

## PPRODUCTION OF AROMATIC ALDEHYDE BY MICROWAVE CATALYTIC OXIDATION OF A LIGNIN MODEL COMPOUND WITH La-CONTAINING SBA-15/H<sub>2</sub>O<sub>2</sub> SYSTEMS

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### Abstract

A convenient and efficient application of heterogeneous La-containing SBA-15 systems for the microwave assisted oxidation of a lignin model phenolic monomer, 4-hydroxy-1-phenylpropane, is reported. Low-cost and environmentally friendly H<sub>2</sub>O<sub>2</sub> was used as the oxygen atom donor. The catalyst was prepared by immobilizing lanthanum species on the periodic mesoporous channels of siliceous SBA-15. Powder X-ray diffraction data and ICP-AES revealed that the host retains its hexagonal mesoporous structure after immobilization and most of the lanthanum species are better dispersed in the calcined materials. The surface area and pore size of La/SBA-15 was considerably decreased, indicating the intrapore confinement of the Lanthanum species. The activity of the La/SBA-15 was investigated in the oxidation of 4-hydroxy-1-phenylpropane in the presence of hydrogen peroxide as oxidant. 70.5% conversion of 4-hydroxy-1-phenylpropane was obtained after 30 min of reaction under 200W microwave irradiation, compared to a poor 28.1% degradation after 24h under conventional heating. The possibility of recycling the catalyst was studied.

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