# Supporting Information

# Microwave-Assisted Catalytic Solvolysis of Lignin to Phenols: Kinetics and Product Characterization

**Piyali Dhar[†] and R. Vinu[†*]**

[†] Department of Chemical Engineering and National Centre for Combustion Research and Development, Indian Institute of Technology Madras, Chennai-600036

---

**Concise title:** Lignin depolymerization to phenols using $Fe_2O_3$, $LaFeO_3$, $ZrO_2$ and ZYH catalysts

**Keywords:** Lignin; vanillin; vanillic acid; coniferaldehyde; kinetics; $LaFeO_3$; $Fe_2O_3$; $ZrO_2$; Zeolite-Y Hydrogen

[*] Corresponding author. Email: vinu@iitm.ac.in. Phone: +91-44-22574187

Figure SI 1. Nitrogen adsorption-desorption isotherms of (a) ZYH, (b) $LaFeO_3$, (c) $Fe_2O_3$, (d) $ZrO_2$.

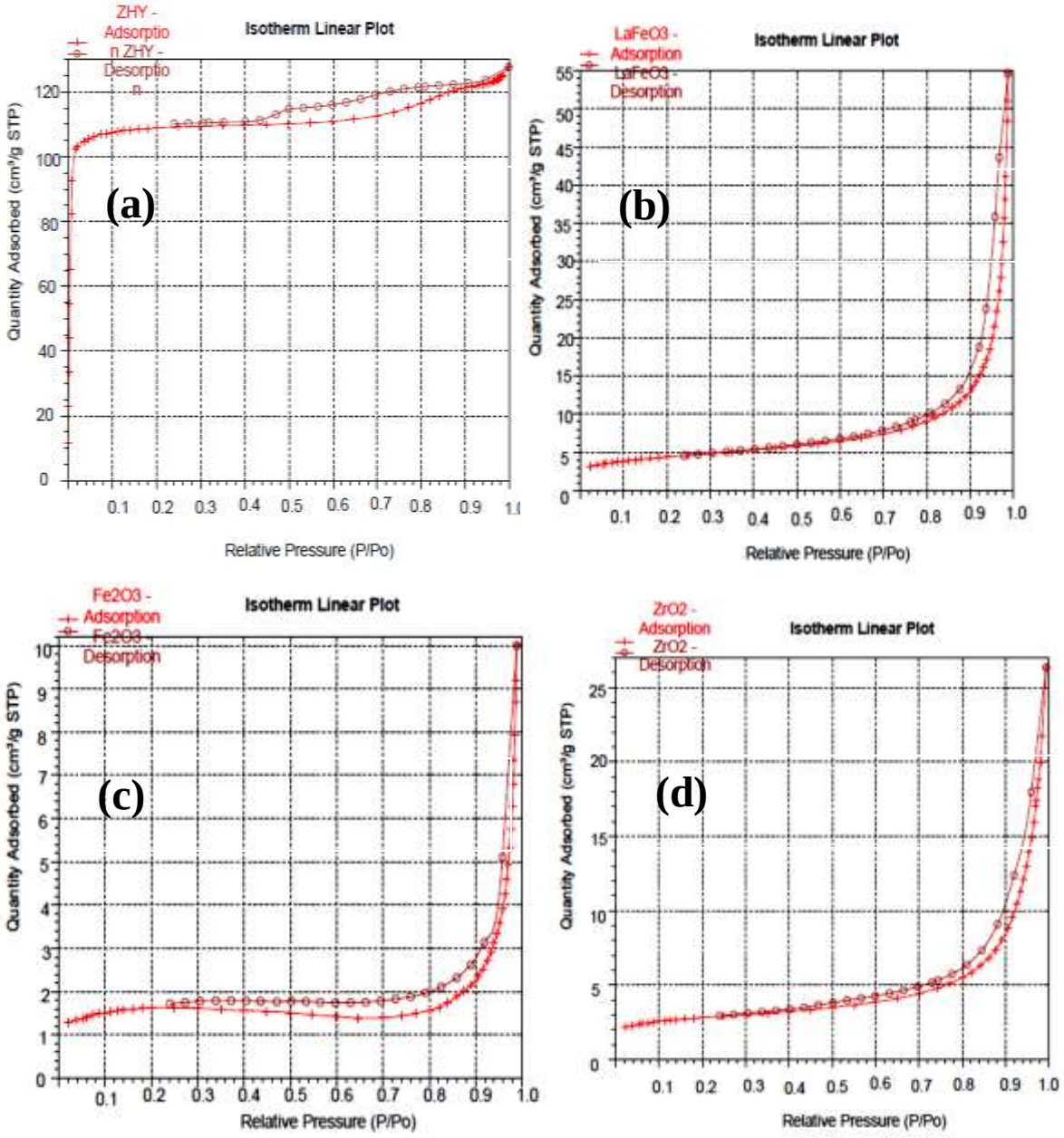
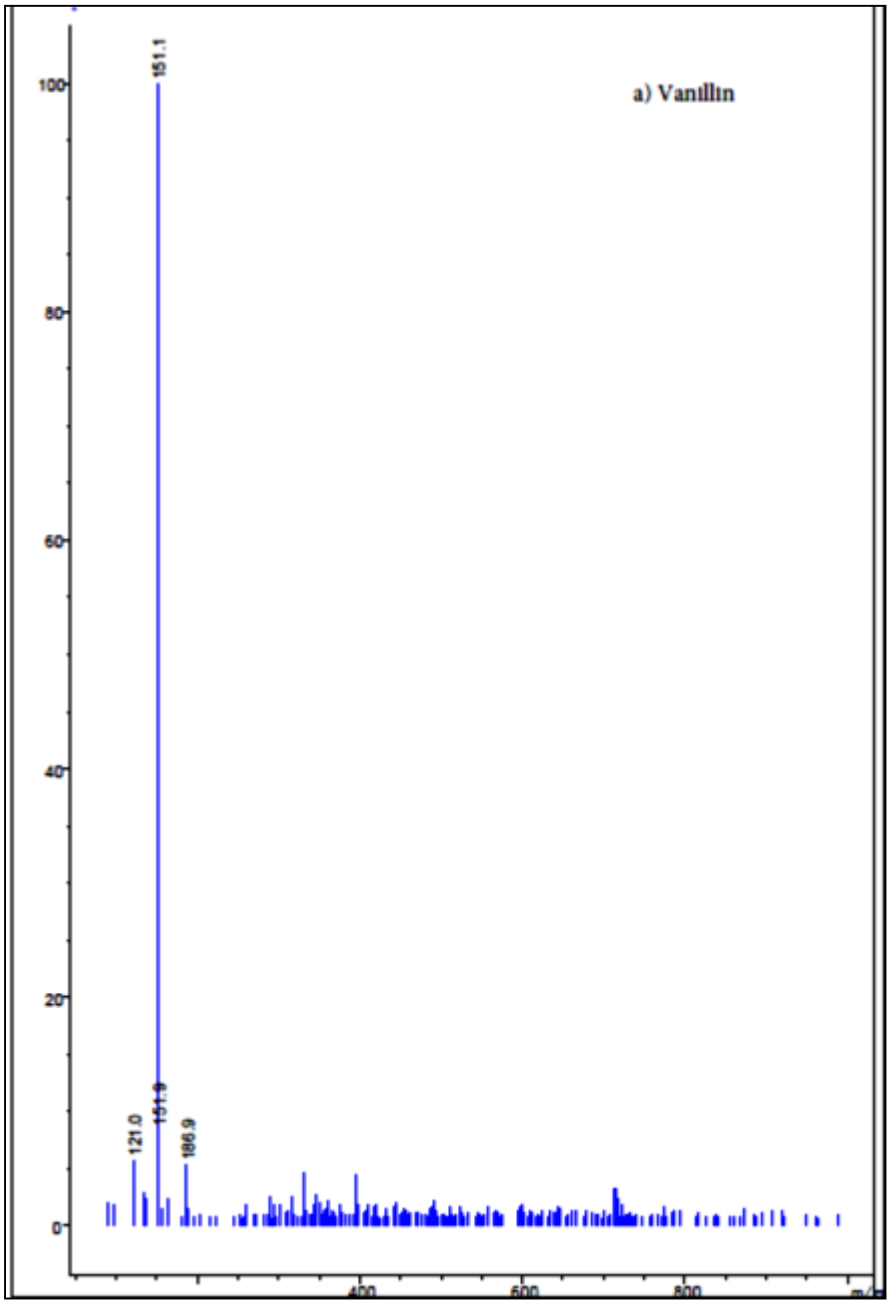
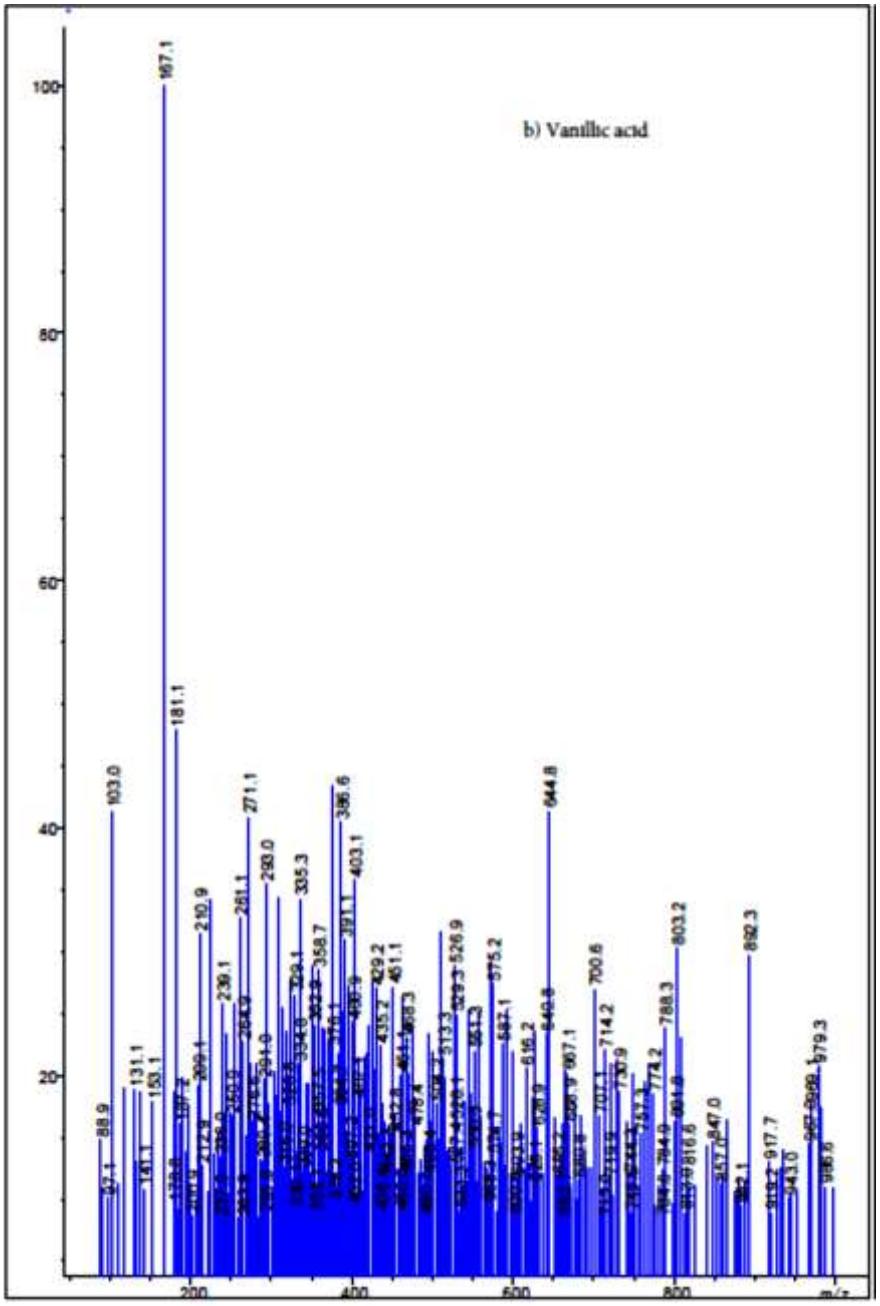


Figure SI 2. Mass spectra of pure compounds. (a) Vanillin, (b) Vanillic acid, (c) Coniferaldehyde




b) Vanillic acid
100
80
60
40
20
167.1
181.1
103.0
271.1
293.0
644.8
803.2
882.3
200
400
600
800
m/z

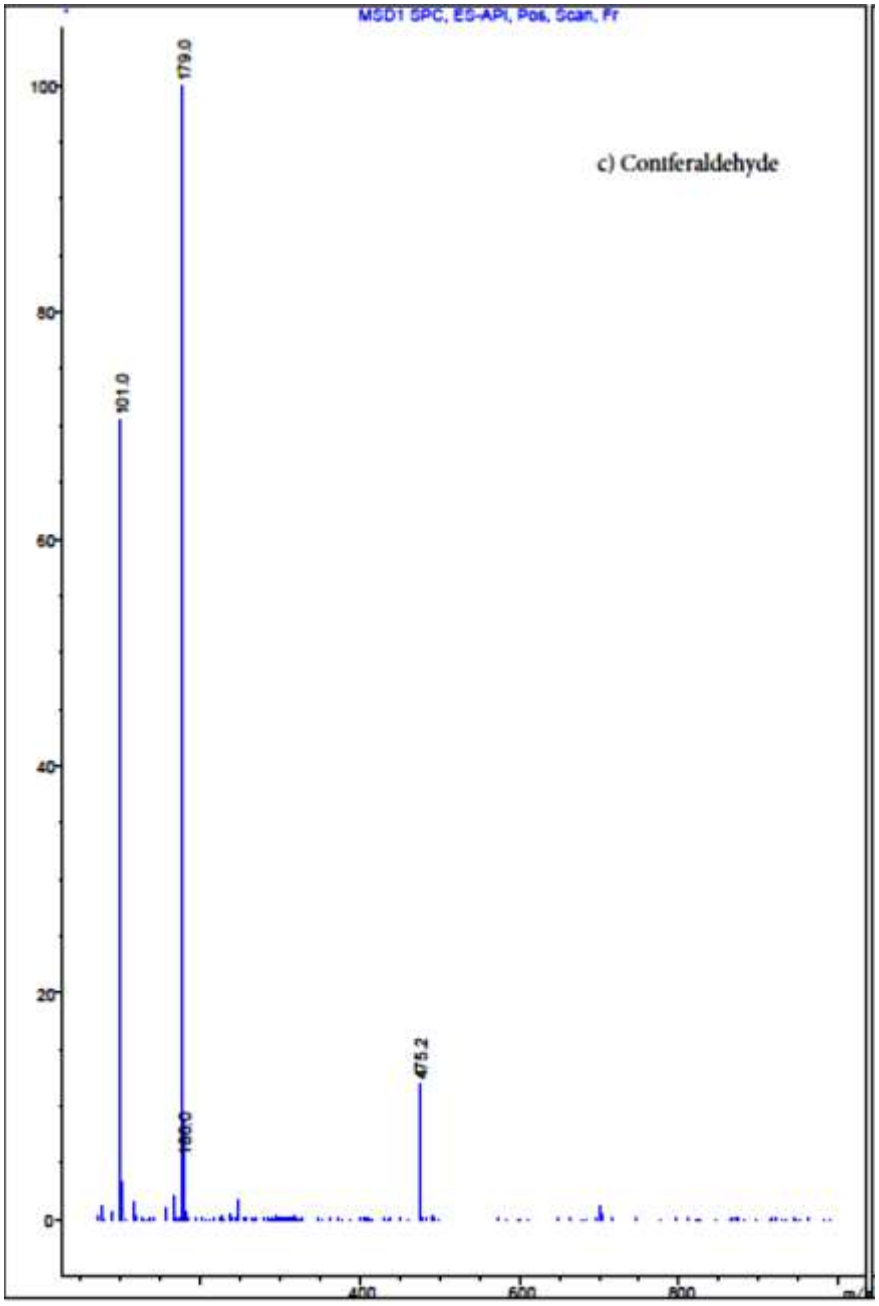

MSD1 SPC, ES-API, Pos, Scan, Fr
c) Coniferaldehyde
179.0
101.0
180.0
475.2
100
80
60
40
20
0
400
600
800

Figure SI 3. Calibration curve for the GPC column using poly(ethylene glycol) narrow standards.