Title:	Synthesis of Phosph(III)azane Macrocycles With Phenothiazine, Hydrazine, and Bipyridine Based Linkers
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Abstract:	Cyclodiphosphazane macrocycles have emerged as highly promising candidates for applications in supramolecular chemistry owing to their capacity to encapsulate small molecules or ions within their cavities. This capability is augmented by the relatively robust bond energy of their saturated P–N bonds, comparable to that of C–C bonds (approximately 290 kJ mol −1 vs. 348 kJ mol −1 , respectively). Various methodologies for ion binding by neutral ion receptors, including recognition via hydrogen bonding, organometallic ligands, Lewis acid-base interactions, and diprotic receptors, have been extensively explored. Cyclodiphosphazane [R′P(μ-NR)] 2 species have garnered significant attention in the literature due to their fulfillment of fundamental criteria as building blocks. They exhibit reactivity, high symmetry as monomers, a rigid framework, and an inherent predisposition to form stable inorganic or hybrid organic-inorganic macrocyclic architectures, such as [{P(μ-NR) 2 (μ-LL')] n , where LL' represents an organic linker. In this study, we present the synthesis of flexible inorganic-organic hybrid macrocycles utilizing cyclodiphosph(III)azane [ClP(μ-N t Bu)] 2 as the inorganic building block. Organic linkers including Phenothiazine, 1,2 Diphenylhydrazine, 1,2 Dimethylhydrazine, and 2,2'-Bipyridine- 5,5'-dicarboxylic acid were employed for this purpose to showcase diverse coordination behaviors and yield novel organically-soluble hosts distinguished by their distinctive steric and electronic surroundings. i
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