

Supporting information

for

Preparation and pH controlled release of Fe₃O₄/anthocyanin
magnetic biocomposites

Xizhi Jiang^{1,2,3}, *Qingbao Guan*⁴, *Min Feng*^{2,3}, *Mengyang Wang*^{2,3}, *Nina Yan*^{2,3}, *Min Wang*^{2,3}, *Lei Xu*^{2,3,*} and *Zhongzheng Gui*^{1,*}

¹ School of Biotechnology, Jiangsu University of Science and Technology, Zhenjiang 212018, Jiangsu, China

² Institute of Agricultural Facilities and Equipment, Jiangsu Academy of Agricultural Sciences, Nanjing 210014, Jiangsu, China

³ Key Laboratory for Protected Agricultural Engineering in the Middle and Lower Reaches of Yangtze River, Ministry of Agriculture and Rural Affairs, Nanjing 210014, Jiangsu, China

⁴ State Key Laboratory for Modification of Chemical Fibers and Polymer Materials, International Joint Laboratory for Advanced Fiber and Low-dimension Materials, College of Materials Science and Engineering, Donghua University, Shanghai, 201620, China

** Corresponding Authors*

E-mail: xulei@jaas.ac.cn (L. Xu); srizzgui@hotmail.com (Z. Gui)

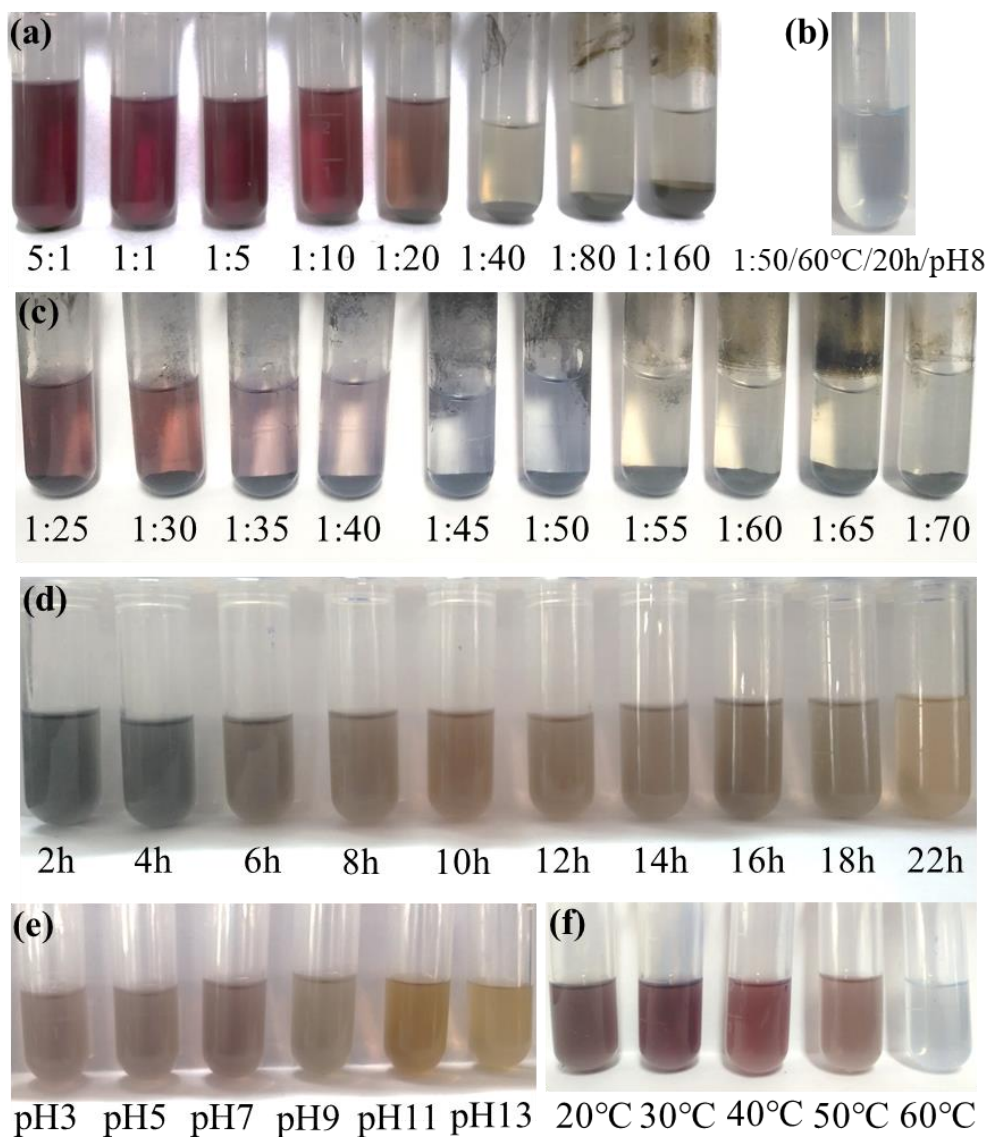


Figure S1. The images of optimized synthesis conditions of Fe_3O_4 /anthocyanin magnetic biocomposite. (a) Anthocyanin and Fe_3O_4 with different mass ratios of 5:1, 1:1, 1:5, 1:10, 1:20, 1:40, 1:80; (b) The optimum synthesis conditions of Fe_3O_4 /anthocyanin magnetic biocomposite; (c) Anthocyanin and Fe_3O_4 with different mass ratios of 1:25, 1:30, 1:35, 1:40, 1:45, 1:50, 1:55, 1:60, 1:65, 1:70; (d) Different reaction times of 2, 4, 6, 8, 10, 12, 14, 16, 18, 22 h; (e) Different pH of 3, 5, 7, 9, 11, 13; (f) Different reaction temperatures of 20, 30, 40, 50, 60 °C.

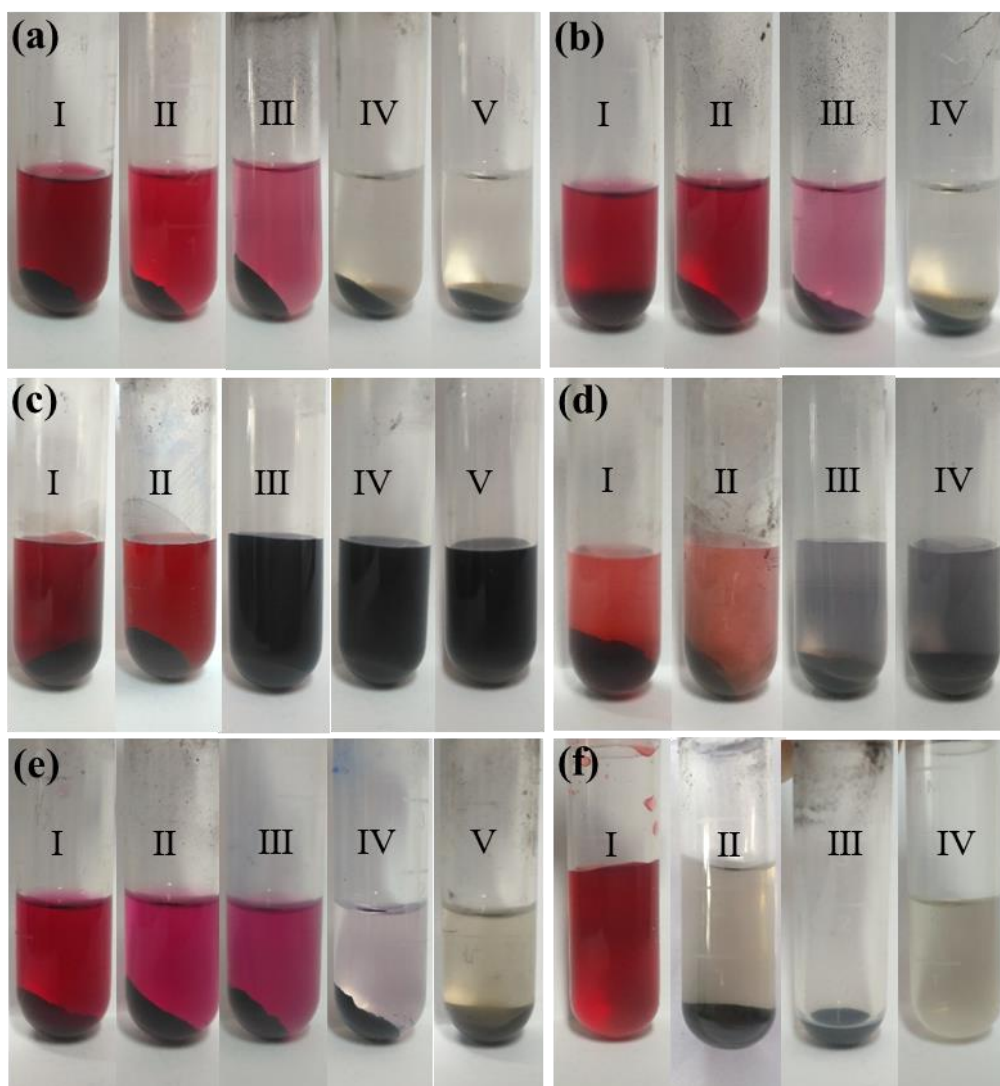


Figure S2. The images of release conditions of anthocyanin. (a) Primary release in different methanol solutions (pH 1.0, 1.6, 2.0, 3.0 and original methanol solution); (b) Secondary release in different methanol solutions (pH 1.0, 1.6, 2.0, 3.0); (c) Primary release in different deionized water solutions (pH 1.0, 1.6, 2.0, 3.0 and deionized water solution); (d) Secondary release in different deionized water solutions (pH of 1.0, 1.6, 2.0, 3.0); (e) Primary release in different ethanol solutions (pH 1.0, 1.6, 2.0, 3.0 and original ethanol solution); (f) Anthocyanin solution, Fe_3O_4 /anthocyanin magnetic biocomposites, separated Fe_3O_4 /anthocyanin solid, supernatant, respectively.

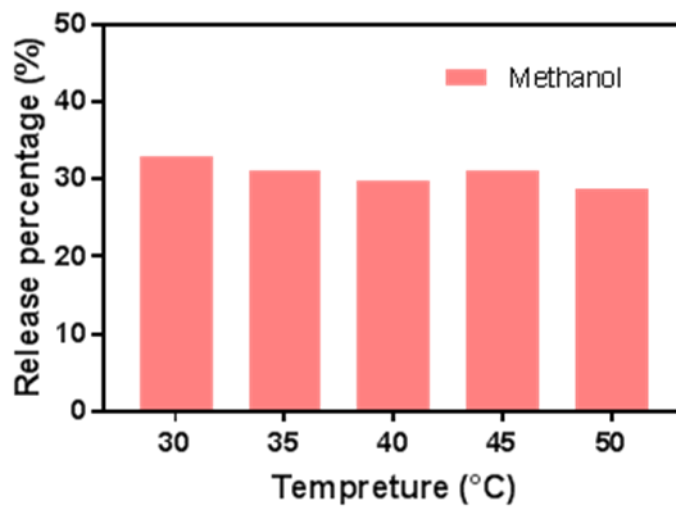


Figure S3. Release percentages of anthocyanin from Fe_3O_4 /anthocyanin magnetic biocomposites at different temperatures

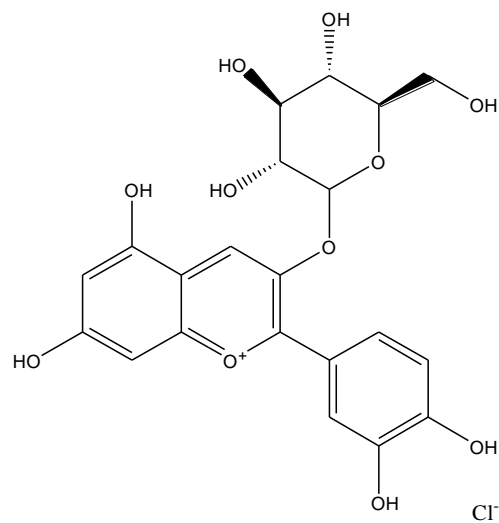


Figure S4. The structure of cyanidin-3-O-glucoside standard