**Tobata-ayame: A New Variety of Iris sanguinea Hornem. from Northern Kyushu, Japan**

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**Abstract**  
*Iris sanguinea* Hornem. var. *tobataensis* S. Akiyama & Iwashina (Iridaceae), a dwarf plant with large flowers (5–7 cm across), from northern Kyushu, is described as new.

**Key words:** extinct plant, *Iris sanguinea* var. *tobataensis*, new *Iris*, threatened plant.

An undescribed species of *Iris*, known locally as “Tobata-ayame” or “Kozomino-no-ko-kakitsubata” occurs in Tobata, Kitakyushu City, Fukuoka Pref., northern Kyushu. As early as 1875 this *Iris* was reported to grow in Kozomino, Fukuoka Pref., and at that time was called “Kokakitsubata” (Anonymous, 1875). According to the homepage of the city of Kitakyushu (http://www.city.kitakyushu.jp), wild populations of this *Iris* have been completely lost, although it has been maintained under cultivation. The reason that it is undescribed appears to be due to its misidentification as *Iris rossii* Baker. Although Tobata in Kitakyushu City is listed as one of the localities for *I. rossii* (Otaki, 1989), *I. rossii* has not been reported from there, but recently we have become aware of a plant called “Tobata-ayame” which is similar to *I. sanguinea* Hornem., but easily distinguished from var. *sanguinea* by its shorter stature, 10–15 cm tall, at flowering time (Kimura, 2005).

Two dwarf species of *Iris* are known from Japan, *I. rossii*, with flowers 3.5–4 cm across, and *I. gracilipes* A. Gray, with flowers ca. 4 cm across. These two species are easily distinguished by the presence or absence of a crest-like appendage on the outer perianth segments. *Iris rossii*, occurring in Japan, Korea and China, has flowers ca. 3.5–4 cm across without crest-like appendages. In Japan the range of *I. rossii* is disjunct and limited; the site of most of its occurrences are preserved as natural monuments (Satake, 1982; Otaki, 1989). Tobata-ayame resembles *I. rossii* in its dwarf stature and in the outer perianth segments without a crest-like appendage, but differs from the latter in having larger flowers, 5–7 cm across.

Although *Iris sanguinea* Hornem. (var. *sanguinea* Hornem. and var. *yixingensis* Y. T. Zhao) is a medium sized species, the color and shape of the flowers of Tobata-ayame are indistinguishable from that species. It is also noticeable that a dwarf cultivar ‘Pumila’ is known in *I. sanguinea* (Ohashi et al., 2008). ‘Pumila’, Chabo-ayame in Japanese, also called *I. nertscinskia* Lodd. var. *pumila* Makino (Ishii, 1949; Tuyama, 1951) or *I. sanguinea* var. *pumila* (Makino) Tomino (Tomino, 1980; Otaki, 1989), is characterized by its dwarf stature and flowers nearly as tall as the its leaves. In Tobata-ayame the flowering stems are conspicuously shorter (2–3 cm) than the leaves and the leaves are apparently narrower and shorter (10–25 cm × 3–5 mm) than in var. *sanguinea*, var. *yixingensis*, and cultivar ‘Pumila’. In a study of the flower and leaf flavonoids using high performance liquid chromatography, Mizuno and Iwashina found the flavonoid composition of the *Iris* from Tobata to be different from the flavonoids of *I. sanguinea* var. *sanguinea* (Mizuno and Iwashina, unpublished data).

In China and Korea there are several species of
Table 1. Comparison among *Iris sanguinea*, including a new variety, *I. rossii*, *I. gracilipes*, *I. ruthenica*, *I. quinghainica* and *I. loczyi*

<table>
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<tbody>
<tr>
<td>Leaves</td>
<td>linear, 1 (or 2) vein distinct, 10–25 cm long, 3–5 mm wide</td>
<td>linear, midvein indistinct, 30–50 cm long, 5–10 mm wide</td>
<td>linear, 30–50 cm long, 2–4 mm wide</td>
<td>linear, 2(–4) veins distinct, 4–20 cm long, 2–6 mm wide</td>
<td>linear, 3–5 veins distinct, 7–25 cm long, 1–3 mm wide</td>
<td>linear, midvein absent, 5–25 cm long</td>
<td>linear, midvein absent 20–40 cm long, 3 mm wide</td>
</tr>
<tr>
<td>Flowering stem</td>
<td>2–3 cm, 2- or 3-leaved, 2-flowered</td>
<td>30–60 cm, 2–4-leaved, 2- or 3-flowered</td>
<td>40–60 mm, 1- or 2-leaved, 1- or 2-flowered</td>
<td>5–15 cm, 1–3-leaved, 1-flowered</td>
<td>2–20 cm, 2- or 3-leaved, 1-flowered</td>
<td>2–3 mm wide not emerging above ground, 1- or 2-flowered</td>
<td>not or only slightly emerging above ground, 1- or 2-flowered</td>
</tr>
<tr>
<td>Spathes</td>
<td>2, whitish, ca. 2 cm × ca. 8 mm</td>
<td>2, green, 4–7 cm × 10–15 mm</td>
<td>2 or 3, reddish brown on outer side, bluish white on inner, 6–7 cm × 7–9 mm</td>
<td>2, green, 4–7 cm × 5–8 mm</td>
<td>2, green, reddish purple at margins, 2–3.5 cm × 8–10 mm</td>
<td>3, green, 6–10 × 6–18 mm</td>
<td>3, 10–15 × ca. 15 mm</td>
</tr>
<tr>
<td>Flower color</td>
<td>Purple, but sometimes pale purple or white</td>
<td>purple</td>
<td>blue-purple to violet</td>
<td>violet</td>
<td>violet</td>
<td>violet</td>
<td>pale violet</td>
</tr>
<tr>
<td>Flower size</td>
<td>5–7 cm</td>
<td>7–10 cm</td>
<td>5.5–6 cm</td>
<td>5–5.5 cm</td>
<td>4.5–5 cm</td>
<td>5.5–7 cm</td>
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<tr>
<td>Perianth tube</td>
<td>ca. 8 mm</td>
<td>ca. 8 mm</td>
<td>very short</td>
<td>4–6 cm</td>
<td>5–15 mm</td>
<td>3–6 cm</td>
<td>to 14 cm</td>
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<tr>
<td>Limb of outer segments</td>
<td>obovate, ca. 3.5 cm × ca. 16 mm</td>
<td>widely obovate, 3.5–5 cm × 2.5–3.5 cm</td>
<td>widely obovate, ca. 3 cm</td>
<td>narrowly obovate, ca. 3 cm</td>
<td>narrowly obovate, 3–3.5 cm × 5–8 mm</td>
<td>narrowly obovate or narrowly obovate, ca. 6 cm × 1–2 cm</td>
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<tr>
<td>Inner segments</td>
<td>erect, elliptic-oblongolate, ca. 2.5 cm</td>
<td>erect, elliptic-oblongolate, 3–5 cm</td>
<td>erect, oblong, ca. 2 cm</td>
<td>erect, narrowly obovate, ca. 2.5 cm</td>
<td>narrowly obovate, ca. 3 cm</td>
<td>narrowly obovate, 4.5–5 cm</td>
<td></td>
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<tr>
<td>Stamens</td>
<td>ca. 2 cm</td>
<td>ca. 1.5 cm</td>
<td>ca. 2.5 cm</td>
<td>ca. 1.8–2 cm</td>
<td>ca. 2.5 cm</td>
<td>ca. 1.8–2 cm</td>
<td>ca. 2.5 cm</td>
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<tr>
<td>Ovary</td>
<td>ca. 12 mm</td>
<td>ca. 12–17 mm</td>
<td>ca. 10 mm</td>
<td>ca. 10 mm</td>
<td>ca. 15 mm</td>
<td>ca. 12 mm</td>
<td></td>
</tr>
<tr>
<td>Style branches</td>
<td>ca. 2.5 cm, bifid</td>
<td>ca. 2 cm, deeply bifid</td>
<td>3.5–4 cm</td>
<td>ca. 2.5 cm</td>
<td>ca. 2.5 cm</td>
<td>ca. 4 cm</td>
<td></td>
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<td>Distribution</td>
<td>Japan (northern Kyushu)</td>
<td>Japan, Korea, northeastern China, and eastern Siberia</td>
<td>China (Zhejiang)</td>
<td>Japan, Korea, China (eastern Liaoning)</td>
<td>Korea, China, Mongolia, Russia, Kazakhstan, eastern Europe</td>
<td>China (southwestern Gansu, northeastern Qinghai)</td>
<td>China, Mongolia, Russia, Afghanistan, Tajikistan, Iran</td>
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</tbody>
</table>
dwarf Iris with purple flowers such as *I. rossii* (Qian et al., 1985; Zhao et al., 2000; Lee, 2006). One of them, *Iris ruthenica* Ker-Gawl (Japanese name: *Ko-kakitsubata*), with small flowers (3–5.5 cm across) and the outer perianth segments (8–10 mm wide) with a narrow limb, is cultivated in Japan. *Iris qinghainica* Y. T. Zhan from south-western Gansu and northeastern Qinghai also has rather small flowers (4.5–5 cm across) and the outer perianth segments (5–8 mm wide) with a narrow wing. *Iris loczyi* Kanitz from Gansu, Nei Mongol, Ningxia, Qinghai, Sichuan, Xinjiang and Xizang has 5.5–7 cm across but its leaves are 20–40 cm long. The inner perianth segments are 4.5–5 cm long and the perianth tube is 14 cm long. All of them are easily distinguishable from *Tobata-ayame* by the various features mentioned (Table 1).

*Tobata-ayame* and *I. sanguinea* are considered to be conspecific, but the large flowers, small leaves, and short flowering stem (Figs. 1 and 2), distinguished it as a variety, *Iris sanguinea* var. *tobataensis*, which we describe here. The epithet *tobataensis* reflects the name of the type locality, Tobata.

**Iris sanguinea** Hornem. var. **tobataensis** S. Akiyama & Iwashina, var. nov.

[Figs. 1 & 2]

A typo (var. *sanguinea*) caulibus floriferis conspicue brevioribus cum foliis brevis angustisque bene differt. A *Iride rossii* Baker caule florifero floribus duobus amplioribus maxime

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Fig. 1. Holotype of *Iris sanguinea* Hornem. var. *tobataensis* S. Akiyama & Iwashina (Japan. Fukuoka Pref., cultivated, T. Iwashina, 27 Apr. 2009, TNS).
5–7 cm dimetriens satis detecta.


Herbs, perennial. Rhizome somewhat creeping. Roots whitish, fibrous. Stems with pale brown fibrous remnants basally. Leaves linear, with 1 or 2 distinct veins, 10–25 cm long, 3–5 mm wide. Flowering stems 2–3 cm tall at flowering, elongating after flowering, with 2 or 3 leaves. Spathes 2, whitish, ca. 2 cm × 8 mm, membranaceous. Pedicel 1.5–2 cm long. Flowers usually 2, purple, but sometimes pale purple or white, 5–7 cm across: perianth tube ca. 8 mm long: outer segments spreading; limb purple, ca. 3.5 cm × ca. 16 mm, white or yellow basally, with dark purple veins. Inner segments erect, purple, elliptic-obtuse, ca. 2.5 cm long: ovary ca. 12 mm long: style 3-lobed, branched, ca. 2.5 cm long, bifid, minutely denticulate. Flowers late April to mid May in cultivation.

Habit: Known only from cultivation.

Distribution: Japan. Kyushu. Fukuoka Pref., Kitakyushu City, Tobata (known only from the type locality, extinct in the wild).

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References


