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| **SUSTAINABLE REAGENTS FOR PRODUCTION OF FUSED HETEROCYCLES** **VIA ELECTROPHILIC HETEROCYCLIZATION** |
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| *Condensed heterocycles are well known due their excellent biological activity and have indisputably importance for organic chemistry. Electrophilic cyclization reactions (ECR) are widely used for production of the mono-heterocyclic compounds. It should be noted that despite the versatility of ECR and their ease of implementation, the classical reagents of the electrophilic heterocyclization are quite toxic, which limits their application. Therefore, the search for sustainable and non-toxic electrophilic reagents with is a point of special interest.**In this study, the attempt of replace such toxic classical electrophilic reagents as bromine and tellurium tetrabromide with less toxic reagents using the unsaturated 1,2,4-triazole derivatives is presented. 3-Alkenylthioethers of 4,5-disubstituted 1,2,4-triazoles and 4-alkenyl-5-substituted 1,2,4-triazole-3-thiones were used as starting compounds. In the investigation of bromine-induced electrophilic heterocyclization was performed with the use of bromine, which was formed directly in a reaction mixture from less toxic hydrogen bromide and hydrogen peroxide. The yields of the target thiazolotriazoles were 72-84%, and the physicochemical characteristics fully correspond to the corresponding analogues obtained by the traditional bromination technique.**The possibility of obtaining the above mentioned toxic electrophilic reagent from less toxic tellurium dioxide and a 6-fold excess of hydrogen bromide were studied for studying of ECR with the participation of tellurium tetrabromide. When isolating the target thiazolotriazoles and establishing their structure (via using a complex of spectral methods, ХRD), the formation of products of proton-induced electrophilic heterocyclization was unexpectedly noted. Presumably, under the conditions of the reaction in the reaction mixture, the formed tellurium tetrabromide is in equilibrium with hexabromotelluridic acid, which entered the ECR to form condensed thiazolotriazolium hexabromotellurides.**Thus, as a result of the performed research, we showed the possibility of using sustainable electrophilic reagents in ECR for the synthesis of condensed heterocycles, which significantly expands the scope of practical application of the specified method.* |
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| ***Keywords****: Electrophilic Heterocyclization, Sustainable Reagents, Thiazolo-s-triazoles, Eco-friendly procedures* |
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| ***Biography*** |  |  |
| D:\ElCycl\foto_Slivka.jpg | *Mikhailo Slivka was born in Uzhhorod, Ukraine in 1974. He graduated with honors from Uzhhorod National University in 1996 and obtained his Ph.D. in organic chemistry at Institute of Organic Chemistry in Kyiv (Ukraine), in 2001. His Dr.Sc. thesis is devoted to electrophilic cyclization reaction of 1,2,4-triazoles. At present, he is Professor and research group leader at Uzhhorod National University (Uzhhorod, Ukraine). His scientific interests include synthesis of functional and condensed heterocycles via intramolecular electrophilic cyclization via green approaches, investigations of the reactivity of fused heterocycles and their application.* |