



Borane-catalyzed Double C-H Silylation for the Synthesis of Silacyclic Compounds

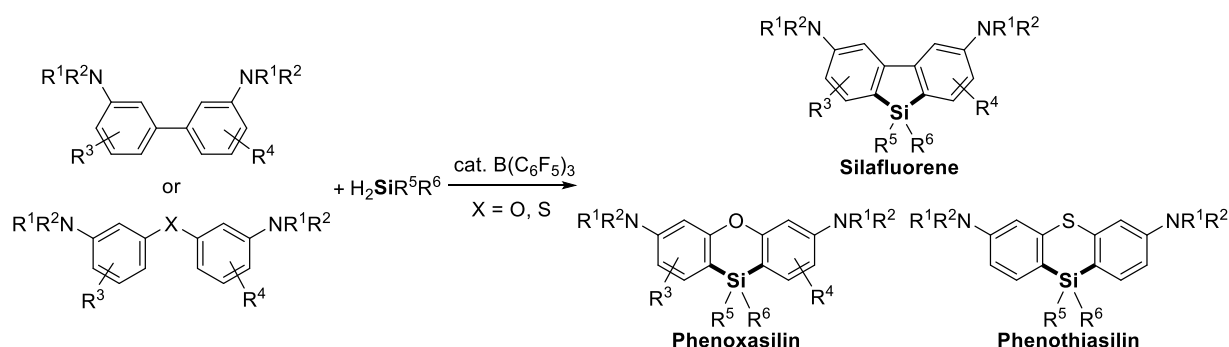
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Silacyclic compounds, such as silafluorene, phenoxasilin, and phenothiasilin derivatives, are attractive for applications as organic electronic materials and reagents. The common method to synthesize silacyclic compounds is lithiation of the corresponding dihalogenated biaryl or diaryl substrates and sequential reaction of dilithiated intermediates with dichlorosilanes. However, these reactions have problems, such as the waste of stoichiometric reagents, the tolerance of functional groups, and the difficulty in the synthesis of multi-substituted starting materials. Hence, the highly efficient and versatile synthetic methods of silacyclic compounds are desirable.

Herein, B(C₆F₅)₃-catalyzed double sila-Friedel–Crafts reaction of amino group-substituted biphenyls or diaryl ethers or thioethers with dihydrosilanes was achieved. The reaction system is simple and efficient and can provide multi-substituted silafluorene, phenoxasilin, and phenothiasilin derivatives in high yields. The amino groups of these products can be converted to other substituents.



Scheme. Double C-H Silylation for the Synthesis of Silacyclic Compounds under Borane Catalysis

<参考文献>

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