NEW APPROACH TO THE SYNTHESIS OF THIOSEMICARBAZONES

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Organic reagents have found wide application in analytical practice for the determination, quantification, separation and concentration of metals. Compounds containing coordinatively active N, S, O-donor centers are of particular interest. These are thiosemicarbazones, hydrazones, azomethines, semicarbazones effectively coordinating the metal through the imine nitrogen atom, the sulfur and oxygen atoms [1].

Thiosemicarbazones take a special place among such compounds. They are widely used for the synthesis of nitrogen- and sulfur-containing heterocyclic compounds (thiazoles, thiazines, pyrimidines, etc.) due to the presence of several active reaction centers. Thus, thiosemicarbazone derivatives of 2-pyridinaldehyde show pronounced antiviral, anticancer and antibacterial properties, and thiosemicarbazones of methylglyoxal are known as carcinostatics [2].

The wide-spread and simple method of obtaining thiosemicarbazones is the interaction of thiosemicarbazides with various carbonyl compounds.

In order to synthesize new substituted thiosemicarbazone derivatives, diethylaminopropylamine was reacted with carbon disulfide in ethanol medium to obtain the dithiocarbamate salt of the above-named amine, which was further converted to N-substituted thiosemicarbazide by the reaction with hydrazine.

Thiosemicarbazide obtained in this way was reacted with *p*-aminobenzaldehyde. As a result of this reaction a previously unknown thiosemicarbazone was synthesized. The reaction was carried out in ethanol medium. A mixture of thiosemicarbazide and aldehyde with the addition of a few drops of piperidine was heated on a water bath. The reaction was monitored by TLC. The yield of the product was 82%. The product was purified by recrystallization from ethanol.

References:

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