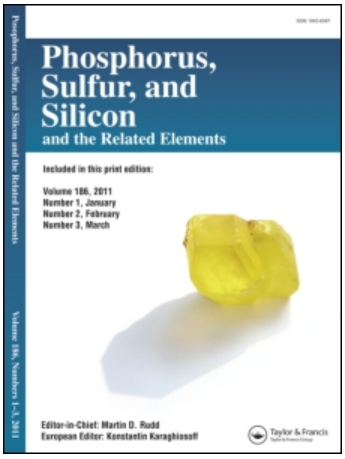

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Synthesis and Study of Spatial Structure 3,7-Bis(Dimethylamino)-5,10-Dihydrodibenzo-[b,e]- Phosphorines by NMR

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

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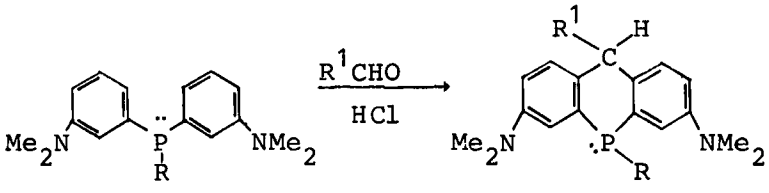
The phosphorines (VIII-XI) were obtained in the reaction 3,3-bis(dimethylamino)triphenylphosphine (I) and bis(3-dimethylaminophenyl)pentafluorophenylphosphorine (II) with benzaldehyde (III) and its 4-methoxy (IV), 4-dimethylamino (V), 2-fluro (VI), pentafluoro (VII) derivatives according to the scheme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



(1)

I, II VIII-XI

R = C_6H_5 (I); C_6H_5 (II)

R = C_6H_5, R^1 = 4-$CH_3OC_6H_4$ (VIII);
R = C_6H_5, R^1 = 4-$(CH_3)_2NC_6H_4$ (IX);
R = C_6F_5, R^1 = C_6H_5 (X);
R, R^1 = C_6H_5 (XI)

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, ^{13}C, ^{31}P. 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 C^{10}. The long-range spin-spin interaction through the space were found between phosphorus and fluorine in the phosphine (XI) - $^6J_{PF}$ 56 Hz.