

Biotechnological application of *Yarrowia lipolytica* for bio-transformation in biphasic media

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The yeast *Yarrowia lipolytica* is able to grow on hydrophobic substrates such as oils, alkanes, fatty acids¹. This characteristic notably offers interesting prospects in different industrial areas: food (production of aroma compounds², organic acids, proteins), environment (degradation of hydrophobic polluting agents), pharmacy and others (production of lipases, of “single cell oils”). With the growing interest of this species, the fundamental studies have increased, concerning mainly the dimorphism, metabolic pathways such as peroxisomal beta-oxidation or the one leading to the production of carboxylic acids. In some cases it has turned a model for the study of fundamental cell aspects, as in the generation of peroxisomes or in the interactions with lipid droplets. The entire genome of *Y. lipolytica* has been sequenced recently. Investigation has been made in our laboratory to better understand the behaviour of the yeast in biphasic media. Thus, the studies of the surface properties of the cells³, of the oxygen diffusion within the medium and of beta-oxidation have been emphasized, with the main application: production of the fruity aroma gamma-decalactone through biotransformation of methyl ricinoleate. Our last results concerning this application will be presented, namely the optimization of the process in a bioreactor.

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3. Aguedo, M. (2005) *Biotechnol. Lett.* **27**:417-422.