Lithuanian chemists conference

Chemistry & Chemical Technology

CTT-2019

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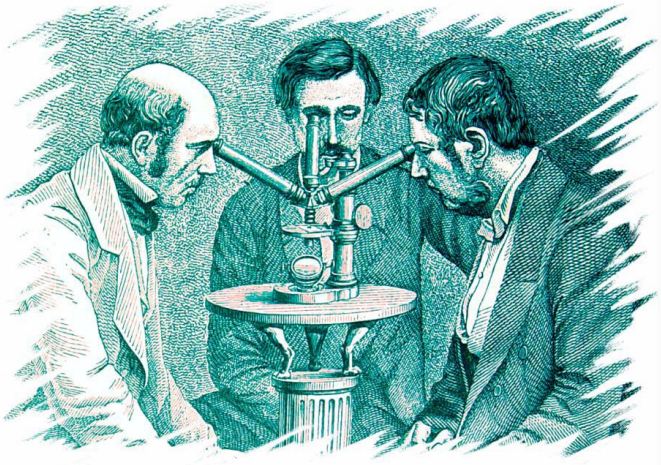

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INVESTIGATION OF SYNTHETIC PATHWAY OF VARIOUS 2-(3-SUBSTITUTED PROP-2-YNYLTHIO) IMIDAZOLES *via* ELECTROPHILIC CYCLIZATION REACTIONS

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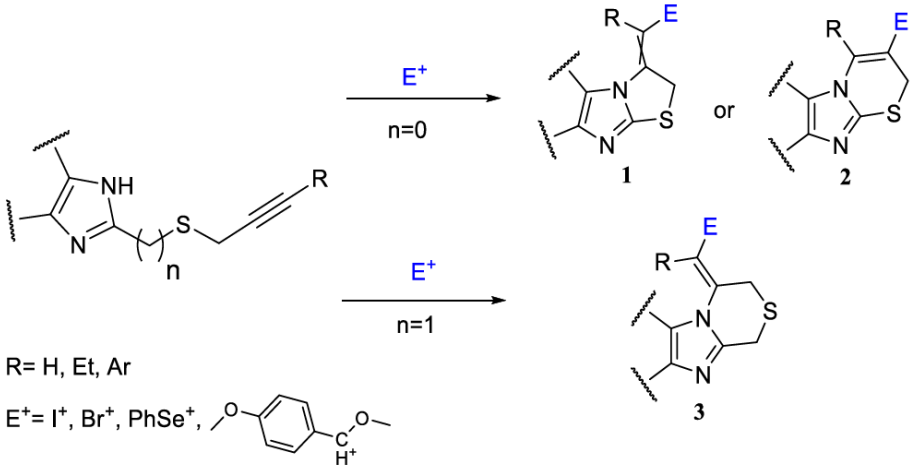
Imidazo[2,1-b][1,3]thiazine (**2**) and imidazo[2,1-c][1,4]thiazine (**3**) fragments are found in compounds which exhibit potential pharmaceutical properties as tumor cell growth inhibitors, cytotoxic [1], cardiotonic [2] or antibacterial [3] agents. One of the new routes to imidazothiazine compounds could be through electrophile initiated heteroatom cyclization reaction of alkynes which is used in synthesis of other types of heterocycles [4]. Thus we present the new way to synthesize imidazothiazine ring system *via* electrophilic cyclization of propargylic substrates. This synthetic route also enables variation of substituents in thiazine ring and possible halogen substitution in the system.

For our study 2-(3-substituted prop-2-ynylthio)benzimidazoles were chosen as model reactants in investigation of electrophile induced cyclization reactions. It was found that, cyclization of 2-(prop-2-ynylthio)benzimidazole (R= H) went through 5-*exo*-dig path (**1**) with selected electrophiles. While, 2-(3-substituted prop-2-ynylthio)benzimidazoles (R= Et, Ar) induced 6-*endo*-dig cyclization (**2**) and products were isolated in good yields. Some synthetized compounds **2** were chosen for further modification. However, cyclization of 2-(3-substituted prop-2-ynylthio)methylbenzimidazoles (n=1) resulted only in 6-*exo*-dig intramolecular cyclization (**3**) and in lower yields, as it appears due to the more labile sulphur. More details about reaction selectivity, scope, limitations and used reagents will be discussed in presentation.



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