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Diffusion screening method for estimation potential fungal producers of xylanase responsible for xylooligosaccharides production

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Wild-type microorganisms from the environment represent a wide source of potential enzyme producers. In order to determine whether an isolated microorganism produces an enzyme of interest, various screen tests have been developed [1-3]. A new screening method for detection of endo and exo-xylanase activity including short time growth of fungal strains on a minimal medium containing xylan (inducible substrate) as a carbon source is developed and used for testing 58 fungal isolates from genus *Aspergillus*. The test is based on the diffusion of samples (fermentation extracts) in polyacrylamide gel incorporated by xylan. Endoxylanase activity is detected as enlightenment in the gel after staining of xylan with Congo Red. Exoxylanase activity was visualized as a precipitate after staining of reduction oligosaccharide ends with NBT. Selected isolate *A. tubigensis* was grown on SSF where corn cob served as an inducible substrate. In order to examine the influence of nitrogen sources on endoxylanase production and fungal growth, two sources (peptone and urea) were varied in 3 concentrations (1, 5 and 10 g/L). There were statistically significant differences in the obtained activities. The increase in activity compared to the screening medium was ~250 times. The obtained enzymes with high specific activity were further used for the production of xylooligosaccharides in high yield which showed that the selection of strain *A. tubingensis* was good.

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