Synthesis of a benzimidazole derivative of N-glucosylamine

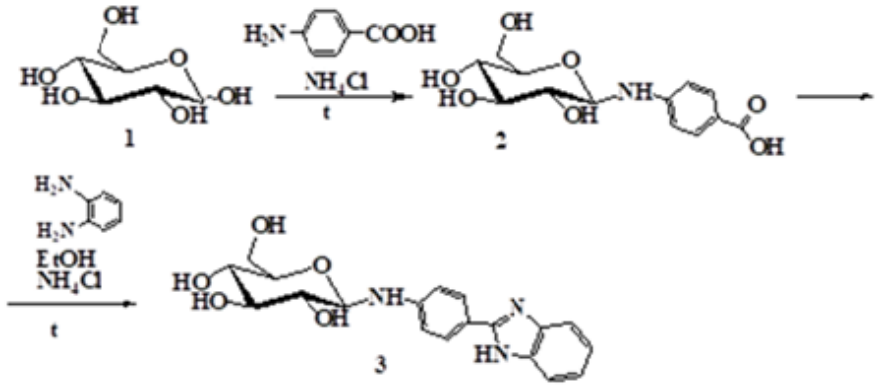
luka papidze

E-mail: luka.papidze289@ens.tsu.edu.ge
Department of Chemistry, Faculty of Exact and Natural Sciences
Ivane Javakhishvili Tbilisi State University
3, I. Chavchavadze Avenue, Tbilisi, 0179, Georgia

Benzimidazole and its derivatives, as well as condensed systems based on them, exhibit various types of biological activity, including immunotropic, antitumor, anti-inflammatory, antiviral, and other activities.

The aim of our bachelor's thesis was to synthesize the benzimidazole derivative of N-glucosylamine and to determine the potential of its possible biological activity.

N-(4-carboxyphenyl)-β-D-glucopyranosylamine was synthesized from D-glucose and 4-aminobenzoic acid by refluxing in ethanol in the presence of a NH_4Cl catalyst at the first stage. By interaction of N-glucosylamine 2 with o-phenylenediamine in the presence of a catalytic amount of NH_4Cl, N-[4-(benzimidazol-2-yl)phenyl-β-D-glucopyranosylamine (3) was synthesized. The Reactions proceeds according to the following scheme:



The structures of obtainedcompounds were establishedbyphysical-chemicalmethods ofanalysis.With the help of computer program PASS Onlainis based on the analysis of structure activity-relationships wide range of possible biological activity and toxic / side effects for synthesized N-[4-(benzimidazol-2-yl)phenyl-β-D-glucopyranosylamine (3) has been determined.