

NMR STUDIES OF THE RIGID FURANOID RING

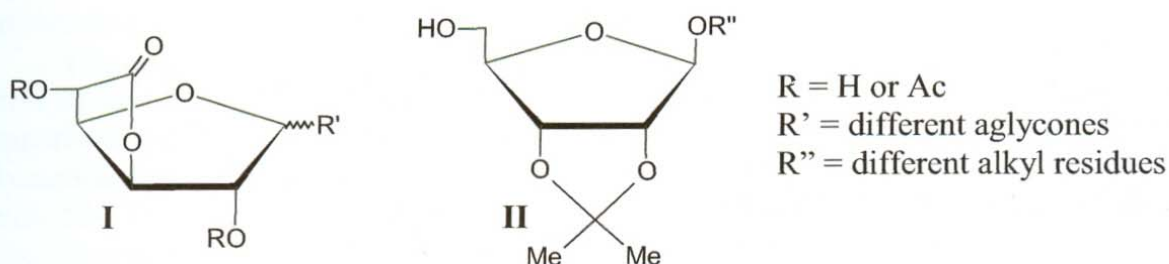
Dominik Walczak, Andrzej Nowacki, Damian Trzybiński, Artur Sikorski and Beata Liberek

University of Gdańsk, Faculty of Chemistry, Gdańsk, Poland

e-mail: domelek@chem.univ.gda.pl

Furanosides have received much less attention than pyranosides as regards the conformational analysis. This is because different conformations of five-membered rings have similar energies, whereas six-membered rings are normally present in a single low-energy chair conformation. Therefore, conformations of pyranosides in solution are easily identified by NMR techniques, which is not the case with furanosides. These are equilibrating rapidly on the NMR scale and averaging of coupling constants occurs. However, when a tetrahydrofuran ring is conformationally restricted by a second skeleton, it is possible to predict its conformation [1,2].

To study conformations of the furanoid ring we synthesized two series of the conformationally restricted furanoses and furanosides. First one consists of D-furano-6,3-lactones and their glycosides (**I**). Second one consists of 2,3-O-isopropylidene-D-ribofuranosides (**II**).



The ^1H NMR spectra of the both groups of furanosides are characteristic and indicative of one specific conformation, respectively. Conformation of *N*-(α -D glucofuranurono-6,3-lactonyl)-*p*-nitroaniline is additionally confirmed by the single-crystal X-ray analysis.

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References:

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