

Unicellular organisms such as yeast have been traditionally studied in shaken cultures, i.e., under condition in which they do not grow attached to solid surfaces as under natural conditions. In nature, cells only rarely live alone, but, on the other hand often create multicellular colonies or biofilms. During last years, yeasts started to be investigated also when grown on solid media. Our laboratory has previously developed special techniques for investigation of yeast colonies. These techniques allowed us to describe individual cell subpopulations within the colonies. The aim of this work was to prepare a series of mutant strains, describe morphology and ultrastructure of their colonies with the aim to contribute to understanding of the role of mitochondrial retrograde signalling pathway in the development of yeast colonies. This work describes expression of few selected genes (CIT2, RTG1, RTG2, and RTG3) in colonies of the parental strain BY4742 and of other mutant strains with deletion of one or more genes of RTG regulatory pathways. The results of the diploma thesis together with results of other authors became part of the publication (Podholová et al., 2016).