

Abstract

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Title of diploma thesis: **Intracellular pH homeostasis in pathogenic yeast *Candida albicans* and *Candida glabrata***

The thesis examines the influence of culture conditions on intracellular pH homeostasis in *Candida albicans* and *Candida glabrata* yeast strains with deletions of alkali-metal-cation membrane transporters, *Cacnh1Δ* and *Cgtrk1Δ*. Intracellular pH was measured with the use of pHluorin: a variant of a green fluorescent protein which had been expressed in the cytosol of both yeast species. Fluorescence of the expressed pHluorin was confirmed by a fluorescence microscopy and a calibration curve was created to determine the dependence of fluorescence intensity of pHluorin on intracellular pH. This thesis further demonstrates impact of medium composition (especially different nitrogen sources) and antifungal agents (fluconazole, clotrimazole, amphotericin B and terbinafine) on intracellular pH values in both yeasts. The effects of *Cacnh1Δ* and *Cgtrk1Δ* mutations were established on certain physiological parameters, such as the growth speed under different culture conditions or the intracellular pH value. Furthermore, the different susceptibility of yeast species to various antifungal agents was also determined, *C. glabrata* exhibited higher resistance to all tested antifungals compared to *C. albicans*.