

Influence of the Dilution Rate on the Bioproductivity of Lactose-Utilizing Yeasts: Fuzzy Logic Modeling

Svetla Vassileva^{a*} and Bonka Tzvetkova^b

^a Institute of Control and Systems Research, Bulgarian Academy of Sciences, Acad. G. Bonchev str., bl. 2, P. O. Box 79, 1113 Sofia, Bulgaria. E-Mail: vasileva@iusi.bas.bg.
Web-address: <http://www.icsr.bas.bg>

^b Institute of Microbiology, Bulgarian Academy of Sciences, Acad. G. Bonchev str., bl. 26, 1113 Sofia, Bulgaria

* Author for correspondence and reprint requests

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The studied problem is of commercial interest because whey, the cultivation substrate, is a waste by-product from the transformation of milk into cheese and casein. Investigations on the influence of the dilution rate (D) on the bioproductivity of lactose-utilizing yeasts were carried out with two model strains – the oxidative strain *Candida blankii* 35 and the fermentative strain *Candida pseudotropicalis* 11. The increase of D led to the different changes in productivity. The best synthesizing ability of both continuously cultivated strains is established at $D = 0.4$ [h⁻¹] despite the different type of metabolism. The oxidative strain *C. blankii* 35 is more effective in comparison with the fermentative strain *C. pseudotropicalis* 11 because of its ability to synthesize 1.5 fold higher biomass and protein yields. These experimental facts were proved also by simulative research with a Fuzzy Knowledge-Based System (FKBS) developed for modeling the influence of D on several process variables.

Key words: Lactose-Utilizing Yeasts, Protein-Synthesizing Ability, Fuzzy Logic Modeling