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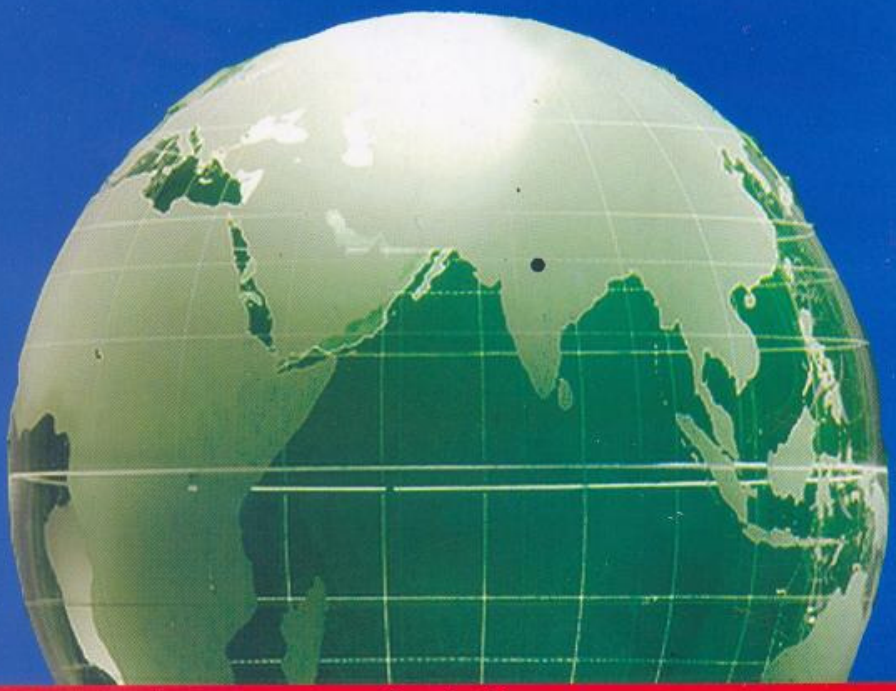
BOOK OF ABSTRACTS

Green Technology & Sustainable Development



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ST-3 / ORAL

A QUANTITATIVE STRUCTURE ACTIVITY RELATIONSHIP STUDY ON PERMEATION OF AMINO ACIDS THROUGH MEMBRANES

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ABSTRACT

The permeation of seven isomers of amino acids (AA) namely Tryptophan (Trp), Phenylalanine (Phe), Tyrosine (Tyr), Phenylglycine (Phegly), Methionine (Meth), Threonine (Thr) and Serine (Ser) was studied using an enantioselective membrane prepared from polysulphone containing L-tryptophan-glutaraldehyde condensation product in the polymer matrix. The experiments were conducted in dialysis mode under optimized conditions of the aqueous phase pH and salt concentration in a two compartment membrane cell. The membrane was found to exhibit selectivity towards all the D-isomers of amino acids studied in this work. In order to deduce implication on design of suitable membrane system for specific application a quantitative structure activity relationship analysis has been made using hydrophobicity as the molecular descriptor. In this analysis the solute fluxes were analysed on the basis of a permeation model consisting of diffusing flow alone. Finally, the model parameters of the diffusive flux of both the isomers were correlated with hydrophobicity taken as the molecular property.

Keywords: Amino acids, enantioselective membrane, glutaraldehyde, dialysis, diffusive flux, hydrophobicity