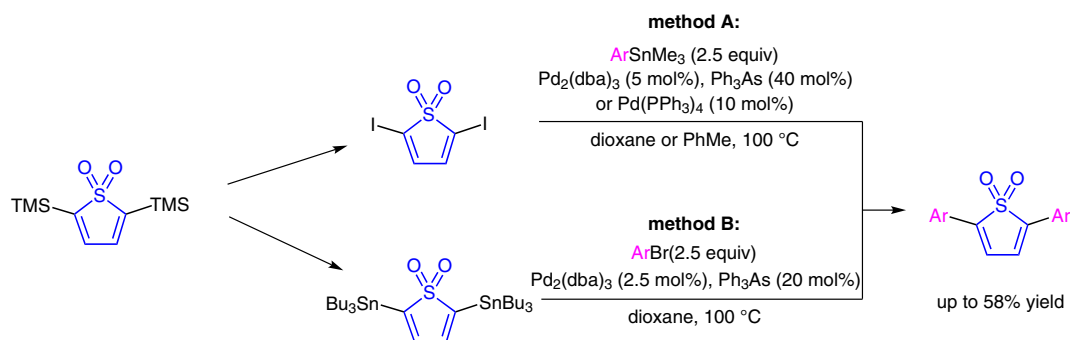
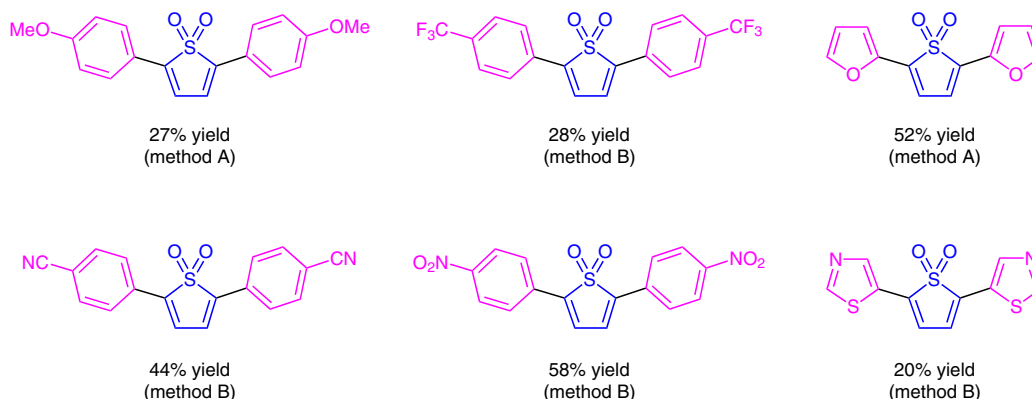


Synthesis of 2,5-Diarylated Thiophene 1,1-Dioxides



Ar = Ph, 4-MeOC₆H₄, 4-F₃CC₆H₄, 4-NCC₆H₄, 4-O₂NC₆H₄, 2-thienyl, 2-furyl, 5-thiazolyl

Selected examples:



Significance: The authors disclose the palladium-catalyzed diarylation of distannylated thiophene 1,1-dioxide (electron-poor aryl coupling partners) and diiodo thiophene 1,1-dioxide (electron-rich aryl coupling partners) by Stille cross-coupling reactions to synthesize various 2,5-bis(aryl)thiophene 1,1-dioxides in moderate yields. Furthermore, the electrochemical and photophysical properties of these diarylated thiophene dioxides were investigated using cyclic voltammetry and fluorescence spectroscopy.

Comment: The corresponding distannylated thiophene 1,1-dioxides are obtained by treatment of 2,5-bis(trimethylsilyl)thiophene 1,1-dioxide with tetrabutylammonium fluoride (TBAF) and bis(tributyltin) oxide. A wide range of these diarylated thiophene dioxides show significant quantum yields, and their appropriate reduction and oxidation potentials may easily be tuned by the use of electron-donating and -withdrawing aryl groups.

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