Riga Technical University
Faculty of Material Science and Applied Chemistry

ABSTRACTS

of the
52nd International Scientific Conference
of Riga Technical University

Section:
Material Science and Applied Chemistry
October 13–15, 2011, Riga, Latvia

RTU Publishing House
Riga 2011

Efficient Technology Towards Glucose-Based Spiro-Oxazolidinones

Vitalijs Rodins, Evija Rolava, Pavels Ostrovskis, Jevgenija Luginina, Maris Turks, *Riga Technical University,* Sergey Belyakov, *Latvian Institute of Organic Synthesis*

The synthesis of structurally modified spironucleosides has been developing as an important area of research due to the pharmaceutical importance of these compounds.[1] Moreover, the use of carbohydrates has spread for its low price and easy availability in scientific and industrial applications.

The starting material to prepare glucose – based spiro-oxazolidinones and its derivates is 1,2:5,6-di-*O*-isopropylidene-α-D-glucose **1**. Oxidation of the latter followed by Henry reaction produces diastereomeric mixture of **3a** and **3b.** The next step is reduction of nitro compounds to amines by catalytic hydrogenation over palladium-on-carbon.

The present large scale method is based on the spiro-oxazolidinone formation using "Carbamate method" where amino alcohols **4a** and **4b** are used as starting materials.[2]

In order to obtain the oxazolidinone **6** as intermediate reaction we use Moffatt dehydration-rehydration sequence. The improved procedure for synthesis of compound **6** will be discussed.

1. Roy, A.; Achari, B.; Mandal, S. B. An easy access to spiroannulated glyco-oxetane, -thietane and -azetane rings: synthesis of spironucleosides. *Tetrahedron Lett.* **2006**, *47*, 3875-3879.
2. Gasch, C.; Illangua, J. M.; Merino-Montiel, P.; Fuentes, J. Stereocontrolled synthesis of (5+5), (5+6) and (6+6) 3- spiropseudonucleosides. Tetrahedron **2009**, 65, 4149-4155.

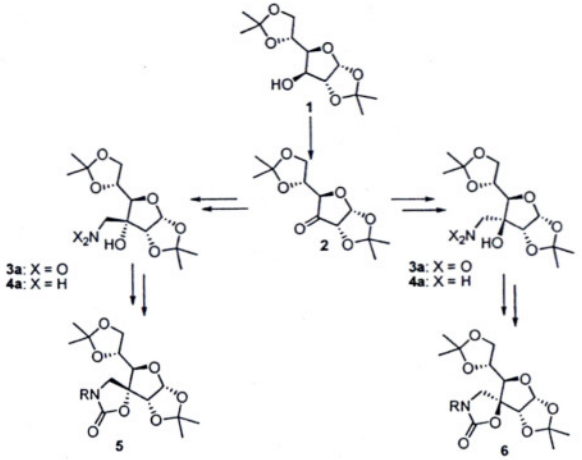

Fig.1 Synthesis of 3-spiro-oxazolidinones.