

**INFLUENCES OF INITIAL AMMONIUM CHLORIDE
CONCENTRATION ON GROWTH AND CITRIC ACID PRODUCTION
KINETICS OF TWO *YARROWIA LIPOLYTICA* STRAINS**

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Citric acid is known as a common food additive and widely used in the production of jellies, jams, ice cream, fruit juices, soft drinks and cheeses. Citric acid production by *Yarrowia lipolytica* is affected by the type and concentration of the nitrogen source in the fermentation medium. In this study, the influences of the initial ammonium chloride concentration of the medium on the growth and citric acid production characteristics of *Y. lipolytica* NBRC 1658, and a domestic strain; *Y. lipolytica* 57, were investigated. Batch fermentations were carried out in water bath shakers at 30°C by using a fermentation medium containing glucose. Initial ammonium chloride concentration was changed from 0 to 6 g/L. Non-linear regression analysis was performed for expressing the changes of specific growth rate and maximum specific citric acid production rate with the initial ammonium chloride concentration. The maxima of the citric acid concentration, productivity and product yield were obtained in the medium consisting 2 g/L of ammonium chloride for both strains. Maximum citric acid production was determined as 28.45 and 37.66 g/L for the NBRC and domestic strains, respectively. Citric acid production of the domestic strain was found higher than that of the NBRC strain. The maxima of the biomass concentration and specific growth rate for the NBRC and domestic strains were obtained in the media containing 2 and 4 g/L of ammonium chloride, respectively. It was also concluded that the domestic strain gave more promising results than that of the NBRC strain.

Keywords: Citric acid, *Yarrowia lipolytica*, nitrogen source, ammonium chloride

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