

Abstract Submitted  
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**High-Selectivity, Far-Red Emitting Squaraine Sensor for Cyanide Detection**<sup>1</sup> XINGLEI LIU, New Jersey Institute of technology, TAIHONG LIU, Shaanxi Normal University, MAIRA A. VALENCIA, BINGLIN SUI, YUANWEI ZHANG, KEVIN D. BELFIELD, New Jersey Institute of technology — Squaraine dyes are well-known fluorophores with long wavelength absorption, large molar absorptivity, high fluorescence quantum yields, and high photostability. Their unique photophysical properties make them promising candidates in a variety of scientific and technological applications such as organic electronics, optical data storage, chemosensing, nonlinear optics, photodynamic therapy of cancer, and fluorescence probes. In this study, we report the synthesis and comprehensive characterization of the linear spectroscopic and photochemical properties of a novel TEG-substituted squaraine derivative SQ1. SQ1 exhibits strong absorption and intense fluorescence emission in the far-red spectral region and high photostability. In addition, a novel fluorescent sensing strategy using SQ1 in CTAB micellar media was developed for the sensitive and selective detection of  $\text{CN}^-$  with a detection limit of  $1.7 \mu\text{M}$ , corresponding nicely to limits established by the WHO and the US EPA. This work broadens the family of squaraine dyes and demonstrates SQ1 for use as a fluorescent or visual sensing probe.

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