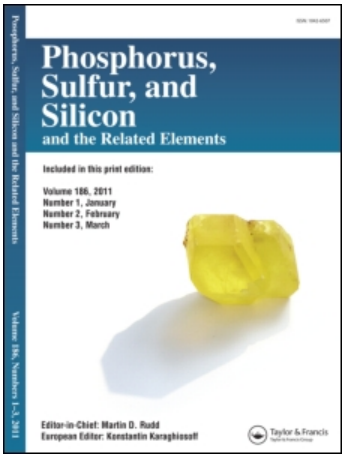

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Chiral α-Aminophosphonates: Synthesis and Transport Properties

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CHIRAL α-AMINOPHOSPHONATES: SYNTHESIS AND TRANSPORT PROPERTIES.

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Abstract Synthesis of chiral α-aminophosphonates and their transport properties (rates, enantioselectivity) as membrane carriers for oxy and amino acids are discussed.

Transport in biological systems of amino acids through lipophilic membrane and their enantioselectivity is well known. To design a new type of the amino and oxy acids membrane carriers some α-aminophosphonates were obtained by Kabachnik-Fields reaction of amine with dialkylphosphite and carbonyl compounds in 70-90% yield.

R^1-NH-C(R^2,R^3)-P(=O)(OR^4)$_2$

(I): R^1 - $PhCH_2$- ; R^4 - amyl; R^2, R^3 - -$(CH_2)_4$-;

(IIa), (IIb): R^1 - d- or l-$PhCH(CH_3)$- ; R^4 - amyl; R^2, R^3 - -$(CH_2)_4$-;

(III): R^1 - l-bornyl; R^4 - amyl; R^2, R^3 - CH_3-;

In the present communication we reports some of our results concerning the transport amino, oxy acids and β-aminoalkohols along their concentration gradient through a liquid membrane supported by a microporous polymer film (Table 1). It was found that the flux follow the order of the distribution coefficients of studied compounds between aqueous and organic phases.

TABLE I Flux of some molecules through supported liquid membrane containing 1 M compound (I) in o-nitrophenyloctyl ether

Substrate c=0.1 mol/l	d,l-Valine	d,l-Tartaric acid	Glicolic acid	d,l-Mandelic acid	$NH_2(CH2)_2OH$ *HCl
Flux, mol/hr cm^2	$7.3\ 10^{-5}$	10^{-7}	$1.4\ 10^{-6}$	$7.6\ 10^{-5}$	$2.2\ 10^{-6}$

Chiral α-aminophosphonates (IIa), (IIb), (III) as enantioselective carriers have demonstrated a high enantiomer discrimination for oxy and amino acids.

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