

REGIOSELECTIVE ENZYMATIC AROYLATION OF GLYCOSIDES

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Phenolic saccharides are biologically active components isolated from phytomass [1]. Due to the presence of phenolic acid moiety exhibiting a powerful antioxidant, photo protective, antimicrobial and antitumor activity, phenolic saccharides are able to find application in food, cosmetic and pharmaceutical industry [2]. On the other side, bifunctional phenolic carbohydrate derivatives may serve as promising building blocks for targeted linear polymeric materials prepared under oxidative coupling. These types of polymers have a potential advantage of expected biodegradability. Feruloyl esterases [E.C. 3.1.1.73] (FAEs) (also known as hydroxycinnamoyl esterases) represent a group of carboxylic acid esterases able to hydrolyse an ester bond between hydroxycinnamic acid and sugars present in plant cell walls [3].

Recently, different enzyme preparations comprising high levels of feruloyl esterase (all coming from *Humicola insolens* or *Thermomyces lanuginosus*) have been tested in our laboratory for catalysis of transferuloylation reactions in organic solvents. When activated esters of ferulic acid or their cinnamic analogues served as acyl donors, the acylation occurred at primary position of various glycosides in high yields and at relatively short times [4]. The aim of this work is to investigate reactivity of used commercial lipases and enzyme preparations possessing feruloyl esterase activity in the acylation of chosen alkyl, aryl or flavonoid glycosides with vinyl esters of several phenolic acids (4-hydroxybenzoic, 4-hydroxy-3-methoxybenzoic, 4-hydroxy-3,5-dimethoxybenzoic, 4-hydroxyphenylacetic, 4-hydroxyphenylpropionic). The used reaction conditions, regioselectivity and yields of enzymatic aroylation will be presented.

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