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## 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>

## The Novel Phosphadiazacalixcrown Compounds

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**To cite this Article** Antipin, Igor S. , Stoikov, Ivan I. , Nikonov, Grigory N. and Konovalov, Alexander I.(1999) 'The Novel Phosphadiazacalixcrown Compounds', *Phosphorus, Sulfur, and Silicon and the Related Elements*, 147: 1, 9

**To link to this Article:** DOI: 10.1080/10426509908053485

**URL:** <http://dx.doi.org/10.1080/10426509908053485>

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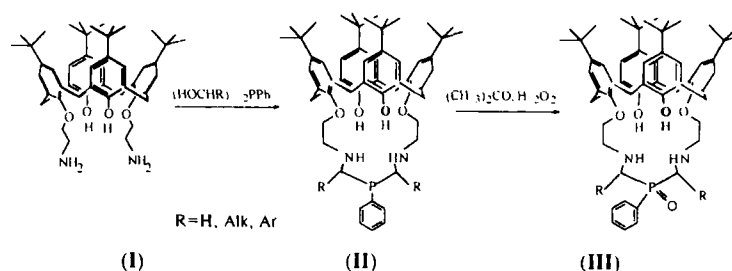
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## The Novel Phosphadiazacalixcrown Compounds

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A new series of calixcrown compounds (**II**) containing some VA group elements (N, P) was synthesized. 1,3-bis-(aminoethoxy) calix[4]arene (**I**) was used as starting platform for the preparation of calixcrown compounds. Reaction of (**I**) with bis( $\alpha$ -hydroxyalkyl)phenylphosphines in toluene lead to phosphadiazacalixcrown compounds (**II**). All obtained receptors are hydrolytic stable and are not oxidized by air. A more convenient synthesis of (**II**) involves treatment of (**I**) with 2,5-diphenyl-1,3,2,5-dioxaboraphosphorinanes (**III**) which are stable on air unlike bis-( $\alpha$ -hydroxyalkyl) phenylphosphines. Structure of obtained macrocycles was established by  $^1\text{H}$  and  $^{31}\text{P}$  NMR spectroscopy.



To enhance the binding ability of the novel receptors to cations and pronodonor molecules the macrocycles (**II**) were oxidized with the near-quantitative yields to corresponding phosphine oxides (**III**) by a hydrogen peroxide in acetone or phosphine thiooxides by a sulfur addition.

Phosphine oxides (**III**) possess an array of potential binding sites for interaction with  $\alpha$ -amino and hydroxy acids. Unsubstituted macrocycle (**III**) (R=H) will be examine as earrier for membrane transport of the zwitterionic form of aromatic amino acids.

This investigation was supported by Russian Foundation for Basic Research (grant N 98-03-33051).