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# Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy

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## Development of a fluorescent scaffold by utilizing quercetin template for selective detection of $\text{Hg}^{2+}$ : Experimental and theoretical studies along with live cell imaging

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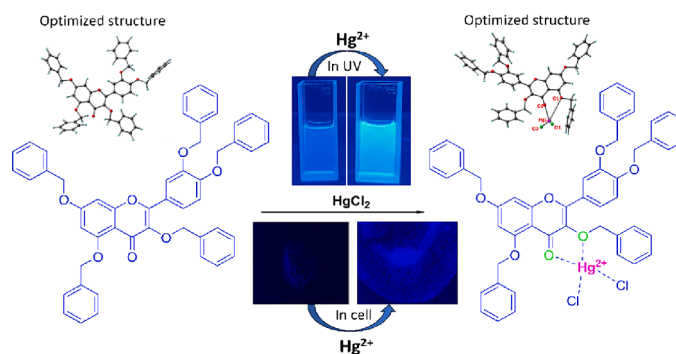
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### HIGHLIGHTS

- We have developed a novel quercetin (a SARS-CoV-2 inhibitor) coupled benzyl ethers (QBE) chemosensor for selective detection of  $\text{Hg}^{2+}$ .
- To date, there are very few reports where quercetin itself have been used in sensing field (table 1) but the use of quercetin derivative in sensing field is almost nil.
- To the best of our knowledge our chemosensor QBE is the first chemosensor based on quercetin derivative for the selective detection of  $\text{Hg}^{2+}$ .
- The binding phenomenon of QBE with  $\text{Hg}^{2+}$  has been proved by UV-vis, fluorescence, DFT and cyclic voltammograms study.
- Lower LOD (Limit of Detection) at 8.47  $\mu\text{M}$  and high binding constant value as  $2 \times 10^4 \text{ M}^{-1}$  showed the strong binding affinity of  $\text{Hg}^{2+}$  towards QBE.
- The intracellular activity of QBE with  $\text{Hg}^{2+}$  binding has been examined by using living plant tissue by using green gram seeds.

### GRAPHICAL ABSTRACT



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