

리그노셀룰로오스 바이오매스로부터의
레블린 산 생산을 위한 용매 선택

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In this work, the process combining extraction and distillation producing levulinic acid (LA), furfural and formic acid(FA) from lignocellulosic biomass was studied. First, various solvents are evaluated and three promising solvents are selected to study further. Methyl isobutyl ketone(MIBK) solvent showed the most favorable equilibrium to extract LA and octanol solvent presented the most favorable result to extract FA, however furfural solvent showed the best overall performance. The furfural solvent process can recover LA more than octanol process and recover FA more than MIBK process. Second, the processes of three best solvents are designed and optimized by Aspen Plus simulator in terms of total annual cost to further comparison. The rigorous simulation results show that the process using furfural solvent can save 25.3% of energy consumption, 18.3% of total annual costs and reduce up to 17.9% of CO2 emission as compared to the octanol solvent process.

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