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Functionalized Siloles: Versatile Synthesis, Aggregation-Induced Emission, and Sensory and Device Applications
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Modular Analyte Sensing through Aggregation-Induced Emission

Category

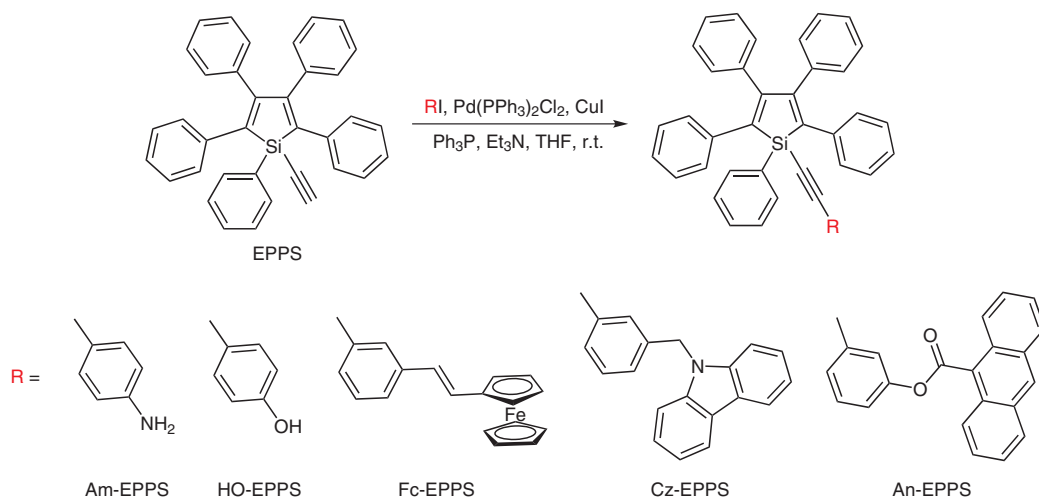
Synthesis of Materials and Unnatural Products

Key words

siloles

aggregation-induced emission

molecular recognition



Significance: Structural diversity in functionalized siloles is limited, primarily due to the incompatibility of most reaction conditions with the silole substrate. The authors report a versatile synthesis of functionalized siloles using the stable substrate EPPS which is compatible with palladium-catalyzed cross-coupling reaction conditions. In this report, the photophysics and analyte sensing capabilities of five different functionalized siloles are reported.

Comment: Selective identification of analytes such as explosives and biomolecules continues to be an active and potentially life-saving area of interest. The authors make good use of aggregation-induced emission to sense these important analytes as well as to probe changes in pH. Of particular importance are the reported selectivities of Am-EPPS and HO-EPPS towards picric acid. Both compounds exhibit Stern–Volmer constants as large as $109 \times 10^3 \text{ M}^{-1}$ in aqueous solutions. HO-EPPS exhibits a varying binding constant to different proteins exemplifying its potential use as a selective bioprobe.

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