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New 3-Cyano-1,2λ 3 -Thiaphosphacyclanes and Their Complexing Properties

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NEW 3-CYANO-1,2λ³-THIAPHOSPHACYCLANES AND THEIR COMPLEXING PROPERTIES

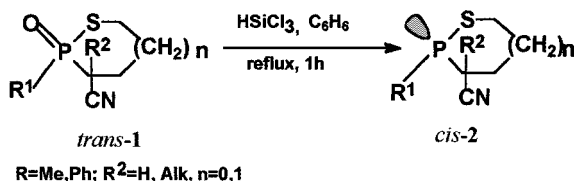
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Reduction of both individual diastereomers of 2-oxo-1,2-thiaphosphacyclanes by HSiCl₃ proceeds with retention of cyclic structure, cyano-group, and stereochemical configuration.

Keywords: 1,2-thiaphosphacyclanes; complexes; reduction

Taking into account the increasing interest in new polydentate ligands for metalocomplexes with definite stereochemistry we developed the facile synthetic route to novel 5- and 6-membered 2-alkyl(aryl)-3-cyano-1,2-thiaphosphacyclanes **2** using the reduction procedure of the corresponding 2-oxo derivatives.¹ The reaction of both individual stereoisomers of **1** with HSiCl₃ proceeds resulting in **2** in about quantitative yields. Either in presence of tertiary amine or in the absence of the latter one the reduction is going with the retention of stereochemical structure of the starting cycles. In all the cases, *trans*-**1** yields *cis*-**2** while *cis*-**1** leads to *trans*-**2** (Scheme 1).



SCHEME 1

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The 1:1 complexes of **2** with Co(II), Rh(III), Re(I) and Pd(II) were obtained and it was shown that the nitrogen of CN group serves as the second dentate group only in the case of Re and Pd-complexes.

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