**INTRODUCTION**

The genus *Gentiana* L., with 360 to 400 species, is the largest genus in the family Gentianaceae distributed mainly in temperate regions of Europe, Asia and America, with the centre of diversity in southwestern China and northeastern Myanmar (Ho & Liu, 2001; Anilkumar et al., 2015). In Indochina, 12 species of *Gentiana* have been recognized (Hul, 2003 & 2007), among which four species and one subspecies are known from Laos (Hul, 2007; Newman et al., 2007): *G. khammouanensis* Hul, *G. langbianensis* A.Chev. ex Hul, *G. langbianensis* subsp. *kerriana* Hul, *G. leroyana* Hul, and *G. loureiroi* (G.Don) Griseb.

While carrying out a series of botanical surveys in Laos in 2017 (Souladeth et al., 2017; Tagane et al., 2017 & 2018; Yang et al., 2018), we collected one *Gentiana* species from Phou Khao Khouay National Protected Area, central Laos characterized by a single erect stem and white corolla. After a careful examination using taxonomic literature (Ubolcholaket, 1987; Ho & Pringle, 1995; Ho & Liu, 2001; Ho, 2003; Hul, 2003 & 2007), dried specimens deposited in herbaria (BFK, FOF, FU, HNL and KYO) and online digital specimen images (e.g. JSTOR Global Plants, https://plants.jstor.org/), we are convinced that it is a new species. Here, we describe *Gentiana laotica* Soulad., Tagane & Yahara as the fifth *Gentiana* species for Laos. We also provide DNA barcodes of *rbcL*, *matK* and ITS regions (CBOL Plant Working Group, 2009; Kress & Erickson, 2012). DNA barcoding methods followed published protocols (Kress et al., 2009; Rohwer et al., 2009; Dunning & Savolainen, 2010).

**ABSTRACT**

A new species of *Gentiana* (Gentianaceae), *G. laotica* Soulad., Tagane & Yahara, from Phou Khao Khouay National Protected Area, Vientiane Province, central Laos, is described. Photographs, vernacular name, DNA barcodes of *rbcL*, *matK* and ITS, and preliminary conservation status are provided for the new species.

**KEYWORDS:** flora, Gentianaceae, Laos, Phou Khao Khouay NPA, taxonomy.

**TAXONOMIC TREATMENT**

*Gentiana laotica* Soulad., Tagane & Yahara, sp. nov. — Fig. 1.

*Gentiana laotica* is similar to *G. bokorensis* Hul of Cambodia and *G. arenicola* Kerr of northeastern Thailand in having single erect stem, number of stem leaves increasing toward stem apex and 5-merous flowers, but differs from the former in having obovate to obovate-oblong leaves (vs narrowly ovate-triangular in *G. bokorensis*), whitish corolla (blue-purplish) and 5 equal sepals (vs often unequal, 2 small and 3 large) and from the latter in having smaller calyx lobes (4–5 mm long in *G. laotica* vs 5–7 mm long in *G. arenicola*), white flowers (vs pale blue), longer
Figure 1. *Gentiana laotica* Soulad., Tagane & Yahara: A. habit; B. whole plant; C. abaxial leaf surface; D. base of leaf blade showing ciliolate margin; E. flower, top view; F. flowers (flower with leaves and calyx, flower with calyx, corolla); G. young flower corolla opened; H. stamens and pistil; I. ovary, style and stigma. Scale bars: B = 5 cm, D = 1 mm, F = 1 cm, H & I = 5 mm.
Annual herbs, 5–8.5 cm tall, glabrous throughout whole plant except near the base of leaf margin. Root fibrous, light brown to yellowish brown. Flowers tend to be solitary and angled stems, apically with many leaves and flowering branches crowded into a capitulum, naked corolla throat, and apically winged ovary. Gentiana laotica is currently known only from a single population at its type locality in the Phou Khao Khouay National Protected Area. The habitat, an open grassy area, is relatively common in this area and it is possible that this species will be found in other localities. However, the population we found consists of fewer than 15 individuals. Therefore, as a first assessment of the IUCN conservation status for this species the most appropriate is Critically Endangered (CR) under criteria D (IUCN, 2012).

Notes.— According to the system of Ho & Liu (2001), Gentiana laotica belongs to Gentiana sect. Chondrophyllae Bunge ser. Capitatae T.N.Ho due to having an annual habit, solitary and angled stems, apically with many leaves and flowering branches crowded into a capitulum, naked corolla throat, and apically winged ovary. Ubolcholaket (1987) recorded 8 taxa including 1 subspecies and 1 variety of Gentiana in Thailand. Among them, in addition to G. arenicola, Gentiana laotica is also similar to Gentiana sp. 4 from Doi Chiang Dao, northern Thailand, but easily distinguished by its larger leaves, and more and larger flowers.

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REFERENCE


