

Supporting Information
for
Thermal and oxidative stability of Atlantic salmon oil (*Salmo salar* L.)
and complexation with β -cyclodextrin

Daniel I. Hădărugă^{1,§*}, Mustafa Ünlüsayin², Alexandra T. Gruia³,
Cristina Birău (Mitroi)⁴, Gerlinde Rusu¹, Nicoleta G. Hădărugă⁴

Address: ¹Department of Applied Chemistry, Organic and Natural Compounds Engineering,
Polytechnic University of Timișoara, Carol Telbisz 6, 300001-Timișoara, Romania, ²Department of
Fish Processing Technology, Akdeniz University, Dumlupinar Boulevard, Campus Antalya, 07058-
Antalya, Turkey, ³Regional Centre for Immunology and Transplant, County Clinical Emergency
Hospital Timișoara, Iosif Bulbuca Blvd. 10, 300736-Timișoara, Romania and ⁴Department of Food
Science, Banat's University of Agricultural Sciences and Veterinary Medicine "King Mihai I of
Romania" - Timișoara, Calea Aradului 119, 300645-Timișoara, Romania

[§]Phone +40-256-404224; Fax: +40-256-403060

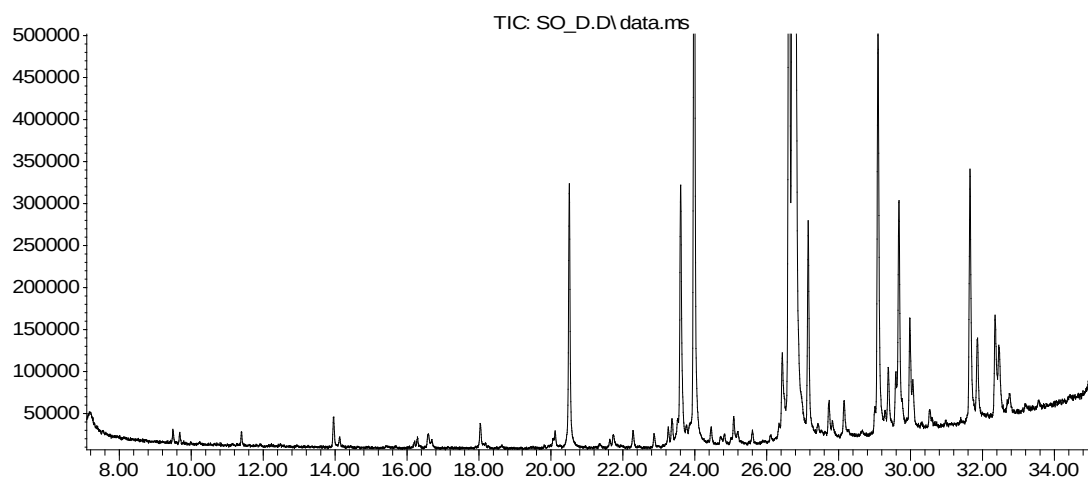
Email: Daniel I. Hădărugă - daniel.hadaruga@upt.ro

*Corresponding author

GC–MS analysis of all raw and degraded ASO, as well as TG, DSC and
KFT data for the β -CD/ASO complexes

GC–MS analysis

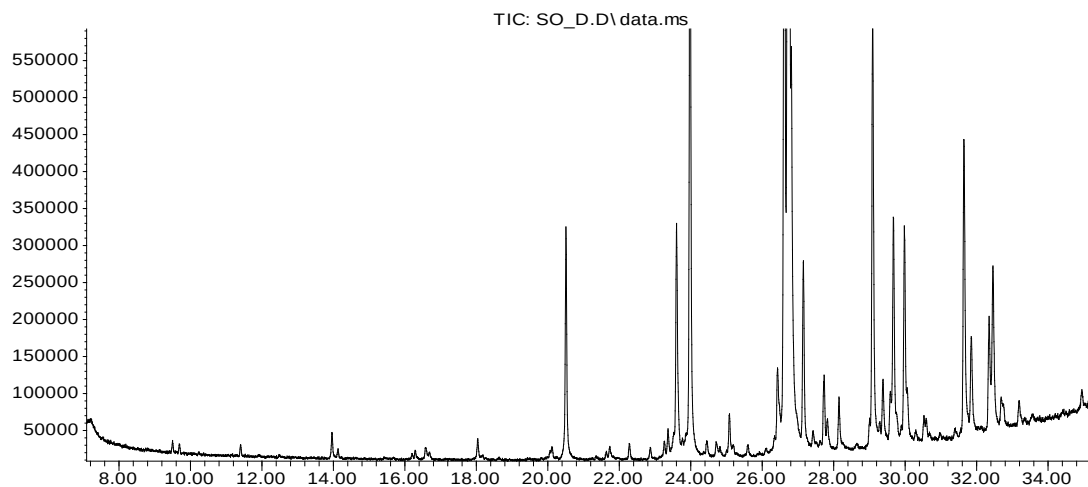
Abundance



Time-->

Figure S1: GC chromatogram from the GC–MS analysis of the raw Atlantic salmon oil (*ASOa*).

Abundance



Time-->

Figure S2: GC chromatogram from the GC–MS analysis of the raw Atlantic salmon oil duplicate (*ASOb*).

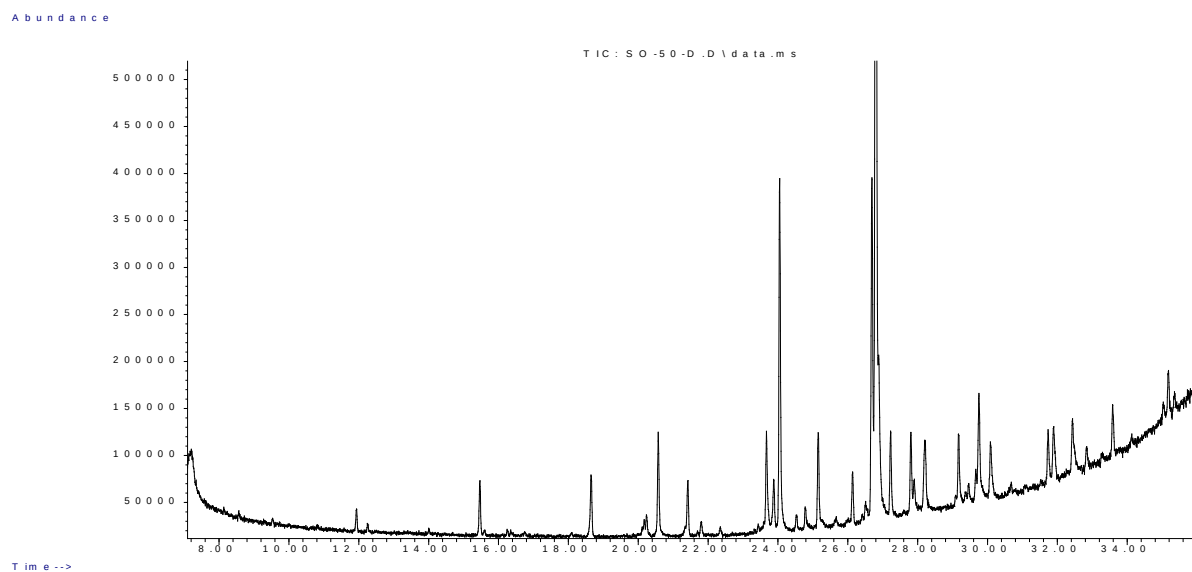


Figure S3: GC chromatogram from the GC–MS analysis of the Atlantic salmon oil degraded at low temperature (50 °C) (ASO50a).

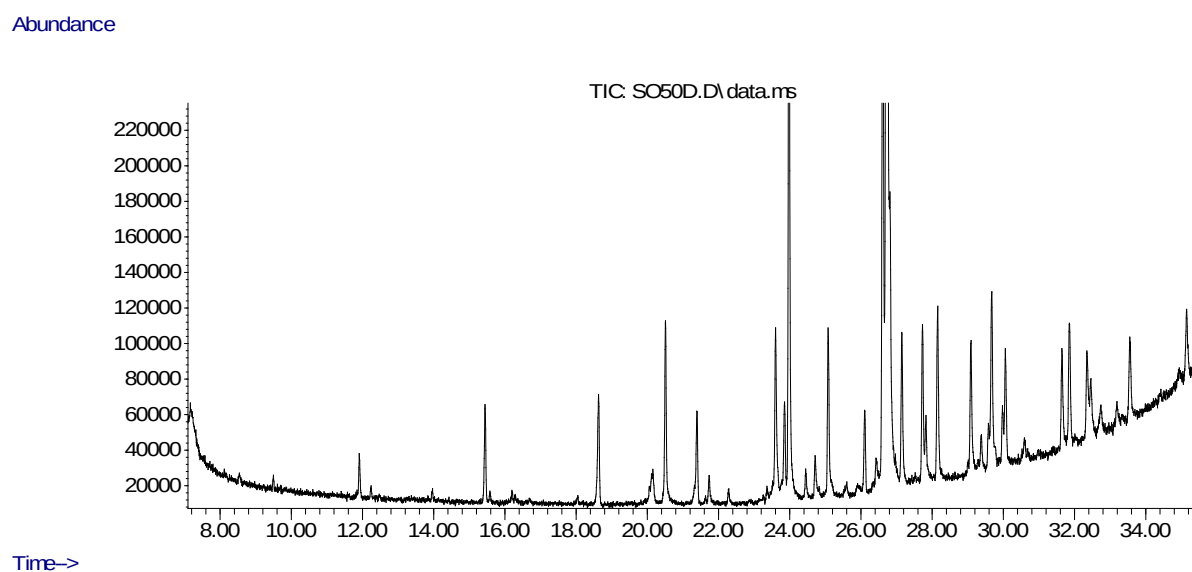


Figure S4: GC chromatogram from the GC–MS analysis of the Atlantic salmon oil degraded at low temperature, duplicate (50 °C) (ASO50b).

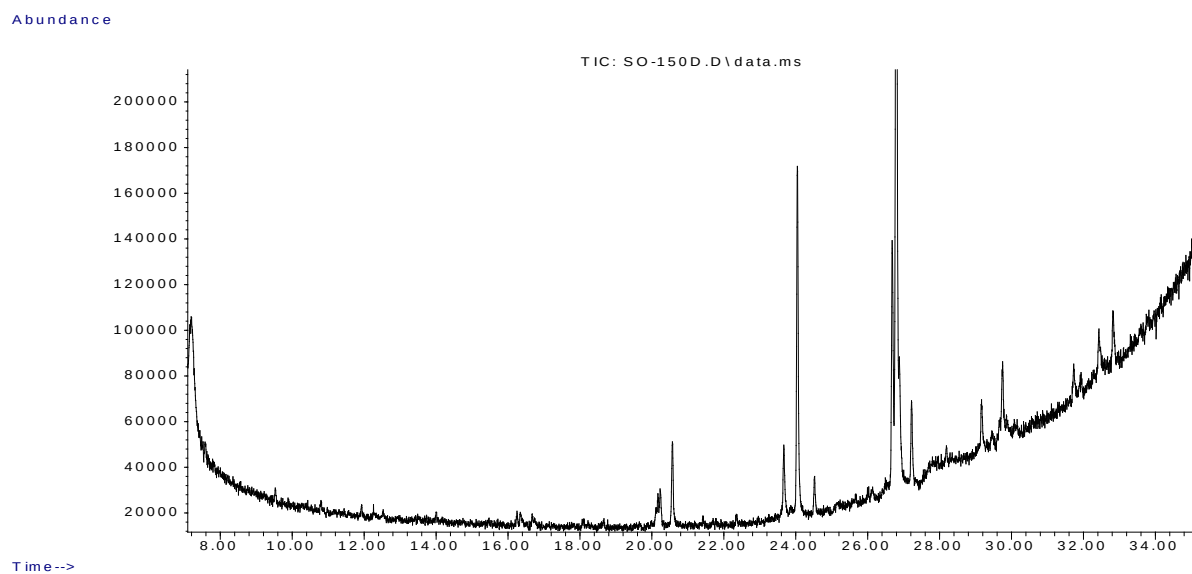


Figure S5: GC chromatogram from the GC–MS analysis of the Atlantic salmon oil degraded at high temperature (150 °C) (*ASO150a*).

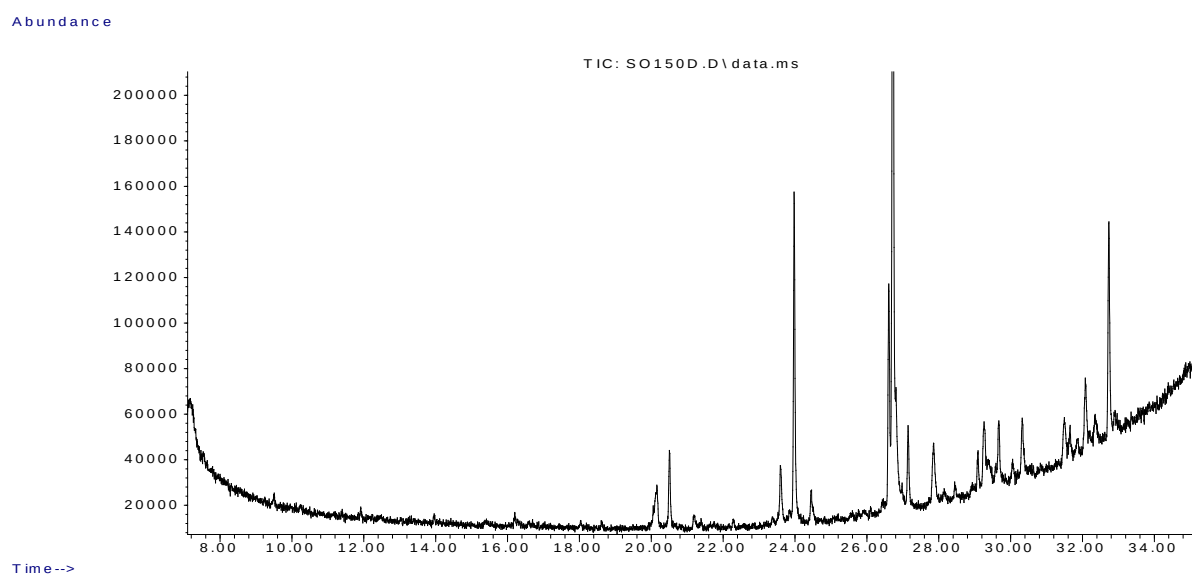


Figure S6: GC chromatogram from the GC–MS analysis of the Atlantic salmon oil degraded at high temperature, duplicate (150 °C) (*ASO150b*).

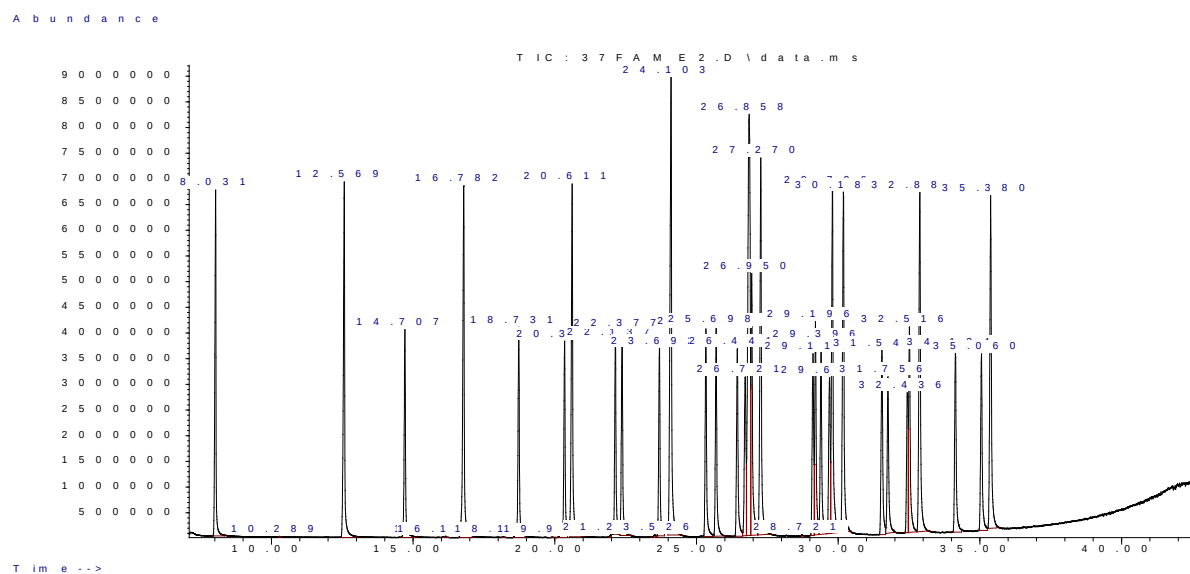


Figure S7: GC chromatogram from the GC-MS analysis of the fatty acid methyl esters (FAMES) standard solution.

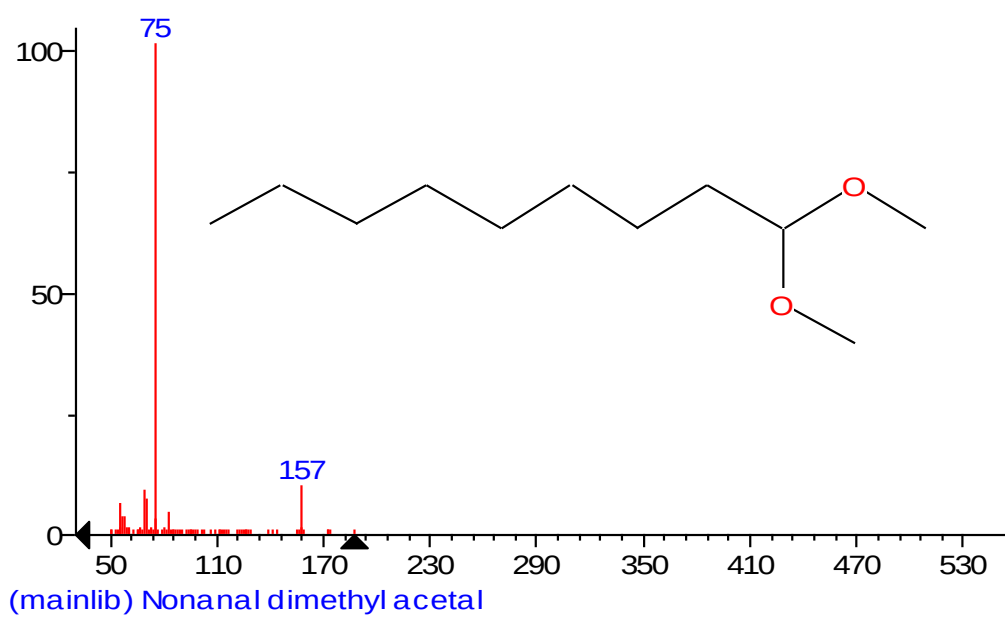
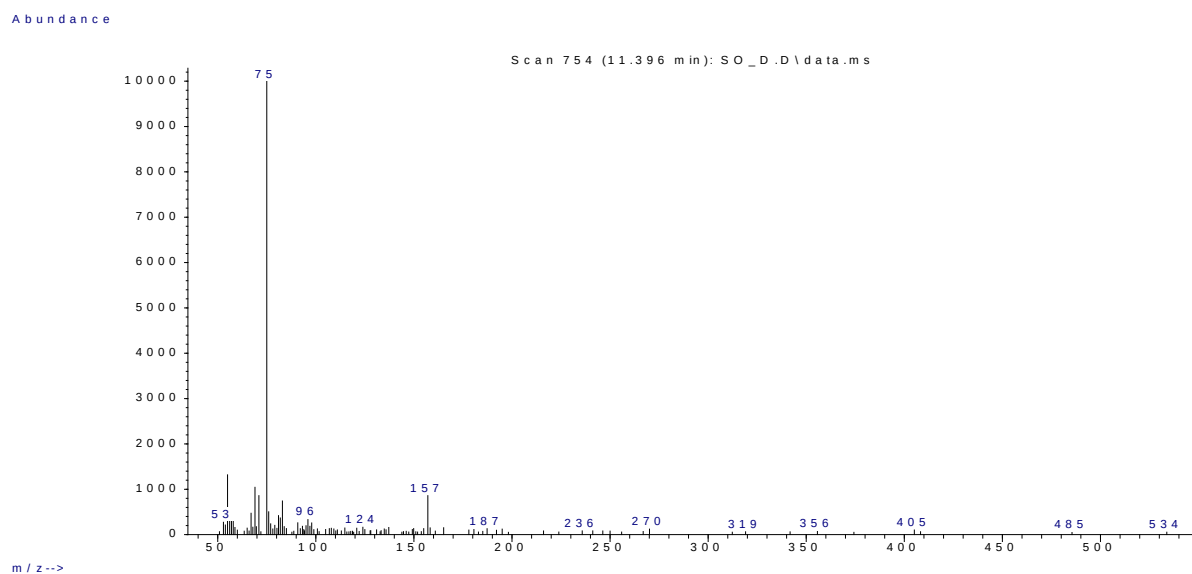


Figure S8: Experimental (up) and from the NIST database (down) MS spectra for nonanal (dimethyl acetal).

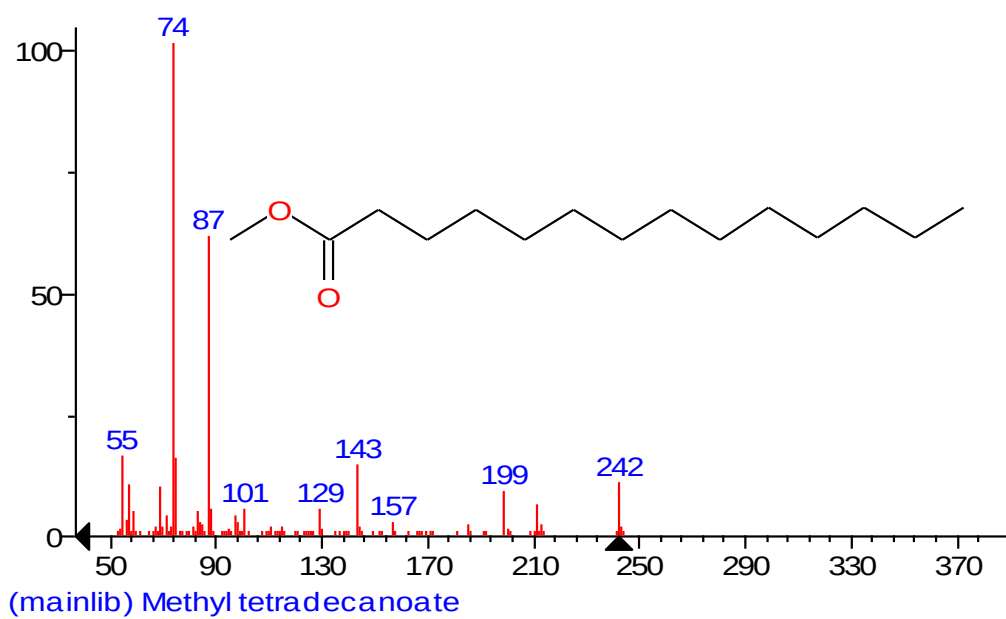
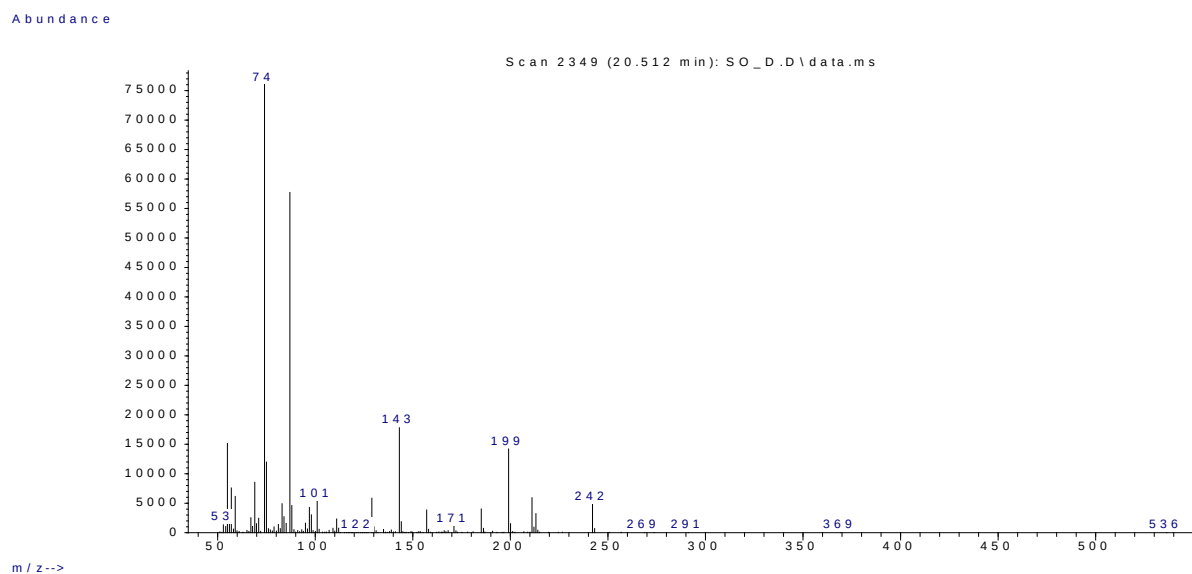


Figure S9: Experimental (up) and from the NIST database (down) MS spectra for myristic acid methyl ester.

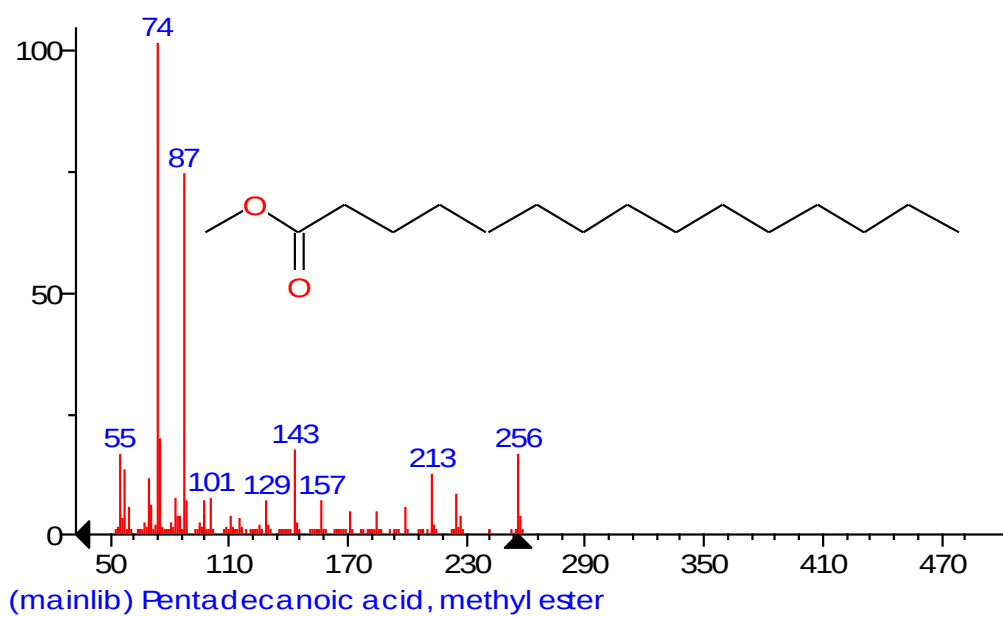
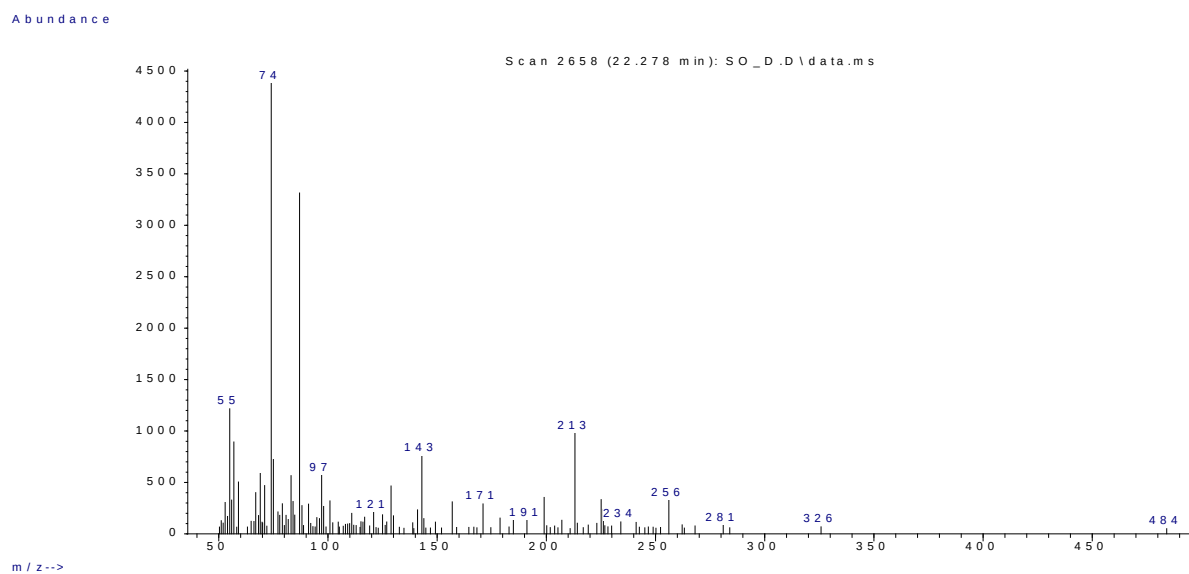


Figure S10: Experimental (up) and from the NIST database (down) MS spectra for pentadecanoic acid methyl ester.

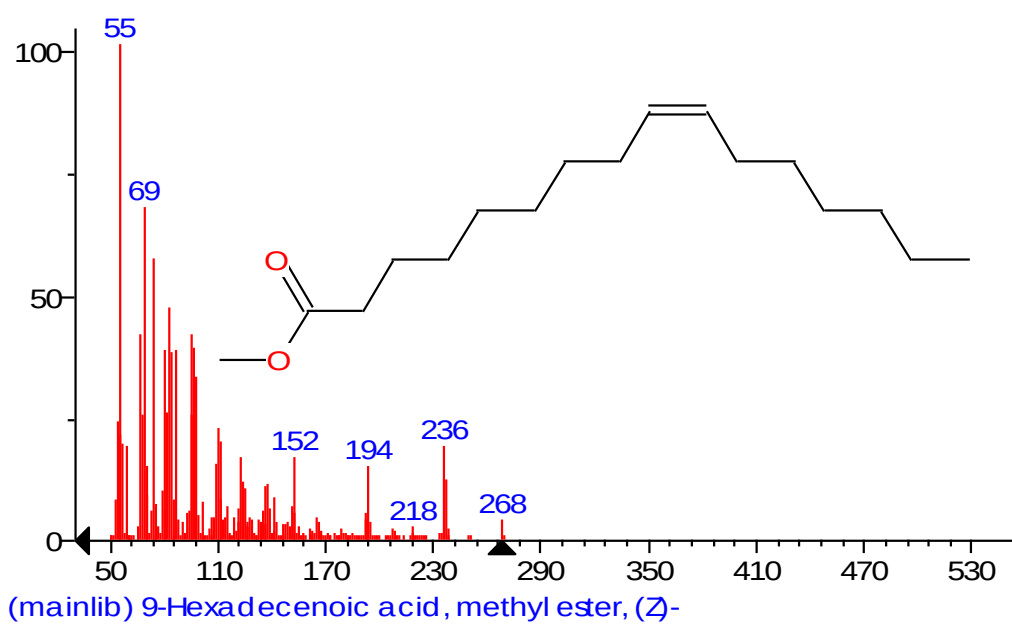
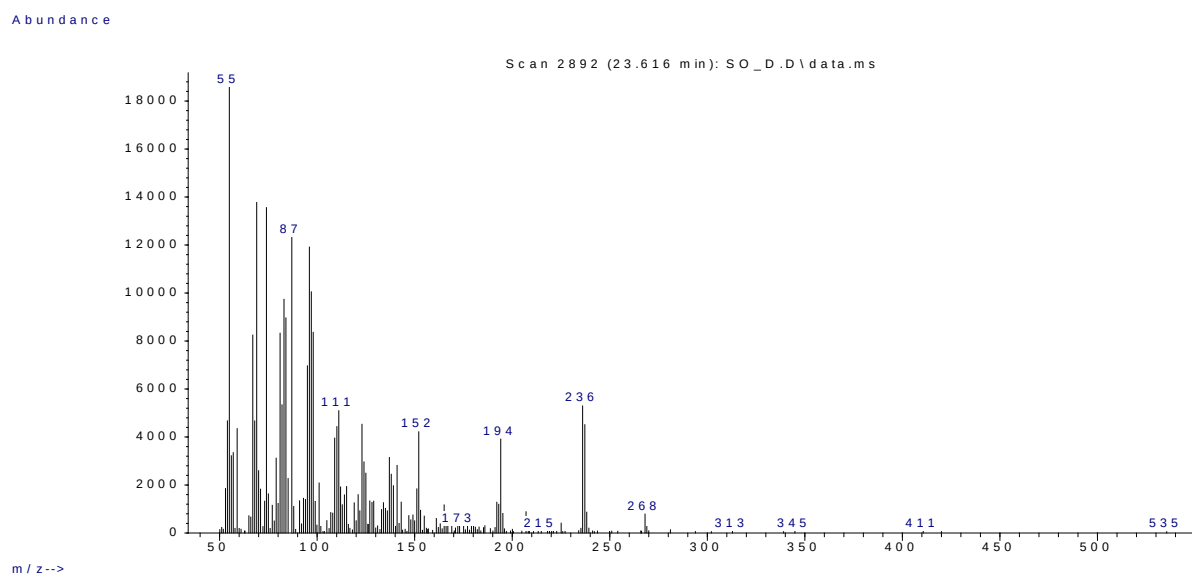


Figure S11: Experimental (up) and from the NIST database (down) MS spectra for palmitoleic acid methyl ester.

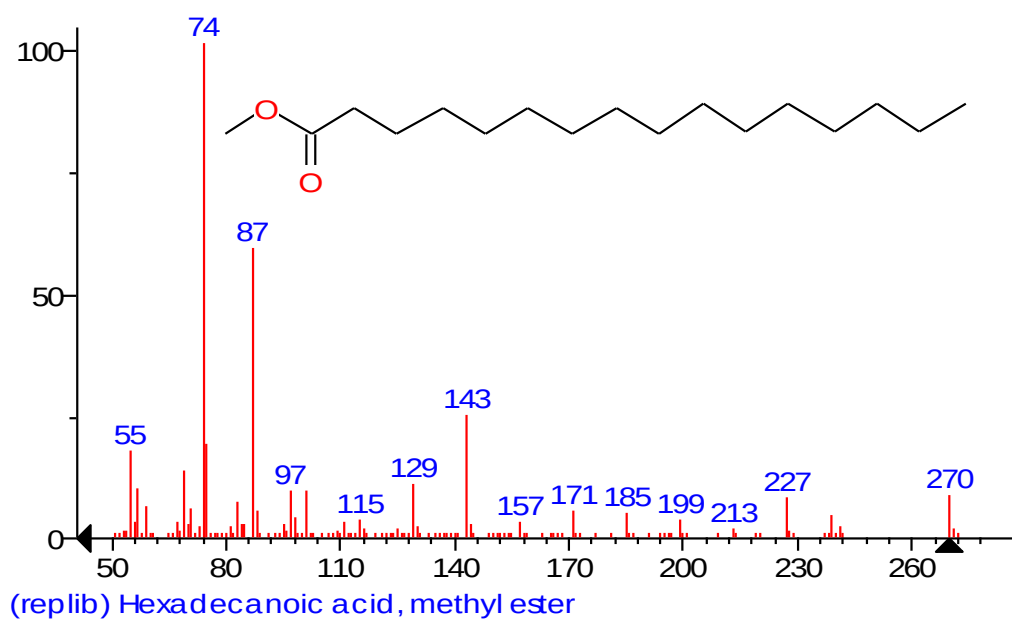
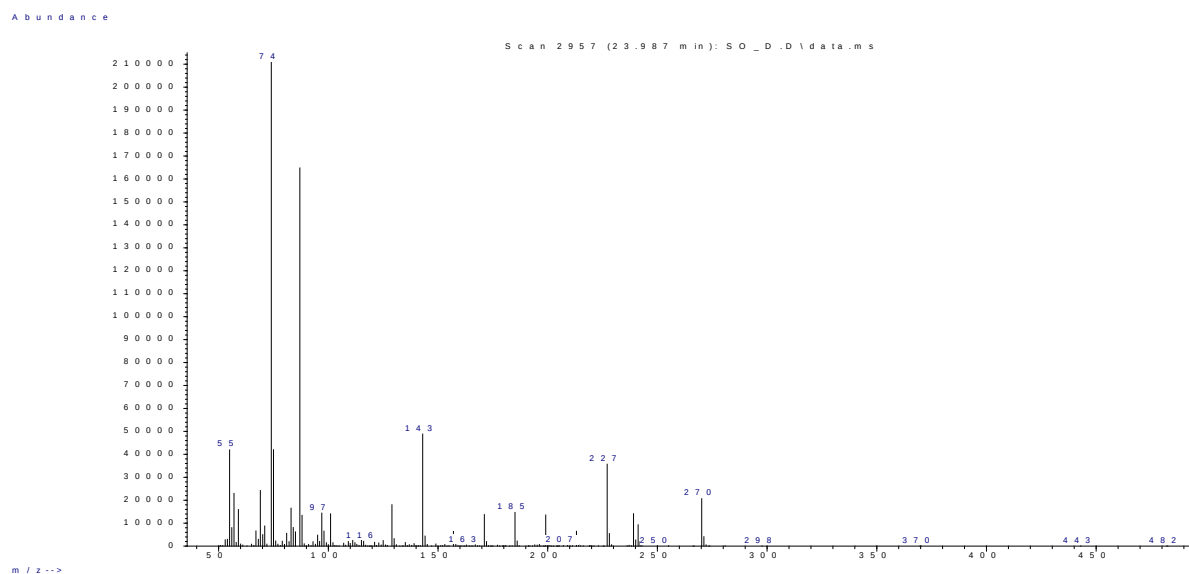


Figure S12: Experimental (up) and from the NIST database (down) MS spectra for palmitic acid methyl ester.

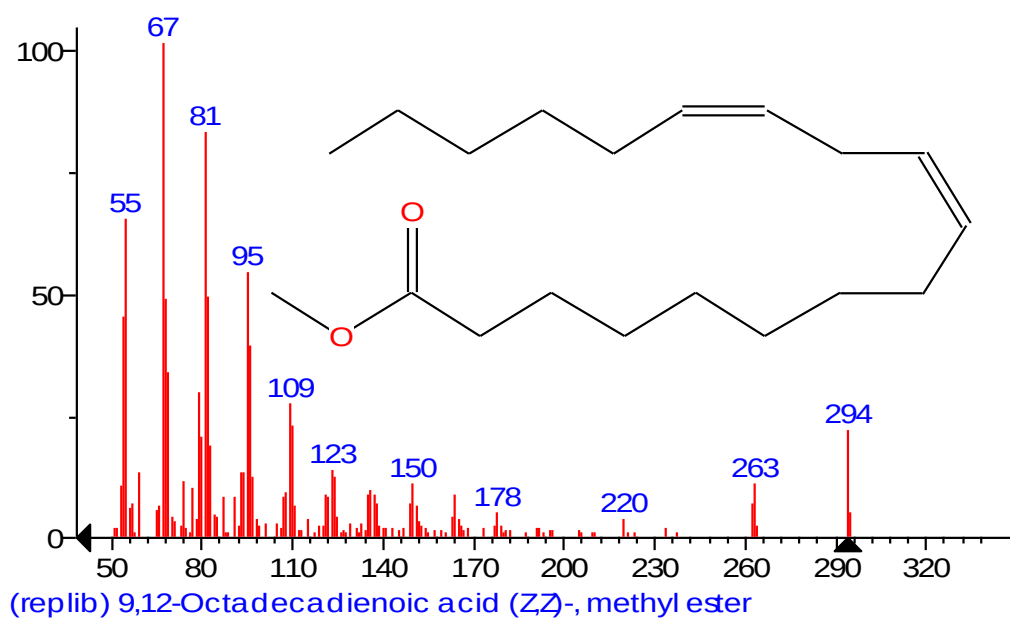
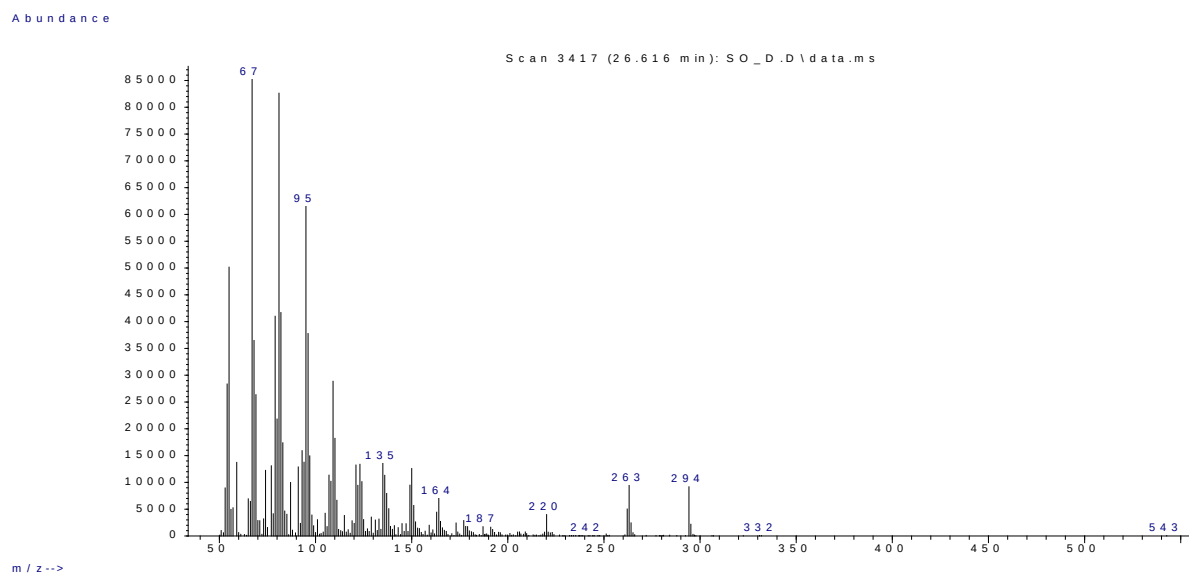


Figure S13: Experimental (up) and from the NIST database (down) MS spectra for linoleic acid methyl ester.

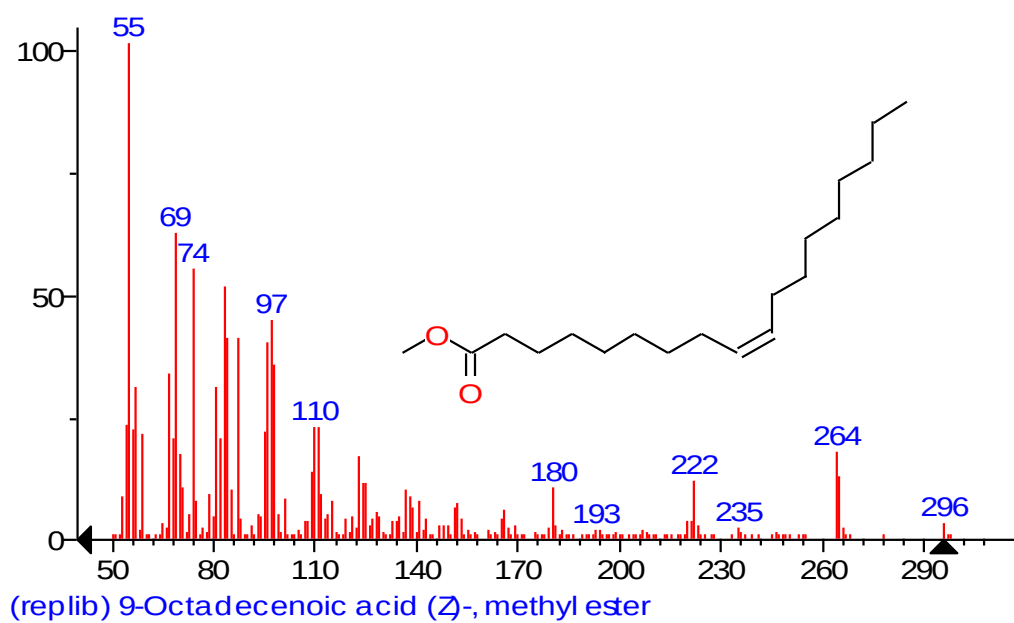
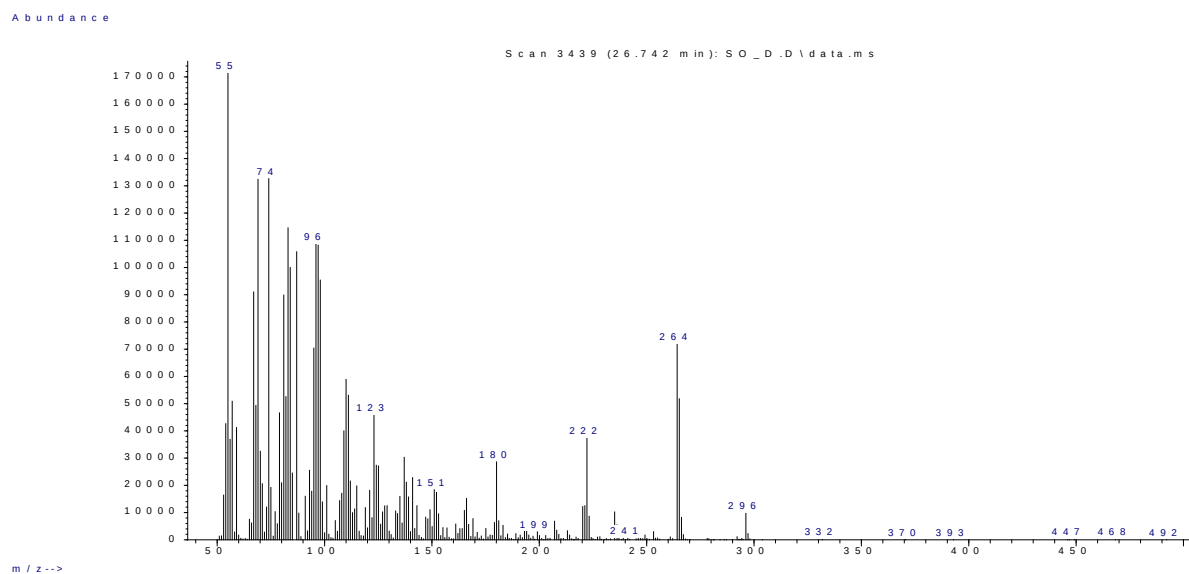


Figure S14: Experimental (up) and from the NIST database (down) MS spectra for oleic acid methyl ester.

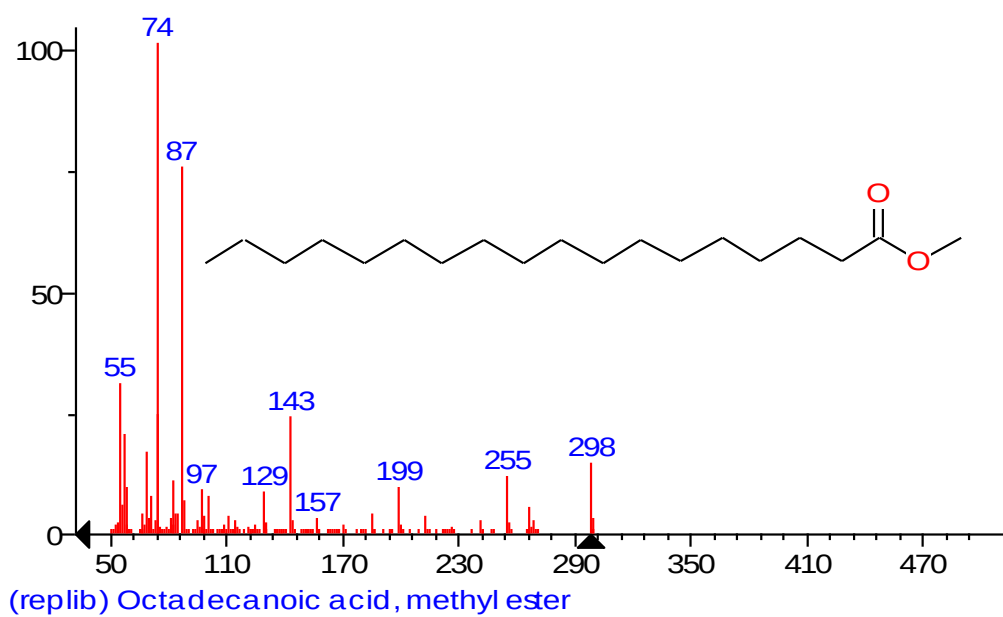
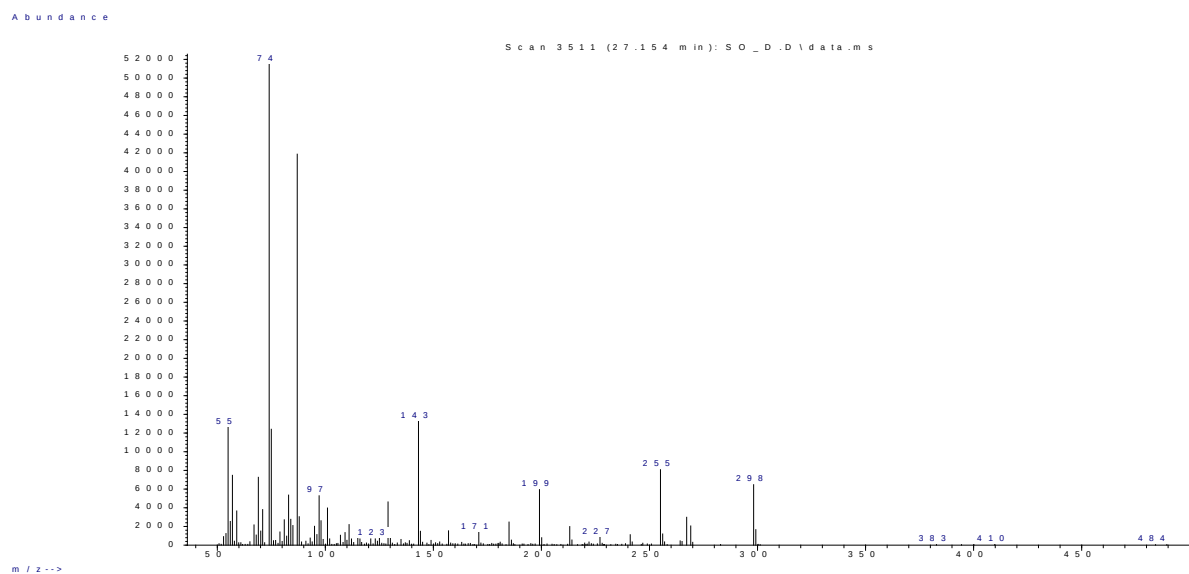


Figure S15: Experimental (up) and from the NIST database (down) MS spectra for stearic acid methyl ester.

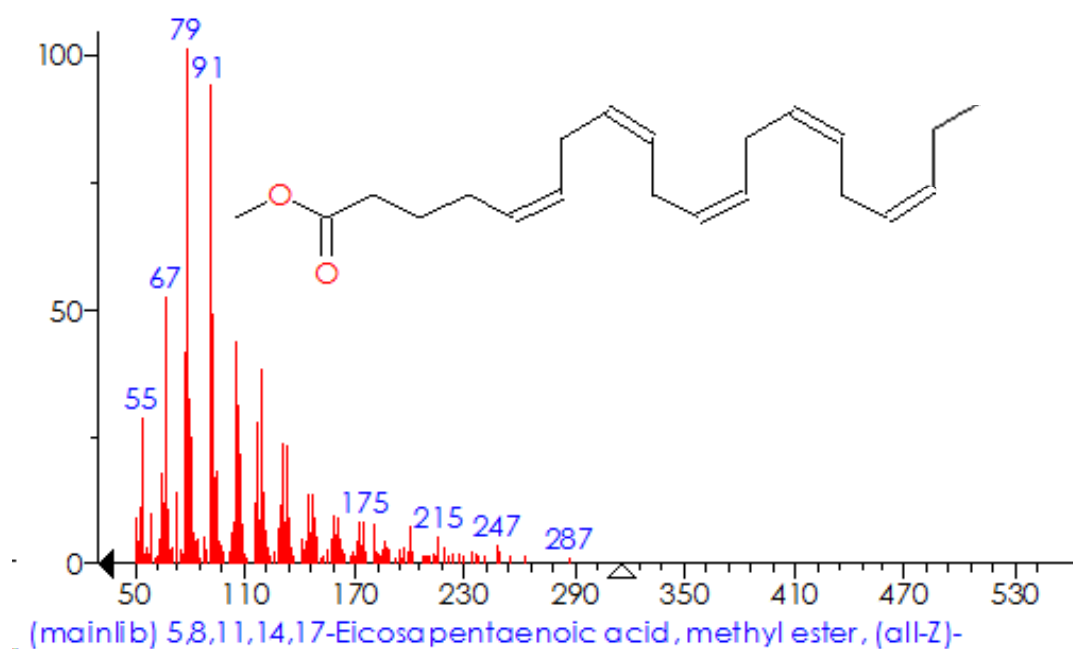
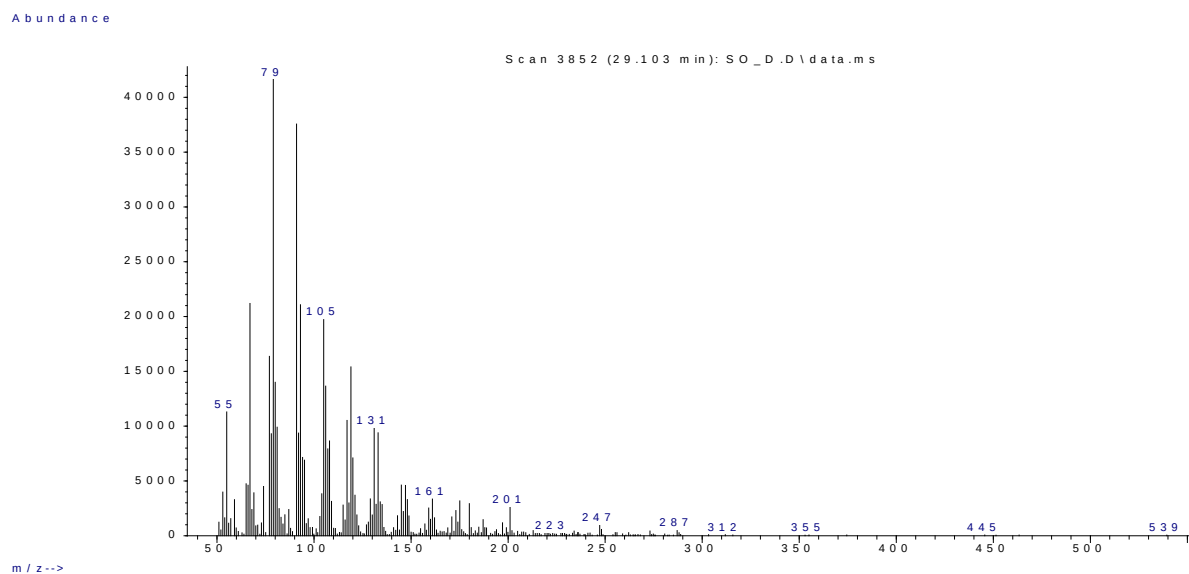


Figure S16: Experimental (up) and from the NIST database (down) MS spectra for (all-Z)-5,8,11,14,17-eicosapentaenoic acid methyl ester (EPA methyl ester).

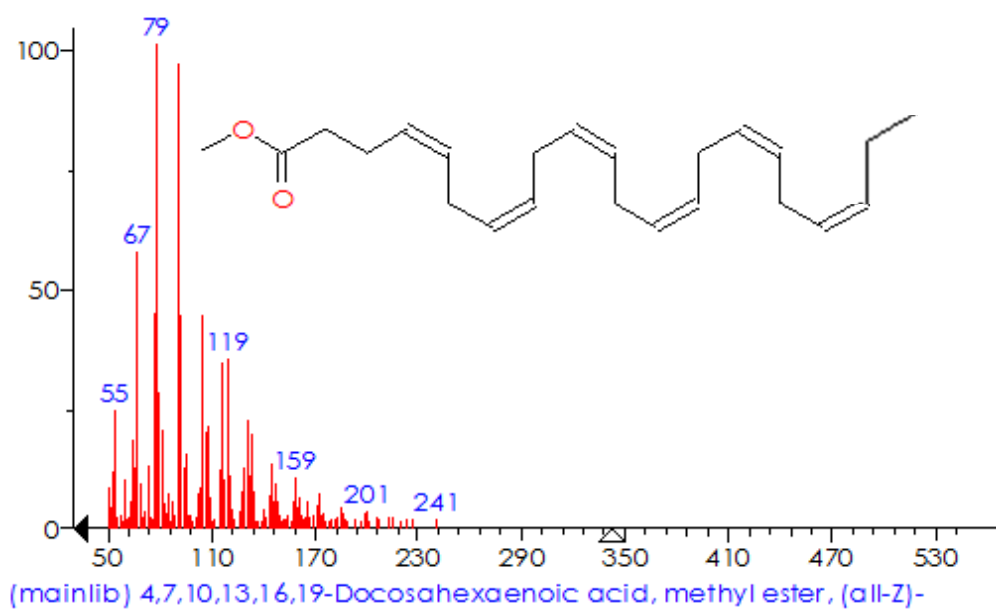
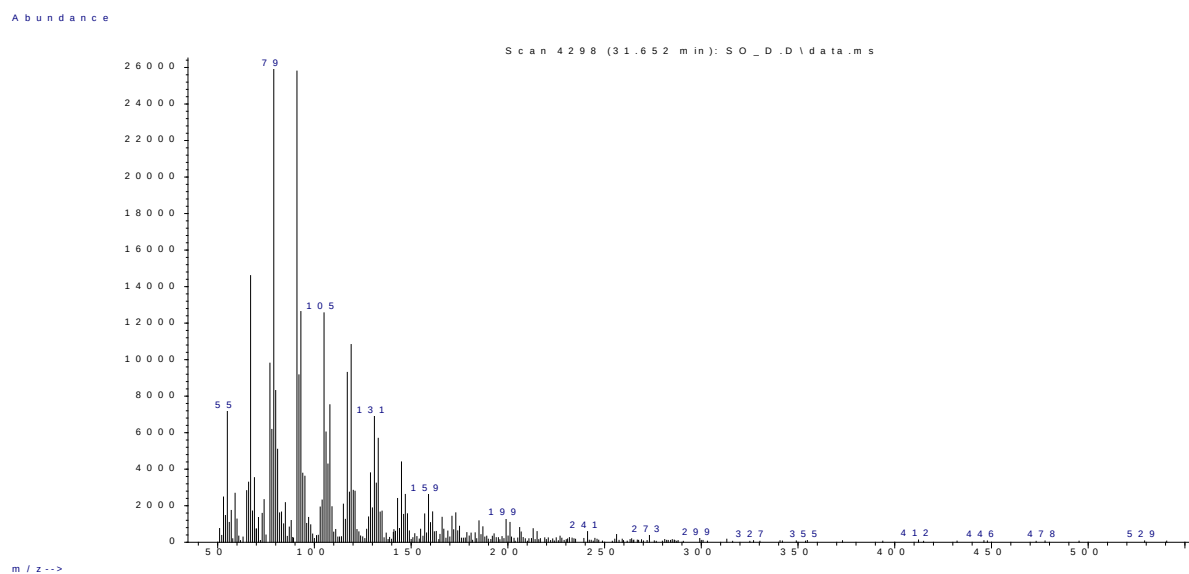


Figure S17: Experimental (up) and from the NIST database (down) MS spectra for (all-Z)-4,7,10,13,16,19-docosahexaenoic acid methyl ester (DHA methyl ester).

Thermogravimetric analysis

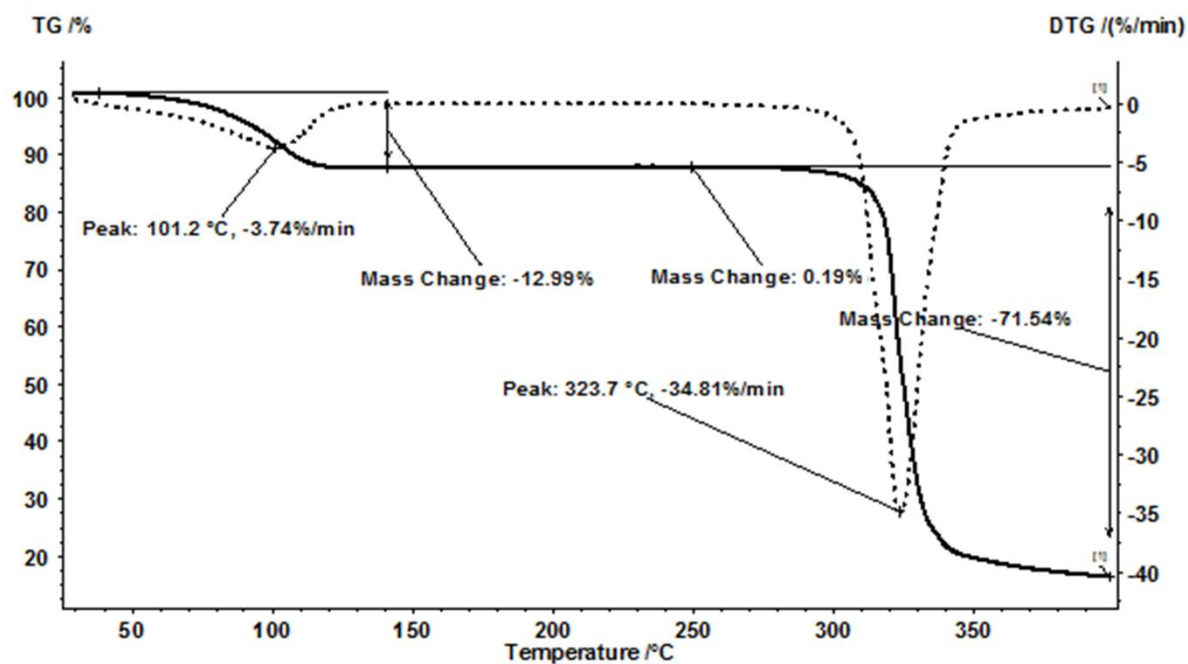


Figure S18: Thermogram from TG/DTG analysis of commercial β -cyclodextrin (β -CD).

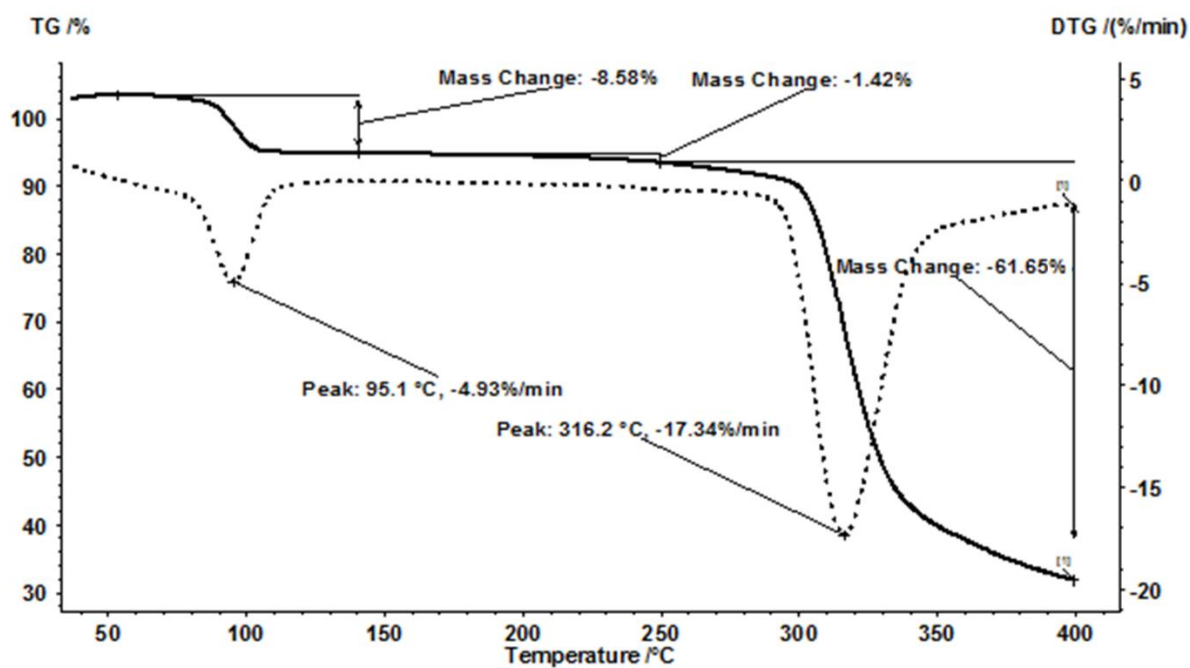


Figure S19: Thermogram from TG/DTG analysis of β -CD/ASO_1:1_a complex.

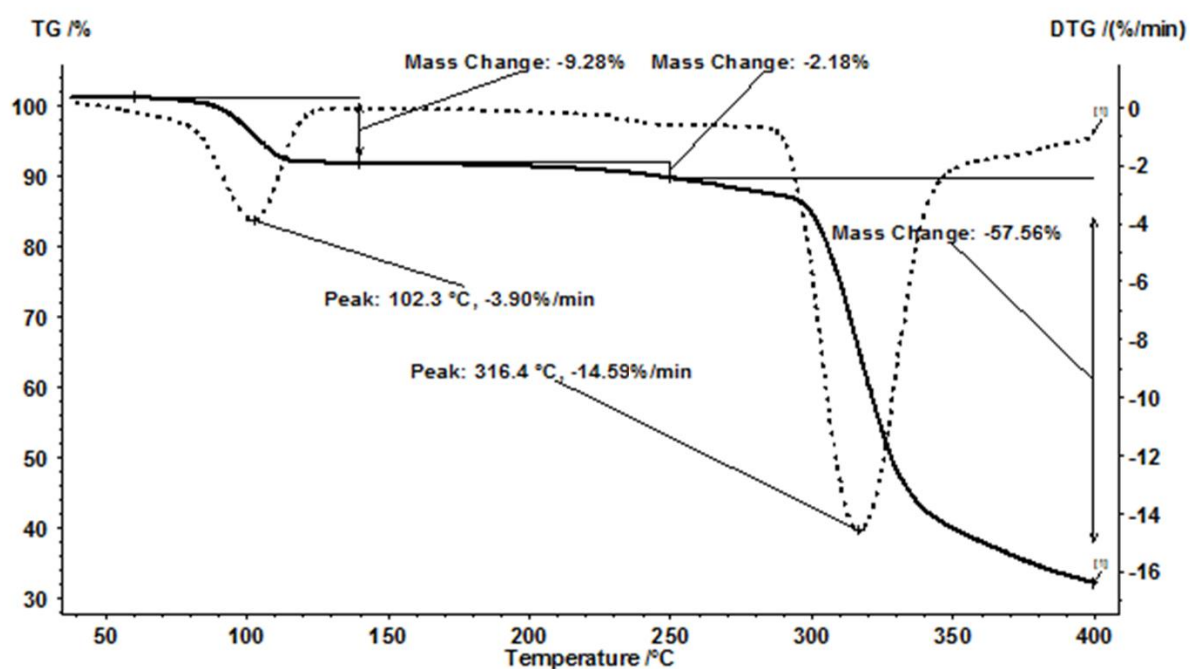


Figure S20: Thermogram from TG/DTG analysis of β -CD/ASO_1:1_b complex

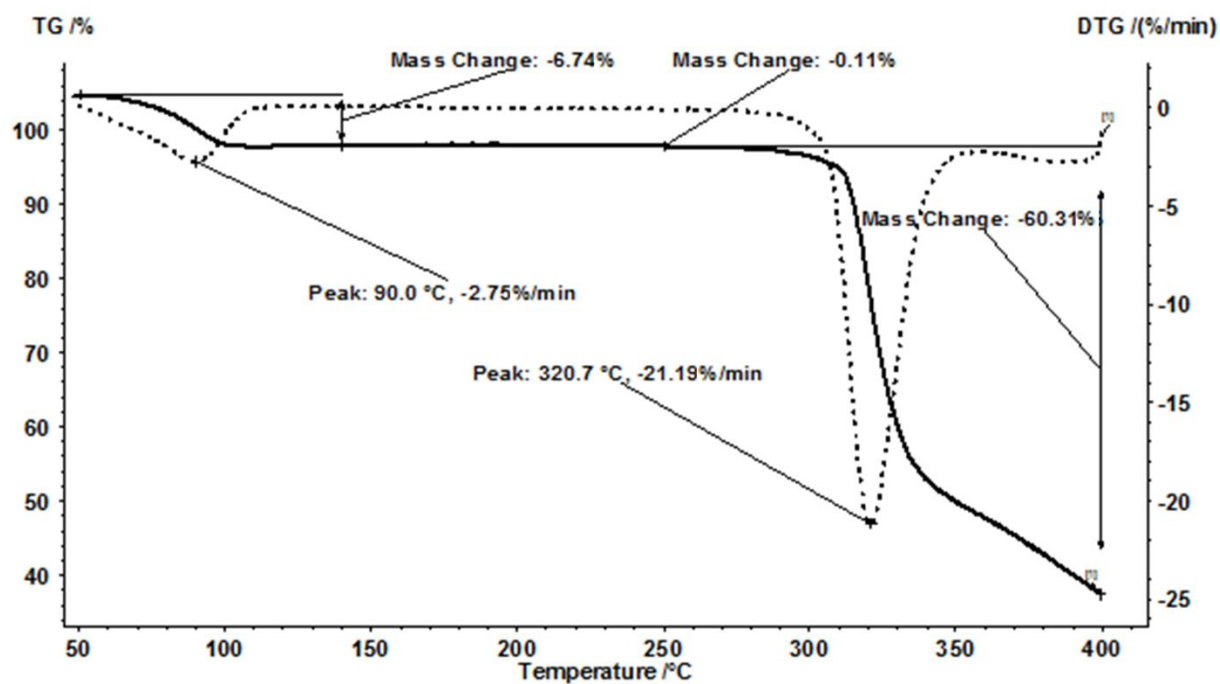


Figure S21: Thermogram from TG/DTG analysis of β -CD/ASO_3:1_a complex.

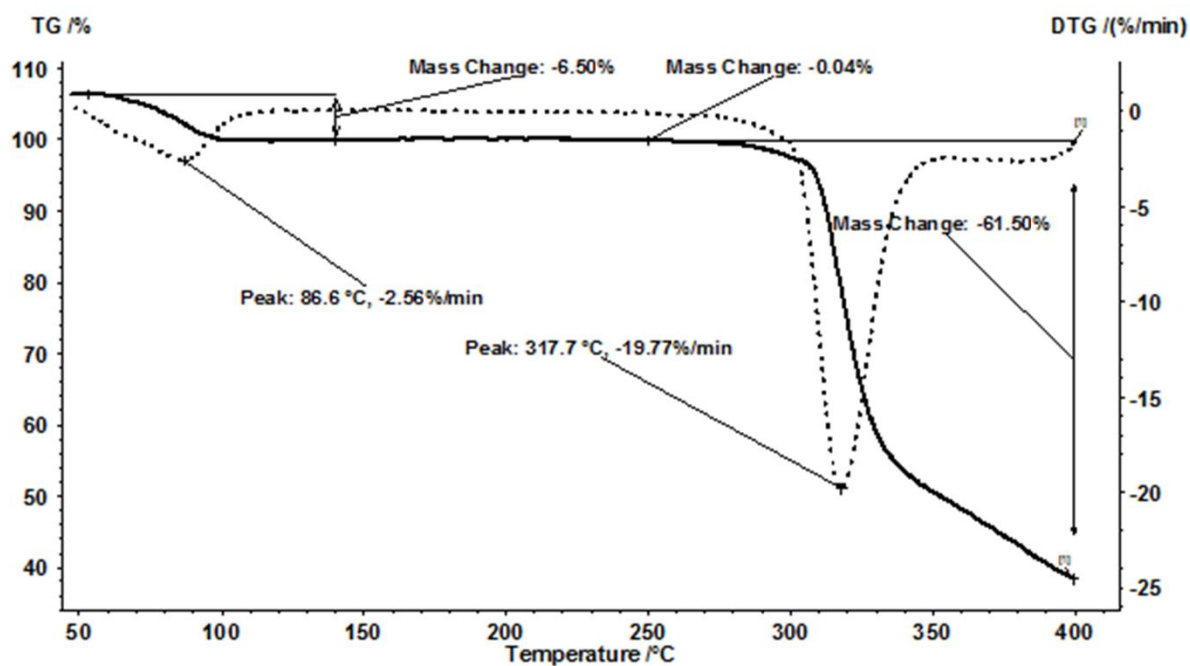


Figure S22: Thermogram from TG/DTG analysis of β -CD/ASO₃:1_b complex.

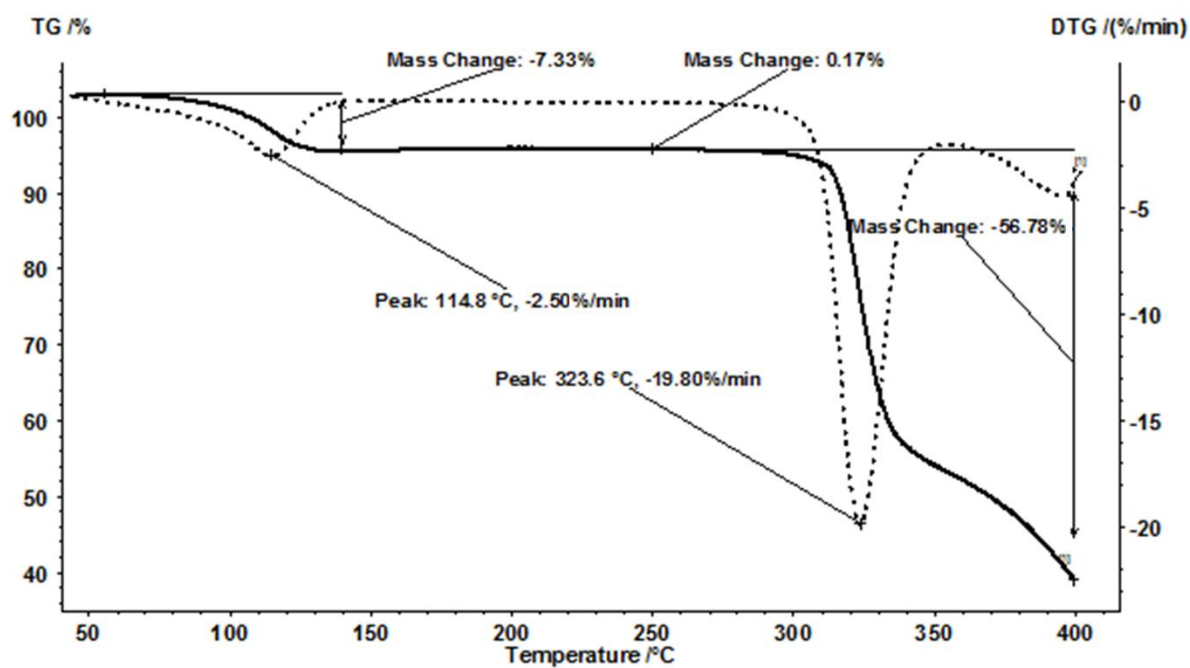


Figure S23: Thermogram from TG/DTG analysis of β -CD/ASO₁:1(k)_a complex.

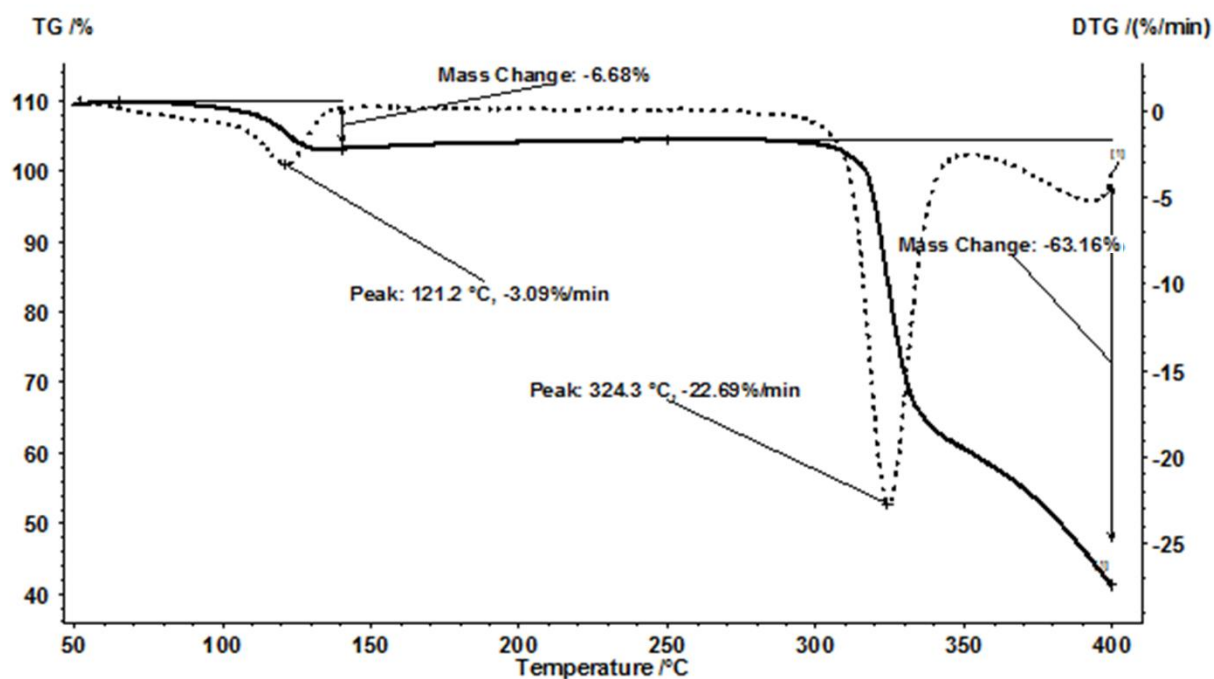


Figure S24: Thermogram from TG/DTG analysis of β -CD/ASO_{1:1(k)_b} complex.

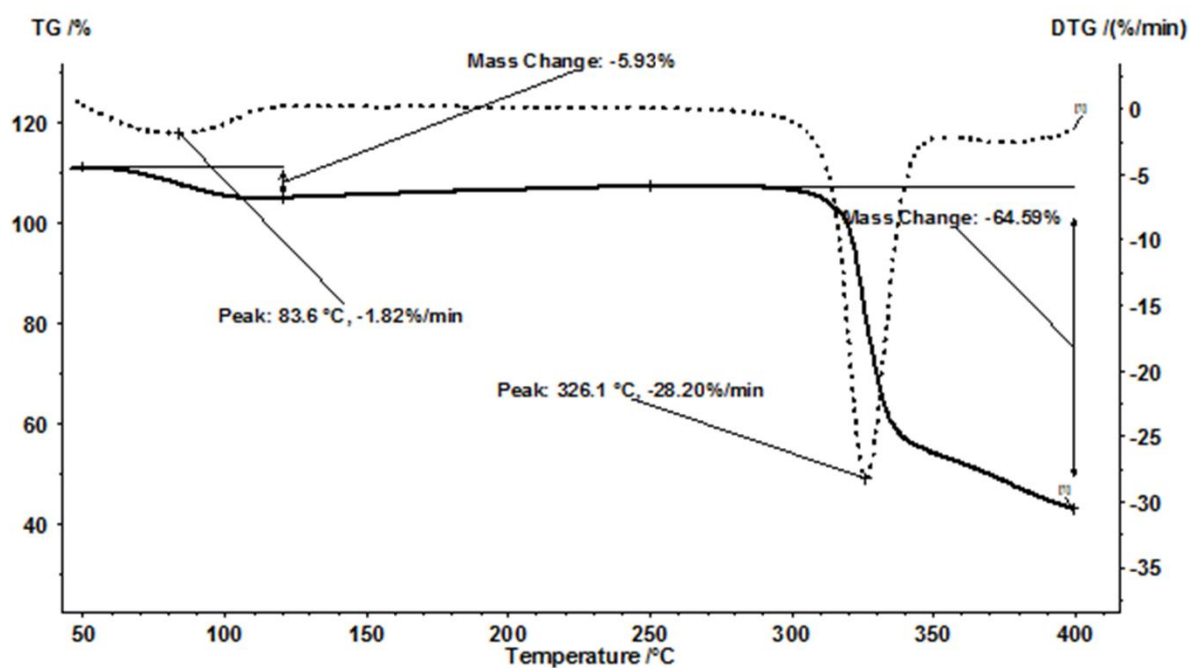


Figure S25: Thermogram from TG/DTG analysis of β -CD/ASO_{3:1(k)_a} complex.

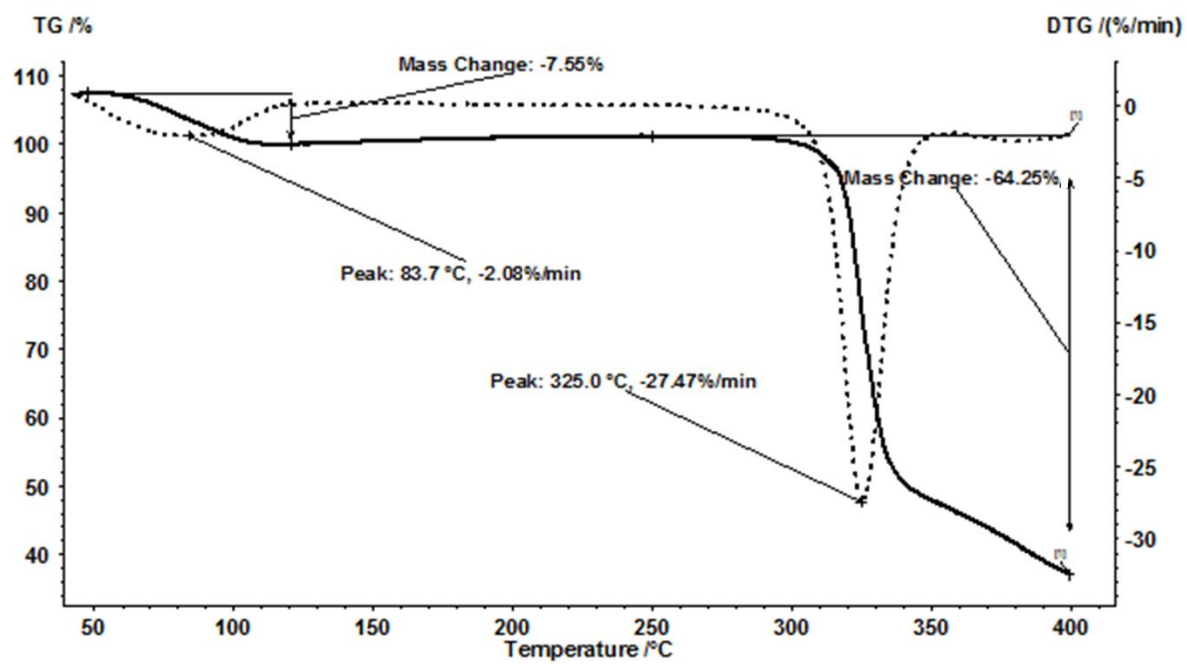


Figure S26: Thermogram from TG/DTG analysis of β -CD/ASO₃:1(k)_b complex.

Differential scanning calorimetry analysis

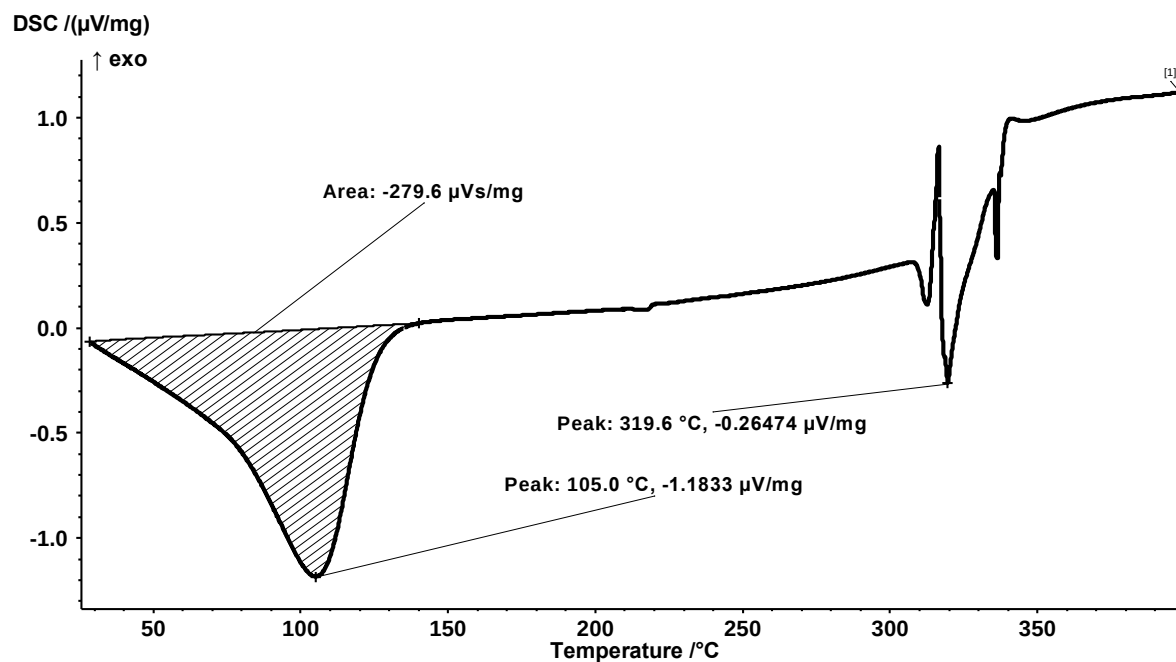


Figure S27: DSC analysis of commercial β -cyclodextrin (β -CD).

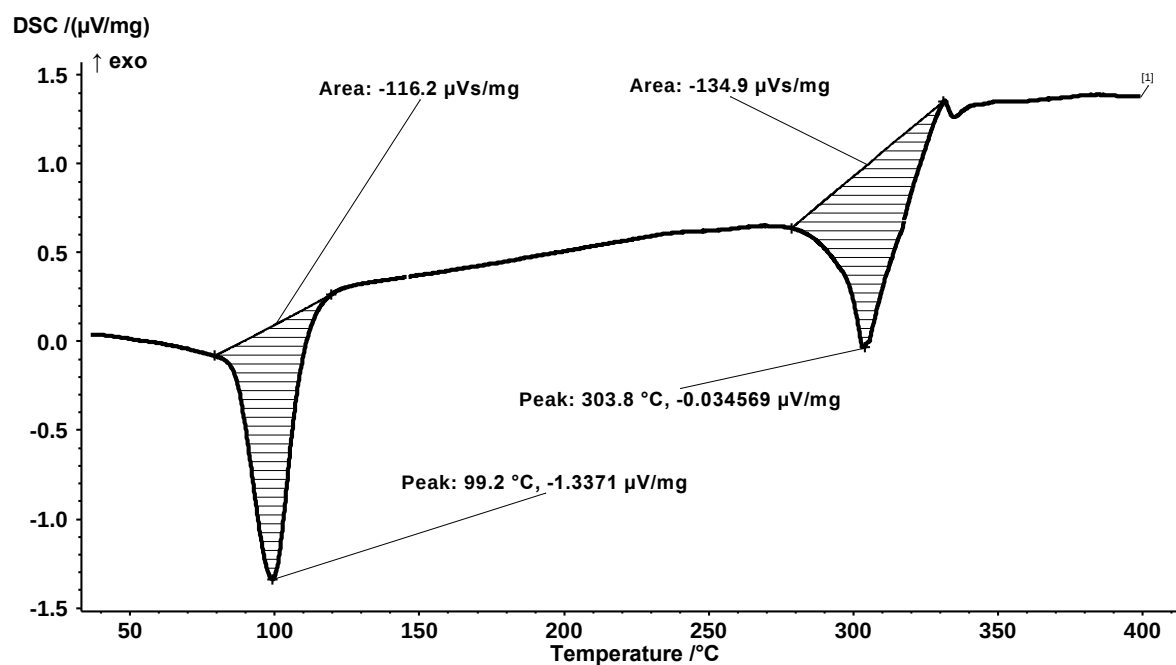


Figure S28: DSC analysis of β -CD/ASO_1:1_a complex.

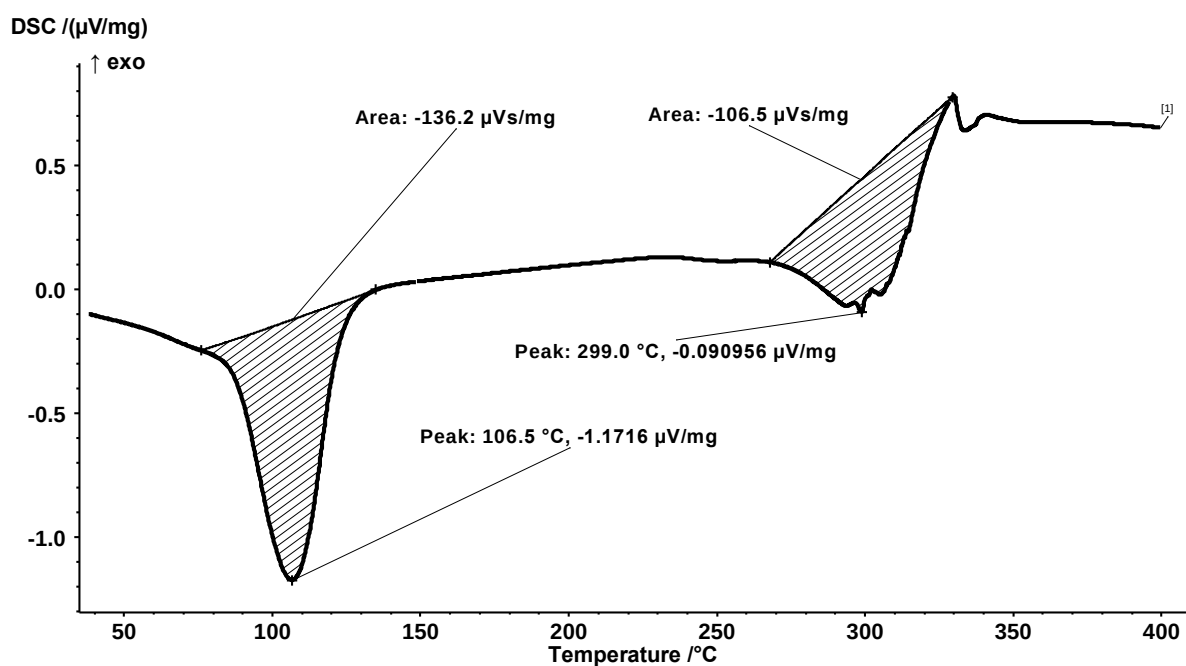


Figure S29: DSC analysis of $\beta\text{-CD/ASO}_1:1_b$ complex.

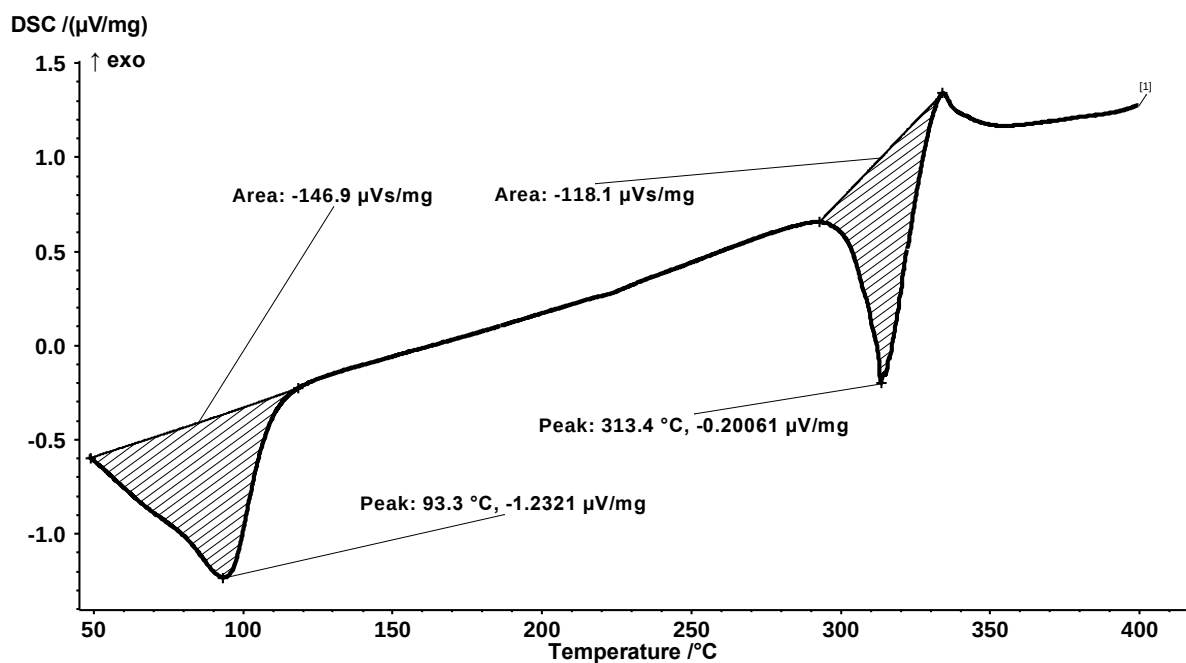


Figure S30: DSC analysis of $\beta\text{-CD/ASO}_3:1_a$ complex.

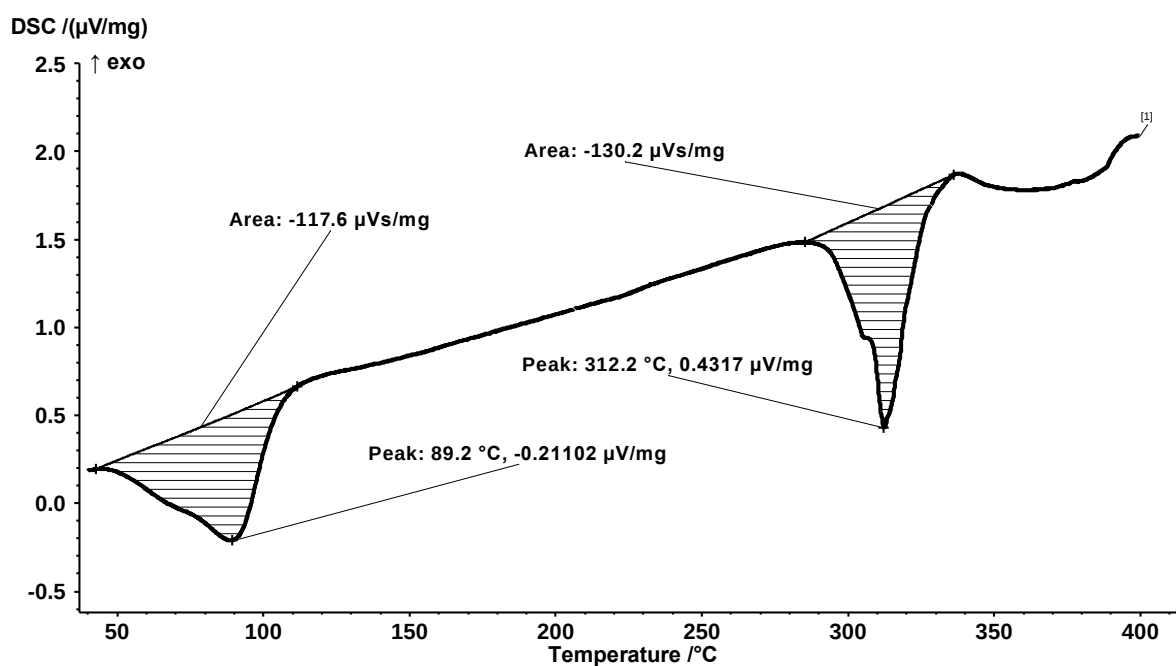


Figure S31: DSC analysis of $\beta\text{-CD/ASO}_3:1_b$ complex.

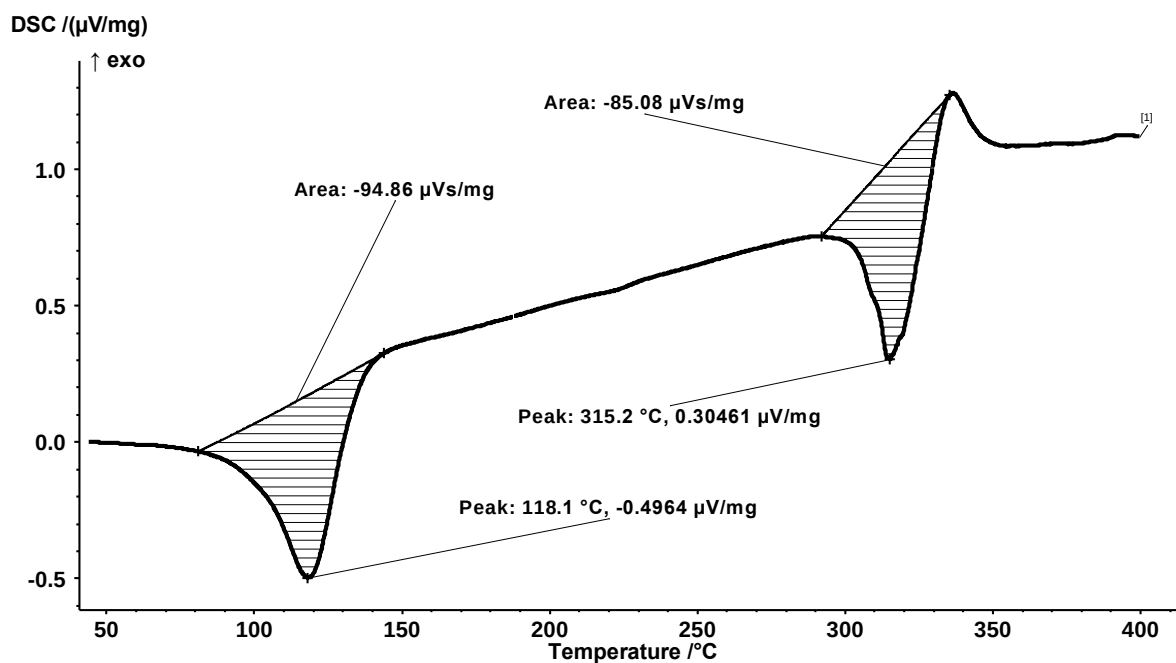


Figure S32: DSC analysis of $\beta\text{-CD/ASO}_1:1(k)_a$ complex.

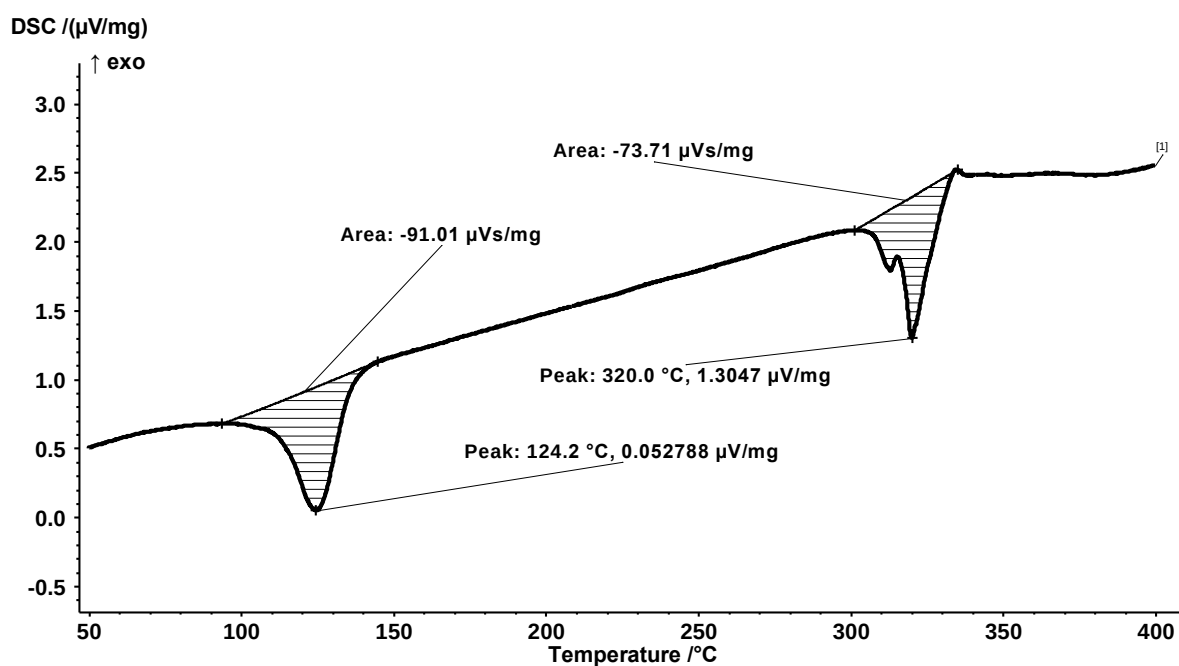


Figure S33: DSC analysis of β -CD/ASO_1:1(k)_b complex.

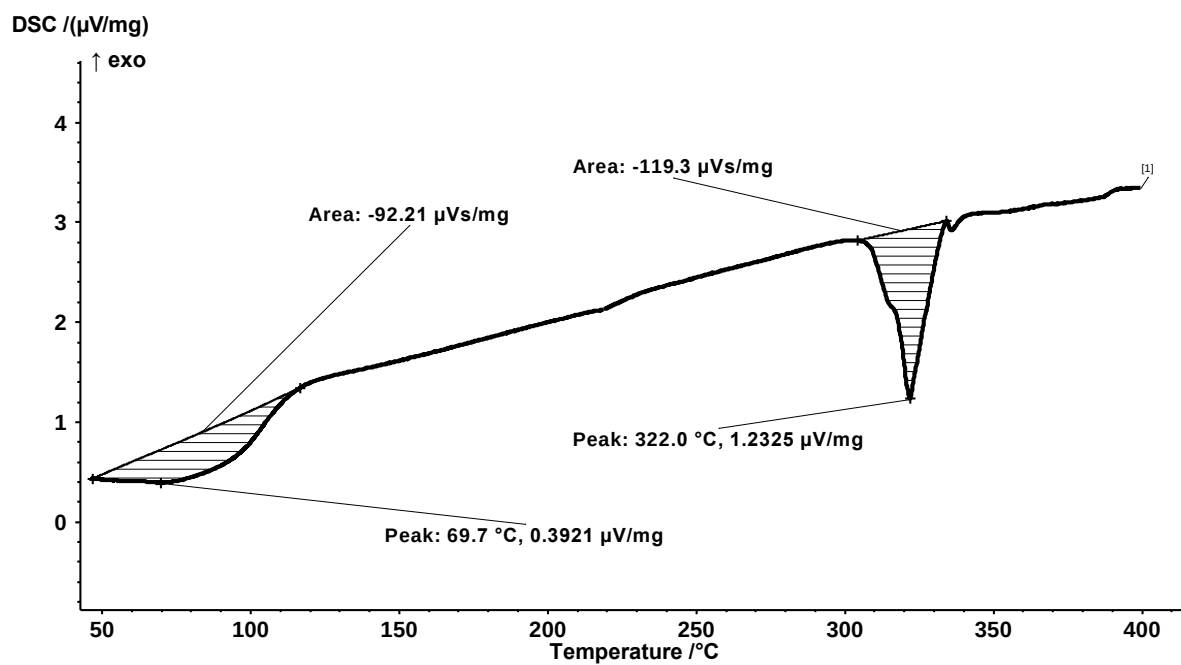


Figure S34: DSC analysis of β -CD/ASO_3:1(k)_a complex.

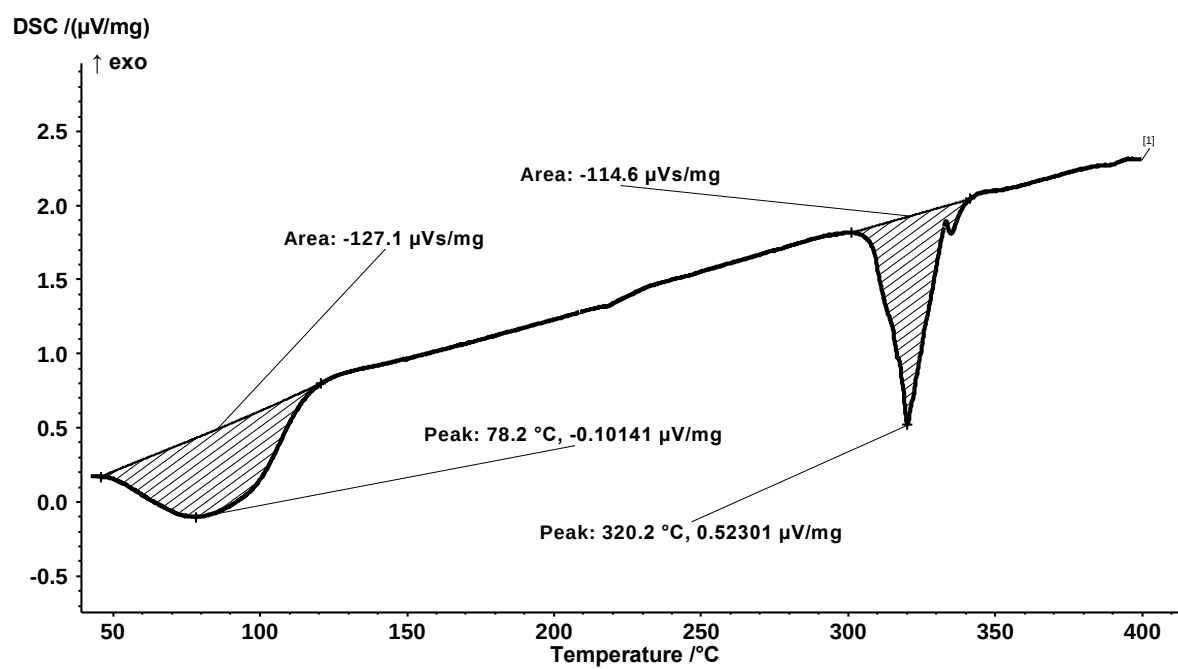


Figure S35: DSC analysis of β -CD/ASO_{3:1(k)}_b complex.

Karl Fisher water titration

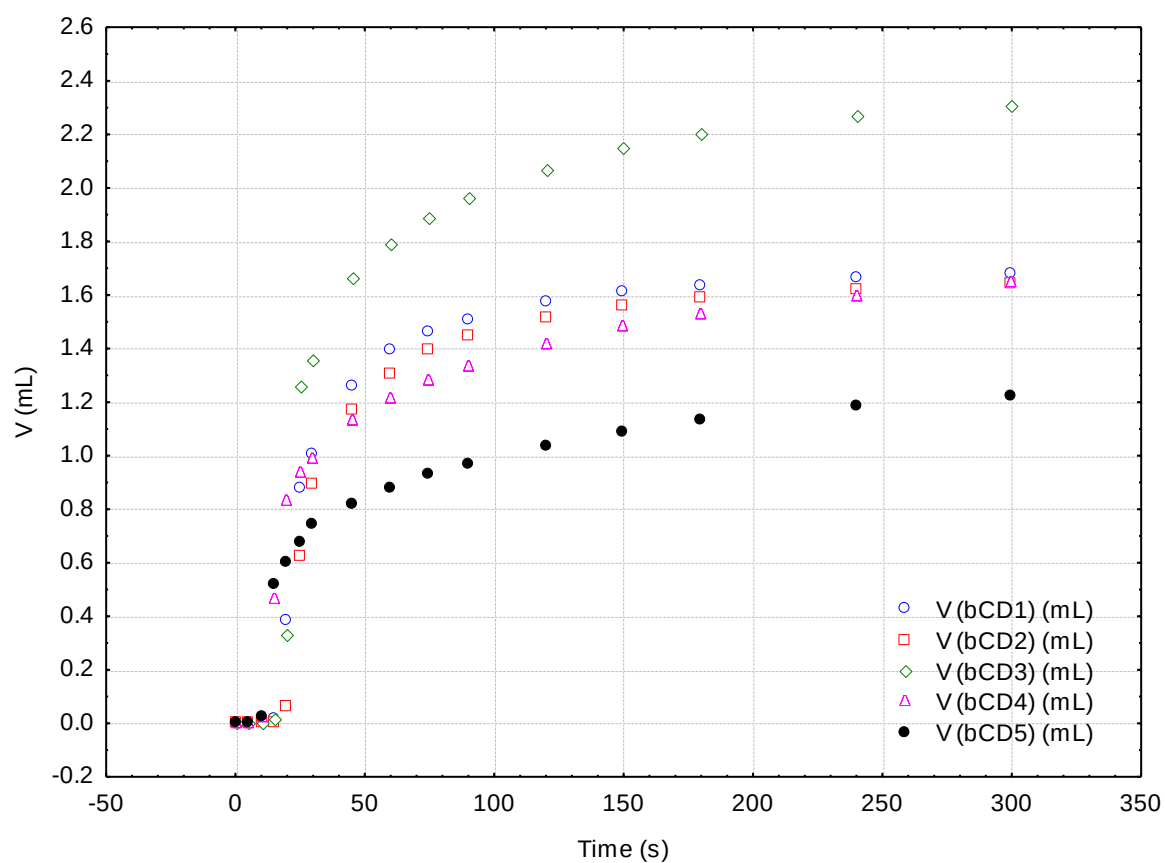


Figure S36: Volume versus Time plot from the KFT analysis of commercial β -cyclodextrin (β -CD).

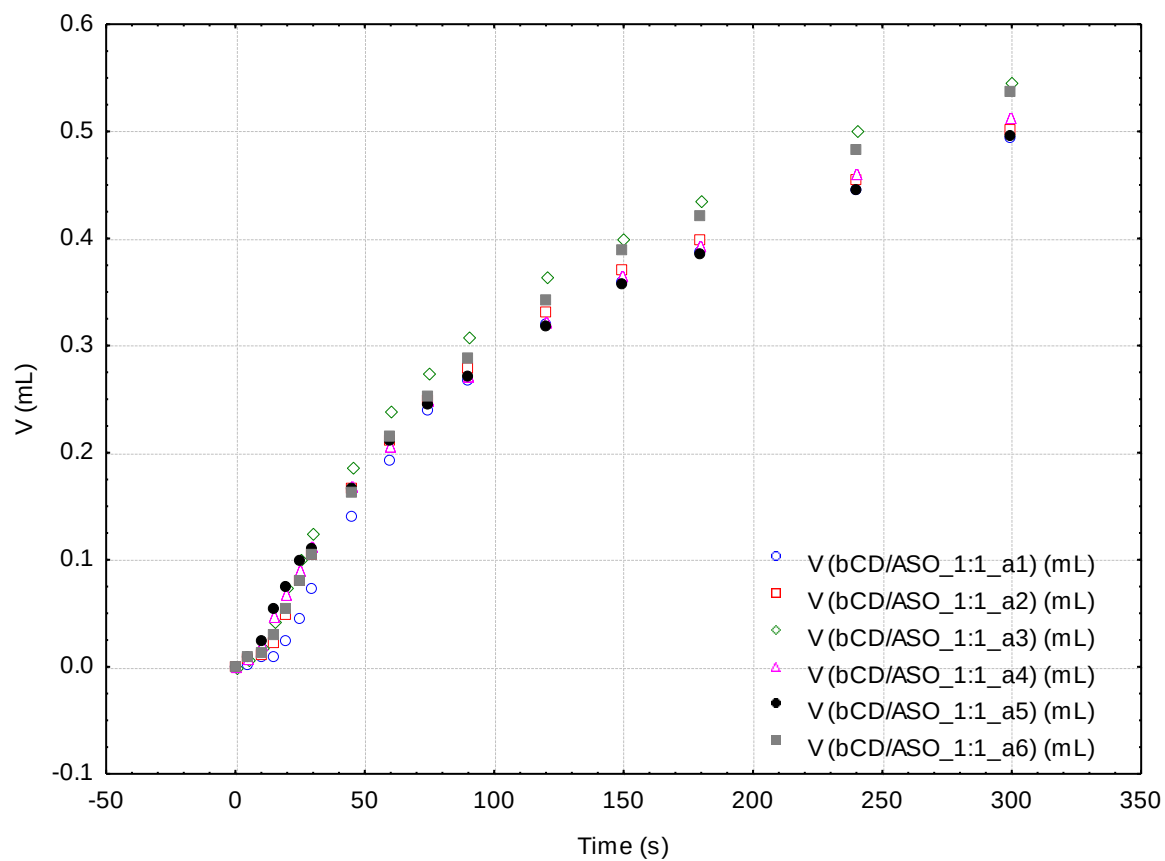


Figure S37: Volume versus Time plots from the KFT analysis of β -CD/ASO_1:1_a samples.

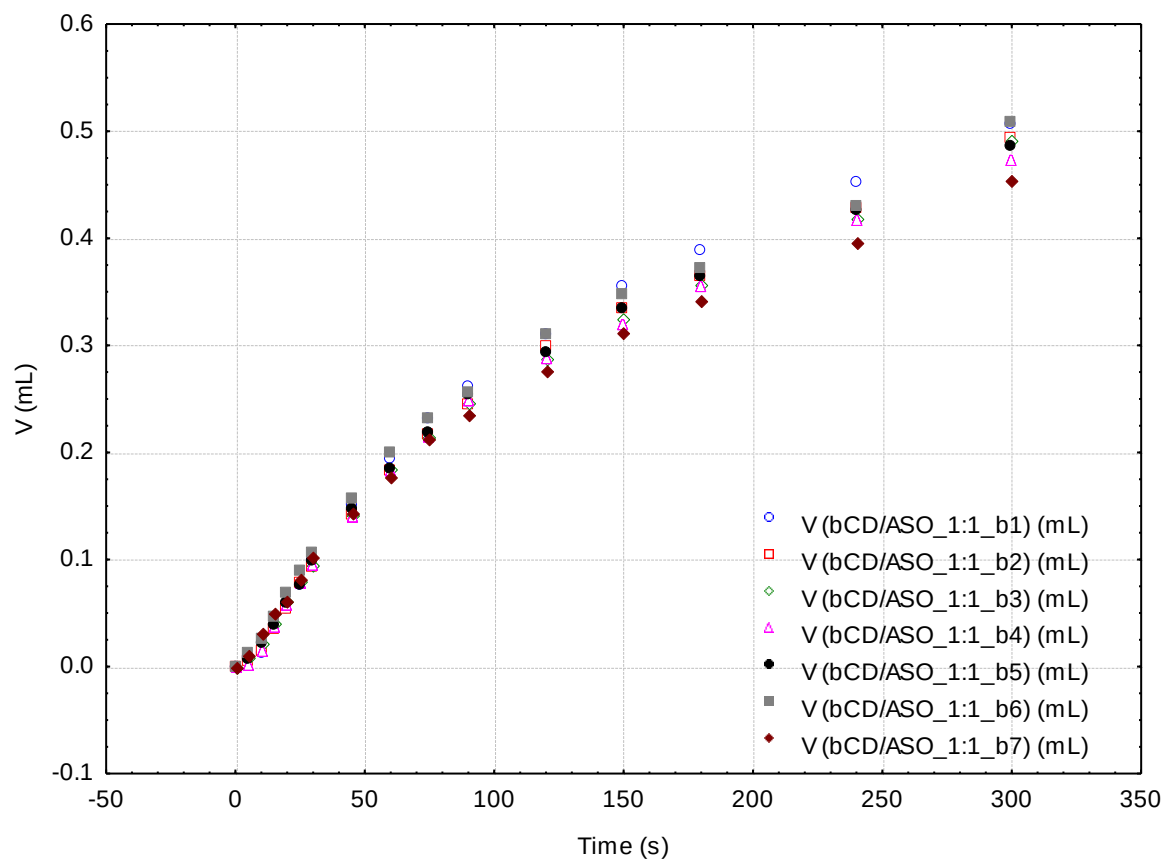


Figure S38: Volume versus Time plots from the KFT analysis of β -CD/ASO_1:1_b samples.

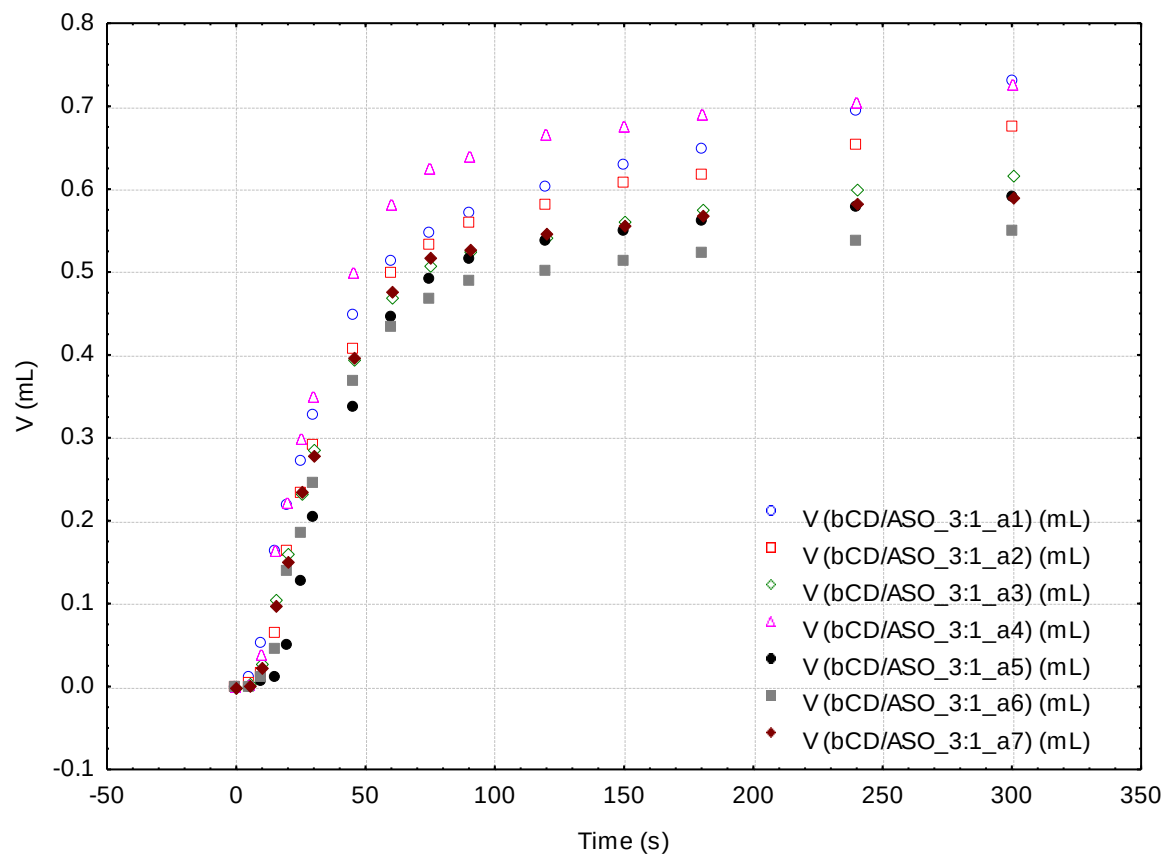


Figure S39: Volume versus Time plots from the KFT analysis of β -CD/ASO_3:1_a samples.

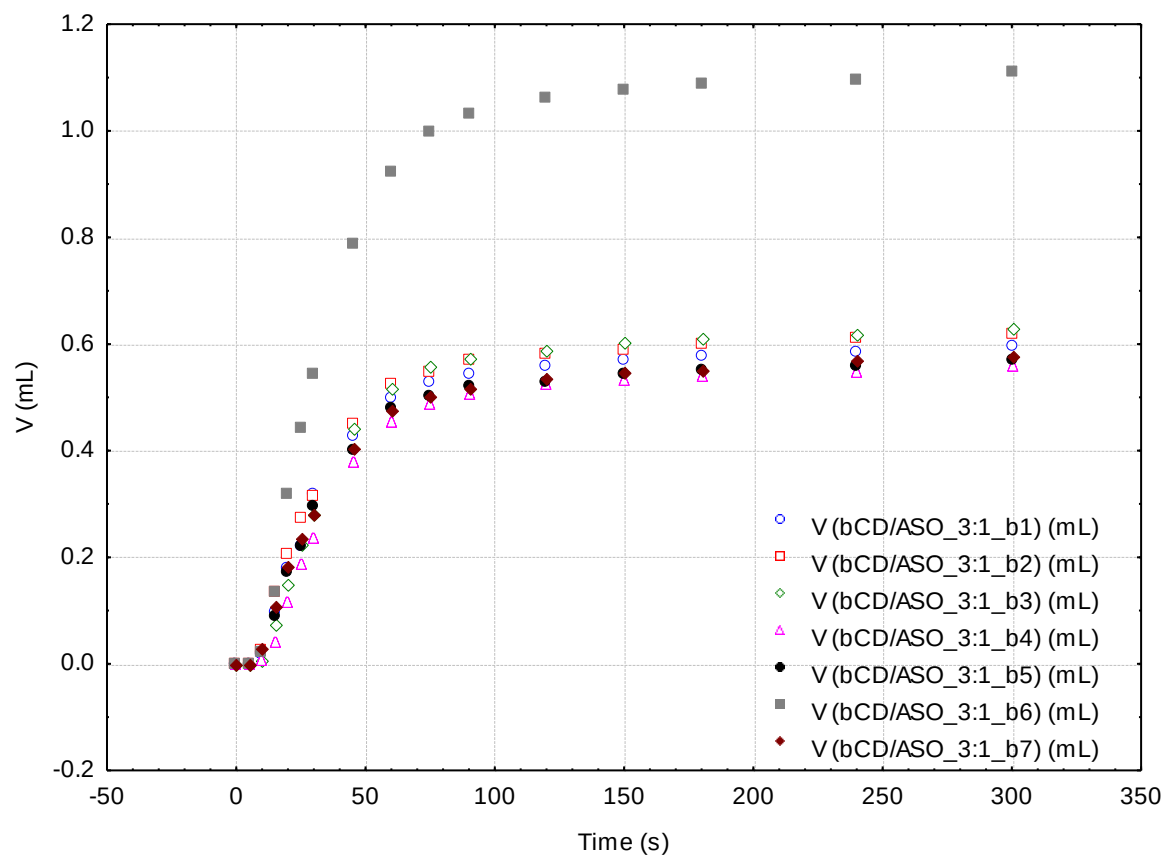


Figure S40: Volume versus Time plots from the KFT analysis of β -CD/ASO_3:1_b samples.

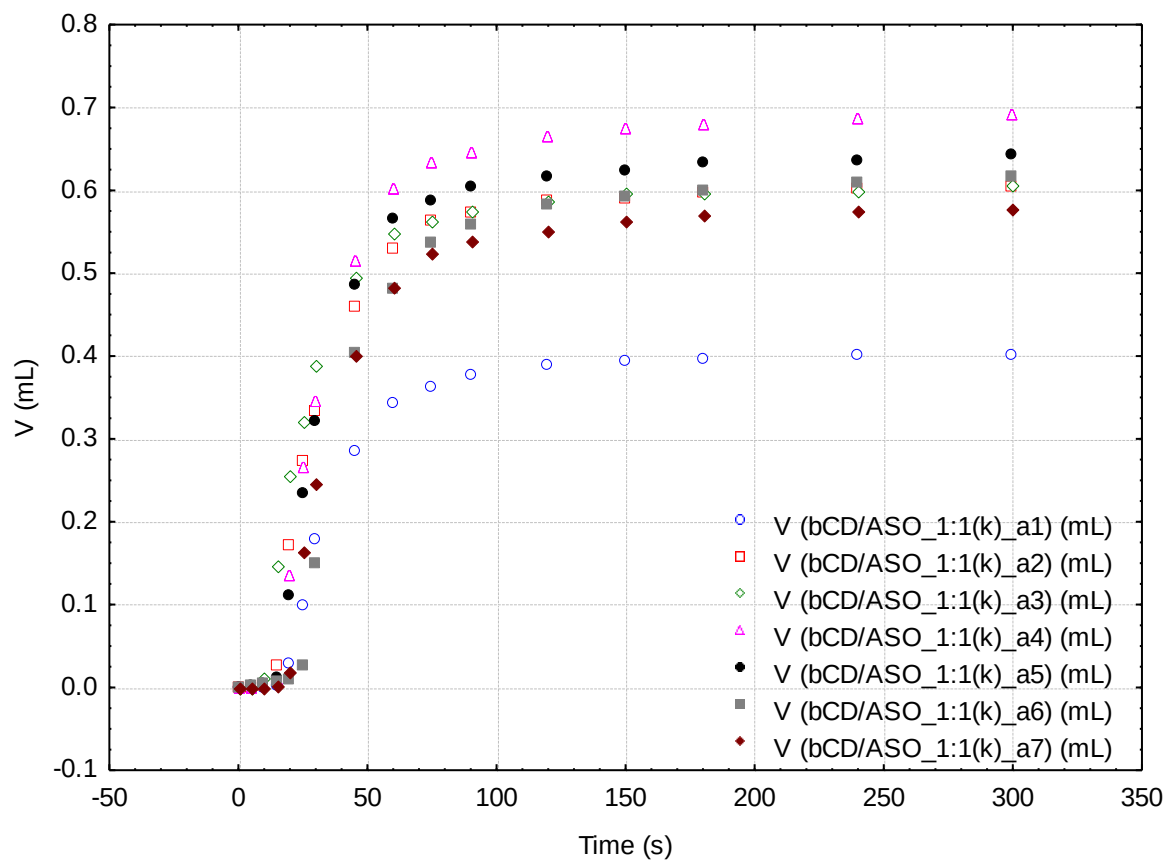


Figure S41: Volume versus Time plots from the KFT analysis of β -CD/ASO_1:1(k)_a samples.

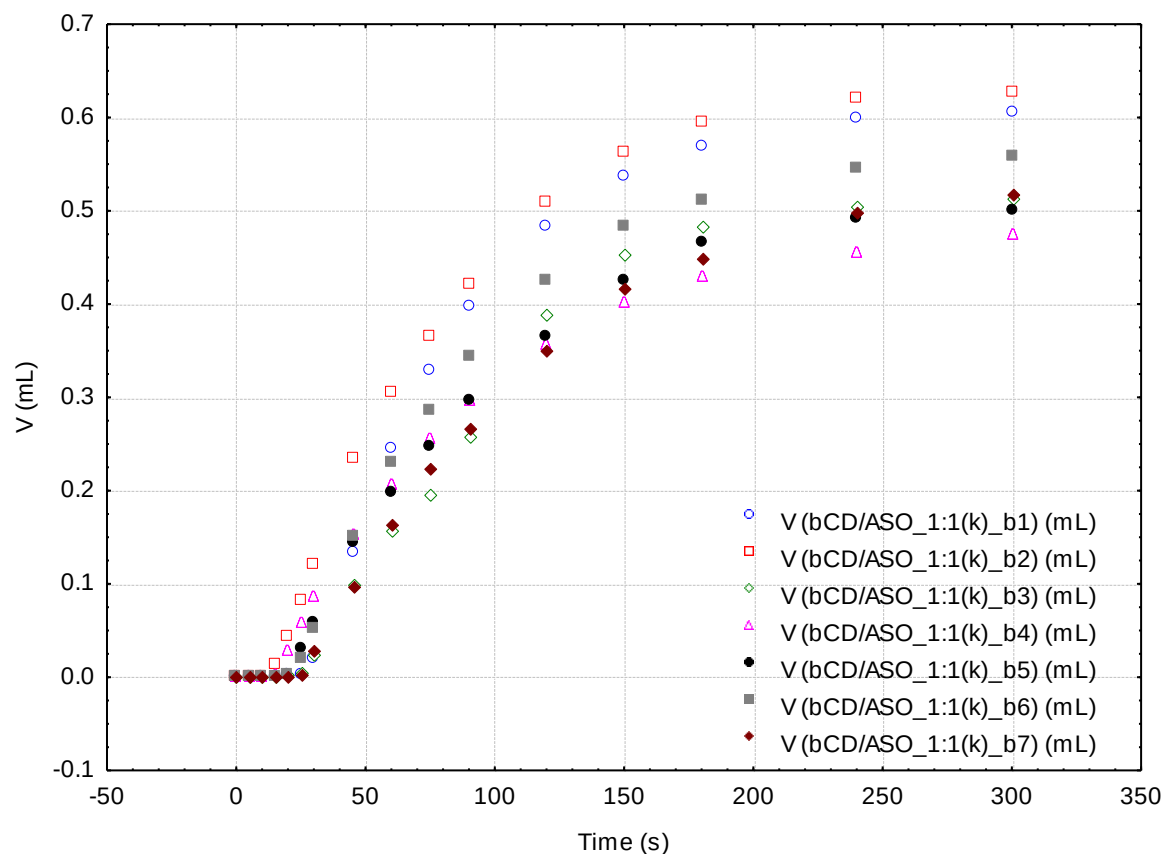


Figure S42: Volume versus Time plots from the KFT analysis of β -CD/ASO_1:1(k)_b samples.

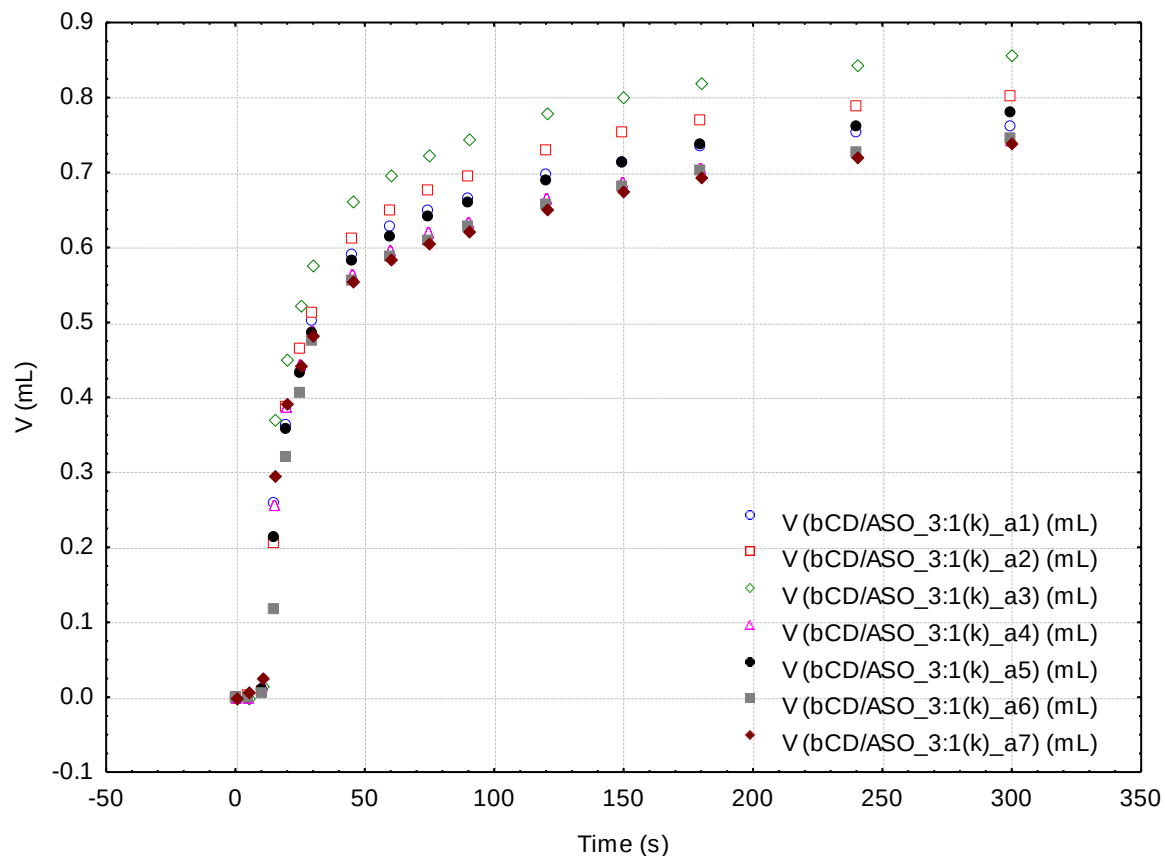


Figure S43: Volume versus Time plots from the KFT analysis of β -CD/ASO_3:1(k)_a samples.

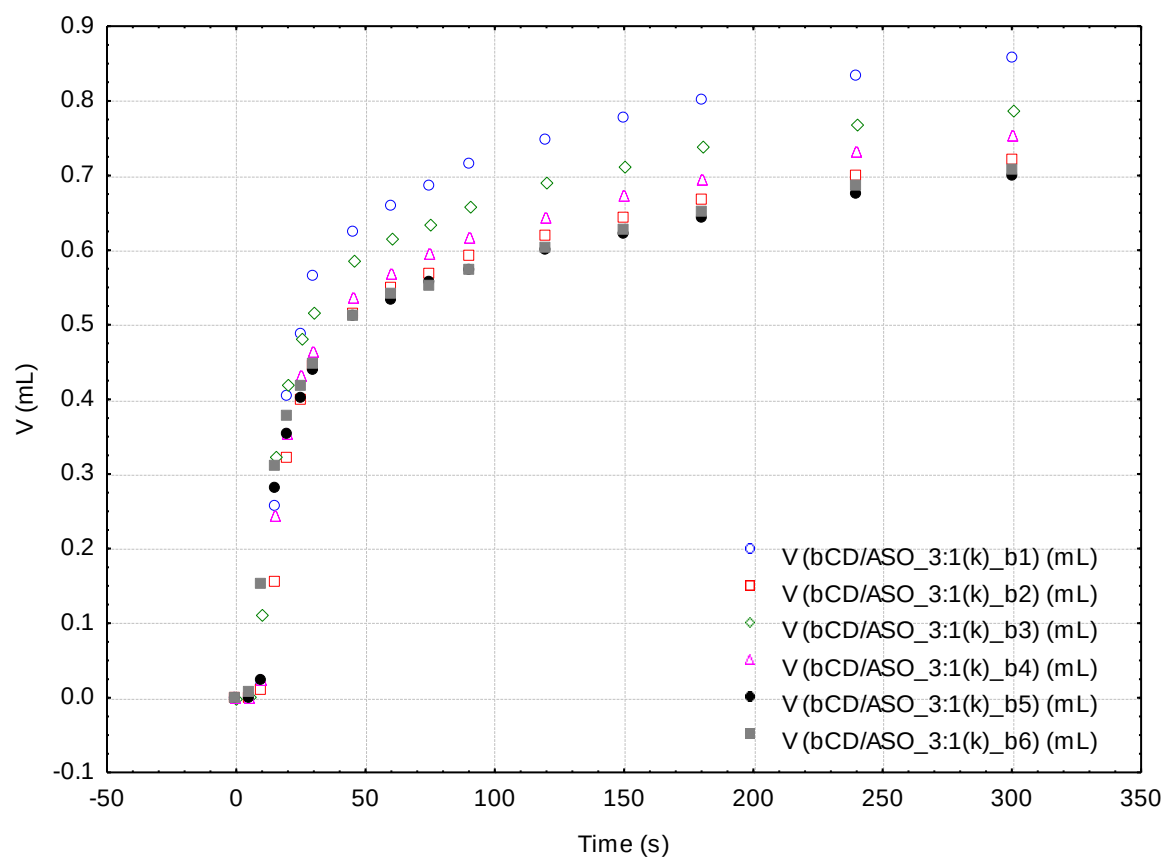


Figure S44: Volume versus Time plots from the KFT analysis of β -CD/ASO_3:1(k)_b samples.