

Optimization of fermentation conditions for bio-ethanol production from the waste from beer fermentation broth

하정환¹, 강민경¹, 김예지¹, Taous Khan^{1,2}, 박중곤^{1,*}

¹경북대학교; ²Department of Pharmacy, COMSATS Institute of Information Technology, Abbottabad, Pakistan
(parkjk@knu.ac.kr*)

Currently the major source of energy in most of the countries is derived from fossil fuels. However, rapid depletion of its reserves and environmental hazards associated with its use has necessitated an urgent search for alternative energy sources to cater to the present day and future demands. Although many alternative fuels have been investigated but the remarkable inherent characteristics of ethanol has made it the best alternative fuel. Previously, we investigated the feasibility of production of bio-ethanol from the waste from beer fermentation broth (WBFB). The current study was undertaken to optimize various fermentation conditions for the maximum production of bio-ethanol from WBFB. The fermentations were carried out using 50 ml vials in static and shaking conditions at various temperatures ranging from 30 to 60°C and using various concentrations of sediment. The results revealed that the ethanol production increase with increase in sediment concentration in the WBFB at relatively higher temperatures and in shaking conditions.