Electronic Supplementary Material (ESI) for Green Chemistry.

SUPPLEMENTARY INFORMATION

Methyl Vinyl Glycolate as a Diverse Platform Molecule

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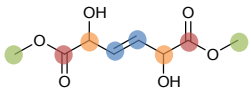
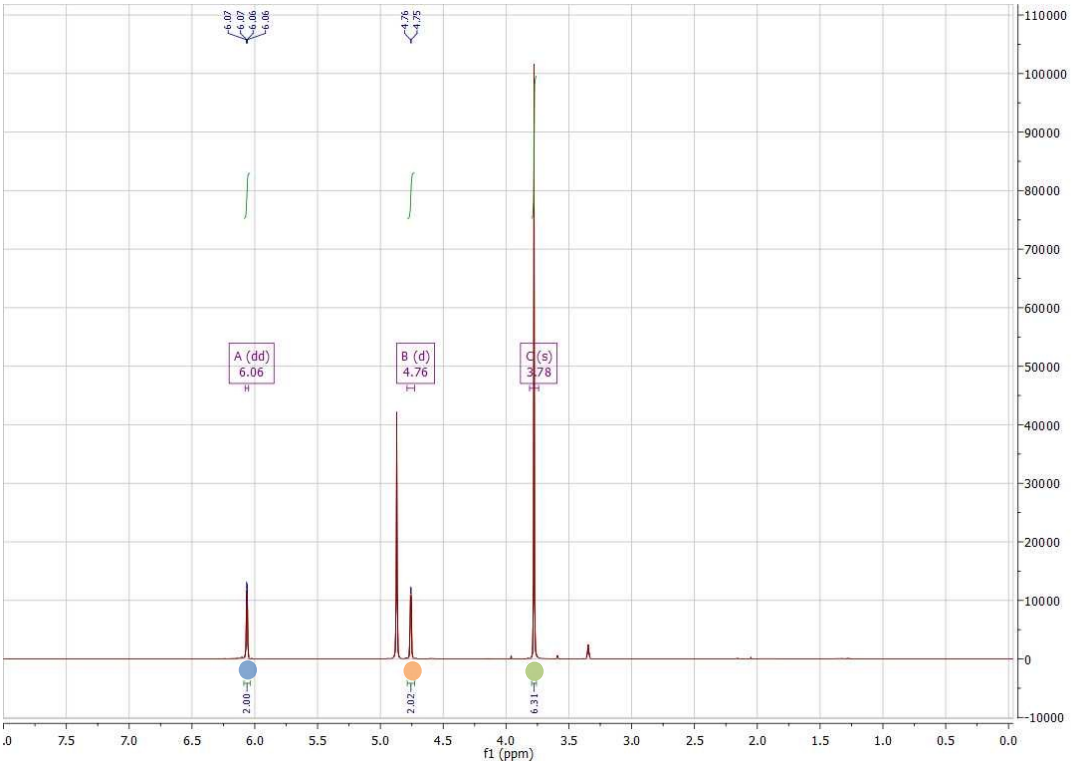
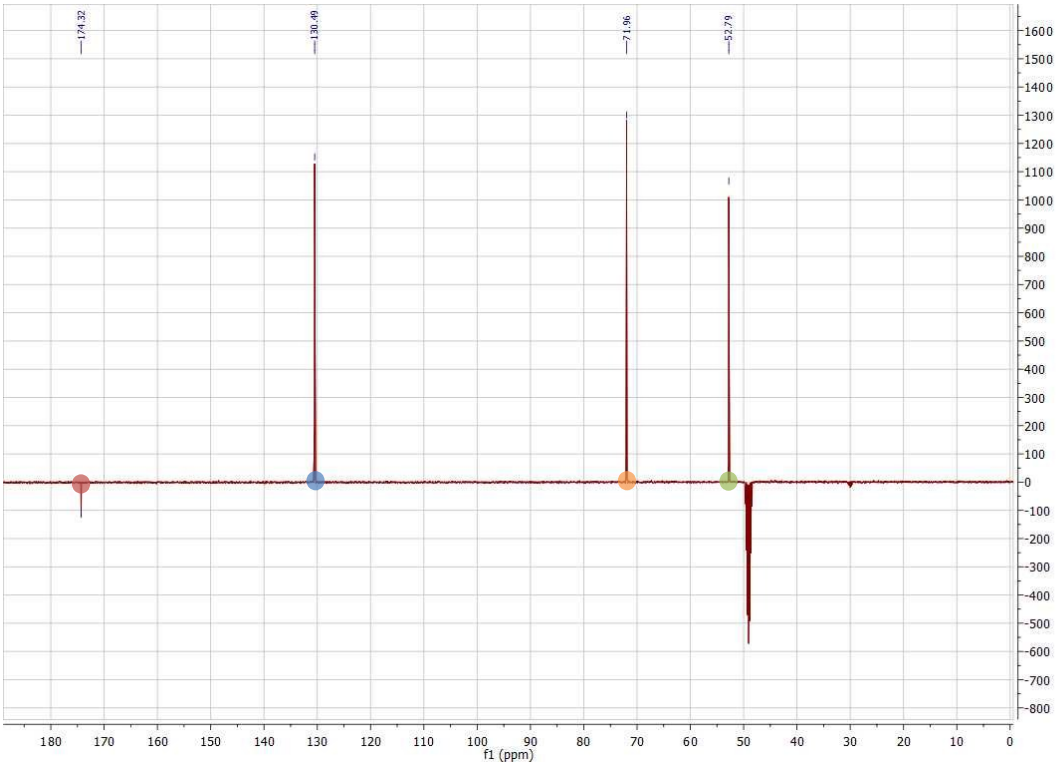
Dimethyl (*E*)-2,5-dihydroxyhex-3-enedioate







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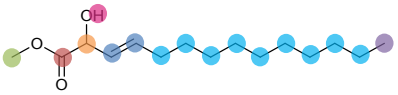

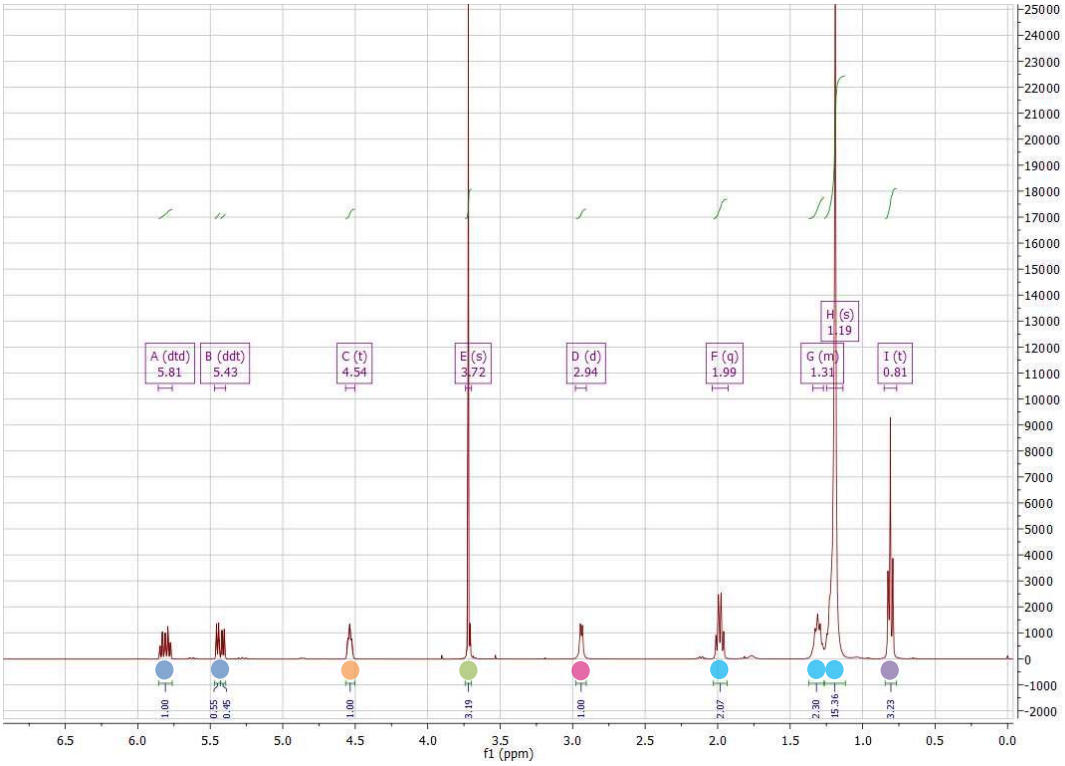

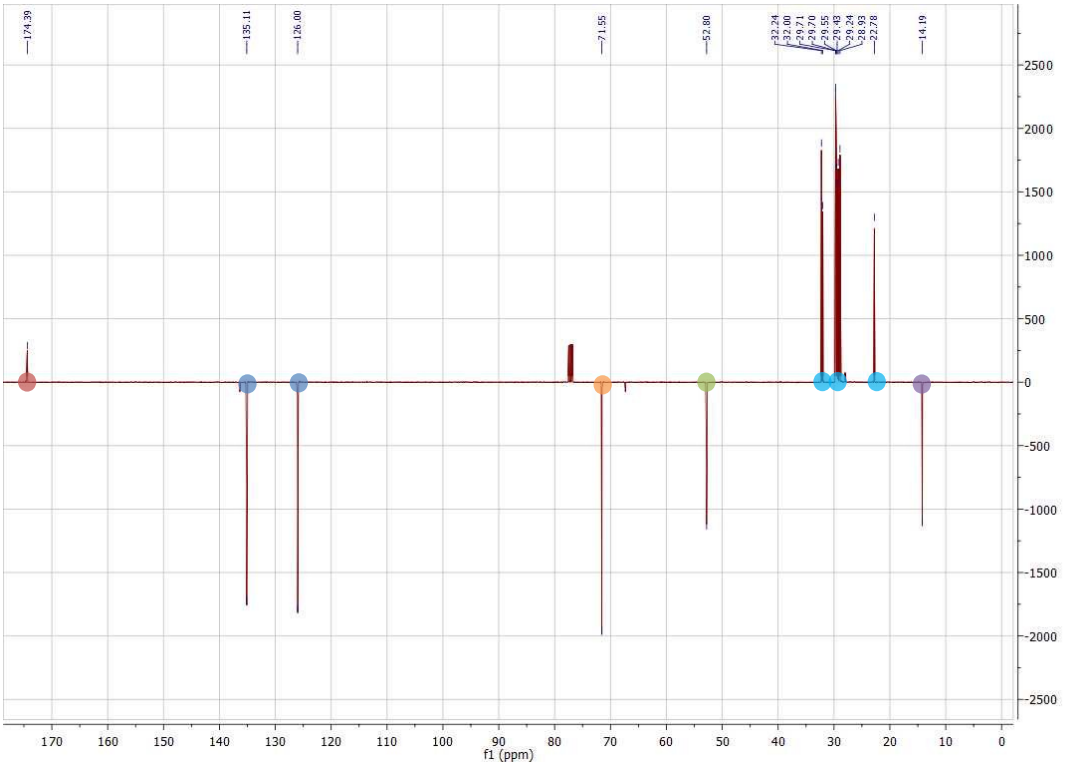

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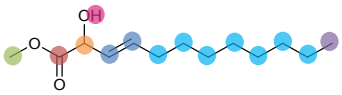

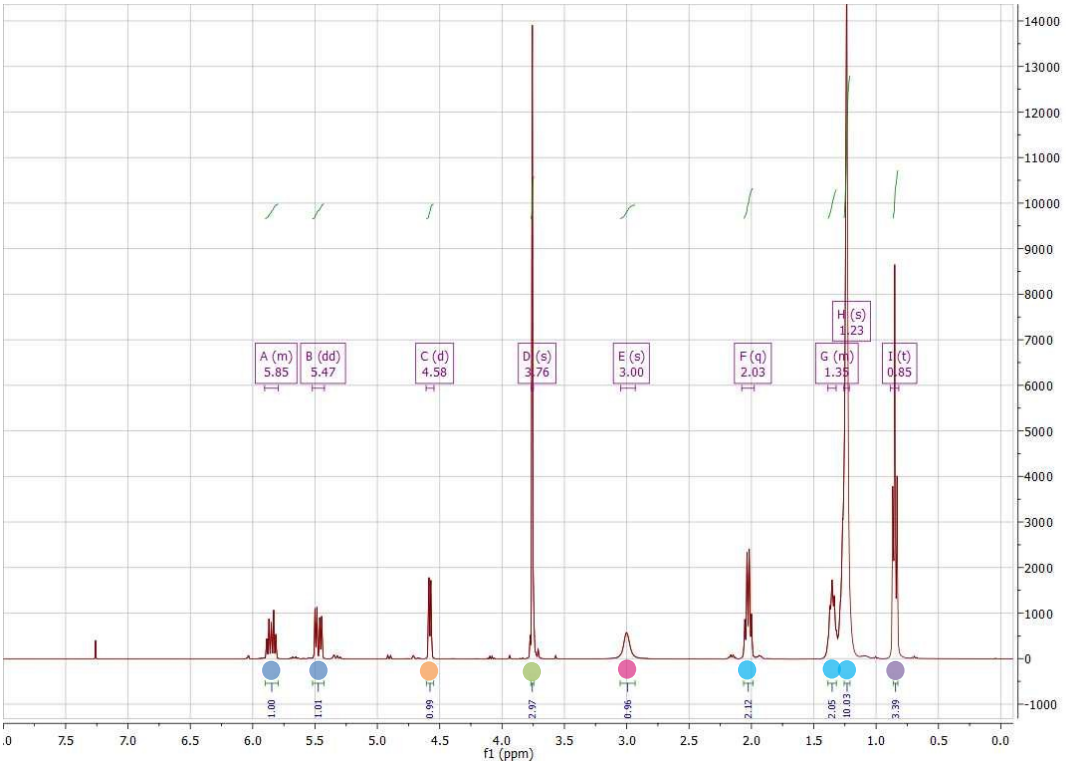

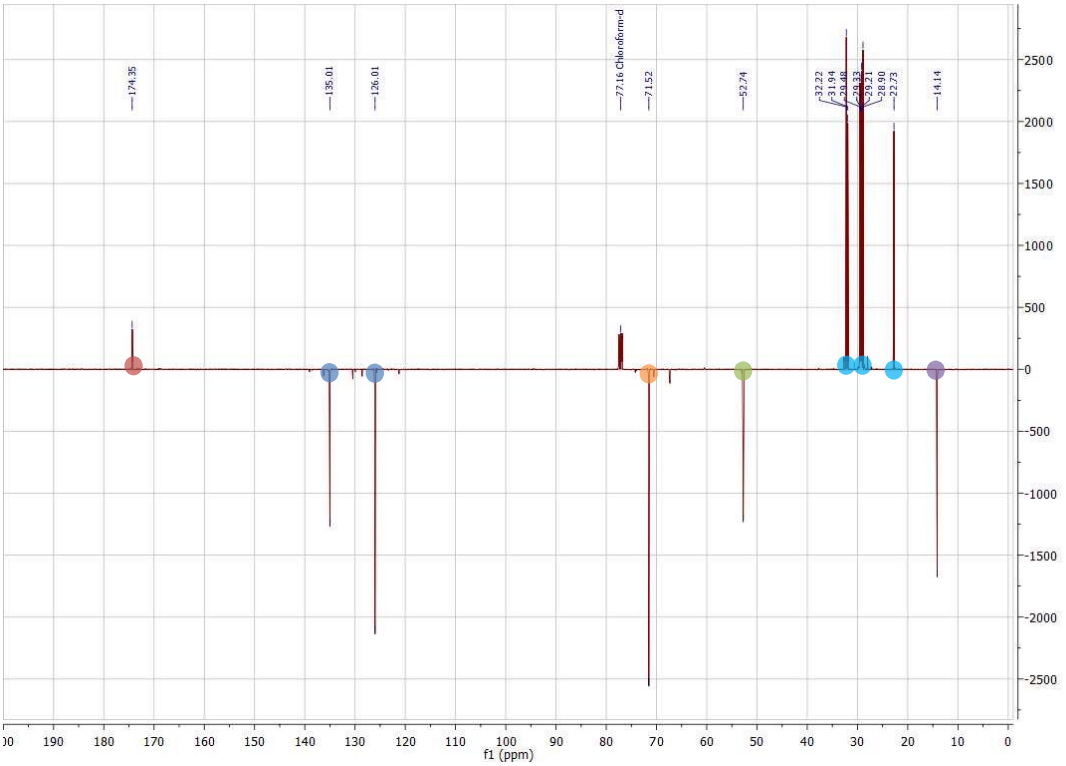

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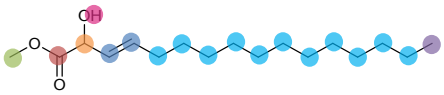

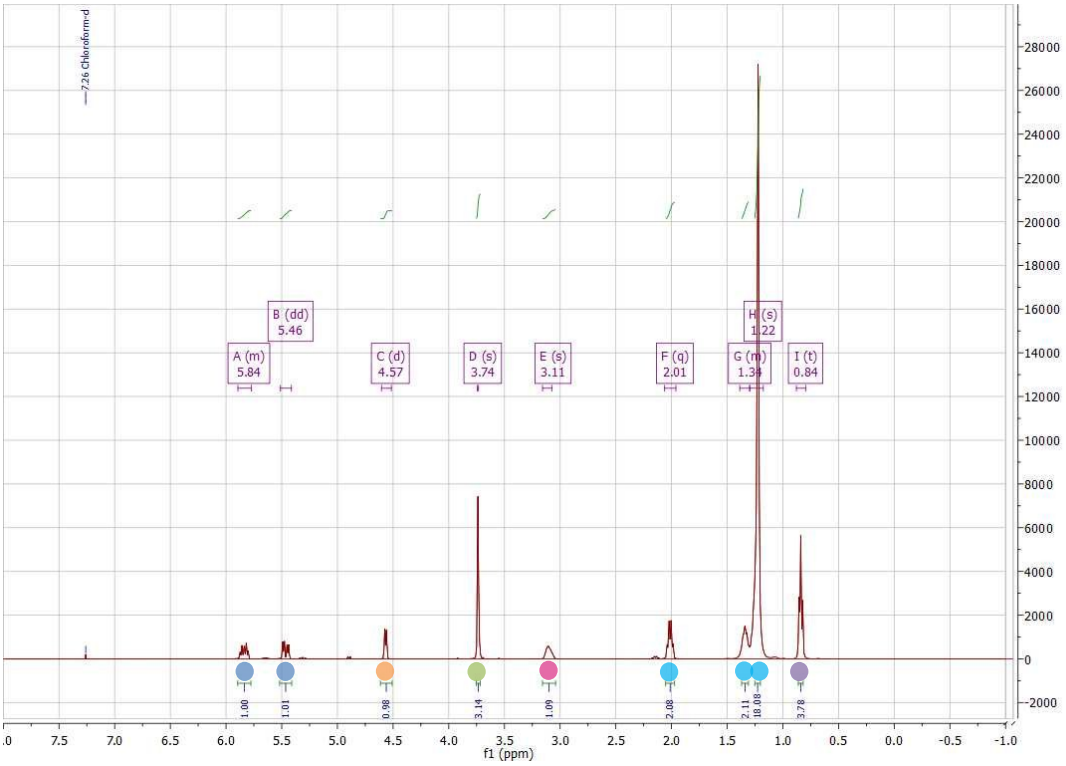

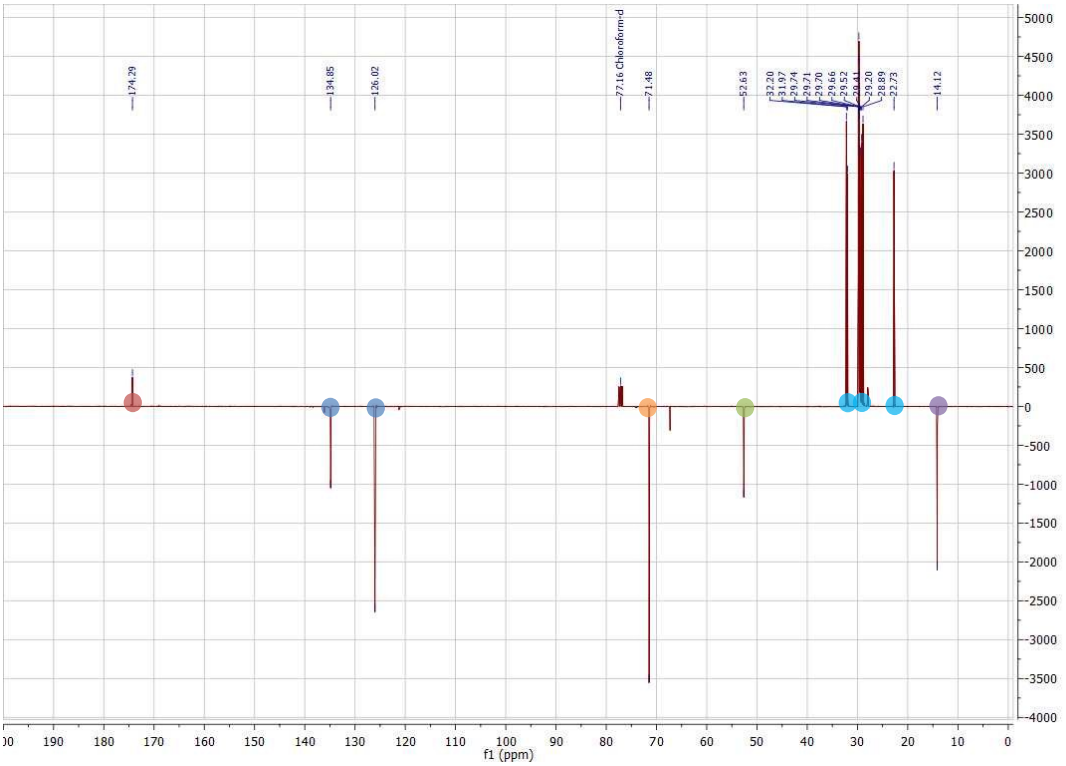

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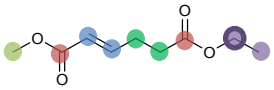

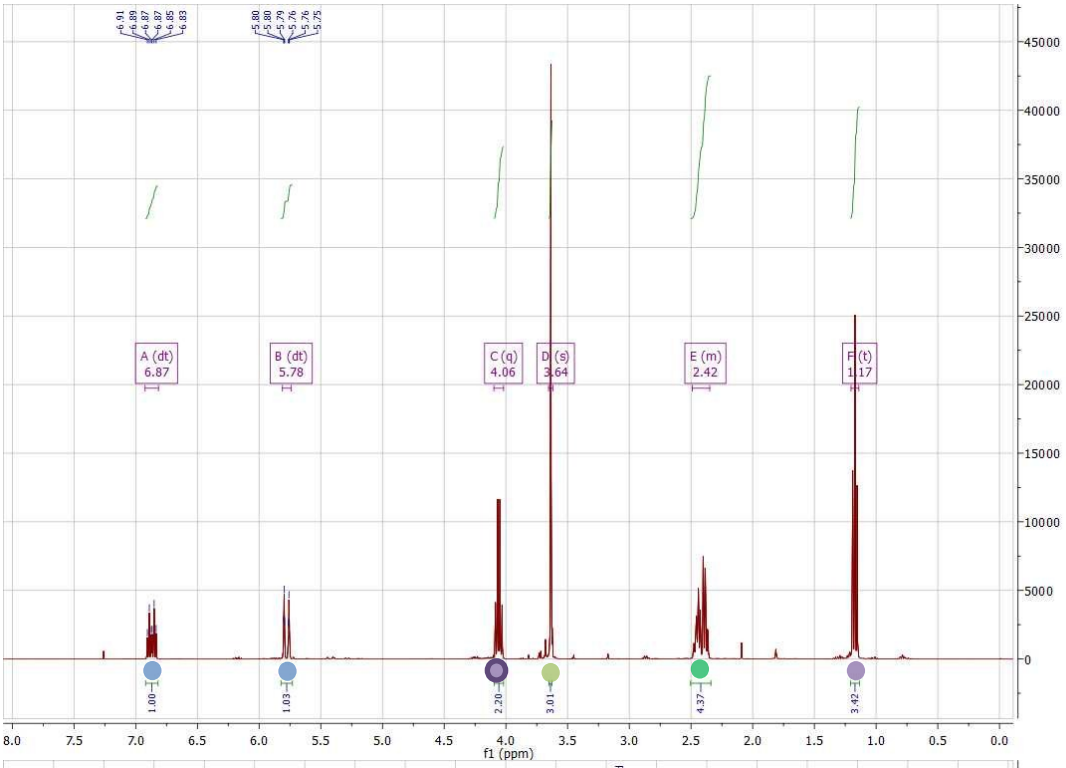

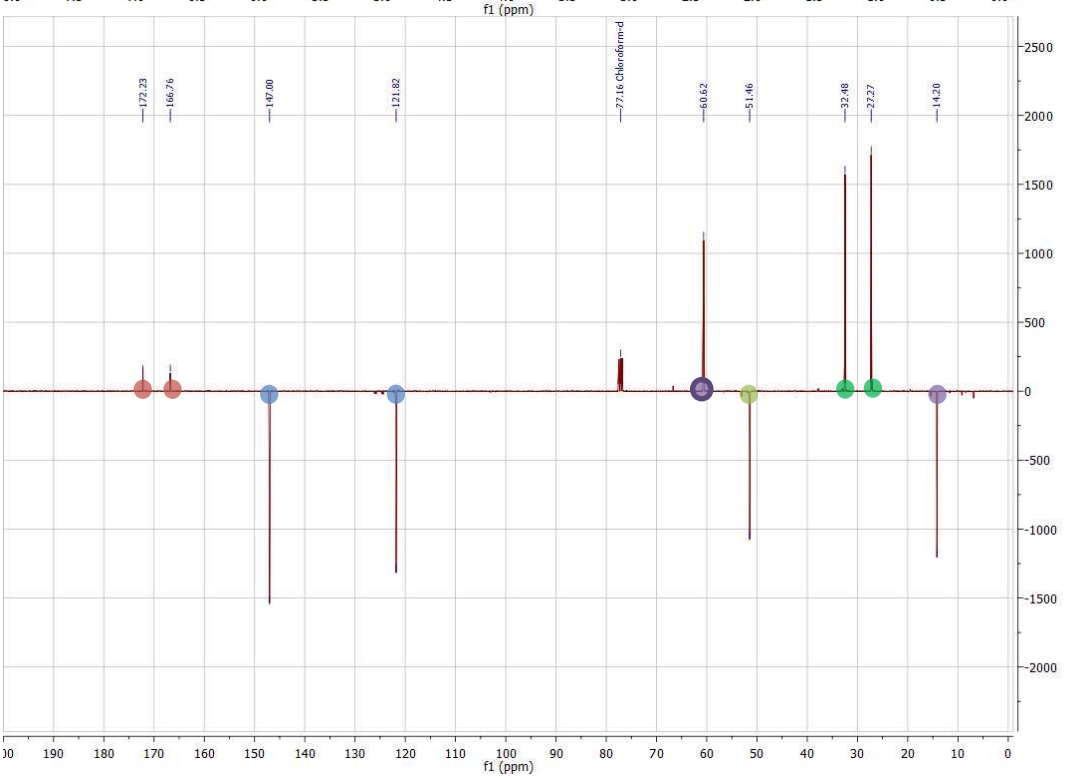

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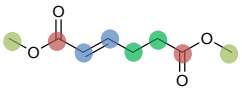
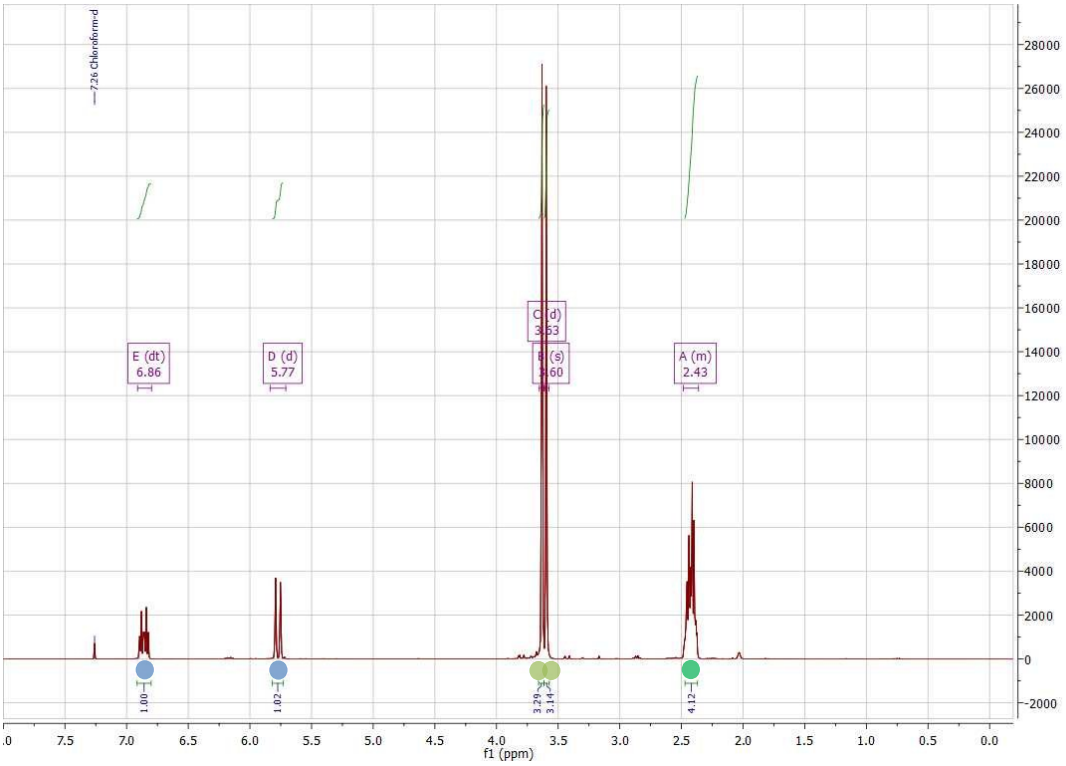
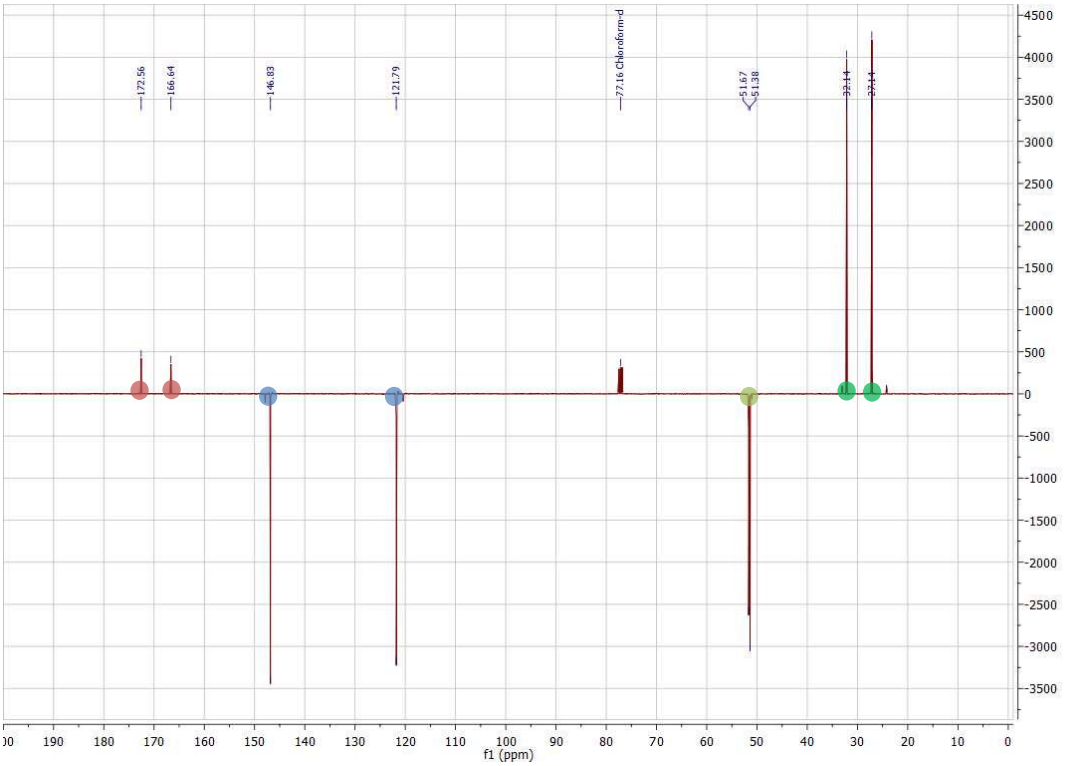
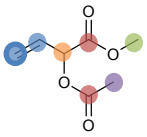
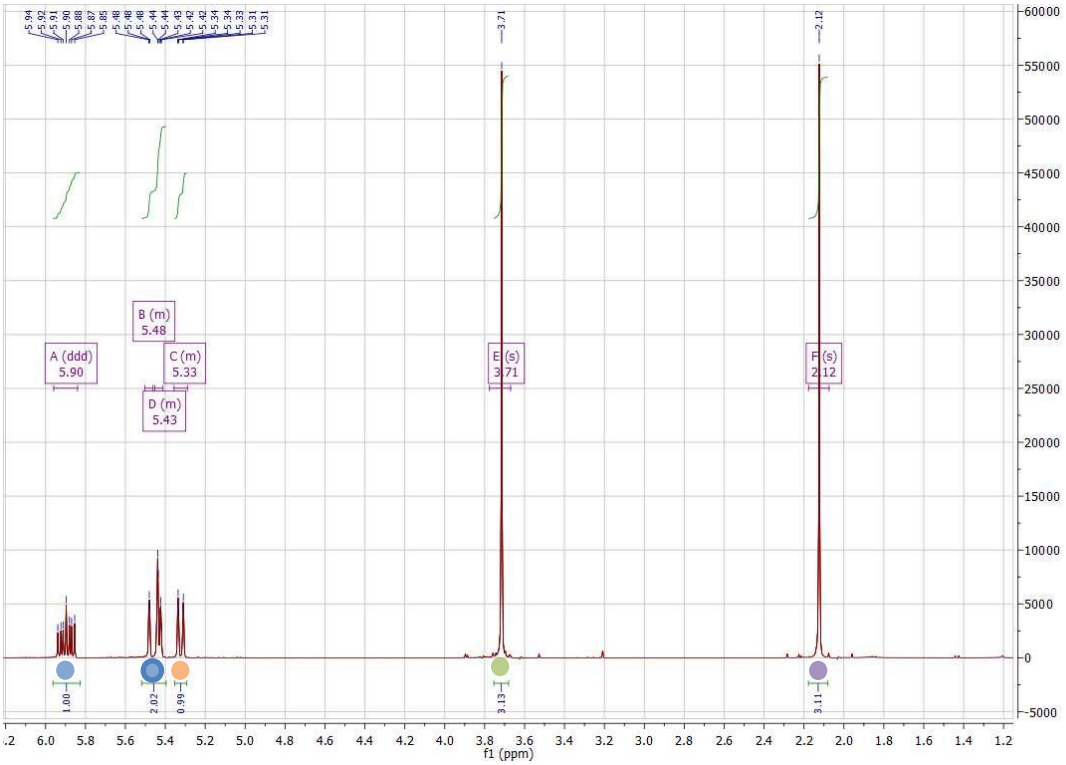


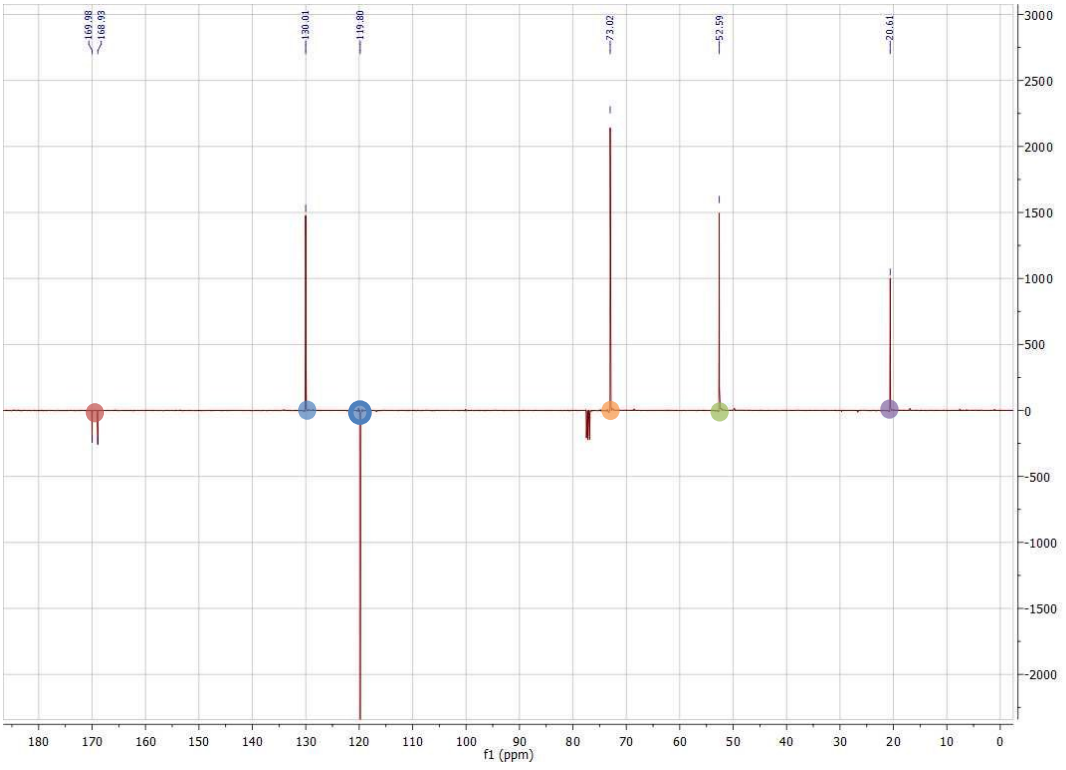




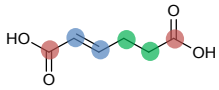
Methyl 2-acetoxybut-3-enoate

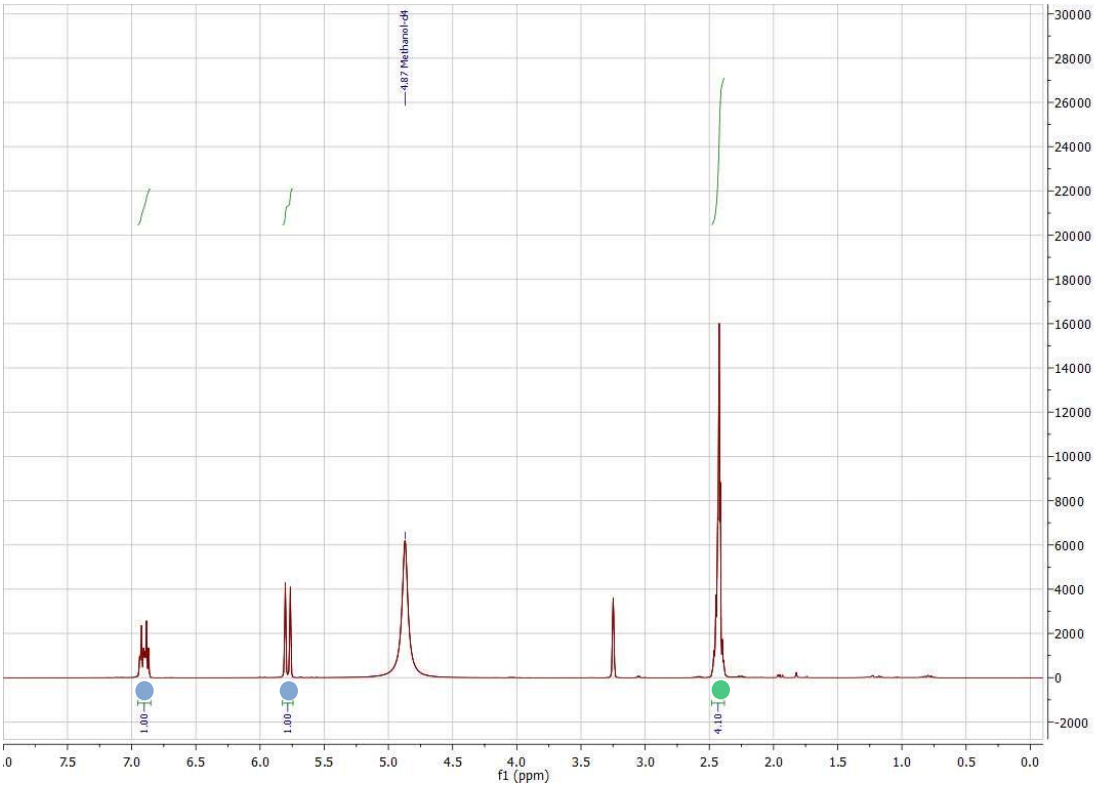


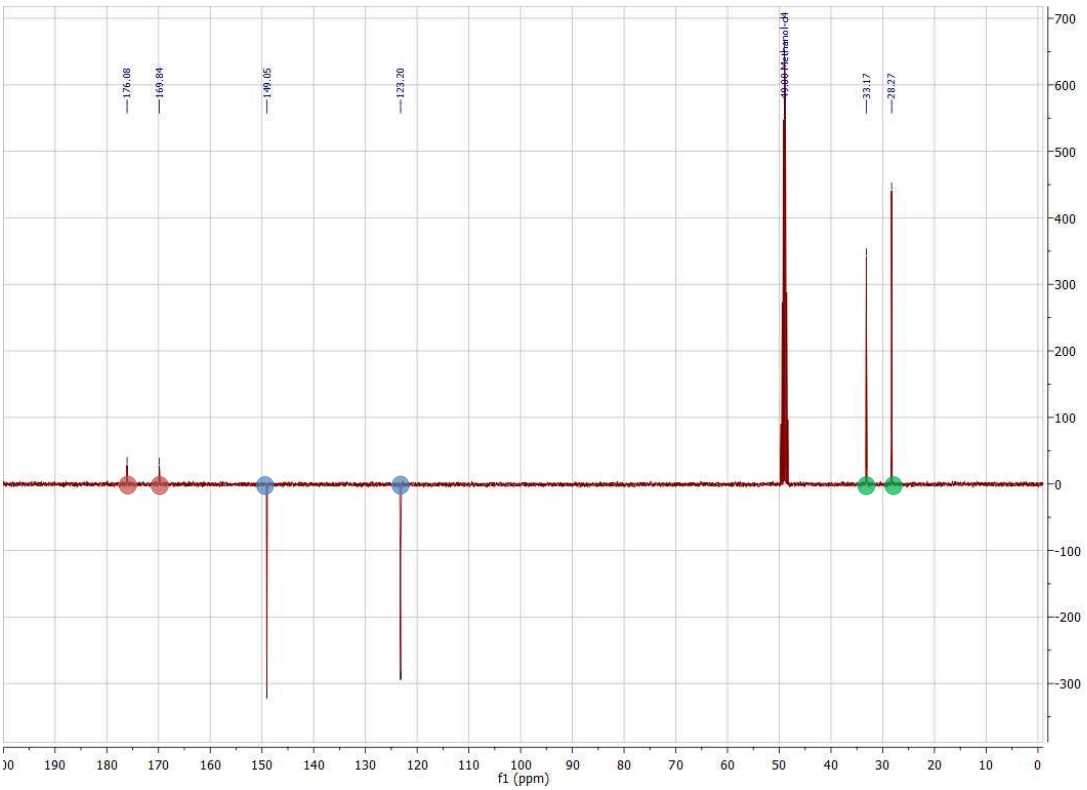




(*E*)-Hex-2-enedioic acid







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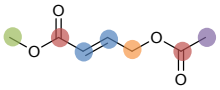

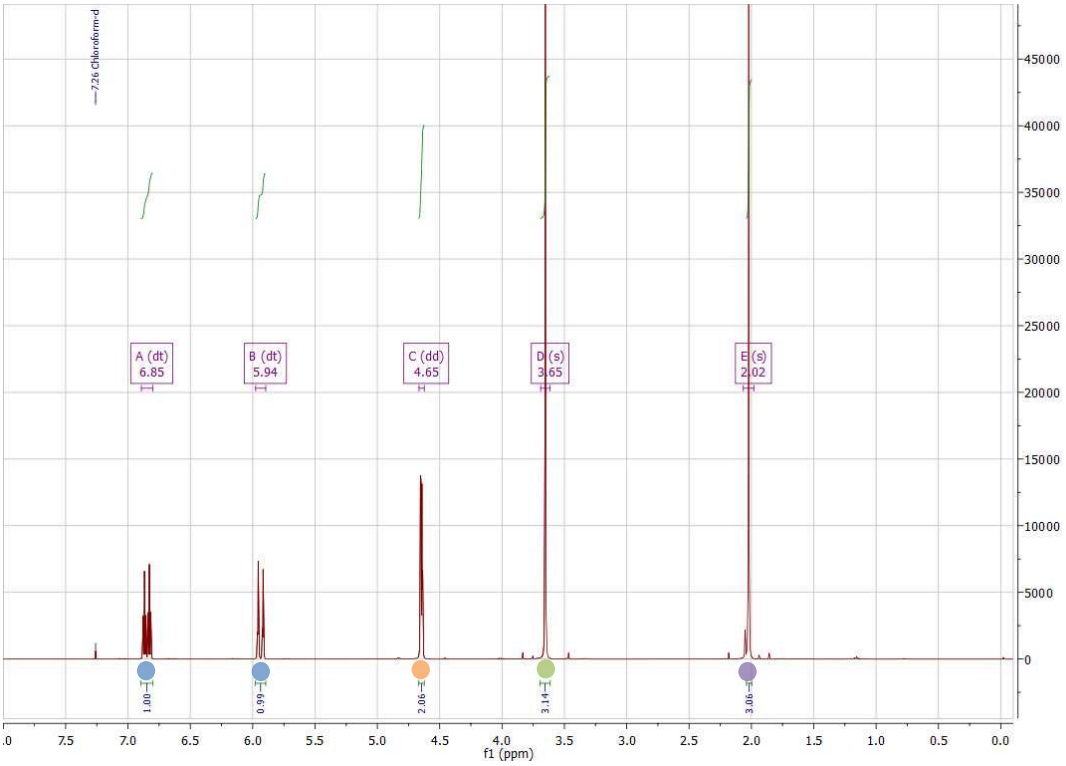

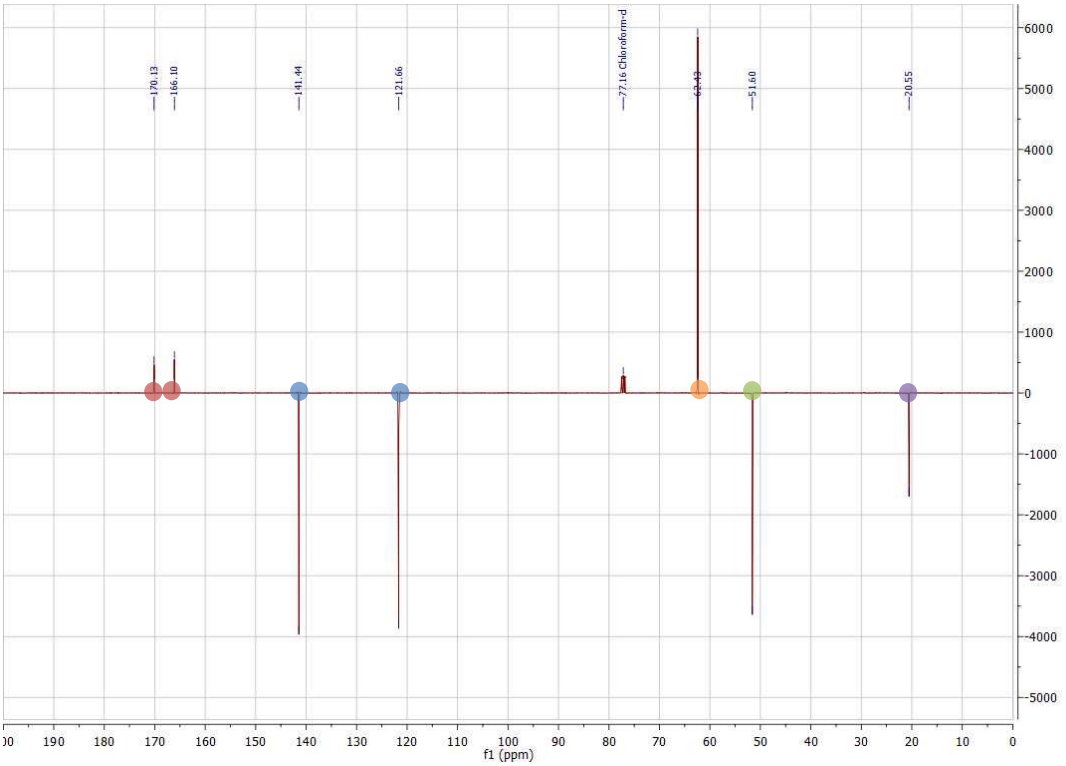

Calculation of ML and MVG yield from corn cobs

1: reducing sugar from corn cobs, ref. 10 (Y. D. Hang, E. E. Woodams, *Lebensm. Wiss. Technol.*, 2001, **34**, 140–142)

1000 kg corn cob dry matter → 550 kg reducing sugars

Xylose	200 kg
Glucose	260 kg
Arabinose	18 kg
Cellobiose	96 kg

2: ML and MVG from xylose, ref. 6b (M. S. Holm, Y. J. Pagán-Torres, S. Saravanamurugan, A. Riisager, J. A. Dumesic, E. Taarning, *Green Chem.*, 2012, **14**, 702–706)

Xylose → ML (42 %) + MVG (7%)

Mw	150.13 g/mol		104.11 g/mol		116.12 g/mol
n	1332 mol		933 mol		117 mol
m	200000 g		97085 g		13536 g

3: ML and MVG from Glucose, ref. 9 (S. Tolborg, S. Meier, I. Sádaba, S. G. Elliot, S. K. Kristensen, S. Shunmugavel, A. Riisager, P. Fristrup, T. Skrydstrup, E. Taarning, *Green Chem.*, 2016, **18**, 3360–3369)

Glucose → ML (48 %) + MVG (18%)

Mw	180.16 g/mol		104.11 g/mol		116.12 g/mol
n	1443 mol		1385 mol		390 mol
m	260000 g		144238 g		45247 g

4: ML and MVG from Arabinose, ref. 6b (M. S. Holm, Y. J. Pagán-Torres, S. Saravanamurugan, A. Riisager, J. A. Dumesic, E. Taarning, *Green Chem.*, 2012, **14**, 702–706)

Arabinose → ML (39 %) + MVG (8%)

Mw	150.13 g/mol		104.11 g/mol		116.12 g/mol
n	120 mol		78 mol		12 mol
m	18000 g		8114 g		1392 g

5: ML and MVG from Cellobiose, ref. 6b (M. S. Holm, Y. J. Pagán-Torres, S. Saravanamurugan, A. Riisager, J. A. Dumesic, E. Taarning, *Green Chem.*, 2012, **14**, 702–706)

Cellobiose → ML (13 %) + MVG (2%)

Mw	342.30 g/mol		104.11 g/mol		116.12 g/mol
n	280 mol		146 mol		17 mol
m	96000 g		15183 g		1954 g

6: Total yield of ML and MVG from corn cob dry matter:

From 1000 kg of corn cob dry matter is obtained: ML: 265 kg MVG: 62 kg