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Investigation of carbohydrate *C*-silylation with chlorosilanes

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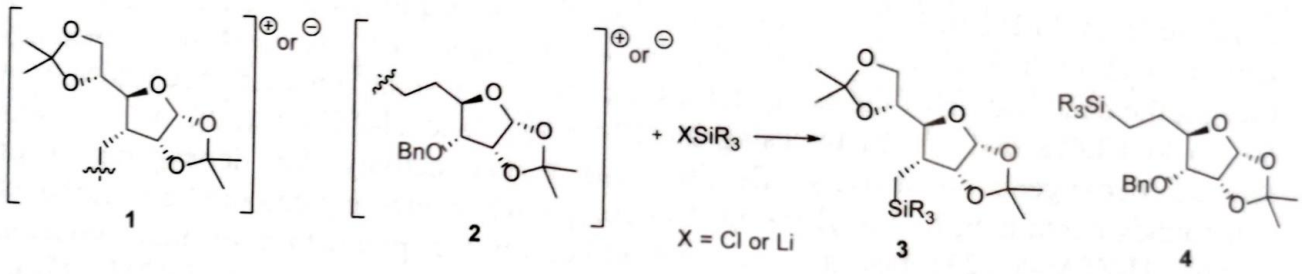
Carbohydrates are compounds with versatile biological significance both in pure form and in conjugation with proteins or nucleo bases and are widely used in the synthesis of natural compounds and their analogs. For synthetic modifications, various protecting groups for the hydroxyl groups are used, such as esters and alkyl and silyl ethers.[1] Methods for selective *O*-silylation are well known and mostly imply use of strong bases and silyl chlorides.

Silicon-containing carbohydrates could be used for synthetic applications, be potentially biologically active compounds, and used for production of modified silicon-based materials.[2] However, there is a limited number of methods for *C*-silylation of such complex moieties.[3] In our research that is focused on synthesis of silicon-containing sugars, we investigated a possibility of silylation of lithiated carbohydrates using chloro silanes (Scheme 1).



Scheme 1. General scheme of silylation reaction of synthons **1** and **2**.

Starting from D-glucose, we synthesized several substrates that could be used either for the lithiation-silylation or alkylation of silyl anion reactions (synthons **1** and **2**, scheme 1). We studied the effect of the reaction conditions on the ratio of the desired and by-products.

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