

Abstract

Some species of the filamentous fungi can grow on the substrates with low water activity that have either low water content or high concentration of osmotically active substances. These fungi are usually called osmotolerant or xerotolerant. They occur particularly in the soil of arid areas and in hypersaline environments. Economically important species cause spoilage of stored food, seed and feed. This thesis brings the summary of physiological and morphological adaptations of fungal organisms to water stress and deals with the molecular genetic background of these adaptations. The current taxonomic classification of the fungal organisms adapted to grow at low water activity is summarized. Separate chapters are dedicated to the influence of different osmotically active substances on the phenotype of the fungi and to the possibilities of using media with osmotically active substances for taxonomic purposes.