Electronic Supplementary Material (ESI) for Polymer Chemistry.

Bioinspired Polydopamine Induced Assembly of Ultrafine $Fe(OH)_3$ Nanoparticles on Halloysite toward Highly Efficient Fire Retardancy of Epoxy Resin via An Action of Interfacial Catalysis

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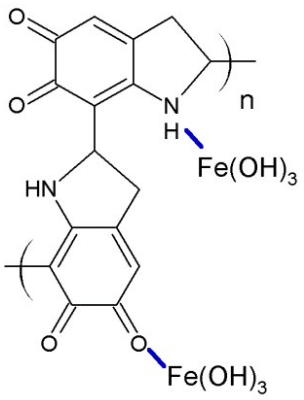

Scheme S1. The interaction between PDA molecule and $Fe(OH)_3$

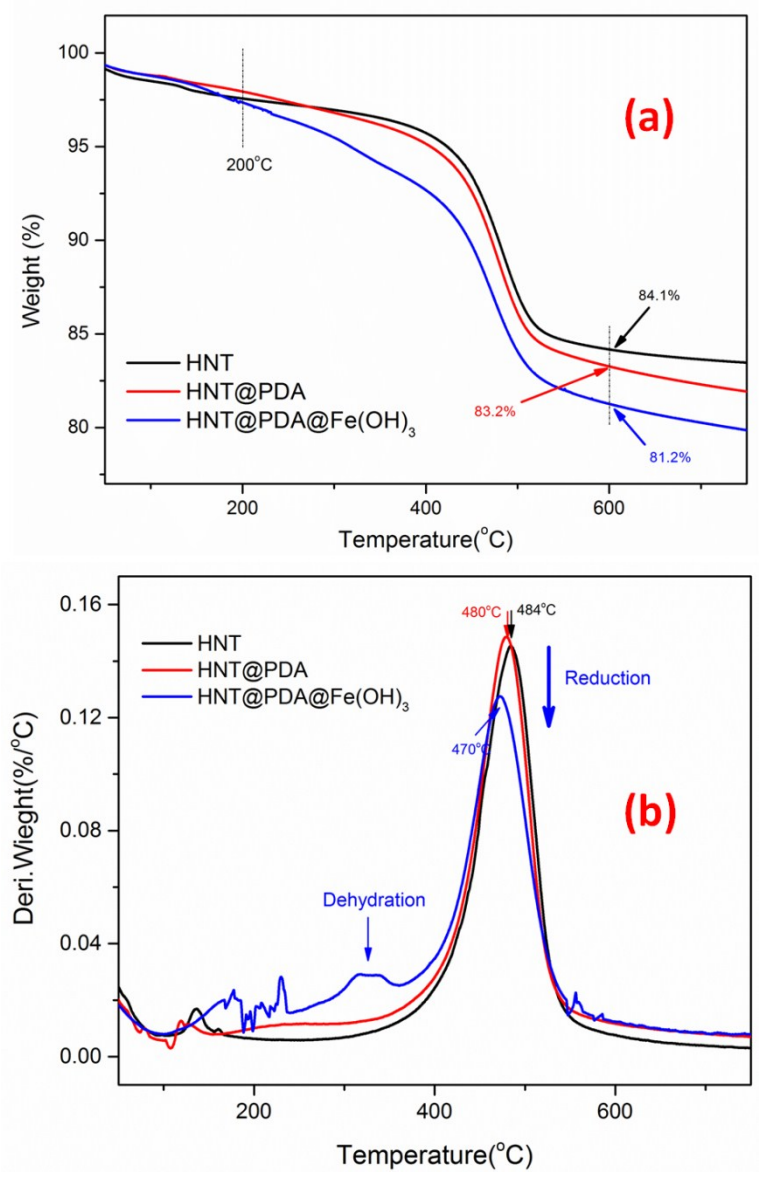

Fig S1. (a) TG and (b) DTG curves of HNT, HNT@PDA and HNT@PDA@$Fe(OH)_3$

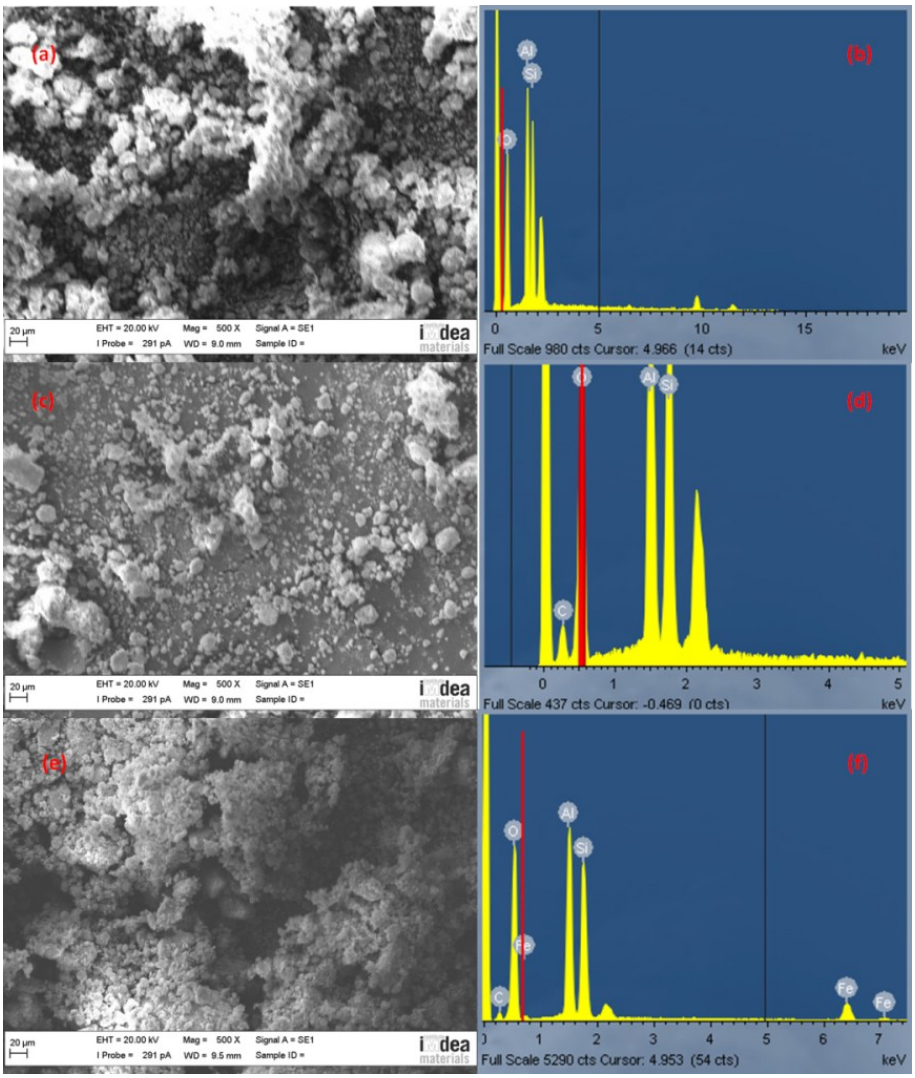

Fig S2. SEM images and EDS results of HNT (a, b), HNT@PDA (c, d) and HNT@PDA@$Fe(OH)_3$ (e, f)

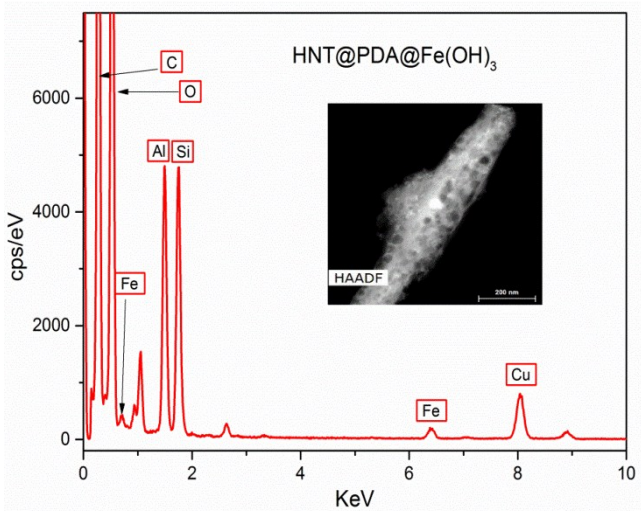

Fig S3. EDS spectra of HNT@PDA@$Fe(OH)_3$

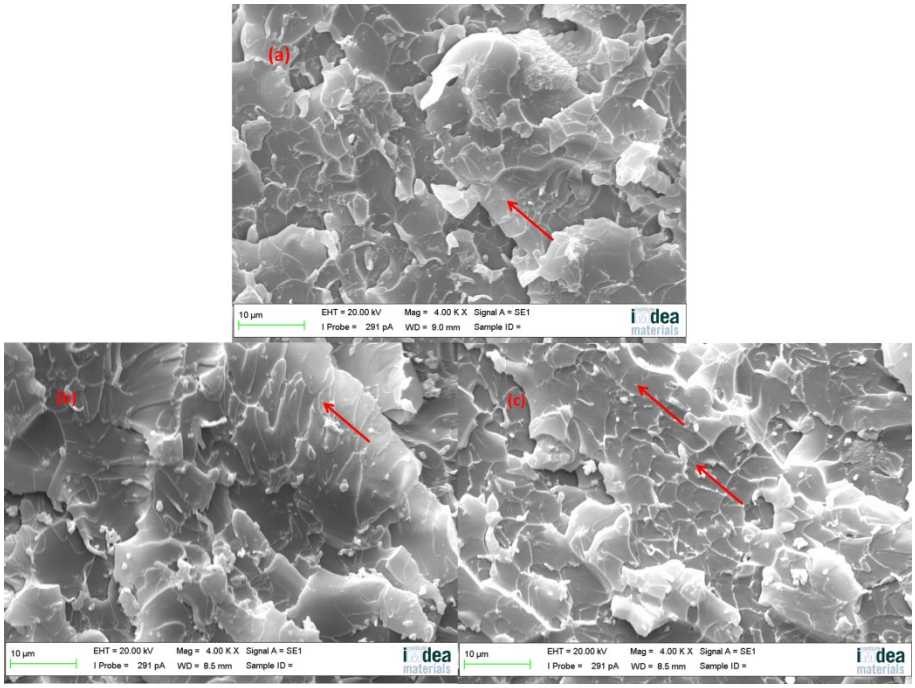

Fig S4. (a) SEM images of fracture surface of EP/5HNT, EP/5HNT@PDA and EP/5HNT@PDA@$Fe(OH)_3$ (red arrow marked HNT and its derivations)

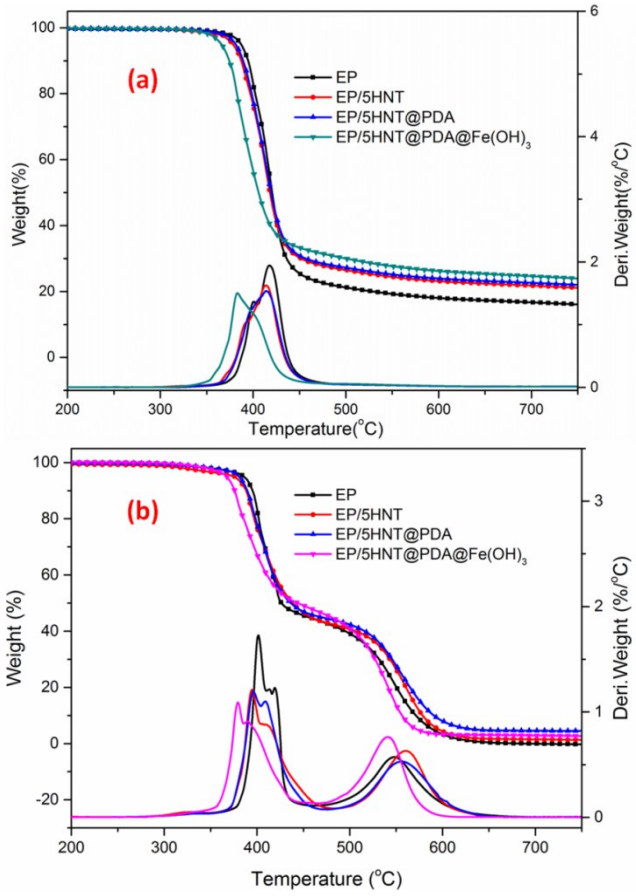

Fig S5. TG and DTG curves of EP, EP/5HNT, EP/5HNT@PDA and

EP/5HNT@PDA@Fe(OH)$_3$ at (a) N_2 and (b) air atmosphere

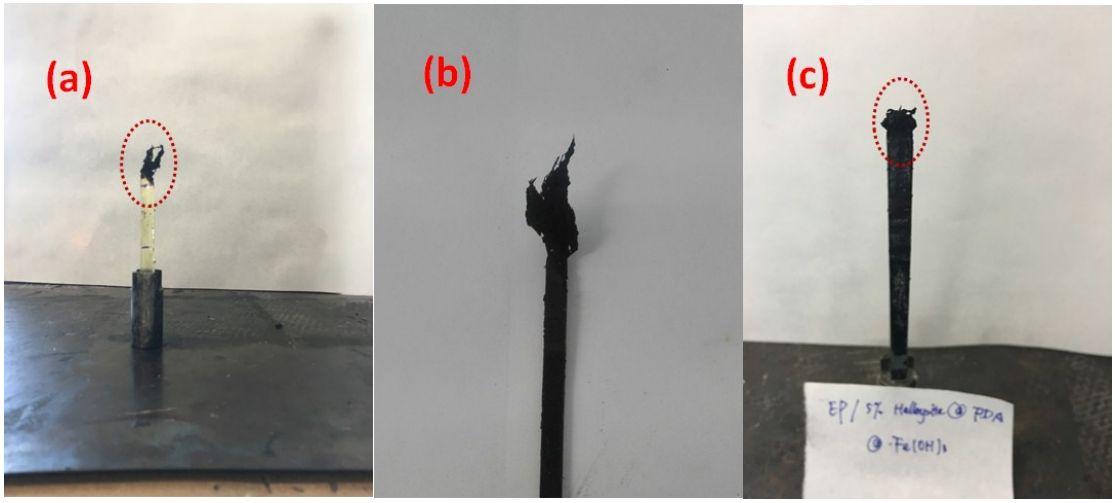

Fig S6. Char of (a) EP, (b) EP/5HNT@PDA-Fe(OH)$_3$ and EP/5HNT@PDA@Fe(OH)$_3$ after LOI test

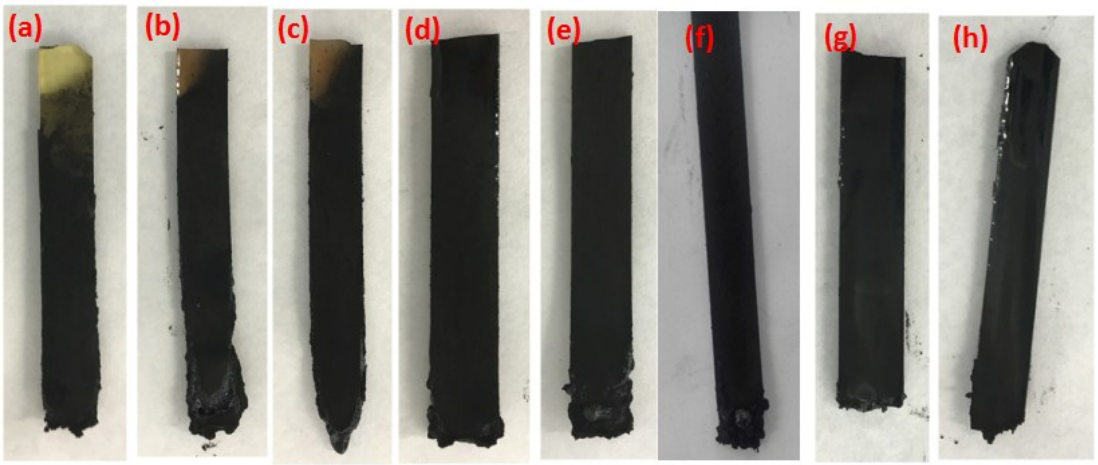

Fig S7. Char of (a) EP, (b) EP/5HNT, (c) EP/10HNT, (d) EP/5HNT@PDA, (e) EP/10HNT@PDA, (f) EP/5HNT@PDA-Fe(OH)$_3$, (g) EP/5HNT@PDA@Fe(OH)$_3$ and (h) EP/10HNT@PDA@Fe(OH)$_3$ in UL-94 test

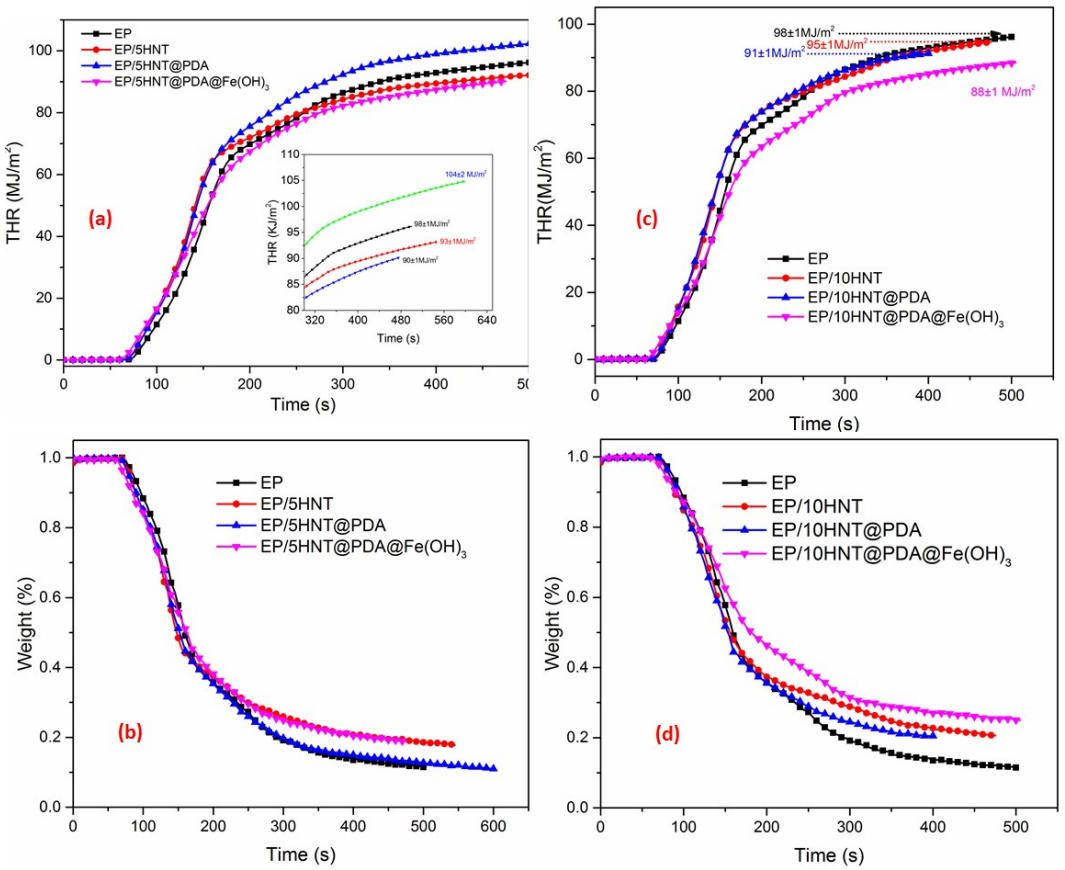

Fig S8. HRR curves of EP and EP nanocomposites with (a) 5wt% HNT and its derivations and (c) 10wt% HNT and its derivations; Weight curves of EP and EP nanocomposites with (b) 5wt% HNT and its derivations and (d) 10wt% HNT and its derivations

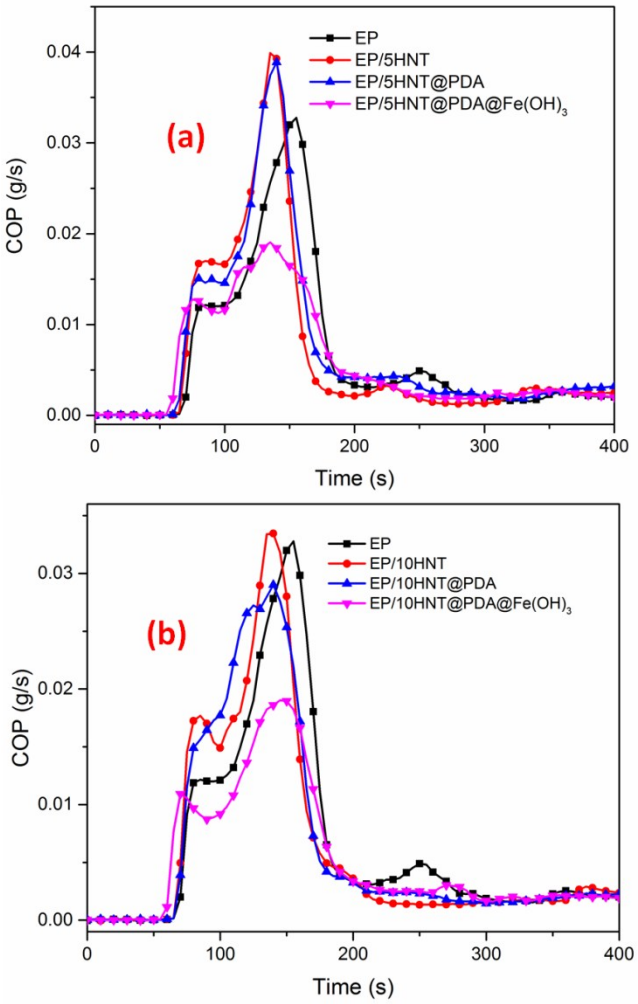

Fig S9. COP curves of EP and EP nanocomposites with HNT, HNT@PDA and HNT@PDA@$Fe(OH)_3$ at (a) 5wt% and (b) 10wt% loading

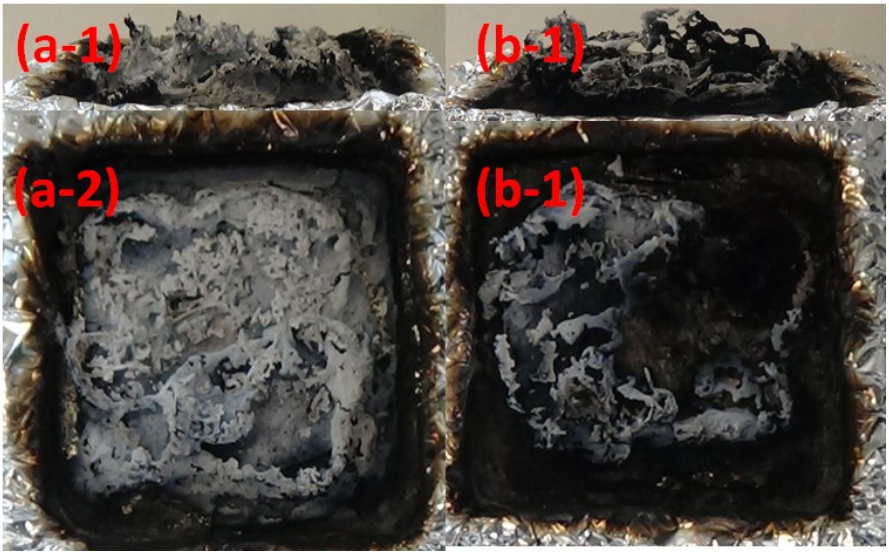

Fig S10. Digital images of chars of EP/10HNT from top (a-1) and front (a-2) view

and (b) from top (b-1) and front (b-2) view

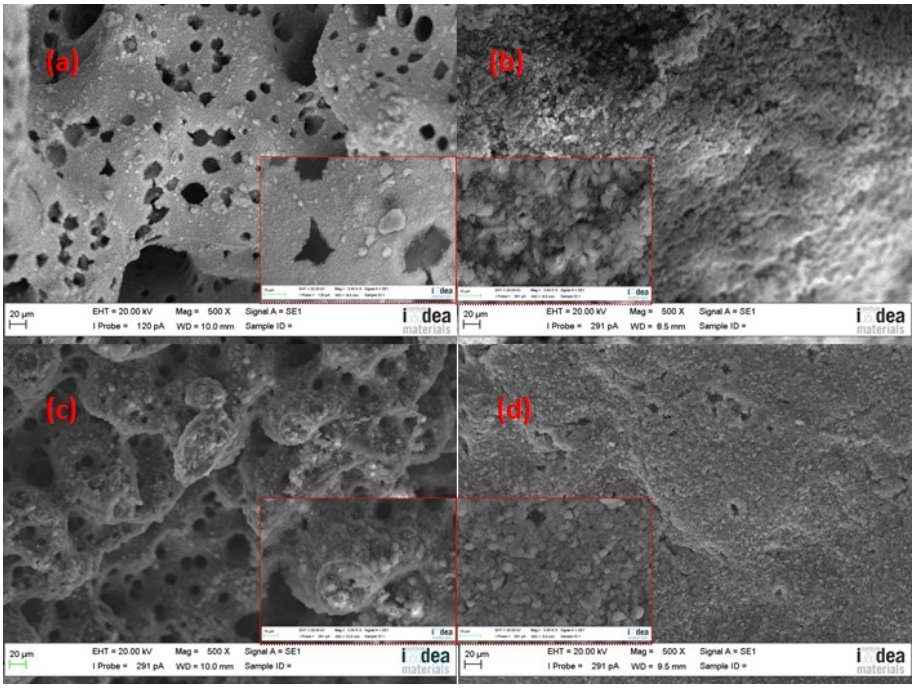

Fig S11. SEM images of interior and exterior char of (a) (b) EP/10HNT and (c) (d) EP/10HNT@PDA

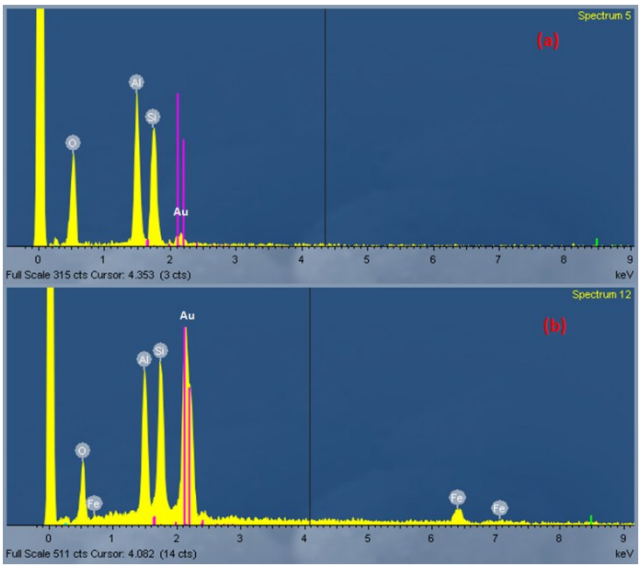

Fig S12. EDS spectra of char from (a) EP/10HNT and (b) EP/10HNT@PDA@$Fe(OH)_3$

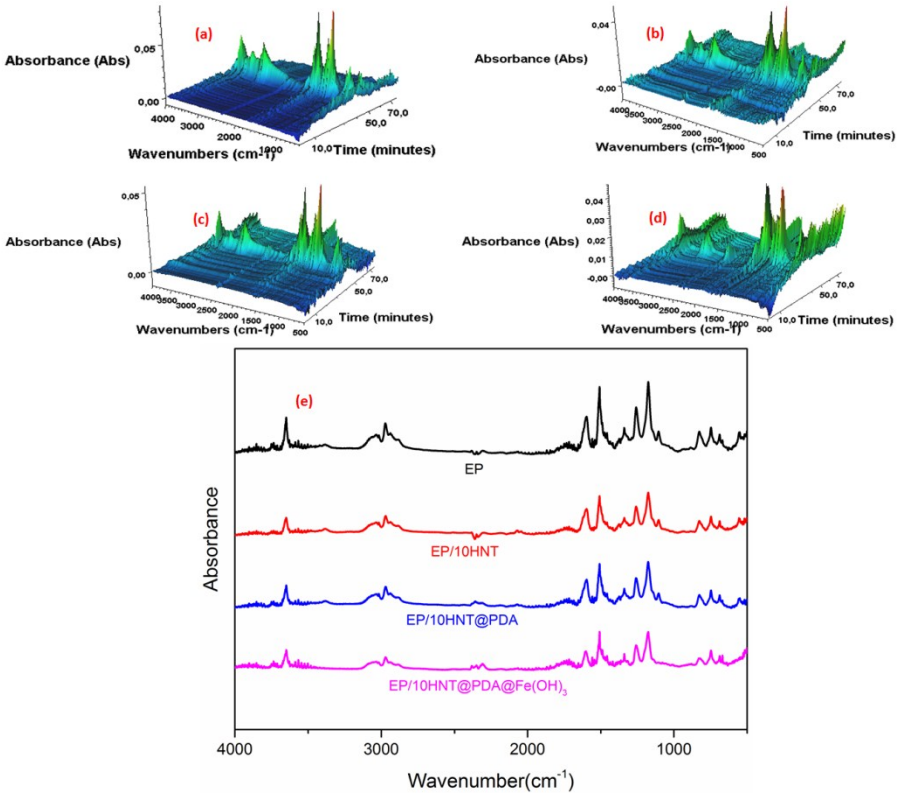

Fig S13. 3D diagrams of volatiles evolution of (a) EP, (b) EP/10HNT, (c) EP/10HNT@PDA and (d) EP/10HNT@PDA@$Fe(OH)_3$ in TG-FTIR measurement and (e) FTIR spectrum at maximum degradation rate

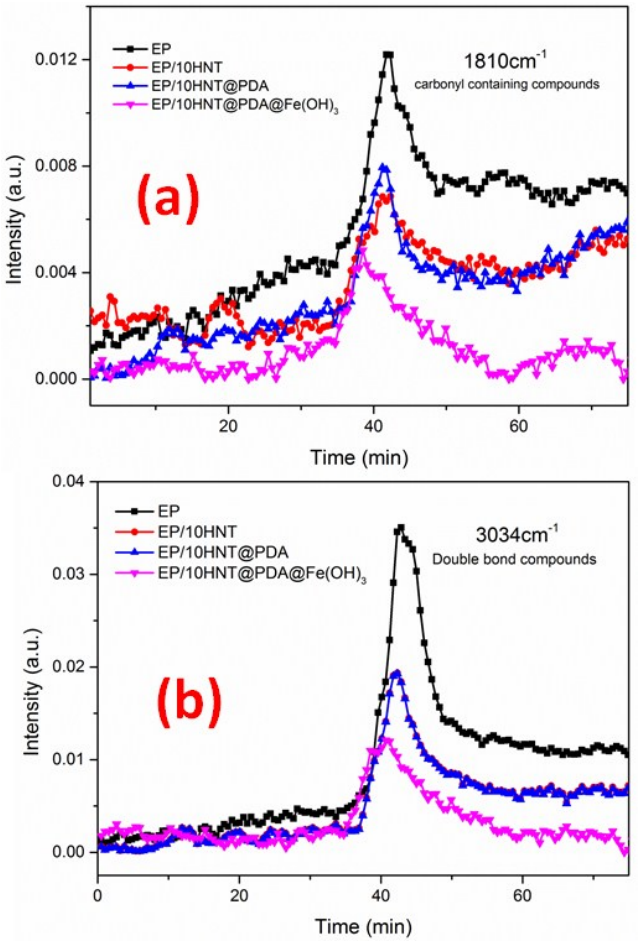

Fig S14. (a) Carbonyl compounds and double bonds compounds evolutions of EP and EP nanocomposite

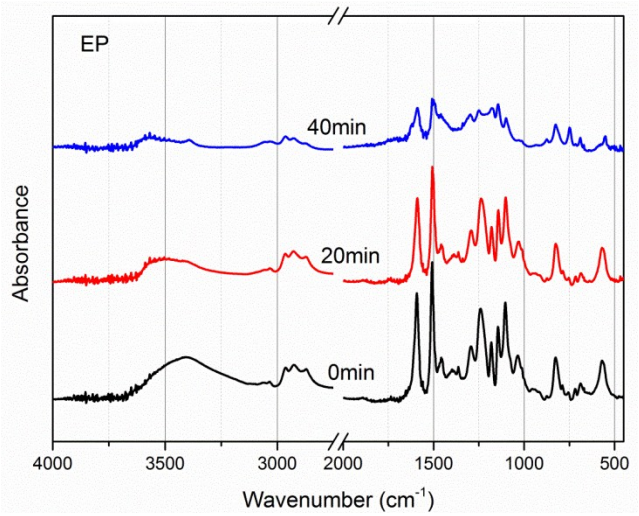

Fig S15. vt-FTIR spectra of EP at 0min, 20min and 40min

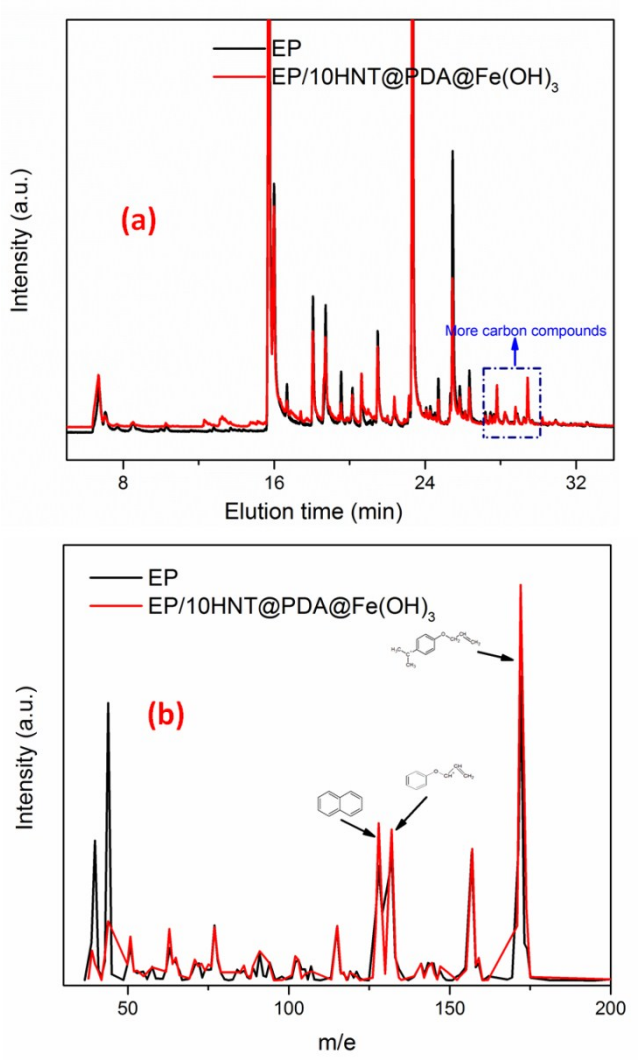

Fig S16. (a) GC curves of EP and EP/10HNT@PDA@$Fe(OH)_3$ at the maximum total ion current; (b) Mass spectroscopy at elution time of 29.44min