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

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### Coordination Compounds of Phosphoryl Containing Pendant Macrocyclic Ligands with Alkali and Transition Metals

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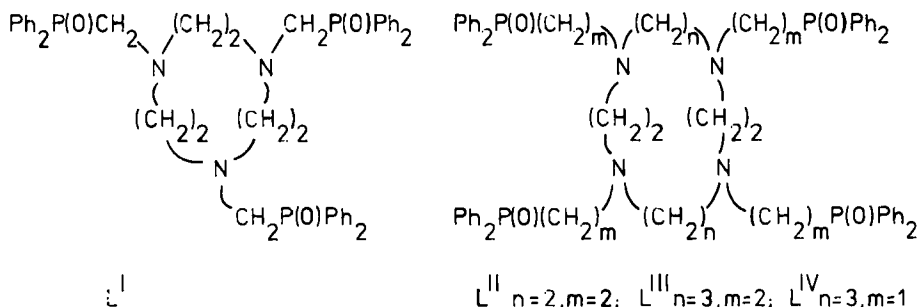
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# COORDINATION COMPOUNDS OF PHOSPHORYL CONTAINING PENDANT MACROCYCLIC LIGANDS WITH ALKALI AND TRANSITION METALS

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Electroneutral phosphoryl-containing pendant polyaza-  
 macrocycles  $L^I-L^{IV}$ , proved to be efficient complexing  
 agents for alkali and transition metal ions



The ligands involve different coordination sites: the "hard" base, oxygen atoms, and less "hard" nitrogen atoms in aminogroups. The stability constants ( $K$ ) of  $[ML]^+$  complexes ( $M$  is "hard" acid  $Li$ ,  $Na$ ,  $K$ ,  $Cs$  ions) were detected in the THF. The discrimination coefficients, which characterize the selectivity of ligands, were calculated. The value of  $K$  was found to depend on the macrocycle cavity size and the pendant chain length.

Mono- and polynuclear  $Co(II)$ ,  $Ni(II)$  and  $Cu(II)$  complexes with  $L^I-L^{IV}$  ligands were synthesized. In the binuclear complexes the ligands act as bridges between two cations and all  $P=O$  and amino groups form coordinate bonds, whereas in the case of  $MLX_2$  complexes only some of the donor groups are involved in coordination. The electronic structure and coordination polyhedrons geometry of metal ions is determined by the manner of ligand coordination.