

TITLE: CHEESE WHEY AS CARBON SOURCE TO PRODUCING EXOPOLYSACCHARIDE BY LACTIC ACID BACTERIA ISOLATED FROM “COALHO” CHEESE

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EPSs by LAB have been explored due to their unique physical and rheological properties that promote their most valuable application in the improvement of the rheology and the texture of fermented dairy products. Moreover, EPSs can contribute to biological activities as antioxidant activity, potential immunostimulatory and enhancement of colonization of probiotic bacteria. Nowadays, the microbial biopolymer production on industrial scale is directed for the production from inexpensive sources like agro-industrial wastes. The recycling of agroindustrial waste such as cheese whey can be a biotechnological route for production of this biopolymer as an inexpensive process. Main components of whey include lactose, lactic acid, soluble proteins, lipids, vitamins and mineral salts that provides adequate carbon source to be utilized by microorganisms. The present study aimed to screen a large number of LAB isolates from artisanal “coalho” cheese to search for those able to produce EPS through low cost process. Eighty isolated LABs were prepared by incubating cells in MRS broth for 18h at 37°C at static condition. Pre-inoculum (10^8 UFC/ml) was grown in deproteinized cheese whey at 37° C during 24h on static conditions. After the desired intervalo of time, the culture was centrifuged at 11,000 g for 10 min and the supernatant was collected. Triple volume ethanol was added to the supernatant and kept for overnight incubation at 4°C to precipitate EPS. Then, the precipitated EPS was collected by centrifugation at 11,000 g for 10 min. The pellet was dissolved in distilled water and lyophilized. The samples were padronized to 10mg/ml of concentration and total sugar was determined by phenol sulphuric acid method. Results showed that sixty LAB produced EPS, being eight of them obtained between 5.10 - 6.3 g/l of EPS. It showed that "coalho" cheese whey can be an alternative on EPS production through low cost fermentation medium.

Keywords: Exopolysaccharides, carbon source, lactic acid bacteria, cheese whey.

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