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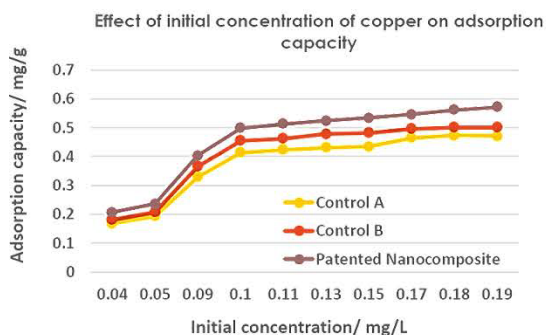
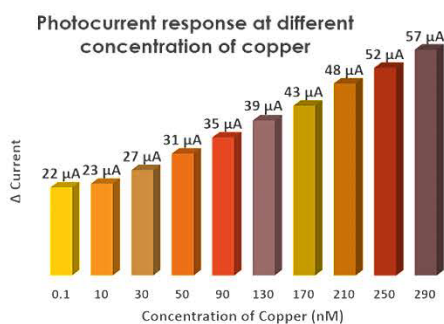
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## RESEARCH HIGHLIGHTS

### 1. Dual-functional Filter-sensor Device for Water Filter Application.

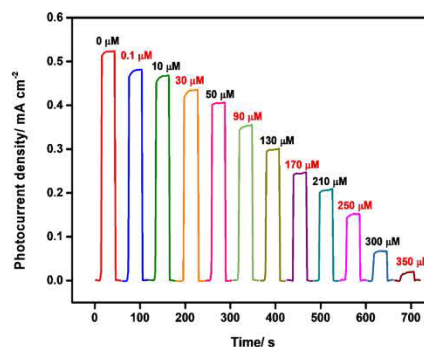
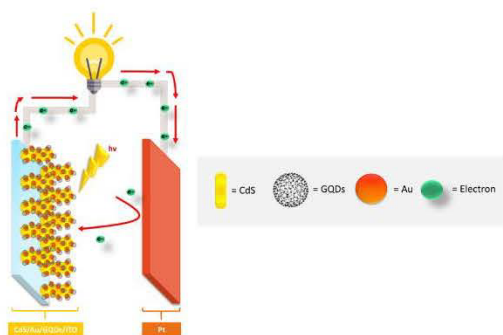
A multi-functional hybrid material in a bead composition was synthesized and investigated as a photosensor-adsorbent for the rapid, selective, and sensitive detection, and adsorption of heavy metal ions. We aim to construct a meaningful sorption and detection model for the future application in an external water filtration system.



Ibrahim, I., Lim, H. N., & Huang, N. M. (2019). Cellulose acetate beads modified with cadmium sulfide and Methylene blue for adsorbent-assisted photoelectrochemical detection of copper (II) ions. *Microchimica Acta*, 186(7), 452.

### 2. Utilization of Cadmium Sulfide in Photoelectrochemical Application

Among the many available semiconductors, much attention has been paid to CdS because of its superior advantages such as an appropriate band gap of 2.4 eV, which matches well with the solar spectrum. CdS have their own importance because of their vast range of applications in electronics and photonics such as photosensors, gas sensors, and solar cells.



Ibrahim, I., Lim, H. N., & Huang, N. M. (2020). In-situ formation of electron acceptor to inhibit charge separation of photo-electrochemical sensor of dopamine-based CdS/Au/GQDs. *Electrochimica Acta*, 360, 137013.