

## Molecular Phylogeny of *Trifolium* L. Section *Trifolium* with Reference to Chromosome Number and Subsections Delimitation

### Abstract

The genus *Trifolium* is one of the largest genera of the legume family Fabaceae with ca. 255 species. The genus is divided into eight sections; the section *Trifolium* is a major section of the genus, comprising 73 species mainly distributed in the Mediterranean region. We used nuclear ribosomal DNA internal transcribed spacer (ITS) and morphological variation to reconsider the delimitation and phylogenetic relationships of species in the section *Trifolium* with reference to chromosomal variations. Bayesian analysis of ITS data delimited the species as three clades based on the analysis of ITS sequence and informative indels in combination with morphological variation. The phylogeny of the species by different analyses methods does not support their current delimitation in 17 subsections. The basic chromosome number  $x = 8$  is the number for the genus *Trifolium*, from which  $x = 7, 6$  and  $5$  were derived through successive aneuploidy events. With reference to the distribution of these numbers in the species of the section *Trifolium*, species in clade III and clade II are more evolved than species in clade I.