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Spectroscopic and Structural Studies of Some New C(O)NHP(O) Containing Phosphorictriamides

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New phosphoramidate compounds with formula XC(O)NHP(O)Y (Y = NHCH2C(CH3)2CH2NH and X = CClF2 (1) & CF3 (2)) and X(O)NHP(O)Y2 (for X = CClF2, Y = NC4H8 (3), N(CH3)(CH2C6H5) (4), NC4H8O (5), NHCH(CH3)2 (6), NHC6H4(4-CH3) (7), NHC6H11 (8), NHC6H5 (9), NHCH2C6H5 (10))) have been synthesized and characterized by IR, 19F NMR, 31P{1H} NMR, 31P NMR, 1H NMR, 13C NMR. Moreover, the structures of compounds 1, 2 and 3 were determined by single crystal X-ray determination. The P=O and P-N bond distances for these compounds are within the values characteristic of analogous phosphorus compound. Therefore, the bond angles values show that the P atom has a distorted tetrahedral configuration. The six-membered ring of the compounds 1 and 2 adopt a chair conformation and the P=O unit exist in equatorial position.