New Routes to Old Molecules: Improving the Synthesis of some Water Soluble Vitamins

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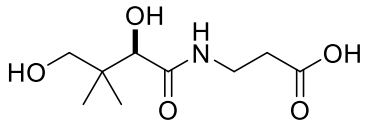
Vitamins are organic compounds that are essential for human and animal life and were generally discovered in the 1910s and 1920s. Since then, their structure and main biological functions have been determined and their first chemical synthesises have been mainly completed in the 1930s and 1940s [1]. Shortly afterwards, industrial methods of production have been developed that have been in operation for decades.



vitamin B_5
(pantothenic acid)

Given the long history, it might be assumed that there is nothing new to learn or discover in the synthesis of vitamins; in fact, the opposite is true! The 13 vitamins have diverse and complex structures and chemical synthesis remains the dominant method of production on a commercial scale.

This presentation will discuss some of the challenges and recent developments in the synthesis of several water soluble vitamins with a particular focus on pantothenic acid (vitamin B_5). The switch from traditional stoichiometric chemical technologies to application of catalytical methods is essential to meet the demanding targets for the lowest possible environmental impact and cost.

[1] M. Eggersdorfer, D. Laudert, U. Létinois, T. McClymont, J. Medlock, T. Netscher and W. Bonrath, *Angew. Chem., Int. Ed.*, **2012**, *51*, 12960-12990