

The effects of inoculum size and morphology for the production of fumaric acid by
Rhizopus oryzae NRRL 1526

이준학, 조재훈, 이도훈, 조진구, 박철환¹, 전계택², 김상용*
한국생산기술연구원; ¹광운대학교; ²강원대학교
(sykim@kitech.re.kr*)

Fumaric acid has been used in many fields including food and pharmaceutical industries. Fumaric acid is a very important raw material of organic chemistry and it was produced 40 million pounds per year. Recently, the production of fumaric acid from starch and other carbohydrates is using a fungi fermentation process. *Rhizopus spp.* are capable of producing L-(+)-lactic acid, L-malic acid and fumaric acid. *Rhizopus spp.* can grow as filamentous form, pellets or clumps. Different morphology growth forms can have a significant effect on the rheology of the fermentation broth and their products. Many studies have shown the advantages and disadvantages of growth morphologies in views of different products. Fungal morphology is effected by medium, temperature, agitation speed, pH, inoculum size and morphology and additives. In this study, we performed the flask culture of *Rhizopus oryzae* NRRL 1526 by different amount of spore solutions for their growth morphology. And we tried the fermentation processes for production of fumaric acid from glucose according to different inoculum size and inoculum morphology of *Rhizopus oryzae*.