

This article was downloaded by:

On: 30 January 2011

Access details: *Access Details: Free Access*

Publisher *Taylor & Francis*

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



## Phosphorus, Sulfur, and Silicon and the Related Elements

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t713618290>

### Reaction Pathways upon Interaction of Allenic Phosphonates with Selenyl Chlorides

D. M. Mondeshka<sup>a</sup>; Ch. N. Tancheva<sup>a</sup>; H. M. Angelov<sup>b</sup>

<sup>a</sup> Higher Institute of Chemistry and Technology, Sofia, Bulgaria <sup>b</sup> Higher Pedagogical Institute, Shumen, Bulgaria

**To cite this Article** Mondeshka, D. M. , Tancheva, Ch. N. and Angelov, H. M.(1987) 'Reaction Pathways upon Interaction of Allenic Phosphonates with Selenyl Chlorides', *Phosphorus, Sulfur, and Silicon and the Related Elements*, 30: 3, 711

**To link to this Article:** DOI: 10.1080/03086648708079205

**URL:** <http://dx.doi.org/10.1080/03086648708079205>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.informaworld.com/terms-and-conditions-of-access.pdf>

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

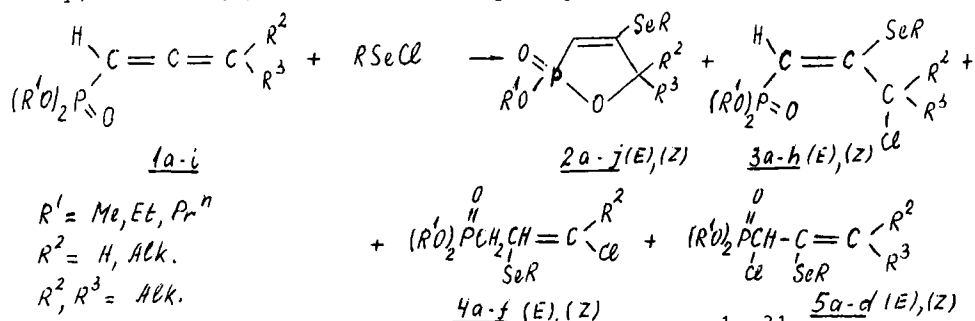
# Reaction Pathways upon Interaction of Allenic Phosphonates with Selenyl Chlorides

D.M. Mondeshka<sup>a\*</sup>, Ch.N. Tancheva<sup>a</sup> and H.M. Angelov<sup>b</sup>

<sup>a</sup>Higher Institute of Chemistry and Technology, 1156 Sofia, Bulgaria.

<sup>b</sup>Higher Pedagogical Institute, 9700 Shumen, Bulgaria.

Studies were performed on the reaction between alkyl- and arylselenenyl chlorides with esters of allenic phosphonic acids, variously substituted at their terminal C-atom. With the esters of the C-3 diasubstituted acids the reaction is highly regioselective and only oxaphosphol heterocyclization occurs to 2,5-dihydro-1,2-oxaphosphols 2i-e. With the esters of the propadiene phosphonic acid the reaction is regio- and (Z)-stereoselective: only the 2,3-adducts 3a-b are formed, where the (Z)-isomer and the allenic phosphonates 4a-b are prevalent, as a result of 1,3-sigmatropic isomerization of 3a-b. With the esters of the C-3 monosubstituted acids, complex reaction mixtures are formed. From them were isolated: (E)- and (Z)-isomers of 2,5-dihydro-1,2-oxaphosphols 2f-j; (E)- and (Z)-isomers of the 2,3-adducts 3c-h; (E)- and (Z)-isomers of 4c-f; and (E)- and (Z)-isomers of the 1,2-adducts 5a-d. The reaction partially loses its regioselectivity, but the (Z)-stereoselectivity is preserved:



All structures were confirmed by IR, MS and NMR (<sup>1</sup>H, <sup>31</sup>P) spectra.

The configuration of 3a-h was clarified by <sup>13</sup>C NMR spectroscopy.