

Marseille, France - July 7 - 12, 2013
Esoc 2013

18th European Symposium on Organic Chemistry

POSTERS – SESSION 2





Michael addition - 1,3-dipolar cycloaddition reaction as an easy entry to artificial oligosaccharides

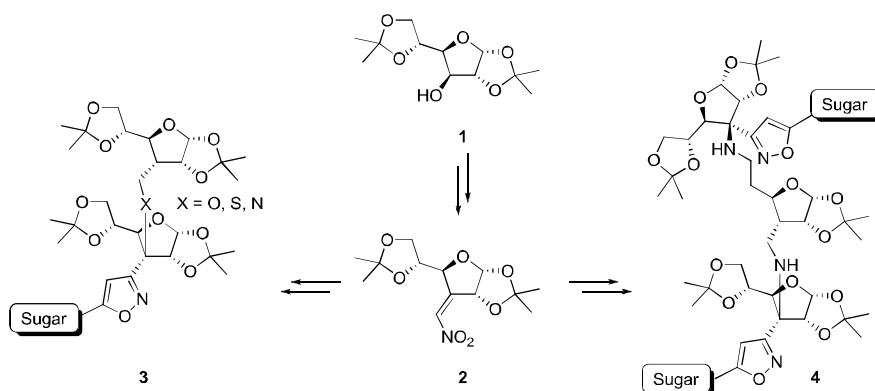
Jevgenija Luginina[a], Vitālijs Rjabovs[a], Sergey Belyakov[b], Māris Turks[a]

[a]Faculty of Material Science and Applied Chemistry, Riga Technical University, 14/24 Azenes Str., Riga, LV-1007, LATVIA
[b]Latvian Institute of Organic Synthesis, 21 Aizkraukles Str., Riga, LV-1006, LATVIA

Email: maris_turks@ktf.rtu.lv

Isoxazoles are recognized as versatile structural elements in biologically active substances.¹ They are often used as linkers between different pharmacophores. Isoxazoles have found their way in carbohydrate chemistry together with triazoles which are other prominent azole congeners of the former.² Here we report a novel approach for a synthesis of sugar clusters which is based on Michael addition/1,3-dipolar cycloaddition reaction sequence.

We have used diacetone- α -D-glucose **1** as a starting material to prepare different products of nucleophilic addition. Oxidation of **1** followed by Henry reaction with nitromethane provided diastereomeric mixture of nitroalcohols that were dehydrated to **2** by Moffatt procedure.³



Similarly to diacetone- α -D-glucose derived ketone, key-product **2** accepts nucleophiles selectively from its *si*-face. We have discovered glucose-derived nitroalkene **2** as a suitable structural motif which is capable to link a molecule possessing nucleophilic center and a molecule possessing terminal alkyne.¹ Using different *O*-, *S*-, *N*- sugar it is possible to build carbohydrate cluster of type **3** and **4**

Acknowledgements: Travel costs and participation fee for this conference are financially supported by ERDF project „ The development of international cooperation, projects and capacities in science and technology at Riga Technical University” Nr.2DP/2.1.1.2.0/10/APIA/VIAA/003.

¹ a) Koufaki, M.; Tsatsaroni, A.; Alexi, X.; Guerrand, H.; Zerva, S.; Alexis, M. N. *Bioorg. Med. Chem.* **2011**, *19*, 4841. b) Kaffy, J.; Pontikis, R.; Carrez, D.; Croisy, A.; Monneret, C.; Florent, J. C. *Bioorg. Med. Chem.* **2006**, *14*, 4067.

² Giguère, D.; Patman, R.; Bellefleur, M. A.; St-Pierre, C.; Sato, S.; Roy, R. *Chem. Commun.* **2006**, 2379.

³ Luginina, J.; Rjabovs, V.; Belyakov, S.; Turks, M. *Carbohydr. Res.* **2012**, *350*, 86.