

Synthesis of Mannose-Rich Exopolysaccharide by *Rhodotorula glutinis* 16P Co-Cultured with Yeast or Bacteria

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Exopolysaccharides from the lactose-negative yeast *Rhodotorula glutinis* 16P were synthesized by co-cultivation with the yeast *Kluyveromyces lactis* MP11 or with the homofermentative lactic acid bacteria *Lactobacillus helveticus* 9A in a cheese whey ultrafiltrate. Exopolysaccharides were produced by lactose hydrolysis, performed by two pathways: with β -galactosidase from *Kluyveromyces lactis* MP11 which assimilates glucose and galactose; with β -galactosidase and *Lactobacillus helveticus* 9A which uses lactic acid. By growing the two mixed cultures maximum yield was obtained as follows: 11.4 g/l and 15.8 g/l, respectively. Structural units of the carbohydrate composition of the two polymers are mannose (72.4–63.5%), glucose (2.0–15.9%), galactose (25.3–19.8%) and xylose (3.6–4.3%). Mannose dominated in the polysaccharide compositions.