

Effects of physiological factors and bench scale fermentation of *Mannheimia succiniproducens* LPK7 for production of succinic acid

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Succinic acid is a valuable 4-carbon intermediate that is useful in the production of many chemicals. To date, succinic acid has been commercially produced by a substitution reaction of malic acid in chemical processes that depend on petroleum. Recently, fermentation of microbe for production of succinic acid has become of interest. To achieve a higher succinic acid productivity and evaluate the industrial applicability, this study used *Mannheimia succiniproducens* LPK7 (knock-out: *lahA*, *pflB*, *pta-ackA*), which was recently designed to enhance the productivity of succinic acid and reduce by-product secretion. In order to obtain maximum succinic acid production, experiments to find optimal conditions were performed in lab scale. In order to test the industrial applications, bench scale batch fermentation was carried out at optimal conditions in lab scale results. After extensive fermentation experiments, final succinic acid concentration and yield were obtained as 15.4 g/L and 0.65 mol/mol. With these optimal conditions it will be possible to apply succinic acid production industrially.