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A ROUTE TO BENZODITHIOPHENE SYSTEMS BY EXPLOITING A LIGAND-FREE SUZUKI-MIYaura COUPLING REACTION IN DEEP EUTECTIC SOLVENTS

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Benzo[1,2-*b*:4,3-*b'*]dithiophene (**BDT**) and its derivatives belong to an interesting class of thiophene-based aromatic π -conjugated compounds that are widely studied as functional organic materials inserted, for instance, as units in mono and polydisperse oligomers [1], or as π -spacers in push-pull organic chromophores for photovoltaic applications [2]. Moreover, **BDTs** are key intermediates for the synthesis of inherent chiral tetrathia[7]helicenes, which are an attractive class of heterohelicenes with unique physicochemical and chiroptical properties due to their helix-like structure [3]. Thus, **BDT** is a key starting molecule which can allow access to more complex and interesting systems through a selective and judicious functionalization of the α and β -positions of the terminal thiophene rings. Building on our recent studies on the synthesis and functionalization of **BDTs** [4], we questioned whether a novel class of 2,7-diarylsubstituted **BDTs** **1** (Figure 1) could be synthesized *via* a palladium-catalysed Suzuki-Miyaura reaction between heteroaryl halides **2** and organoboron derivatives **3** in *Deep Eutectic Solvents* (**DESS**), which have proven to be effective as sustainable and environmentally responsible reaction media in several transition-metal-catalyzed reactions [5].

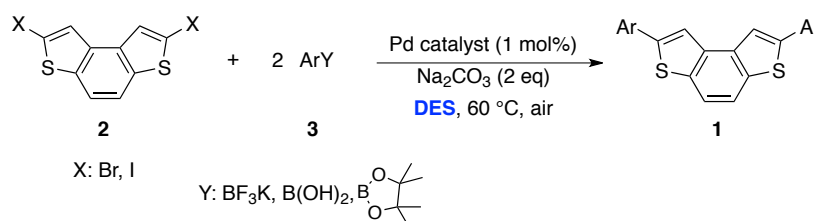


Figure 1. General scheme for the synthesis of 2,7-diarylsubstituted BDTs **1**

In this communication, we report our preliminary results on the preparation of diarylsubstituted **BDTs** **1**, and discuss the substrate scope of the proposed protocol. Some of the compounds so far obtained display interesting photophysical properties, which are currently under investigation.

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