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LETTERS
TO THE EDITOR

Reactions of Dimethylhydrazones with Diarylphosphorous Acids

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As has been shown earlier [1], the reaction between phosphorous acids and hydrazones obtained from dimethylhydrazine and aromatic aldehydes proceeds ambiguously. The majority of the reactions studied results in the formation of salts through phosphorous acids dealkylation. However, diarylphosphorous acids are known to be not prone to dealkylation at the action of a base.

In this connection reaction of dimethylhydrazones with diphenyl- and dicresylphosphorous acids was of interest for studying. For this purpose the acetophenone dimethylhydrazone was obtained by reaction of acetophenone with 1,1-dimethylhydrazine The constants of the prepared hydrazone coincided with the published data [2]. Additionally to these data, in the IR spectrum of hydrazone absorption bands were observed at ν 1500; 740, 1520, 1600 cm^{-1} belonging to the vibrations of C=N group and aromatic ring.

Reaction of acetophenone dimethylhydrazone with diphenylphosphorous acid was carried out at 60°C under stirring for 10 h. As a result, the white crystalline product was isolated, melting point of which was equal to 134–136°C after the reprecipitation from acetone into water and drying in a vacuum dessicator over phosphorus pentaoxide. In the ^{31}P NMR spectrum there is a signal at δ_P 16.9 ppm attesting that the compound is of phosphonate structure. The IR spectrum contains characteristic absorption bands at 1280, 3300–3400 cm^{-1} originating from P=O and NH groups respectively. These data allows to assign to the newly isolated product the structure of diphenyl ester of (1-phenyl-1-dimethylhydrazo)ethylphosphonic acid. Yield 29.3%.

Dicresyl (1-phenyl-1-dimethylhydrazo)phosphonate was obtained by reaction of acetophenone with dicresylphosphorous acid under the similar conditions. In the ^{31}P NMR spectrum signal at δ_P 16.2 ppm was observed. In the IR spectrum absorption bands in the range 1285, 3300–3400 cm^{-1} correspond to vibrations of P=O and NH groups respectively and confirm the phosphonate structure of this product.

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