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Two-dimensional metal chalcogenides analogous NiSe₂ nanosheets and its efficient electrocatalytic performance towards glucose sensing**Sukanya Ramaraj, Sakhivel Mani and Shen Ming Chen**
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Recently, 2D layered transition metal dichalcogenide materials have received great consideration because of their unique electronic properties, large surface area and high electrocatalytic activity. In this connection, for the first time the similar nanostructured material of NiSe₂ nanosheets (NiSe₂-NS) has been synthesized by a facile hydrothermal method for electrocatalytic applications. Scanning electron microscopy (SEM), transmission electron microscopy (TEM), x-ray photoelectron spectroscopy (XPS), energy dispersive x-ray analysis (EDX) and x-ray diffraction spectrum (XRD) results confirmed the formation of NiSe₂-NS with required stoichiometry and morphology. Electrochemical impedance spectroscopy (EIS) data indicate that electron transfer is facile at the NiSe₂-NS modified glassy carbon electrode (GCE). It has been an electrode modifier for glucose sensing applications. The electrochemical studies were performed for NiSe₂-NS modified GCE using cyclic voltammetry (CV) and Amperometric i-t techniques. The results are suggesting the effective response of NiSe₂-NS/GCE with a very low limit of detection (LOD) and sensitivity of 23 nM and 5.6 $\mu\text{A } \mu\text{M}^{-1}\text{cm}^{-2}$ respectively. Moreover, the selectivity data exhibited excellent anti-interference property of NiSe₂-NS/GCE towards glucose in the presence of possible interfering agents viz. ascorbic acid, dopamine, and glucose.

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