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of the South-East European Countries

BOOK OF ABSTRACTS

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UCB - Union of Chemists in Bulgaria
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Cellulolytic potential of a strain *Paenibacillus* sp. isolated from soil

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Cellulases are the enzymes which cause hydrolysis of the polysaccharide cellulose into smaller sugar units. Bacterial cellulases possess more advantages when compared to the cellulases from other sources. The gram positive, spore forming bacteria was isolated from soil. Strain was identified as *Paenibacillus chitinolyticus* after biochemical and 16S rRNA sequencing studies. The isolated strain was screened for cellulase activity by using a Gram's iodine method on carboxymethyl cellulose (CMC) agar plate [1]. It has been found to produce cellulases which could liberate glucose from CMC (CMC-ase) and microcrystalline cellulose Avicel (avicelase). The enzyme activity was measured by estimating the liberated reducing sugars using 3,5-dinitrosalicylic acid method [2].

A liquid medium containing 0.5% CMC and yeast extract proved to be a suitable carbon and nitrogen sources for cellulase production by the bacterium. Maximal cellulase production for CMC-ase 0.085 U/ml and for avicelase 0.17 U/ml was obtained after 48 h of incubation at 30 °C under aerobic conditions with 5% overnight culture and with addition of 0.5% CMC, 10 g/l yeast extract, MgSO₄ 0.5g/l, KCl 0.5g/l, CaCl₂ 0.02g/l and 1g/l Tween 80.

Paenibacillus sp. strain isolated from soil is available for further studies aiming the optimization of its cellulase production, facilitating its potential use in industrial applications.

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