**Fabrication of poly(itaconic acid)-*g*-potassium alginate aerogels as eco-friendly biosorbents for removal of cationic dyes**

Chenxi Zhanga, Anrong Yaoa, Jianwu Lana, Baojie Doua, Lin Yangb, Shaojian Lina\*

a National Engineering Laboratory for Clean Technology of Leather Manufacture, College of Biomass Science and Engineering, Sichuan University, Chengdu, 610065, China

b Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB, T6G 1H9, Canada

\* Corresponding author:

E-mail address: sjlin@scu.edu.cn (S. Lin).



**Fig. S1.** Compressive stress-strain curve of the PIA aerogel under the dry state (A); compressive stress-strain curves of the PIA-*g*-PA-10 aerogel and PIA-*g*-PA-15 aerogel under the dry state (B), respectively.



**Fig. S2.** The chemical structures of NR (A), MEB (B), MG (C), MO (D), and CR (E), respectively



**Fig. S3.** Effect of the contents of potassium alginate in aerogel on the adsorption capacity towards MEB, MG, and NR (experimental condition: weight of adsorbent, 10mg; initial concentration, 500mg·L-1; solution volume, 20mL; pH=7).

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**Fig. S4.** Effect of adsorption time on the removal capacity of MEB (A); MG (B) by using the PIA-*g*-PA-20 hydrogel and PIA-*g*-PA-20 aerogel (experimental condition: weight of adsorbent, 10 mg; initial concentration, 10 mg·L-1; solution volume, 20 mL; pH = 7).



**Fig. S5.** Effect of adsorption time on the removal capacity of MEB (A); MG (B) by using the PIA-*g*-PA-20 aerogel and PIA aerogel (experimental condition: weight of adsorbent, 10 mg; initial concentration, 10 mg·L-1; solution volume, 20 mL; pH = 7).