**Detection of mercury and copper ions using surface plasmon resonance optical sensor.**


## Abstract

Mercury and copper ions, Hg2+ and Cu2+, can be detected by measuring surface plasmon resonance signals with a thin chitosan layer deposited on a gold film. An amount of 0.55 ml of chitosan cross-linked glutaraldehyde solution was spin coated onto a glass cover slip at 6000 rev./min for 30 s. Changes in the resonance angle ($\Delta\theta$) are directly proportional to the concentration of heavy metal ions in solution (0.5–100 ppm). The sensitivities to Hg2+ and Cu2+ are 0.00743 and 0.00654 ppm−1, respectively. The gold/chitosan interface is highly sensitive to Hg2+ and Cu2+ with detection limits as low as 500 ppb.



**Keyword:** Surface plasmon resonance; Mercury ion and copper ions Chitosan; Glutaraldehyde.