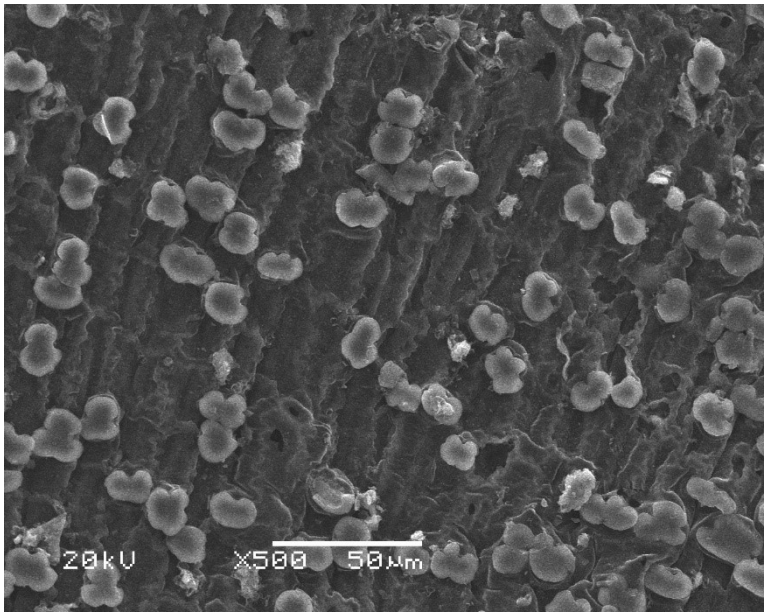
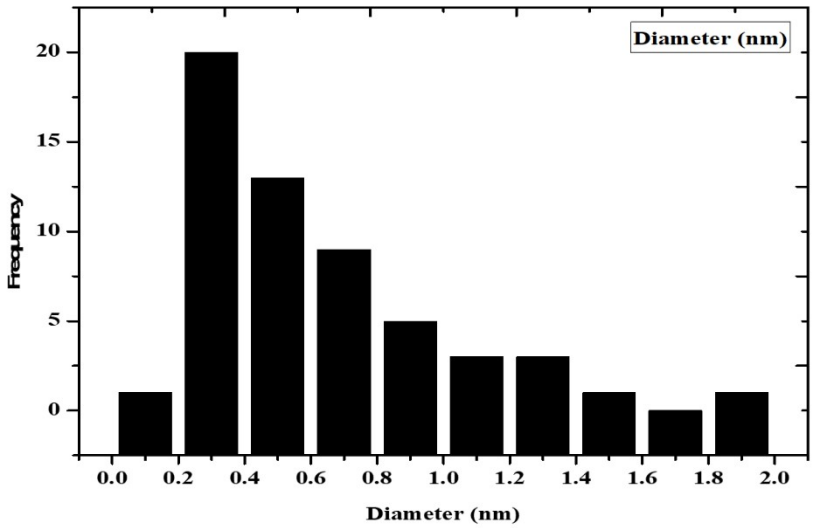
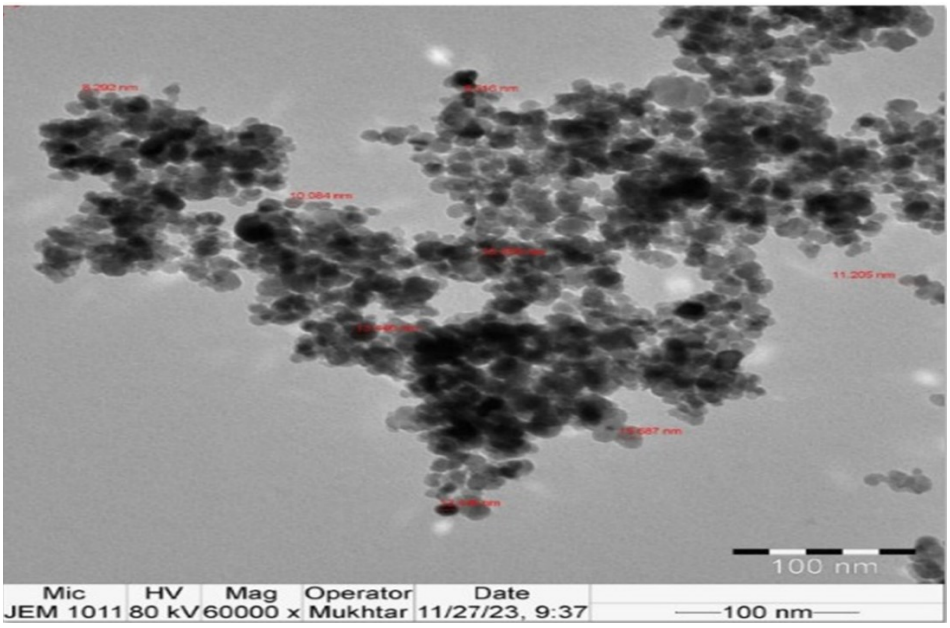
SUPPLEMENTARY DATA



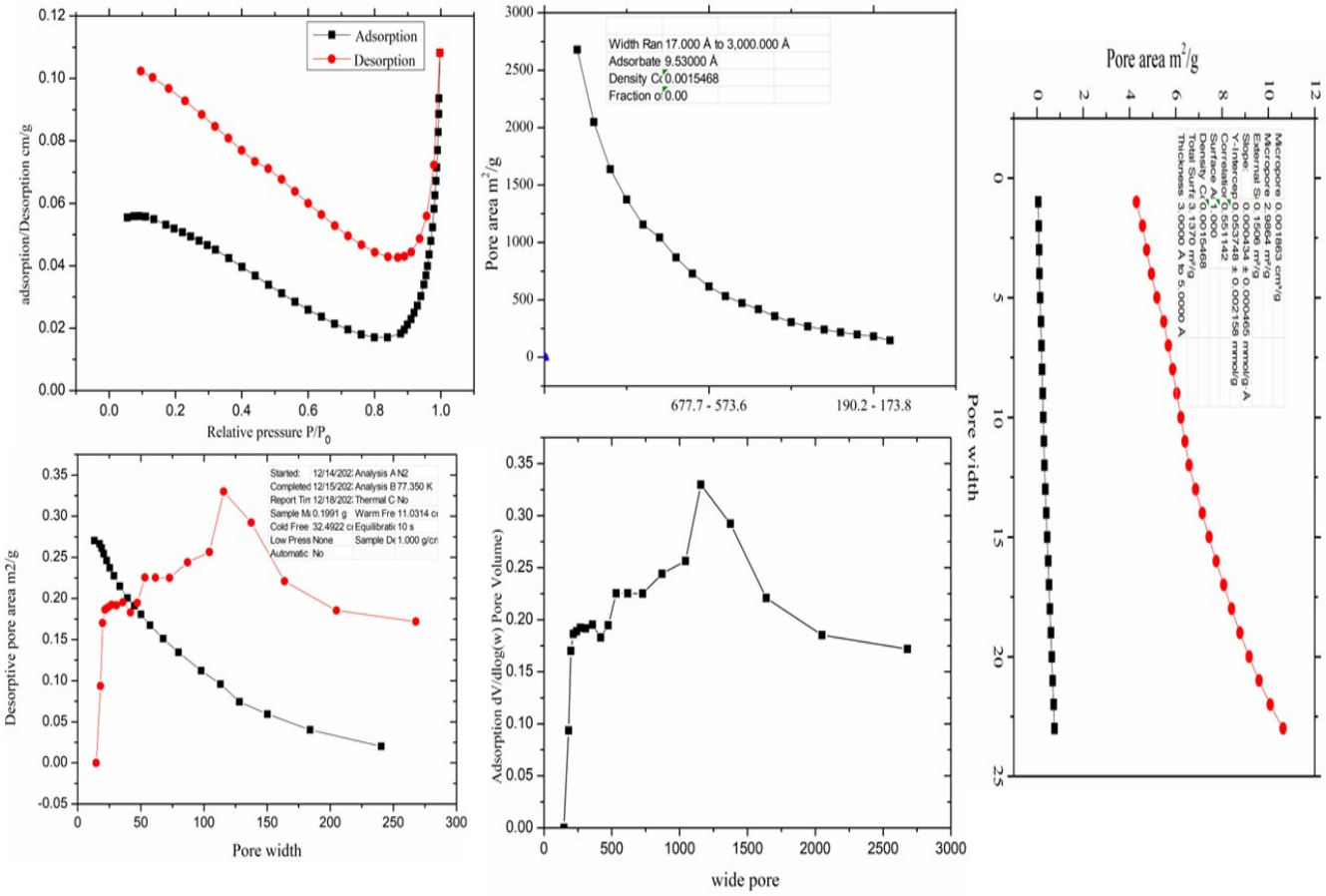
S1. SEM images of Biochar



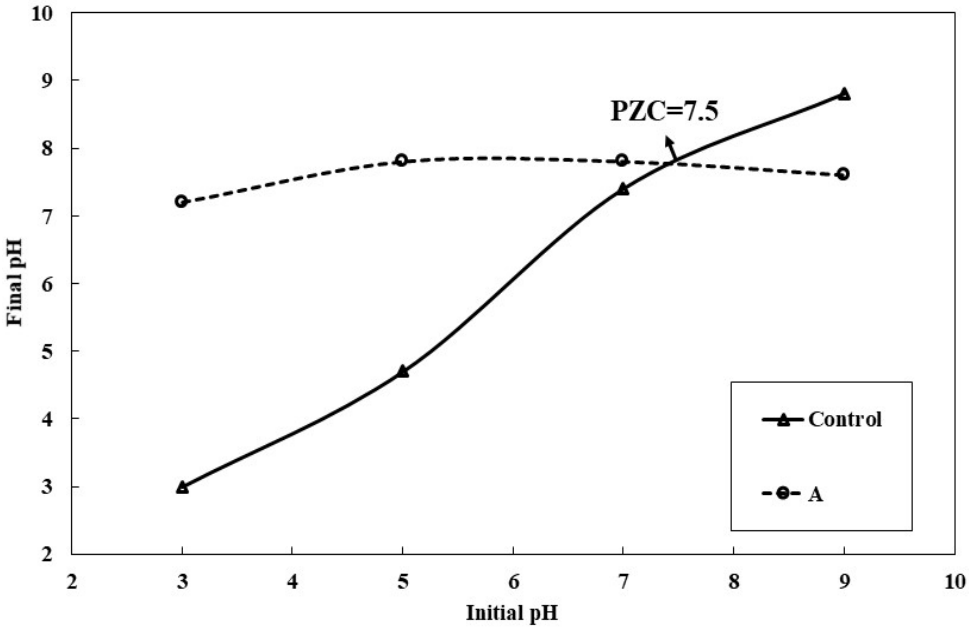
S2. Average particle size histogram



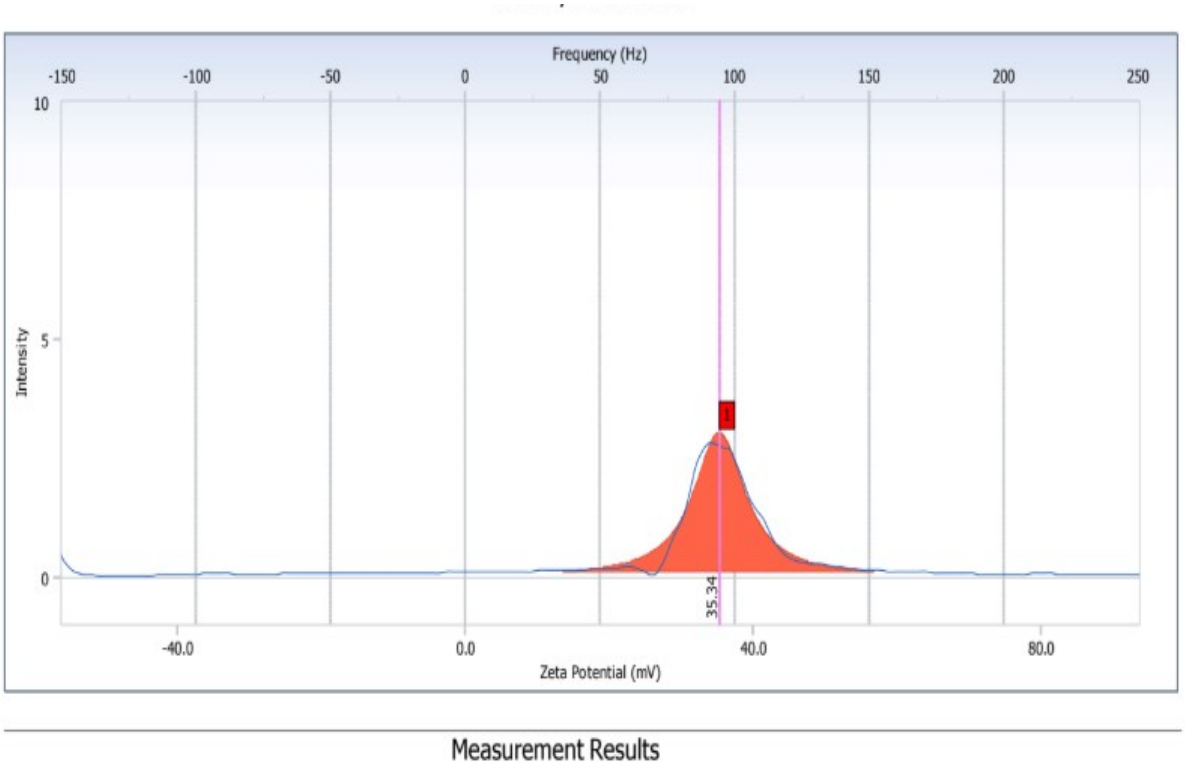
S3. TEM image of nZVMn/PBC's



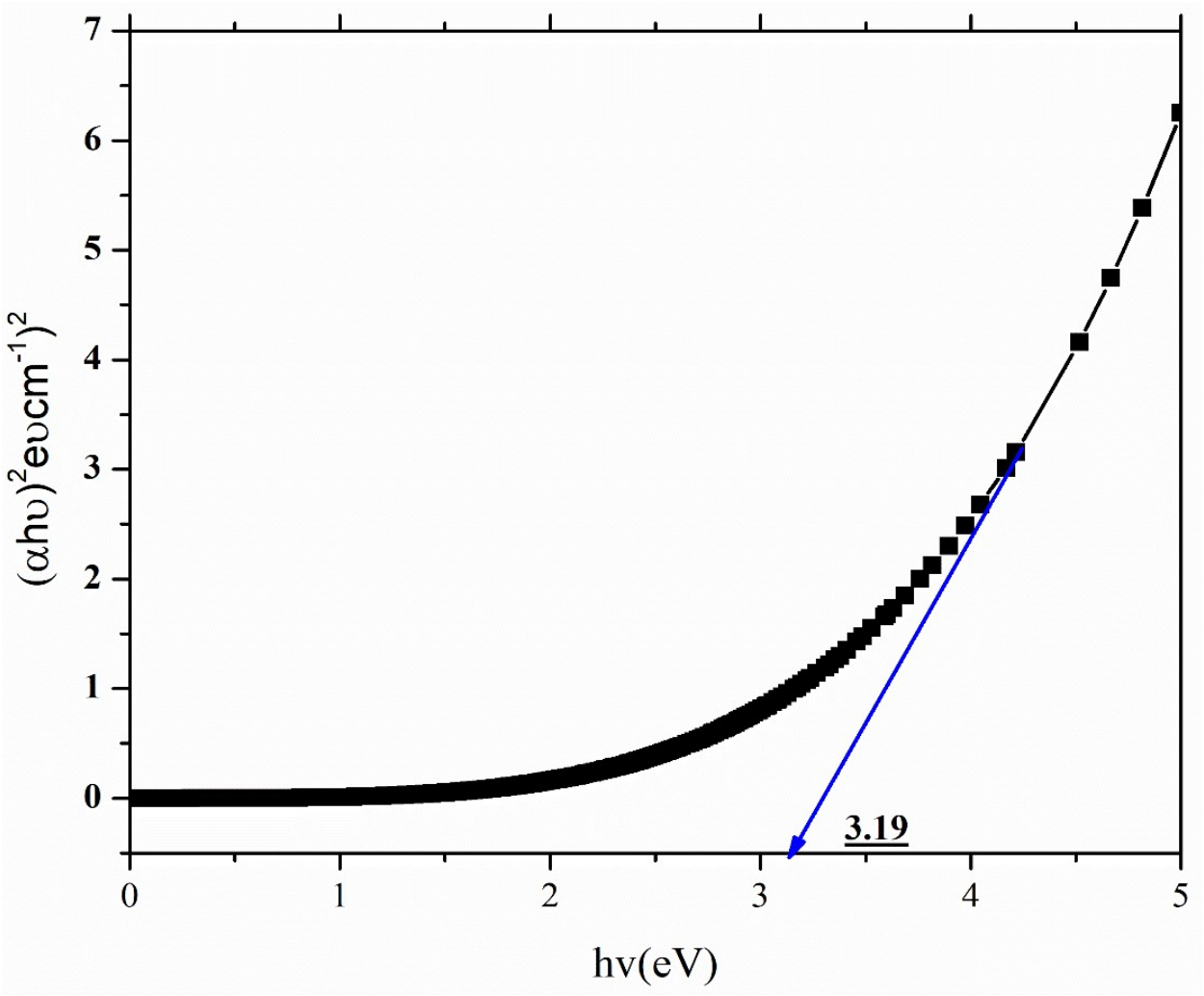
S4. N_2 adsorption-desorption isotherm of PBC



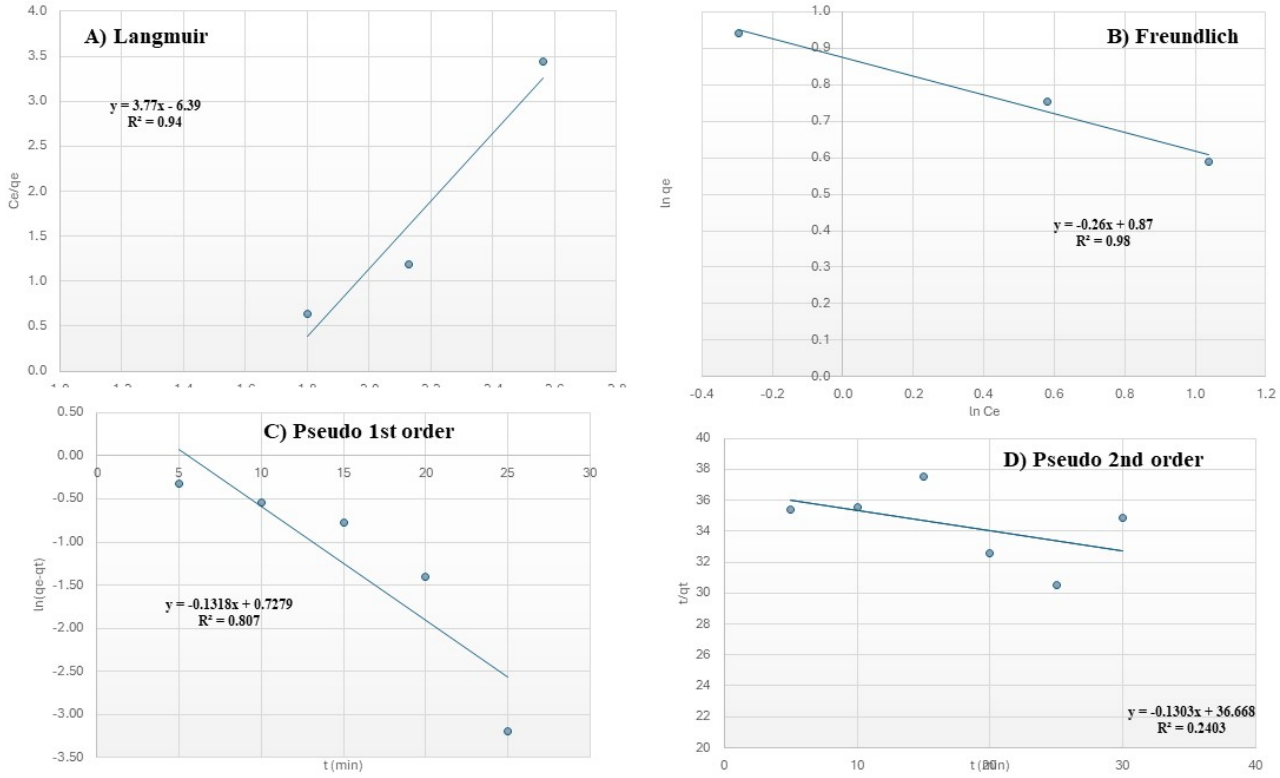
S5. Point of zero charge of nZVMn/PBC



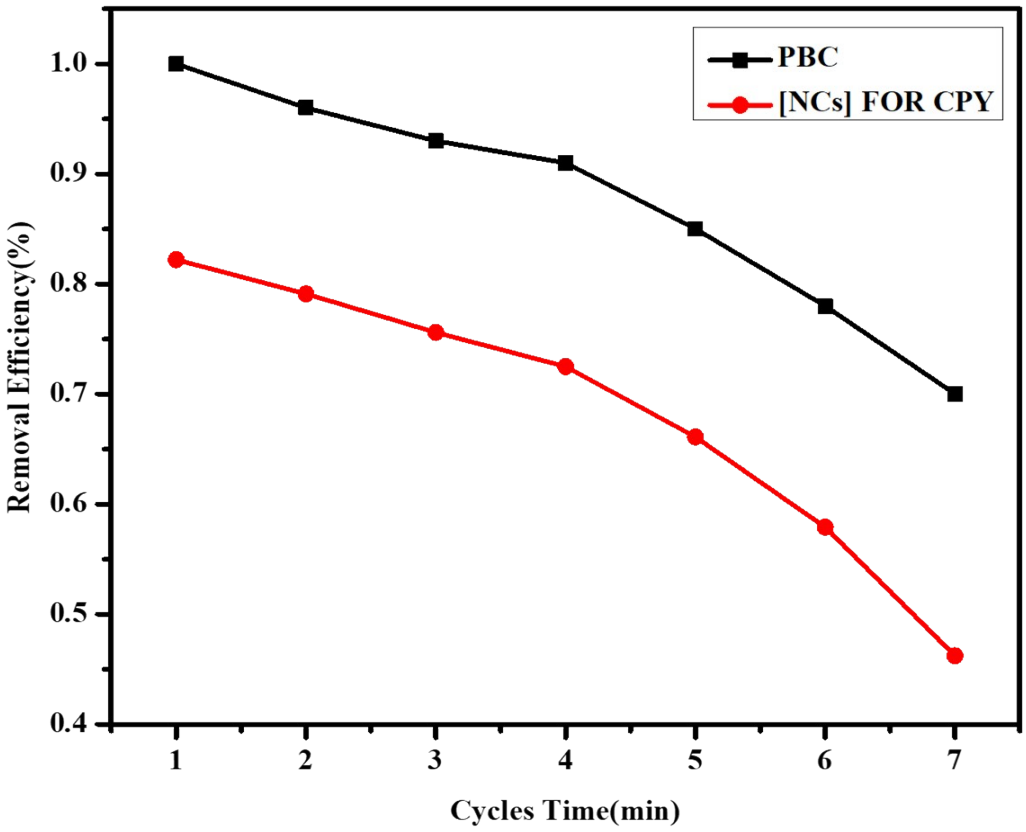
S6. Zeta Potential of nZVMn/PBC



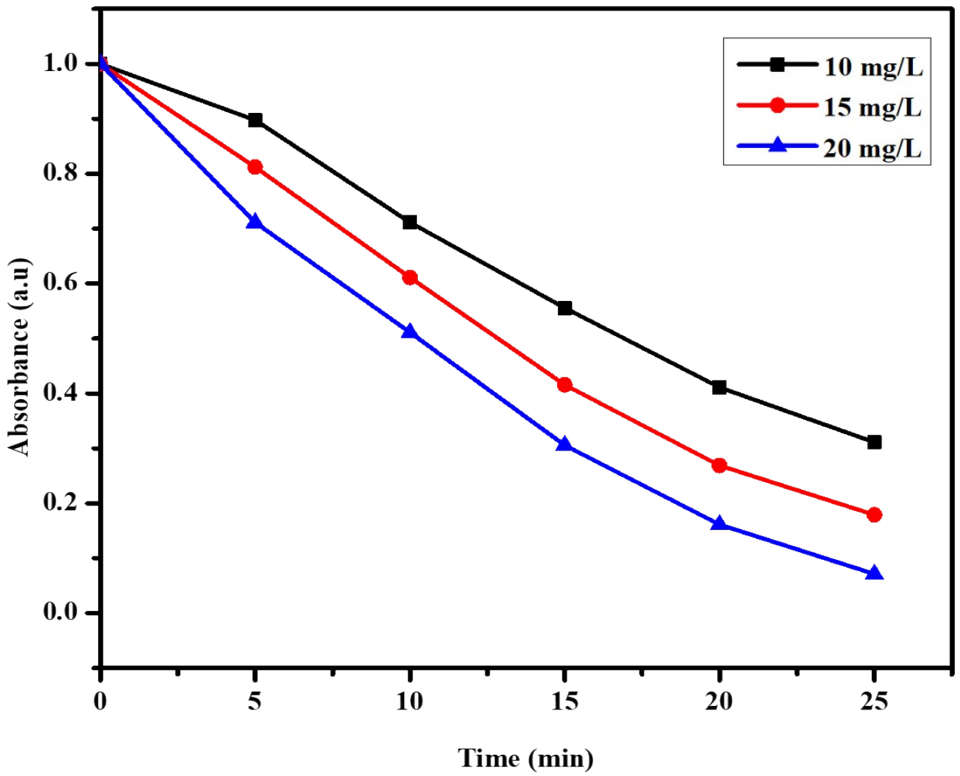
S7: UV-Vis band gap of *n*ZVMn@PBC



S8. Adsorption and kinetic modeling A) Langmiur B) Freundlich C) pseudo-first- order D) pseudo-second-Order) for pecticide adsorption by nZVMn/PBCcomposite



S9. Reusability evaluation of the synthesized PBC and nZVMn/PBC for CPF removal. [Experimental conditions, UV light, $[nZVMN/PBC]_0$ = 1000 mg/L, $[CPF]_0$ = 100 mg/L, $[H_2O_2]_0$ = 10 mg/L, Temp = 25°C, Contact time 20-120 min, pH = 8.0



S10. Effect of $[H_2O_2]_0$ concentration on degradation of CPF. [Experimental conditions, UV light, $[nZVMN/PBC]_0$ = 1000 mg/L, $[CPF]_0$ = 100 mg/L, $[H_2O_2]_0$ = 10, 15, and 20 mg/L, pH = 8.0]