

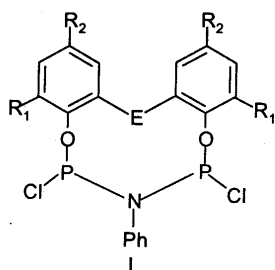
## Synthesis and transition metal chemistry of novel phosphorus(III)-containing inorganic heterocycles

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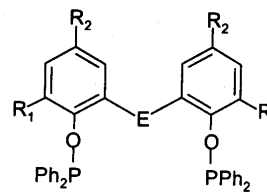
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Synthesis of phosphorus containing macrocycles and cryptands has evoked much interest in recent years and provided exciting and novel chemistry. The introduction of trivalent phosphorus atoms or phosphoryl and thiophosphoryl groups into a ring enhances the versatility of the macrocyclic ligands in forming complexes with both hard and soft metals. Tri-coordinated phosphorus-containing macrocycles can easily bind transition metals while alkali and alkaline earth metal ions can be trapped with P = O or P = S groups.

Our interest in this area and the above observations prompted us to pursue a systematic synthetic and structural investigation of some phosphorus(III)-containing inorganic heterocycles of the type I. We have also made a series of analogous acyclic phosphines of the type II.



$R_1 = R_2 = t\text{-Butyl}, E = S$   
 $R_1 = t\text{-Butyl}, R_2 = \text{Me}, E = S$   
 $R_1 = R_2 = \text{Me}, E = S$   
 $R_1 = R_2 = t\text{-Butyl}, E = -\text{CH}_2-$   
 $R_1 = t\text{-Butyl}, R_2 = \text{Me}, E = -\text{CH}_2-$   
 $R_1 = R_2 = \text{Me}, E = -\text{CH}_2-$



II

Synthesis, reactivity, spectroscopic and structural aspects, and transition metal chemistry of the above compounds are presented.