Electronic Supplementary Material (ESI) for Photochemical & Photobiological Sciences.

Supporting information (Manuscript ID PP-ART-04-2018-000157)

Fluorescence "off" and "on" signalling of esculetin in presence of copper and thiol: A possible implication in cellular thiol sensing

Rupali G. Shinde[a,b], Ayesha A. Khan[a], Amit Kunwar[b], V. S. Tripathi[b], Atanu Barik[b*]

Fig. S1 UV-Visible absorption spectra of esculetin (50 μM) with Cu(II) (5-100 μM) in pH 7 phosphate buffer (10 mM). Inset shows ratiometric change in absorbance of Cu(II) to Esculetin at 350 nm (a) and 389 nm (b).

Fig. S2 Jobs plot of esculetin (50 μM) with Cu(II) (50 μM) in pH 7 phosphate buffer (10 mM)

Fig. S3 plot of $\log[(F-F_0)/(F_{max}-F)]$ versus log[Cu(II)] for titration of Cu(II) (10-50 μM) with esculetin (50 μM) in pH 7 phosphate buffer (10 mM). λ_{ex} = 360 nm, E_x/E_m Slit = 2.5 nm.

Fig. S4 Time course measurement of esculetin (50 μM) and Cu(II) (80 μM) with GSH (200 μM) in pH 7 phosphate buffer (10 mM). λ_{ex} = 360 nm, λ_{em} = 466 nm, E_x/E_m Slit = 2.5 nm.

Fig. S5 HRMS spectra of esculetin (500 μM) and Cu(II) (800 μM) in pH 7 phosphate buffer (10 mM). 'Esc' refers to Esculetin

Fig. S6 Cyclic voltamogramm of 800 μM Cu(II), 500 μM esculetin and mixture of the above two compounds in 0.1 M $NaClO_4$ used as supporting electrolyte.

Fig. S7 UV-Visible absorption spectra of esculetin (50 μM), Cu(II) (80 μM) with GSH (10-200 μM) in pH 7 phosphate buffer (10 mM). Inset shows change in absorbance in presence of GSH at 350 nm (a) and 389 nm (b).

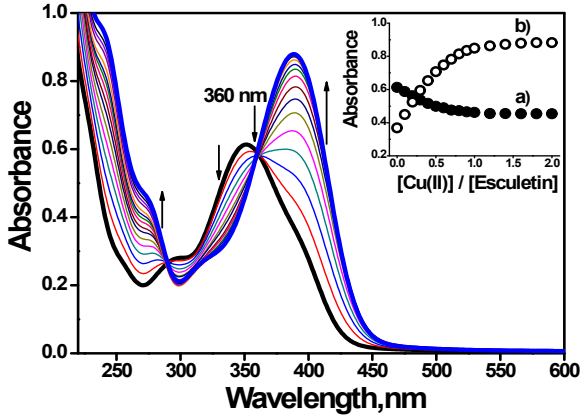
Fig. S8 UV-Visible absorption spectra esculetin (50 μM) in absence and presence of GSH (20-200 μM) in pH 7 phosphate buffer (10 mM).

Fig. S9 Fluorescence spectra of esculetin (50 μM) in absence and presence of GSH (20-200 μM) in pH 7 phosphate buffer (10 mM). λ_{ex} = 360 nm, E_x/E_m Slit = 2.5 nm.

Fig. S10 HRMS spectra of GSH (3 mM) in pH 7 phosphate buffer (10 mM).

Fig. S11. Relative fluorescence 'on/off' cycles of Cu(II)-esculetin by the subsequent addition of 200 μM of GSH/NEM. λ_{ex} = 360 nm, λ_{em} = 466 nm, E_x/E_m Slit = 2.5 nm.

Fig. S12. Cell viability study of CHO cells by MTT assay in presence of 25 μM esculetin, 40 μM Copper (II) and mixture of 25 μM esculetin & 40 μM Copper (II) ion. The results are presented as mean ± SD, n = 2. *$p < 0.05$ compared to control cells by T-test.



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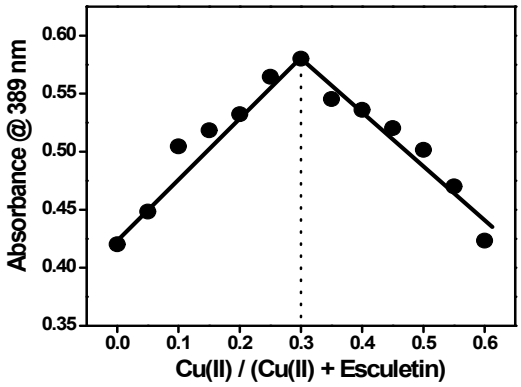

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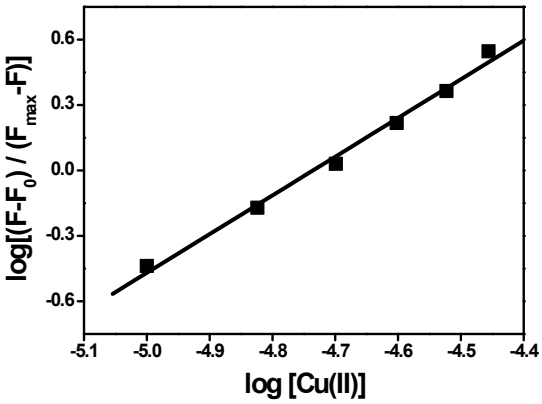

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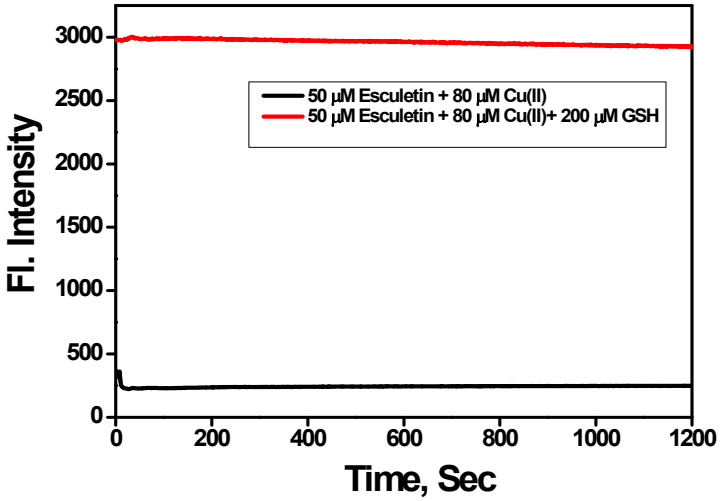

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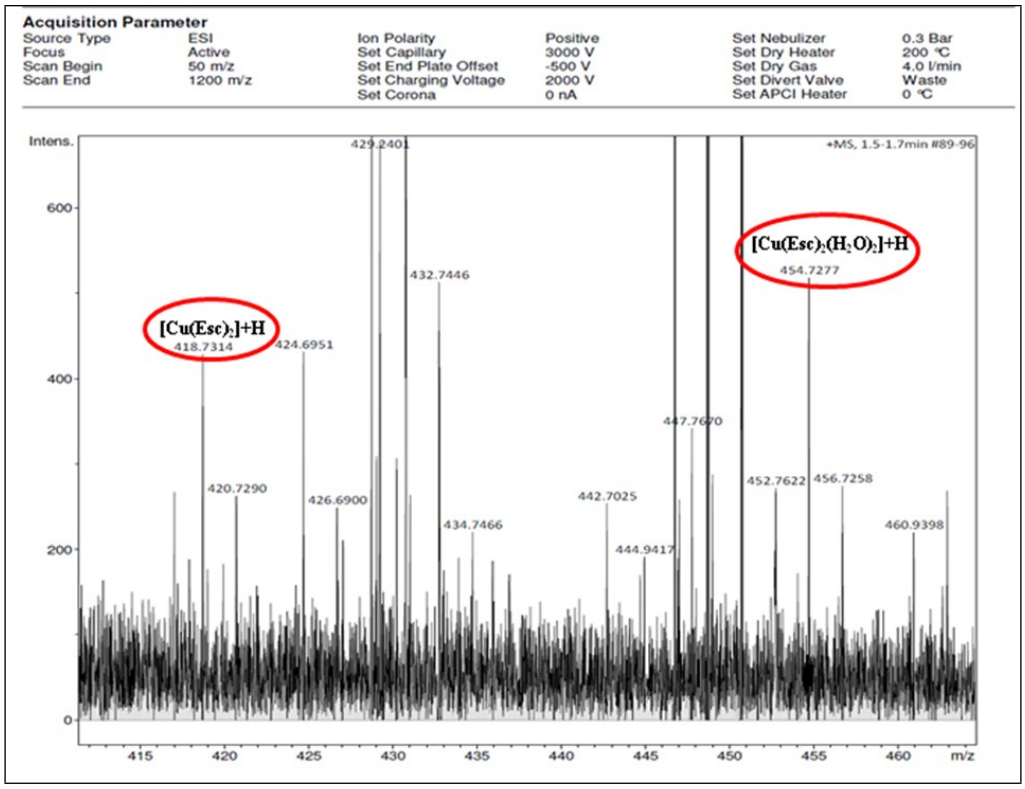

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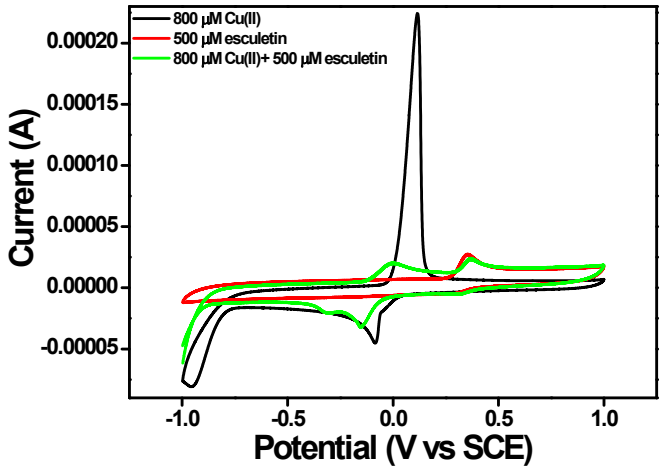

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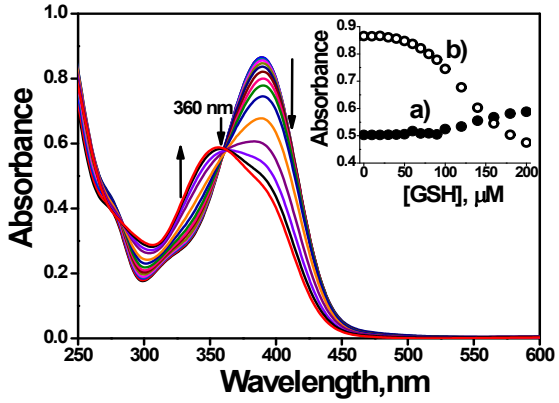

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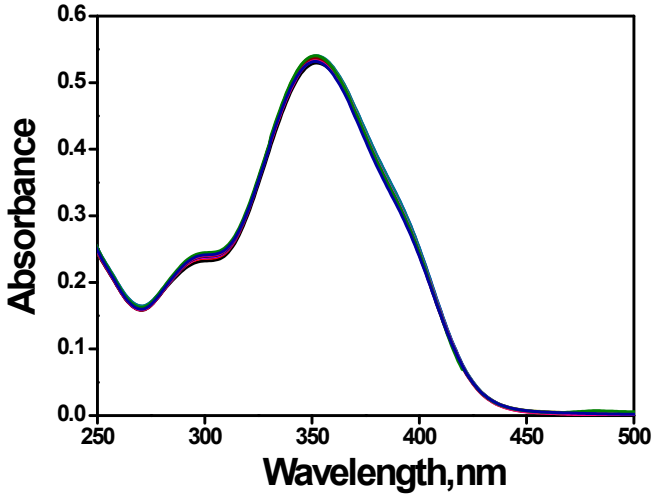

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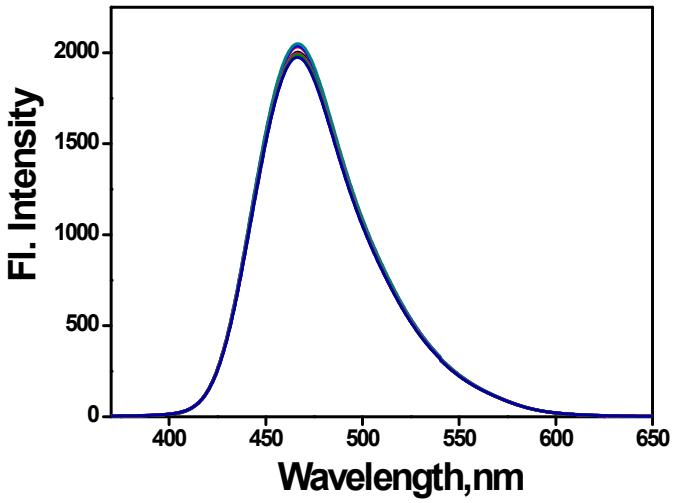

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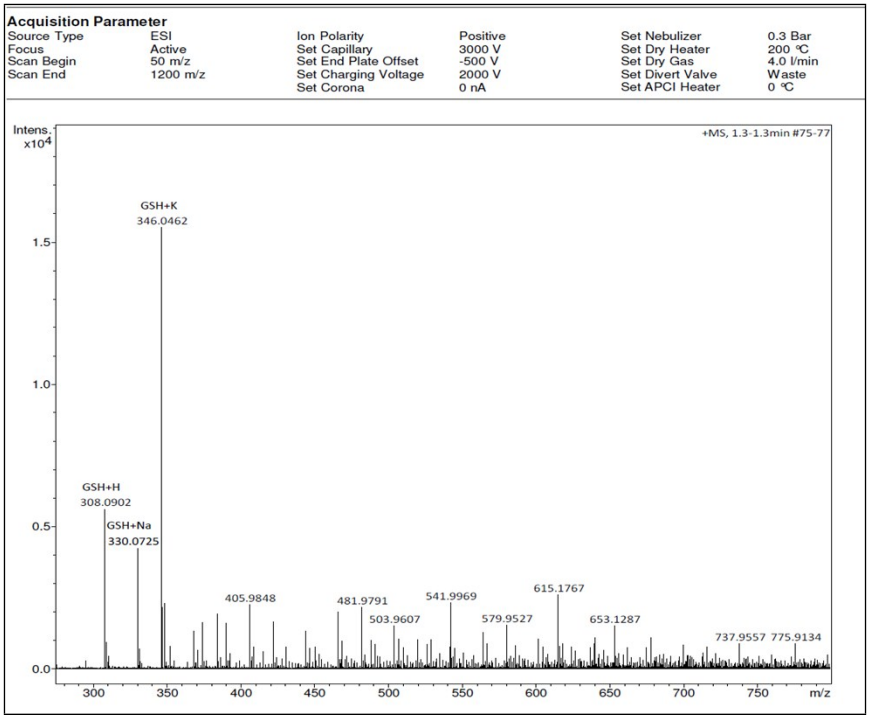

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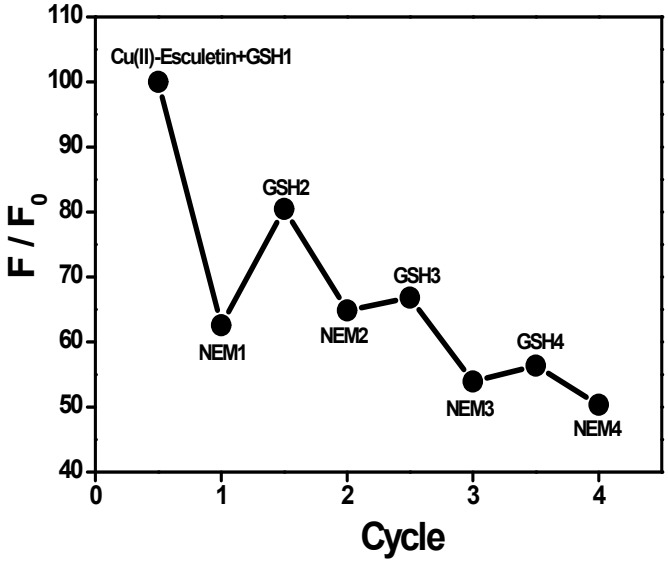

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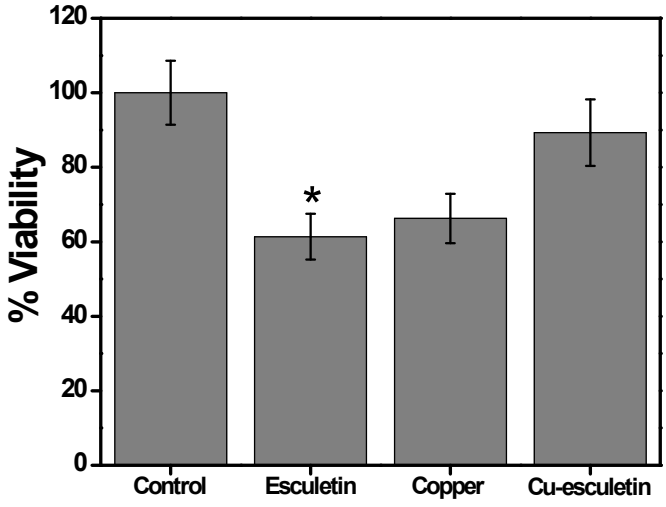

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