

PROMISING OF USING BACILLUS BACTERIA AS PRODUCERS OF ENZYMES

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The *Bacillus* genus is one of the most varied and commercially useful group of microorganisms. An aptitude of some strains to adapt to high or low temperatures and high or low pH makes them an important source for producing of commercial enzyme preparations. The aim of our research was to select the genus *Bacillus* bacteria from natural sources, identify them and analyze the enzymes functions of their metabolites. As the source for *Bacillus* bacteria selection was chosen different kind of hay: oats, thyme, hypericum. To isolate the *Bacillus* bacteria, we created the conditions under which the growth and reproduction of micro-organisms other genera is suppressed. Boiling is the factor to the death of vegetative forms, but *Bacillus* bacteria create spores and survive in such conditions. After boiling each type of hay for 30 min and filtration, hay extract was kept in a warm place for about 5 days to get the bacterial pellicle extract at the surface. Micro scoping of this pellicle proved the presence of bacteria of the genus *Bacillus* in the sample. The pellicle from the surface of hay extract was inoculated in a solid substratum in the Petri dishes to the formation of isolated colonies. Analysis of colonies morphology proved the presence of several different by shape, size and texture type of *Bacillus* bacteria. After accumulating a pure culture we identified *Bacillus* bacteria by traditional microbiological methods (by morphology of spores, cells mobility, oxygen sensibility), most likely, we got *B.subtilis*, *B.thuringiensis* and *B.lisheiformis*. Through inoculation in starch agar and solution iodine impregnation we studied amylolytic activity. The area with starch was painted in dark blue color, but the hydrolysis area didn't change color or painted in reddish brown. Starch hydrolysis area was measured in millimeters. Proteolytic activity was studied through inoculation in a gelatin column; proteolytic activity was determined visually by dilution around injection of culture. Analysis of enzymatic function of isolated bacteria demonstrate amylolytic and proteolytic activity for all kinds of bacteria of the genus *Bacillus*. As a result of this research, from the few types of hay we got the mixture of bacteria of the genus *Bacillus*, accumulated pure culture, identified *Bacillus* bacteria by cultural and morphological characteristics, determined species belonging by physiological and biochemical characteristics and studied enzymatic functions of isolated bacteria of the genus *Bacillus*. The presence of enzymatic activity of the samples had demonstrated valuable perspective of using *Bacillus* bacteria as producers of enzymes.