# Synthesis of Oxepane Ring Containing Monocyclic, Conformationally Restricted Bicyclic and Spirocyclic Nucleosides from D-Glucose:A Cycloaddition Approach 

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| ppm | 180 | 160 | 140 | 120 | 100 | 80 | 60 | 40 | 20 |
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${ }^{1} \mathrm{H}$ NMR spectrum of 14 in DMSO-d6 $+\mathrm{D}_{2} \mathrm{O}$


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${ }^{13} \mathrm{C}$ NMR spectrum of 17 in $\mathrm{D}_{2} \mathrm{O}$













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${ }^{13} \mathrm{C}$ NMR spectrum of 25 in $\mathrm{D}_{2} \mathrm{O}$



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${ }^{13} \mathrm{C}$ NMR spectrum of 34 in $\mathrm{CDCl}_{3}$S 46

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## ${ }^{1} \mathrm{H}$ NMR spectrum of 35 in $\mathrm{CDCl}_{3}$







${ }^{1} \mathrm{H}-{ }^{1} \mathrm{H}$ COSY spectrum of 35 in $\mathrm{CDCl}_{3}(\delta 2.74-5.80$ vs $\delta 2.74-5.80$ )
$\square$
$\qquad$



NOESY spectrum of 35 in $\mathrm{CDCl}_{3}(\delta 2.74-5.80$ vs $\delta 2.74-5.80)$





















${ }^{13} \mathrm{C}$ NMR spectrum of 41 in $\mathrm{CDCl}_{3}$




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43


## Expanded ${ }^{1} \mathrm{H}$ NMR of $43(\delta 3.58-4.72)$ in $\mathrm{CDCl}_{3}$










${ }^{13} \mathrm{C}$ NMR spectrum of 43 in $\mathrm{CDCl}_{3}$
S 65









$\xrightarrow{8}$

44



| ppm | 8 | 7 | 6 | $\frac{1}{5}$ | 1 | 3 | 2 | 1 | 0 |  |
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${ }^{1} \mathrm{H}$ NMR spectrum of $\mathbf{4 5}$ in $\mathrm{CDCl}_{3}$




${ }^{13} \mathrm{C}$ NMR spectrum of 45 in $\mathrm{CDCl}_{3}$


