

Previous research of colonies formed by yeast *Saccharomyces cerevisiae* growing on glycerol agar medium revealed two major cell types of U and L cells that are formed within these colonies. This colonial cell differentiation seem to be caused by communication among yeast cells as well as whole colonies and affected by changes in the environment (for example changes in nutrients). Studies of U and L cells showed that U cells are more resistant against biological, chemical and physical stresses than L cells. The aim of this thesis was to isolate U and L cell types and investigate their resistance against selected low molecular weight chemical substances produced in Ehrlich pathway.

Ehrlich pathway was discovered in 1907 and was classified as amino acid catabolic pathway in yeast *S. cerevisiae*. The low molecular intermediates are formed in Ehrlich pathway which are called fusel (original name from German) alcohols and acids. These chemical substances are widely used in food industry and cosmetics especially because of their aroma. Several studies provided indications that these chemical substances may affect development of colonies and important yeast functions such as switching to the pseudohyphal growth of *S. cerevisiae* cells. Some chemical substances of the Ehrlich pathway were selected and their effects on *S. cerevisiae* U and L cells were analyzed by different techniques.