



Tulipa jacquesii (Liliaceae), a new species from Western Kyrgyzstan

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Abstract

Tulipa jacquesii sp. nov. (section *Biflores*, Tulipeae, Liliaceae), showing white tepals with a yellow spot, is endemic to West Kyrgyzstan. It differs from all other species by its nearly glabrous tepals, its fragrance, leaves (2) and flowers (up to 4) number. Its genome size is 51.9 pg, in agreement with the variation range (51.5–59.4 pg) known for other species of the same section. Peculiar are the ridges on the leaves of plants, reminiscent of *T. regelii*.

Key words: Flow cytometry, genome size, 2C-value, taxonomy

Introduction

The genus *Tulipa* Linnaeus (1753: 305) (Liliaceae) includes at least 88 species (Wilford 2006, Zonneveld 2009, Christenhusz *et al.* 2013, Eker *et al.* 2014). They can be divided over four subgenera, but opinions differ (van Raamsdonk 1992, Wilford 2006, Zonneveld 2009, Christenhusz *et al.* 2013, Eker *et al.* 2014): subgen. *Clusianae* (Baker 1883: 626) Zonneveld (2009: 234), *Eriostemones* (Boissier 1884: 191) Raamsdonk (1995: 42), *Orithyia* (Don 1836: 336) Baker (1183: 691) and *Tulipa*, for a total of 12 sections (Zonneveld 2009). Genome size and the presence of nearly complete crossing barriers between the sections (Van Raamsdonk 1992, Van Raamsdonk & De Vries 1995) confirmed the close relationships of the species within the different sections. Tulips occur naturally in southern Europe, North Africa, the Middle East and Central Asia, including Western China (Ivaschenko 2005; Prato *et al.* 2006). The Tien Shan and Pamir-Alay mountain ranges in Central Asia are considered the primary diversity centres for the species (Botschantzeva 1982), with the Caucasus as a secondary centre. Many species have $2n = 2x = 24$ chromosomes, albeit polyploidy can also occur (Peruzzi *et al.* 2009). However, the somatic DNA 2C-value is shown to range from 32 to 69 picogram for the diploids (Zonneveld 2009). Tulips are popular spring-flowering garden plants, millions of bulbs are sold annually and over 5000 cultivars have been registered (Van Scheepen 1996). Despite the existence of a large body of literature on *Tulipa*, its taxonomy is generally considered to be difficult. The main reason is that many character states widely overlap among taxa, so that only combinations of character states allow species circumscription: flowering time, presence/absence and type of hairs on the inner side the bulb tunics, leaf/stem hairiness, flower colour, presence/absence of a black spot at the base of tepals, with or without a yellow edge, and whether hairs are present at the base of the filaments. In a previous study DNA 2C-value (nuclear DNA content) was used for an analysis of more than 400 different accessions representing nearly all recognized species (Zonneveld 2009).

During the investigations of the nuclear DNA content (2C-value) of species of *Tulipa* (Zonneveld 2009) were encountered plants differing from all other species in their respective sections. They could not be described as new species at that time, due to incomplete material. *Tulipa lemmersii* Veldkamp & Zonneveld (2012: 91) from the Mashat canyon, Kazakhstan, was provisionally mentioned by Zonneveld (2009). *Tulipa kolbintsevii* Zonneveld (2012: 1294) from NE Kazakhstan, belonging to sect. *Biflores* Hall ex Zonneveld & Veldkamp (2012: 89) was also recognised. Here, a further interesting new species is described.