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SHORT COMMUNICATION

Portrayal of *Allium spurium* G. Don (Amaryllidaceae) from the border area of China and North Korea: a putative unrecorded species in the Korean Peninsula

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ABSTRACT

Here I report a little-known *Allium* species from the border area of China and North Korea. This taxon, *A. spurium* G. Don is occasionally confused with *A. spirale* Willd. because of its more or less similar growth habit, but the most distinctive characters include narrower leaf blades and rhomboid scapes in cross-section. In addition, *A. spurium* is recognized as tetraploid species, whereas *A. spirale* proved to be diploid. Detailed photographs of *A. spurium* are provided together with complete descriptions including information on nomenclatural types, synonymy, distributions and specimens examined.

Keywords: Amaryllidace, *Allium spurium*, chromosome number, morphology, north-eastern China

РЕЗЮМЕ

Чои Х.Д. *Allium spurium* G. Don (Amaryllidaceae) из пограничной области Китая и Северной Кореи: предполагаемый неучтенный вид на Корейском полуострове. Сообщается о находке малоизвестного вида *Allium* из приграничной области Китая и Северной Кореи. Вид лука *Allium spurium* G. Don иногда ошибочно принимают за *Allium spirale* Willd. из-за похожего габитуса, не принимая во внимание его отличительные признаки, такие как узкие листовые пластинки и ромбовидный стебель в поперечном сечении. Кроме того, *A. spurium* – тетраплоид, тогда как *Allium spirale* – диплоид. В сообщении представлены фотографии органов *A. spurium* высокого разрешения и его полное описание, а также информация о номенклатурных типах, синонимах, распространении и исследуемых образцах.

Ключевые слова: Amaryllidace, *Allium spurium*, число хромосом, морфология, северо-восточный Китай

The genus *Allium* (Amaryllidacea) in Korea and north-eastern China has been recently revised by Choi & Oh (2011). Compared with the Flora of China (Xu & Kamelin 2000), however, about ten taxa reported occurring in the north-eastern Chinese provinces of Heilongjiang, Jilin and Liaoning were excluded in Choi & Oh (2011) because of inadequate material seen in the field or in herbaria. During my visit to the Korea National Herbarium (KH) I had re-examined all *Allium* collections including living plants. As a result, I newly identified another little-known *Allium* species from the north-eastern China in addition to Choi & Oh (2011). This taxon, *A. spurium* G. Don, is a member of sect. *Rhizirideum* G. Don ex Koch., and known to occur from Mongolia to Russian Far East passing through north-eastern China (Xu & Kamelin 2000). Although *A. spurium* is not reported in the Korean Peninsula up to the present, I expect this taxon to grow in the Korean Peninsula also as the collection sites for the materials examined are located the border area of China (Province Jilin) and North Korea (Fig. 1). Detailed photographs of *A. spurium* are provided together with complete descriptions including information on nomenclatural types, synonymy, chromosome number,

Figure 1 Collection sites (black circles) of *Allium spurium* examined in this study

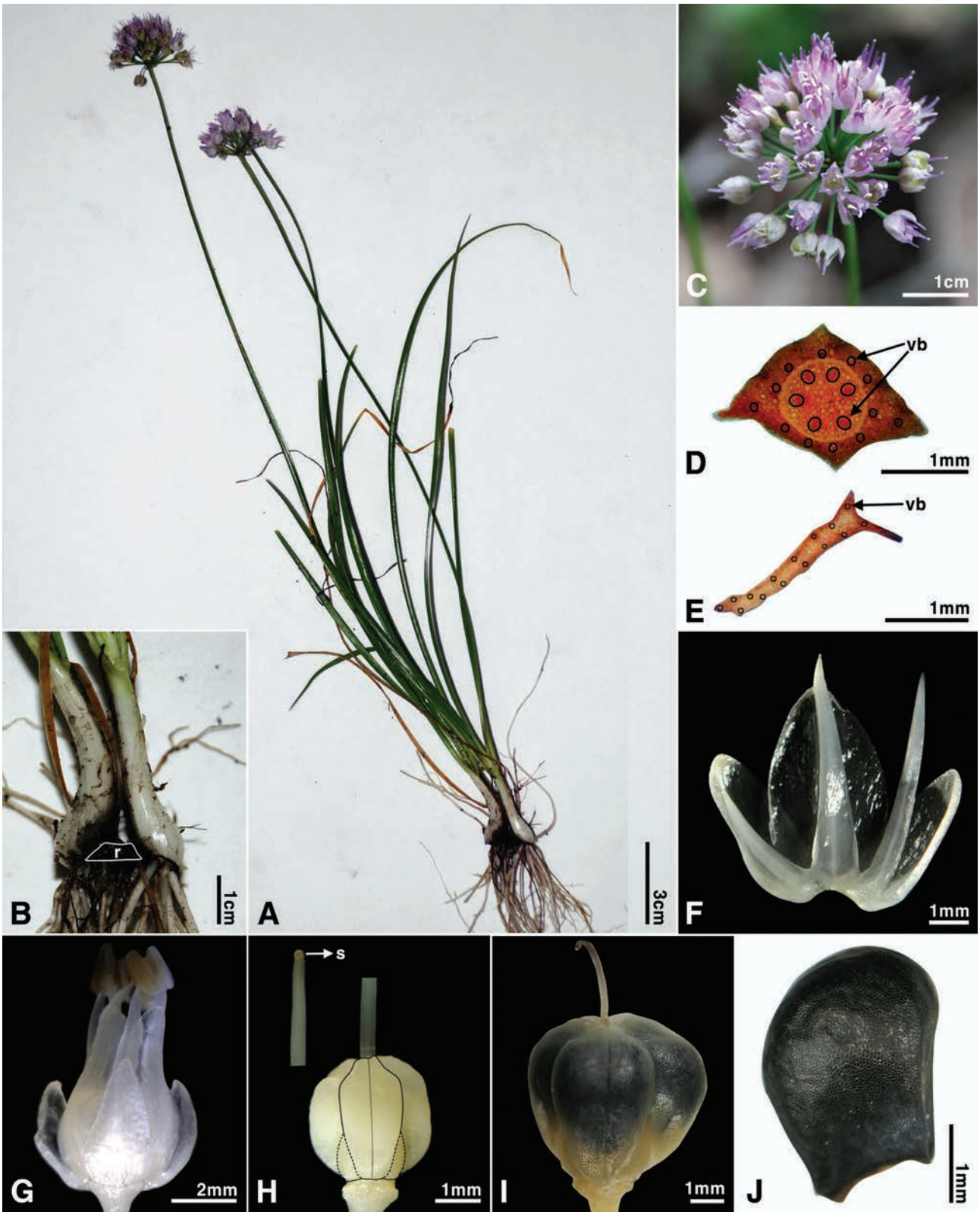

Figure 2 *Allium spurium*. A. Habit; B. Underground structure (r: rhizome); C. Inflorescence; D. Shape of scape in cross section (vb: vascular bundles); E. Shape of leaf in cross section (vb: vascular bundle); F. Tepal and filament arrangement; G. Flower; H. Pistil (s; stigma); I. Capsule; J. Seed.

distributions and specimens examined. Also, a key to species of *Allium* sect. *Rhizirideum* in Korea and north-eastern China are complemented from Choi & Oh (2011). Methodology for morphological and cytological characters in this study followed Choi & Oh (2011).

Taxonomic treatment

***Allium spurium* G. Don**, *Mem. Wern. Nat. Hist. Soc.* 6: 59, 1827 (Fig. 2).

Type: Siberia (location in doubt). Type specimen not designated (protologue).

= *A. saxicola* Kitag., *Rep. Inst. Sci. Res. Manch.* 2: 288, 1938. Type: China. Prov. Fengtien (Liaoning), in lapidosis circa Laohutan, 30 Aug. 1930, *M. Kitagawa s.n.* (holotype: TI).

= *A. dauricum* N. Friesen, *Fl. Sibir. (Arac.-Orchidac.)*: 58, 1987. Type: Russia. Transbaicalia Orientalis, pagum Kyra, in valle fluvii Bukukun, in prato substepposo, 31 Aug. 1964, *G. Peschkova* et *L. Ovczinnicova s.n.* (holotype: LE!; isotype: NSK).

Description: Herbs hermaphroditic. Rhizomes horizontally elongated, thick (up to 5 mm), 5–20 mm long. Bulbs usually paired, cylindrically conical, without bulbels, 5–15 mm in diam.; tunics membranous, smooth, whitish gray. Leaves 2–8; leaf sheaths not exposed above ground, 2–4 cm high, non-striped; leaf blades ascending, straight, flat, papery, usually glossy, narrowly linear, 15–30 cm × 1.5–4 mm, with 2 rows of vascular bundles and solid in cross-section, acute to gradually attenuate at apex. Scapes drooping before flowering, rhomboid and solid in cross-section, 10–40 cm × 1.5–2.5 mm. Inflorescences umbellate, hemigolbose, 20–40 × 25–45 mm, 22–55 flowered; pedicels terete, subequal in length, 6–15 mm long, thinner than the scapes; bracts 3–5 mm long. Flowers bisexual; perianth campanulate, pinkish to reddish violet; inner tepals longer than outer ones, ovately elliptical, obtuse at apex, 5–5.5 × 2–3.2 mm; outer tepals ovately elliptical, obtuse at apex, 4–4.2 × 2–2.3 mm; filaments exserted, 4–8 mm long, entire at margin; anthers elliptical, reddish, 1.7–2 mm long; ovary obovoid, reddish green, without appendages, 2.5–3 × 2.2–2.5 mm, ovules 2 per locule; style terete, exserted; stigma smooth to slightly capitate. Capsules cordiform, trigonous, 4.8–5.1 × 4.5–5 mm. Seeds oval, semi-circular in cross-section, 2.8–3.2 × 2–2.3 mm.

Chromosome number: 2n = 32 (Fig. 3; Friesen 1987; Xu & Kamelin 2000).

Figure 3 Somatic chromosomes of *Allium spurium*

Distribution and habitat: Russia (Far East), Mongolia, northeastern China (Heilongjiang; Jilin; Liaoning; Nei Mongol). In meadows, steppes, and dry slopes of mountains.

Phenology: Flowering from July to August.

Notes: *Allium spurium* is occasionally confused with *A. spirale* Willd. because of its more or less similar growth habit, but the most distinctive characters include narrower leaf blades (Fig. 2A, 2E) and rhomboid scapes in cross-section (Fig. 2D). In addition, *A. spurium* is recognized as tetraploid (2n=4x=32) species (Fig. 3; Friesen 1987; Xu & Kamelin 2000), whereas *A. spirale* proved to be diploid (2n=2x=16; Choi & Oh 2010).

Specimens examined: CHINA: JILIN – Helong, 8 Sep. 2007, H.J. Choi s.n. (KH); Helong, 9 Sep. 2007, H.J. Choi s.n. (KH).

Key to the species of *Allium* sect. *Rhizirideum* in north-eastern China and Korea

1. Leaf sheaths buried under ground; leaf blades leathery, lustrous; perianths campanulate; inner tepals ovate-elliptical; inner filaments entire at margin.

2. Leaf blades 1.5–4 mm wide; scapes rhomboid in cross-section (2n=32) ..... *A. spurium*

2. Leaf blades 4–10 mm wide; scapes clearly flattened-winged in cross-section (2n=16) ..... *A. spirale*

1. Leaf sheaths exposed above ground; leaf blades fleshy, glaucous; perianths radially spreading; inner tepals elliptical; inner filaments entire or toothed at margin.

3. Leaf blades 2.8–4.5 mm wide; scapes subterete in cross-section, 11.7–20.5 mm long; inner tepals 3.5–4.7 mm long, 1–1.8 mm wide; outer tepals 3.4–4 mm long, 0.8–1.2 mm wide; filaments non-exserted, 3.8–4.8 mm long; capsules 3.5–3.7 mm long, 3.6–4 mm wide; seeds 2–2.2 mm long, 1.3–1.5 mm wide; flowering from May to August (2n=16) ... . *A. minus*

3. Leaf blades 3.8–15 mm wide; scapes subterete to rhomboid in cross-section, 23.4–70 mm long; inner tepals 6–7 mm long, 2.5–3.5 mm wide; outer tepals 4.5–5.5 mm long, 2–2.7 mm wide; filaments exserted, 6.2–11.0 mm long; capsules 4.5–5.6 mm long, 4.5–5.8 mm wide; seeds 3–3.8 mm long, 2.2–2.6 mm wide; flowering from August to October (2n=32).

4. Rhizomes oblique; pedicels not slender; perianths reddish pink; inner filaments narrowly triangular, entire at margin; inner tepals 3–3.4 mm wide; anthers reddish; ovaries 3–3.5 mm wide ..... *A. senescens*

4. Rhizomes horizontal; pedicels slender; perianths pale pink; inner filaments subulate, entire or 2-toothed at margin; inner tepals 2.5–3 mm wide; anthers yellowish; ovaries 2.2–2.6 mm wide ..... *A. pseudosenescens*

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