

Figure S1. Schematic representation of photocatalytic reactor

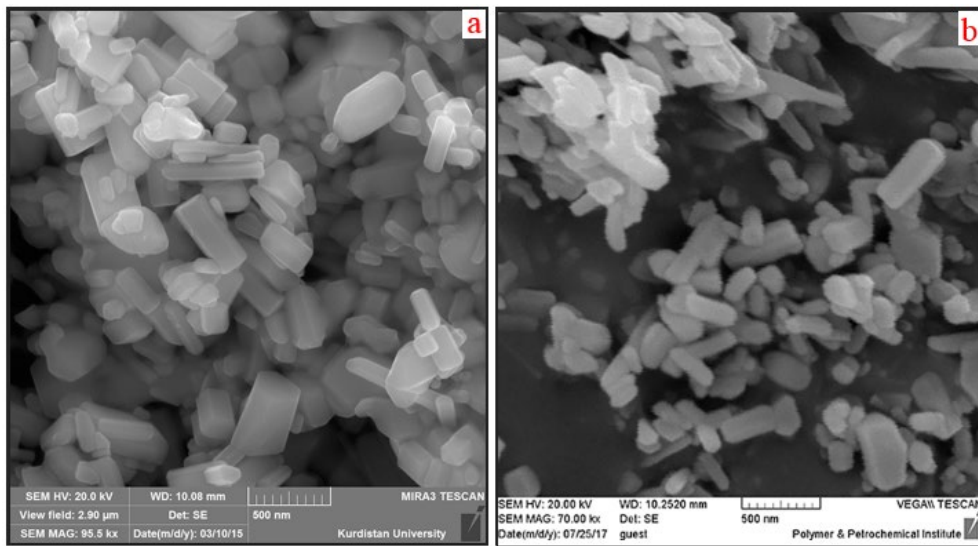


Figure S2. SEM Images of nanoparticles a) undoped ZnO b) 1% MnO₃-doped ZnO

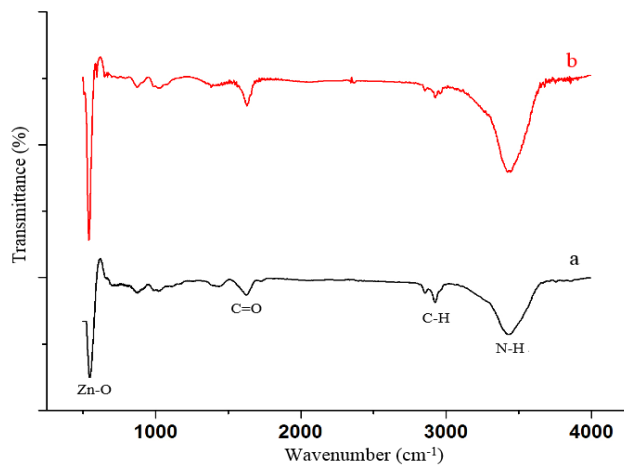


Figure S3. FTIR Diffractogram a) undoped ZnO b) MnO₃- doped ZnO

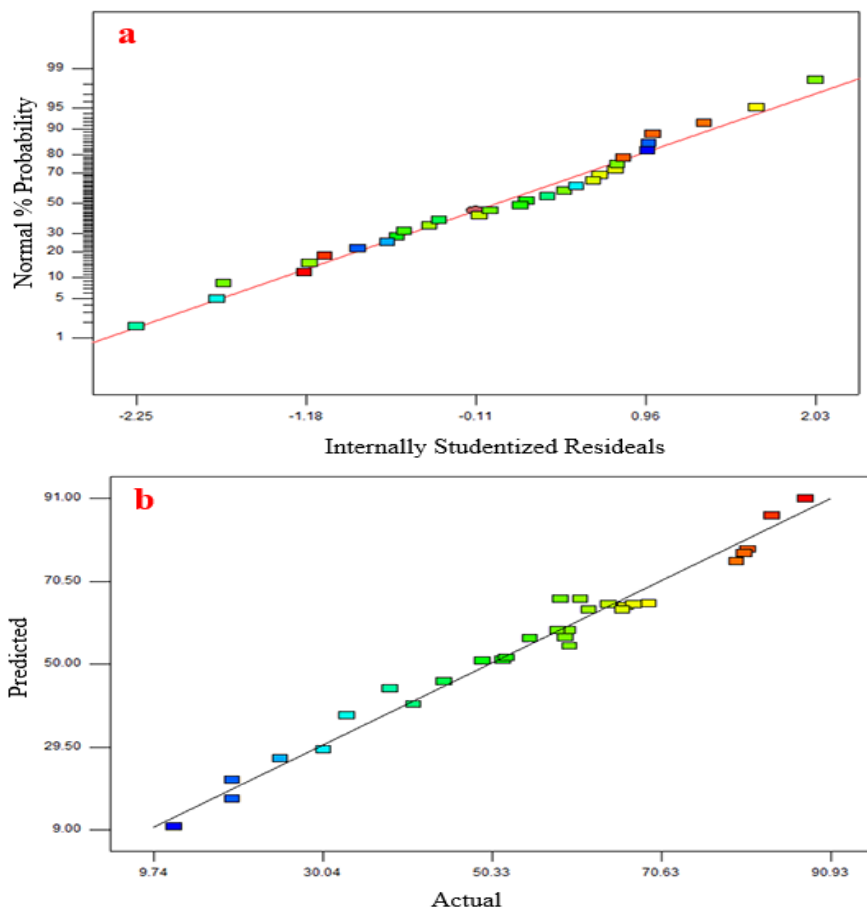


Figure S4. Evaluation of model adequacy

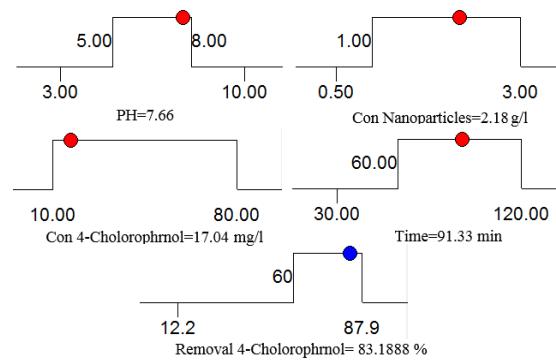


Figure S5. The optimal points of independent variables on the 4-CP removal rat by CCD-RSM model