Super-nernstian potentiometric ph sensor based on the electrodeposition of iridium oxide nanoparticles

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Abstrak

This work reports an investigation into the synthesis and electrodeposition of iridium oxide nanoparticles to fabricate an Au-based super-Nernstian potentiometric pH sensor. Monodisperse ultrafine iridium oxide nanoparticles with a mean particle diameter of 1–2 nm were successfully synthesized by the facile alkaline hydrolysis method and electrodeposited on the surface of Au substrate using Cyclic Voltammetry (CV). Based on the result, it was observed that the iridium oxide deposited Au substrate had a rough surface morphology. It was also found that the as-prepared sensor exhibited an excellent pH sensitivity and good stability over a long period, with a super-Nernstian response value of -73.7 mV/pH.