

Supplementary materials

Synthesis of Ce/MgO Catalysts for Direct Oxidation of *Hibiscus cannabinus* Stalks to Vanillin

Nur Akila Syakida Idayu Khairul Anuar ^{1,2}, Anita Ramli ^{1,2,*} and Lim Jun Wei ^{1,2}

¹ Fundamental and Applied Sciences Department, Universiti Teknologi PETRONAS, Seri Iskandar 32610, Perak, Malaysia; nur_18003521@utp.edu.my (N.A.S.I.K.A.); junwei.lim@utp.edu.my (L.J.W.)

² HICOE Centre for Biofuels and Biochemicals Research, Universiti Teknologi PETRONAS, Seri Iskandar 32610, Perak, Malaysia

* Correspondence: anita_ramli@utp.edu.my; Tel.: +60-5368-7639

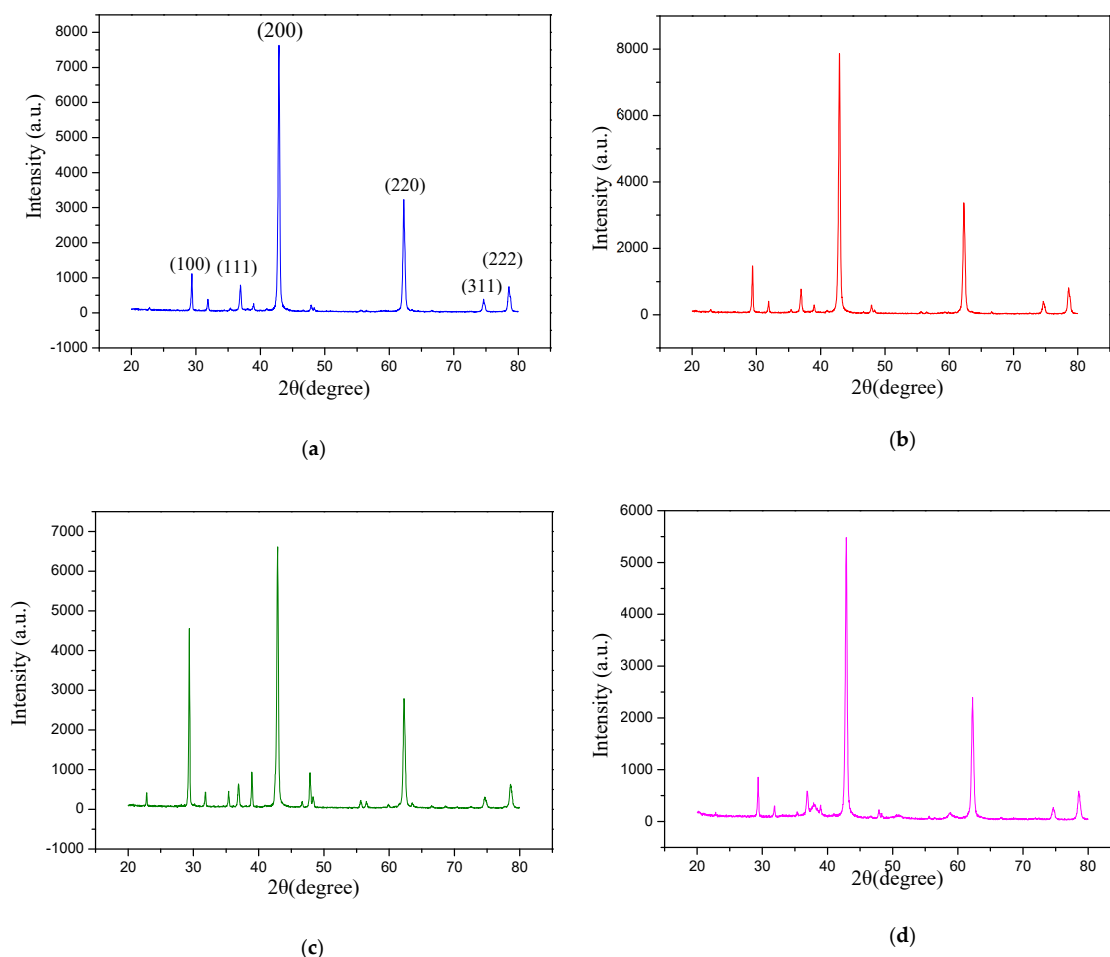


Figure S1. X-ray diffraction patterns of MgO. (a) MgO-18; (b) MgO-36; (c) MgO-48; (d) MgO-SG

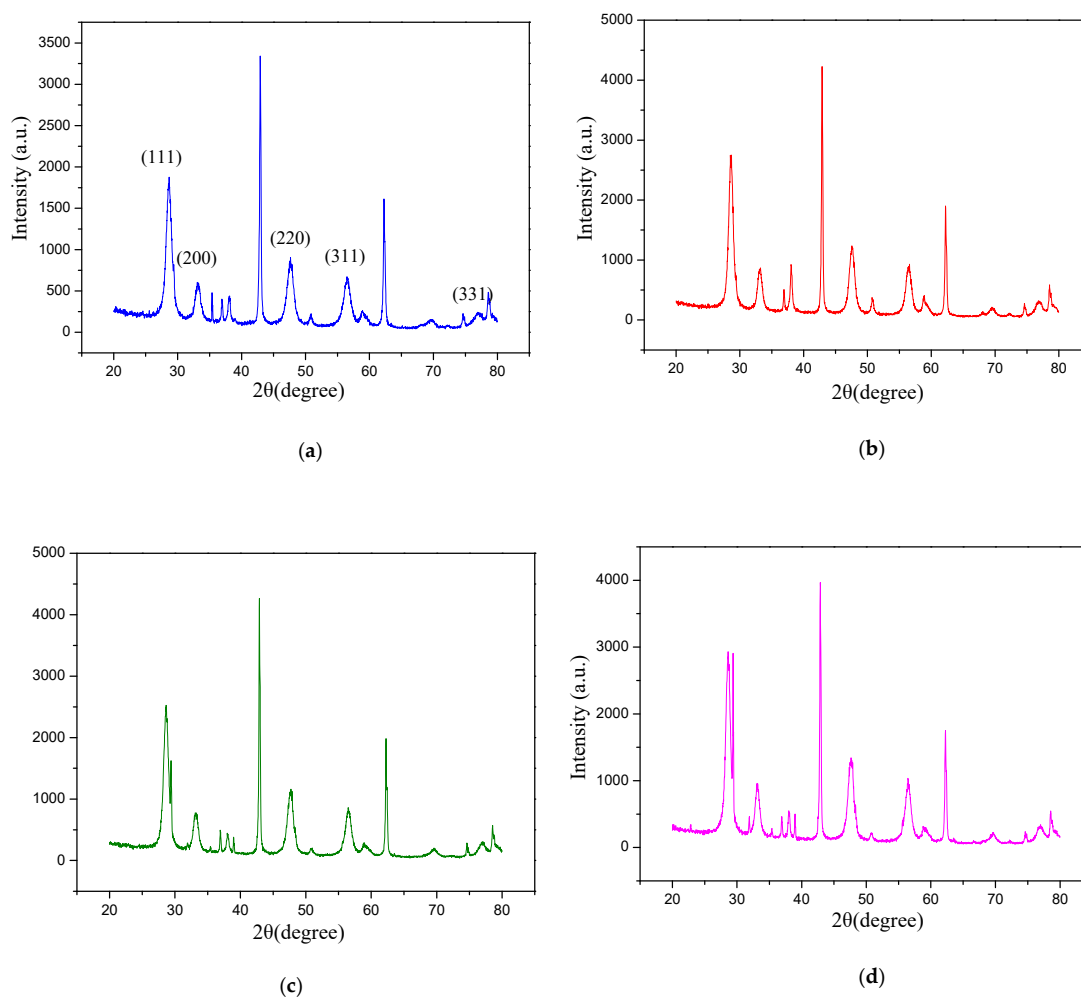


Figure S2. X-ray diffraction patterns of 30Ce/MgO. (a) 30Ce/MgO-18; (b) 30Ce/MgO-36; (c) 30Ce/MgO-48; (d) 30Ce/MgO-SG.

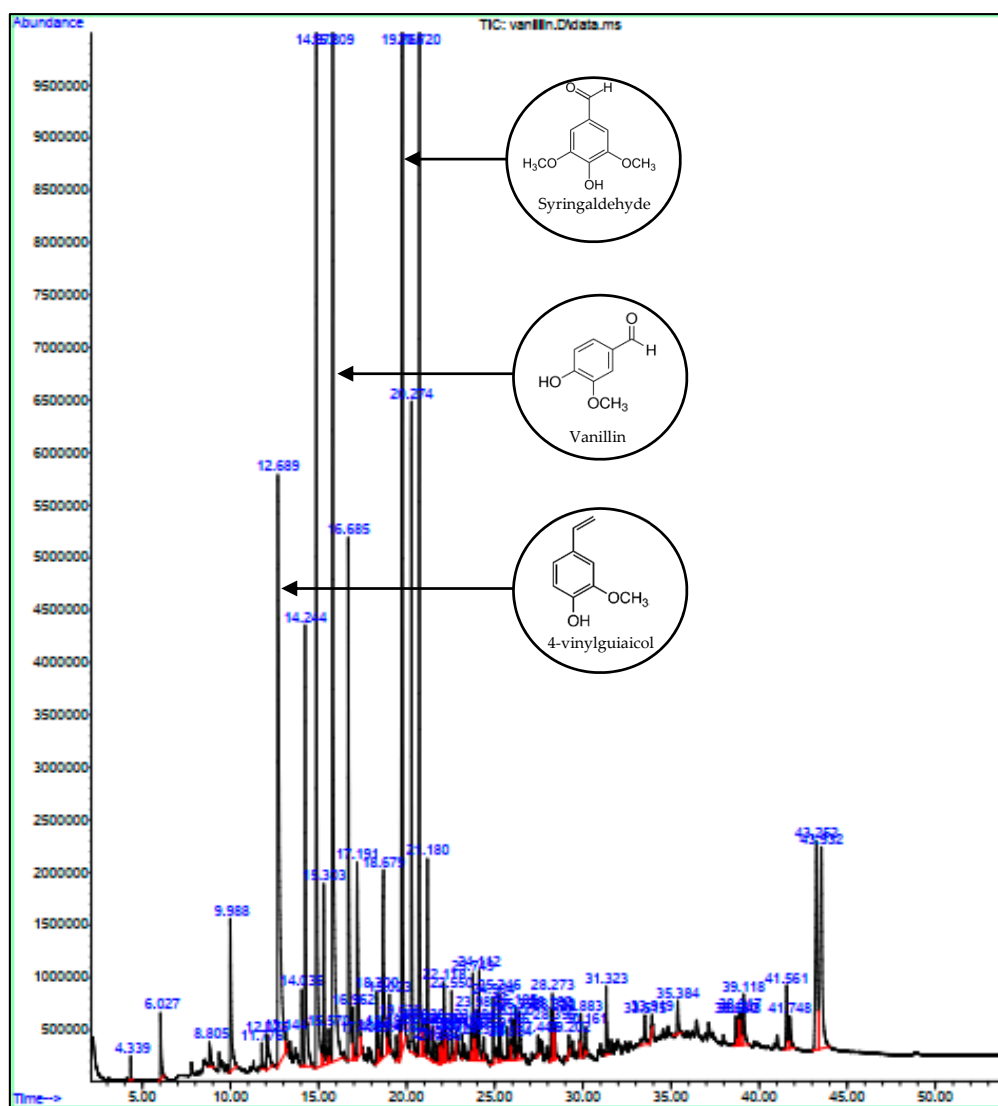


Figure S3. Gas-chromatogram of degradation wood product.