

This article was downloaded by:

On: 28 January 2011

Access details: Access Details: Free Access

Publisher Taylor & Francis

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



## Phosphorus, Sulfur, and Silicon and the Related Elements

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t713618290>

### Chiral $\alpha$ -Aminophosphonates: Synthesis and Transport Properties

I. S. Antipin<sup>a</sup>; I. I. Stoikov<sup>a</sup>; A. R. Garifzyanov<sup>a</sup>; A. I. Kanovalov<sup>a</sup>

<sup>a</sup> Kazan State University, Kazan, Russia

**To cite this Article** Antipin, I. S. , Stoikov, I. I. , Garifzyanov, A. R. and Kanovalov, A. I.(1996) 'Chiral  $\alpha$ -Aminophosphonates: Synthesis and Transport Properties', Phosphorus, Sulfur, and Silicon and the Related Elements, 111: 1, 117

**To link to this Article:** DOI: 10.1080/10426509608054746

**URL:** <http://dx.doi.org/10.1080/10426509608054746>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.informaworld.com/terms-and-conditions-of-access.pdf>

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

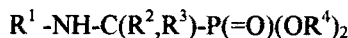
## CHIRAL $\alpha$ -AMINOPHOSPHONATES: SYNTHESIS AND TRANSPORT PROPERTIES.

I.S.ANTIPIN, I.I.STOIKOV, A.R.GARIFZANOV, A.I.KONOVALOV

Kazan State University, Kazan, 42008, Russia

**Abstract** Synthesis of chiral  $\alpha$ -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  $\alpha$ -aminophosphonates were obtained by Kabachnik-Fields reaction of amine with dialkylphosphite and carbonyl compounds in 70-90% yield.



(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  $\beta$ -aminoalcohols 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	$NH_2(CH_2)_2OH$ *HCl
Flux, mol/hr cm <sup>2</sup>	$7.3 \cdot 10^{-5}$	$10^{-7}$	$1.4 \cdot 10^{-6}$	$7.6 \cdot 10^{-5}$	$2.2 \cdot 10^{-6}$

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

This work was supported by RFFI grant.