

BOOK of ABSTRACTS

25th Congress of Chemists and Technologists of Macedonia



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Сојуз на хемичарите и технолозите на Македонија
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BOOK of ABSTRACTS

19–22 September 2018
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Biotechnology and Food Technology (BFT)

BFT O-1

PRODUCTION OF ENZYMES BY A NEW STRAIN *STREPTOMYCES FLUVISSIMUS* CKS7 USING AGRICULTURAL BY-PRODUCTS

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In recent years, there have been an increasing interest for reuse of agricultural by-products especially in the field of microbial enzymes production. These kind of a agricultural waste are abundant, cheap and represent a good source of fermentable sugars and proteins which are necessary for microorganisms growth and enzymes production. Because of the still high price of commercial enzymes, microbial enzymes produced by this way could reduce the cost of entire process.

The potential of a novel bacterial strain *Streptomyces fluvisissimus* CKS7, previously isolated from a soil, to produce industrially important enzymes was evaluated using selective agar plates. The strain was able to produce extracellular cellulase (CMC-ase and Avicelase), amylase, pectinase and xylanase.

Different types of agricultural by-products (wheat bran, barley bran, rye bran, sunflower meal and soy meal) were used as substrates for CKS 7 growth and enzymes production. Solid state fermentation (SSF) was performed using these waste substrates. Among tested agricultural by-products, rye bran showed maximum enzymes production. During SSF on rye bran, the strain CKS7 produced several enzymes: cellulase (Avicelase and CMC-ase), amylase, pectinase and xylanase. An optimum solid: moisture ratio for maximum enzymes production was investigated. Maximum of CMC-ase 2.81 U/g, Avicelase 2.67 U/g, amylase 7.63 U/g, xylanase 6.84 U/g and pectinase 9.81 U/g activity was obtained at the sixth day of incubation with 10% of inoculum using rye bran as substrate. The results obtained in this study showed that agricultural by-products could be used as substrate for enzymes production.

Keywords: agricultural by-products, SSF, microbial enzymes, *Streptomyces fluvisissimus* CKS7.

n.b.: Manuscripts submitted to this Congress were not subjected to language or other corrections, except in some extreme cases. Authors are fully responsible for the content of their Abstracts.

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