



A new species of *Clematis* L. (Ranunculaceae) from Iran

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Abstract

After extensive sampling and investigations of the genus *Clematis* from various locations in Iran, *Clematis iranica* is introduced as a new species. The diagnosis, description and illustration of the new species are presented here. The affinities and differences to the most closely related species (*C. orientalis*) are presented based on morphological, cytological, palynological and anatomical characters.

Key words: Anatomy, *Clematis iranica*, Cytology, Palynology, Taxonomy

Introduction

The genus *Clematis* Linnaeus (1753: 543) belongs to the tribe Anemoneae in the family Ranunculaceae. It includes approximately 250–280 species with a cosmopolitan distribution (Tamura 1987, Hoot & Corne 1995, Johansson 1995). This genus is mainly distributed in temperate regions, but it is also found in elevated parts of the tropics.

During field studies in the north of Iran, the authors collected an unusual specimen growing in small populations on rocky slopes, along rivers and streams of water shrubberies and hedges in 2006–2009. These specimens have been compared with specimens from several herbaria, as well as the main literature by Boissier (1867), Tutin *et al.* (1964), Komarov *et al.* (1970), Davis (1985), Brandenburg (1987), Grey-Wilson (1989), Rechinger *et al.* (1992), Johnson (2001) and Wang (2006). However, the material did not key out. Observations and studies showed that these specimens apparently belong to a new species. They are very similar to *C. orientalis* Linnaeus (1753: 543), but differ in several characters such as 1–2 pinnate leaves with a dark green color, oblate-lanceolate, ovate-lanceolate or lanceolate shape, and acute to acuminate apex. The locality of the new species is close to the known locality of *C. orientalis*.

In the present study, the new taxon is described, illustrated and compared to the related species. Additionally, the new and related species were compared via the micromorphological characters of pollen observed through scanning electron microscopy (SEM) while the anatomy of the leaf was subject to light microscopy (LM) and mitotic karyotype analyses. *Clematis* in Iran was investigated by Brandenburg *et al.* (1987), Rechinger *et al.* (1992) and Wang (2003, 2006). However, no subspecies were reported for *C. orientalis*. Due to the vast morphological variation, specific and infra-specific boundaries were not clearly demonstrated in the mentioned treatments.

Therefore, comprehensive studies were performed on the classification of the genus in Iran using other taxonomical evidence. Recently, some population studies were carried out based on the morphology, cytology, anatomy and palynology of this genus (Habibi *et al.* 2008, Sheidai *et al.* 2009); a brief summary of the results is presented in Tables 1 and 2. Interestingly, two separate groups were identified during these studies revealing evidence of several separations based on different cytological, anatomical and palynological characters, aligned with the morphological features. On the other hand, field observations on the reproductive separation of two groups were found. Consequently, *Clematis iranica* is introduced as a new species.

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