Supplement materials

Characterization of an inorganic polymer coagulant and coagulation behavior for humic acid/algae-polluted water treatment: Polymeric zinc-ferric-silicate-sulfate coagulant

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The following is included as additional supplementary materials for this paper:

The method of coagulation test about the removal of humic acid and turbidity from water using PZFSIS

Coagulation tests were carried out using a ZR4-6 six-paddle gang stirrer (Shenzhen Zhongrun Water Industry Technology and Development Co., Ltd, China). A certain dosage of PZFSiS (In Fe mass, mg/L) was added into the water samples which was prepared by the stock solution of HA and the stock suspension of kaolin. Then the water was mixed at a high speed of 300 rpm for 1 min and then at a low speed of 40 rpm for 10 min. After that, the water was settled for 30 min. Turbidity and UV_{254} of treated water were measured using a 2100P turbidity meter (HACH, USA) and a TU-1900 ultraviolet/visible (UV/VIS) spectrophotometer. The removal rates of turbidity and HA are calculated using Eq. (1):

$$R=(1-T_f/T_i)\times 100\% \quad (1)$$

where R are the removal rate of turbidity and HA, respectively. Correspondingly, T_i and T_f are the initial and the final turbidity and UV_{254}.

The results has been only represented in the Fig. S1 and Fig. S2.

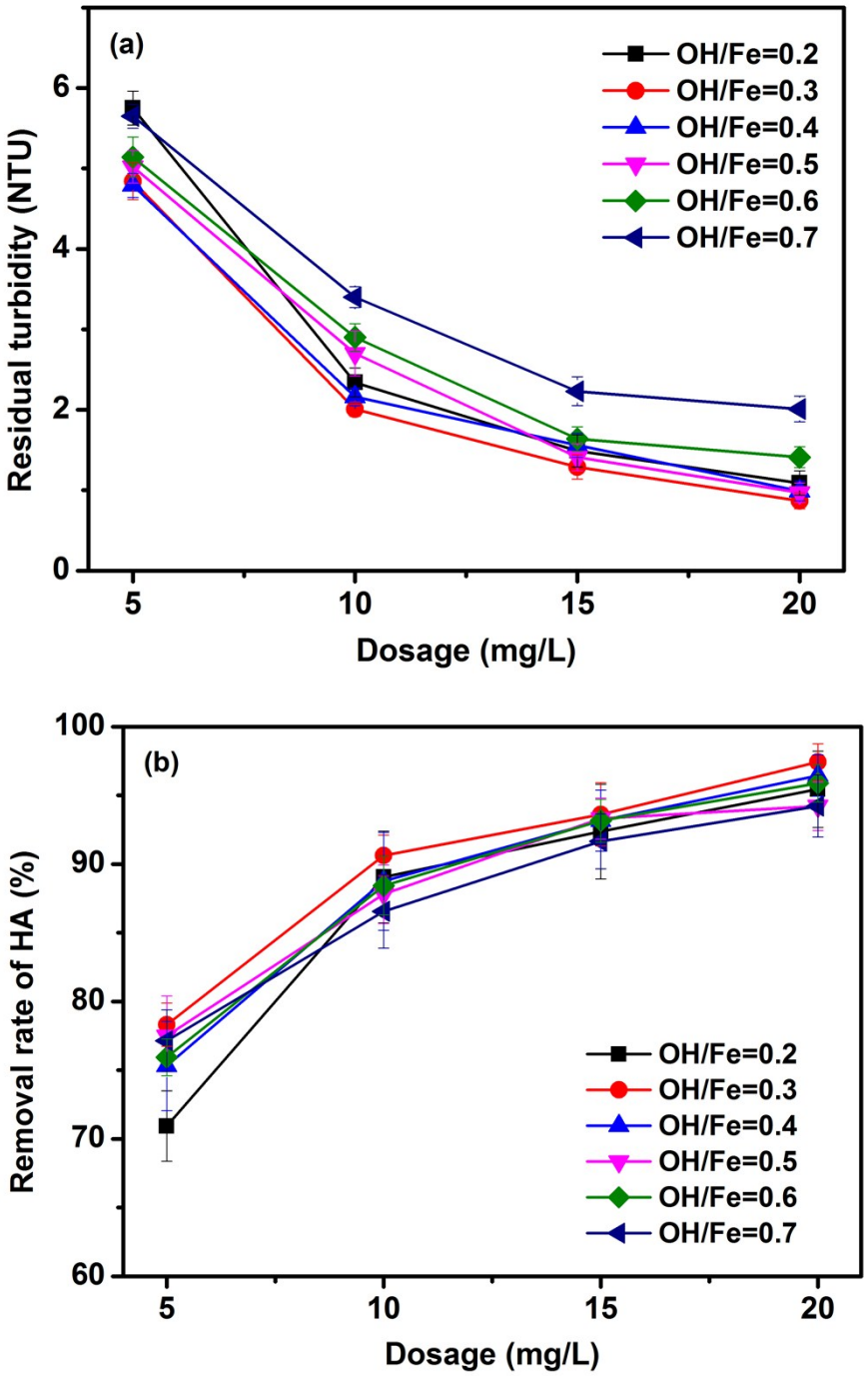

Fig. S1 The removal of turbidity and HA under different OH/Fe molar ratio

(coagulation condition was stated in page 3 of Supplement materials)

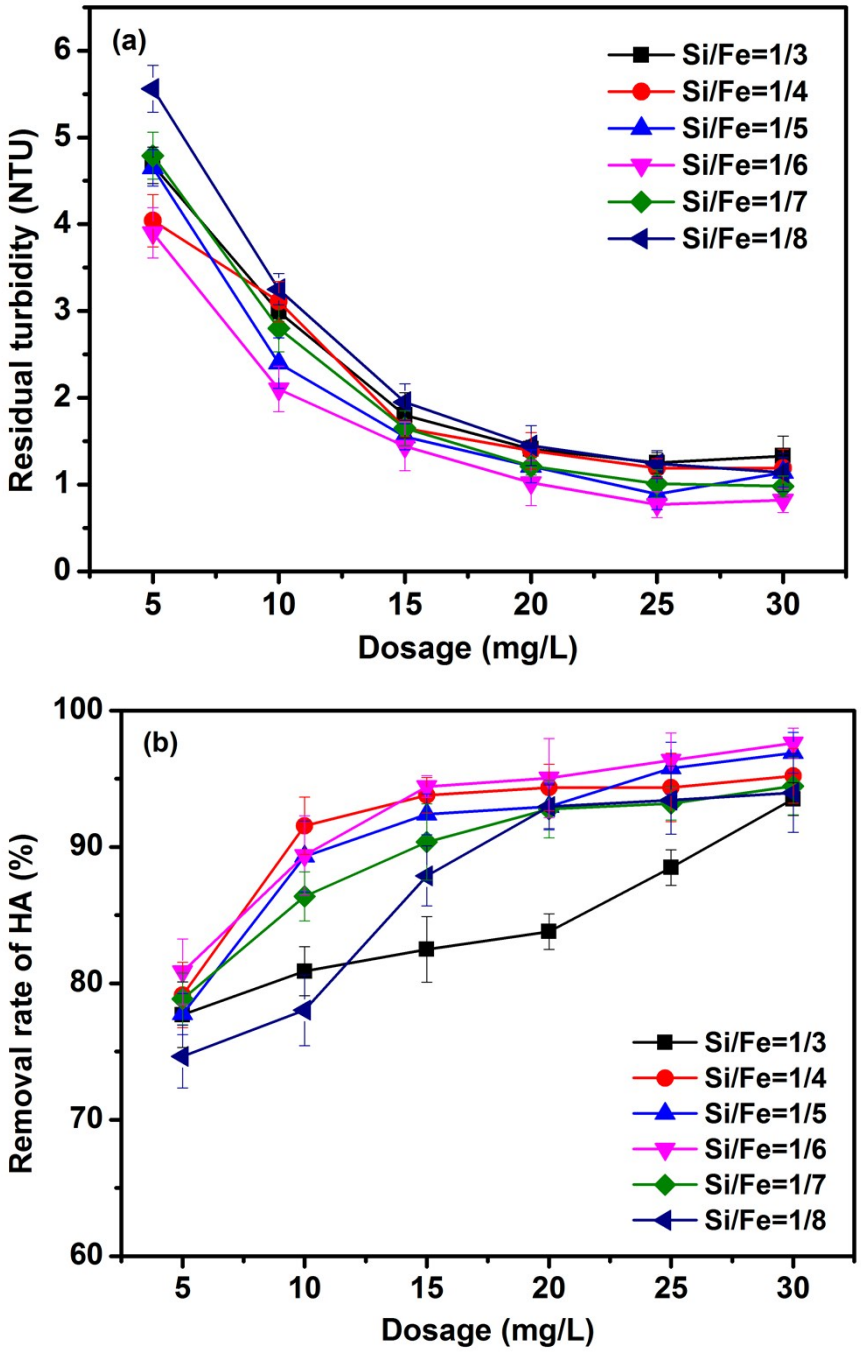

Fig. S2 The removal of turbidity and HA under different Si/Fe molar ratio

(coagulation condition was stated in page 3 of Supplement materials)

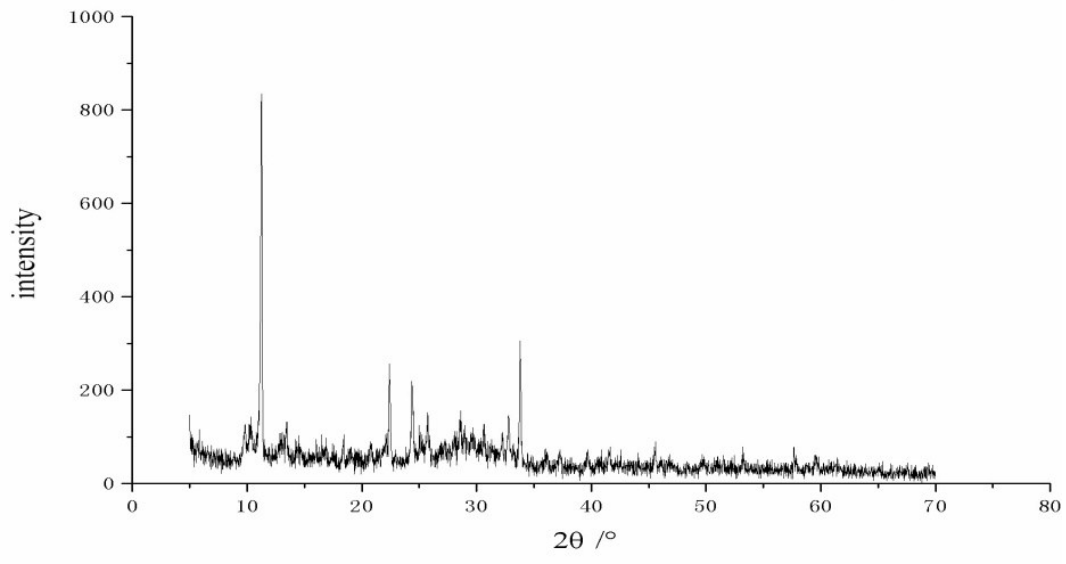

Fig. S3 XRD pattern of Poly- sulfate-ferric

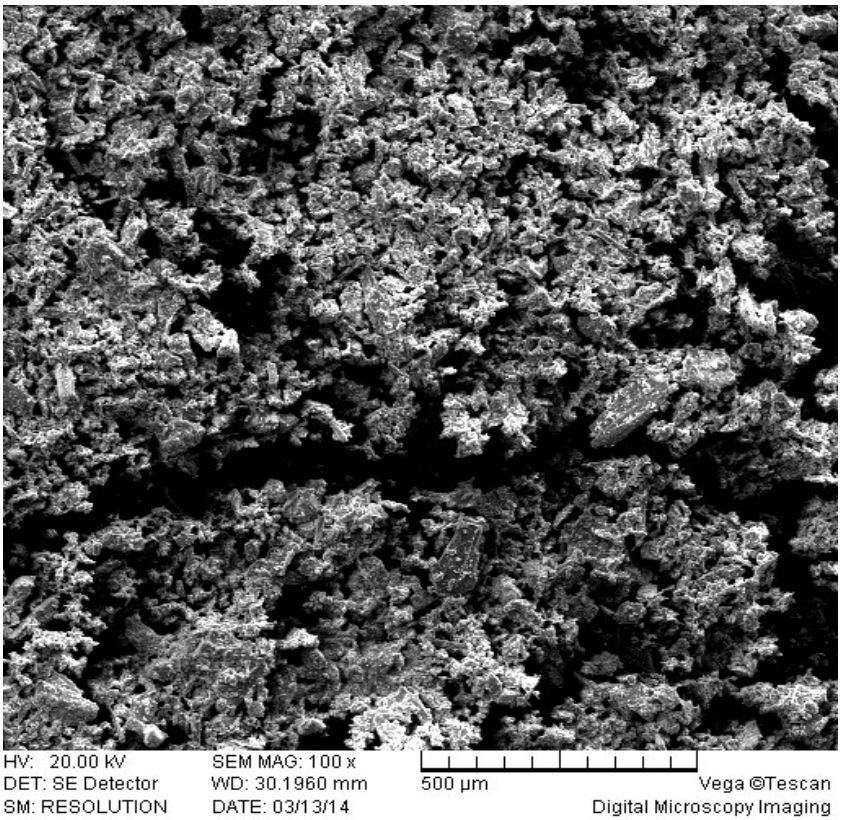

Fig. S4 SEM photographs of PFS

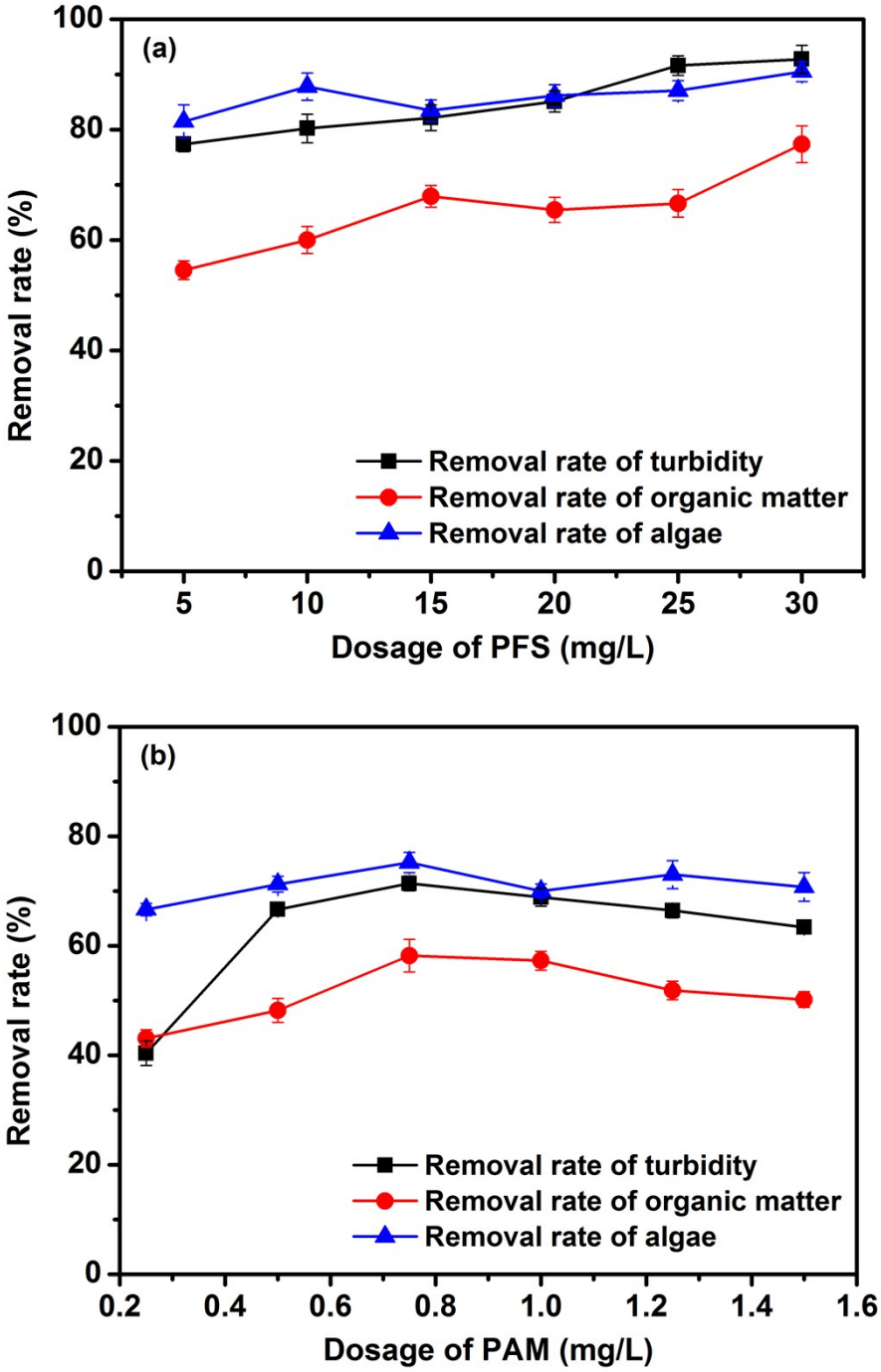

Fig. S5 The removal rate of pollutants in the HA/algae-polluted water treatment by (a) PFS and (b) PAM

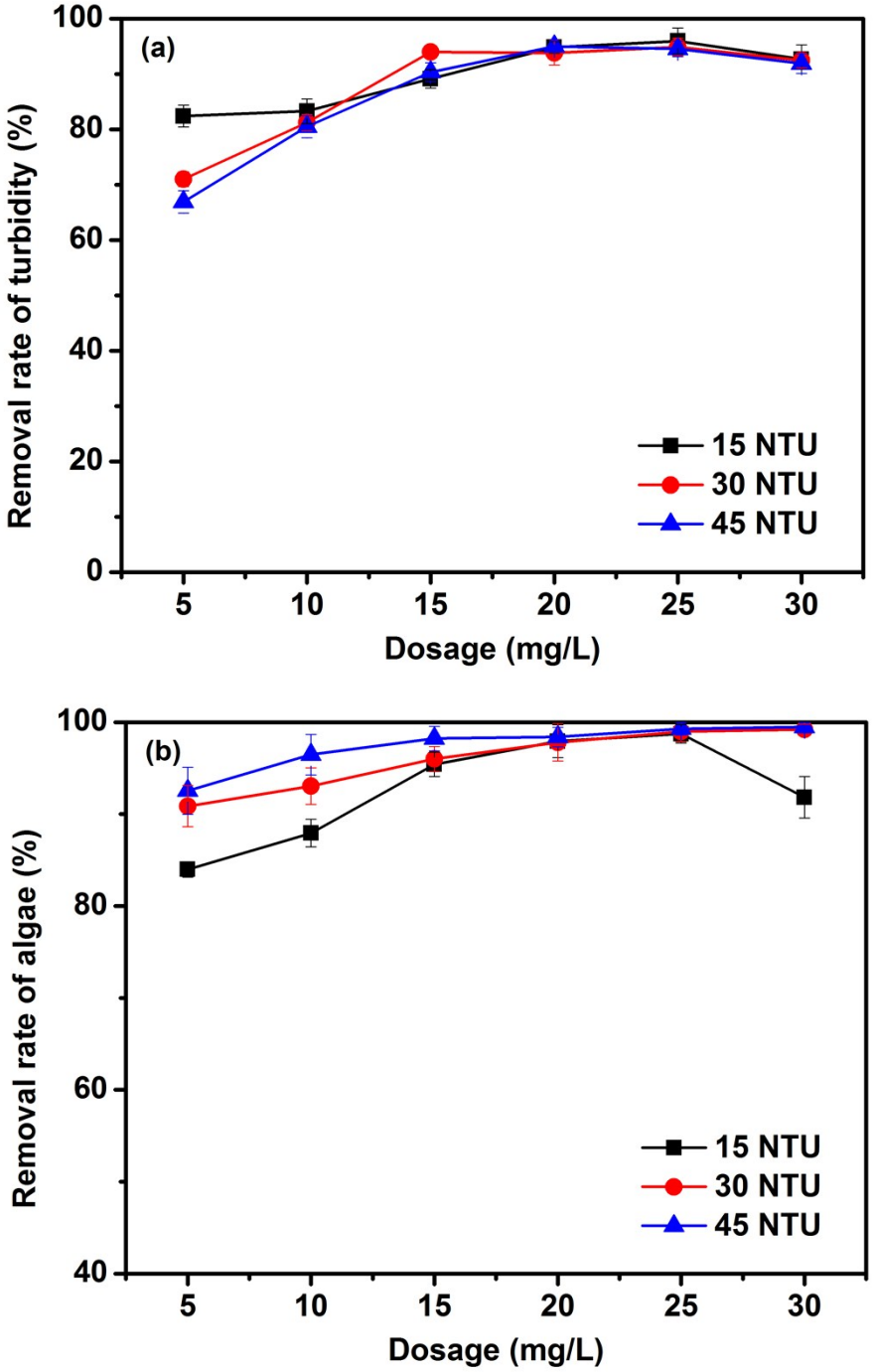

Fig. S6 The effect of turbidity of water on the removal rate of turbidity and algae in the HA/algae-polluted water treatment