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-Supporting information-

Synthesis characterization of Co-NPAC and insitu hydroxyl radical generation for oxidation of dye laden wastewater from leather industry

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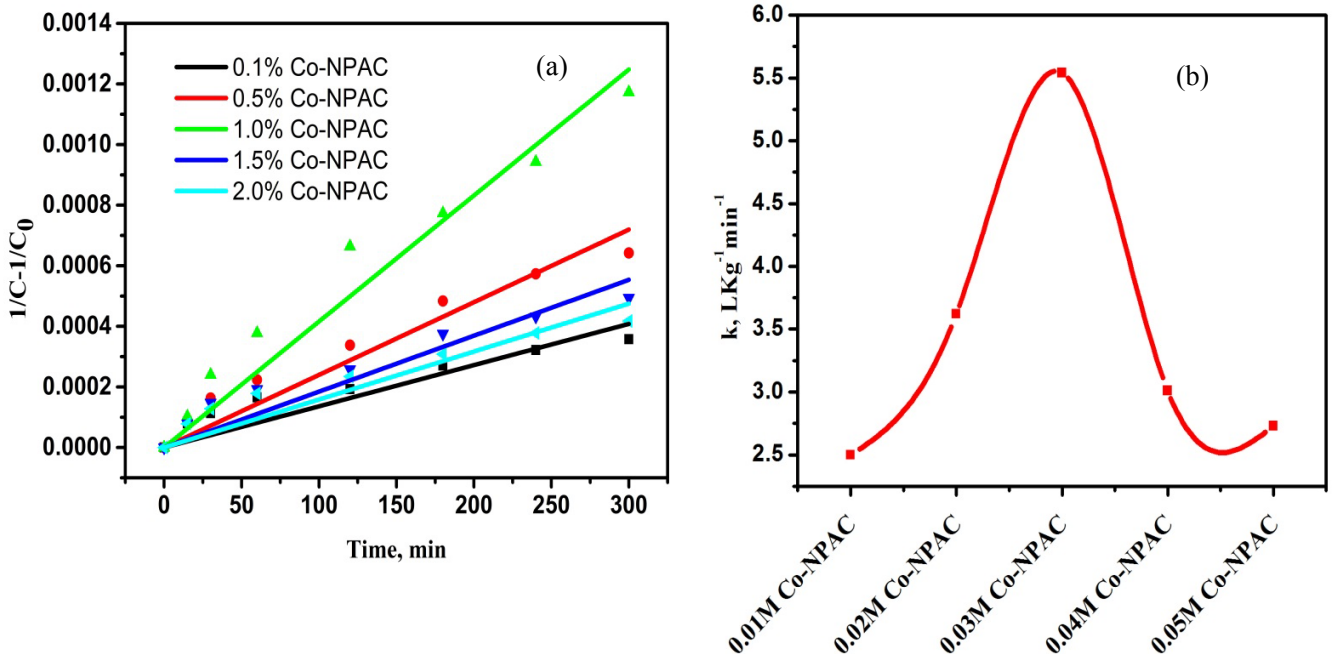

Fig. S1 Pseudo second order kinetics of heterogeneous oxidation process using different Co-NPAC concentration 0.1wt. %, 0.5wt. %, 1wt. %, 1.5 wt. % and 2wt.%Co-NPAC, a) $1/C-1/C_0$ Vs. time, t plot for all catalyst b) Reaction rate (K) behavior for varying concentration

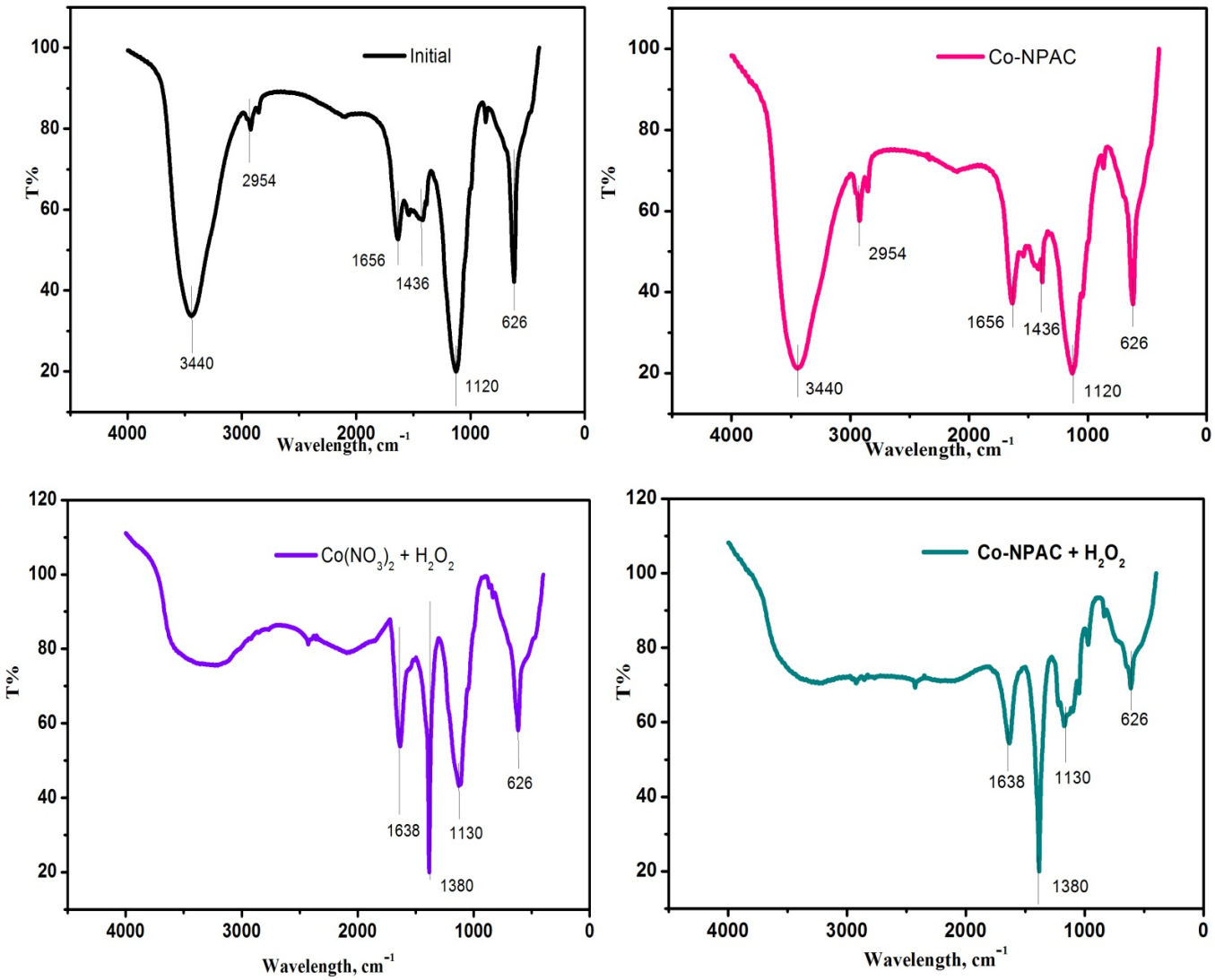

Fig.S2 FT-IR spectra of initial effluent, effluent after adsorption by Co-NPAC, effluent after heterogeneous Fenton process using Co-NPAC, and effluent after homogeneous Fenton oxidation process (clock wise)

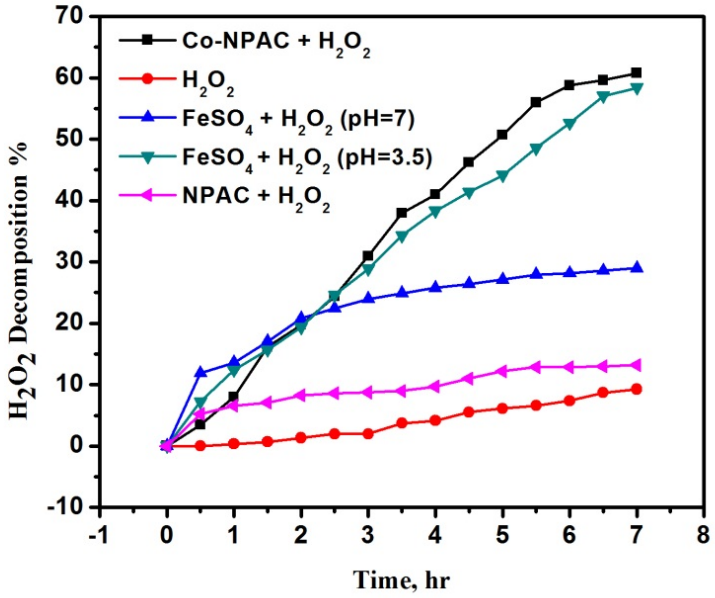

Fig. S3 Decomposition of hydrogen peroxide with different Fenton oxidation condition,

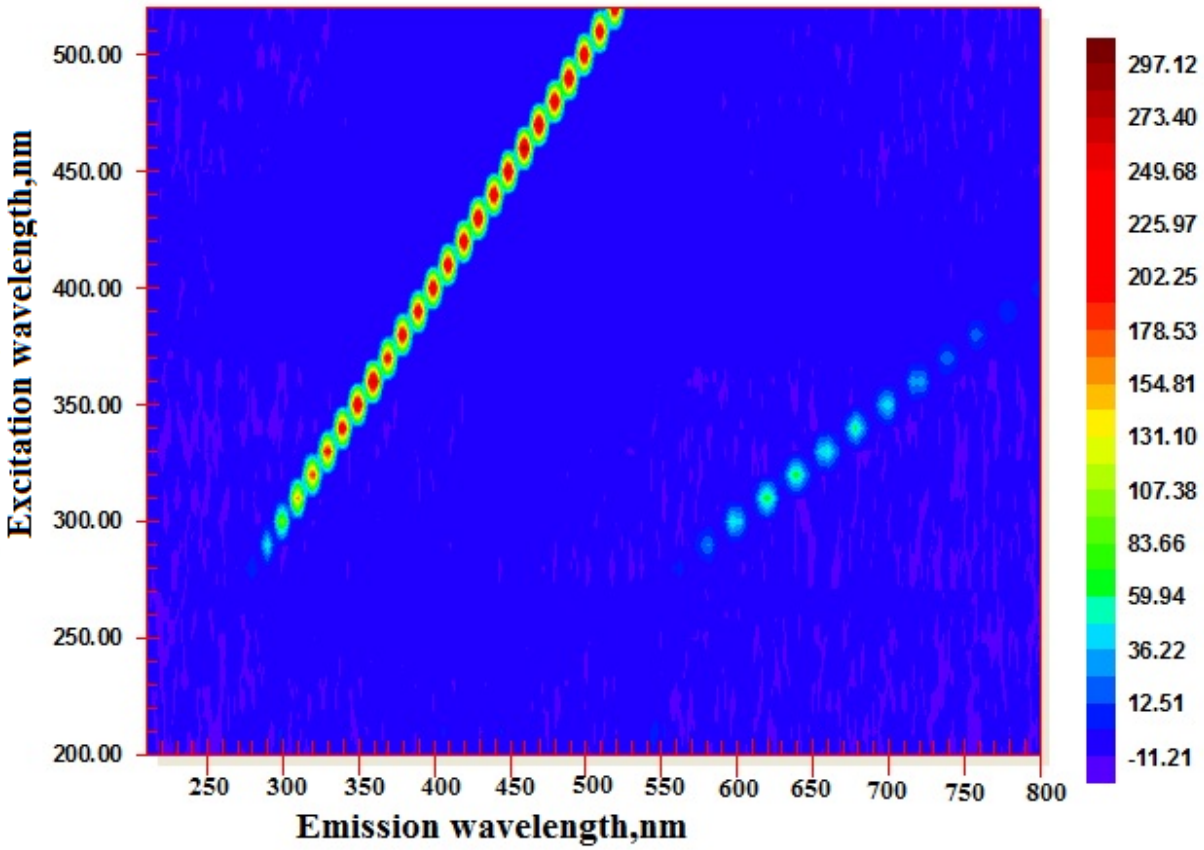

Fig.S4 EES spectrum of terepthalic acid <λ>excitation and <λ>emission 315nm and 425nm,

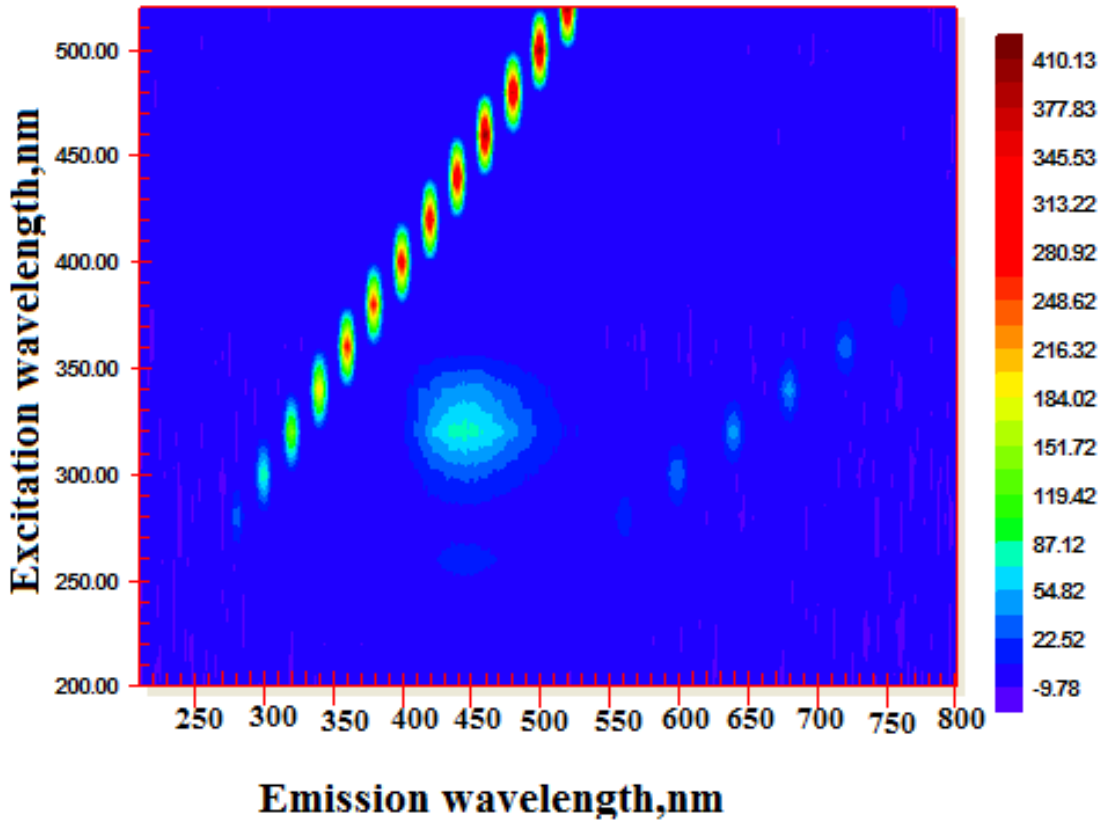

Fig.S5 2-hydroxy terepthalicacid using Co-NPAC/H_2O_2 EES spectrum $\lambda_{excitation}$, 315nm; $\lambda_{emission,}$ 425nm,

Table S1 Pseudo second order kinetics corresponding k (rate of the reaction) and R^2 value of different Co-NPAC

Sample	K(L/kg/min)	R^2
0.1wt% Co-NPAC	2.498	0.9489
0.5wt%Co-NPAC	3.621	0.9753
1.0wt%Co-NPAC	5.540	0.9807
1.5wt%Co-NPAC	3.010	0.9647
2.0wt%Co-NPAC	2.273	0.9574

Table S2 Pseudo second order kinetics of k (reaction rate) and R^2 value of different H_2O_2 concentrations.

Sample	K(L/kg/min)	R^2
2mM H_2O_2	2.404	0.9592
4mM H_2O_2	3.125	0.9401
6mM H_2O_2	3.518	0.9515
8mM H_2O_2	3.574	0.9633
10mM H_2O_2	5.677	0.9822

Table S3 Pseudo second order kinetics of heterogeneous Fenton process corresponding k (reaction rate) and R^2 value of different Ph

Sample	K(L/kg/min)	R^2
pH3	4.055	0.9887
pH4	3.811	0.9861
pH5	3.497	0.9855
pH6	3.223	0.9834
pH7	2.683	0.9859
pH8	2.163	0.9898
pH9	2.194	0.9865
pH10	2.219	0.9847

Table S4 Pseudo second order kinetics of heterogeneous Fenton process corresponding k (reaction rate) and R^2 at temperature.

Sample	K(L/kg/min)	R^2
55 ^oC	6.412	0.9726
45 ^oC	4.955	0.9784
35 ^oC	4.910	0.9859
25 ^oC	4.802	0.9469