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# Boosted Photoelectrochemical Immunosensing of Metronidazole in Tablet Using Coral-like g-C<sub>3</sub>N<sub>4</sub> Nanoarchitectures

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## Abstract

A simple, facile and sensitive photoelectrochemical (PEC) bioassay protocol for metronidazole (MNZ) detection in common oral medicine samples has been proposed under visible-light irradiation, where novel hierarchical coral-like g-C<sub>3</sub>N<sub>4</sub> nanoarchitectures (cg-C<sub>3</sub>N<sub>4</sub>) have been first explored as PEC sensing platform. Featured with the unique nanostructures (e.g., interlaced porous network architecture, and open boundaries), the as-formed cg-C<sub>3</sub>N<sub>4</sub> nanoarchitectures not only efficiently inhibit the recombination of photogenerated electron-hole but also enable the immobilization of capture antibodies as well as the antibody-antigen binding efficiency fluently, thus amplifying the photocurrent response. This newly constructed PEC immunoassay displays excellent performance for MNZ determination with high sensitivity and selectivity. Under the optimal condition, this bioassay protocol exhibits a linear range of 0.01-100  $\mu\text{M}$  with a detection limit of 0.005  $\mu\text{M}$  at signal to noise

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