

**Simultaneous ionic cobalt sensing and toxic Congo red dye removal: A circular economic approval involving silver enhanced fluorescence**

Mamta Sahu<sup>a</sup> Mainak Ganguly\*<sup>a</sup> Priyanka Sharma<sup>a</sup> Ankita Doi<sup>b</sup> Yuichi Negishi<sup>c</sup>

<sup>a</sup>Solar Energy Conversion and Nanomaterials Laboratory, Department of Chemistry, Manipal University Jaipur, Dehmi Kalan, Jaipur 303007, Rajasthan, India

<sup>b</sup>Department of Biosciences, Manipal University Jaipur, Dehmi Kalan, Jaipur 303007, Rajasthan, India

<sup>c</sup>Department of Applied Chemistry, Faculty of Science, Tokyo University of Science, Shinjuku-ku, Tokyo 162-8601

Email: humansense2009@gmail.com

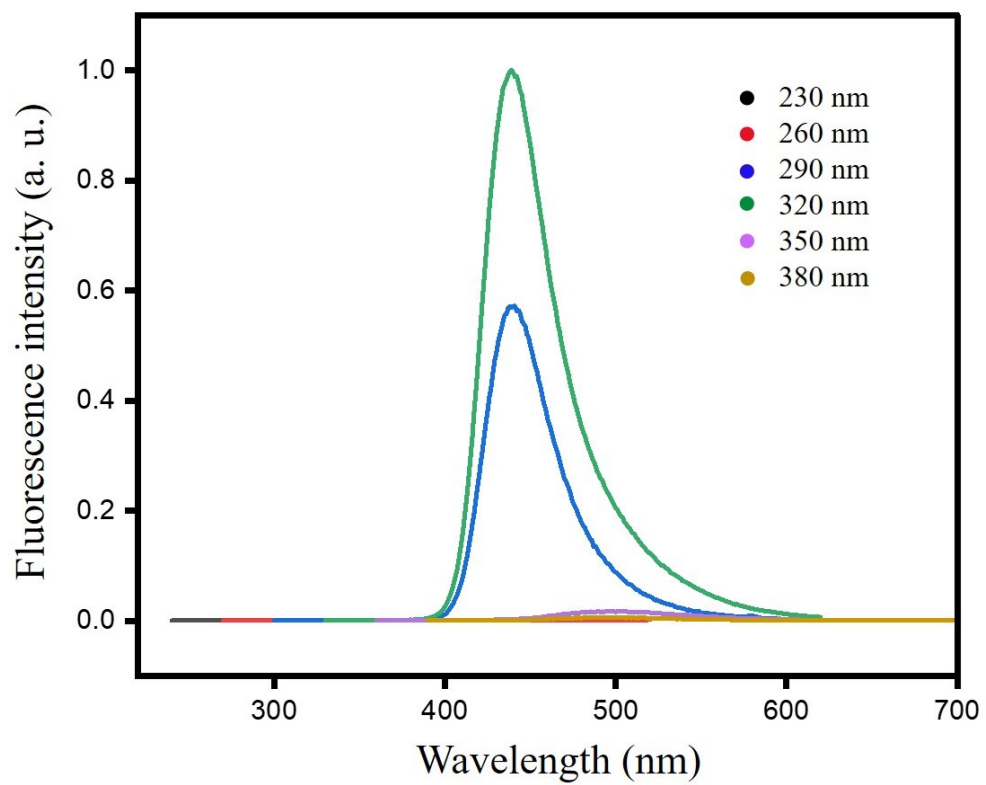
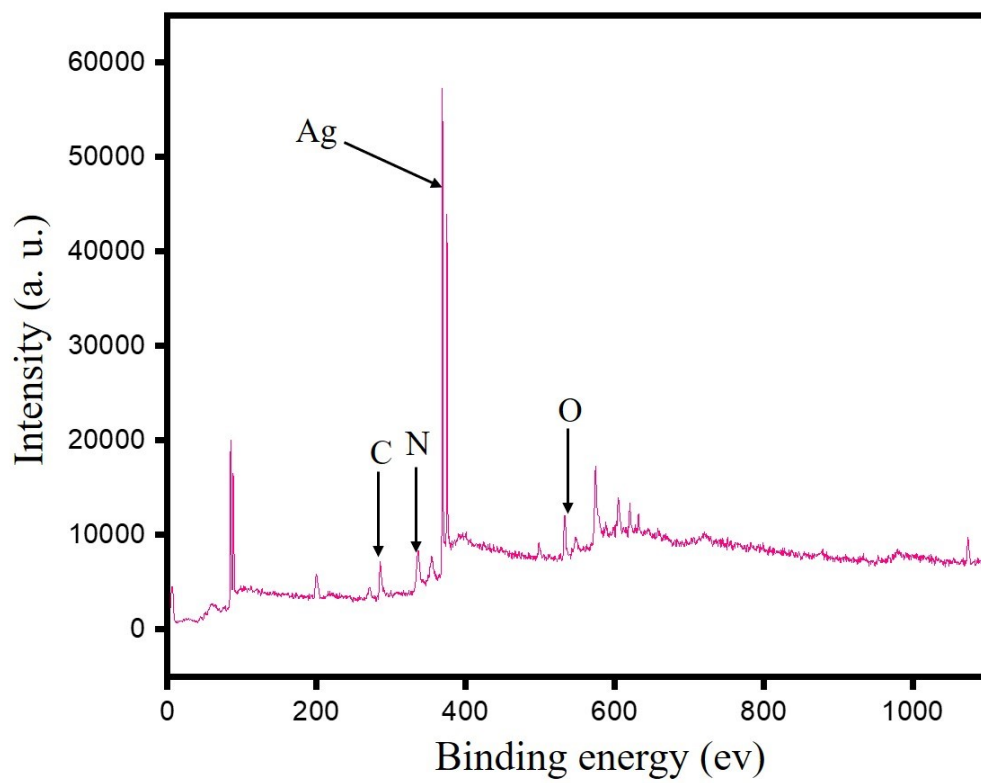
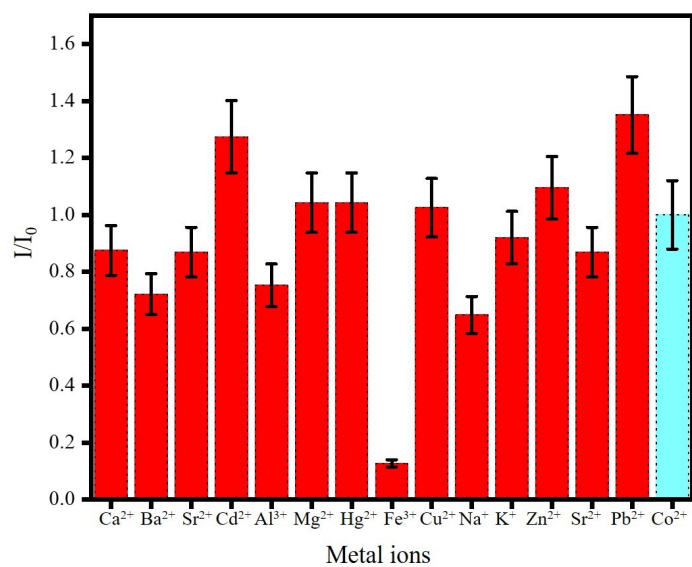


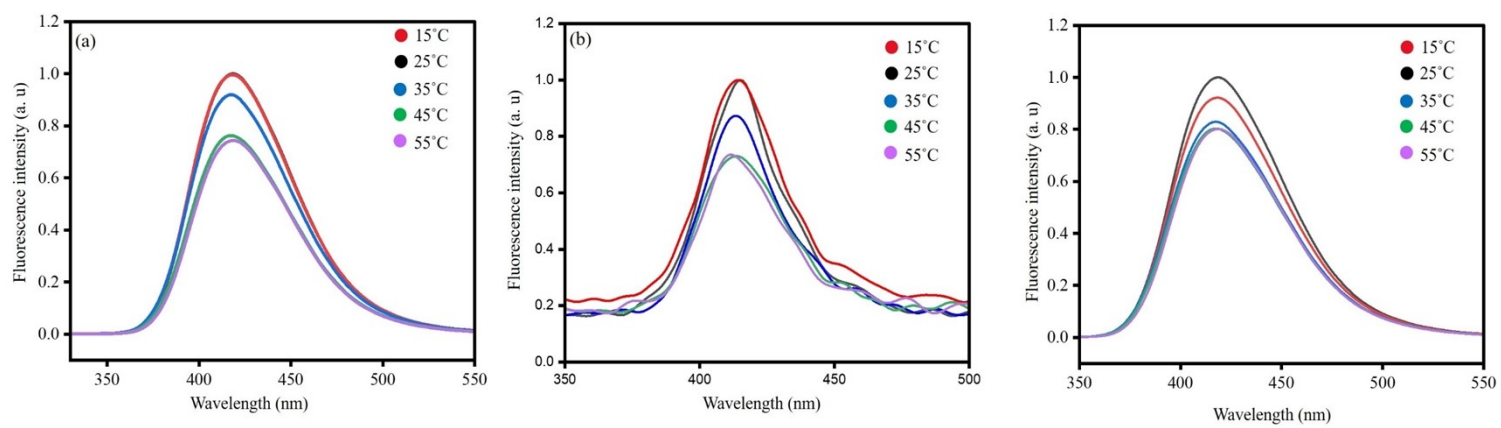
Figure S1: Fluorescence spectra of AgOSA at various excitation wavelengths.



*Figure S2: Full XPS of AgOSA.*



*Figure S3: The impact of interfering metal ions on the enhancement of Co<sup>2+</sup>-induced fluorescence;  $I$  and  $I_0$  represent the fluorescence intensity of CoCRAgOSA in the presence and absence of interfering metal ions.*



*Figure S4: Temperature-dependent fluorescence spectra for (a) AgOSA, (b) CRAgOSA, and (c) CoCRAgOSA.*

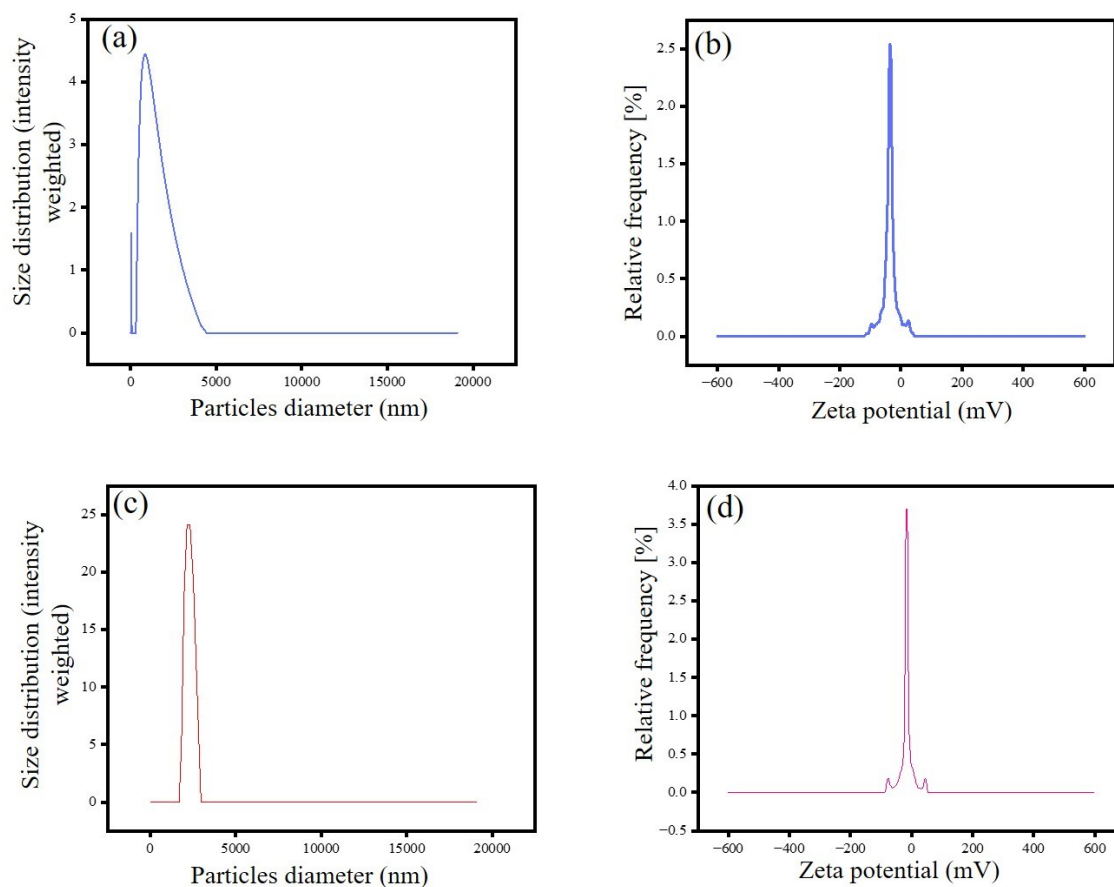


Figure S5: (a) DLS analysis of CragOSA and (b) zeta potential distribution graph of CragOSA; (c) DLS analysis of CoCragOSA and (d) zeta potential distribution graph of CoCragOSA.

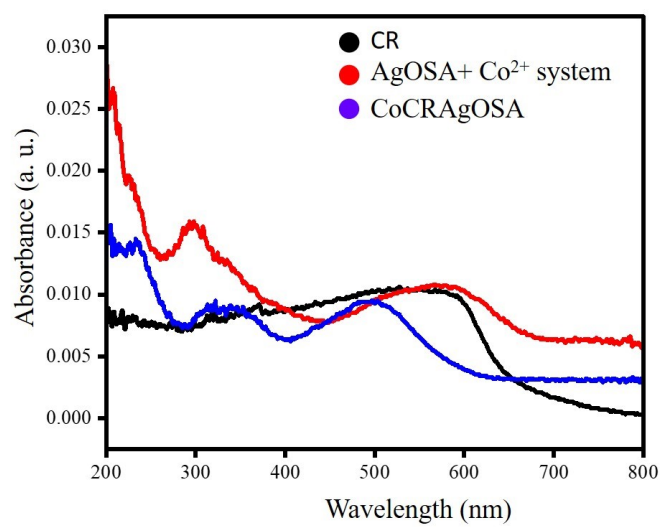


Figure S6: DRS of CR, AgOSA + Co<sup>2+</sup> system, and CoCRAgOSA.