ABSTRACTS
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SECRETION OF PROTEINS BY **Bacillus subtilis** IN THE PRESENCE OF MEMBRANE - ACTIVE AGENTS

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The mechanisms by which proteins cross the hydrophobic barriers of bacterial cells are still obscure although it has become obvious that the properties of the membranes are important in this translocation. There are some grounds to believe that proton motive force (PMF) is involved in the transfer of these hydrophilic molecules through biological membranes. Nevertheless, some recent findings contradicting this statement and pointing to a possible role of ATP and not of PMF in the process should also be taken into account.

These problems have been approached in the present study by using some membrane - active agents to change the properties of the membranes of wild - type and genetically - modified strains of **Bacillus subtilis**. The list of these agents includes non - ionic detergents, an inhibitor of lipid synthesis, a polyanionic substance, as well as some specific inhibitors of the ATP-ase or the PMF. All of them have been selected on the basis of a known mechanism of action they exercise either by altering the fluidity of the membranes, by eliminating one of the components of the PMF or by suppressing the ATP-ase activity thus preventing the hydrolysis of ATP. It has been established that the secretion of two extracellular enzymes of **B. subtilis**, i.e. serine protease and α-amylase, is significantly affected by such a treatment. The study of enzyme secretion in the presence of membrane - active agents does not contribute only to a better understanding of the mechanisms of protein export but could also aid the genetic methods used to increase the yields of some extracellular proteins.