INVESTIGATION TOWARDS THE SYNTHESIS OF ALKYL *C*-GALACTOFURANOSIDES DERIVATIVES WITH POTENTIAL ANTILEISHMANIAL PROPERTIES

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Leishmaniasis, a disease caused by protozoan parasites of the genus *Leishmania* and transmitted by the bite of infected sandflies, poses a significant global health challenge. Although this infection is a treatable and curable disease, its treatment faces many challenges. Current drugs suffer from limited availability, side effects, long treatment durations, high costs, and drug resistance issues. Therefore, there is a critical need for the development of new antileishmanials that are not only more effective but also safe and affordable. The abundance of rare carbohydrates assembly with β-D-galactofuranoside linkage within the glycocalyx of these microorganisms [1] led to the exploration of their biochemical pathways as promising antimicrobial targets. Inspired by antimicrobial-active octyl β-D-galactofuranoses [2], hydrolytically resistant alkyl *C*-galactofuranosides were designed as promising antimicrobial agents. The main synthetic approach to access β-D-galactofuranosyl lipids and other analogs relied on the C-1 allylation of glycosyl acetates, followed by cross-metathesis with various α-olefines and hydrogenation (Figure 1). 22 derivatives were isolated and their biological evaluation against both *Leishmania major* promastigote and *L. mexicana* amastigote revealed antileishmanial activity of 1-(glycosyl)heptadecanes, exhibiting IC_{50} values of ~50 µM [3]. Notably, 1-(β-d-arabinofuranosyl)heptadecane and its enantiomer showed promising antimicrobial efficacy with IC_{50} values and selectivity index comparable to the conventional antileishmanial drug miltefosine, highlighting their promising therapeutic efficacy.

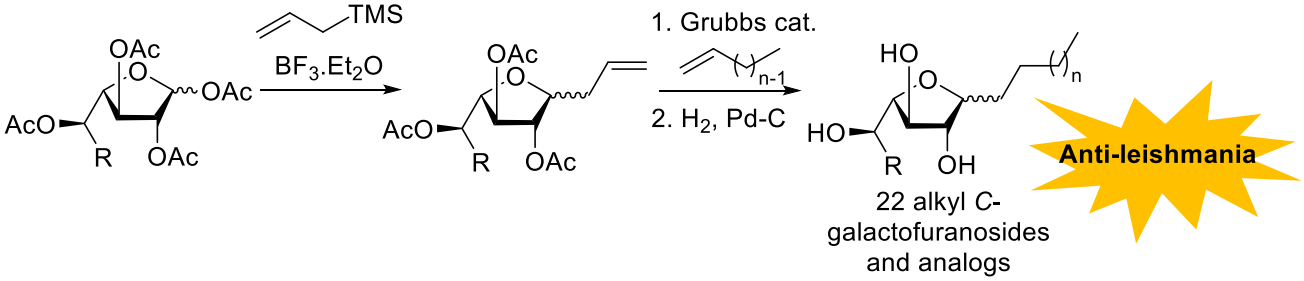

Figure 1

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