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# Solvothermal synthesis of cobalt tungstate microrings for enhanced nonenzymatic glucose sensor

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## Abstract

CoWO<sub>4</sub> microrings assembled by nanorods were synthesized by a simple solvothermal method. The morphology and structure of the as-prepared unique CoWO<sub>4</sub> microrings were characterized by X-ray diffraction (XRD), scanning electron microscope (SEM), transmission electron microscope (TEM), and high-resolution TEM (HRTEM). The as-prepared CoWO<sub>4</sub> sample with abundant active sites demonstrated good catalytic activity for glucose electrooxidation in alkaline solution. CoWO<sub>4</sub> modified glass carbon electrode (CoWO<sub>4</sub>-GCE) exhibited good electro-catalytic performance towards glucose detection, it offered a wider linear range, a low detection limit of 0.27 μM, high selectivity, and long-term operational stability. The results showed the as-prepared CoWO<sub>4</sub> microrings can be utilized to construct an enzyme-free glucose sensor based on GCE.

**Keywords:** Cobalt tungstate; Microrings; Glucose; Sensors; Nanoparticles

## 1. Introduction

Metal tungstates have aroused researchers' special interest due to their potential application in various fields, such as photocatalytic performances <sup>[1]</sup>, photoluminescence <sup>[2]</sup>, supercapacitors <sup>[3]</sup>,

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