Synthesis of amino derivatives pyrano[3,4-c]pyridines and investigation of azido – tetrazole tautomerism in this system

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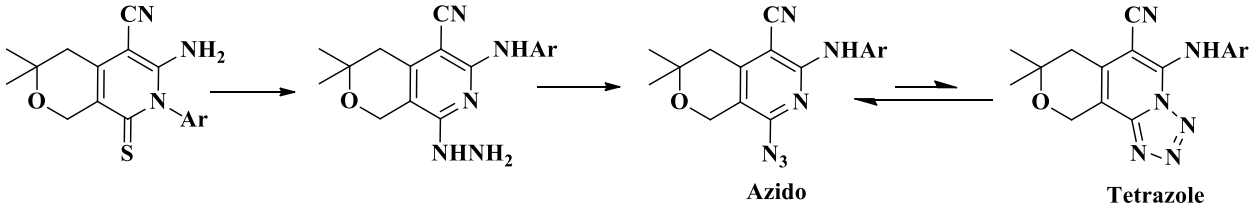
Pyranopyridines constitute an important class of heterocyclic compounds which exhibit interesting biological properties [1-4]. In continuation of our studies on the synthesis and biological activity of amino-substituted pyrano[3,4-c]pyridines, herein we report the synthesis of 8-azido(hydrazino)-6-aminoderivatives of pyrano[3,4-c]pyridine.

The reaction of 6-amino derivatives pyrano[3,4-c]pyridine-8-thiones with hydrazine hydrate, occurring accompanied by a rearrangement, afforded 8-hydrazino-substituted pyrano[3,4-c]pyridines. With the aim of obtained derivatives of pyrano[3,4-c]tetrazolo[1,5-a]pyridines hydrazino-substituted pyranopyridines were treated with sodium nitrite in acetic acid at 0–5°C. As a result of reaction, sinthesized compounds in the solid state were identified as azido derivatives.



Dependency of azido-tetrazole equilibrium on solvent, temperature and character of substitutes has been also studied. The fraction of tautomer **T** in weakly polar $CDCl_3$ ranged from 3 to 15%, depending on the substituent in the benzene ring. The isomer ratio did not change in going to DMSO-d_6–CCl_4 (1:3), whereas in DMSO-d_6 the fraction of tetrazole tautomer increased to 22–48%. The study of azido-tetrazole equilibrium on temperature showed, that the temperature rise is followed by azide form quantity increase in solution DMSO-d_6, it means, that transfer of tetrazole into azido is an endothermic process. In the investigation of antimicrobial activity, some compounds with moderate antimicrobial activity were detected.

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