

TECHNOLOGY OFFER

Biocatalytic Friedel-Crafts Acylations

This technology provides a biocatalytic method for the regioselective monoacylation of phenols or aminophenols serving as acyl acceptors in the presence of acyl donor molecules of the formula R²-C(=O)-R³ and acyl transferase (ATase) enzymes as catalysts. The produced phenols can be used in different markets, such as cosmetics, aroma (natural), industrial enzymes (5 billion US\$ p.a.), biocatalysis, pharmaceutical industry, agricultural chemistry, biological pesticides.

BACKGROUND

The invention targets the biocatalytic and regioselective production of acetylated phenolic compounds. The method allows the synthesis of a series of acetylated phenols, which can be used in various fields, such as e.g. in the pharmaceutical industry or in cosmetics.

TECHNOLOGY

In contrast to the chemical Friedel-Crafts acylation, which is usually used for the acylation of phenols, the novel enzymatic acylation takes place regioselectively, under mild temperatures and without the use of toxic and dangerous chemicals ideally in aqueous buffer. Thus the proposed method provides a promising alternative for the preparation of acylated phenols or antioxidants.

The process is based on new enzymes (acyltransferases) derived from bacteria *Pseudomonas (P.) protegens* (ATase95) and *P. brassicacearum* (Atase27).

ADVANTAGES

The technology offers the following benefits:

- environmentally friendly (biocatalysis)
- specifically/selective (regioselective)
- no harmful waste material

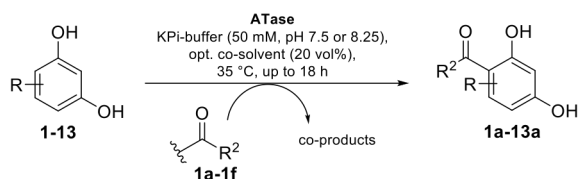


Fig. 1 – General reaction for the ATase-catalysed acylation of various (non)-natural acceptor sub-strat-es (1-13) using (non)-natural acyl donors (1a-1f).

KEYWORDS:

POLYPHENOL
AMINOPHENOL
INDUSTRIAL ENZYMES
PHARMACEUTICAL INDUSTRY
AGRICULTURAL CHEMISTRY
BIOLOGICAL PESTICIDES
BIOCATALYSIS
COSMETICS

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