

Abstract

Polyloid variants of many species of plants are strikingly frequently found among alien plants on all continents. They also very often have a much larger distribution range of its occurrence, compared to diploid plants in the place of their origin. In many cases, the polyloid cytotype also has increased tolerance to various stress factors or a physiological and morphological characteristics that allow them to survive the conditions in which the diploid plants would have little chance to survive. All this suggests that polyploidy is likely to bring plants an evolutionary advantage over their diploid ancestors, and polyploids therefore can successfully colonize new territories. This thesis summarizes the findings about the possible consequences of polyploidy at different levels in relation to their effects on the properties supporting plant invasive ability. It presents also known hypotheses dealing with possibilities of why plants become invasive after introduction. This is followed by sections devoted to flow cytometry, an important modern method for determining genome size and ploidy level. In conclusion it briefly describes the model species bird vetch (*Vicia cracca*) and the results of measurements of the degree of ploidy of seeds of this plant from Alaska and Japan.