosu-si, Samsan-myun, Dongdo-ri, Isl. Daesambu-do, slope under the forest of *Camellia* tree, alt. 60–80 m, 23 Apr. 2006, S.C.Ko, 00040934 (Holotype: HNHM; Isotypes: HNHM [6 sheets]).

Herba, dioicum, vel rarus monoicum, 25–100 cm alta; foliis 1–2, petiolis; foliis 9–18 pedatisecta, lanceolatis–linearia, finis alteruter dumtaxat largus decresco alius finitimus excipio alteruters; spathae appendix propagatio fusco–inlustro purpureus, pannuceus.

Herbs, dioecious, rarely monoecious, 25–100 cm high. Tuber globose, depressed. Leaves alternate, 1 or 2, petiolate, pedately segmented; petiole nearly erect, terete, 28–60 cm long; leaflets 9–18, lanceolate to linear, acuminate at apex, 10–50 cm long and 3–10 cm wide in the terminal one, 5–40 cm long and 1–10 cm wide in the lateral ones. Peduncle solitary, 8–30 cm long. Spathe ovate, apiculate with long tapering and arching over the spadix at apex, revolute outward at margin, dark purple with greenish veins inside; spathe tube 9–12 cm long, 3.5–6.0 cm in diameter, whitish purple with purplish stripes and spots. Spadix with unisexual flowers, rarely with both staminate and pistillate flowers on the same spadix, staminate flower part above and pistillate flower part below; spadix appendage whip-shaped, 30–60 cm long, dark to greenish purple; enlargement at the base of spadix appendage 4–10 cm long, 5–20 mm wide, wrinkled, dark to bright purple. Fruit a berry; seeds ovoid–globose.

Korean name: 거문천남성 (Geo-mun-cheon-nam-seong)

Flowering: Apr. to May

Distribution: Korea. Jeju-do: Mt. Halla-san; Jeollanam-do: Isl. Geomun-do.

Paratypes: Korea. Jeollanam-do, Yeosu-si, Samsan-myun, Dukchon-ri, Mt. Su-wol, slope under the forest of *Camellia* tree, alt. 100–150 m, 22 Apr. 2006, S. C. Ko, 00040935 (HNHM [5 sheets]).

*Arisaema thunbergii* subsp. *geomundoense* is different from subsp. *thunbergii* and subsp. *urashima* in the color and the presence/absence of wrinkles on enlargement at the base of spadix appendage (Table 1; Fig. 1, a–e; Fig. 3, a–d). Its pollen surface is smooth between spinules, which is one of diagnostic characteristics of the subsect. *Flagellarisaema* (Fig. 1, f; Ohashi *et al.*, 1983; Oh *et al.*, 1990; Murata, 1990). The

difference in sexuality among them is influenced by nutritional condition in the previous year (Hara, 1971). However, in Korea, the new taxon was frequently misidentified as

**Table 1.** Diagnostic characters among the subspecies of *A. thunbergii* in the subsect. *Flagellarisaema*

Taxa	Characters	Sculpture between spinules of pollen grain	Enlargement at the base of spadix appendage		Sexuality
			Color	Wrinkle	
subsp. <i>thunbergii</i>		smooth	white creamy	wrinkled	dioecious
subsp. <i>urashima</i>		smooth	dark purple	smooth	dioecious
subsp. <i>geomundoense</i>		smooth	dark to bright purple	wrinkled	dioecious

either *A. negishii* (Lee, 2003) which is usually placed in different section (sect. *Clavata*) or *A. thunbergii* subsp. *urashima* (Lee, 1996), both of which do not distribute in Korea.

The key to the subspecies of *A. thunbergii* is generated by modifying that of Murata (1990).

### Key to the subspecies in *Arisaema thunbergii* Blume

1. Leaf one. Enlargement at the base of spadix appendage creamy white -----  
----- subsp. *thunbergii*
1. Leaf one rarely two. Enlargement at the base of spadix appendage dark to bright purple ----- 2
2. Enlargement at the base of spadix appendage smooth ----- subsp. *urashima*
2. Enlargement at the base of spadix appendage wrinkled -----  
----- subsp. *geomundoense*

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## 한국산 천남성속 두루미천남성절의 1 신아종(천남성과), 거문천남성

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다도해해상국립공원에 속한 거문도에서 천남성속, 두루미천남성절, 무늬천남성아절에 해당되는 1 신아종인 거문천남성(*Arisaema thunbergii* subsp. *geomundoense* S.C. Ko)을 기재 및 도해하였다. 화수부속체 기부 비후부의 색깔이 진한 자색 또는 적자색인 것이 기본종인 무늬천남성(*A. thunbergii* subsp. *thunbergii*)과 다르고, 비후부에 주름이 있는 것이 일본에 자생하고 있는 비후부가 평활한 *A. thunbergii* subsp. *urashima*와 다르다.

주요어: 천남성속, 두루미천남성절, 무늬천남성아절, 거문천남성, 신아종

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