Production of fumaric acid by *Rhizopus oryzae*

강성우, 이종호, 김성봉, 김승욱, 김상용[1], 이도훈[1], 전계택[2],
이명구[3], 이하원[3], 박철환[3,*]
고려대학교; [1]한국생산기술연구원; [2]강원대학교; [3]광운대학교
(chpark@kw.ac.kr*)

Fumaric acid is a four-carbon unsaturated dicarboxylic acid and also known as (*E*)-2-butenedioic acid or *trans*-1,2-ethylenedicarboxylic acid. The mycelia fungi *Rhizopus oryzae* has been shown to be one of the most productive microorganisms in regard to the production of fumaric acid. It has extensive application in various industries, such as in the manufacture of sizing resins for the paper industry, as an acidulant in food industry, as a supplement in feed industry and as a promising candidate in the manufacture of polymer. The purpose of this study is to develop the medium for the selection of *R. oryzae* mutants and choose strains for the higher production of fumaric acid. *R. oryzae* ATCC 20344 was grown in the flask containing YMS agar (4.1% YM agar, 0.5% NaCl and 0.2% $MgSO_4$). Recoverd spore was treated with UV and successive γ-ray according to the lethal rate of 99.9%. Mutants were selected based on the halo size in the selection medium [2.1% YM broth (Difco), 0.1% Triton X-100, 0.06% Bromo cresolpurple (BCP) and 1.7% agar]. The production of fumaric acid in the sumerged culture by *R. oryzae* mutants was investigated.