



## *Tulipa albanica* (Liliaceae), a new species from northeastern Albania

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### Abstract

*Tulipa albanica* (Liliaceae) is illustrated and described as a new species from a serpentine area in Kukësi district, northeastern Albania. It is compared with *T. scardica* from the western Balkans (Macedonia and Kosovo) and with *T. schrenkii* from the Ukraine, Caucasus, Central and Southwest Asia. The chromosome number, karyotype features and nuclear DNA content (2C-value) were assessed by karyological and flow cytometry techniques and provided for the first time for this species. The chromosome formula is  $2n = 2x = 24$  (2 metacentric, 3 submetacentric and 7 subtelocentric chromosome pairs) and the genome size  $54.15 (\pm 0.23)$  pg. Two different morphotypes of *T. australis* were noted as occurring on limestone or serpentine in Albania.

**Key words:** Balkan Peninsula, chromosome number, nuclear genome size, serpentine soil, *Tulipa australis*, morphotypes

### Introduction

*Tulipa* Linnaeus (1753: 305) is a large genus with ca. 100 (Hall 1940) or 113 species as recently accepted by Govaerts (2010). The species are widely distributed from northeastern China and Japan to Central and Southwest Asia, North Africa and Europe (Botschantzeva 1982, Bermejo & Sánchez 2009). The triangle between the Tien Shan and Pamir-Alai mountain ranges in Central Asia is considered to be the main centre of diversity and the Caucasus region a secondary centre (Terzioğlu & Coşkunçelebi 2002, Zonneveld 2009). The Iranian Plateau is home to at least 36 species of wild tulips (Ghahreman *et al.* 2007). The number of native tulip species found in the Balkan Peninsula is much less, varying from c. 15 (Hayek 1933) to 22 (Govaerts 2010). Eighteen species have been recorded from European Turkey and Anatolia (Terzioğlu & Coşkunçelebi 2002, Coşkunçelebi *et al.* 2008, Eker & Babaç 2010).

Except for the cultivated tulips of garden origin, the genus is in Albania represented by only one native species: *T. australis* Link (Schrader 1799: 317) that was previously known as *T. grisebachiana* Pantocsek (1873: 265) and was first collected on the limestone mountain Mt Tomorri by Markgraf in 1928 (Markgraf 1931). *Tulipa grisebachiana* was originally described from Mt Gliva (near Trebinje, Hercegovina). *Tulipa australis* was also reported as *T. sylvestris* subsp. *grisebachiana* and subsp. *celsiana* by Hayek (1932–1933: 71, syn.: *T. celsiana* DC. in Redouté 1803: t. 38). It is not apparent whether Hayek was referring to plants from limestone or from serpentine substrate. Photographs of *T. australis* from both serpentine (e.g., Surroj area, Fig. 1A) and limestone substrate (e.g., Mt Çajupi, NE of Gjirokaster, Fig. 1B) are here provided. They represent two different morphotypes with slight differences in perianth shape, size and colour. We have maintained *T. grisebachiana* and *T. celsiana* in synonymy of *T. australis* and have not formally recognized the two morphotypes from differing substrates. We here report the discovery of a second and undescribed tulip from Albania belonging to subg. *Tulipa* sect. *Tulipa*; this tulip has both red and yellow flowering forms.