

SUPPORTING INFORMATION

Fabrication of nanostructured NiO/WO₃ with graphitic carbon nitride for visible light driven photocatalytic C-H activation and metronidazole degradation

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Figure S1: XRD patterns of the nanomaterials.

Figure S2: SEM micrographs of the nanomaterials.

Figure S3: TEM micrographs of the nanomaterials.

Figure S4: ¹H NMR of end product of hydroxylation of benzene reaction (phenol).

Figure S5: ¹³C NMR of end product of hydroxylation of benzene reaction (phenol).

Figure S6: Plot of C/C₀ vs. irradiation time for decomposition of Metronidazole

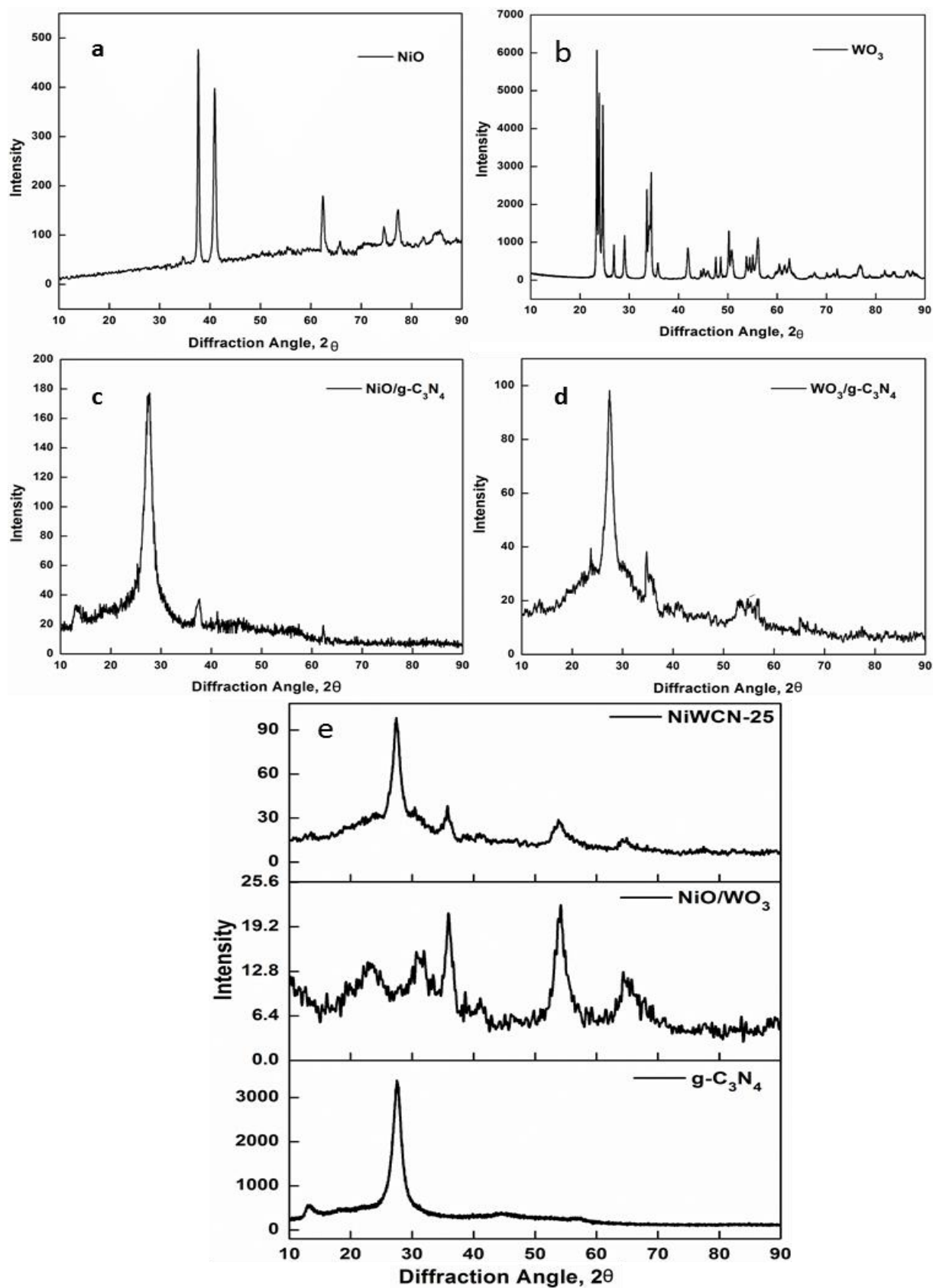


Figure S1: XRD patterns of (a) NiO (b) WO_3 , (c) $\text{NiO/g-C}_3\text{N}_4$, (d) $\text{WO}_3/\text{g-C}_3\text{N}_4$, (e) Comparison of $\text{NiO/WO}_3/\text{g-C}_3\text{N}_4$, NiO/WO_3 , and $\text{g-C}_3\text{N}_4$.

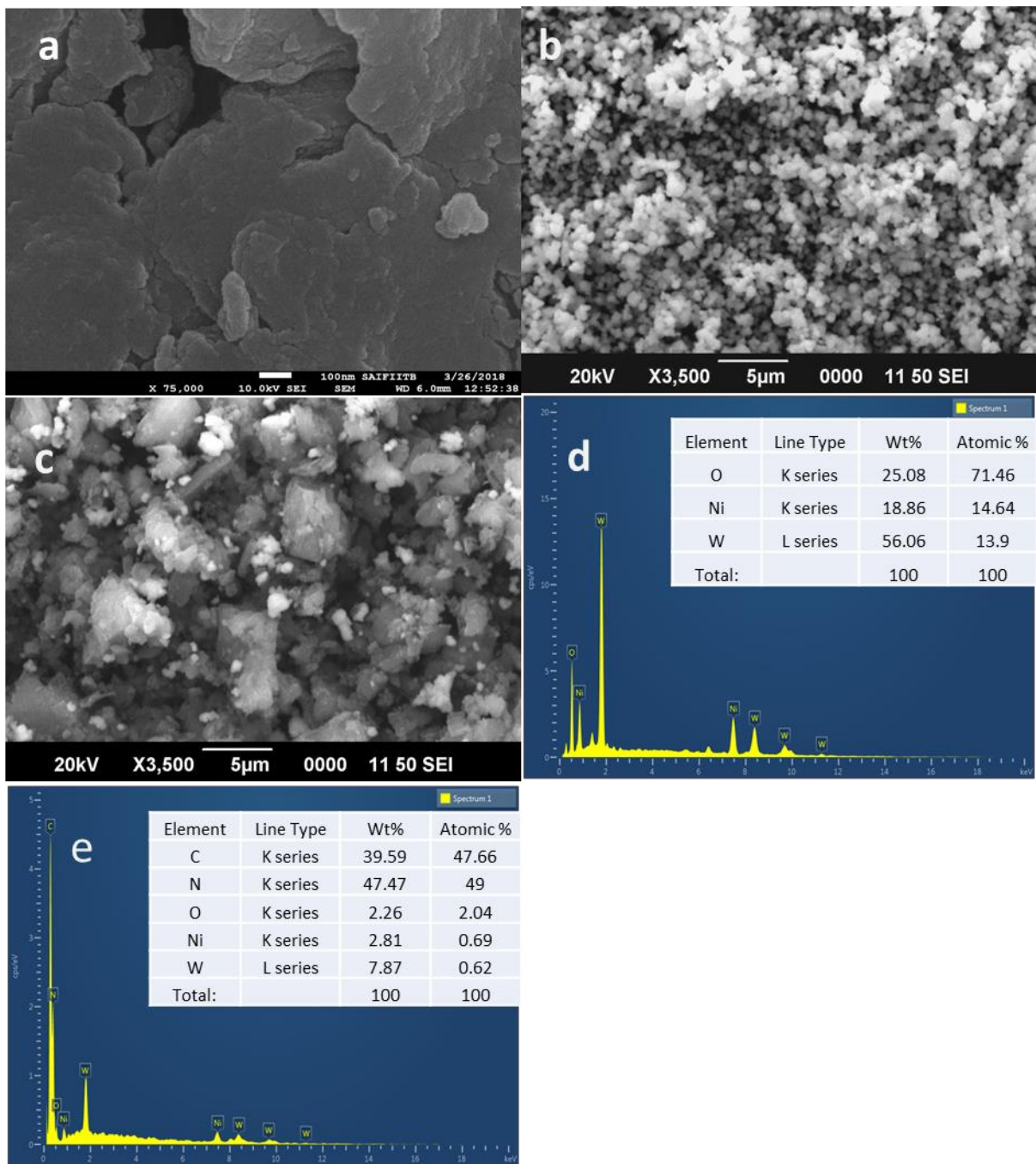


Figure S2: SEM image of (a) $g\text{-C}_3\text{N}_4$, (b) nanostructured NiO/WO_3 , (c) $\text{NiO}/\text{WO}_3@g\text{-C}_3\text{N}_4$ nanohybrid, (d) EDS pattern of NiO/WO_3 , (e) EDS pattern of $\text{NiO}/\text{WO}_3@g\text{-C}_3\text{N}_4$ nanohybrid.

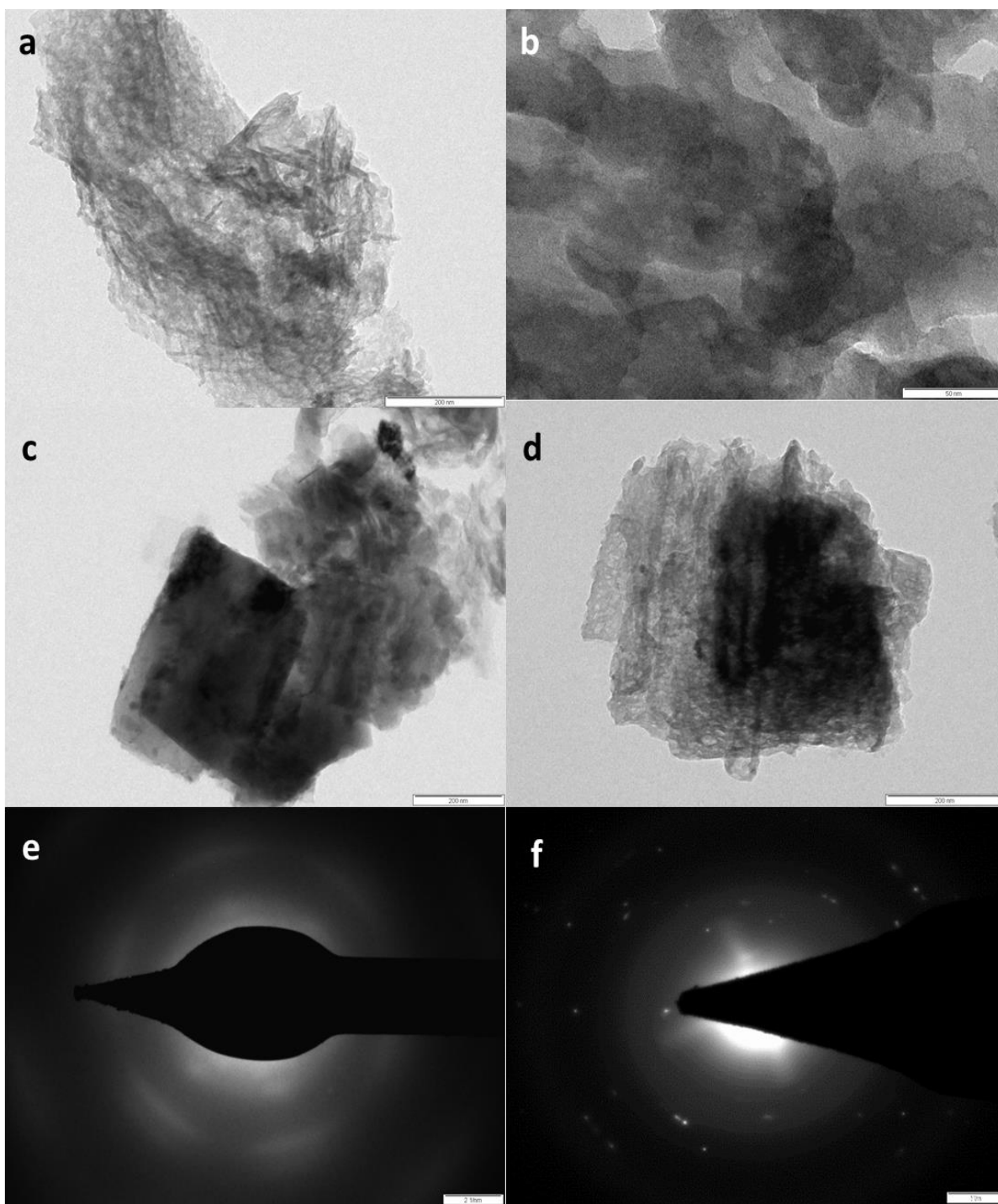


Figure S3: TEM image of (a) g-C₃N₄ (scale 200 nm), (b) g-C₃N₄ (scale 50 nm), (c) NiO/WO₃@g-C₃N₄ nanohybrid (scale 200 nm), (d) NiO/WO₃@g-C₃N₄ nanohybrid (scale 200 nm), (e) ED pattern of g-C₃N₄ (scale 21 nm), (f) ED pattern of NiO/WO₃@g-C₃N₄ nanohybrid (scale 51nm)

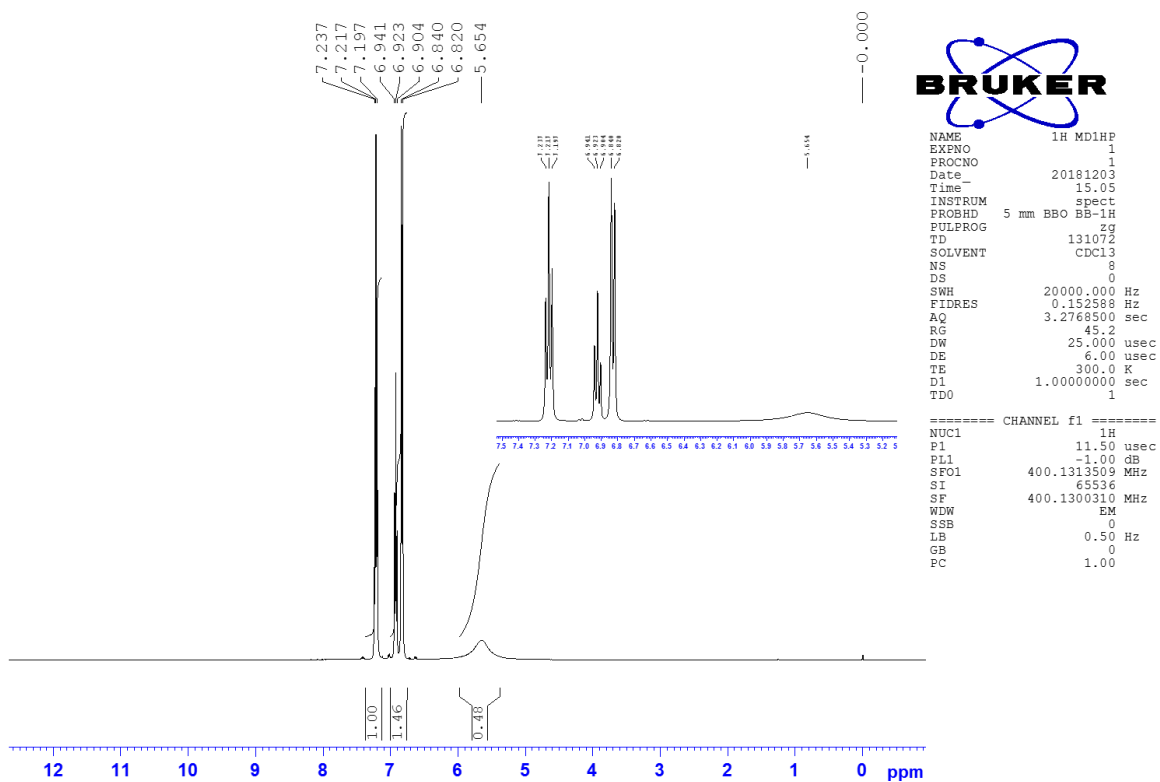


Figure S4: ^1H NMR spectra of phenol

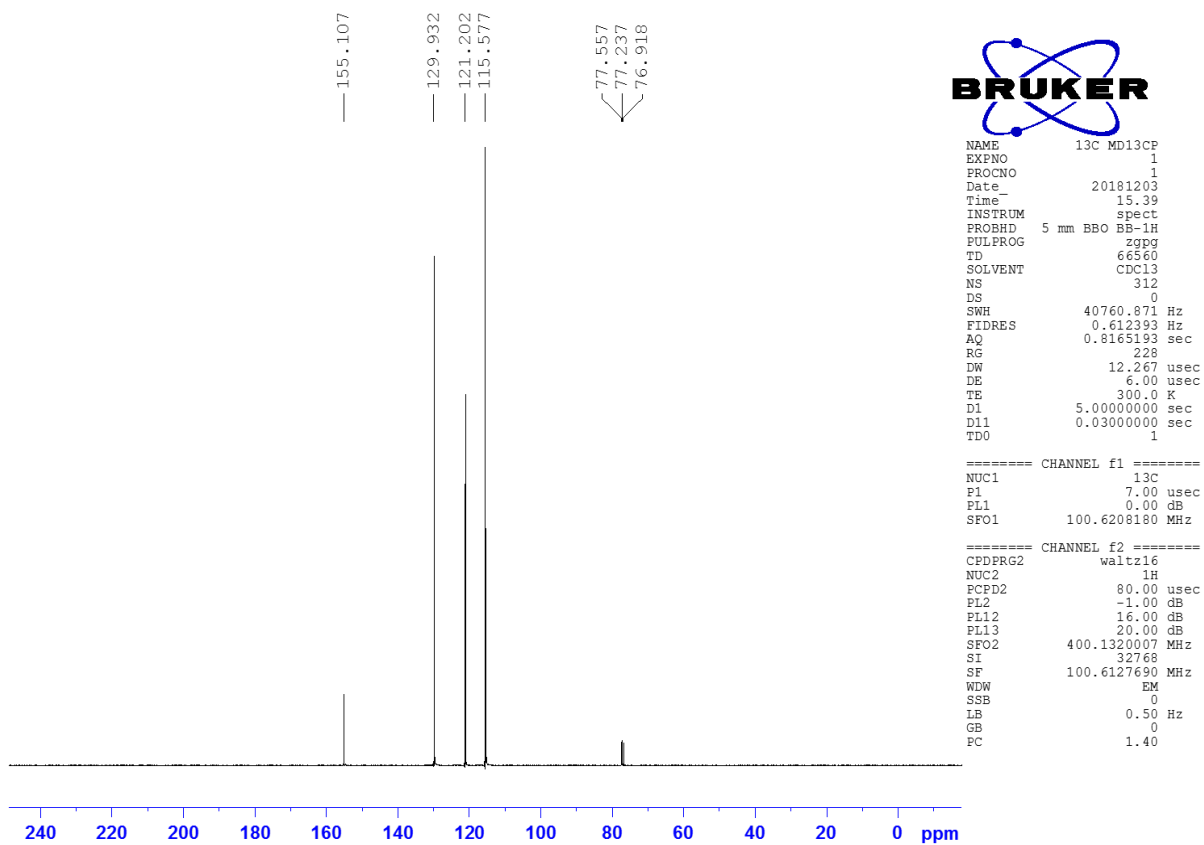


Figure S5: ^{13}C NMR spectra of phenol

Presentation of Physical Data: Melting Point=41°C. ^1H NMR: (300 MHz, CDCl_3 , TMS): δ = 7.23 (t, J= 2 Hz, 2 H), 6.94 (t, J= 0.8 Hz, 1 H), 6.82 (d, J= 2 Hz, 2 H), 5.65 (s, 1 H) ppm. ^{13}C NMR: δ = 155.107, 129.932, 121.202, 115.577, 77.23 ppm

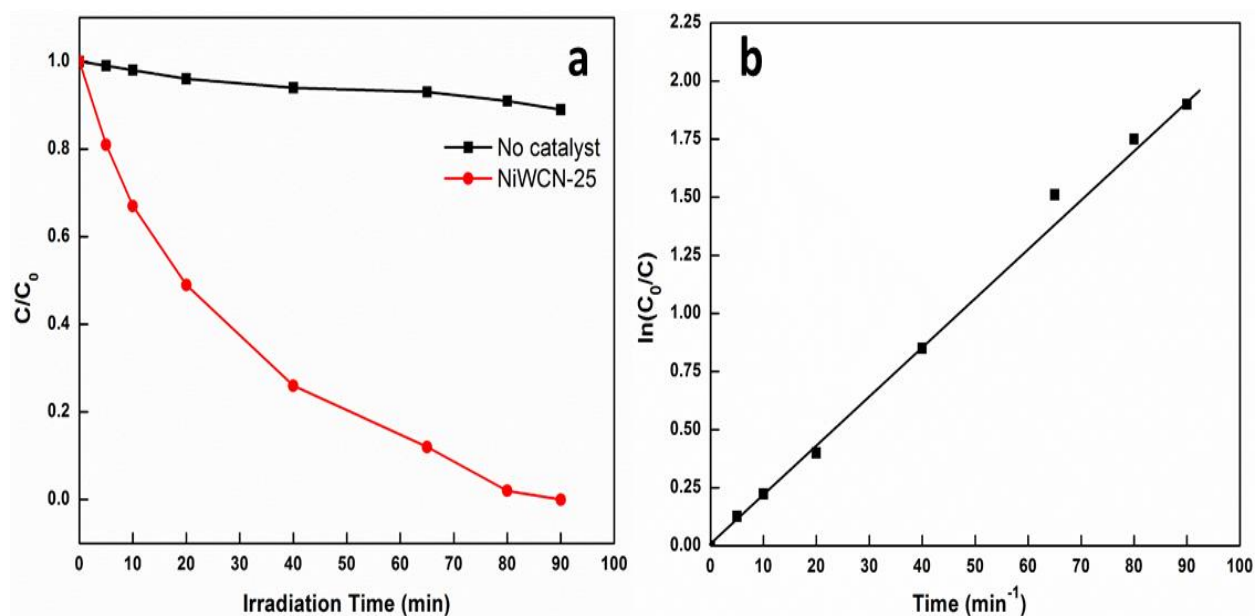


Figure S6: (a) Plot of C/C_0 vs. irradiation time for decomposition of Metronidazole catalysed by NiWCN-25 and in absence of catalyst, (b) First order kinetic fitting for decomposition of Metronidazole catalysed by NiWCN-25.