

Borate Ester-Based Multifunctional Self-Healing Hydrogels for Tissue Adhesion and Hemostasis

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1. Methods

Photothermal Property: Fe₃O₄@gel hydrogels were prepared with varying Fe₃O₄ concentrations, 0, 25, 50, 75, and 100 mg. Samples were then placed at a distance of 2 cm from the radiation of NIR Laser 800 nm, 0.7W. A FLIR thermal imager was used to record the temperature rise at 1-minute intervals for 5 minutes.

2. Supporting Data

2.1. ¹HNMR of tsPBA

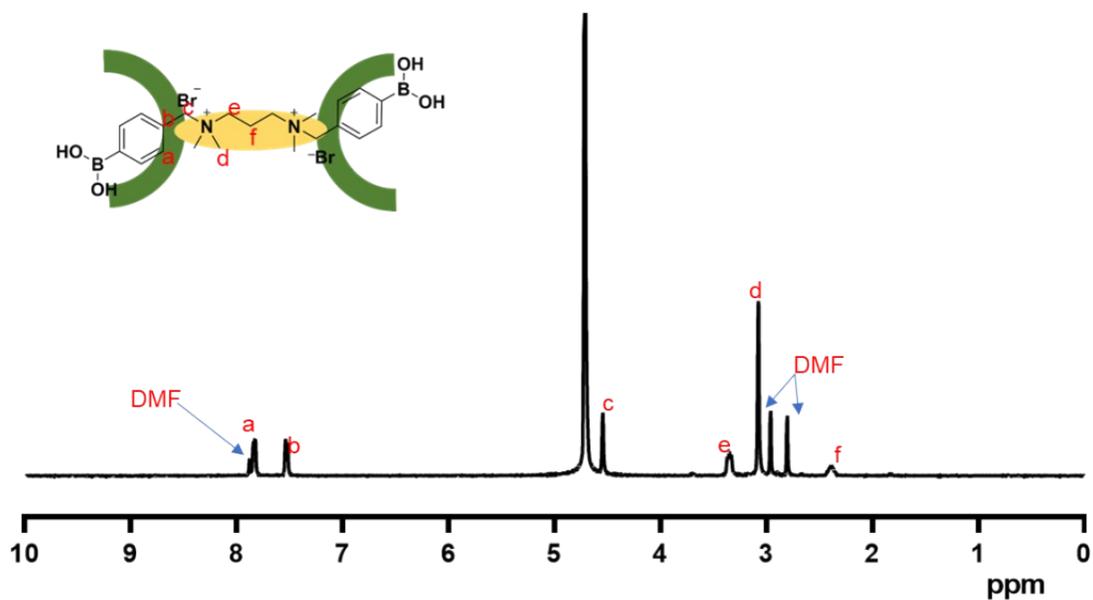


Figure S1. ¹HNMR result for tsPBA synthesis.

2.2. The stability of Fe_3O_4

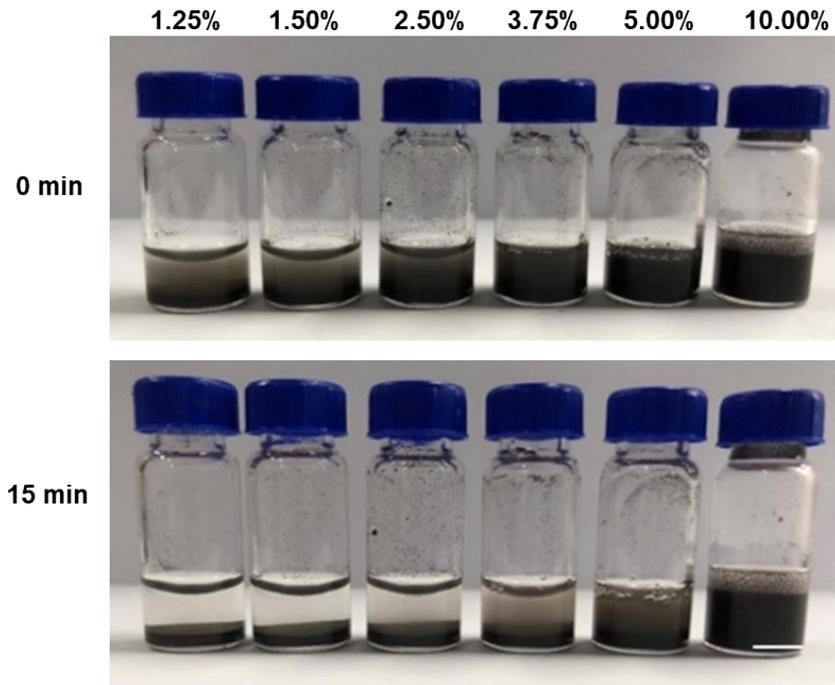


Figure S2. The stability of Fe_3O_4 in various PVA concentrations. Scale bar = 0.5 cm.

2.3. The release of Fe

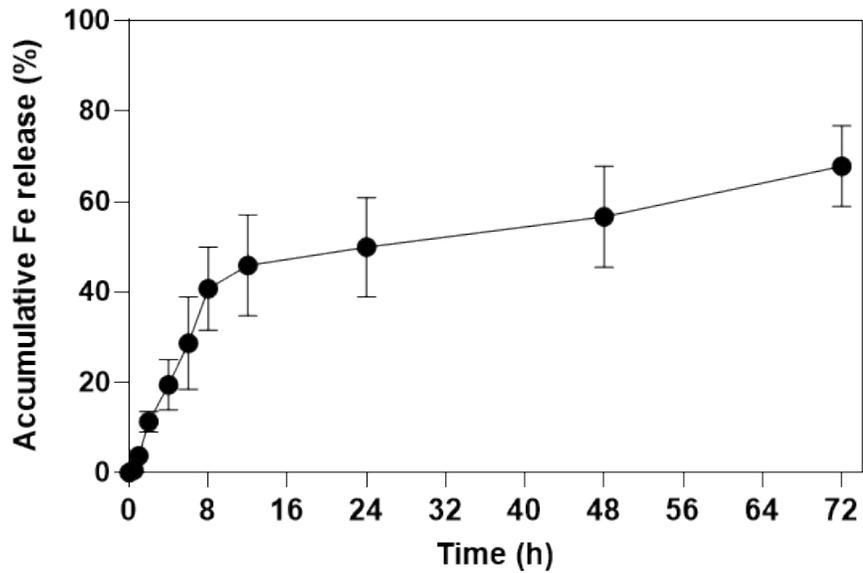


Figure S3. Accumulative Fe release from 10% Fe_3O_4 @gel.

2.4. The photothermal properties of hydrogels

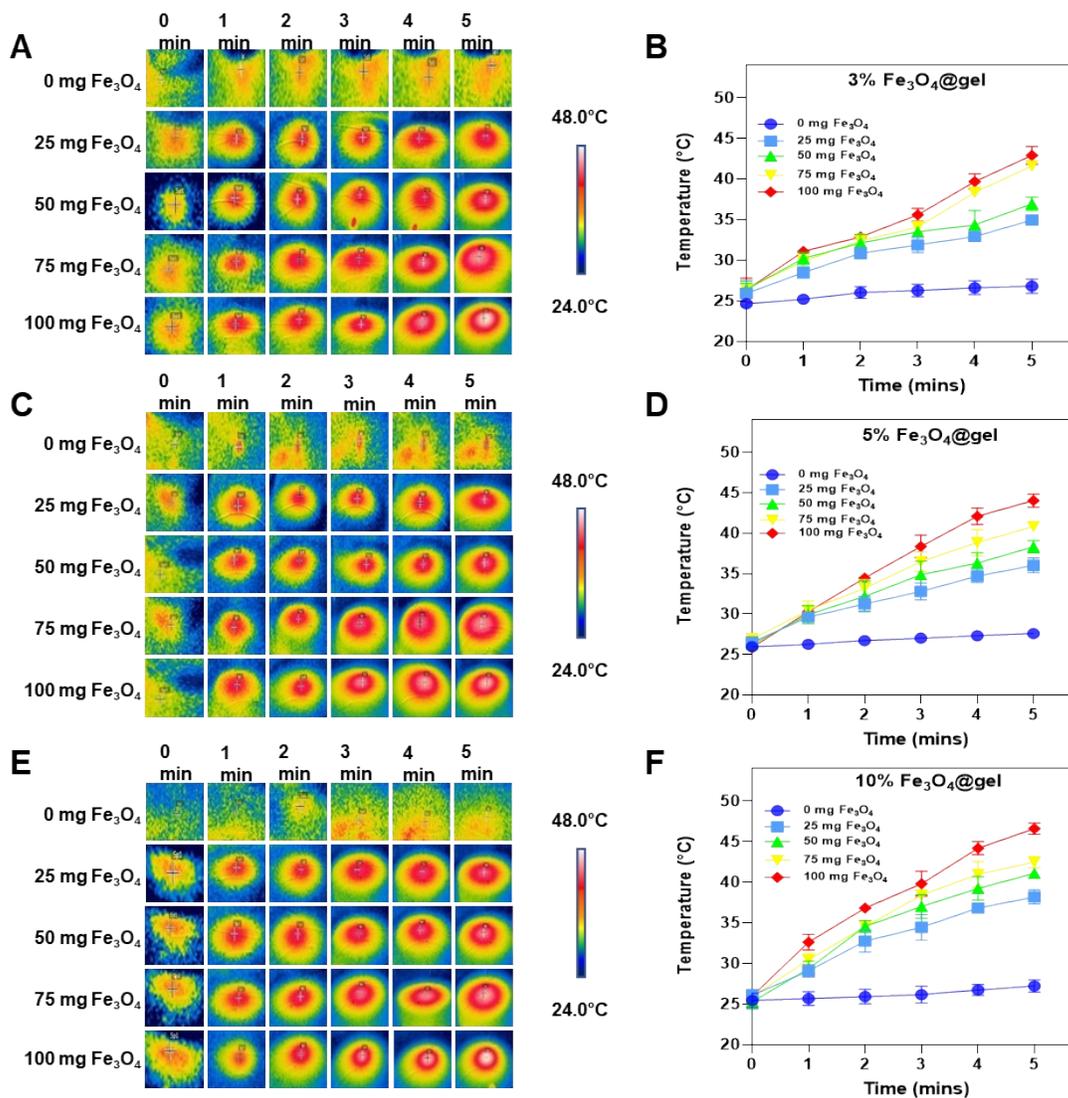


Figure S4. Photothermal properties of magnetic hydrogels. (A) Thermal images of 3% Fe_3O_4 @gel hydrogels taken by FLIR camera. (B) Graphical representation of the temperature rises of 3% Fe_3O_4 @gel. (C) Thermal images of 5% Fe_3O_4 @gel taken by FLIR camera. (D) Graphical representation of the temperature rises of 5% Fe_3O_4 @gel. (E) Thermal images of 10% Fe_3O_4 @gel taken by FLIR camera. (F) Graphical representation of the temperature rises of 10% Fe_3O_4 @ge