Supplementary Material

Synthesis of \( C_2 \)-symmetric carbohydrate-based macrocycles by introduction of methylene/\( p \)-xylene linkers

Nandagopal Hudait,\(^a\) Samuzal Bhuyan,\(^b\) Biswajit Gopal Roy,*\(^b\) and Jhimli Sengupta*\(^a\)

\(^a\)Department of Chemistry, West Bengal State University, Barasat, Kolkata-700126
\(^b\)Department of Chemistry, Sikkim University, Gangtok, Sikkim-737102
Email: jhimli.sengupta@gmail.com; bgroy@cus.ac.in

Table of Contents

1. \(^1\)H NMR (400 MHz, CDCl\(_3\)) of compound \( 2 \)
\(^{13}\)C NMR (100 MHz, Chloroform-d) of compound \( 2 \) .................................................................S2

2. \(^1\)H NMR (400 MHz, CDCl\(_3\)) of compound \( 3 \)
\(^{13}\)C NMR (100 MHz, Chloroform-d) of compound \( 3 \) .................................................................S3

3. \(^1\)H NMR (400 MHz, Chloroform-d) of compound \( 5 \)
\(^{13}\)C NMR (100 MHz, Chloroform-d) of compound \( 5 \) .................................................................S4

4. \(^1\)H NMR (400 MHz, Chloroform-d) of compound CSM-1
\(^{13}\)C NMR (100 MHz, Chloroform-d) of compound CSM-1 ..........................................................S5

5. \(^1\)H NMR (400 MHz, Chloroform-d) of compound CSM-2
\(^{13}\)C NMR (100 MHz, Chloroform-d) of compound CSM-2 ..........................................................S6

6. TOF-MS (US+) of compound CSM-2 .................................................................S7

7. \(^1\)H NMR (400 MHz, Chloroform-d) of compound \( 7 \)
\(^{13}\)C NMR (100 MHz, Chloroform-d) of compound \( 7 \) .................................................................S8

8. \(^1\)H NMR (400 MHz, Chloroform-d) of compound \( 8 \)
\(^{13}\)C NMR (100 MHz, Chloroform-d) of compound \( 8 \) .................................................................S9

9. \(^1\)H NMR (400 MHz, Chloroform-d) of compound \( 10 \)
\(^{13}\)C NMR (100 MHz, Chloroform-d) of compound \( 10 \) .................................................................S10

10. \(^1\)H NMR (400 MHz, Chloroform-d) of compound CSM-3
\(^{13}\)C NMR (100 MHz, Chloroform-d) of compound CSM-3 ..........................................................S11

11. TOF-MS (US+) of compound CSM-3 .................................................................S12

12. \(^1\)H NMR (400 MHz, Chloroform-d) of compound \( 11 \)
\(^{13}\)C NMR (100 MHz, Chloroform-d) of compound \( 11 \) .................................................................S13

13. \(^1\)H NMR (400 MHz, Chloroform-d) of compound CSM-4
\(^{13}\)C NMR (100 MHz, Chloroform-d) of compound CSM-4 ..........................................................S14

14. TOF-MS (US+) of compound CSM-4 .................................................................S15
$^1$H NMR (400 MHz, Chloroform-$d$) of compound 2

$^{13}$C NMR (100 MHz, Chloroform-$d$) of compound 2
$^1$H NMR (400 MHz, Chloroform-$d$) of compound 3

$^{13}$C NMR (100 MHz, Chloroform-$d$) of compound 3
$^1$H NMR (400 MHz, Chloroform-$d$) of compound 5

$^{13}$C NMR (100 MHz, Chloroform-$d$) of compound 5
NMR (400 MHz, Chloroform-d) of compound CSM-1

$^{13}$C NMR (100 MHz, Chloroform-d) of compound CSM-1
\(^1\)H NMR (400 MHz, Chloroform-\(d\)) of compound CSM-2

\(^{13}\)C NMR (100 MHz, Chloroform-\(d\)) of compound CSM-2
TOF-MS (US+) of compound CSM-2. (m/z: [M + Na]^+ Calculated for C_{25}H_{34}O_{10} - 517.2050; Found - 517.2051)
\(^1\)H NMR (400 MHz, CDCl\(_3\)) of compound 7

\(^{13}\)C NMR (100 MHz, CDCl\(_3\)) of compound 7
\(^1\)H NMR (400 MHz, CDCl\(_3\)) of compound 8

\(^{13}\)C NMR (100 MHz, Chloroform-\(d\)) of compound 8
1H NMR (400 MHz, Chloroform-d) of compound 10

13C NMR (100 MHz, Chloroform-d) of compound 10
$^1$H NMR (400 MHz, Chloroform-$d$) of compound CSM-3

$^{13}$C NMR (100 MHz, Chloroform-$d$) of compound CSM-3
TOF-MS (US+) of compound CSM-3. (m/z: [M + Na]+ Calculated for $C_{32}H_{40}O_{10}$ -607.2519; Found-607.2515)
$^1$H NMR (400 MHz, Chloroform-$d$) of compound 11

$^{13}$C NMR (100 MHz, Chloroform-$d$) of compound 11
$^1$H NMR (400 MHz, Chloroform-$d$) of compound CSM-4

$^{13}$C NMR (100 MHz, Chloroform-$d$) of compound CSM-4
TOF-MS (US+) of compound CSM-4. (m/z: [M + Na]^+ Calculated for C_{28}H_{38}O_{10} - 557.2363; Found-557.2374)