

Immobilization of Tetrabutyl Thiuram Disulfide in Chitosan Thin Film for Sensing Zinc Ion Using Surface Plasmon Resonance Spectroscopy

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Tetrabutyl thiuram disulfide (TBTDS) immobilized in chitosan thin film has been studied as a sensor element for zinc ion, Zn^{2+} , using surface plasmon resonance (SPR). The TBTDS-immobilized chitosan thin film, which acts as an active layer, was coated on a gold film by spin coating. Zn^{2+} can be detected by measuring the SPR signal when TBTDS-immobilized chitosan thin film contacts with Zn^{2+} in solution. The sensor produced a linear response for Zn^{2+} ranging from 0.1 to 1 ppm with a sensitivity of $0.0317^\circ \text{ ppm}^{-1}$. Using immobilized TBTDS as an active layer, the Zn^{2+} can also be selectively detected when present in mixtures of heavy metal ions.

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