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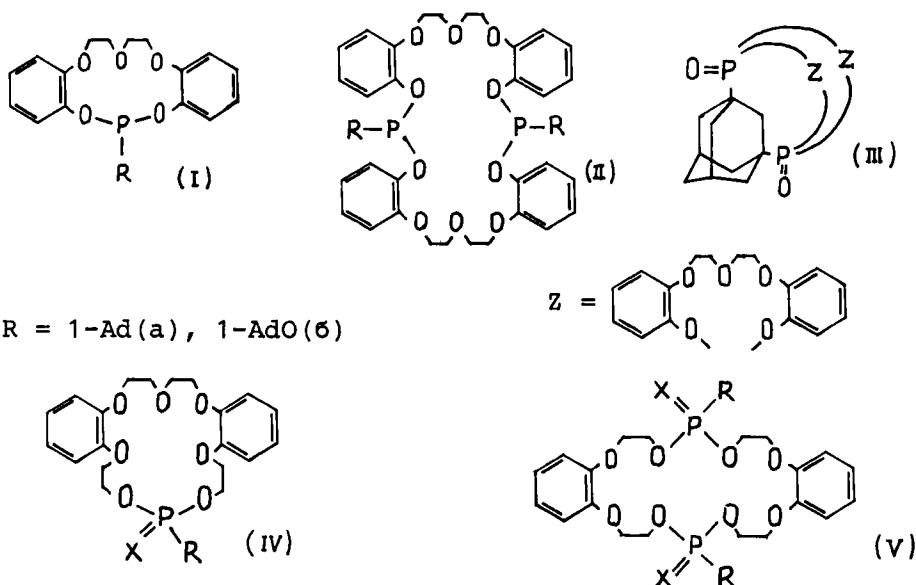
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# CROWN ETHERS WITH THREE- AND FOUR-COORDINATED PHOSPHORUS ATOM IN THE CYCLE

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Starting from phosphonic, phosphorous, phosphonous and phosphoric acid chlorides new crown ethers with three- and four-coordinated phosphorus atom in the cycle were formed.



Macroethers (I) and (II) add sulfur, react with aromatic azides. Adamantyl phosphites undergo Arbuzov reaction with methyl iodide. Crown ethers with phosphorus in the ring possess biological activity and they are selective complexing agents for  $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Ca}^{2+}$  and  $\text{Mg}^{2+}$  ions. The relationship of structural properties concerning biological activity and complexing, is also discussed.

(1) A.A.Tchaikovskaja, T.N.Koodrja, A.M.Pinchuk, Zh. Obshch. Khim., 1987, 87, N 9, p. 671-675.