



New species of Graphidaceae from Zhejiang Province, China

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Abstract

Four species of the lichen family Graphidaceae from Zhejiang Province, China, are described as new, namely *Fissurina baishanzuensis*, with hemithecioid ascomata, an entire, dark orange brown exciple and broadly ellipsoid muriform ascospores; *F. subundulata*, distinguished by hemithecioid ascomata, an entire, dark orange brown exciple and ellipsoid, muriform ascospores which are distinctly larger than in *F. baishanzuensis*; *Graphis jinhuana*, distinguished by mostly unbranched erumpent ascomata with a lateral thalline margin, open, non-pruinose discs, a laterally carbonized exciple, 7–9-septate ascospores and producing norstictic acid; and *Graphis pananensis* with irregularly branched ascomata with a lateral thalline margin, a concealed disc, a completely carbonized exciple, 7–9-septate ascospores and without secondary chemistry.

Key words: Asia, lichenized Ascomycota

Introduction

Wei (1991) reported ca. 136 species of Graphidaceae for China (including thelotrematoid taxa). Aptroot & Seaward (1999) added sixteen species, Aptroot & Sipman (2001) four, Aptroot & Sparrius (2003) found thirteen additional ones, and Seaward & Aptroot (2005) reported three more from a collection made during the United States North Pacific Exploring Expedition 1853–1856 in Hong Kong. In the course of the studies for the Flora Lichenum Sinicorum project, further 25 new species and new records were added by various authors (Jia & Wei 2007; Miao *et al.* 2007; Meng & Wei 2008; Jia & Wei 2008; Jia & Wei 2009a, 2009b; Jia 2011; Jia *et al.* 2011; Jia *et al.* 2012; Wang *et al.* 2013; Jia & Kalb 2013), thus bringing the total number to ca. 197. From Zhejiang Province, fourteen species of Graphidaceae were listed by Wei (1991) and up till now, only one species of *Diorygma* was added (Meng & Wei 2008) to this checklist. In a collection made by the senior author from 10–15 October 2010, several new species were found and they are described in this paper.

Material and methods

The collections were made in China, Zhejiang Province, during a pre-congress excursion of the International Symposium on Systematic Lichenology and Bryology in Hangzhou. Under the leader- and sponsorship of Ze-Feng Jia and Zhongshuai Sun, the first author was invited to collect lichens in mixed rainforests and mixed mountain rainforests. A total of 43 specimens of Graphidaceae were found and subsequently investigated using standard microscope and TLC techniques as cited in Mongkolsuk *et al.* (2012). The holotypes of the new species are deposited in the Herbarium Mycologicum Academiae Sinicae-Lichenes (HMAS-L).

Both species can be distinguished even in the field as *G. pananensis* has a concealed disc while that of the latter species is exposed.

Remarks:—*Graphis pananensis* is similar to *G. immersicans* A. W. Archer (2001: 262), but differs by larger and more septate ascospores. The new species also resembles *Graphis sitiana* Vain., but this species differs in the immersed-erumpent lirellae with a thick lateral thalline margin and larger ascospores. It is also superficially similar to *G. caesiella* Vainio (1890: 122) and relatives, but differs by the completely carbonized exciple and the lack of secondary metabolites.

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