

Heterostructures of mesoporous TiO₂ and SnO₂ nanocatalyst for improved electrochemical oxidation ability of vitamin B6 in pharmaceutical tablets

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The detection of water soluble vitamins using electrochemical method is widely established in pharmaceutical quality control laboratories, and especially the recent advances in hybrid heterostructure nanomaterials has devoted to enhance the significant analytical parameters like sensitivity, selectivity and fast response time. Herein, we report the synthesis of a hybrid heterostructure comprising SnO₂ nanoparticles supported mesoporous TiO₂, and the obtained nanocomposite were fabricated over glassy carbon electrode (GCE) for the electrochemical oxidation of vitamin B₆ in pharmaceutical tablets. The designed SnO₂-TiO₂/GC modified electrode exhibits well-defined oxidation peak with lowering over-potential and larger signal response compared to the pristine counterparts, and it is mainly due to the formation of abundant active surface layer offered by SnO₂ cocatalyst, and thus significantly enhances the electrochemical surface area. Differential pulse voltamm