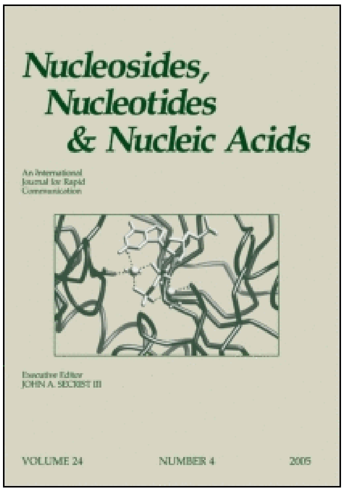

Nucleosides, Nucleotides and Nucleic Acids
Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t713597286

Anomeric Mixtures of *D*-Xylo-and *D*-Lyxo-Furanonucleosides: Correlations between their Structures and their Retention Times in HPLC Analysis

A. Pompon[a]; G. Gosselin[a]; M. C. Bergogne[a]; J. L. Imbach[a]
[a] Laboratoire. de Chimie Bio-Organique, UA du CMRS n° 488, Universite des. Science. et Techniques du Languedoc, Montpellier Cedex, France

To cite this Article Pompon, A. , Gosselin, G. , Bergogne, M. C. and Imbach, J. L.(1987) 'Anomeric Mixtures of *D*-Xylo-and *D*-Lyxo-Furanonucleosides: Correlations between their Structures and their Retention Times in HPLC Analysis', Nucleosides, Nucleotides and Nucleic Acids, 6: 1, 465 — 466

To link to this Article: DOI: 10.1080/07328318708056257

URL: http://dx.doi.org/10.1080/07328318708056257

NUCLEOSIDES & NUCLEOTIDES, 6(1&2), 465-466 (1987)

ANOMERIC MIXTURES OF D-XYLO-AND D-LYXO-FURANONUCLEOSIDES : CORRELATIONS BETWEEN THEIR STRUCTURES AND THEIR RETENTION TIMES IN HPLC ANALYSIS

A. Pompon, G. Gosselin, M.-C. Bergogne and J.-L. Imbach*

Laboratoire de Chimie Bio-Organique, UA du CNRS n° 488,
Université des Sciences et Techniques du Languedoc,
34060 Montpellier Cedex (France).

ABSTRACT. Rationalization of the intrinsic structural factors which can influence retention times of anomeric D-xylo- and lyxofuranonucleoside analogues in reversed-phase high-performance liquid chromatography (HPLC) has been established.

We have previously reported the synthesis and biological evaluation of α and β-D-xylo-[1] and lyxofuranonucleosides[2] of the five naturally occuring nucleic acid bases as chemotherapeutically active agents. Here we present recent results[3] concerning the HPLC analysis of reconstituted mixtures of these nucleoside analogues.

From a detailed study of various parameters (size of support particules, nature and pH of the mobile phase, temperature) we have been able to establish optimized separation conditions, using a Waters Assoc. instrument.

Thus the resolution of the twenty derivatives in the D-xylo- and D-lyxose series is optimum on a Radial-Pak C_{18}-5 µm column (100 x 8 mm ID, in RCM 100), at 17.5°C, with the following program : first isocratic eluent (solvent A : 0.1M sodium phosphate buffer, pH 4.73) during 12 mn.;

then linear gradient from solvent A to 80 % solvent A - 20% solvent B (solvent B : mixture water-methanol, 1/1, v/v) during 38 mn.

We found that : i) for a same base and anomery, all lyxo- derivatives eluted before their xylo-isomers ; and in each xylo- and lyxo-series : ii) α-anomer is eluted before the β-anomer for a given base ; iii) the elution order was always C < U < G < T < A.

From this study, a rationalization in term of the contributions due to the natures of base, sugar and anomeric configuration, allowed a comparison between the retention times of all studied compounds.

Utilization of these results should permit the prediction of the best separation conditions for the two other series of D-pentofuranonucleosides (ribo- and arabino-), as well as for various series of nucleoside analogues (with deoxy and halogeno sugar moieties or modified bases).

REFERENCES

1. G. GOSSELIN, M.-C. BERGOGNE, J. DE RUDDER, E. DE CLERCQ and J.-L. IMBACH, J. Med. Chem., 29, 203 (1986).

2. G. GOSSELIN, M.-C. BERGOGNE, J. DE RUDDER, E. DE CLERCQ and J.-L. IMBACH, J. Med. Chem., *in press* (1987).

3. A. POMPON, G. GOSSELIN, M.-C. BERGOGNE and J.-L. IMBACH, J. Chromatogr., *in press* (1987).