Strategic Innovation in CuBTC/PANI Nanocomposites for Dye Remediation: A Holistic Approach to Enhancing Adsorption, Isotherms, and Kinetic Studies

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S1 The nanocomposites were characterized using several characterization techniques. The UV-Vis absorption spectra of the synthesized materials were measured using a Shimadzu UV 2600 UV-Vis spectrophotometer equipment. The morphology and size of the produced composite were examined using field emission scanning electron microscopy (FESEM, JEOL). The functional groups were identified in the materials using Fourier transform infrared (FTIR) spectroscopy, namely with the Shimadzu IRTracer-100 instrument. The Brunauer-Emmett-Teller (BET) and Barrett-Joyner-Halenda (BJH) methods used an autosorb instrument from Belsorp mini II. The X-ray photoelectron spectra (XPS) were acquired using an Omicron ESCA+ spectrometer with Al kα radiation at 1486.7 eV. The XRD patterns were taken using the Pan Analytical X'Pert-Pro X-ray diffractometer.

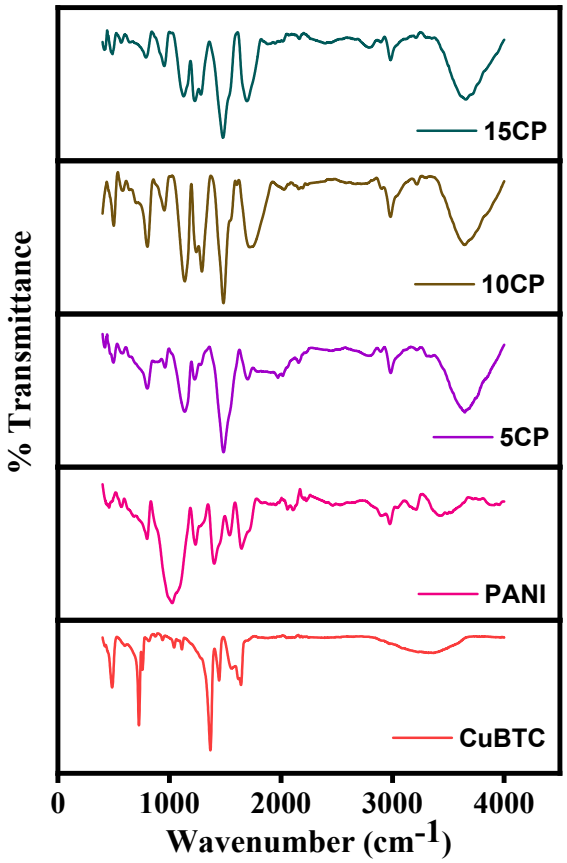

Figure S1: FTIR spectra of photocatalysts

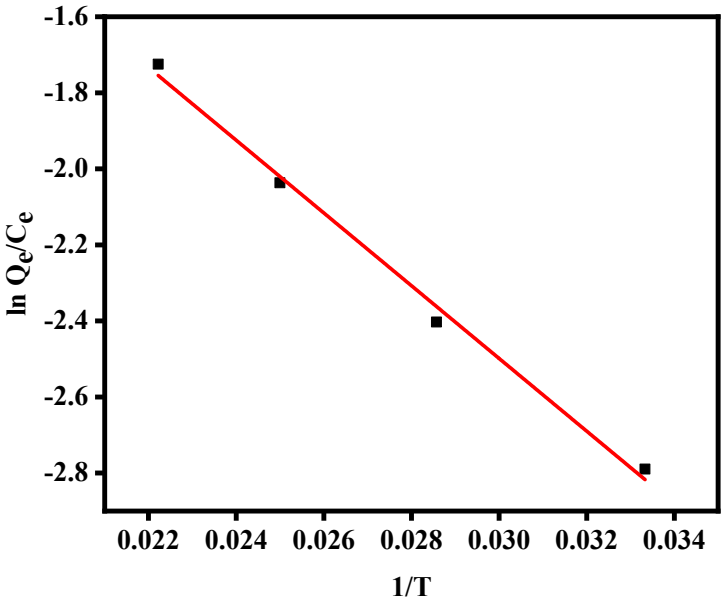

Figure S2: Thermodynamic studies

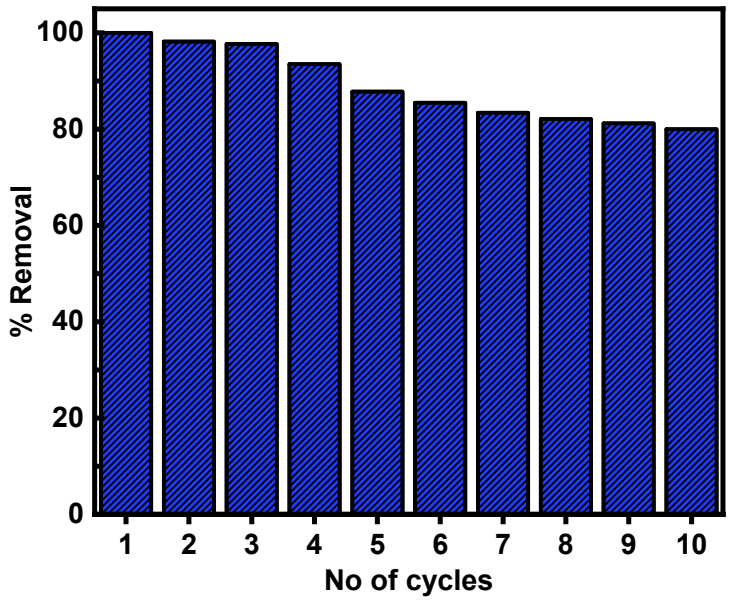

Figure S3: Reusability studies

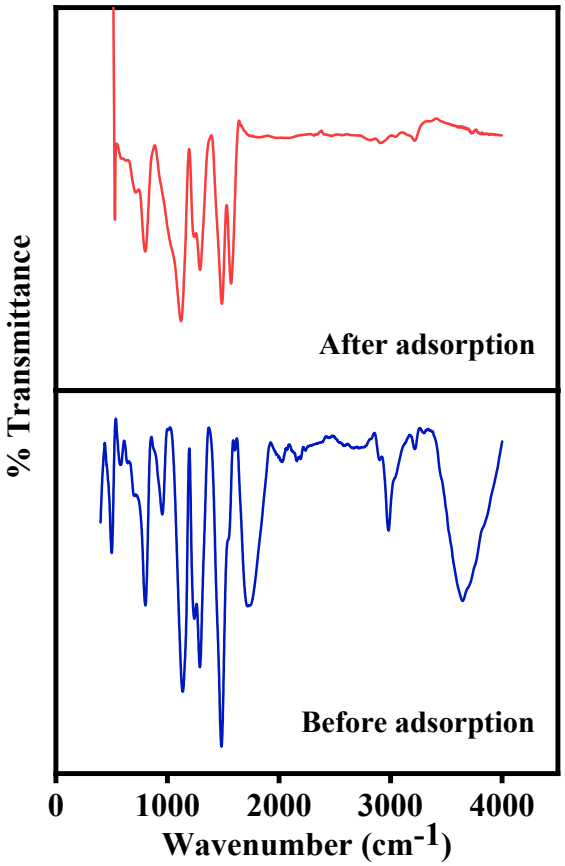

Figure S4: FTIR spectra of photocatalyst before and after adsorption of RB19 dye for 6 cycles

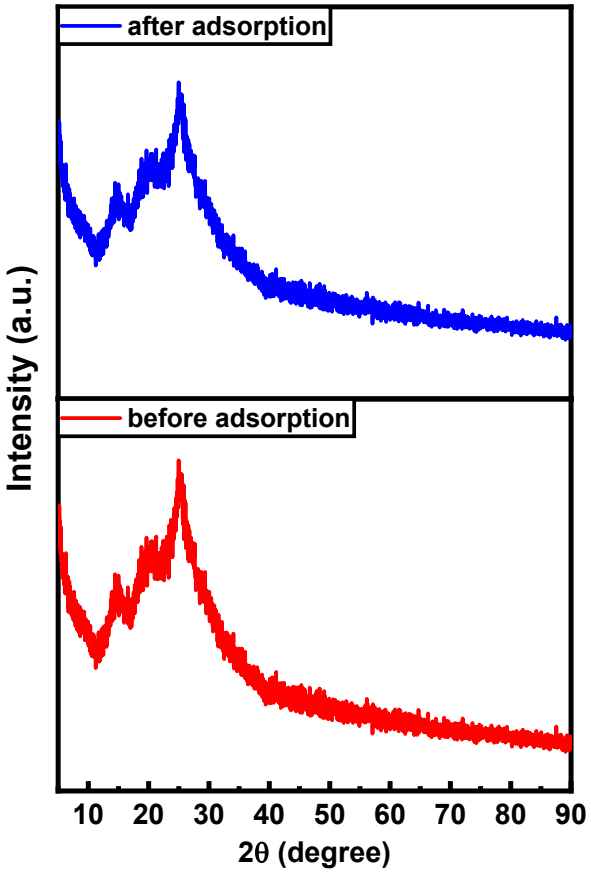

Figure S5: XRD spectra of photocatalyst before and after adsorption of RB19 dye for 6 cycles