

Effect of Aeration on the Production of Carotenoid Pigments by *Rhodotorula rubra-lactobacillus casei* Subsp. *casei* Co-Cultures in Whey Ultrafiltrate

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Under intensive aeration (1.3 l/l min) the associated growth of *Rhodotorula rubra* GED2 and *Lactobacillus casei* subsp. *casei* in cheese whey ultrafiltrate (55 g lactose/l) proceeded effectively for both cultures with production of maximum carotenoids (12.4 mg/l culture fluid). For maximum amount of carotenoids synthesized in the cell, the yeast required more intensive aeration than the aeration needed for synthesis of maximum concentration of dry cells. Maximum concentration of carotenoids in the cell (0.49 mg/g dry cells) was registered with air flow rate at 1.3 l/l min, and of dry cells (27.0 g/l) at 1.0 l/l min. An important characteristic of carotenogenesis by *Rhodotorula rubra* GED2 + *Lactobacillus casei* subsp. *casei* was established – the intensive aeration (above 1.0 l/l min) stimulated β -carotene synthesis (60% of total carotenoids).

Key words: Carotenoid Pigments, Yeast, Lactic Acid Bacteria