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Synthesis, Structure AXD Properties of N-Acidylated Amides of Phosphoxus Acids (IV) and Their Thio-Derivatives

N. G. Zabirov^a; R. A. Cherkasov^a; F. M. Shamsevaleev^a; V. N. Solovjev^b

^a V.I. Uljanov-Lenin Kazan State University, Kazan, USSR ^b Institute of Physiologically Active Substances, Academy of Sciences of the USSR, Moscow region, USSR

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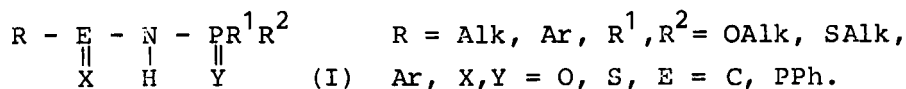
SYNTHESIS, STRUCTURE AND PROPERTIES OF N-ACIDYLATED AMIDES OF PHOSPHORUS ACIDS (IV) AND THEIR THIO-DERIVATIVES

N.G.ZABIROV, R.A.CHERKASOV, F.M.SHAMSEVALEEV, and
 V.N.SOLOVJEV*

V.I.Uljanov-Lenin Kazan State University, Lenin Str.
 18, Kazan 420003, USSR

*Institute of Physiologically Active Substances,
 Academy of Sciences of the USSR, Chernogolovka,
 Moscow region 142432, USSR

This report presents the studies on various methods of obtaining, structure, and chemical properties of N-acidylated amides and thiamides of four-coordinated phosphorus atom acids expressed by a general formula



The yield of compounds (I) is greatly affected by the nature of X and Y atoms, so there is no universal method of synthesis for them. The optimal methods of obtaining of the compounds I have been found. The structural investigations of the compounds (I), their alkaline salts, and their alkaline salt complexes with crown-ethers has been carried out using the IR, ^1H , ^{31}P and ^{13}C NMR, X-ray and mass-spectroscopy.

The complexing of compounds (I) with the following metal ions: Ag^+ , Au^{3+} , Pd^{2+} , Cu^{2+} , Cd^{2+} , Zn^{2+} , Fe^{2+} , Fe^{3+} , Co^{2+} , Ni^{2+} , Hg^{2+} , Pb^{2+} has been investigated. Many of the complexes had chelate structure. Their stability constants are estimated. The reactions of compounds (I) with alkyl halides, thiophosphate halides, isonitriles, carbonyl compounds, imines, oxidizers, and Lawesson's reagent have been investigated. N-Acidylated amides and thiamides of P(IV)-acids as well as their derivatives have a wide range of practically useful properties.