

P2.18 - ENZYMATIC SYNTHESIS OF MONOSACCHARIDE FATTY ACID ESTERS

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ABSTRACT

The non-ionic and biodegradable surfactant family known as sugar fatty acid esters (SFAEs) includes a wide range of products broadly used in several industrial applications. They are considered as important compounds in the food due to their remarkable technological properties. SFAEs are composed of lipophilic fatty acid moieties and hydrophilic sugar head groups which result in particular physicochemical characteristics that are the basis for their broad range of applications. A great variety of coupling possibilities between hydrophilic sugar head groups and hydrophobic alkyl chains can be explored, leading to the production of different SFAEs with promising industrial features. SFAEs can be obtained by chemical esterification. However, the alternative synthesis by enzymatic route using lipases as biocatalysts has gained increased attention in the last decades. When enzymes are used as catalysts, reactions are carried out in mild conditions, avoiding product degradation. Moreover, enzymes are biodegradable and present higher specificity, thus minimizing the formation of undesirable side-products. In this work, the enzymatic synthesis of SFAEs in *t*-butanol was followed and qualitatively evaluated by thin layer chromatography. The esterification between different mono-, di- or trisaccharides and butyric acid was performed by commercial immobilized Lipase B from *Candida antarctica*, at 60°C. The results showed that SFAEs were successfully biosynthesized under these conditions using monosaccharides.

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