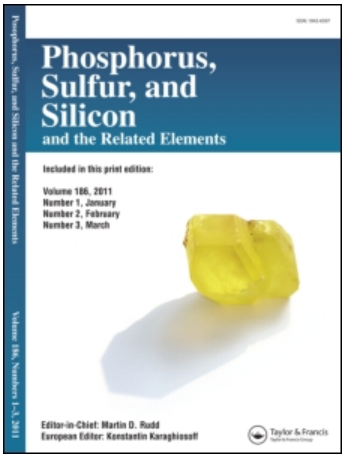

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Reaction of Halidemethyldithio- and Selenothiophosphonic Acids with Alkylthiocyanates - A Novel Method of Synthesizing P, N, S (Se) - Containing Heterocycles

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REACTION OF HALIDEMETHYLDITHIO- AND SELENO-THIOPHOSPHONIC ACIDS WITH ALKYLTHIOCYANATES - A NOVEL METHOD OF SYNTHESIZING P, N, S (Se)-CONTAINING HETEROCYCLES

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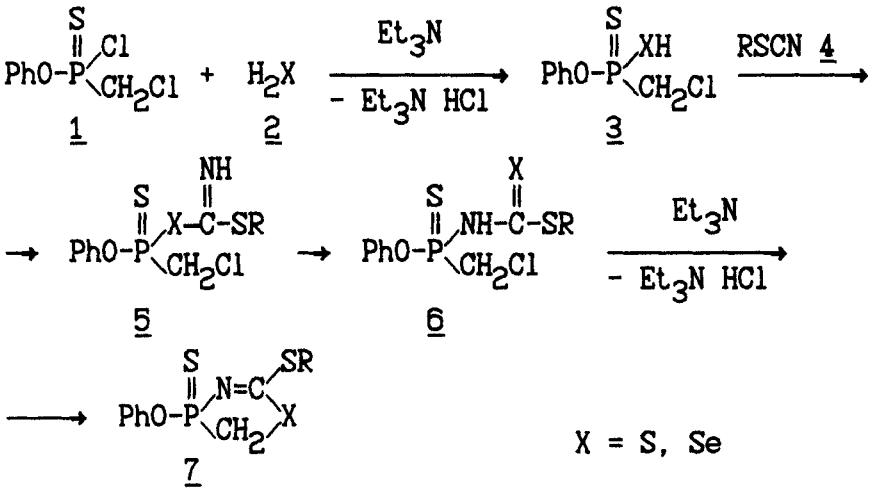
Novel heterocyclic derivatives - 1,3,4-thiazaphospholines and 1,3,4-selenoazaphospolines 7 were obtained passing hydrogen sulfide or hydrogen selenide 2 through the solution of O-phenylchloromethyl (chloro)thiophosphonate 1 and alkylthiocyanate followed by addition of triethylamine. It is assumed that O-phenylchloromethylthiophosphonic and -selenophosphonic acids 3 are formed at the first stage, which further add to CN triple bond of alkylthiocyanates 4 to produce S- or Se-thiophosphonyldithio- or selenothioiminocarbonates 5. The latter undergo phosphorotropic rearrangement into appropriate S-thiophosphonyl dithio- or selenothiocarbamates 6.



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