



## *Carex huangshanica* (sect. *Rhomboidales*, Cyperaceae), a new species from Anhui, eastern China

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### Abstract

*Carex huangshanica* X. F. Jin & W. J. Chen, a new species from Anhui Province of eastern China, is described and illustrated. It belongs to *Carex* sect. *Rhomboidales* and resembles *C. longirostrata* in having perigynia gradually contracted into a long beak at apex; orifice 2-lobed with long teeth; achenes abruptly contracted into a beak at apex. It differs from *C. longirostrata* in having upper spikes aggregated, pistillate scales shortly awned at apex, perigynia nearly glabrous, and achenes ovoid. Micromorphological characters of the perigynia and achenes under scanning electron microscope are compared between the new species and *C. longirostrata*. *Carex huangshanica* has glabrous perigynia (vs. pubescent perigynia in *C. longirostrata*), achenes abruptly contracted in a short curved beak at apex, and only one silica body is present in each epidermal cell (vs. achenes of *C. longirostrata* that are contracted in a short coiled beak at apex, and without silica body in epidermal cells).

**Key words:** *Carex huangshanica*, *Carex* sect. *Rhomboidales*, new species, taxonomy

### Introduction

The genus *Carex* Linnaeus (1753: 972) is one of the largest genera of monocotyledons, containing ca. 2000 species worldwide (Global *Carex* Group 2015). In China, *Carex* is represented more than 500 species in three subgenera, namely subg. *Vigneastra* (Tuckerman 1843: 10) Kükenthal (1899: 516), subg. *Vignea* (B. Beauvois in T. Lestiboudois 1819: 22) Petermann (1849: 602) and subg. *Carex* (Dai *et al.* 2000, 2010).

Kükenthal (1909) established *Carex* sect. *Rhomboidales* Kükenthal (1909: 622) in his famous worldwide monograph of *Carex*. The species of sect. *Rhomboidales* have the following characters: perigynia trigonous, ellipsoid, ovoid, broadly ovoid or globose-ovoid, with a columniform beak at the apex, orifice 2-lobed with conspicuous teeth, achenes rhombic-ovoid, obovoid or broadly obovoid, trigonous, sometimes constricted in the middle part, frequently shortly beaked at the apex (Kükenthal 1909, Ohwi 1936, Jin & Zheng 2013). The section is mainly distributed in East Asia, with a few species extending to South Asia, eastern Russia, or the Hawaii islands. Recently, 40 species, 6 subspecies and 4 varieties were recognised (Jin & Zheng 2013).

During an investigation of the flora of Huangshan Mountain (the Yellow Mountain) in Anhui Province, some unusual specimens of *Carex* were collected. Based on comparisons with macro- and micro-morphological characters, these specimens are recognized as a new species in sect. *Rhomboidales*.

### Materials and methods

Scanning electron microscope (SEM) observations of the perigynia and achenes of *Carex huangshanica* and *C. longirostrata* C. A. Meyer (1831: 220) were carried out, and the methods were followed by Jin & al. 2012. Mature perigynia were cleaned in 50% ethanol for 2 hours. Mature achenes were soaked in solution of concentrated sulfuric acid and acetic anhydride (vol. = 1: 9) for 18 hours, then rinsed in acetic acid for 10 min and water for 5 min respectively, and placed in bath-type ultrasonic cleaner for 15 min with 70% ethanol to remove the cuticle and outer periclinal wall of the epidermis. After air drying, the perigynia and achenes were mounted on stubs using double-sided adhesive tape,