

The invention relates to the process for fermentation with the participation of genetically modified yeast, having disruption of native PDC pathway, transforms by means of fermentation the fermentative substrate, and the specific oxygen uptake rate is controlled during manufacturing phase of this fermentation process and at least one operational parameter is regulated in accordance with the measured oxygen uptake rate, at that the concentration of dissolved oxygen is maintained at the level less than 1% of the saturation level. The invention also relates to the method for realization of fermentation, where the fermentation broth has definite quantity of dissolved oxygen (DO), and the fermentation shows the specific oxygen uptake (OUR), and which comprises measuring of OUR during manufacturing phase of fermentation. The claimed method also comprises regulation of aeration conditions in such manner, that OUR is maintained within the given range at maintenance of DO at the level less than 1% of saturation during manufacturing phase of fermentation, at that during this stage the OUR is maintained within limits of about 0.8 to 3.0 mmol O<sub>2</sub>/g.sm/hour, and DO is maintained at the level less than 10 µm O<sub>2</sub>/l. Also in the claimed method the microorganism is used, which is the yeast cell, having Crabtree-negative phenotype, at that the yeast cell relates to the genus *Kluyveromyces* or *Candida* and has disrupted PDC pathway and at least one functional exogenous gene, which allows cell to produce the desired product of fermentation, at that the lactate dehydrogenase gene is exogenous gene.