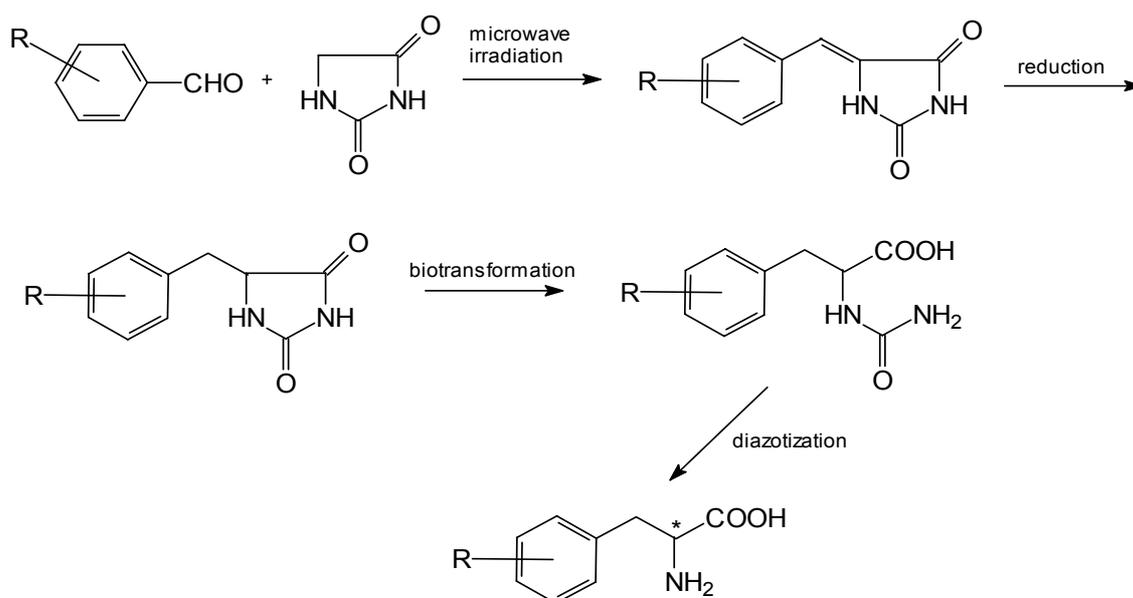


SYNTHESIS OF 5-SUBSTITUTED HYDANTOINS IN THE MICROWAVE OVEN AND THEIR BIOTRANSFORMATION TO CORRESPONDING NONNATURAL AMINOACIDS USING HYDANTOINASE METHOD

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Biocatalyst is a very attractive and profitable alternative to classical organic methods of synthesis. Hydantoinases, commercially available enzymes, are of great value for biotechnological purposes. According to the EC nomenclature hydantoinases are classified as cyclic amidases (EC 3.5.2.). Hydantoinases catalyse the reversible hydrolytic ring cleavage of hydantoin and 5-monosubstituted hydantoin [1]. In the present work we described application of hydantoinase method to obtain enantiomerically pure nonnatural amino acids.



The synthetic approach to obtain substrates for hydantoinases involved condensation of aldehyde and hydantoin in microwave irradiation [2] and next the reduction of double bond in 5-position of the hydantoin-ring [3]. Synthesis under microwave irradiation offers several advantages: easy work-up after the reaction, reduction of the byproducts formed in the usual thermal degradation, better selectivity and short reaction time compared to conventional heating.

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[2] P. Lindstrom, J. Tierney, B. Wathey, J. Westman; *Tetrahedron*, 57, 9225-9283, 2001

[3] J. Marton, J. Enisz, S. Hosztafi, T. Timár; *J. Agric. Food Chem.*, 41, 148-152, 1993