**Supporting Information**



**Fig. S1:** BET plot for a) GA-*g*-PCHPMA b) GA-*g*-PCHPMA/Fe3O4





**Fig.** **S2**: Proposed mechanism for the adsorption of MB and R6G on the adsorbent GA-*g*-PCHPMA



**Fig. S3**: Proposed mechanism for the adsorption of divalent metal ions (Cu(II) and Hg(II)) on the adsorbent GA-*g*-PCHPMA



**Fig. S4**: Langmuir isotherm model fit for the adsorption of dyes and metal ions on a) GA–*g*–PCHPMA and b) GA–*g*–PCHPMA/Fe3O4



**Fig. S5**: Pseudo first order kinetic plot for adsorption of dyes and metal ions on a) GA–*g*–PCHPMA b) GA–*g*–PCHPMA/Fe3O4