Fluorescent detection of silver ions in water with organic nano-aggregates

Joydev Hatai, Suman Pal, Subhajit Bandyopadhyay*

Indian Institute of Science Education and Research (IISER) – Kolkata
BCKV Main Campus PO, Mohanpur, Nadia, WB 741252, India
sb1@iiserkol.ac.in

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Figure (S1). UV-vis spectra: 1 with Hg$^{2+}$ in \( \text{H}_2\text{O}/\text{DMSO} \) (99:1).

**Job’s Plot (fluorescence method):** Stock solutions of 1 (10 \( \mu \text{M} \)) and silver nitrate (1 mM) were prepared separately in respective solvents. The fluorescence spectra was recorded for each of the 11 solutions containing the two solutions (1 and AgNO$_3$) at a total concentration of 80 \( \mu \text{M} \) in \( \text{CH}_3\text{OH}/\text{DMSO} \) (99:1) and 8 \( \mu \text{M} \) for \( \text{H}_2\text{O}/\text{DMSO} \) (99:1) in the following volume ratios. 2.0:0, 1.8:0.02, 1.6:0.04, 1.4:0.06, 1.2:0.08, 1.0:0.10, 0.8:0.12, 0.6:0.14, 0.4:0.16, 0.2:0.18, and 0.0:0.20.
Figure (S2). ESI-MS of the chemosensor 1.
Figure (S3). ESI-MS spectrum of complex $[1 + \text{Ag}^+]$ from an aqueous sample.

Figure (S4). ESI-MS spectrum of complex $[1 + 2\text{Ag}^+ + \text{MeOH} + \text{HO}^-]$. 
Figure (S5). Binding constant in MeOH:DMSO (99:1, v/v) was determined from the plot of \( \ln\left(\frac{F-F_0}{F_\infty-F}\right) \) against \( \ln[Ag^+] \); the stoichiometry of 1-Ag\(^+\) association, obtained directly from the slope, is 1.94 ± 2. Following equation 1, the intercept gave an association constant of 8.0 \( \times \) 10\(^5\) M\(^{-2}\). The error calculated from experiments performed in triplicate was 6%.

Figure (S6). Binding constant in H\(_2\)O:DMSO (99:1, v/v) was determined from the plot of \( \ln\left(\frac{F-F_0}{F_\infty-F}\right) \) against \( \ln[Ag^+] \); the stoichiometry of 1-Ag\(^+\) association, obtained from the slope, is 1.28. Following equation 1, the intercept gave an association constant of 1.37 \( \times \) 10\(^6\) M\(^{-1}\). The error calculated from experiments performed in triplicate was 4%. 
Figure(S7). Determination of detection limit from fluorescence intensity of chemosensor 1 in H$_2$O/DMSO (99:1, v/v).
Figure (S8). $^1$H-NMR spectrum of 1.
Figure (S9). $^{13}$C-NMR spectrum of 1.