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Synthesis and Study of Spatial Structure 3,7-Bis(Dimethylamino)-5,10-Dihydrodibenzo-[b,e]- Phosphorines by NMR

V. V. Negrebetskii^a; I. N. Pervukhina^b; B. I. Stepanov^b

^a All-Union Scientific Research Institute of Plant Protecting Chemicals, Moscow, USSR ^b Moscow D.I. Mendeleyev Institute of Chemical Technology, Moscow, USSR

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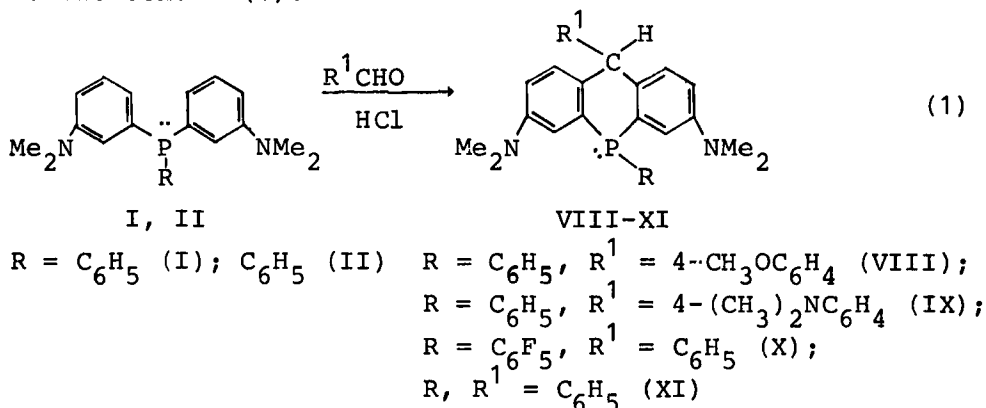
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SYNTHESIS AND STUDY OF SPATIAL STRUCTURE 3,7-BIS(DI-METHYLAMINO)-5,10-DIHYDRODIBENZO-[b,e]- PHOSPHORINES BY NMR

V.V.NEGREBETSKII, I.N.PERVUKHINA^a, and B.I.STEPANOV^a
 All-Union Scientific Research Institute of Plant Pro-
 tecting Chemicals, Ugreshskaya 33, Moscow 109088, USSR
^aMoscow D.I.Mendeleev Institute of Chemical Technol-
 ogy, Miusskaya 9, Moscow 125820, USSR

The phosphorines (VIII-XI) were obtained in the reaction 3,3-bis(dimethylamino)triphenylphosphine (I) and bis(3-di-methylaminophenyl)pentafluorophenylphosphorine (II) with benzaldehyde (III) and its 4-methoxy (IV), 4-dimethylamino (V), 2-fluoro (VI), pentafluoro (VII) derivatives according to the scheme (1).



It has been defined, that the direction and the reaction rate depend on the nature of substituents in aldehyde and on the alkalinity of phosphorus. The spatial structures of the phosphines have been specified by NMR ¹H, ¹³C, ³¹P. The phosphorines (VIII-X) are the individual stereoisomers with equatorial orientation of the phenyl group at phosphorus. The phosphorine (XI) exists in solution as a mixture of stereoisomers with axial and equatorial orientation of the phenyl group at the carbon C¹⁰. The long-range spin-spin interaction through the space were found between phosphorus and fluorine in the phosphine (XI) - ⁶J_{PF} 56 Hz.