

The main goal of this MSc. is to use Atomic Force Microscopy (AFM) in studies of yeast cell wall structure aimed at (i) expected differences between young and aged *S. cerevisiae* cells, (ii) the effects of glucose concentration in culturing media on the quality of yeast cell wall. AFM can image biological systems with molecular resolution in real time, and under natural condition. Numerous AFM images of the surface of *S. cerevisiae* yeast cells (strains AD 1-3,IL,US and JC 482A, AD-JC 488A) have been obtained, which surpassed that one of standard results of still-rare AFM studies of yeast cells. No clear effect of glucose concentration has been found. On the other hand, AFM studies have revealed ageing-related changes in the structure of yeast cells (crumpling, rough surface). Highresolution images of yeast bud scars, including their fine details were also obtained.