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# **Tremella-like ZnIn<sub>2</sub>S<sub>4</sub>/Graphene Composite Based Photoelectrochemical Sensor for Sensitive Detection of Dopamine**

Huili Ye, Hao Wang, Bihong Zhang, Faqiong Zhao, Baizhao Zeng\*

Key Laboratory of Analytical Chemistry for Biology and Medicine (Ministry of Education), College of Chemistry and Molecular Sciences, Wuhan University, Wuhan 430072, Hubei Province, P. R. China

\*Corresponding author. Tel: 86-27-68752701; fax: 86-27-68754067, bzzeng@whu.edu.cn

## **Abstract**

Tremella-like ZnIn<sub>2</sub>S<sub>4</sub> (ZIS<sub>t</sub>) and flower-like microsphere ZnIn<sub>2</sub>S<sub>4</sub> (ZIS<sub>m</sub>) were synthesized via a straightforward hydrothermal method. It was found that the ZIS<sub>t</sub> was superior to ZIS<sub>m</sub> for photoelectrochemical (PEC) sensing because of its large surface area and high photocatalytic activity. A composite of ZIS<sub>t</sub> and graphene (GR) was prepared and used for the PEC sensing of dopamine (DA). Here DA acted as an electron donor to scavenge the hole and inhibit the charge recombination. The GR enhanced visible light absorption and accelerated electron transfer, amplifying the photocurrent signal. The strong chelating coordination interaction between DA and Zn(II) in ZIS<sub>t</sub> guaranteed the selective adsorption of target analyte. Thus the resulting ZIS<sub>t</sub>/GR photoelectrode showed sensitive and selective PEC response to DA. Under the optimized conditions, the linear response range was from 0.01 to 20 μM, and the

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