Compounds bearing the 1,2,3-thiadiazole ring possess herbicidal, fungicidal and phytohormonal properties [1, 2]. At the same time, it has been found that the 1,2,3-triazole derivatives exhibit antimicrobial, antiviral and antitumoral activities [3].

The aim of the present work was a synthesis of previously undescribed 1,2,3-thiadiazole-1,2,3-triazole hybrid possessing valuable properties of both heterocycles.

Acidification of 1,2,3-triazolium-5-olate 1 led to opening of the triazole ring and formation of $\alpha$-diazoacetamide 2. The latter underwent condensation with 1,2,3-thiadiazole-4-carboxylic acid hydrazide 3, affording the corresponding hydrazone 4. Following this, interaction between diazo group and NH hydrazide moiety resulted in cyclization of hydrazone with formation of 1,2,3-triazolyl-carboxamide-1,2,3-thiadiazole 5 (Scheme).

Pathway for the synthesis of $N$-1,2,3-triazol-1-yl-1,2,3-thiadiazol-4-carboxamide 5

The structure of synthesized compound was characterized by spectroscopic methods such as $^1$H NMR, $^{13}$C NMR, IR, mass spectrometry and X-ray diffraction.
References

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