A dual channel optical sensor for norepinephrine via insitu generated silver nanoparticles

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A colorimetric and fluorometric dual channel sensor has been developed for the determination of noradrenaline (NE). Visual detection is possible due to the formation of brown silver nanoparticles (NPs) in the presence of NE, which further resulted in strong metal enhanced fluorescence signals. A linear relationship was obtained between the absorbance values and concentration of NE in the range 1.00×10^{-6} M- 6.66×10^{-8} M; the detection limit being 1.79×10^{-8} M. It was also found that the fluorescence intensities were proportional to the concentration of NE over the range of 8.92×10^{-3} M- 5.66×10^{-5} M, with the corresponding limit of detection 5.59×10^{-6} M. Furthermore, application of the present approach in synthetic blood serum has been demonstrated, which suggests its great potential for diagnostic purposes.