

### Response surface methodology for Optimization of Solvent Extraction to Recovery of Acetic acid from Typha latifolia Derived Pulping Wastes Liquor

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(bhum11@hknu.ac.kr\*)

Organic acids are an attractive target for process development efforts in the emergent renewable-based biorefinery industry. Liquid-liquid extraction(LLE) is a common separation method used to recover a solute from a solution and can be applied to the recovery of acetic acid from Typha latifolia pulp waste liquor prior to the bioethanol fermentation process. LLE of acetic acid was studied by using alkane containing 37%(w/w) concentrations of trioctylphosphine oxide(TOPO) and trialkylphosphine oxide(TAPO), and compared the extraction yield of the two extractants. Also, the extraction yield has been evaluated with four-level factorial design. Four independent variables were selected as pH(1~3), temperature(25~65 °C), residence time(24~48min) and concentration(original solution, 5.5 fold and 10 fold concentrated feed). This result showed that extraction yield was increased with lower pH and temperature. The maximum extraction yield achieved 88.52% and 71.52%, respectively, at TAPO and TOPO. Also, the extraction yield was increased with lower concentration.