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Two new species of *Aspidistra* (Asparagaceae, Nolinoideae) from northern Vietnam: *A. clausa* and *A. triradiata*

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Abstract

Aspidistra clausa and *Aspidistra triradiata* are described and illustrated as new species from northern Vietnam (Vinh Phuc province, Tam Dao National Park). *Aspidistra clausa* is similar to *A. crassifila*, but has narrower leaves (lamina 2.8–4.5 cm vs. 6–12 cm), perigone tube wide tubular vs. campanulate, appendages longer, stigma conical vs. mushroom-shaped. *Aspidistra triradiata* is similar to *A. hainanensis*, but flowers larger (1.8–2.4 cm long, Ø 1.8–2.8 cm vs. 1–1.2 cm long, Ø 1.3–1.5 cm), perigone urceolate, lobes with 4 verrucose keels, stigma with three purple radial lines.

Key words: DNA barcoding, Tam Dao, taxonomy

Introduction

Aspidistra Ker Gawler (1822: 628) is a large genus of herb plants growing in tropical forests of SE Asia. The number of species in genus rapidly increased during a few last decades (Tillich 2005). Currently the genus comprises more than 130 species (Averyanov & Tillich 2014b) inhabiting China, India, Japan, Laos, Malaysia, Thailand (Blume 1834, Hooker 1892, De Wilde & Vogel 2005, Tillich 2005, Phonsena & De Wilde 2010, Averyanov & Tillich 2014b, Vislobokov *et al.* 2014b), and at least 48 species in Vietnam (Averyanov & Tillich 2014a, 2014b, Tillich 2014, Vislobokov *et al.* 2014c). Also a few species known from Tam Dao National Park in northern Vietnam (Tillich 2005). So *A. bicolor* Tillich (2005: 317) and *A. subrotata* Wan & Huang (1987: 223) var. *crassinervis* Tillich (2005: 322) Phonsena in Phonsena & De Wilde (2010: 53) were described by H.-J. Tillich from specimens collected by J. Bogner from northeastern side of Tam Dao ridge (Thai Nguyen province). N.N. Arnautov (2002) found in the same part of Tam Dao (Thai Nguyen province) plants which he recognized as *A. hainanensis* Chun & How (1977: 533), but later H.-J. Tillich (2005) considered it as *A. carnosa* Tillich (2005: 318).

Considering the extremely high diversity of flower morphology, *Aspidistra* is interesting for investigation of flowering biology and pollination system (Tillich 2005, Vislobokov *et al.* 2013, Vislobokov 2014). Some studies show that flowers of *Aspidistra* are pollinated by tiny soil invertebrates (Kato 1995, Conran & Bradbury 2007). According to recent investigations myiophily occurs in some species of *Aspidistra* (Vislobokov *et al.* 2013, 2014a).

Application of methods of molecular phylogeny is still unsuccessful for *Aspidistra* (Kocyan & Renner 2007), despite high flower diversity within the genus. Otherwise a potentially useful tool for identification of plant material is molecular barcoding (e.g., Filipowicz 2012, González Gutiérrez *et al.* 2013). Two DNA regions (plastid *psb*A-*trn*H region and the nuclear 5S-NTS region) were tested for barcoding in *Aspidistra* (Vislobokov *et al.* 2014b, 2014c). These regions were found useful at a specific level in other angiosperms (e.g. Pornpongrungrueng *et al.* 2009, Degtjareva *et al.* 2012).

In the present paper two new species of *Aspidistra* are described from northern Vietnam and molecular diagnoses of new species are provided in comparison with other species of *Aspidistra* for which molecular data are available.

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