Simple Synthesis of Substituted Polyheteroaromatic Compounds

Selected examples:

- \( R^1 = 4-\text{Br}, 72\% \) yield
- \( R^1 = 4-\text{CF}_3, 63\% \) yield
- \( R^1 = 3,4,5-(\text{OMe})_3, 81\% \) yield
- \( \text{R}^2 = \text{OMe}, 80\% \) yield
- \( \text{R}^2 = \text{Br}, 73\% \) yield
- \( \text{R}^2 = \text{CF}_3, 68\% \) yield

- \( \text{Cp}^* = 1,2,3,4,5\)-pentamethycyclopentadienyl

Comment: The authors found that an intermediate product can be isolated after one alkyne addition, and that the intermediate product can be reacted with different alkynes to further vary the substituents on the final product. Interestingly, the method can also be applied to di(2-thienyl)alkyne to give product \( \text{2} \) in 60% yield.

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