The genus *Gymnospermium* (Berberidaceae) in the Balkans

KIT TAN1, LULÈZIM SHUKA2, SONJA SILJAK-YAKOVLEV3, SADIK MALO4 & FATIMA PUSTAHJIA3,5

1Institute of Biology, University of Copenhagen, Øster Farimagsgade 2D, DK-1353 Copenhagen K, Denmark.
E-mail: kit@bio.ku.dk (author for correspondence)

2Department of Biology, Faculty of Natural Sciences, Tirana University, Bld. ZOG I, Albania

3Univ. Paris-Sud, Lab. Ecologie, Systématique & Evolution, CNRS UMR 8079, AgroParisTech, Bât. 360, 91405 Orsay, France

4Department of Biology & Chemistry, Faculty of Natural Sciences, Gjirkastra University, Albania

5Faculty of Forestry, University of Sarajevo, Zagrebacka 25, 71000 Sarajevo, Bosnia and Herzegovina

Abstract

A revision of the genus *Gymnospermium* (Berberidaceae) in the Balkan Peninsula is carried out. Three species are recognised. *Gymnospermium maloi* is described as a new species from Mt. Picari in Gjirokastra district, southern Albania. It is compared with the closely related *G. scipetarum* which has a different habitat and distribution in central Albania and southern Montenegro. The chromosome number and karyotype features of *G. maloi* are provided for the first time. The chromosome formula of 2n = 2x = 14 (1 metacentric, 1 meta-submetacentric and 5 submetacentric chromosome pairs) is unusual as 2n = 16 has been reported for other members of the genus. The nuclear DNA content (2C-value) of all three species was determined. The genome size of *G. maloi* is 29.44 (± 0.47) pg, for *G. scipetarum* (chromosome number still unknown) 29.55 (± 1.35) pg, and for *G. peloponnesiacum* (2n = 2x = 16) 31.93 (± 2.38) pg. These values are the first genome size measurements for the genus. All three species are mapped and fully illustrated. A key to the European species is also presented.

**Key words:** Albania, chromosome number, distribution map, genome size, Greece, identification key, new species, taxonomic revision

Introduction

*Gymnospermium* Spach (1839: 67) in the Berberidaceae is a relatively small genus of early spring-flowering tuberous plants. The generic name derives from the Greek *gymnos* (naked) and *sperma* (seed), referring to the unripe seeds which are exposed when the membranous pericarp splits. The number of species varies from six (Komarov 1937, Săvulescu 1955, Takhtajan 1970) to seven (Kosenko 1980). Ten names are listed in the IPNI database ([www.ipni.org](http://www.ipni.org)). Five species occur in the former countries of URSS (Kosenko 1980). According to Stearn & Webb (1964, 1993) *Gymnospermium* is represented by only one species in Europe, viz., *G. altaicum* (Pallas) Spach (1839, syn.: *Leontice altaica* Pallas) which also occurs in the Caucasus and Central Asia. Takhtajan (1970) treated the plants from the Caucasus and Central Asia as *G. altaicum*, and the plants from Greece and the Black Sea region (from the Crimea and SW Ukraine to the Dobrogea area in eastern Romania) as *G. odessanum* (DC.) Takhtajan (1970, syn.: *L. odessana* (DC.) Fischer ex G. Don). The only known Balkan locality for *G. odessanum* was Mt. Panachaikon in the northern Peloponnesse, Greece, where it was first discovered by Haláscy in 1893 and identified by him as *Leontice altaica*. At that time relatively little was known about the genus and its distribution in Europe and Takhtajan (1970) emphasized this at the end of his description of *G. odessanum* which we translate from the Russian: “Possibly, in the future, researchers will find several differences between my typical form [*G. odessanum* from the Ukraine] and the plants from the Peloponnesse, but new and further collections are required”.

Accepted by M. Christenhusz: 31 May 2011; published: 28 Jun. 2011