
Biocatalysis/Biotransformation**Use of mixed-cultures of *Yarrowia lipolytica* mutant strains for γ -decalactone production from castor oil**

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Natural aroma additives request increases every year due to consumer demand, thus the biotechnological production of such compounds have gained increased importance. γ -Decalactone is a peach-like aroma widely used in many industrial applications (food, cosmetics, detergents, etc.). γ -Decalactone production by *Yarrowia lipolytica* from castor oil (CO) has been studied by many authors in order to improve strains by genetic engineering, as well as to optimize cultures performance by selecting bioreactor operating conditions. In this work, the use of co-cultures (mixed cultures) of two mutant strains derived from *Y. lipolytica* wild-type W29, MTLY40-2P strain overexpressing POX2 gene and JMY3010 that overexpresses LIP2 gene, was evaluated and compared with pure cultures of each strain. For batch co-culture (mixed culture of both strains) higher γ -decalactone concentration ($1844 \pm 46 \text{ mg L}^{-1}$) and productivity ($80 \pm 5 \text{ mg L}^{-1} \text{ h}^{-1}$) were obtained, when compared with pure cultures of each strain. The lipase production by JMY310 strain accelerates the CO hydrolysis and the use of MTLY40-2P strain, minimize γ -decalactone re-consumption. The optimization of the co-culture performance was further performed at different cellular and CO concentrations in order to maximize aroma productivity.

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