

2nd World Biotechnology Congress

December 04-05, 2017 | Sao Paulo, Brazil

Cytotype and molecular variability of *Myriophyllum* L

T Kávodá¹, T Kubátová¹, Trávníček B² and Prančl J²¹University of South Bohemia, Czech²Academy of Science of the Czech Republic, Czech

Myriophyllum L. (watermilfoil) is the largest genus of the family *Haloragaceae* and belong the most species-rich genera of aquatic plants. Distinguishing of genus *Myriophyllum* is rather challenging. Despite the apparent taxonomic complexity, almost nothing is known about the cytogenetic structure of the genus in North America. In our study, we used flow cytometry and chromosome counting to recognize genome size and DNA ploidy level in species of genus *Myriophyllum*. We analyzed 294 European and 329 North American population samples. All species of genus *Myriophyllum* were found in both areas, except North American *M. alterniflorum*. Large cytotype variability (2x, 3x, 4x, 6x, 8x and 9x) was found in the USA and Europe. Cytotype variability was found in populations of *M. heterophyllum* where diploids and triploids were examined. Sympatric growth of diploid and triploid cytotypes was encountered in one population of *M. pinnatum*. Two populations of *M. aquaticum* in Europe (Hungary) had cytotype variability (6x and 8x) whereas all N. American populations were octoploids. Cytotype variability was also found in populations of *M. sibiricum* where hexaploids and nonaploids were observed. There was clear geographic isolation showing *M. sibiricum* as a hexaploids only in N. American and nonaploids in European populations. Only one nonaploid specimen of *M. sibiricum* was found in N. American populations and just one hexaploid of *M. sibiricum* in the European population. Nonaploids in USA and hexaploids in Europe of *M. sibiricum* were detected for the first time. Genome size (2C) ranged from 0.41 pg in diploid *M. humile* (2n=14) to 2.66 pg in nonaploid *M. sibiricum* (2n=63). These findings give evidence that a detailed study of cytotype composition. Last but not least, studies of ploidy variation have repeatedly proved necessary to elucidate the mechanisms of triggering the invasive behavior in plants.

Biography

T Kávodá is a Molecular Geneticist with specialization on population-genetic studies. She is most interested in ecological topic with the implantation of new techniques in molecular analyses. Techniques that she perfectly controls range from basic lab work, through complete knowledge of molecular genetic techniques including sequencing to current flow cytometry specialization. The topic of her thesis is genetic and cytogenetic variability of *Myriophyllum* L. in the native and invasive area of the genus..

tereza.kavova@seznam.cz

Notes: