α-AMYLASES OF *Aspergillus flavus* var. *oryzae* AND *Bacillus subtilis*: THE SUBSTRATE SPECIFICITY AND RESISTANCE TO A NUMBER OF CHEMICALLY ACTIVE SUBSTANCES

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The ability of *Aspergillus flavus* var. *oryzae* 80428 and *Bacillus subtilis* 147 α-amylases to split different carbohydrate-containing substrates, such as maltose, sucrose, trehalose, dextrin, α- and β-cyclodextrin, amylose, amylopectin, glycogen, pullulan, soluble starch, insoluble starch, corn starch, wheat starch, dextran 500 has been studied. It was shown that investigated enzymes differ by substrate specificity. α-Amylase of *A. flavus* var. *oryzae* 80428 rapidly hydrolysed soluble potato and wheat starch, while the α-amylase of *B. subtilis* 147 — only wheat starch. Both enzymes don’t cleave maltose, α-cyclodextrin and dextran 500. *A. flavus* var. *oryzae* 80428 α-amylase display very small ability to hydrolyze pullulan, while α-amylase of *B. subtilis* 147 it does not act in general. The lowest values of Michaelis constant for both enzymes at splitting of glycogen have been obtained, indicating that enzymes have the greatest affinity to this substrate. The studies of influence of chemically active substances on activity of *A. flavus* var. *oryzae* 80428 and *B. subtilis* 147 α-amylases show there are resistant to urea, deoxycholic acid, Tween-80, Triton X-100 and hydrogen peroxide. It's indicate the enzymes tested may be competitive in compare with earlier described in literature enzymes. The obtained results give a possibility to propose in future usage these enzymes in different fields of industry, foremost in detergent industry.

**Key words**: *Aspergillus flavus* var. *oryzae*, *Bacillus subtilis*, α-amylase, substrate specificity,
Michaelis constant.

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6. Avdiyuk E. V., Varbanets L. D., Safronova L. A., Kharkevich E. S. Purification of α-amylase *Aspergillus flavus*


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