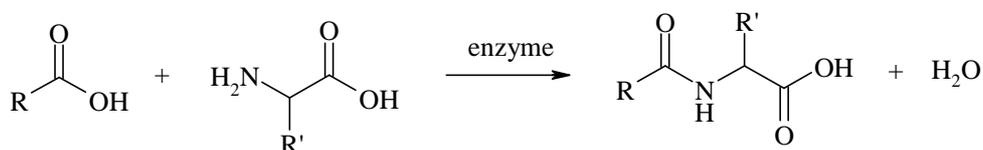


Direct Condensation – Enzymatic Production of Mild Surfactants

Katharina Götz, Christiane Wunsch, Michael Kraus

Group Biotechnology, Clariant Produkte (Deutschland) GmbH,
Sammelweisstraße 1, 82152 Planegg, Germany, katharina.goetz@clariant.com

The aim of the project was the development of an enzymatic process for the condensation of fatty acids and amino acids to yield bio-based, mild surfactants to be applied in personal care products.



R = Alkyl

R' = Amino acid side chain

Screening of various enzymes revealed two promising acylases which were characterized in detail to identify the optimal reaction conditions. Enzyme stability and performance, especially at a low water content, were further optimized by means of metabolic engineering. The combination of metabolic engineering and reaction engineering would finally allow manufacturing high yields of mild surfactants based on biocatalytic processes.

[1] E. Wada et al., *JAOCS*, **2002**, 41-46

[2] Soo et al., *Journal of Bioscience and Bioengineering*, **2003**, 361-367

[3] Kimura et al., *Biochem. Engin.*, **2001**, 109-111