Electronic Supplementary Material (ESI) for New Journal of Chemistry.

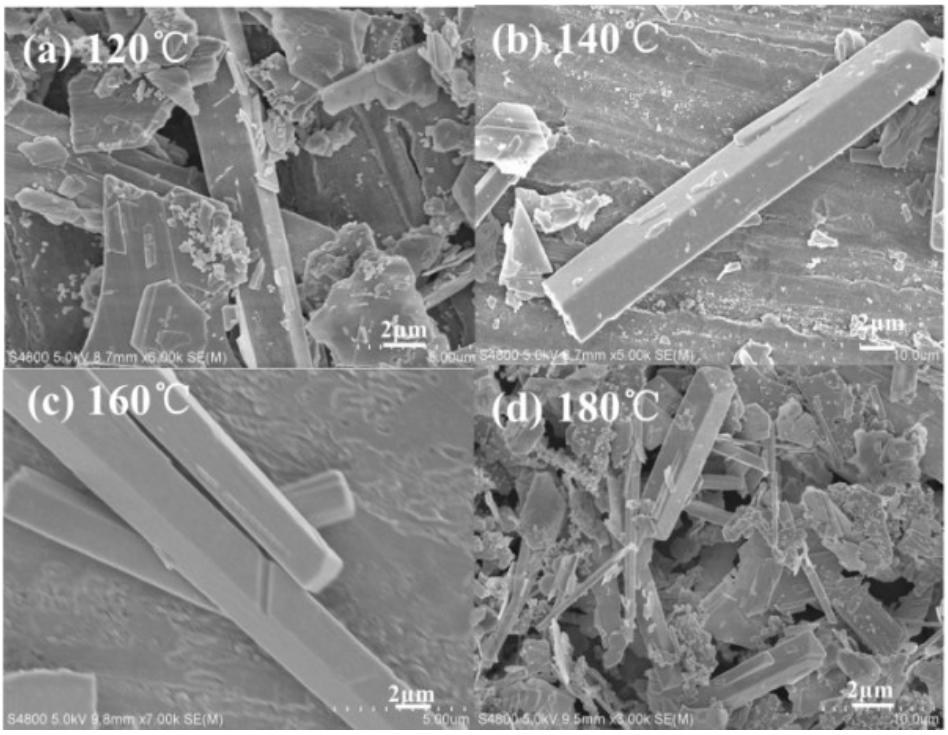

Fig. S1 SEM images of BiOCl-110 obtained at different reaction temperature (a) 120 °C, (b) 140 °C, (c) 160 °C, (d) 180 °C.

We study the effect of reaction temperature on the formation of BOC-110 microrods. As shown in Fig. S1. When the temperature is 120 °C, some BiOCl nanosheets and microrods are co-existence (Fig. S1a). Increasing reaction temperature gradually, the BiOCl nanosheets decreases and the microrods increases, and then completely formed BiOCl-110 microrods (Fig. S1c). Further increase the temperature to 180 °C, the sheet-like and rod-like structures are simultaneously present (Fig. S1d). Thus, it is concluded that the optimum reaction temperature of the BiOCl-110 microrods is 160 °C.

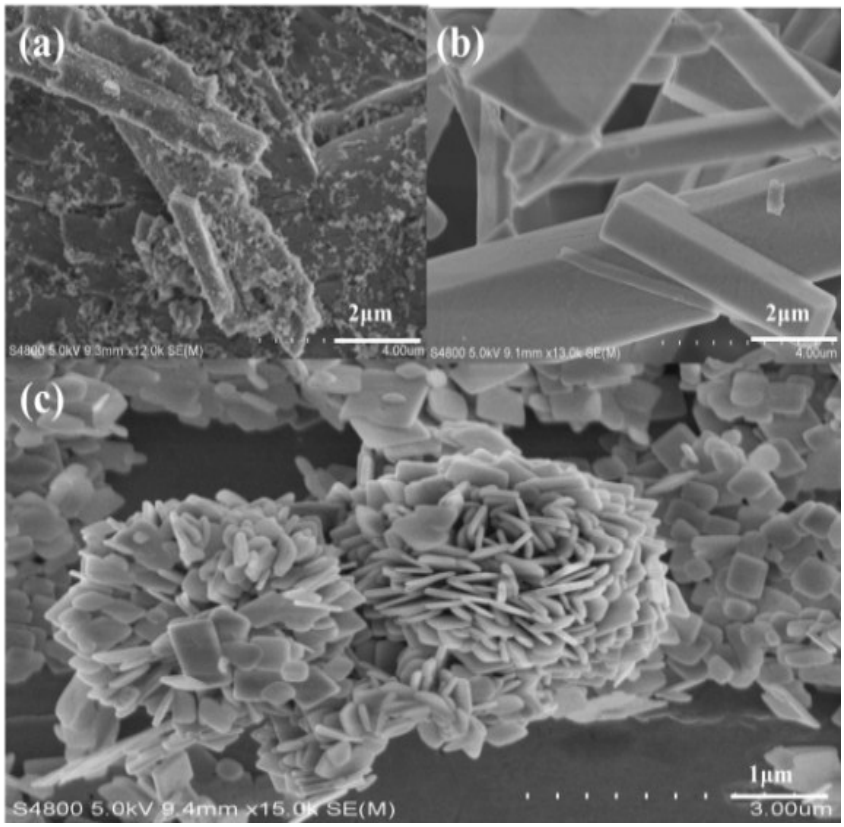

Fig. S2 SEM images of BiOCl-110 obtained under the differnt concentrations of reactants (a) 0.5 mmol, (b) 1 mmol, (c) 2 mmol.

Fig. S2 shows the SEM images of the obtained products when varying the concentrations of the reactants. When the concentration of reactants is low (0.5 mmol) (Fig. S2b), the obtained products are composed of many BiOCl-110 microrods and some BiOCl-001 nanosheets. However, when the concentration of the reactants is too high (2 mmol) (Fig. S2c), and the large number of BiOCl crystals is formed in short time due to quick reactive rate, sodium citrate loses controllable ability to BiOCl crystal facets. Therefore, BiOCl flowers stacked with nanosheets are obtained. Thus, the optimum concentration of reactants is 1 mmol in order to obtain BiOCl-110 microrods.

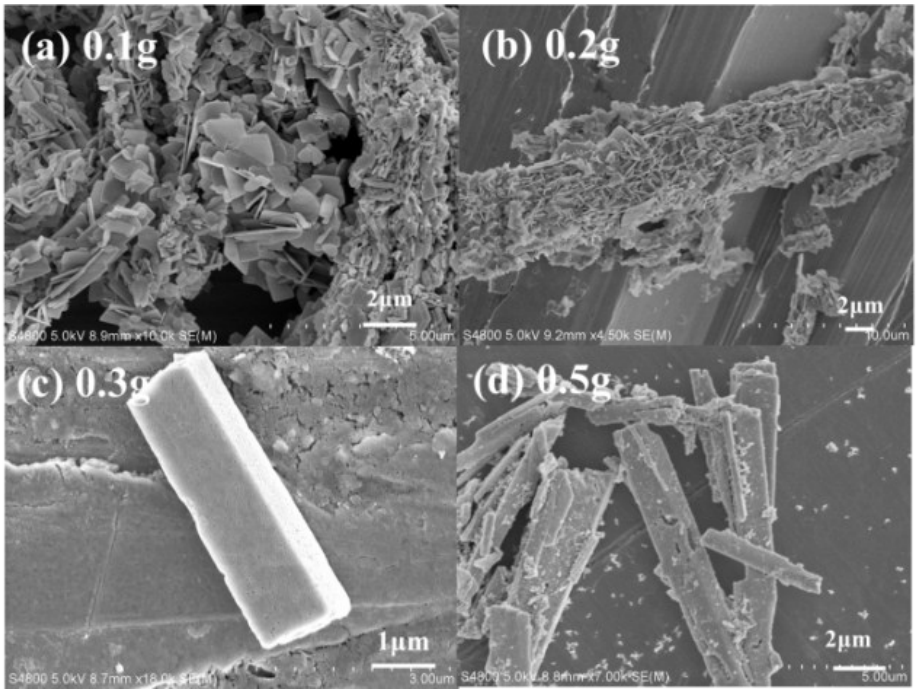

Fig. S3 SEM images of BiOCl obtained under the different concentrations of sodium citrate, (a) 0.1 g, (b) 0.2 g, (c) 0.3 g and (d) 0.5 g.

In order to investigate the effect of sodium citrate on the formation of BiOCl microrods, controlled experiments were carried out, and the SEM images of the obtained products are shown in Fig. S3. A large number of BiOCl nanosheets wer stacked together to form a rod like structure when few sodium citrates were added into reactive system (0.1 g) (Fig. S3a). Increase the amount of sodium citrates to 0.2 g, nanosheets tightly packed together, rod-like structure was more obvious (Fig. S3b). Once the amount of sodium citrate increased to 0.3 g, no nanosheets could be seen from the SEM image. A unique microrod with obvious tetragonal crystal facets was formed (Fig. S3c). When 0.5 g of sodium citrate was added, some microrod was broken (Fig. S3d). Thus, the optimum concentration of sodium citrate is 0.3g in order to obtain BiOCl-110 microrods.

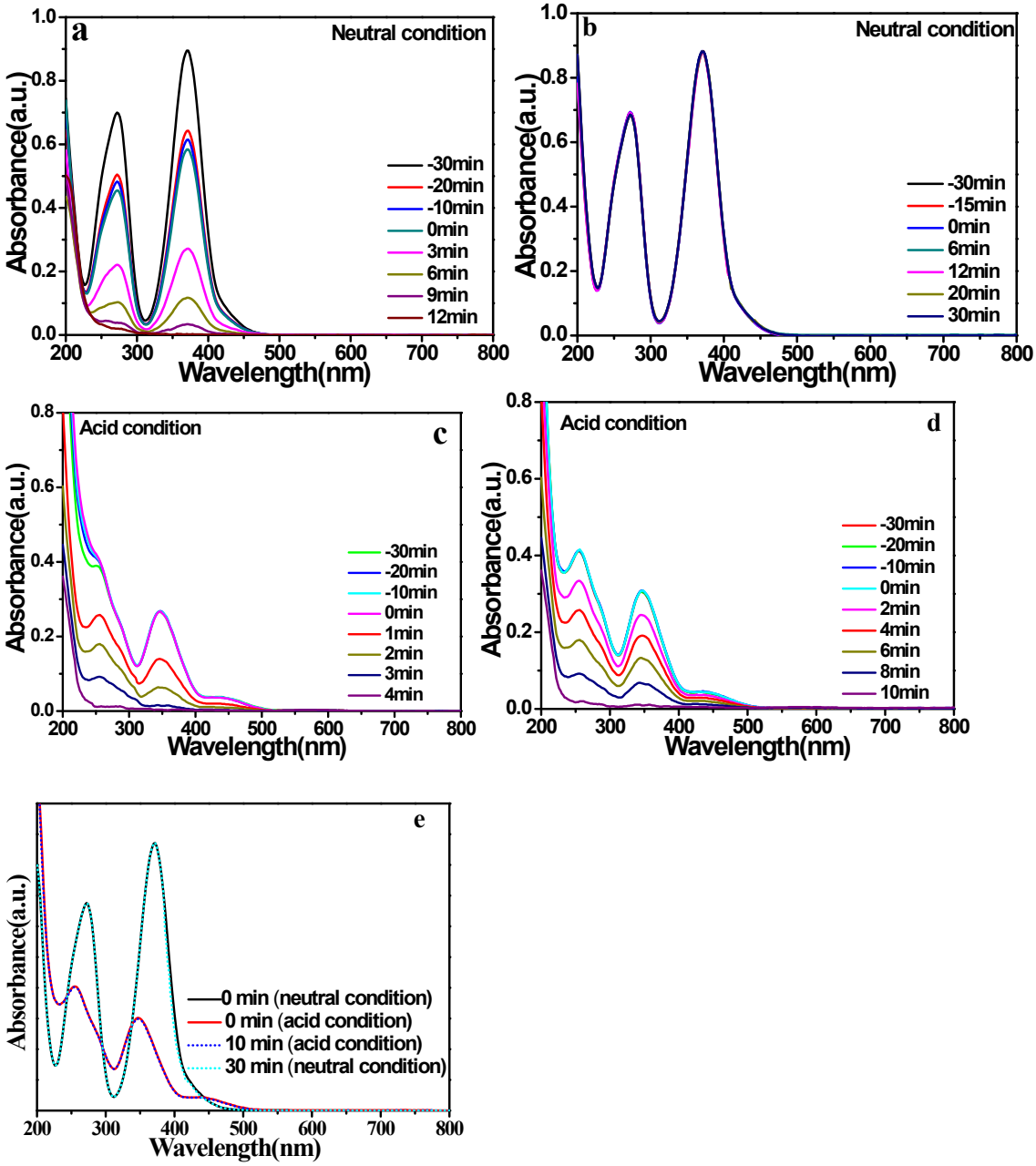

Fig. S4 the UV-Vis absorption spectra of Cr(VI) in presence of BiOCl-110 (a,c), BiOCl-001 (b,d), and in absence of photocatalysts (e) under solar light irradiation.