

## Electrochemical Detection of Vitamin D<sub>2</sub> and D<sub>3</sub> Based on a Au-Pd Modified Glassy Carbon Electrode

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In this work, the synthesis of AuPd bimetallic nanocrystals in an aqueous solution using a stabilizing agent and a reductant of triblock copolymer P123 and ascorbic acid, respectively, was proposed. Vitamins D<sub>2</sub> and D<sub>3</sub> were electrochemically detected in a mixed organic/water solution based on a glassy carbon electrode (GCE) modified by AuPd. The electrocatalytic response of D vitamins on the GCE surface was greatly affected by the organic/water ratio of the mixture. In the presence of the support electrolyte (lithium perchlorate), vitamins D<sub>2</sub> and D<sub>3</sub> exhibited well-defined peaks when the ethanol/water ratio was 40%/60%. This work also suggested the high sensitivity of the GCE toward the detection of vitamins D<sub>2</sub> and D<sub>3</sub>. During the detection of vitamin D, vitamins A, K and E showed no obvious interference effects.

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**Keywords:** Bimetallic nanocrystals; Vitamin D; Electrochemical determination; glassy carbon electrode; Osteoporosis

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