

Abstract

Polyploidy is a significant phenomenon in the evolution of eucaryotic organisms. It has been a subject of interest of biologists for decades and it has been studied particularly largely in plants, where it most often occurs. This thesis handles occurrence of polyploidy in organisms and a special emphasis is laid on old polyploidization events occurrence of polyploidy in animal taxa. Furthermore, the types of polyploidy and obstacles are discussed here, that a polyploid organism has to tackle to stabilize its genome. That also includes the need to ensure the correct chromosome segregation in a meiotic division. A special case of polyploidy is paleopolyploidy (sometimes referred to as „ancient polyploidy“ in English), which is an evolutionary old polyploidization event, that is followed by the process of diploidization. This process is characterized besides others by a large number of structural changes in chromosomes and a loss of some DNA sequences and a gradual transition of the polyploid genome to the cytologically diploid state. Because of these changes, it is difficult to detect a paleopolyploidy and the main part of this thesis is dedicated to this problem, in which the main approaches that might lead to its detection are discussed.

Key words: polyploidy, animal, plant, meiosis, paleopolyploidy, detection