

NEW PRODUCTS OF REACTION OF LAWESSON'S REAGENT WITH DIOLS

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*Reaction of the Lawesson's reagent (LR) with aliphatic 1,2- and 1,3-diols as well as with aromatic 2,2'-dihydroxybiphenyl led to new products. Stable di-tert-butylammonium salts of bis-anisylidithiophosphonic acids **6** were isolated and were then converted into unique 9-, 9-, and 10-membered cyclic disulfides **7** and into S,S-dimethyl esters **8**. The salts of bis-anisylidithiophosphonic acids **6** were shown to be capable of splitting the disulfide bond of Ellman's reagent.*

Keywords: Bis-anisylidithiophosphonic acids derivatives; diols; Lawesson's reagent

INTRODUCTION

The reaction between 2,4-bis(4-methoxyphenyl)-1,3,2,4-dithiadiphosphetan-2,4-disulfide (Lawesson's reagent, LR) and aliphatic¹ and aromatic² diols **1** were investigated earlier by Shabana. Contrary to his expectations, Shabana did not isolate *bis*-anisylidithiophosphonic acids **2** from the reaction mixture, but only the products of elimination of hydrogen sulfide, i.e., the corresponding heterocyclic compounds, namely 2,4-dianisyl-1,5,3,2,4-dioxathiadiphosphepane 2,4-disulfide **3**, 2-anisyl-1,3,2-dioxaphospholane 2 sulfide **4**, and 6-anisylidibenzo[d,f][1,3,2]dioxaphosphepine 6-sulfide **5** (Scheme 1). The reaction with aromatic diols run in boiling toluene led exclusively to cyclic anisylphosphonothioates. Undoubtedly, such reaction direction was forced by deliberate or unintentional application of elevated temperature and acetonitrile as solvent. Acetonitrile proved to be a good H₂S acceptor, and additionally, the widely known readiness of diol

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