Giorgi Kvesitadze et al., J Biotechnol Biomater 2016, 6:7(Suppl)
http://dx.doi.org/10.4172/2155-952X.C1.065

12th Euro Biotechnology Congress

November 07-09, 2016 Alicante, Spain

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Search for energy from renewable resources is more urgent now than ever. In natural environments, fungi are the primary degraders of lignocellulosic biomass, excreting both hydrolytic and oxidative enzymes. e majority of cellulases used in biotechnology are still derived from well-characterized non-extremophilic microorganisms and there is a very little information regarding cellulases from extremophiles. An important drawback of these commonly used industrial enzymes is the lack of activity at even slightly elevated temperature and the tendency of these enzymes to denature at elevated temperatures other critical conditions. Project is focused on obtaining stable enzymes from Durmishidze Institute of Biochemistry and Biotechnology, AUG unique extremophilic mycelial fungi collection for the creation of biotechnology of production of fuel-bioethanol from agricultural and industrial lignocellulosic wastes. Cellulase/xylanase producers, mesophilic Penicillium canescens D 85 and thermophilic Sporotrichum pulverulentum T 5-0 synthesizing extracellular enzymes with activities 185 U/g/1600 U/g and 110 U/g/840 U/g, correspondingly, have been selected. Optimum pH of action of the studied cellulase/xylanases was similar and equaled to 4.5-5.0. Simultaneously 21 basidial fungi strains have been selected as laccase produc Using these enzymes allowed creation of the technology of glucose production from agricultural wastes by hydrolyzing of cellulose up to 80% or higher.

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