



Notes on *Carex* (Cyperaceae) from China (II): a taxonomic revision of sect. *Radicales* (Kük.) Nelmes

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Abstract

Section *Radicales* (Kük.) Nelmes comprises nearly 15 species in *Carex* subg. *Carex* (Cyperaceae) and is mainly distributed in the Pan-Himalaya region, with a few species extending to the Guangxi and Hainan provinces of China and Burma. A taxonomic revision of sect. *Radicales* in China is proposed and 12 species with two varieties are recognized. *Carex pseudomitratata* X. F. Jin & Cen is described as a new species and *C. caudispicata* var. *longiutriculata* X. F. Jin is described as a new variety. *Carex anningensis* is reduced to synonym of *C. caudispicata*, and *C. chuiana* to *C. radicalis*. *Carex funhuangshanica* and *C. speciosa* subsp. *dilatata* are respectively reduced to synonyms of *C. speciosa* and *C. speciosa* var. *courtallensis*.

Key words: *Carex pseudomitratata*, section *Radicales*, Cyperaceae, new species, new synonym, new variety, taxonomy

Introduction

The genus *Carex* Linnaeus (1753: 972) contains ca. 2000 species worldwide distributed in different habitats (Nelmes 1951, Dai *et al.* 2000). With 527 species, *Carex* is one of the largest genera of seed plants in China (Dai *et al.* 2010, Wu *et al.* 2011).

Kükenthal (1909: 480) established *Carex* sect. *Digitatae* Fries (1835: 187) subsect. *Radicales* Kükenthal (1909: 480) in his worldwide monograph of *Carex*, but he didn't designate any type. In Kükenthal's monograph, five species and seven varieties were recognized. These species have 1–6 androgynous spikes, the remote lateral ones exerting from the middle or at the base of the culms; compressed trigonous perigynia that contract into a short beak at the apex, with styles frequently thickened at the base. Nelmes's (1951) taxonomic monograph on *Carex* in Malaysia was a fully descriptive work of 108 species known to occur, and Kükenthal's *Radicales* group became recognized as a sectional status which contained two Malaysian species. The name of sect. *Radicales* (Kük.) Nelmes (1951: 389) is currently widely used till now (Koyama 1955, 1956, Raymond 1965, Li 1990, 1999, Dai *et al.* 2000, 2010).

From Kükenthal's monograph on *Carex*, two species in sect. *Radicales*, *C. cylindrostachys* Franch. (1895: 32) and *C. delavayi* Franch. (1895: 29), distributed in the Yunnan Province of China were recognized (Kükenthal 1909). Later, two additional species, *Carex tsoi* Merrill & Chun (1935: 207) and *C. planiscapa* Chun & How (1958: 82) from Hainan Island of China, were described and designated to sect. *Radicales*. Li (1990, 1999) described an additional six new species to this section: four species collected from Yunnan Province, one species collected from Sichuan Province, and an additional species from Guangxi Province. There are 13 species of sect. *Radicales* known to occur in China (Table 1). With 10 species from this section distributed there, the Hengduan Mountains and the adjacent region are known for containing most of the diversity of sect. *Radicales* (Li 1994, Dai *et al.* 2000, 2010) (Fig. 1). Recently, *Carex daxinensis* Y. Y. Zhou & X. F. Jin (2014: 135) was collected from Guangxi and described as a new species of sect. *Radicales*.

During the process of preparing the *Flora of Pan-Himalayas (Carex)*, as well as the revision of *Carex* from China, the first author examined all the collections of sect. *Radicales* at the following herbaria: BM, E, IBK, IBSC, K, KUN, KYO, P, PE and TI (see: Index Herbariorum, <http://sciweb.nybg.org/science2/IndexHerbariorum.asp>). The principal diagnostic characters used to identify members of sect. *Radicales* were discussed and a taxonomic revision was made as described here (Table 1). The morphological descriptions for all species and varieties within this paper are based on these specimens.