**Aggregation of magnetic nanoparticles functionalized with *trans*-resveratrol in aqueous solution**

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## **Supporting information**

***S1. Silanization of trans-resveratrol***



Figure S1: Transmittance spectra as a function of the wavenumber of the reaction process at 7 hours and 3 days recorded by attenuated total reflection of the infrared spectrometer.



Figure S2: Structure of silanized t*rans*-resveratrol and their numbering of the carbon skeletons: 1, 2, 3 corresponding to the silane derivatives binds covalently to the three, two, and one hydrogen bonding sites of the *trans*-resveratrol molecule, respectively. Arrows show the key C-H correlations on the HMBC of compounds 2 and 3.

***S2. Dynamic light scattering measurement***

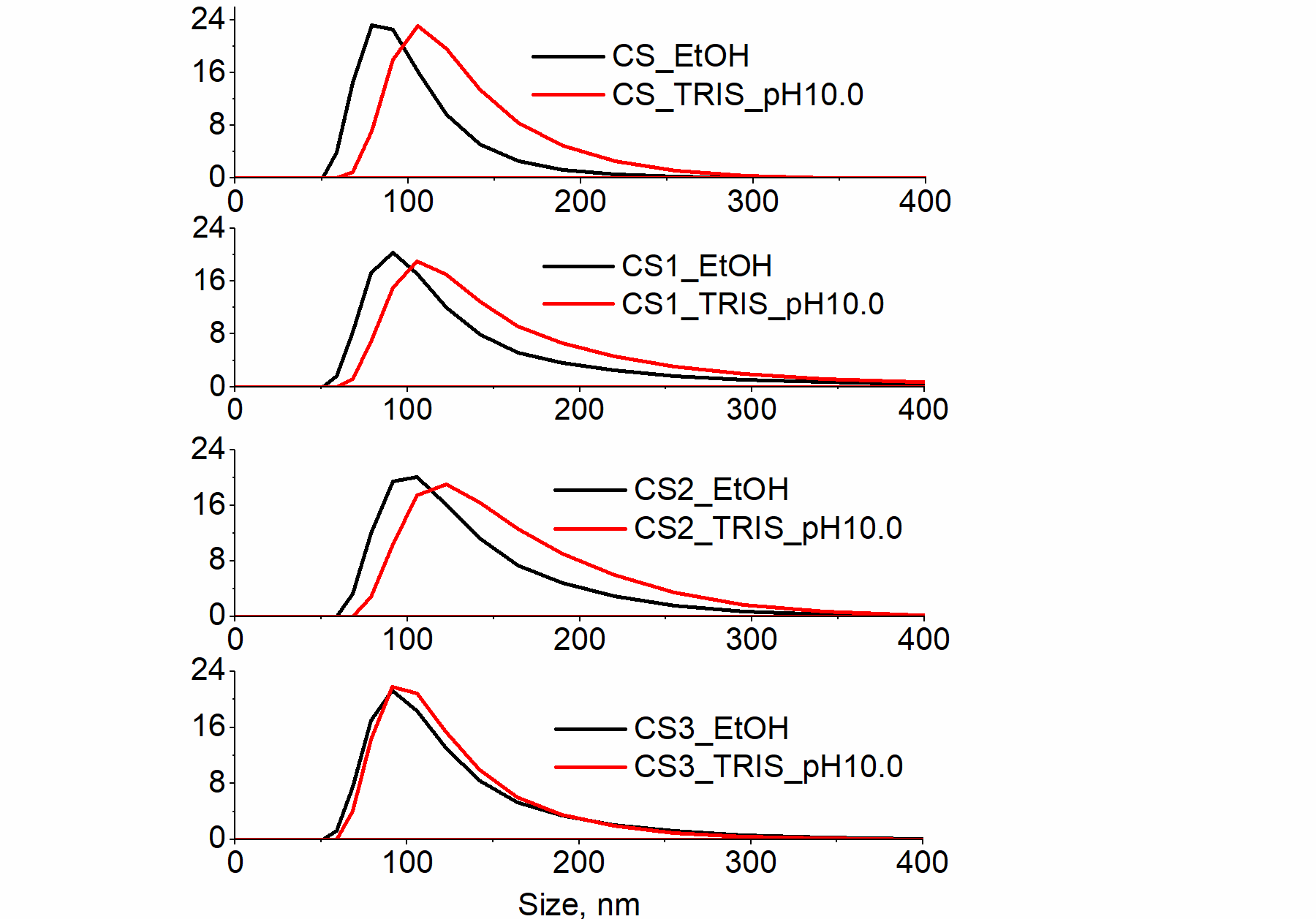


Figure S3: Size distribution of nanoparticles in absolute ethanol and in TRIS buffer at pH 10.0.

*S3. Zeta potential measurement*

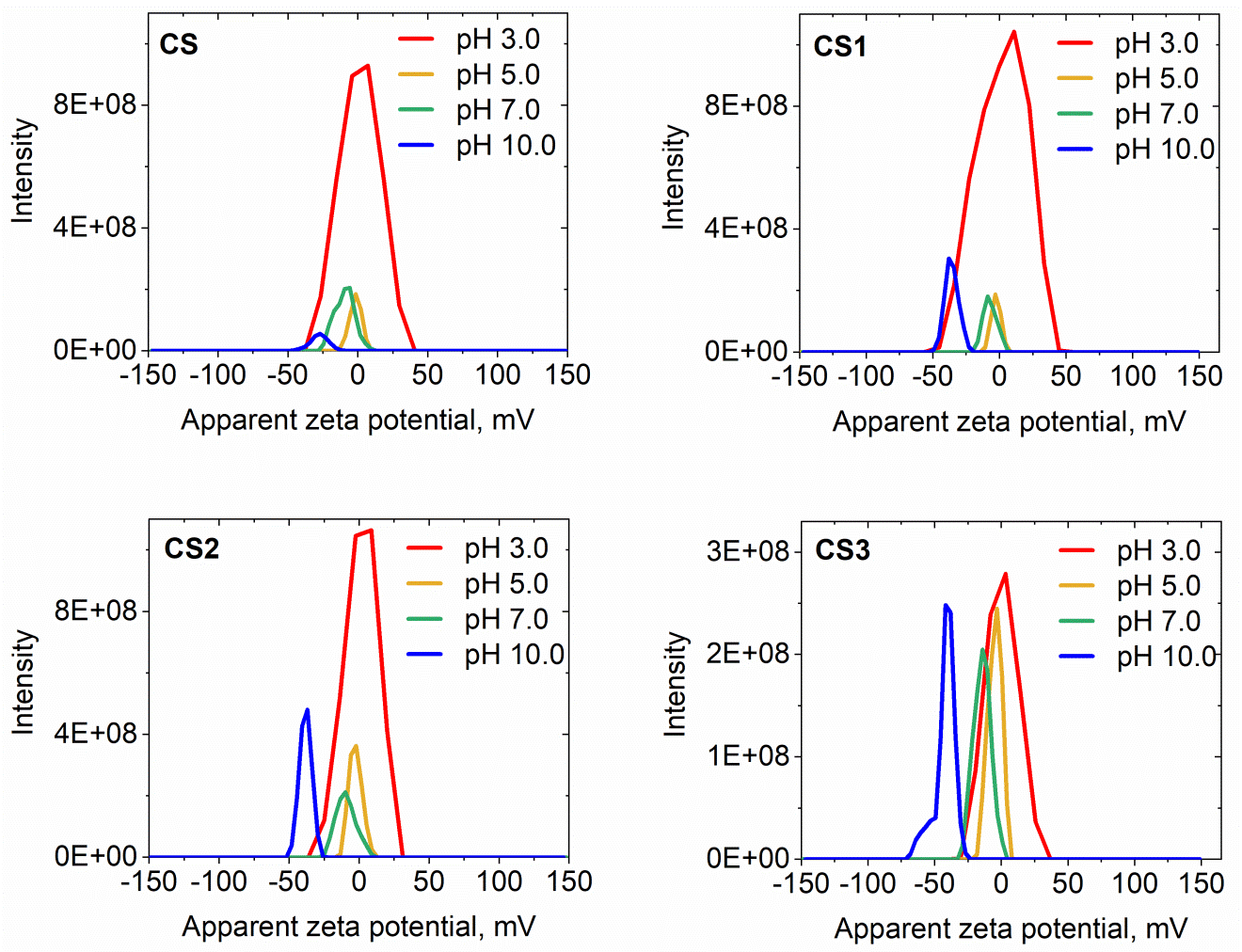


Figure S4: Distribution of zeta potential of nanoparticles at different pH.

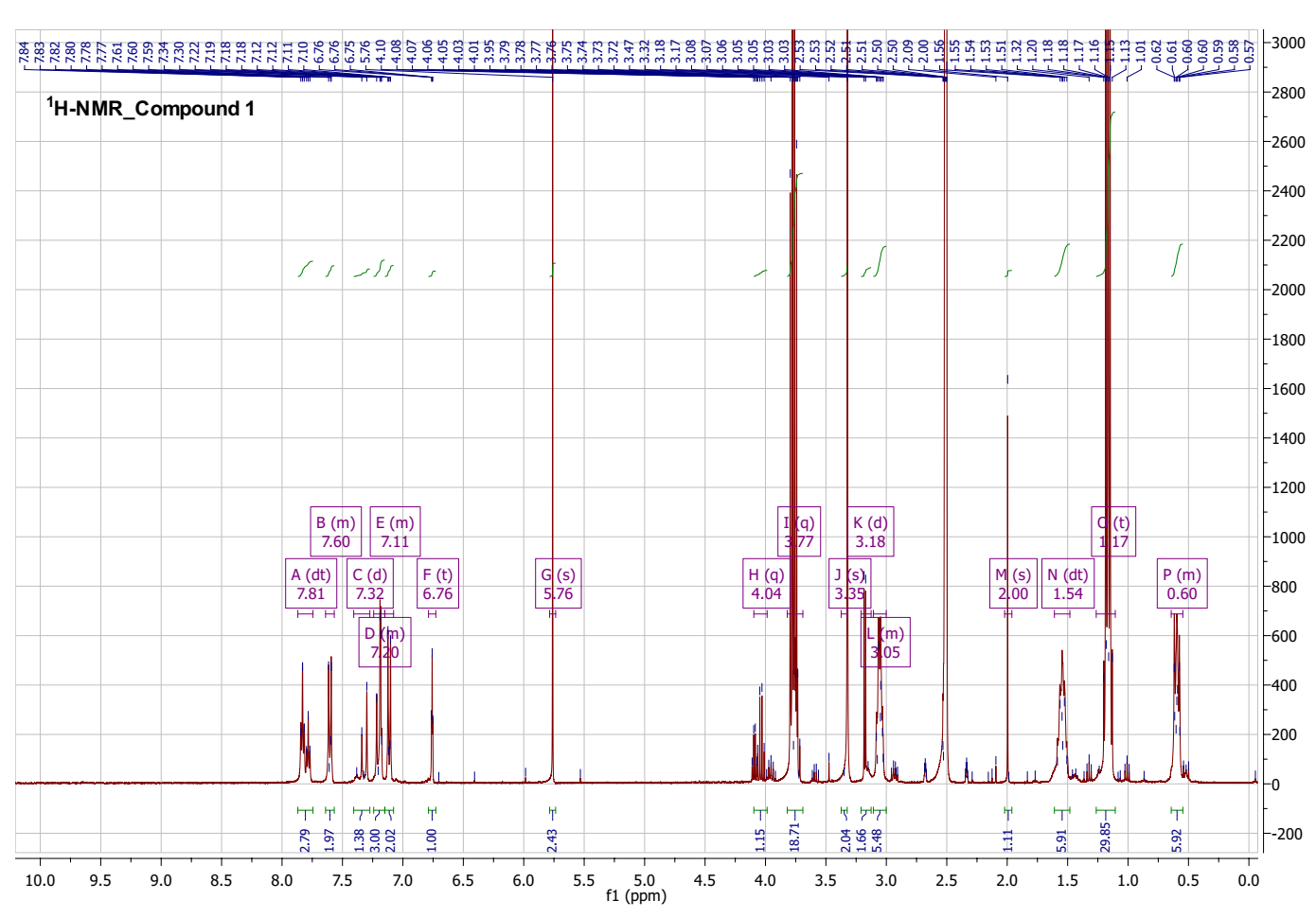
***S4.******Extinction******Cross-section***

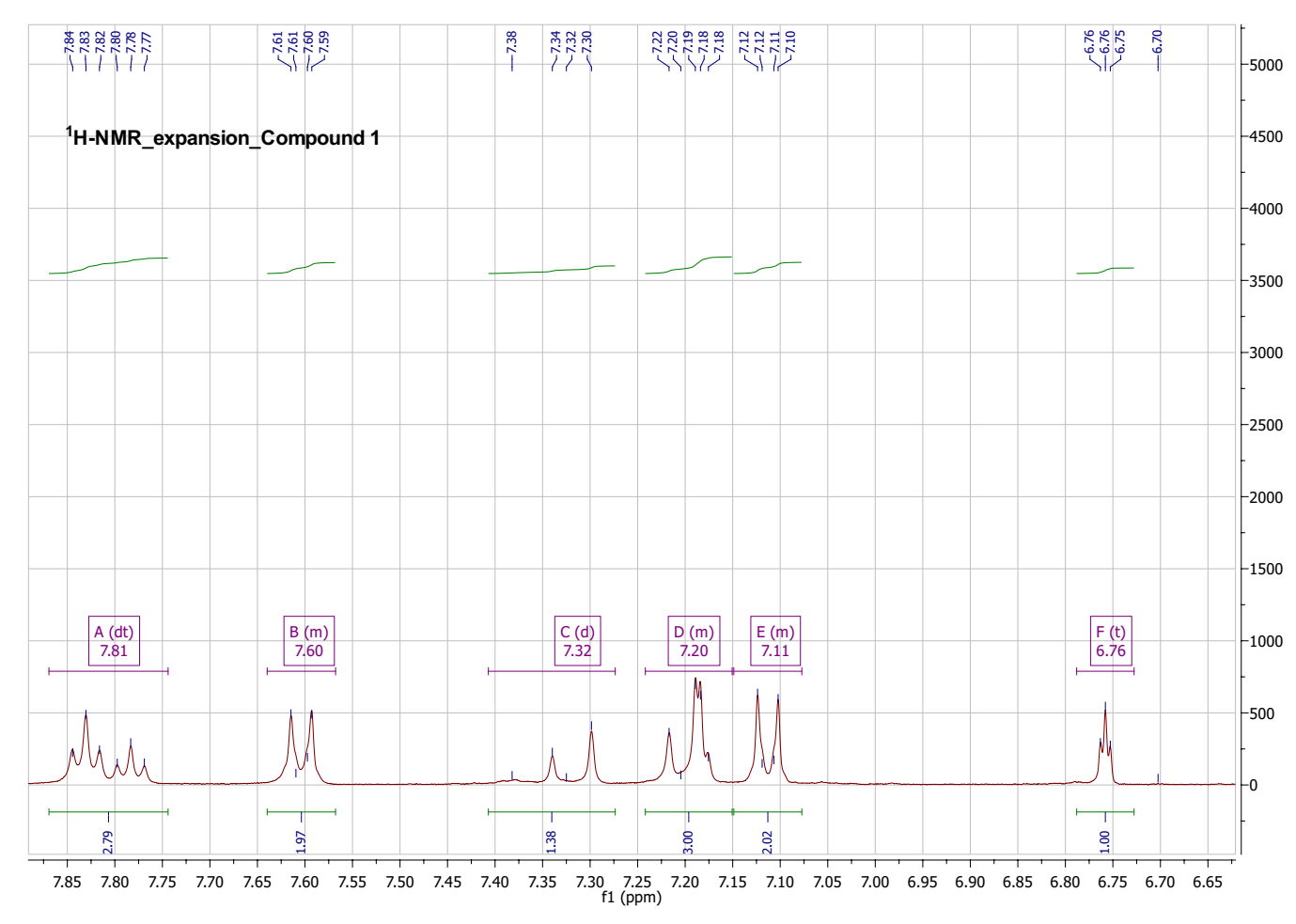
**Table S1**: The parameters of the Rayleigh-Gans-Debye model deduced from the linear fitting of the logarithm of extinction as a function of the logarithm of the wavelength.

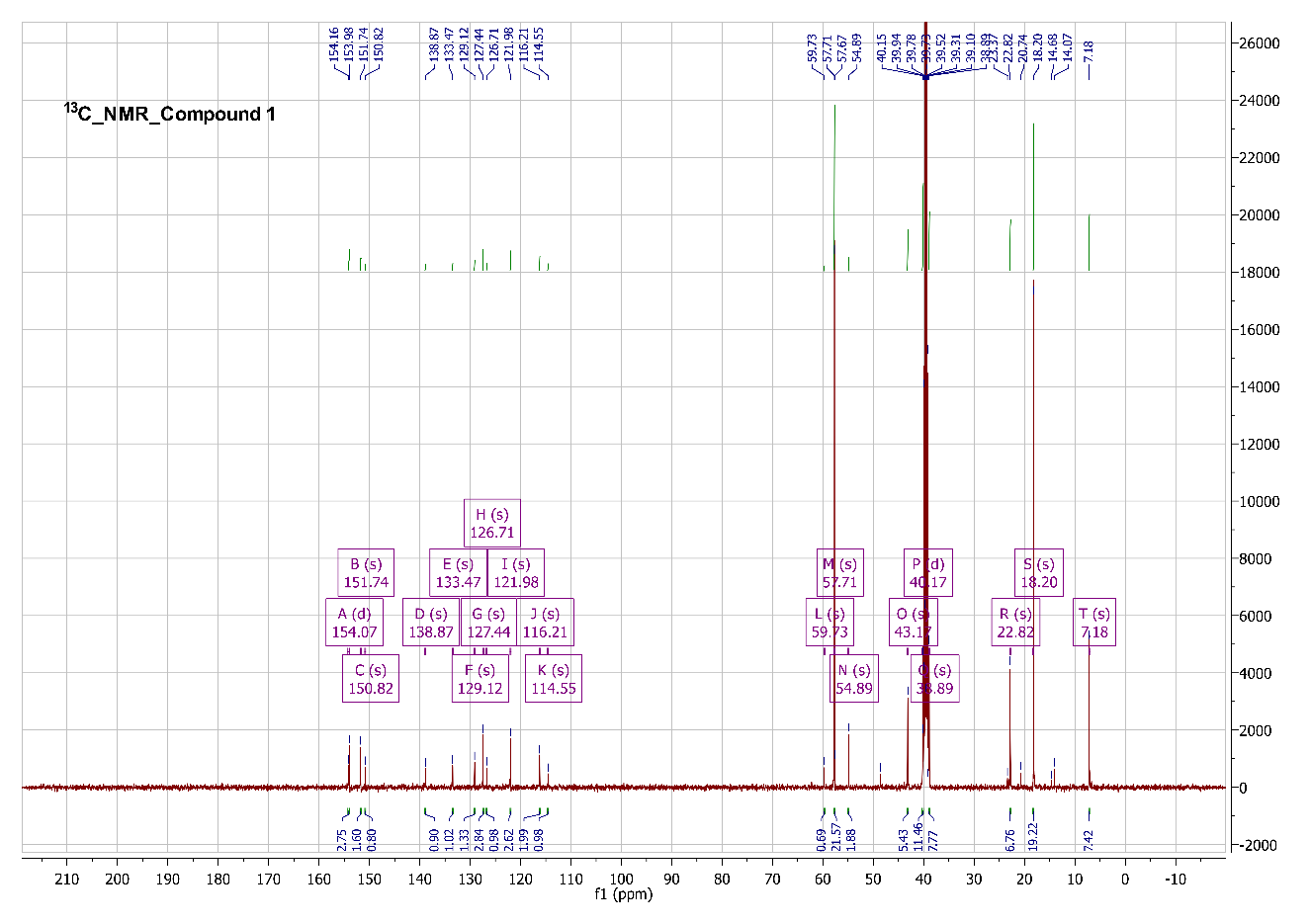
|  |  |  |  |
| --- | --- | --- | --- |
| pH | Compound | W | n |
| 3.0 | **CS1** | 8.68 | 1.14 |
| **CS2** | 0.86 | 0.77 |
| **CS3** | 10.65 | 1.17 |
| 5.0 | **CS1** | 9.65 | 1.15 |
| **CS2** | 23.70 | 1.26 |
| **CS3** | 60.79 | 1.42 |
| 7.0 | **CS1** | 298.61 | 1.60 |
| **CS2** | 378.79 | 1.60 |
| **CS3** | 2618.78 | 1.81 |
| 10.0 | **CS1** | 59006.52 | 2.39 |
| **CS2** | 19760.59 | 2.19 |
| **CS3** | 233292.08 | 2.57 |

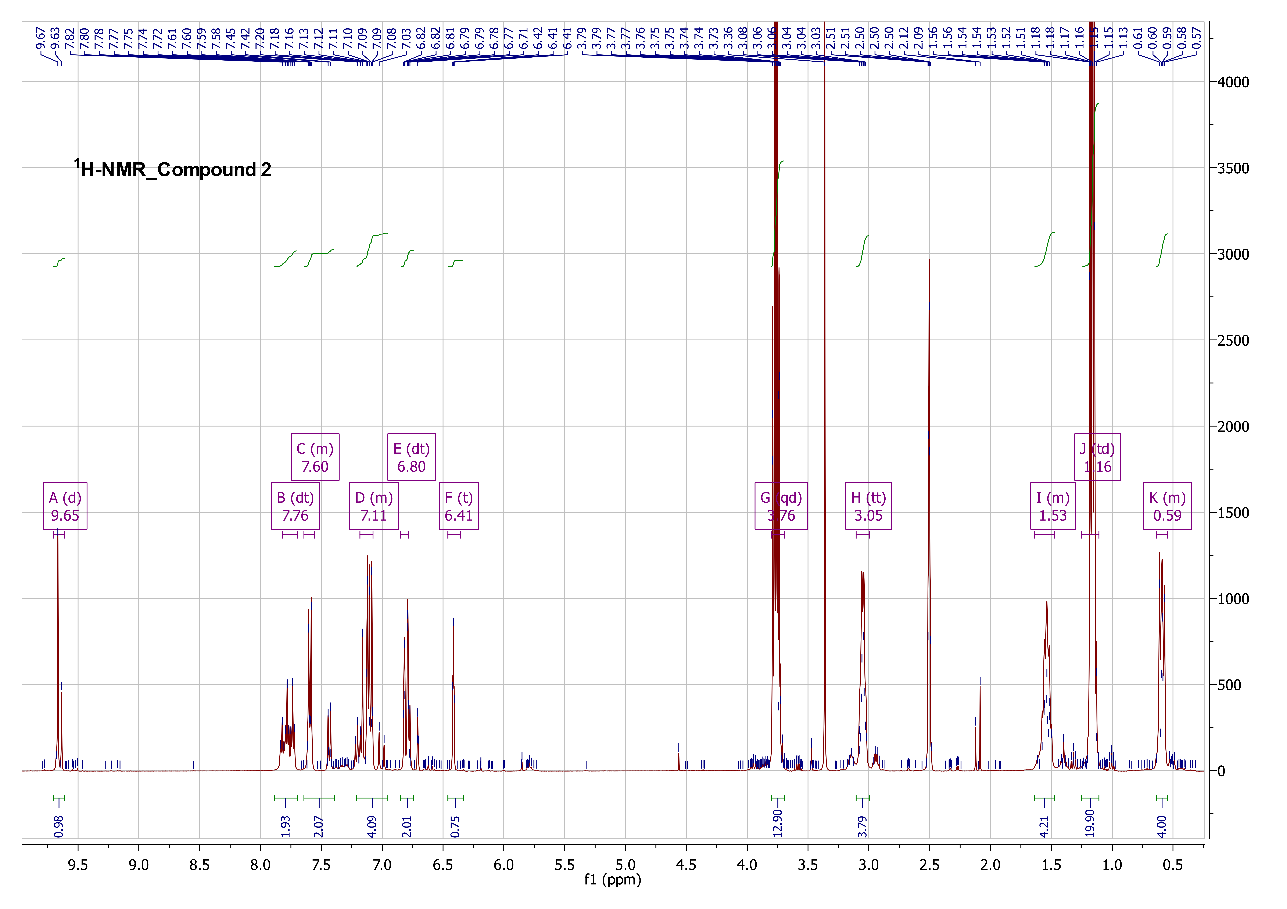
***S5. Appendix NMR spectra of compound 1, 2, and 3***

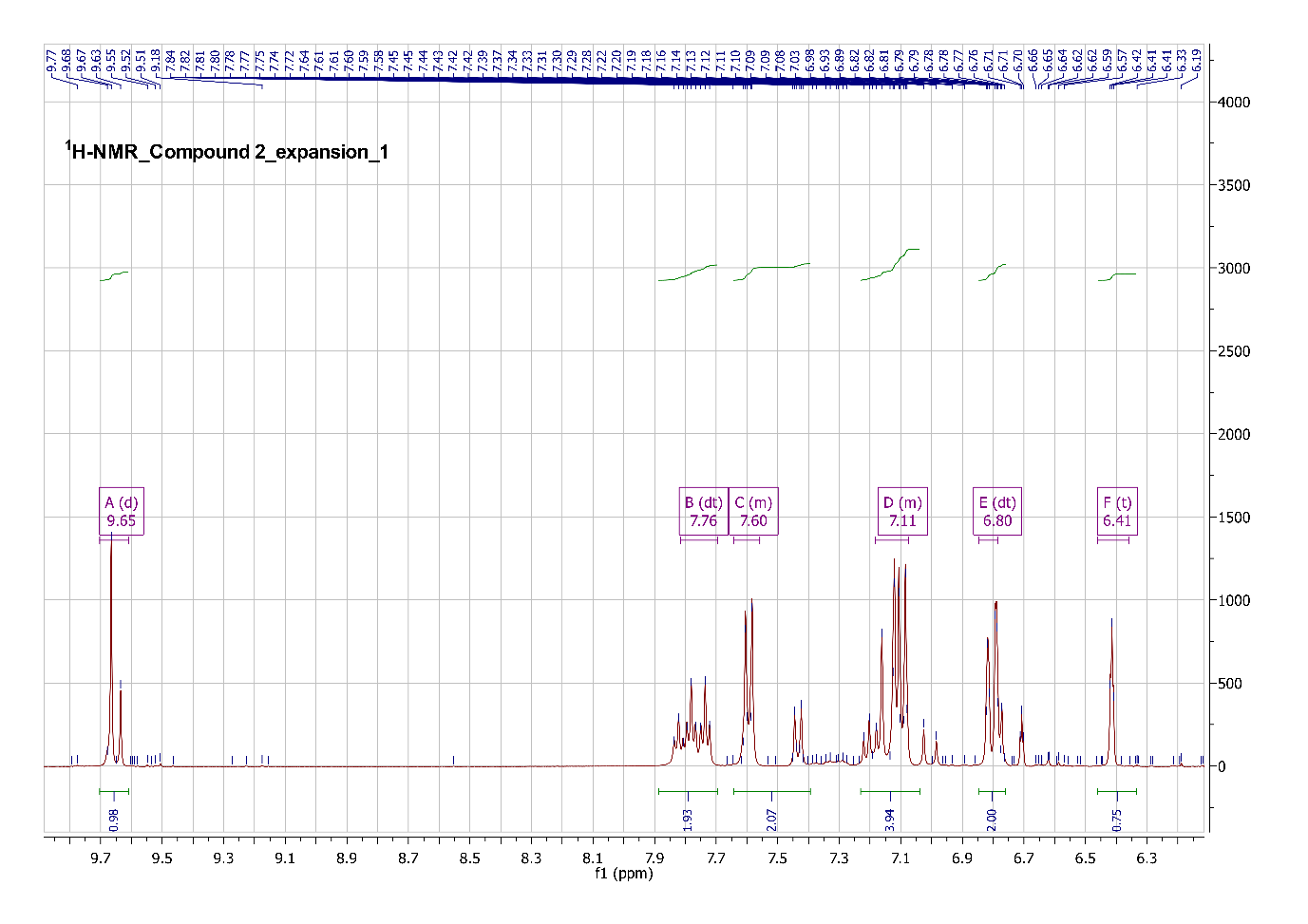
Figure S5: NMR spectra of compound 1, 2, and 3

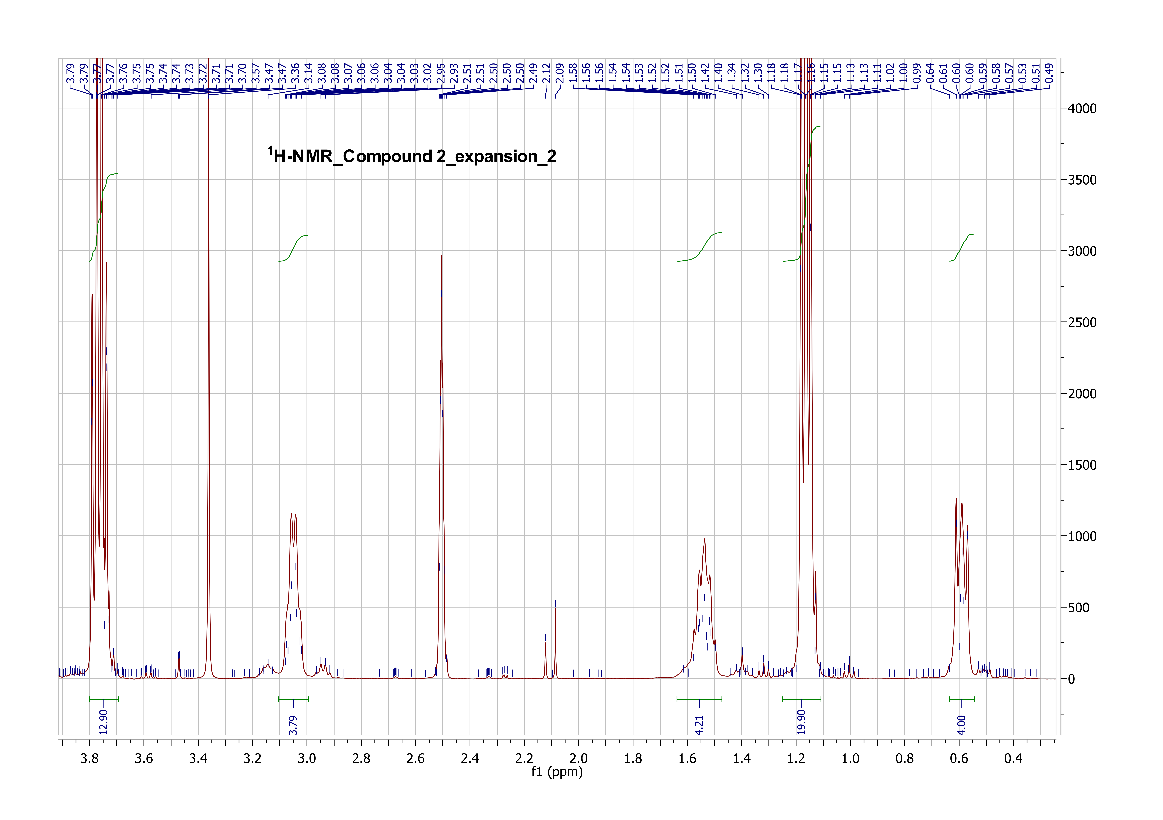


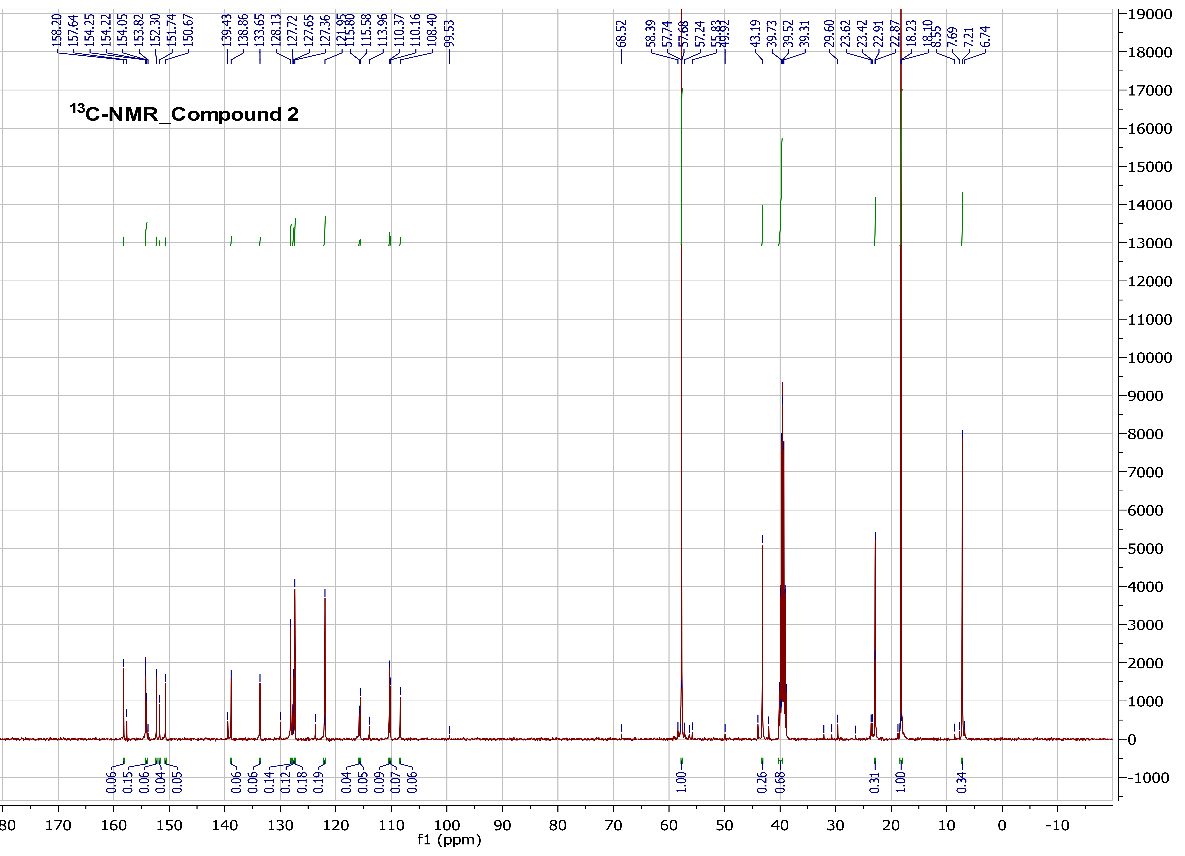


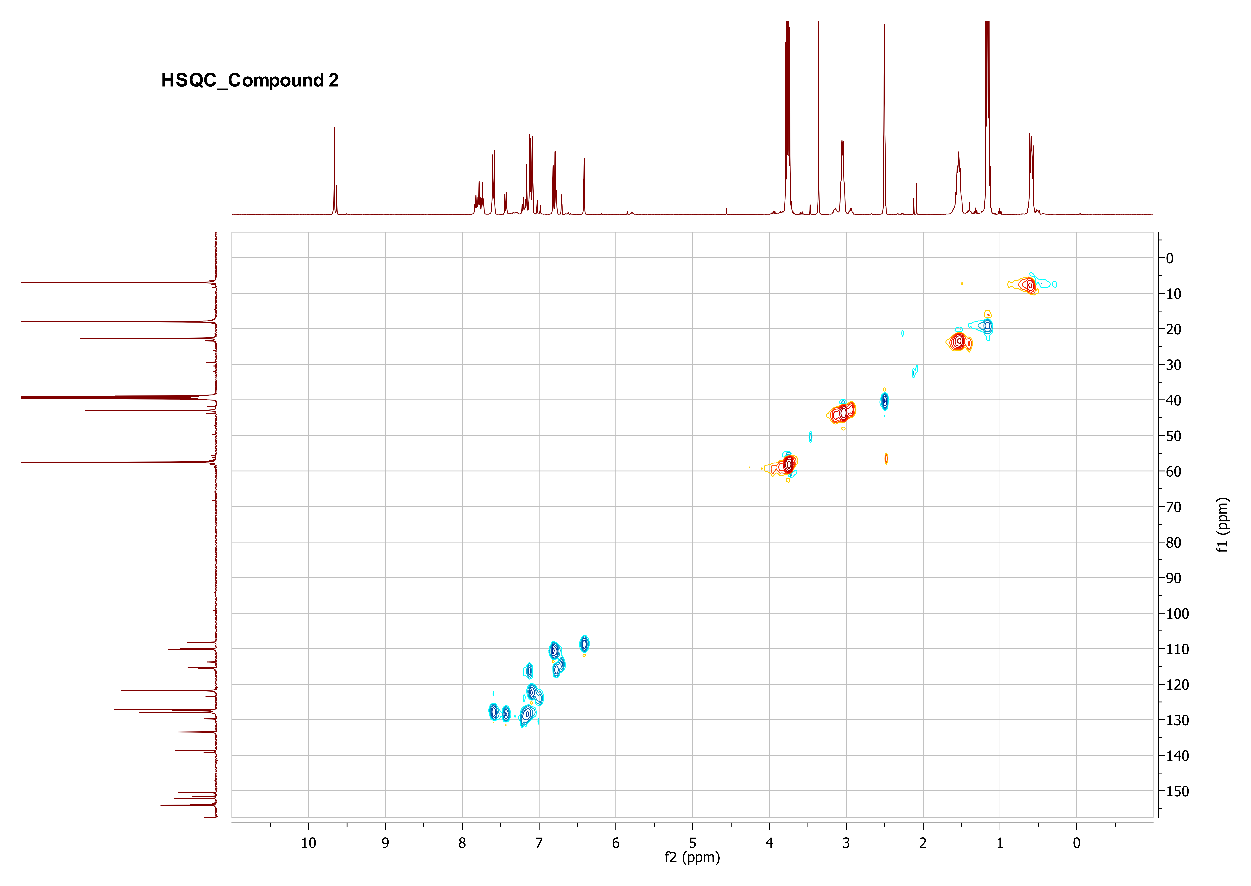


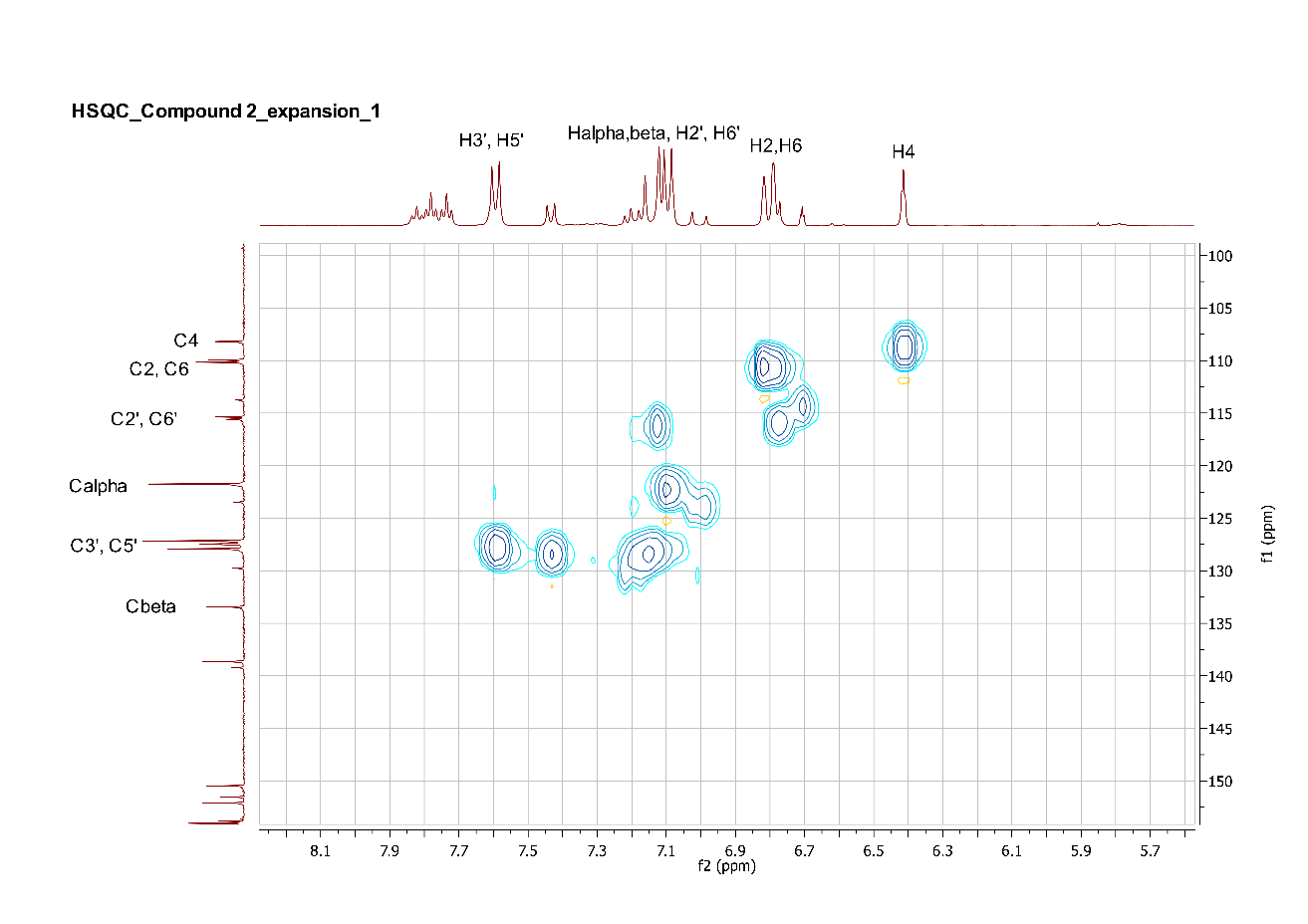


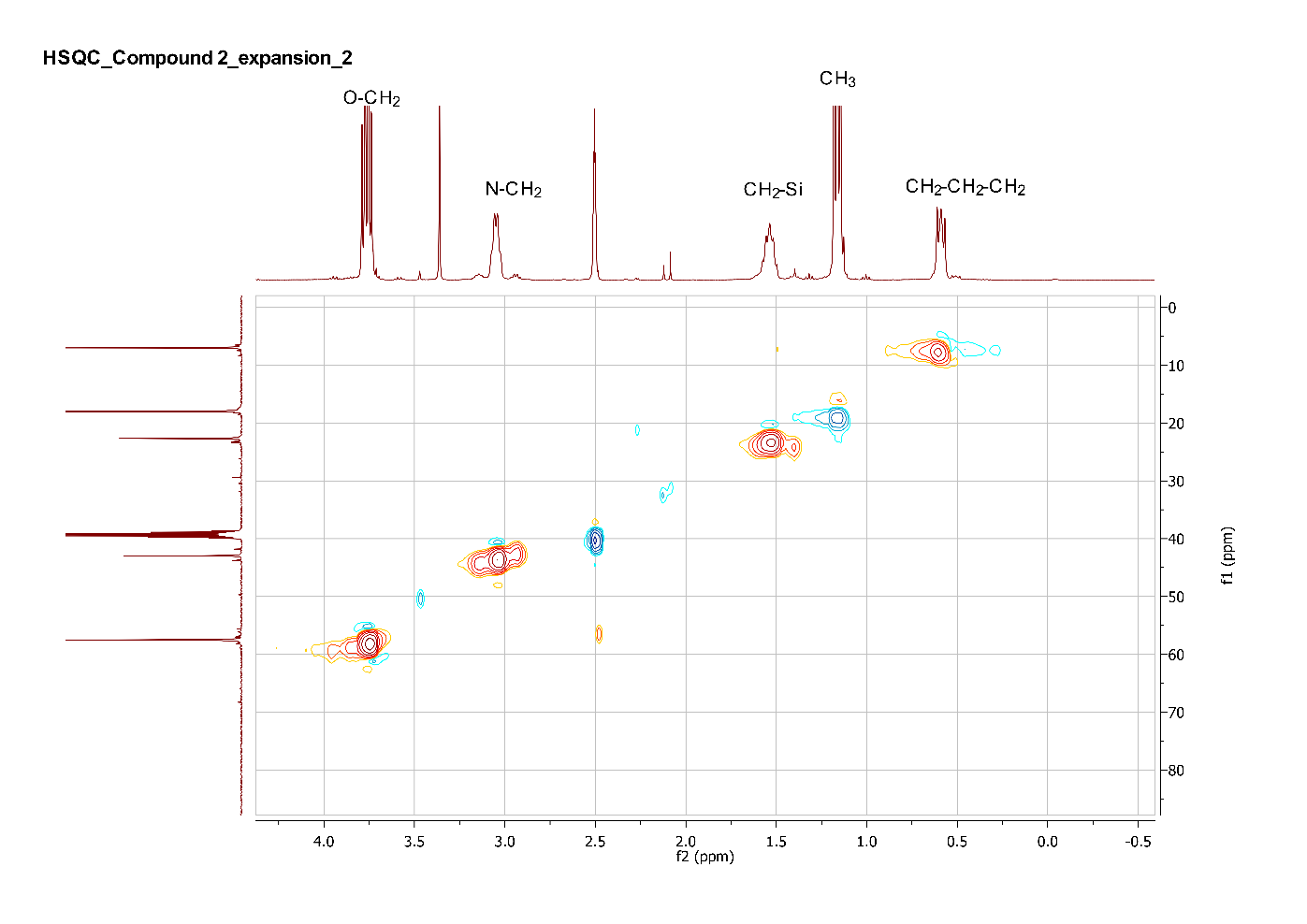


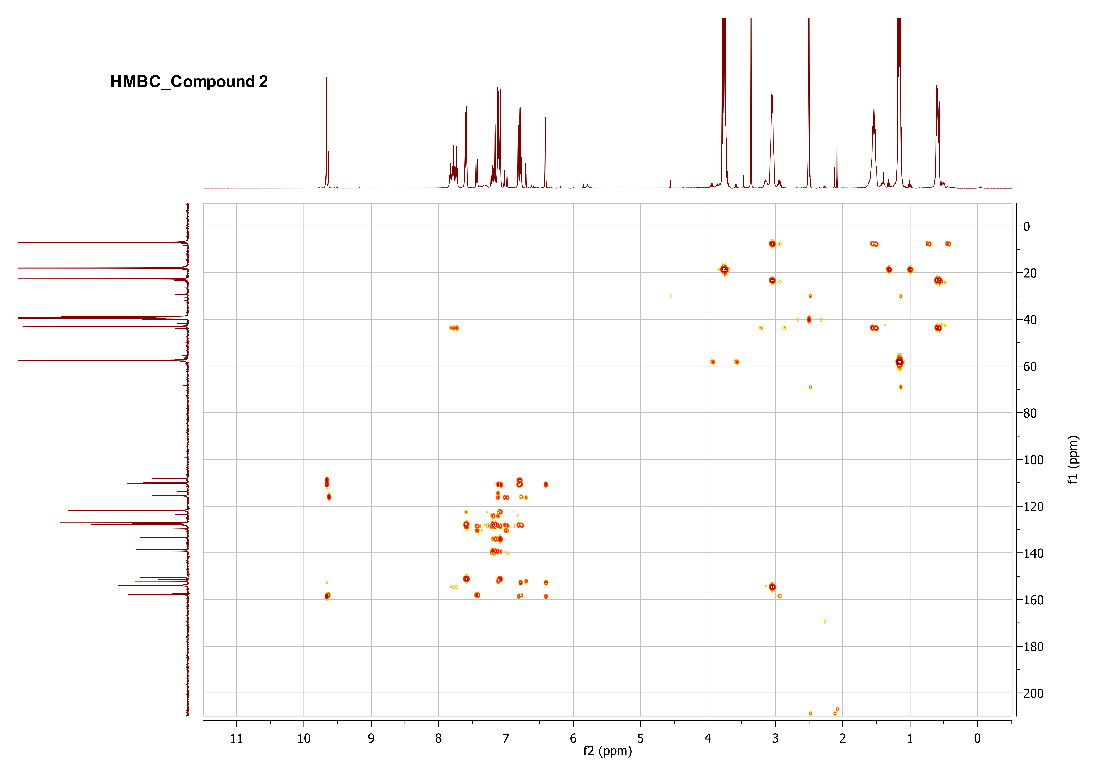


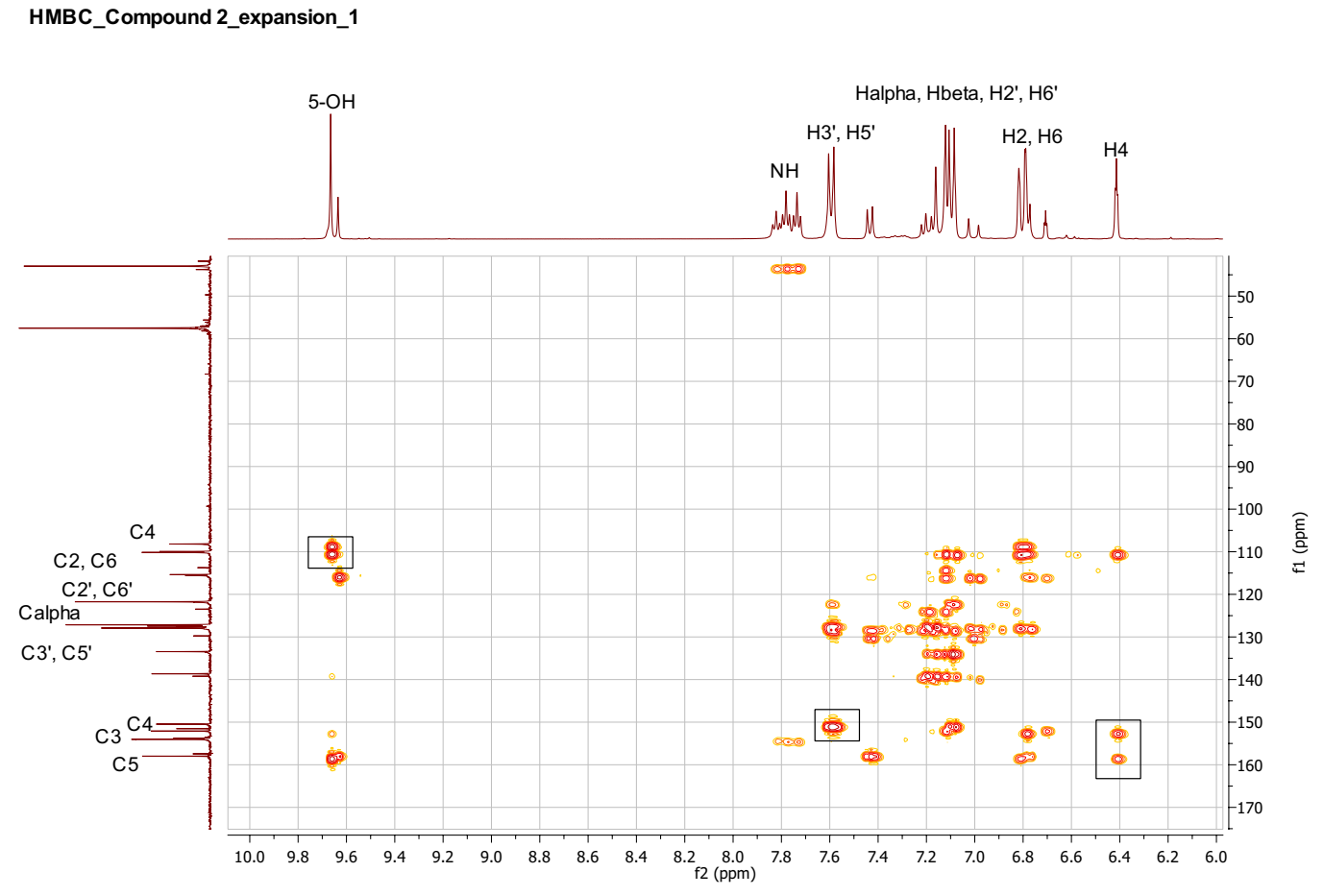


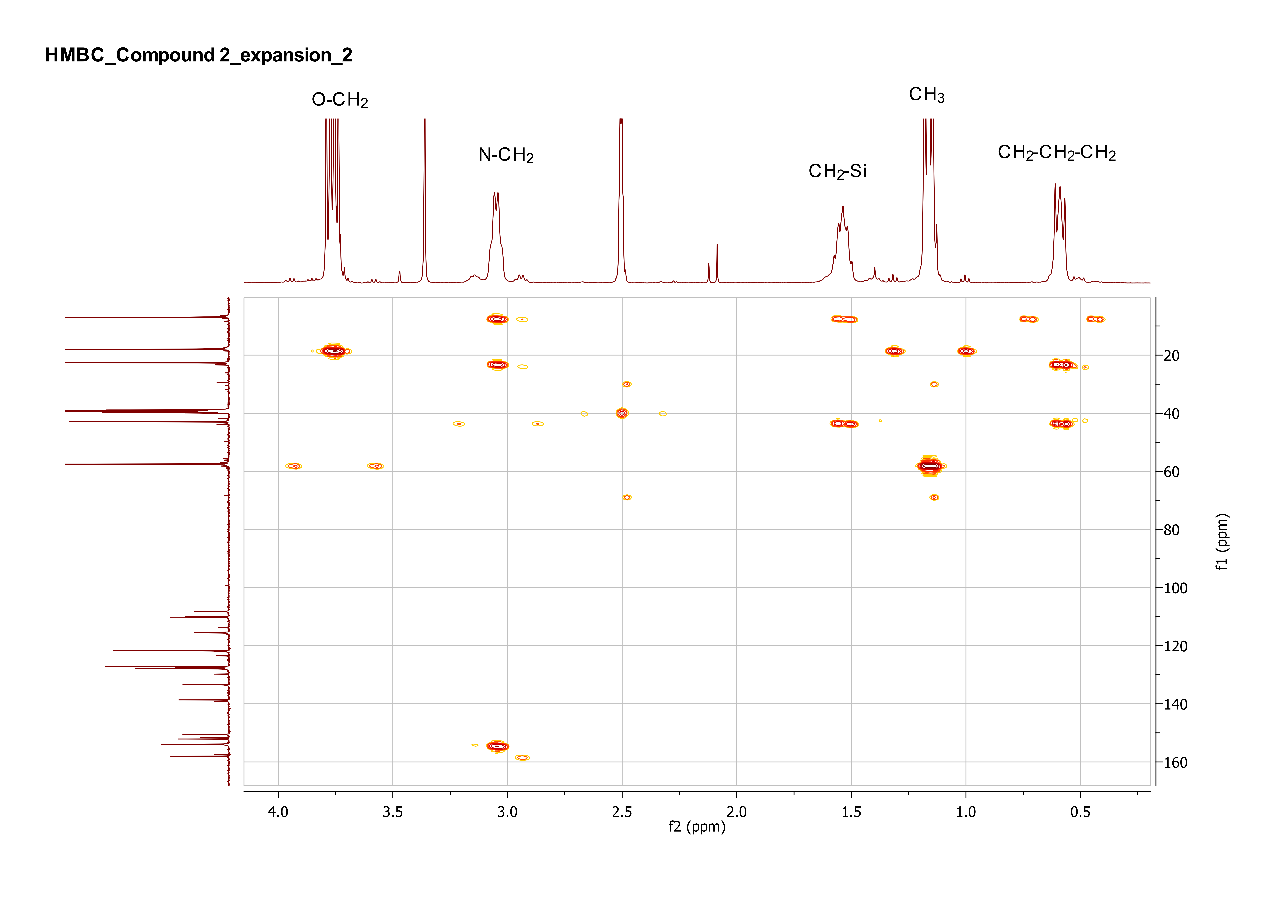


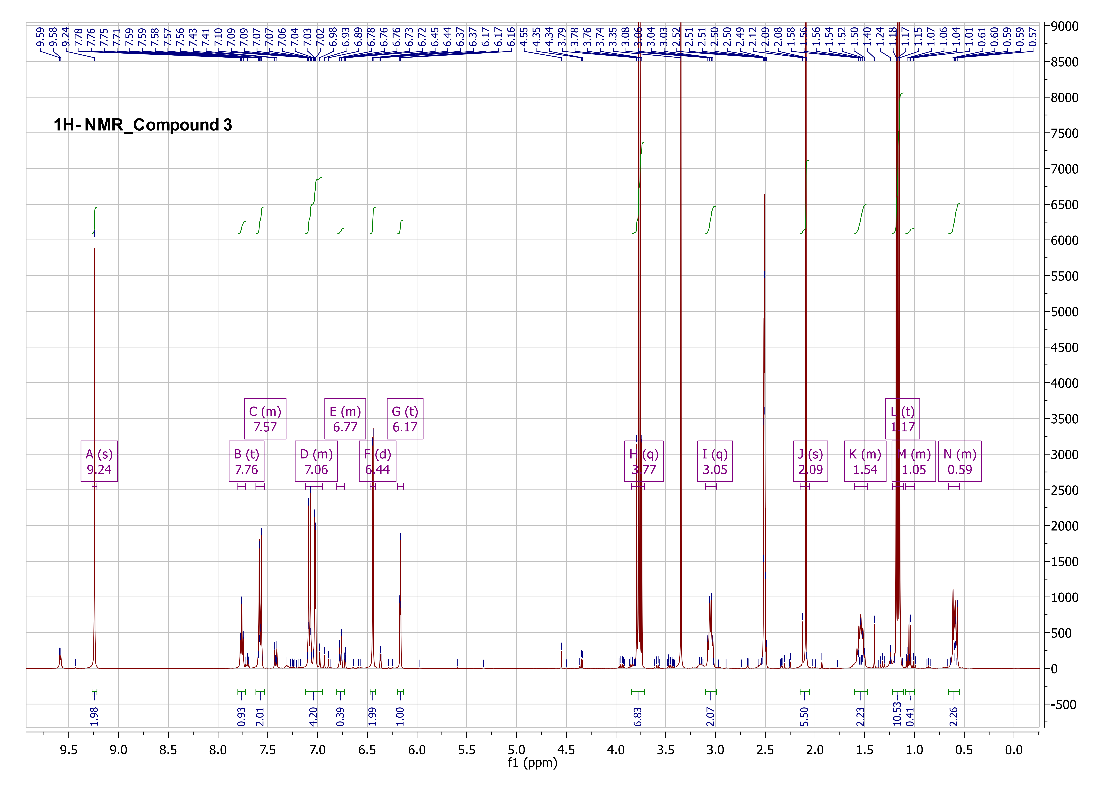


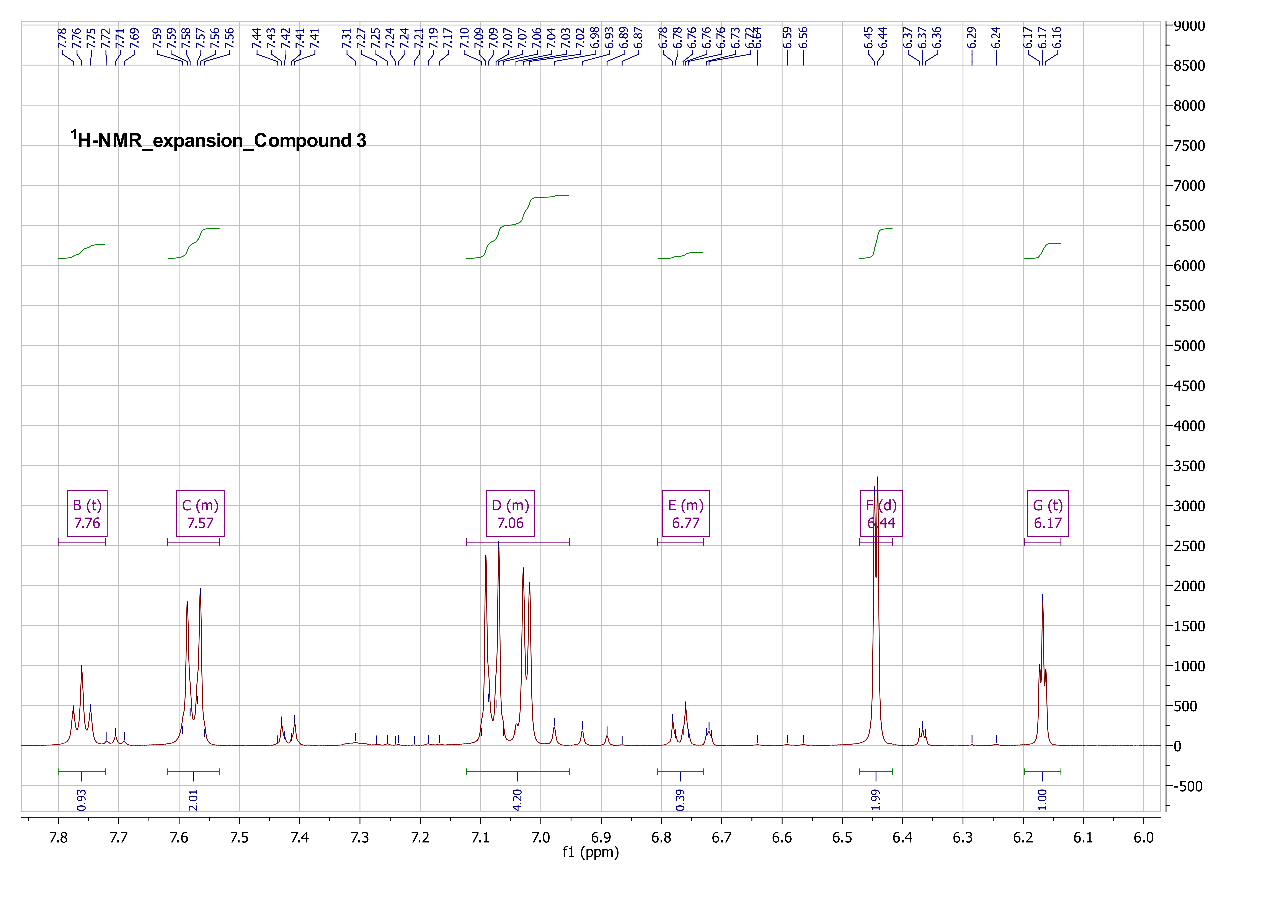


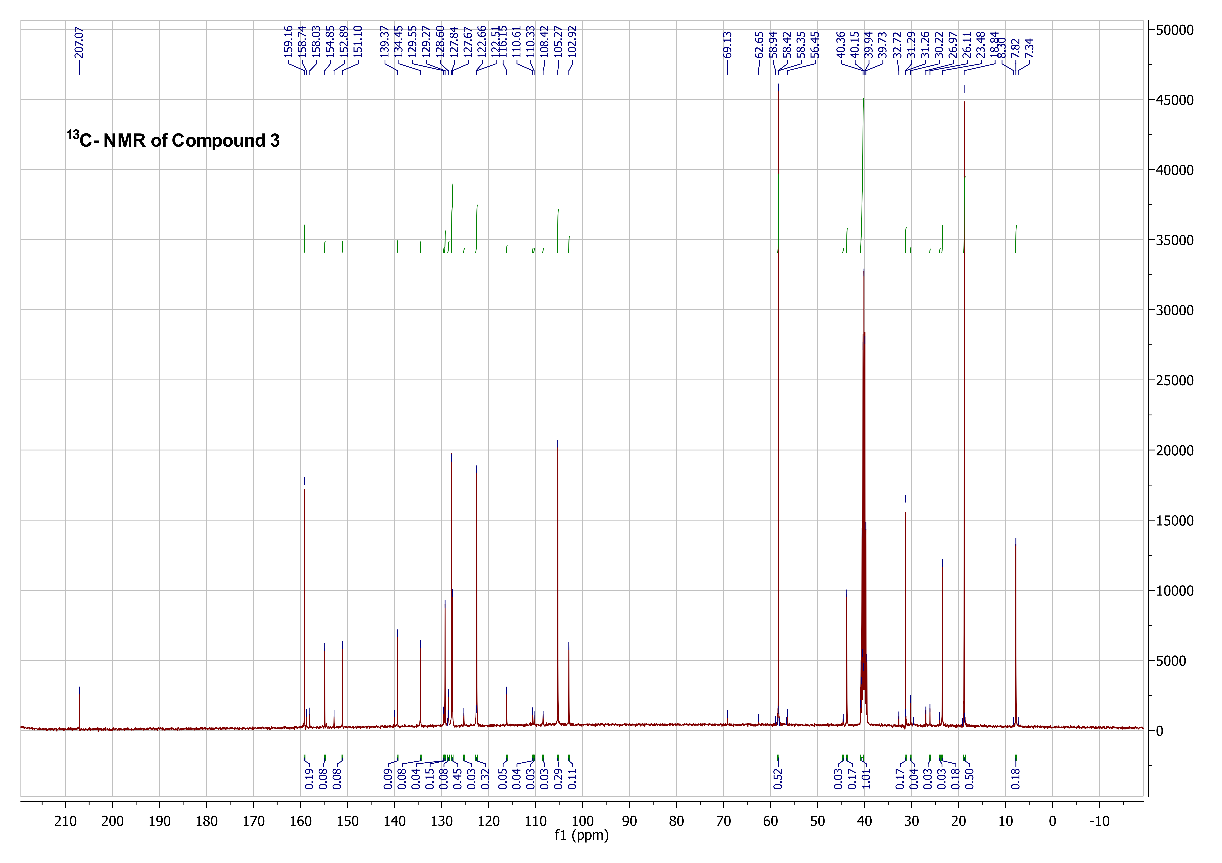


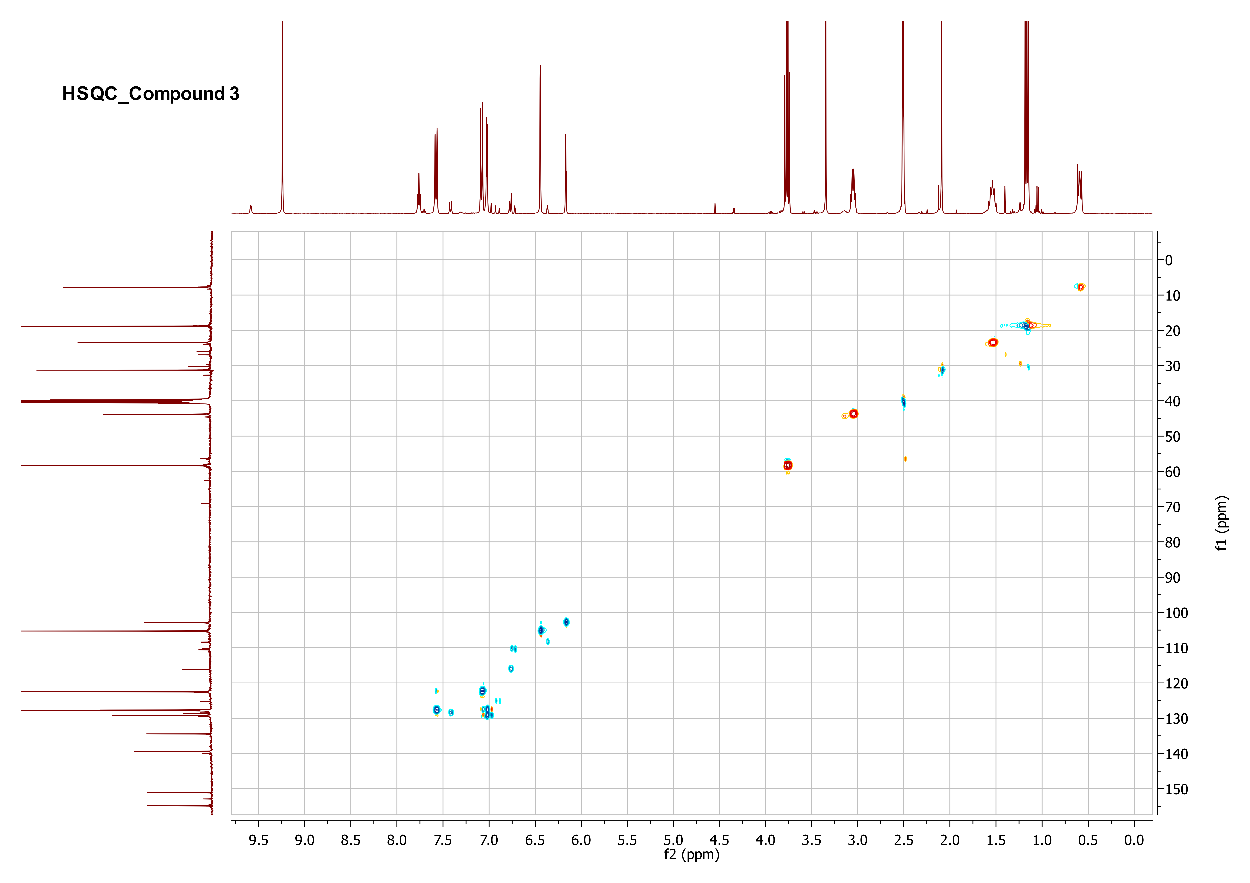


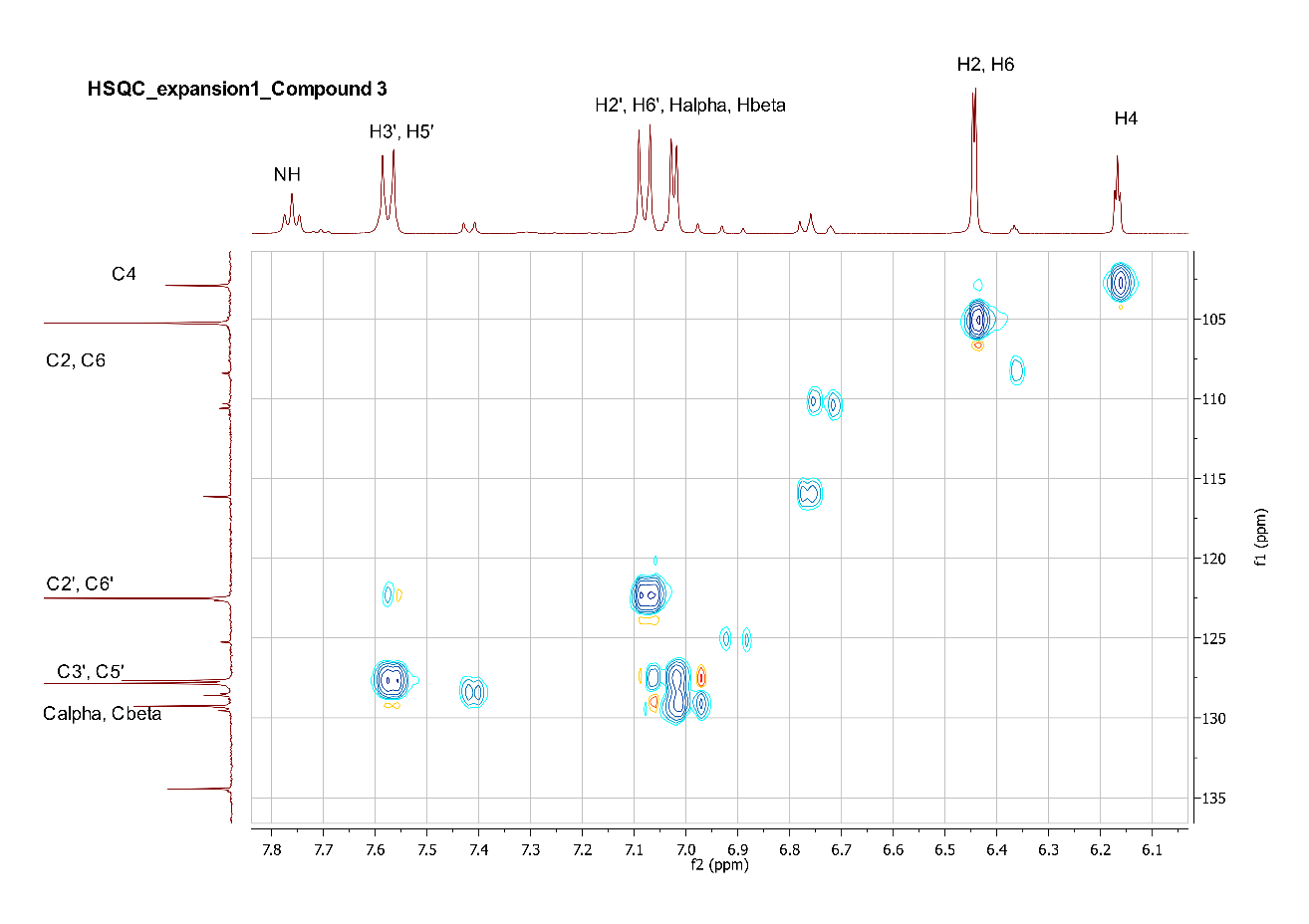


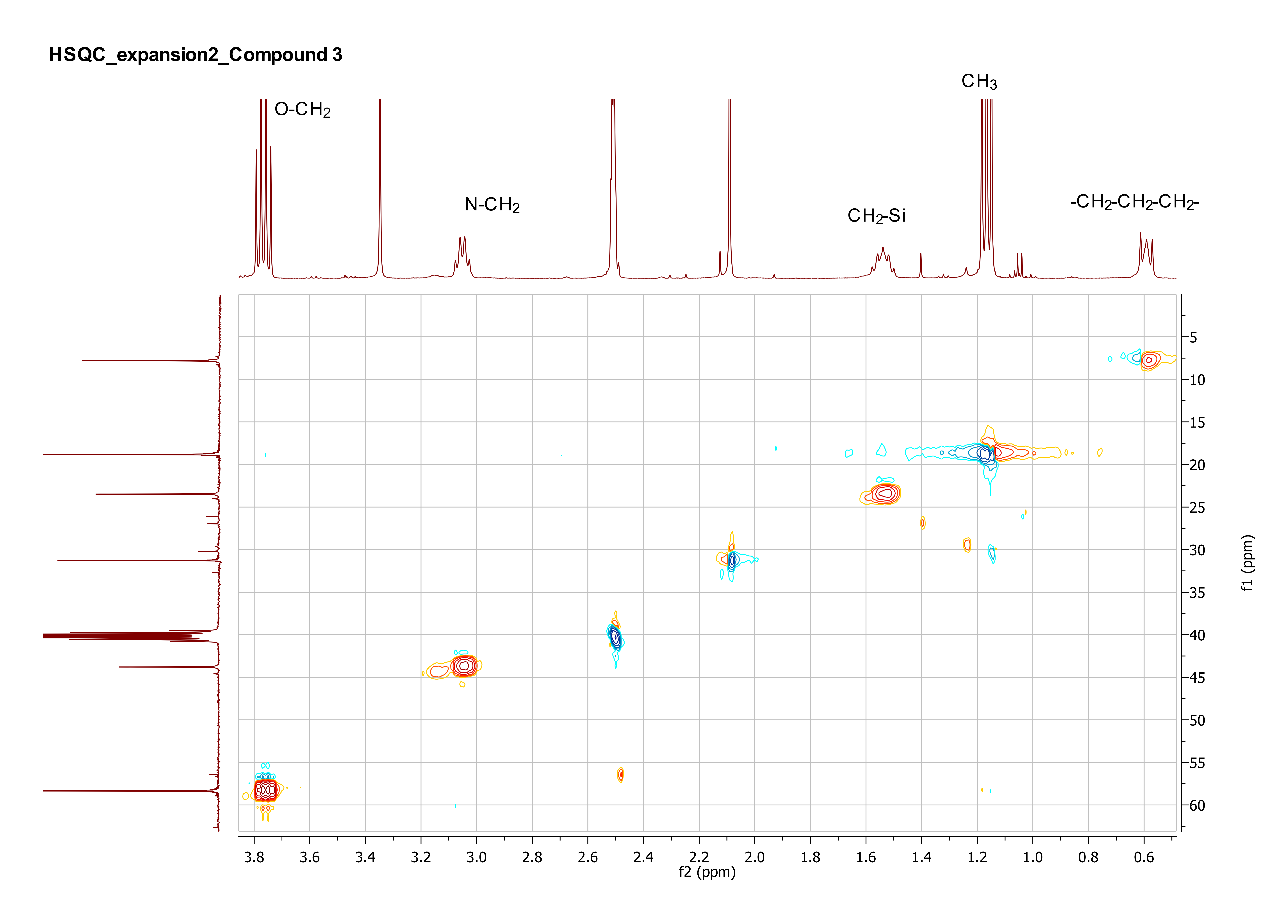


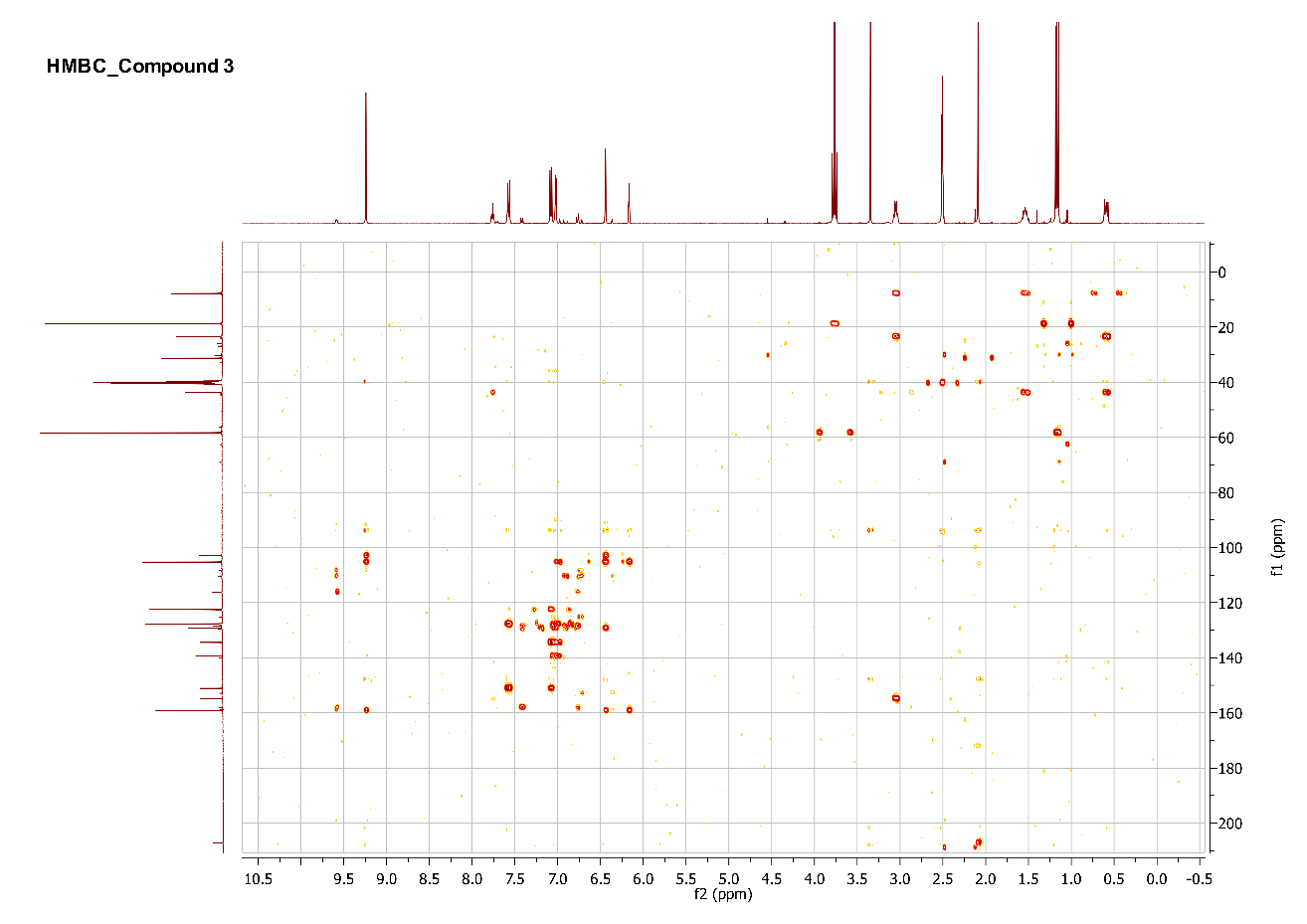


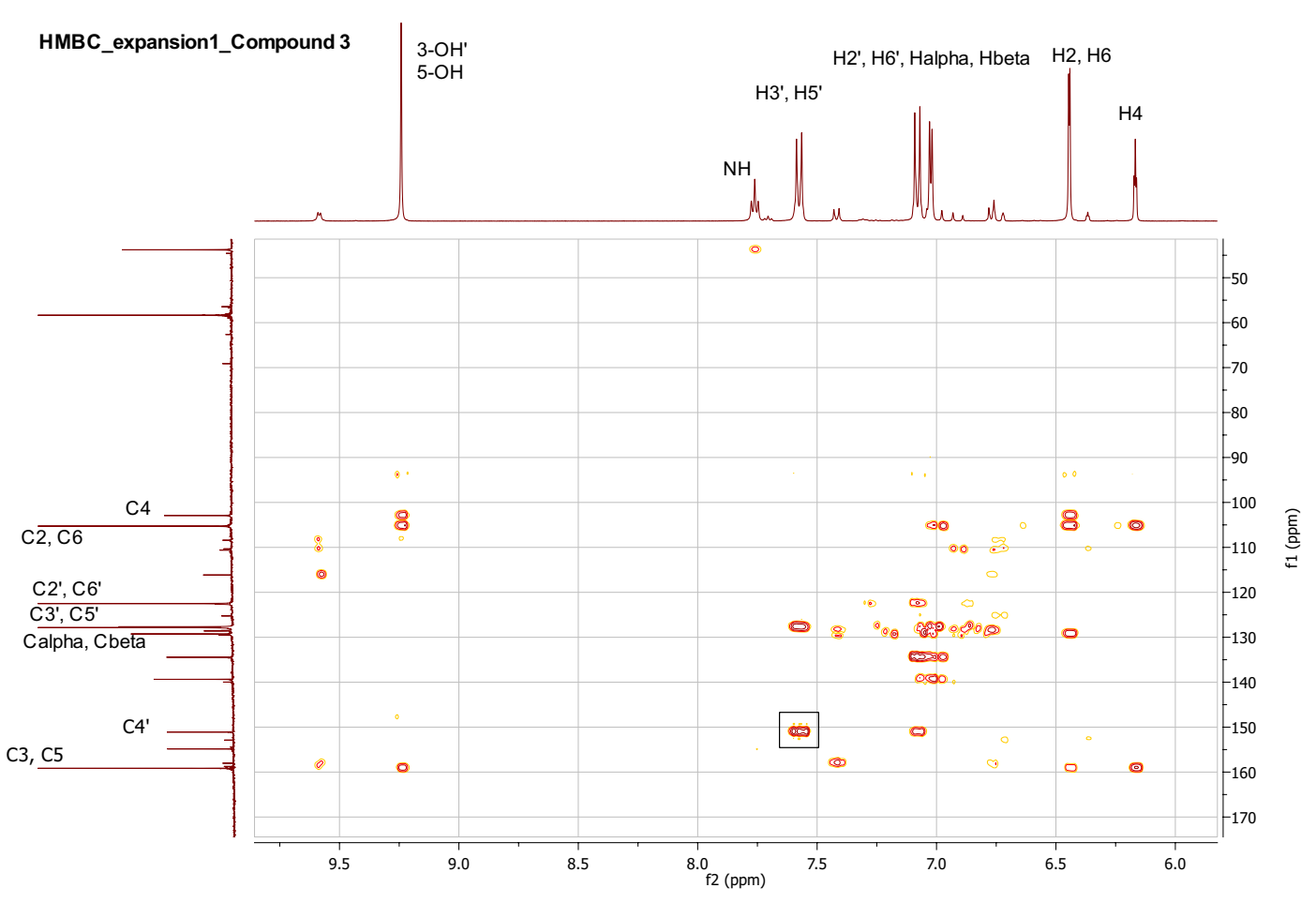


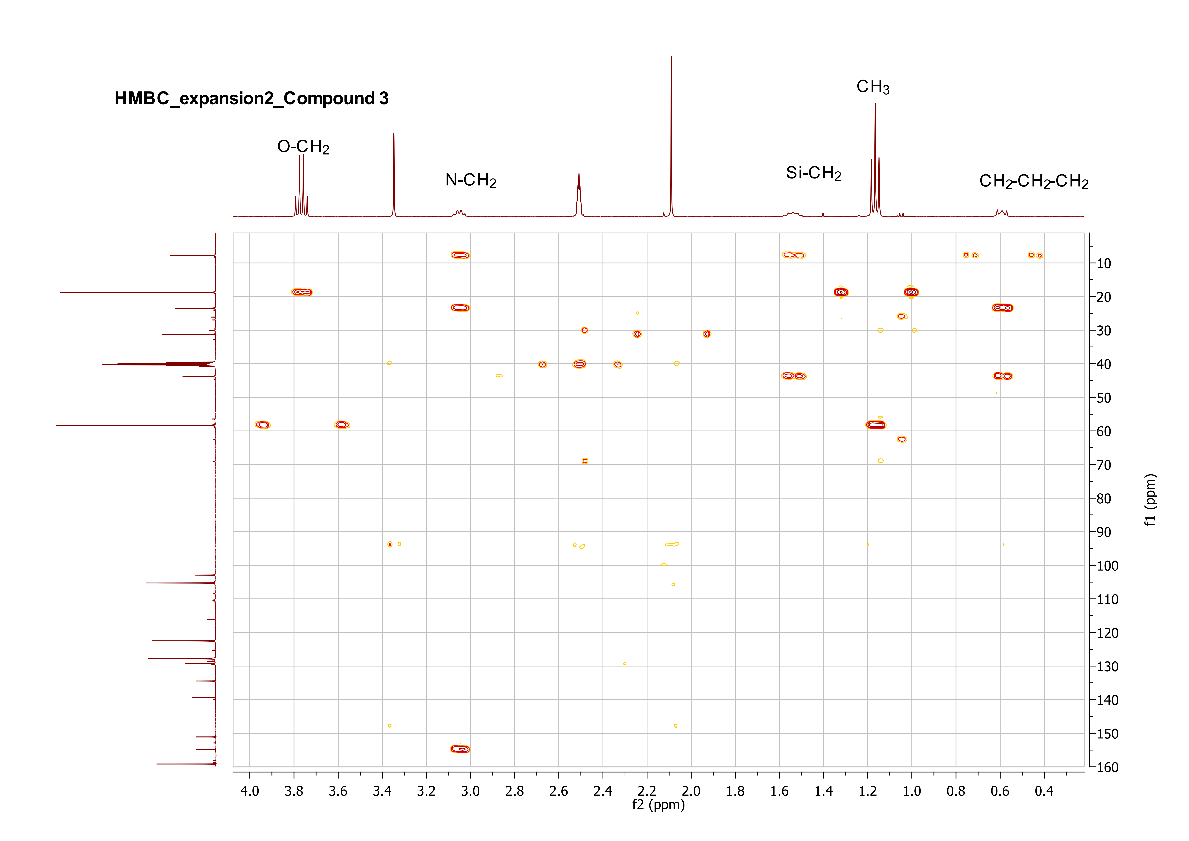




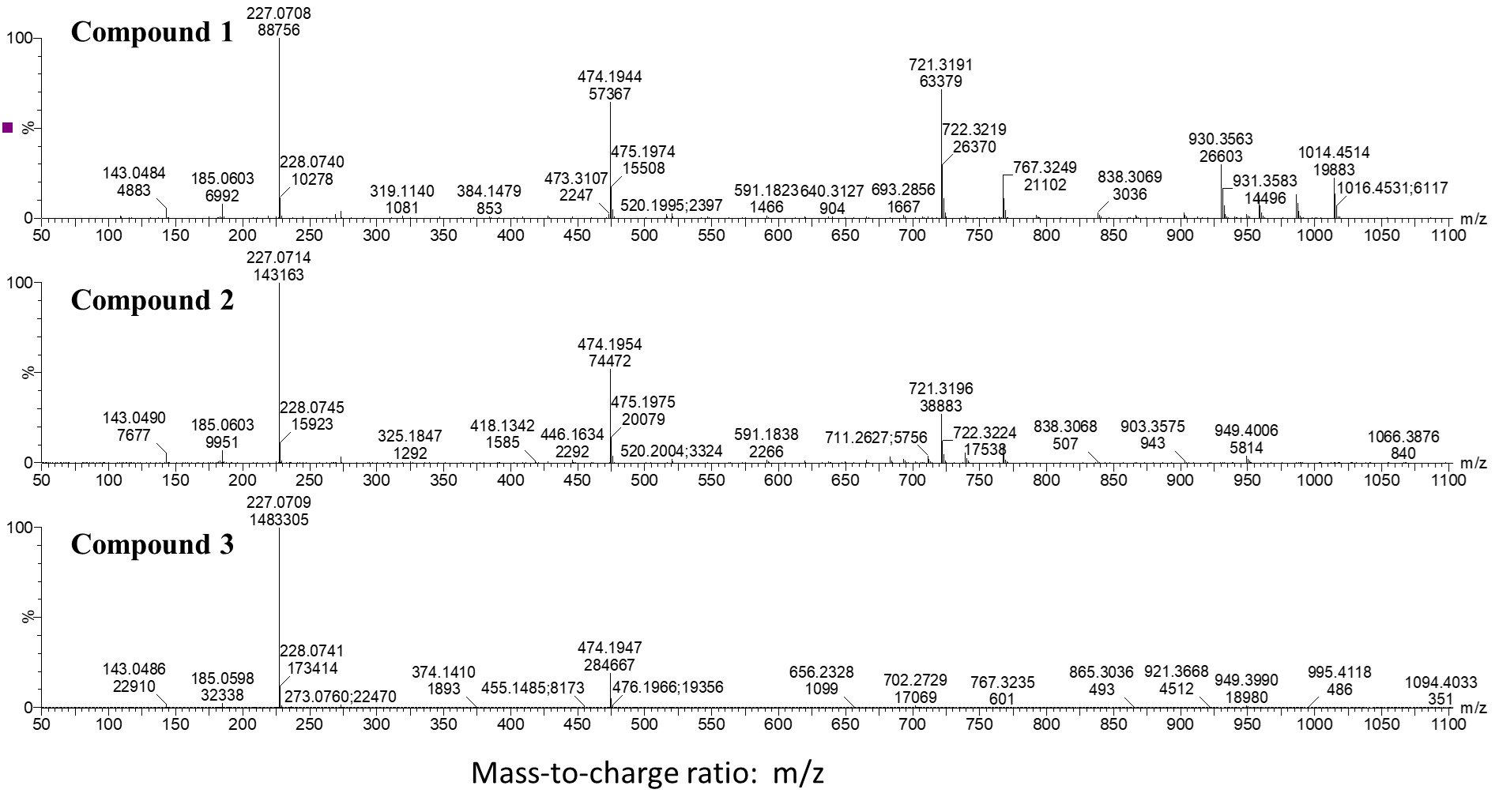




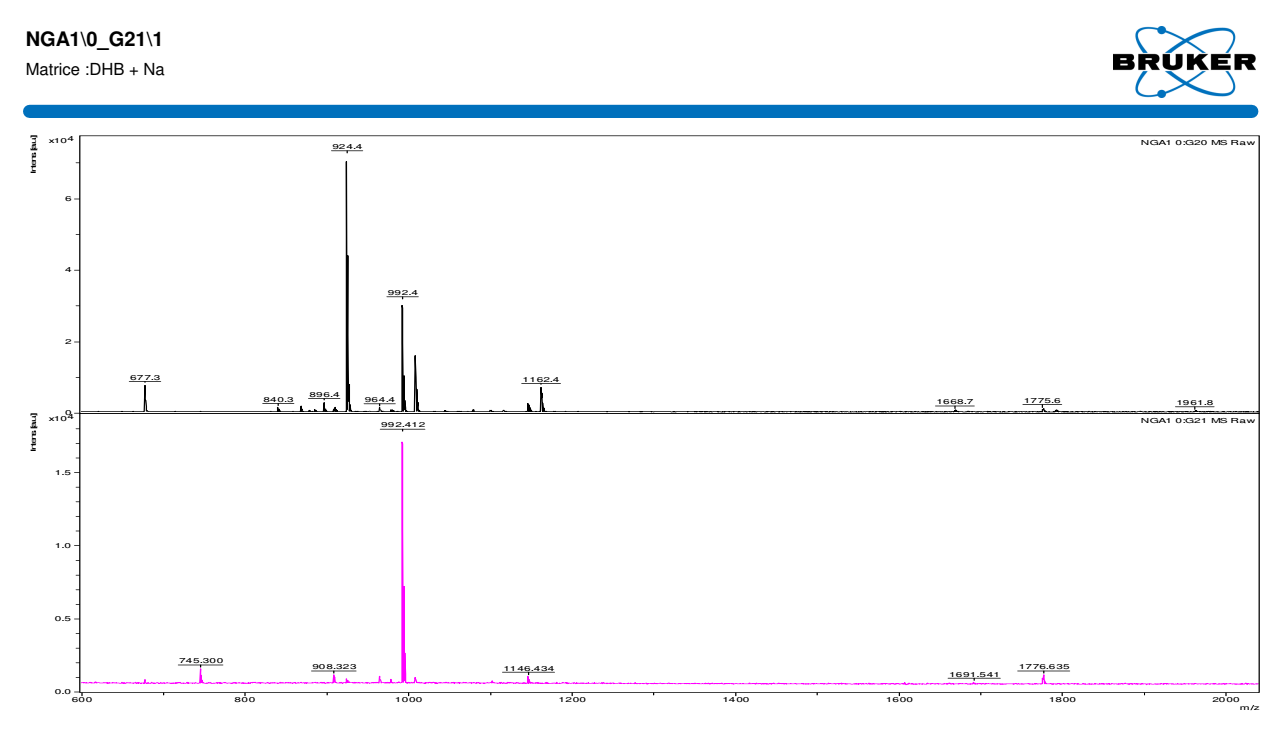




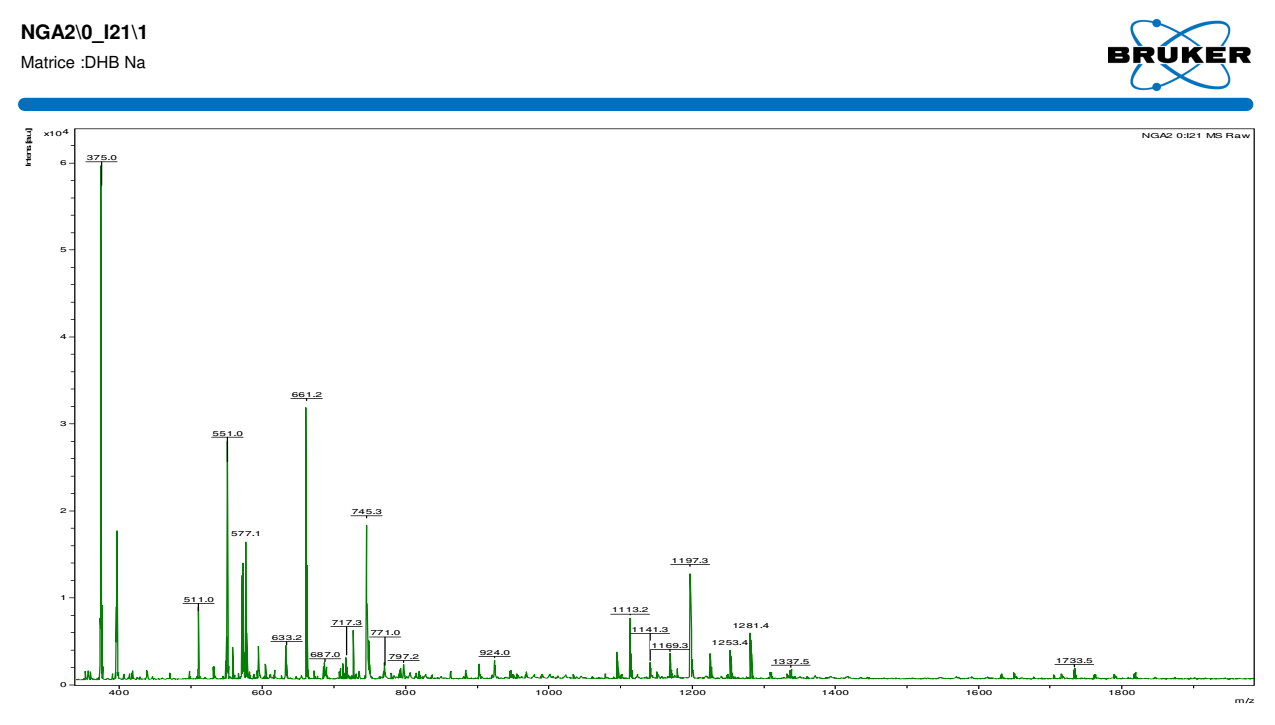
**S6. Mass spectroscopy of compound** **1, 2, and** **3**.



**MALDI-TOF Compound** **1**



**MALDI-TOF Compound** **2**



**MALDI-TOF Compound** **3**

