

Impact of exogenous autoregulators of intercellular communication in yeast on the growth of *Saccharomyces cerevisiae*

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Abstract

© 2016, International Journal of Pharmacy and Technology. All rights reserved. The study was aimed at growth capacity and growth of *Saccharomyces cerevisiae* population exposed to R-, S- and DL-isoforms of phenylethanol - autoinducer molecule of the yeast *Saccharomyces*. It is found that when impacting the cells, exogenous phenylethanol (PEL) of transition and growth phase inhibits the growth of the yeast culture *S. cerevisiae*, depending on its isoform, by aromatic alcohol. The maximum inhibition effect was shown for R-isoform of PEL in a concentration of 10 μm when introducing it to the culture at the beginning of lag phase. In an exponentially growing culture, the exogenous R-PEL of the same concentration resulted in stopping the yeast growth and budding immediately after addition. R-PEL introduced into the culture at the beginning of phase of growth declining and stationary phase had no effect on the population size in comparison with that without PEL treatment, but it induced a cell morphogenesis characterized by the transition from unicellular in the chain forms. The filamentous growth was also characteristic for *S. cerevisiae* at cultivation on a limited nitrogen medium; it indicates similar mechanisms of action of exogenous and endogenous autoinducers secreted by a cell in response to nitrogen starvation.

Keywords

Autoinducer molecules of yeast, Chain forms, Morphogenesis, Phenylethanol (PEL), R-, S-, DL-isoforms of PEL, *S.cerevisiae*