

TITLE: SCREENING OF YEASTS TO EXOPOLYSACCHARIDES PRODUCTION USING SUGAR CANE MOLASSES AS CARBON SOURCE

AUTHORS: SILVA, A. A. D.; CAZETTA, M. L.

INSTITUTION: UNIVERSIDADE FEDERAL DO RECÔNCAVO DA BAHIA, CRUZ DAS ALMAS (, R. RUI BARBOSA, 710, BAIRRO CENTRO, CEP: 44380-000, CRUZ DAS ALMAS – BA, BRASIL).

Exopolysaccharides (EPS) are extracellular biopolymers produced by fungi and bacteria, found on the cell wall or excreted in the extracellular medium forming biofilm, and can be perceived by increasing of the viscosity of the culture medium. EPS produced by microorganisms has many applications in the pharmaceutical, cosmetics, food industry, among others. This work had as objective the screening of 15 yeasts from Yeast Collection of Biochemical Laboratory of Federal University of Recôncavo da Bahia to EPS production. The yeasts were incubated in Petri dishes with Saboraud Dextrose Ágar medium at $25 \text{ }^{\circ}\text{C} \pm 2 \text{ }^{\circ}\text{C}$ for 48 h. To study the biosynthesis of EPS, the media of inoculum and fermentation were composed (%): $(\text{NH}_4)_2\text{SO}_4$ 0.2, KH_2PO_4 0.1, $\text{MgSO}_4 \times 7\text{H}_2\text{O}$ 0.05, CaCl_2 0.01, NaCl 0.01, yeast extract 0.1 and sugar cane molasses 5. The media was sterilized by autoclaving at 121°C for 20 min. In order to obtain inoculum, biological material was transferred from slants to 20 ml of inoculum medium with the use of an inoculation loop followed by 24 h of culturing on a shaker at 180 rpm, $25 \text{ }^{\circ}\text{C}$. From such prepared culture, 2.5 ml (10%) were transferred to 125ml-Erlenmeyer flasks containing 25 ml of fermentation medium. The cultures assigned to EPS production were carried out under aerobic conditions on a shaker at 180 rpm, $25 \text{ }^{\circ}\text{C}$ for 96 h. The samples were centrifuged at 5000 rpm and $4 \text{ }^{\circ}\text{C}$ for 20 min. Biomass was washed twice and, after dilution, cell growth was determined by Optical Density (600 nm). For EPS determination, to the 20 ml supernatant were added 40 ml of absolute ethanol. The samples were left at approximately $4 \text{ }^{\circ}\text{C}$ for 24 h to obtain EPS precipitate. The precipitate was centrifuged for 20 min at 5000 rpm, washed with ethanol and re-centrifuged under identical conditions. Precipitated EPS was dried at $80 \text{ }^{\circ}\text{C}$ for 12 h, and then weighed. The crude EPS amount was given as g/l. Among the 15 yeasts studied, 3 were outstanding in the EPS production: *Cryptococcus laurentii*, *Rhodotorula mucilaginosa* and *Occultifer external*, with production of 2.8 g/l, 2.4 g/l and 2.0 g/l, respectively. Thus, it is concluded that these yeasts have great potential for the EPS production using sugarcane molasses as a carbon source.

Key-words: Biopolymers, fungi, agroindustrial byproducts.

Financial support: Fundação de Amparo à Pesquisa do Estado da Bahia (FAPESB).