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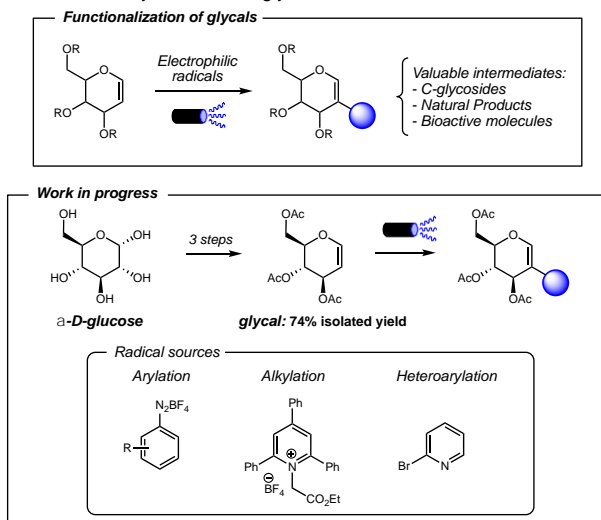
Exploring the reactivity of glycols in photocatalytic reactions

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ABSTRACT

Functionalization of unsaturated monosaccharides is a powerful strategy to synthesize a variety of glycoside derivatives, such as sugar mimics, and enantiomerically pure molecules. In this context, catalytic radical transformations not only offer new avenues for the synthesis of new complex carbohydrates but also overcome the limitations of classical protocols.^{1,2} In this study, we are exploring the reactivity of glycols using different photocatalytic approaches for the synthesis of C-glycosides.



Scheme 1. Functionalization of glycols via photocatalysis

Our initial efforts focused on synthesizing the protected glycol from D-glucose, achieving a 74% overall yield through a sequence of peracetylation of glucose, bromination, and elimination bromine reactions. We then investigated the C(2)-arylation by reacting the glycol with aryldiazonium salts under blue LED irradiation under different reaction conditions.³ However, in most cases we observed diazonium salt degradation and partial recovery of the starting material. Since aryl radicals are not highly electrophilic, we decided to explore alternative partners for this reaction, such as Katrisky salt and bromopyridine.^{4,5} Further studies aimed at synthesizing alkylated and heteroarylated C-glycosides are currently underway.

ACKNOWLEDGEMENTS

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Comentado [LS1]: Peracetyl? Ou fizemos com outros grupos protetores?

Comentado [LS2]: Anomeric?

Comentado [LS3]: Uma dúvida: Como glicosídeo é um termo que se refere à carbono do acetal, quando falamos C-glicosídeos estamos nos referindo ao carbono do acetal que teve uma ligação C-O substituída por C-C? Neste sentido arilar em C2 produziria um C-glicosídeo (como escrito no primeiro parágrafo)?

Comentado [LS4]: These?