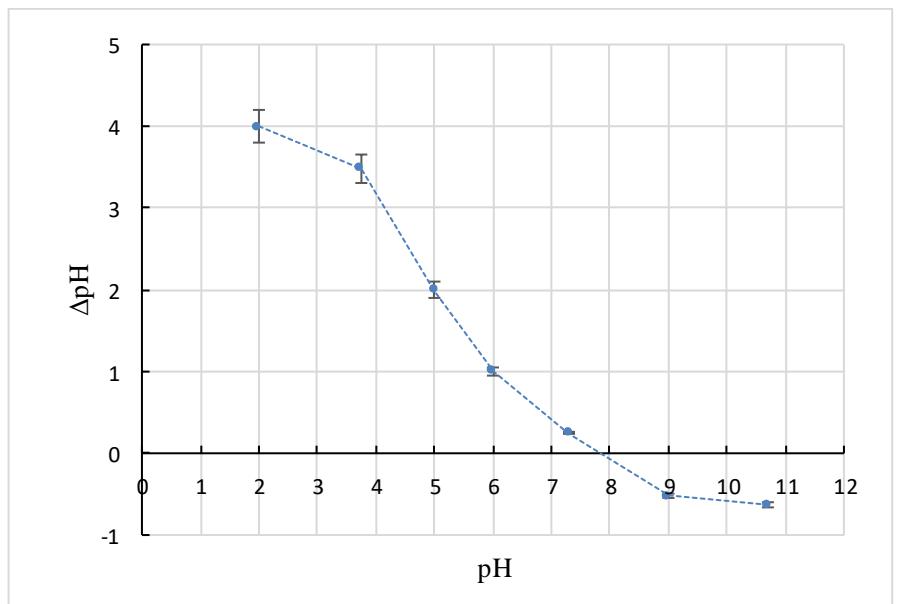
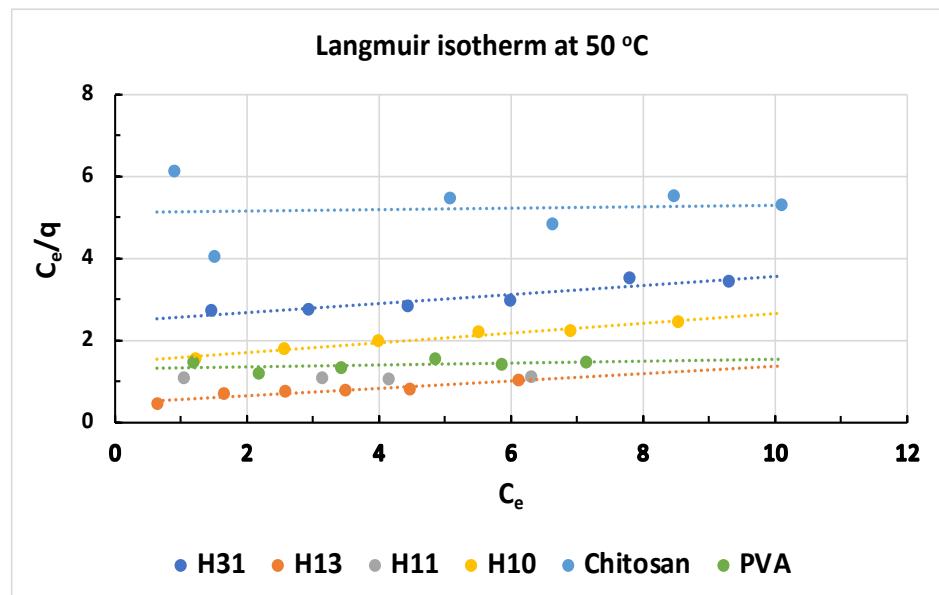
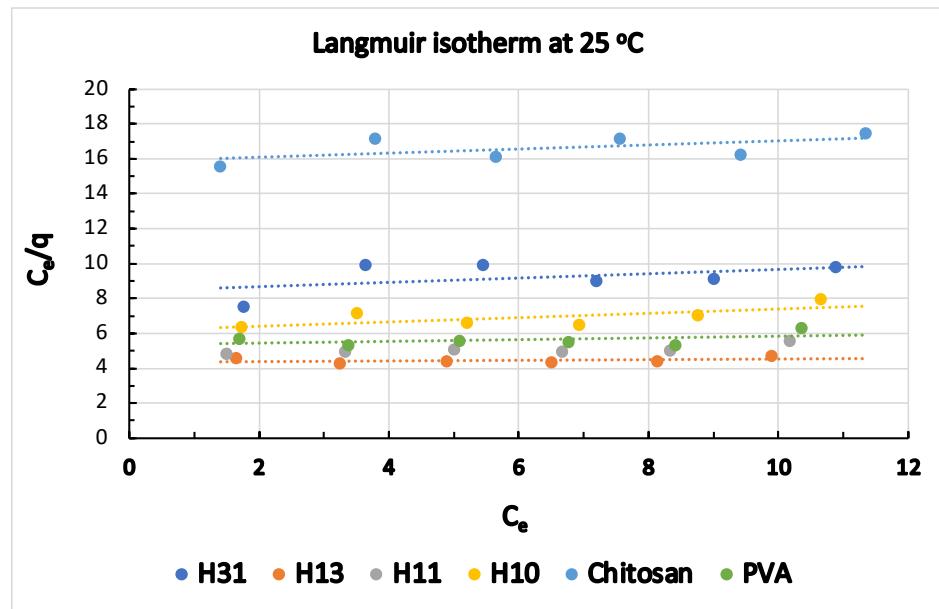


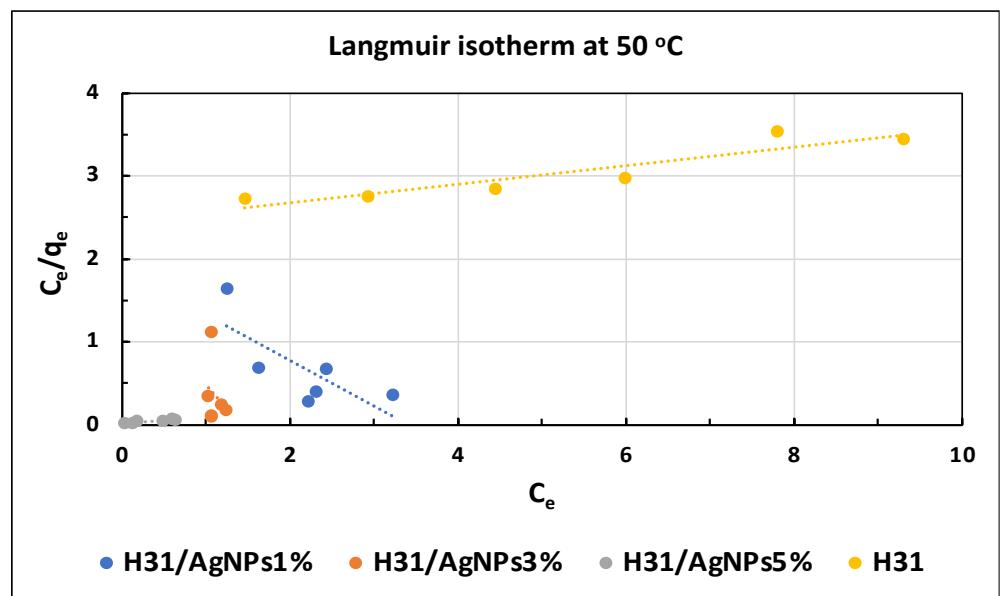
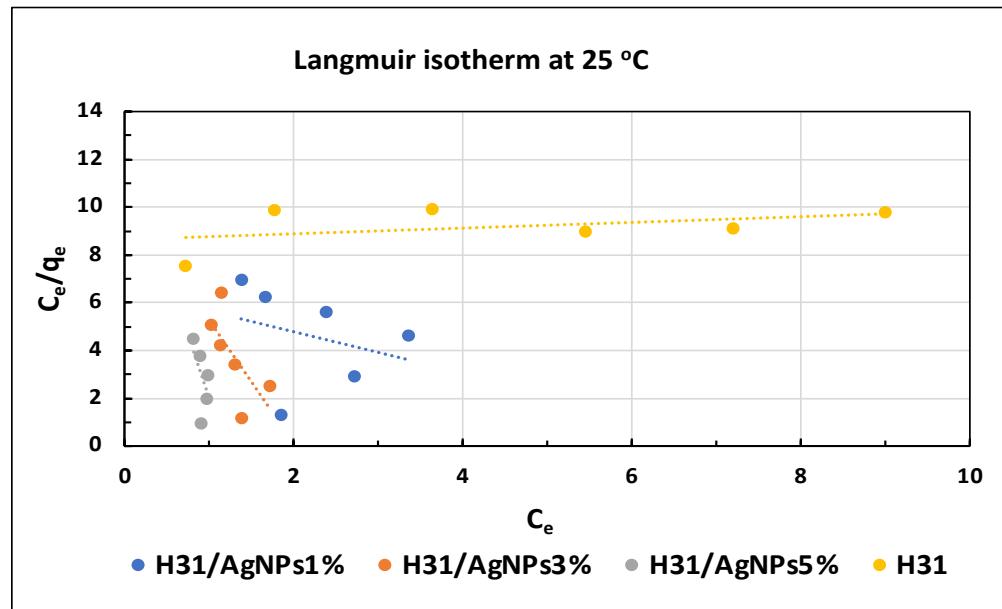
Online Supplemental File-S1  
The pH of zero-point charge ( $\text{pH}_{\text{zpc}}$ ) of  $\text{H}_{13}$ .



Online Supplemental File-S2  
The pH of zero-point charge ( $\text{pH}_{\text{zpc}}$ ) of  $\text{H}_{31}$ .

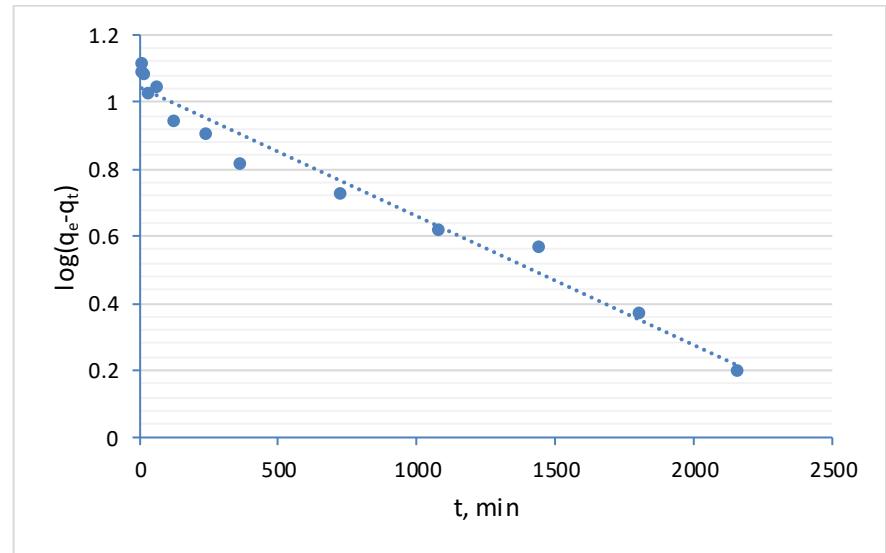


Online Supplemental File-S3  
Langmuir isotherm of CV dye adsorption onto the prepared hydrogels.

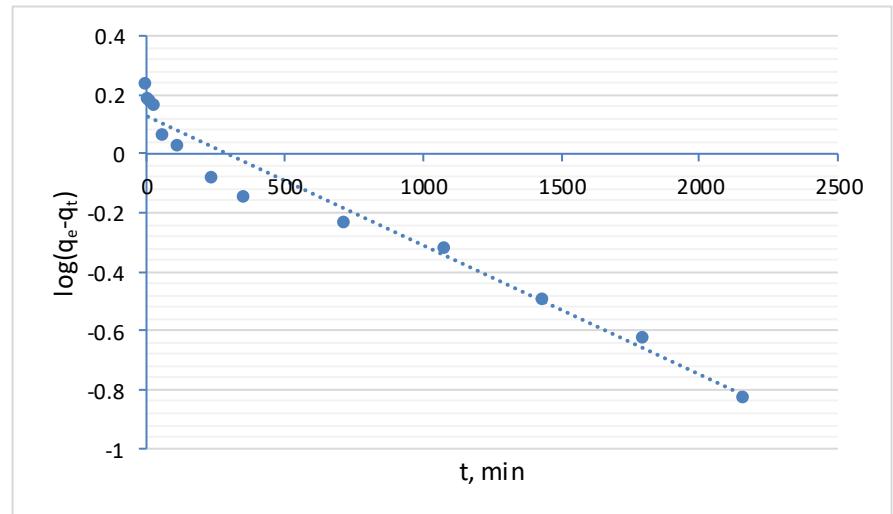


Online Supplemental File- S4

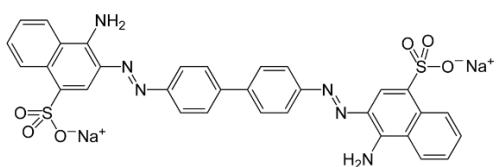
Langmuir isotherm of CV dye adsorption onto H<sub>31</sub> and H<sub>31</sub>/AgNP composites.



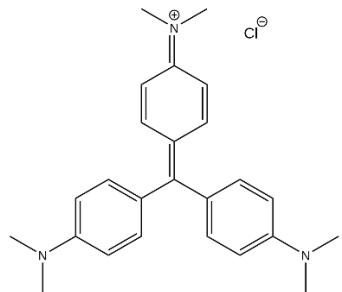
Online Supplemental File-S5  
Linear regressions of the pseudo-first order kinetic model plot for the adsorption of CR dye onto H<sub>31</sub>.



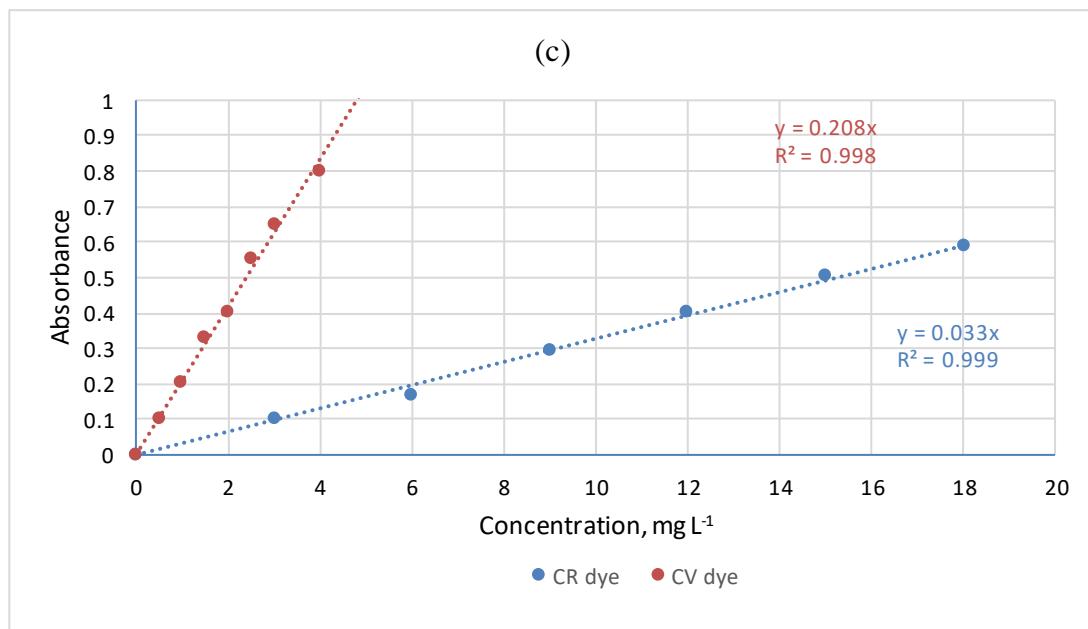
Online Supplemental File-S6  
Linear regressions of the pseudo-first order kinetic model plot for the adsorption of CV dye onto H<sub>13</sub>.



(a)



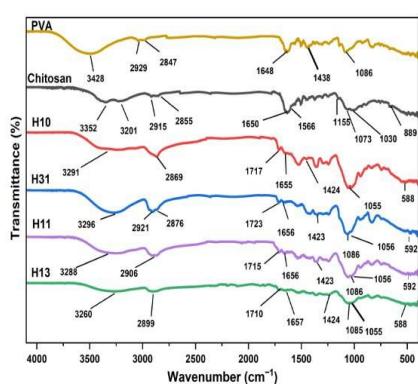
(b)



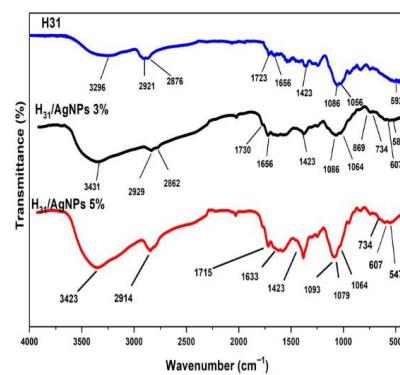
### Online Supplemental File-S7

Chemical structure of (a) Congo Red (CR) and (b) Crystal Violet (CV) dyes, and (c) calibration curves.

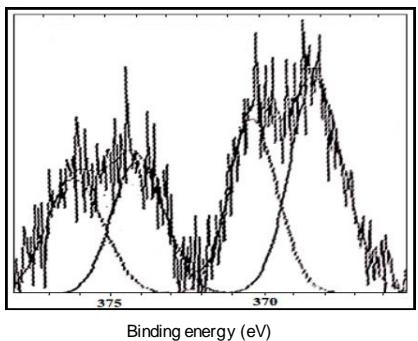
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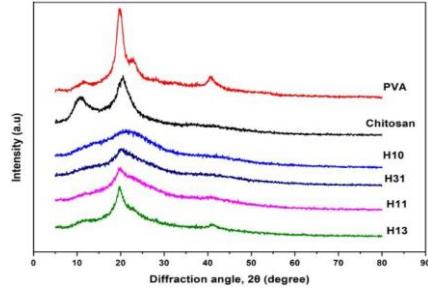
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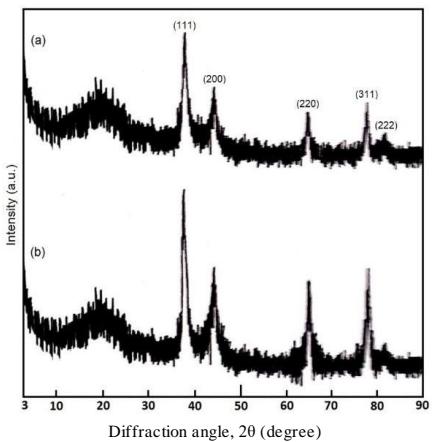
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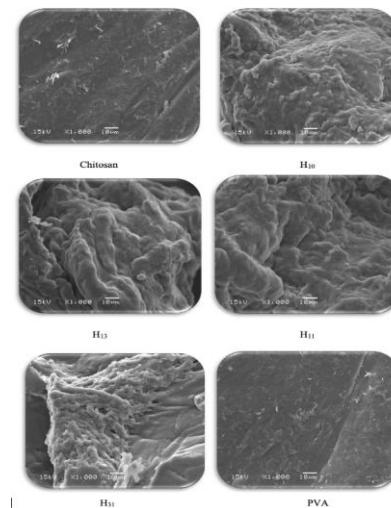
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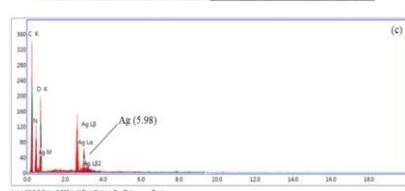
5 )



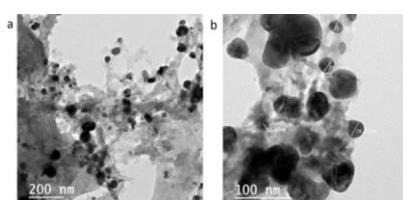
6 )



7 )



8 )



- 1) FTIR spectra of the prepared hydrogels.
- 2) FTIR spectra of H<sub>31</sub> and H<sub>31</sub>/AgNP composites.
- 3) XPS spectrum of H<sub>31</sub>/AgNPs5% composite.
- 4) XRD patterns of the prepared hydrogels.
- 5) XRD pattern of (a) H<sub>31</sub>/AgNPs3% and (b) H<sub>31</sub>/AgNPs5% composites.
- 6) SEM images of the prepared hydrogels.
- 7) SEM images of: (a) H<sub>31</sub>/AgNPs1%; (b) H<sub>31</sub>/AgNPs3% and (c) EDS of H<sub>31</sub>/AgNPs3%.
- 8) TEM images of H<sub>31</sub>/AgNPs5% composite at different magnifications: (a) 200 nm and (b) 100 nm.

Online Supplemental File-S8

Characterization of Chitosan/PVA Hydrogels and H<sub>31</sub>/AgNP Composites.