Studies on the diastereoselectivity of the oxa-Michael route to tetrahydropyrans

Annabel Ho, Roderick W. Bates*

Division of Chemistry and Biological Chemistry, School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore 637371, Singapore

*E-mail: roderick@ntu.edu.sg

Abstract: An efficient stereochemical study and synthetic route towards di-substituted tetrahydropyran rings is reported herein. The key reactions carried out in this project involved cross-metathesis of each alkene substrate – 1-phenylhex-5-en-1-ol, 2-phenylhex-5-en-1-ol, 4-phenylhex-5-en-1-ol, followed by a facile oxa-Michael cyclisation to give the di-substituted tetrahydropyran products in 18-76 % yield. These tetrahydropyrans adopt chair-like conformations that give stereochemical outcomes where the substituents are bis-equatorial.

Keywords: Diastereoselectivity; Tetrahydropyrans; Oxa-Michael; Wittig; Di-substituted