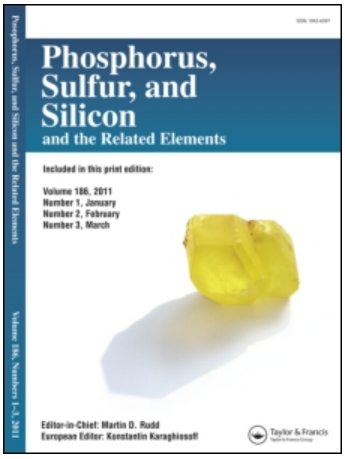

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THE REACTION OF 1,2-DITHIOLE-3-THIONES WITH TRIVALENT PHOSPHORUS COMPOUNDS: STEREOCHEMICAL AND SPECTROSCOPIC STUDIES

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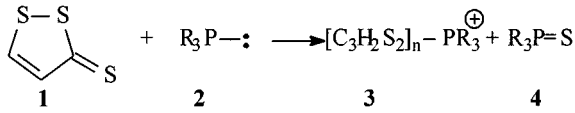
Pedersen[1] has reported that the reaction of 1,2-dithiole-3-thione **1** with trivalent organophosphorus compounds **2** afforded (beside the $[C_3H_2S_2]_n$ polimer terminated by an R_3P substituent **3**) almost quantitative yield of the corresponding $R_3P{=}S$ derivatives **4** (Eq. 1). This observation suggests a possibility of the use of the thione **1** as a sulfurating agent for trivalent organophosphorus compounds.



(1)

In order to determine the scope and limitation of this potentially new thionation procedure we carried out model stereochemical and spectroscopic studies using optically active methylphenyl-n-propylphosphine **5** and secondary t-butylphenylphosphine oxide **6** and a few achiral tricoordinated organophosporus compounds.

We found that the reaction of the thione **1** with trialkyl phosphites is rapid and very clean giving the corresponding thionophosphate in almost quantitative yield (^{31}P-NMR assay). On the other hand triphenyl phosphite gave a complex mixture of phosphorus-containing products. Thionation of the dextrarotatory phosphine **5** using the thione **1** gave the corresponding, dextrarotatory phosphine sulfide with stereoselectivity close to 70%; traces of the corresponding oxide were detected

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in the crude reaction products. The reaction between the levorotatory phosphine oxide **6** and the thione **1** gave the dextrarotatory enantiomer of t-butylphenylphosphinothioic acid with selectivity equal to 96.7%.

REFERENCE

[1] C. Th. Pedersen, *Sulfur Letters*, **20,** 179 (1997).