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Novel Ru(II) catalyzed multi-component reaction towards sulfones

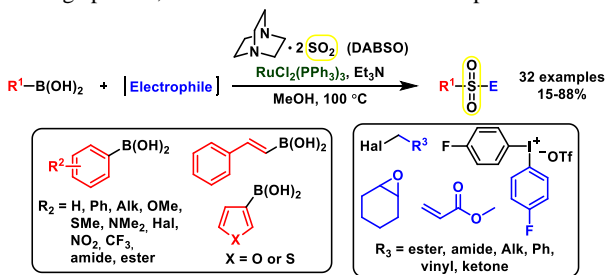
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Sulfones are valuable intermediates and building blocks in an organic synthesis applied to obtain biological active molecules, as well as functional materials. During last decades, straightforward one-pot multi-component strategy towards sulfones that employs a simple sulfonyl source (SO_2 , DABSO, MSO_3 or $\text{M}_2\text{S}_2\text{O}_5$) and two sulfur-free reactants has been extensively studied. Among transition metal catalyzed reactions, only examples of Pd(II), Au(I), Cu(I) and Co(II) catalytic systems are reported.^{1,2}

Herein we report novel Ru(II) catalyzed conditions for the synthesis of sulfones from boronic acid, DABSO and various electrophiles. Reaction proceeds smoothly between methyl bromoacetate and differentially substituted aromatic boronic acids in the presence of 5 mol% of selected Ru(II) catalyst. Versatility of method is further demonstrated with a group of electrophiles, including epoxide, iodonium salt and Michael acceptor.



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References

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2. Zheng, D.; Wu, J. *Sulfur dioxide insertion reactions for organic synthesis*; Springer: Singapore, 2017.