

A n n o t a t i o n

Mariam Archvadze

Synthesis and biological research of new types of carbohydrate derivatives

Department of Chemistry, Iv. Javakhishvili Tbilisi State University

Ilia Chavchavadze Ave. 3

In the Educational and Research Laboratory of Bioorganic Chemistry, chlorosilylation reactions of acetylated allylglucose derivatives with triphenylchlorosilane and triphenylchloromethane were carried out. Benzoyl peroxide and cobalt octacarbonyl ($\text{Co}_2(\text{CO})_8$) were used as catalysts. It is noteworthy that we used dicumyl peroxide as a catalyst for the first time.

New silicon-containing O-glycoside derivatives were synthesized, namely 1-O-(2-chloro-3-triphenylsilylpropyl)-2,3,4,6-tetra-O-acetyl- β -D-glucopyranose, 1-O-(2-chloro-3-trimethylsilylpropyl)-2,3,4,6-tetra-O-acetyl- β -D-glucopyranose, 1-O-(2-chloro-3-triphenylmethyl)propyl-2,3,4,6-tetra-O-acetyl- β -D-glucopyranose, 1-O-(2-chloro-3-triphenylsilylpropyl)-2,3,4,6-tetra-O-acetyl- β -D-galactopyranose, 1-O-(2-chloro-3-trimethylsilylpropyl)-2,3,4,6-tetra-O-acetyl- β -D-galactopyranose and 1-O-(2-chloro-3-triphenylmethylpropyl)-2,3,4,6-tetra-O-acetyl- β -D-galactopyranose.

The structure and composition of the obtained products were confirmed on the Basis of melting temperature (m.p), displacement coefficient (R_f), specific rotation ($[\alpha]_D^{25}$), IR, ^1H NMR and ^{13}C NMR spectral data

The effect of the corresponding silyl derivatives of carbohydrates on the growth and development of microorganisms was investigated. The potential biological and pharmacological activity profiles of the synthesized compounds were evaluated using the PASS (Prediction of Activity Spectra for Substances) Online computational program. This software enables the prediction of possible biological activities resulting from structural modifications within selected models, as well as the changes induced by such substitutions.