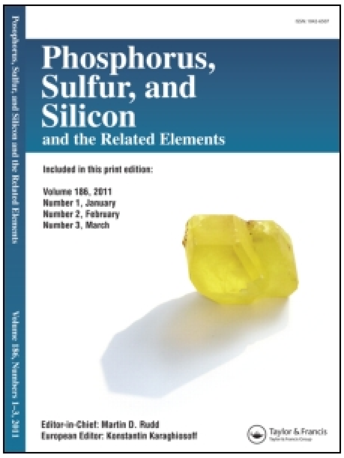

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Synthesis and Structure of Some 1,3,2-Oxazaphospholenes

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Synthesis and Structure of Some 1,3,2-Oxazaphospholenes

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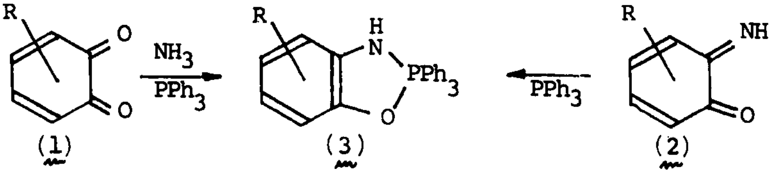
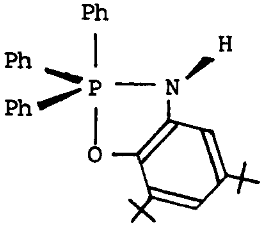
The reaction of trialkyl phosphites and phosphines with o-quinones result in the formation of oxyphosphoranes [1]. In an effort to prepare o-quinone monoimine metal complexes with amine [2] and phosphine ligands it has been found that in the reaction either of o-quinones (1) with phosphines in the presence of ammonia or of o-quinone monoimines (2) with phosphines 1,3,2-oxazaphospholenes (3) are formed in good yields.



The X-ray structure determination of the adduct of 3,5-di-t-butyl-o-benzoquinone monoimine and triphenylphosphine reveals a trigonal bipyramidal structure (4), where the oxazaphospholene ring is in the apical-equatorial plane accomodating the oxygen atom in the apical and the nitrogen atom in the equatorial position.



(4)

The formation of 1,3,2-oxazaphospholenes (3) is not a concerted 1,4-cycloaddition reaction. Evidences support the presence of intermediate species during the reaction suggesting a stepwise mode of ring formation.

[1] F.Ramirez, Pure Appl.Chem., 9, 337 (1964)
[2] É.Balogh-Hergovich and G.Speier, Inorg.Chim.Acta 84, 129 (1984)