Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Synchronous role of coupled adsorption and photocatalytic oxidation on hybrid nanomaterials of pectin and nickel ferrite generating excellent removal efficiency for toxic dye effluents

Kanu Gupta[a], Komal[a], Nidhi [a], K.B. Tikoo[b], Vinod Kumar[b], Sandeep Bansal[c], Anupama Kaushik[d*] and Sonal Singhal[a*]

Supplementary information

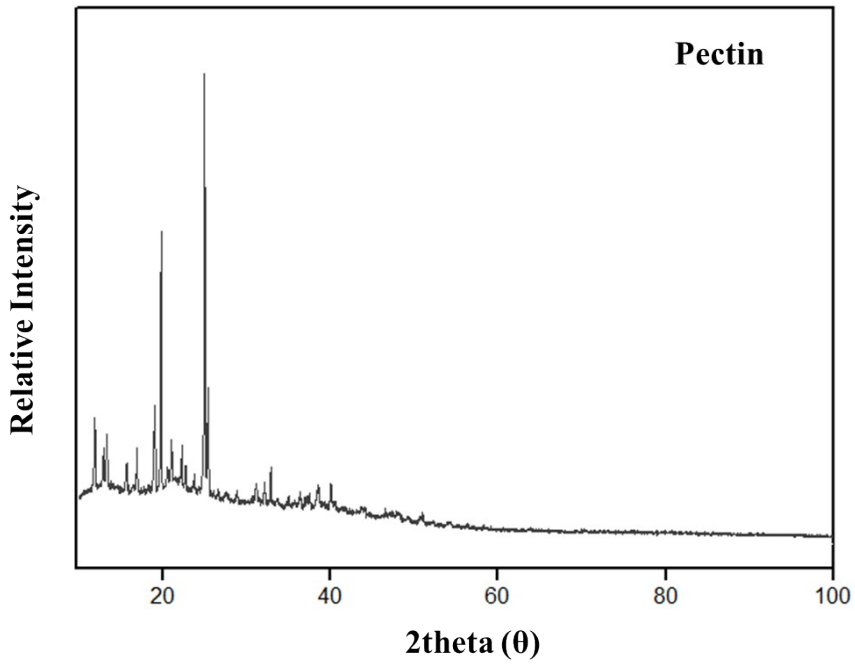

Fig. S1 Powder XRD pattern of bare pectin

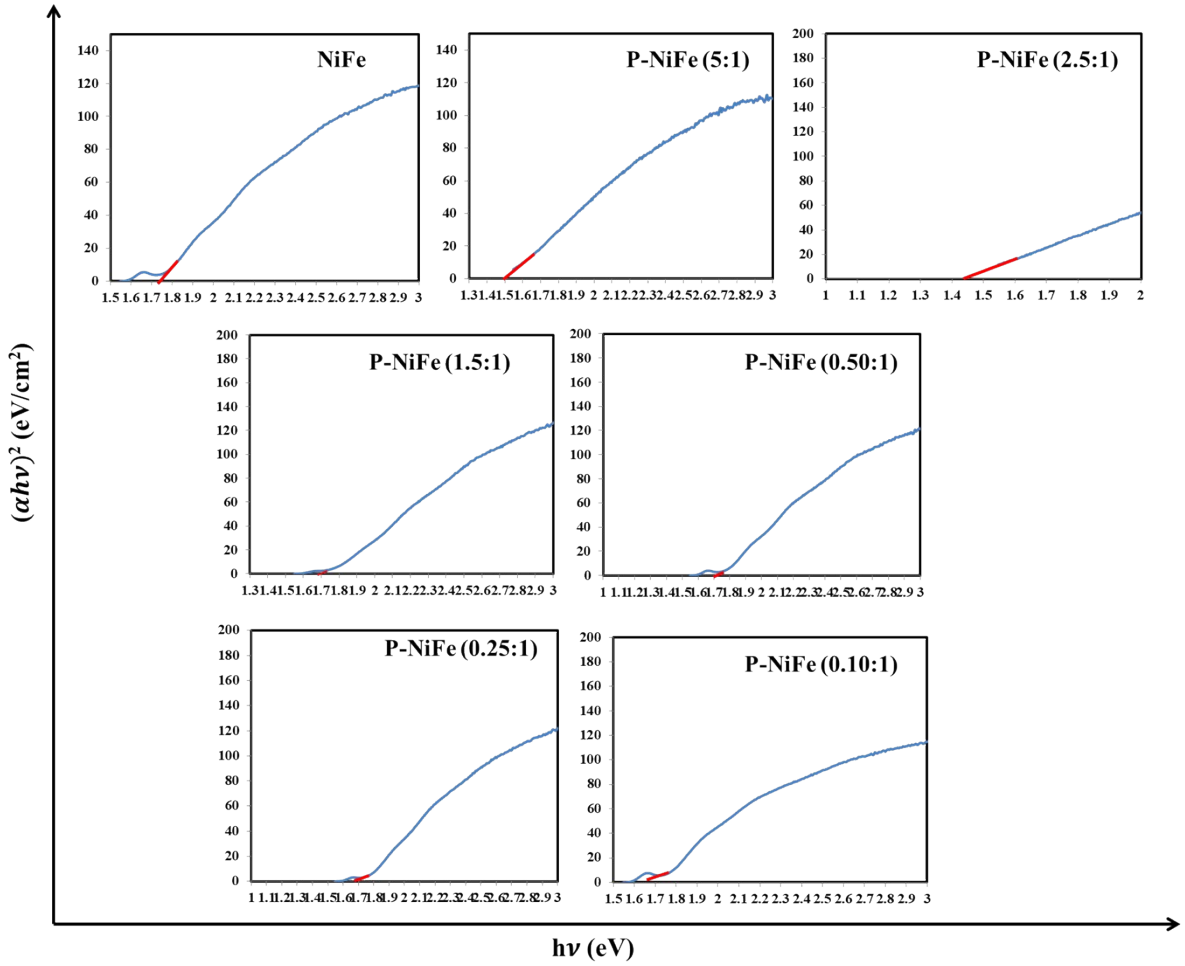

Fig.S2 $(\alpha h\nu)^2$ *vs.* hν curves (Tauc plots) of bare NiFe and P-NiFe nanocomposites

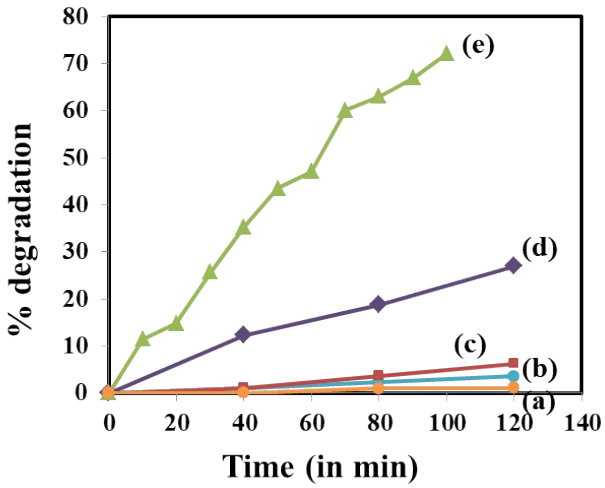

Fig.S3 Control experiments for the photo catalytic degradation of RB5 using NiFe as a catalyst where conditions are (a) Dye+ light, (b) Dye+ H_2O_2, (c) Dye+light+ferrite, (d) Dye+light+ H_2O_2 and (e) Dye+light+H_2O_2+Ferrite

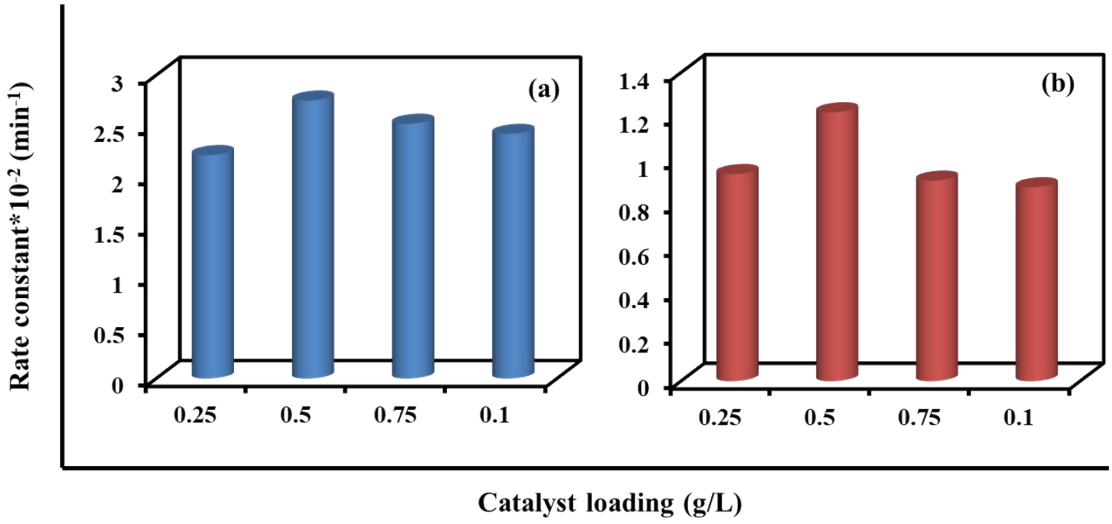

Fig.S4 Effect of catalyst loading on the degradation of (a) MB and (b) RB5 using NiFe as catalyst (Reaction Conditions: [Dye]= 0.05mM, [H_2O_2]= 8.8 mM and pH= 2.5)

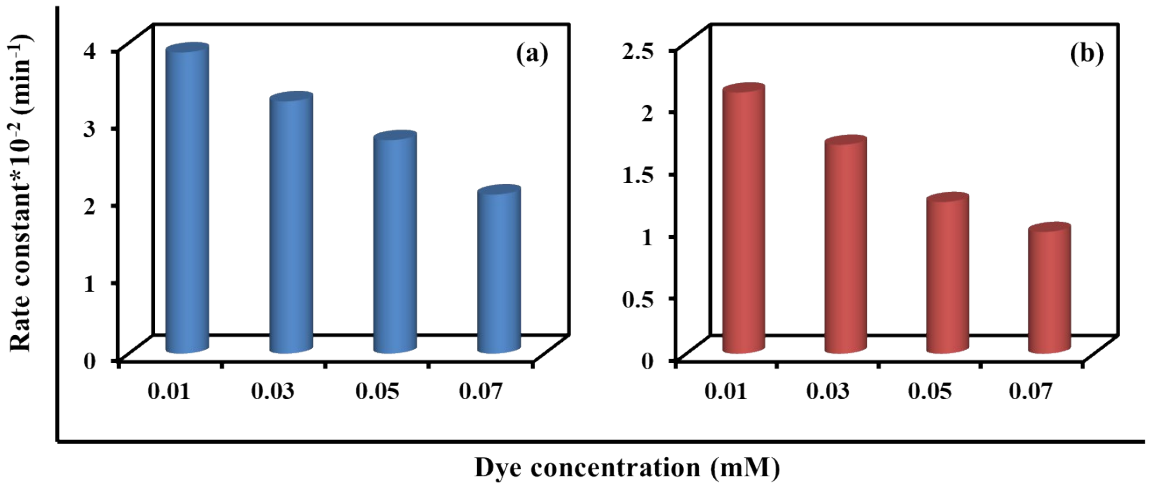

Fig.S5 Effect of dye concentration on the degradation of (a) MB and (b) RB5 using NiFe as catalyst (Reaction Conditions: [NiFe]= 0.50 g/L, [H_2O_2]= 8.8 mM and pH= 2.5)

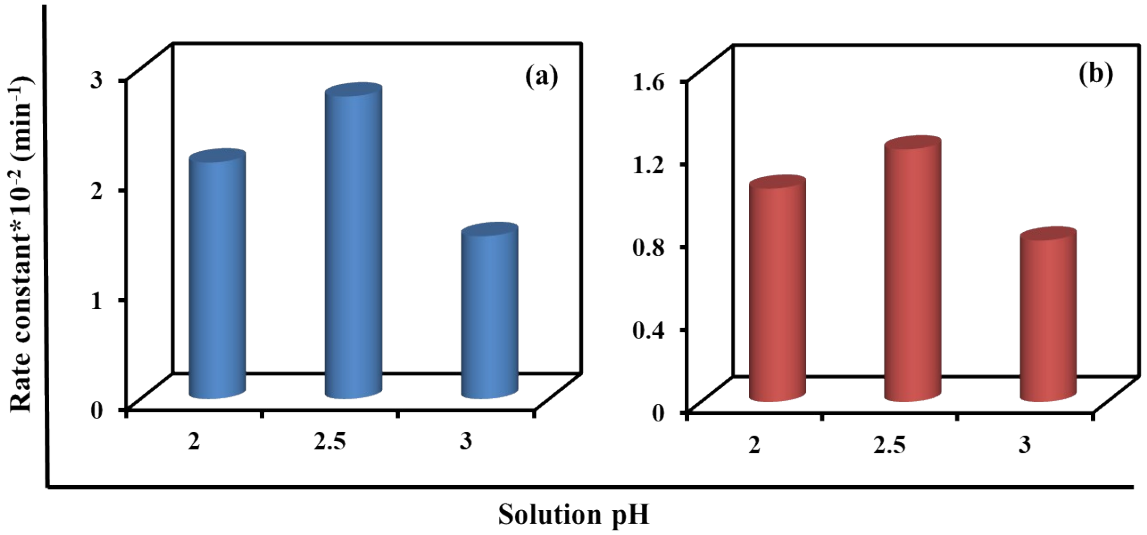

Fig.S6 Effect of solution pH on the degradation of (a) MB and (b) RB5 using NiFe as catalyst (Reaction Conditions: [NiFe]= 0.50 g/L, [Dye]= 0.05mM and [H_2O_2]= 8.8 mM)

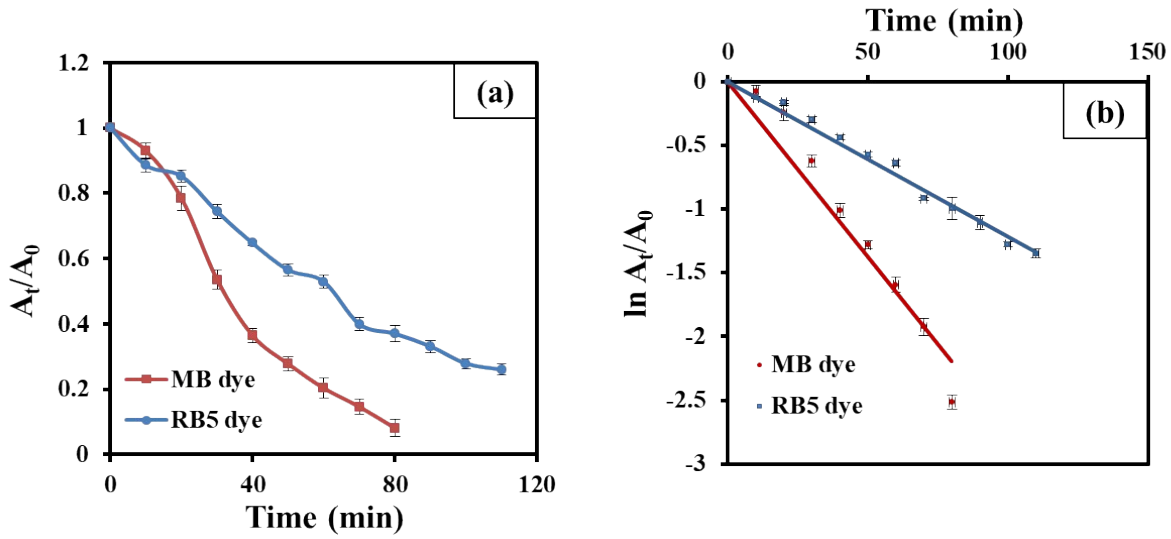

Fig.S7 A_t/A_0 graph *vs.* time (a) and ln A_t/A_0 graph *vs.* time (b) for degradation of MB and RB5 dye using NiFe as catalyst. (Reaction Conditions: [Dye]= 0.05mM, [NiFe]= 0.50 g/L, [H_2O_2]= 8.8 mM and pH= 2.5)

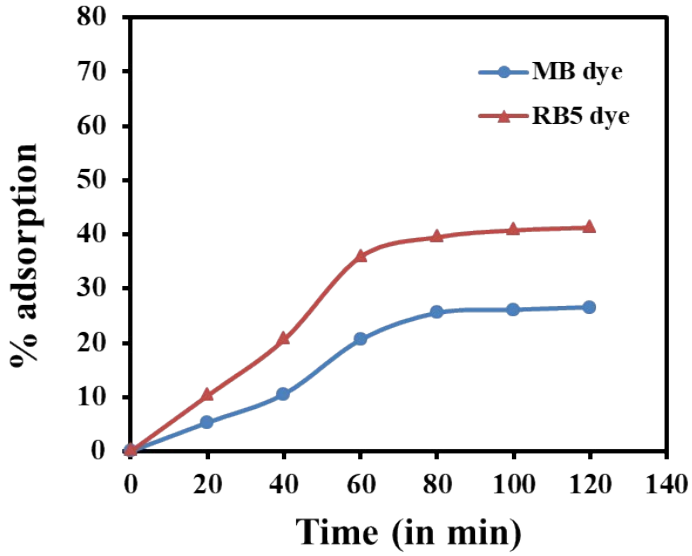

Fig. S8 % Adsorption *vs.* time curves for MB dye and RB5 dye using bare pectin powder (Reaction Conditions: [Pectin]= 0.50 g/L, [Dye]= 0.05mM)