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Summary of M.Sc. Thesis

Title: Genetic improvement of some economically important characters in *Saccharomyces cerevisiae*.

The investigation aimed to improve some economically important characters in the yeast *Saccharomyces cerevisiae*. These characters included; sporulation rate, extension of fermentation time, alcohol tolerance, and vitamin B6 production. Three different geographical yeast strains were used to realize this aim. The plan of improvement depended upon a selection program at gametic level (haploid) and zygotic level (diploid).

Results showed that sporulation rate can be improved for strains that have desired economic characters, while the extension of fermentation time increased. It was noticed that all selected progressive generations were alcohol tolerant for the concentrations of 16%, 18%, and 20%. The selection program succeeded to set up a superior strain for vit. B6 production. Finally, it was deduced a positively significant correlation between alcohol tolerance and fermentation time, while a negative significant correlation between sporulation rate and alcohol tolerance was conformed. It was also concluded the absence of correlation between vit. B6 production and either of sporulation rate and fermentation time.