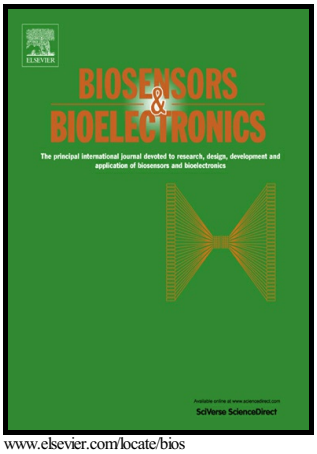

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Facile one-pot synthesis of visible light-responsive $BiPO_4$/nitrogen doped graphene hydrogel for fabricating label-free photoelectrochemical tetracycline aptasensor

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Abstract

It is fundamental to develop highly efficient visible light-responsive photoelectrochemical (PEC) performance material for fabricating PEC biosensor. Herein, $BiPO_4$/three-dimensional nitrogen doped graphene hydrogel (3DNGH) nanocomposites were prepared for the first time via a facile one-pot hydrothermal route. In this nanoarchitecture, the $BiPO_4$ nanorods were anchored onto the porous structure of 3DNGH. Compared with pristine $BiPO_4$, the absorption of $BiPO_4$/3DNGH has been extend to visible-light region, and the energy band gap of $BiPO_4$/3DNGH was calculated to be 2.10 eV, which was greatly narrower than that of pristine $BiPO_4$ with a band gap of 3.85 eV. Under visible light irradiation, the