

## Supplementary Information

For

# Towards potential antifungal agents: synthesis, supramolecular self-assembly and in vitro activity of azole mono-, sesqui- and diterpenoids

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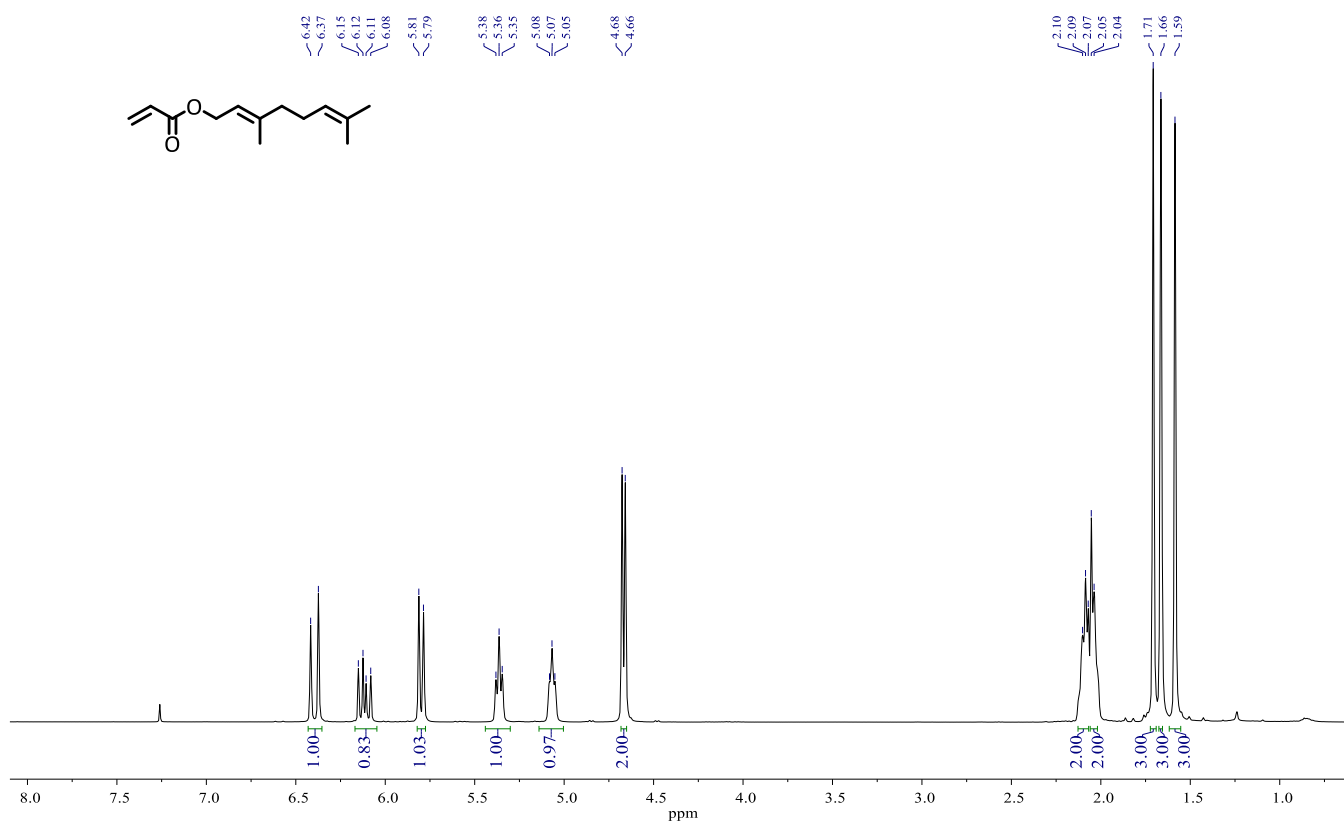


Figure S01. <sup>1</sup>H NMR spectrum of the compound **2a**, CDCl<sub>3</sub>, 298 K, 400 MHz.

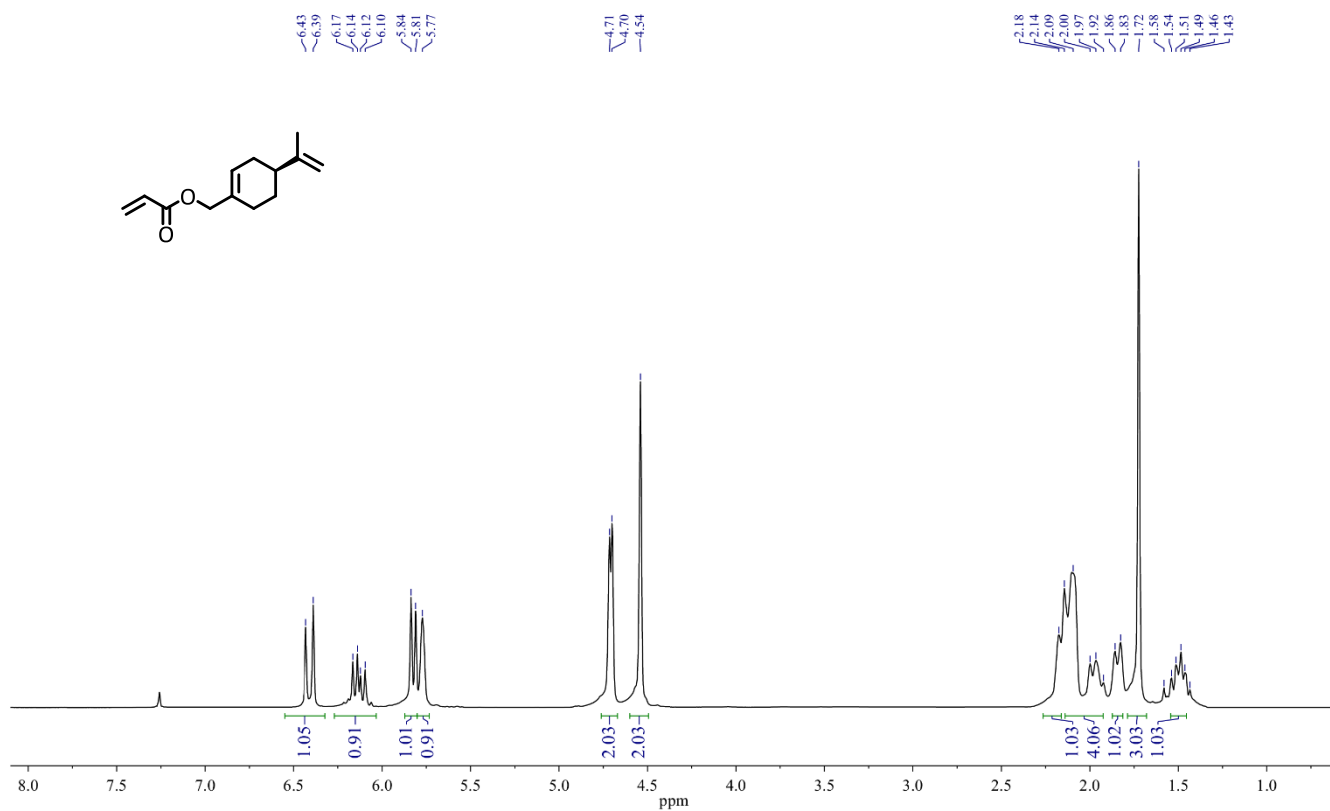


Figure S02. <sup>1</sup>H NMR spectrum of the compound **2b**, CDCl<sub>3</sub>, 298 K, 400 MHz.

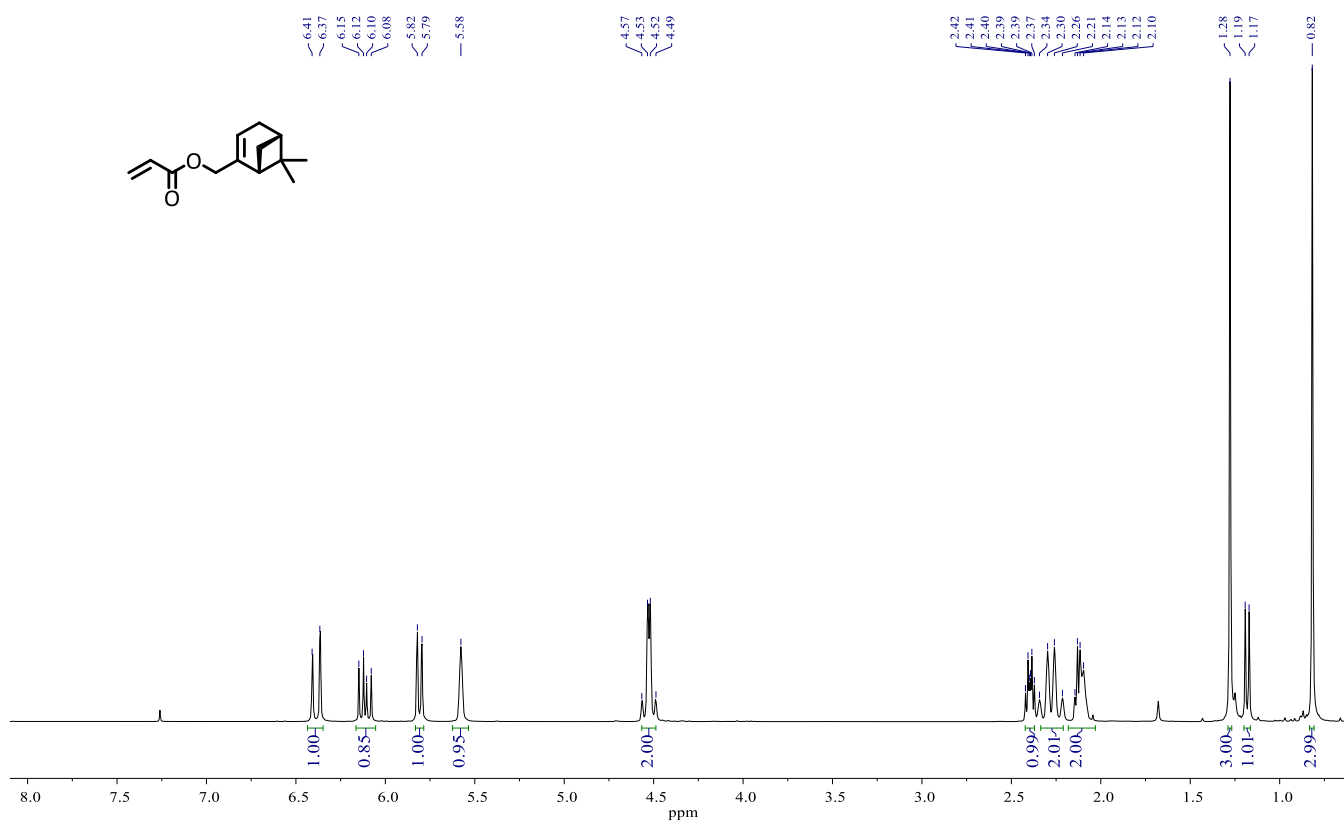


Figure S03. <sup>1</sup>H NMR spectrum of the compound **2c**, CDCl<sub>3</sub>, 298 K, 400 MHz.

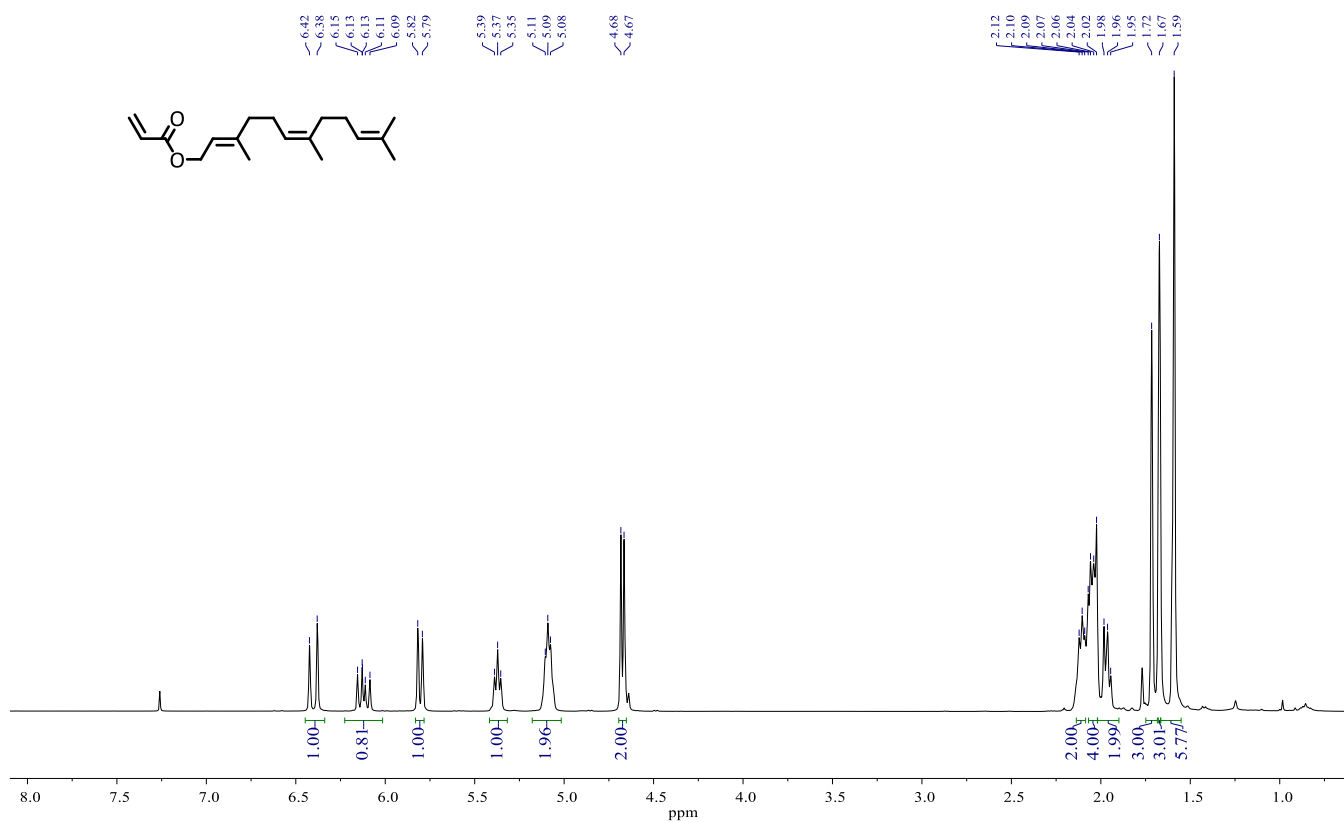


Figure S04. <sup>1</sup>H NMR spectrum of the compound **2d**, CDCl<sub>3</sub>, 298 K, 400 MHz.

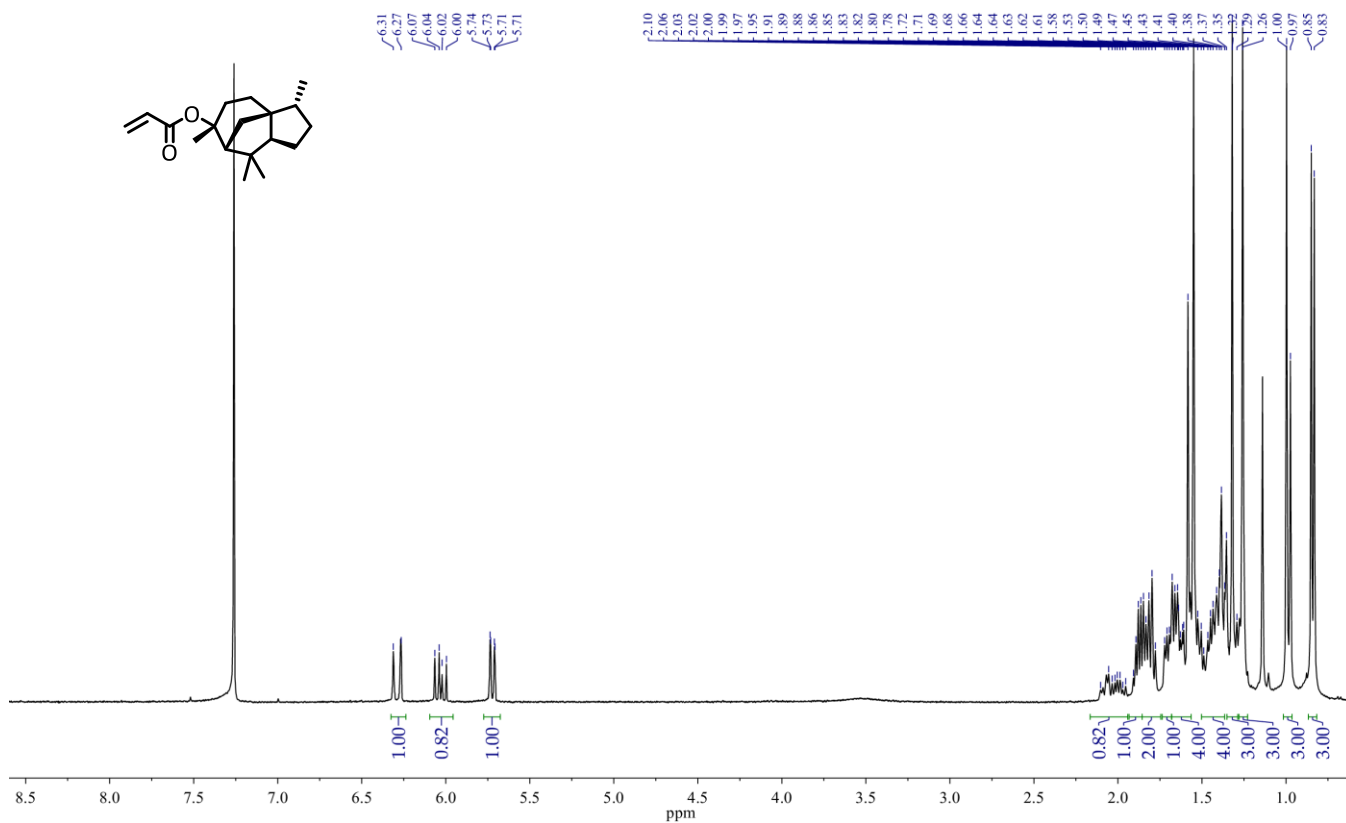


Figure S05.  $^1\text{H}$  NMR spectrum of the compound **2e**,  $\text{CDCl}_3$ , 298 K, 400 MHz.

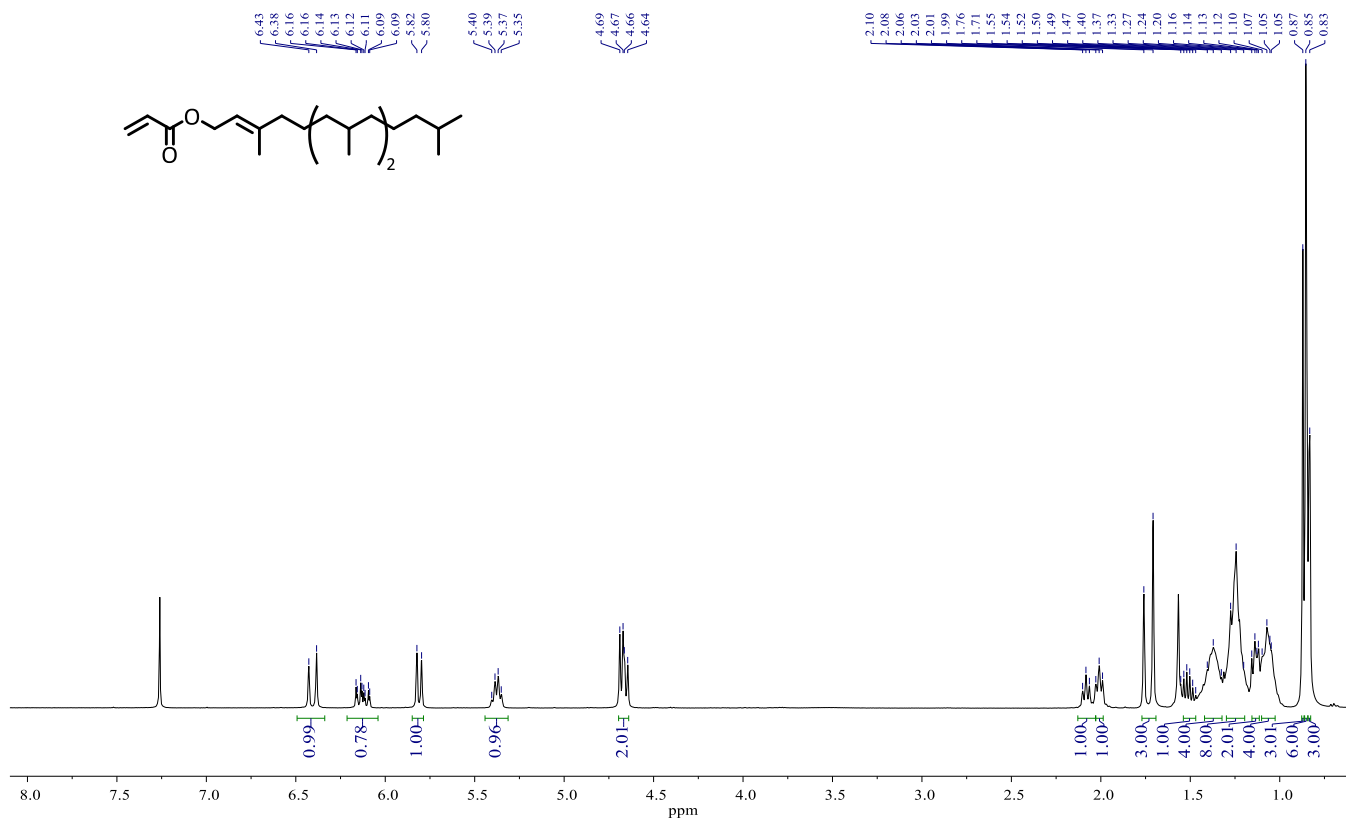


Figure S06.  $^1\text{H}$  NMR spectrum of the compound **2f**,  $\text{CDCl}_3$ , 298 K, 400 MHz.

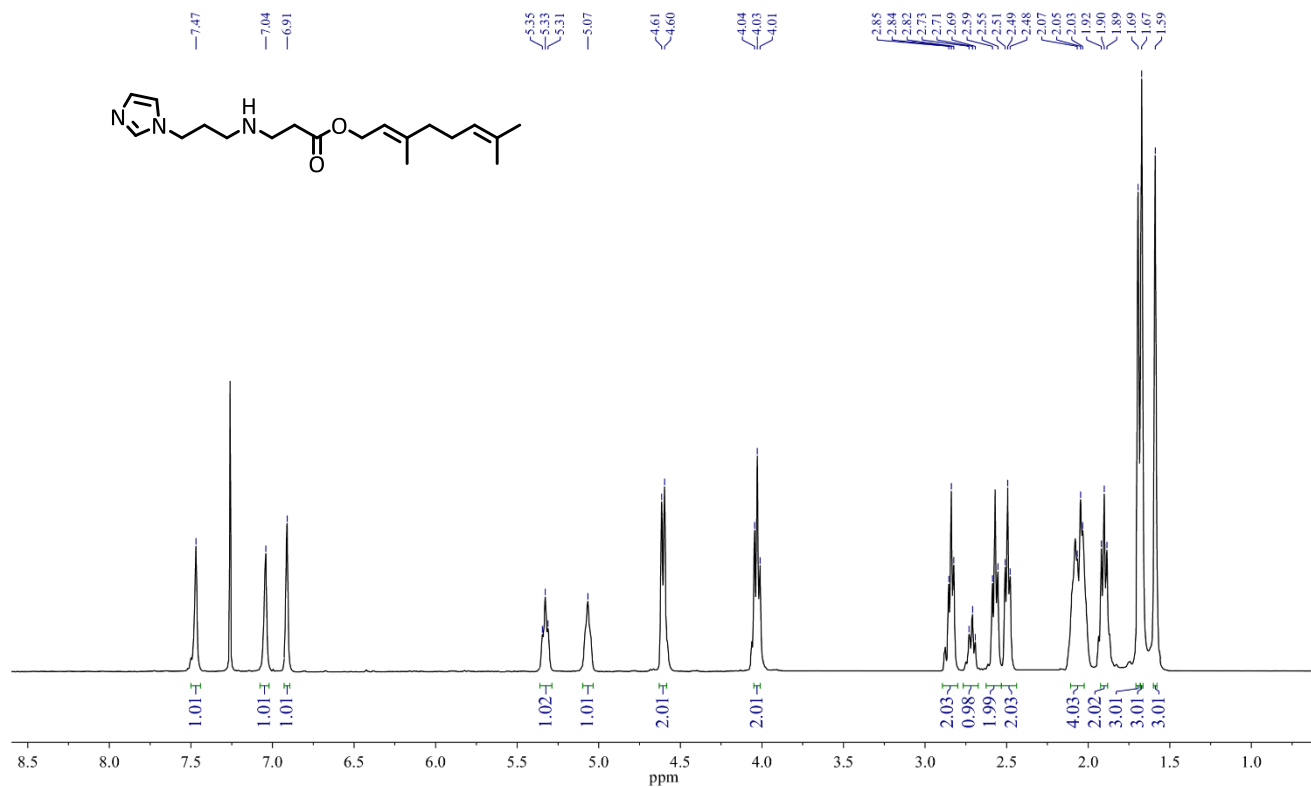


Figure S07. <sup>1</sup>H NMR spectrum of the compound **3a**, CDCl<sub>3</sub>, 298 K, 400 MHz.

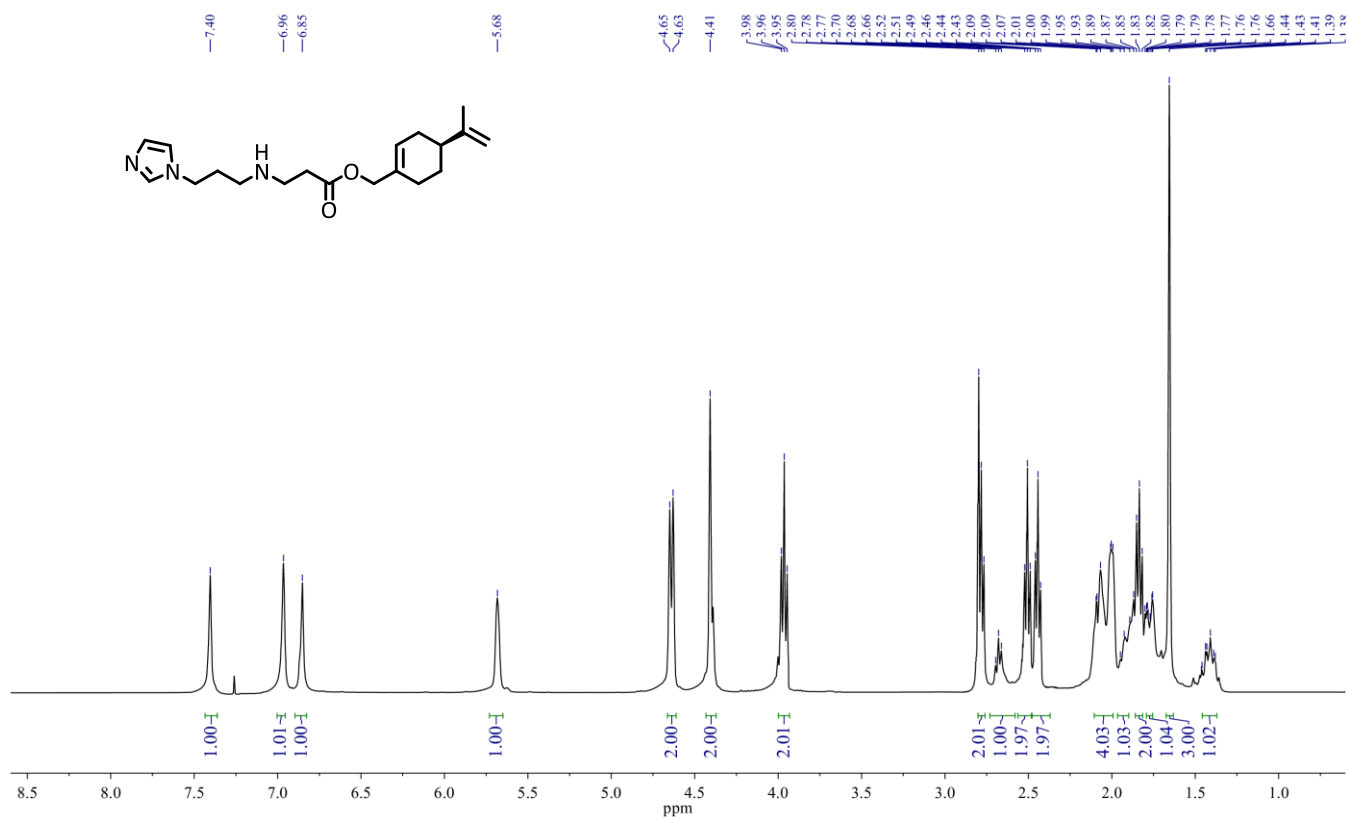


Figure S08. <sup>1</sup>H NMR spectrum of the compound **3b**, CDCl<sub>3</sub>, 298 K, 400 MHz.

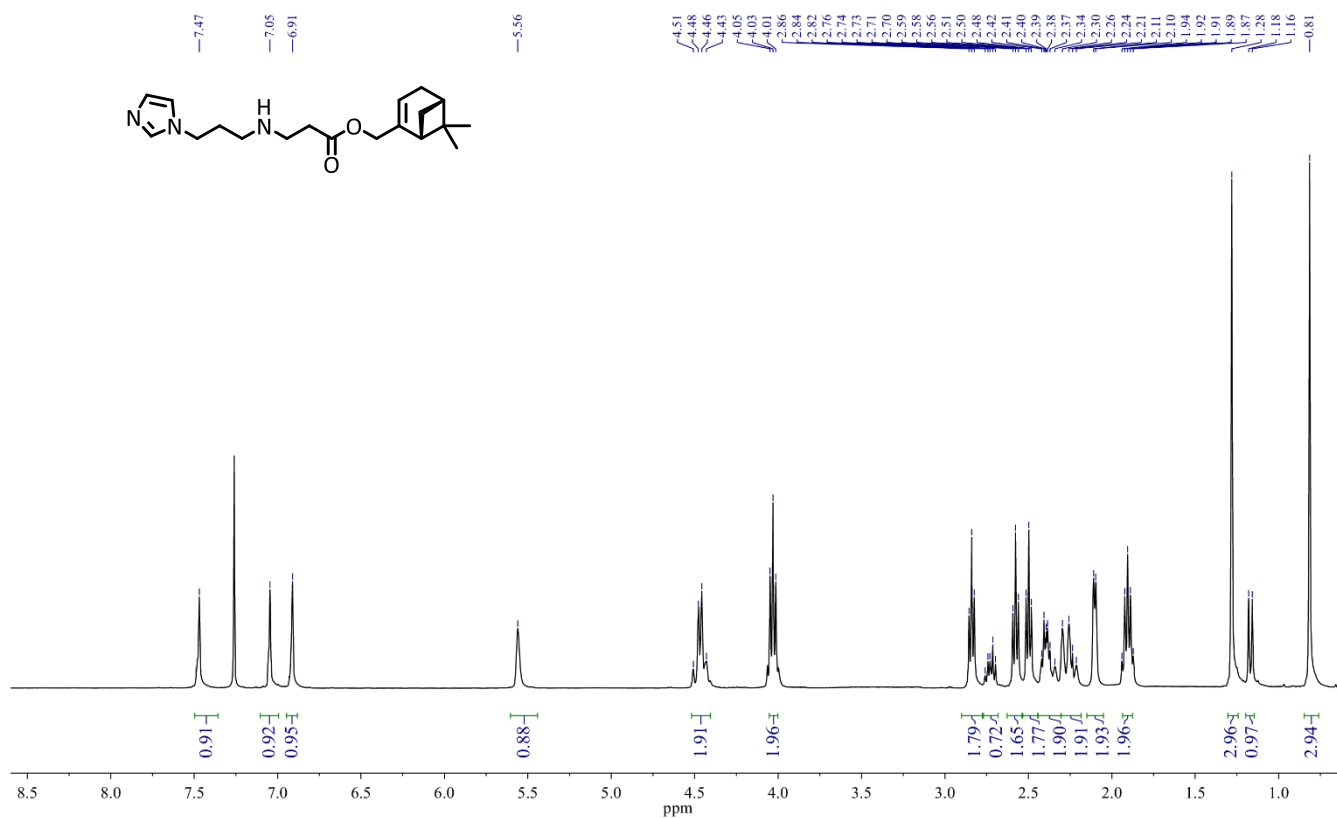


Figure S09. <sup>1</sup>H NMR spectrum of the compound **3c**, CDCl<sub>3</sub>, 298 K, 400 MHz.

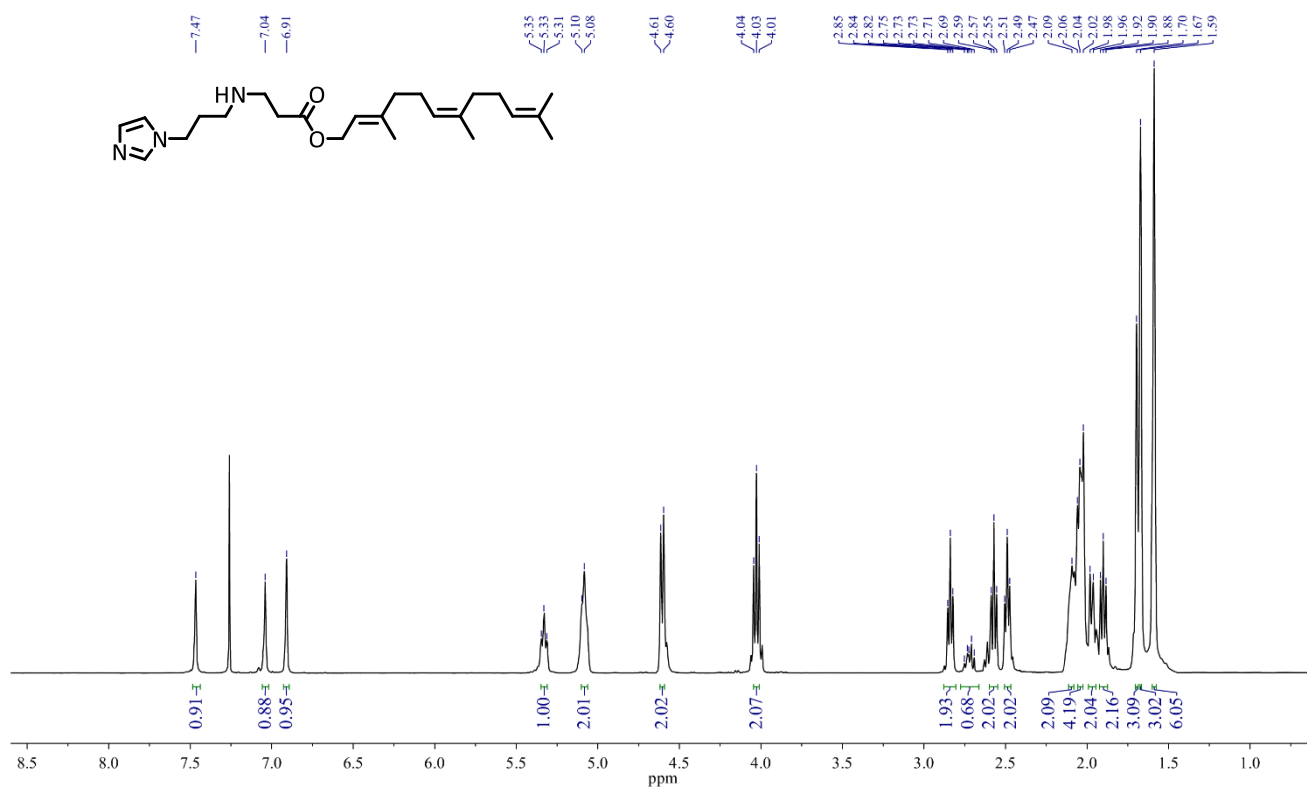


Figure S10. <sup>1</sup>H NMR spectrum of the compound **3d**, CDCl<sub>3</sub>, 298 K, 400 MHz.

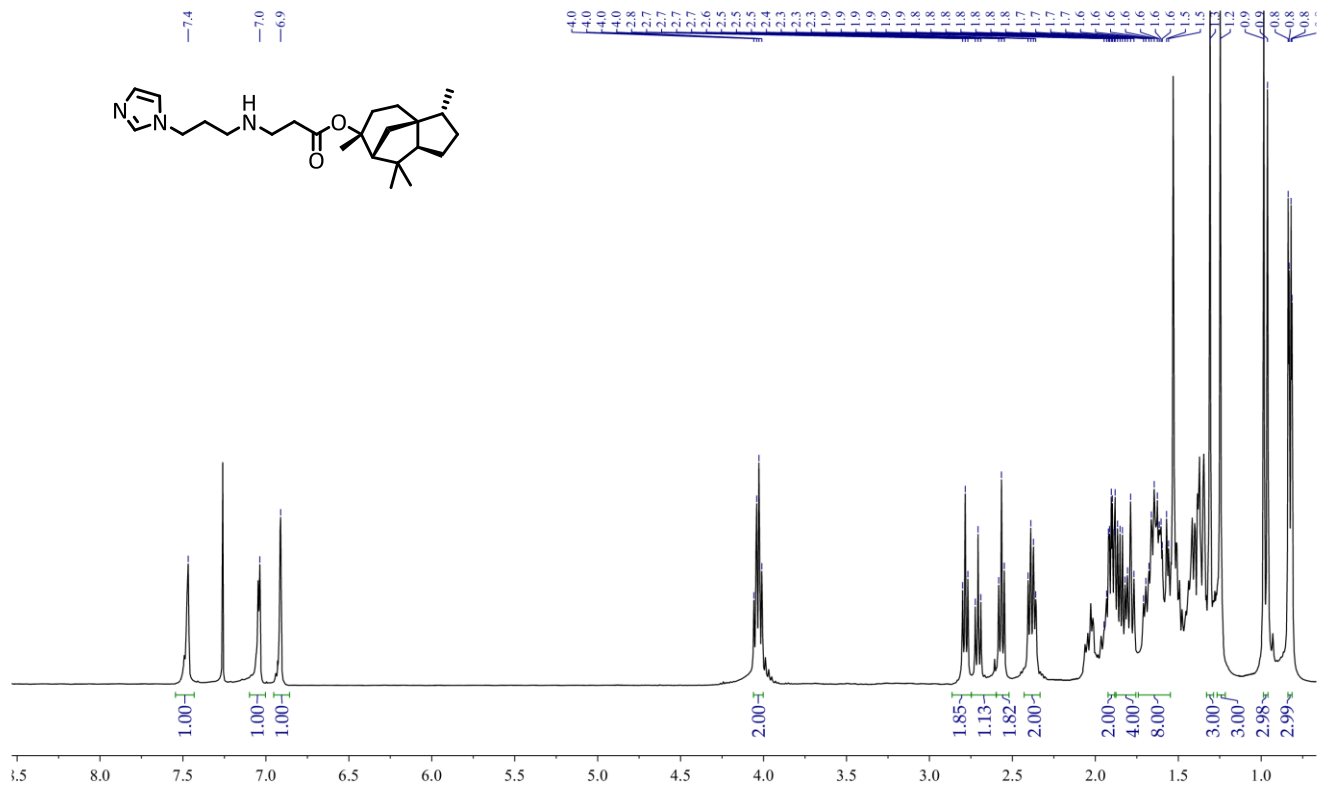


Figure S11. <sup>1</sup>H NMR spectrum of the compound **3e**, CDCl<sub>3</sub>, 298 K, 400 MHz.

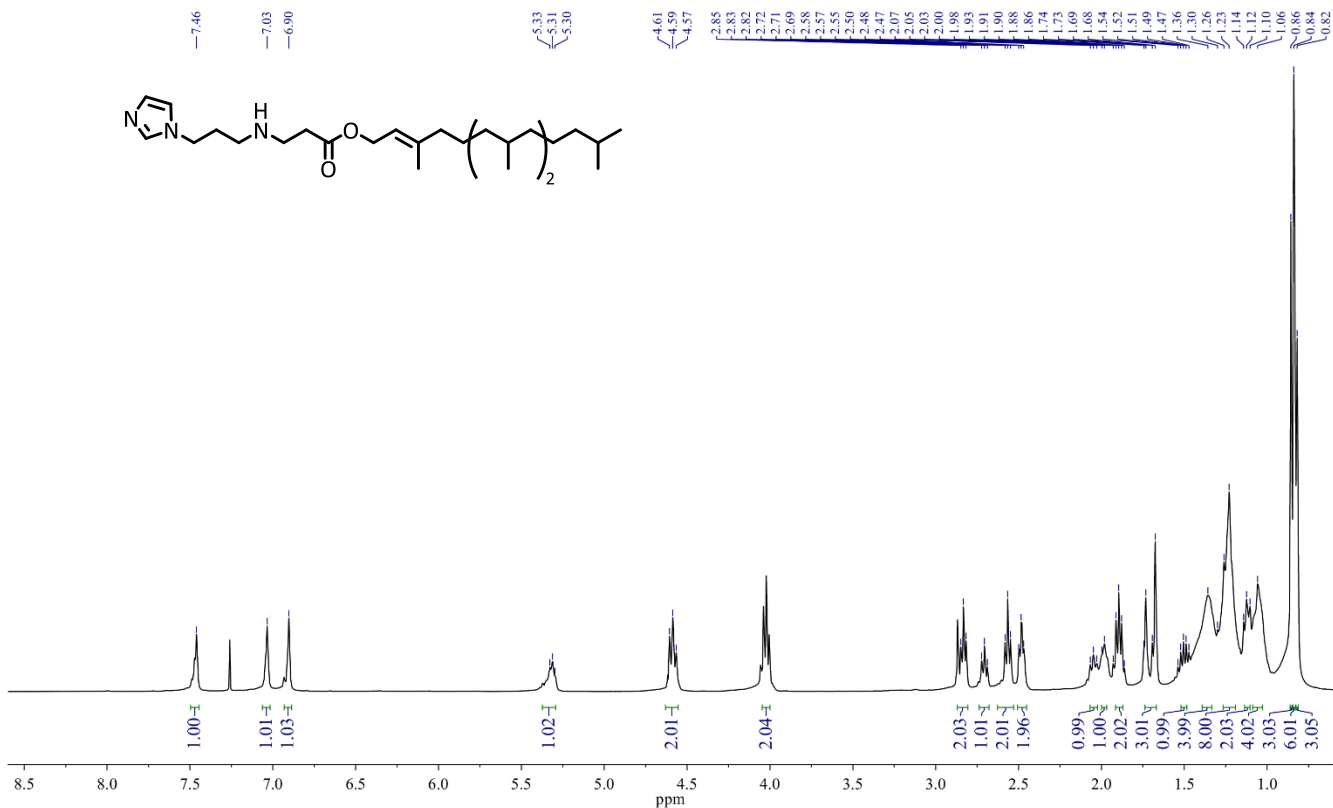


Figure S12. <sup>1</sup>H NMR spectrum of the compound **3f**, CDCl<sub>3</sub>, 298 K, 400 MHz.

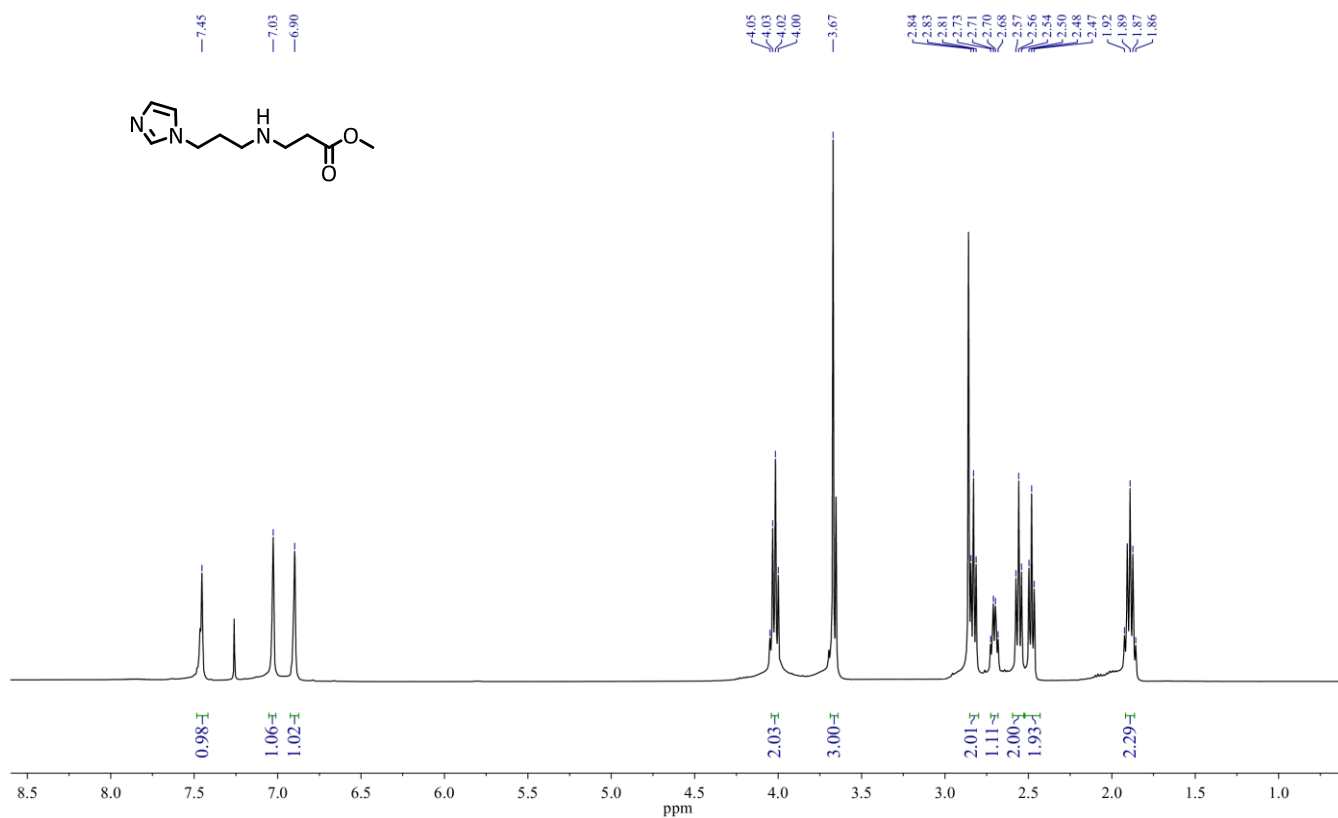


Figure S13. <sup>1</sup>H NMR spectrum of the compound **3g**, CDCl<sub>3</sub>, 298 K, 400 MHz.

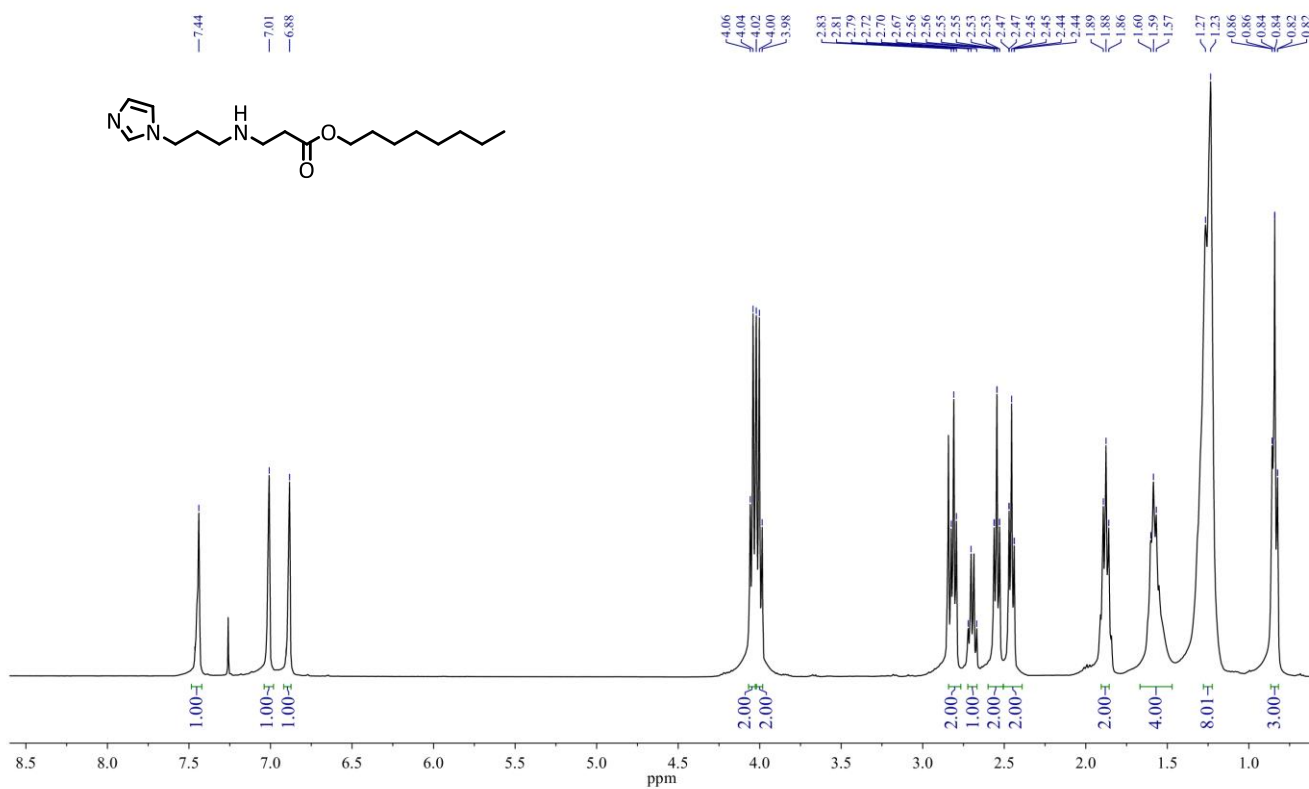


Figure S14. <sup>1</sup>H NMR spectrum of the compound **3h**, CDCl<sub>3</sub>, 298 K, 400 MHz.



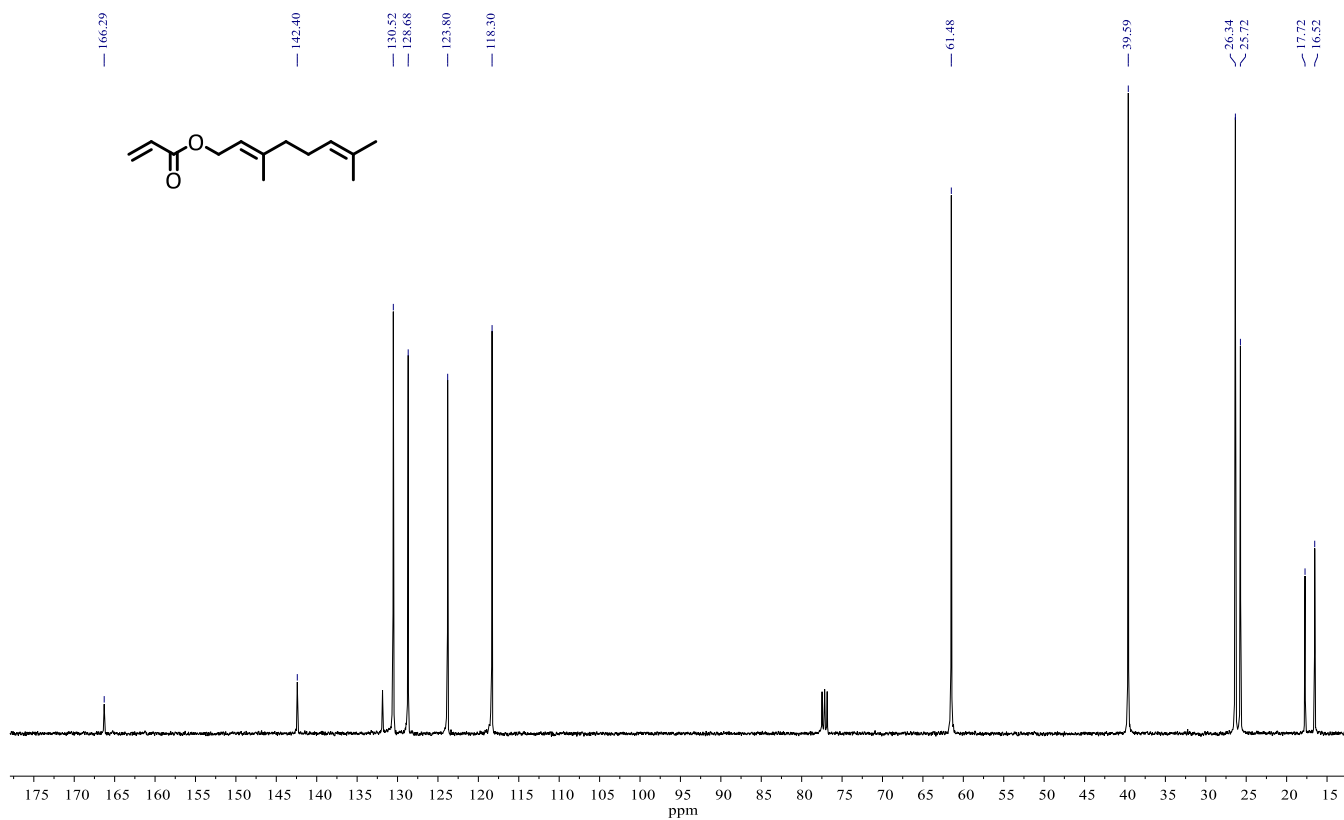


Figure S15. <sup>13</sup>C NMR spectrum of the compound **2a**, CDCl<sub>3</sub>, 298 K, 100 MHz.

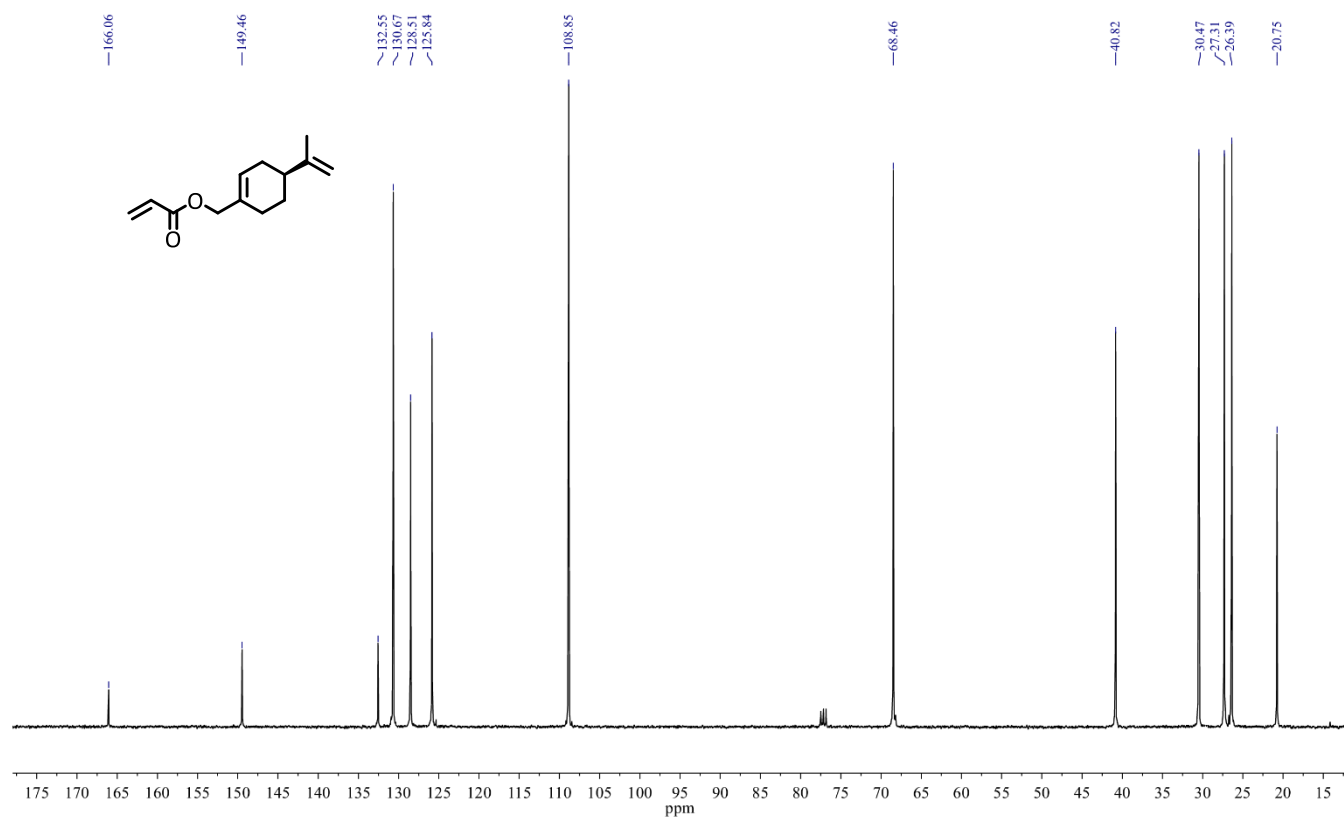


Figure S16. <sup>13</sup>C NMR spectrum of the compound **2b**, CDCl<sub>3</sub>, 298 K, 100 MHz.

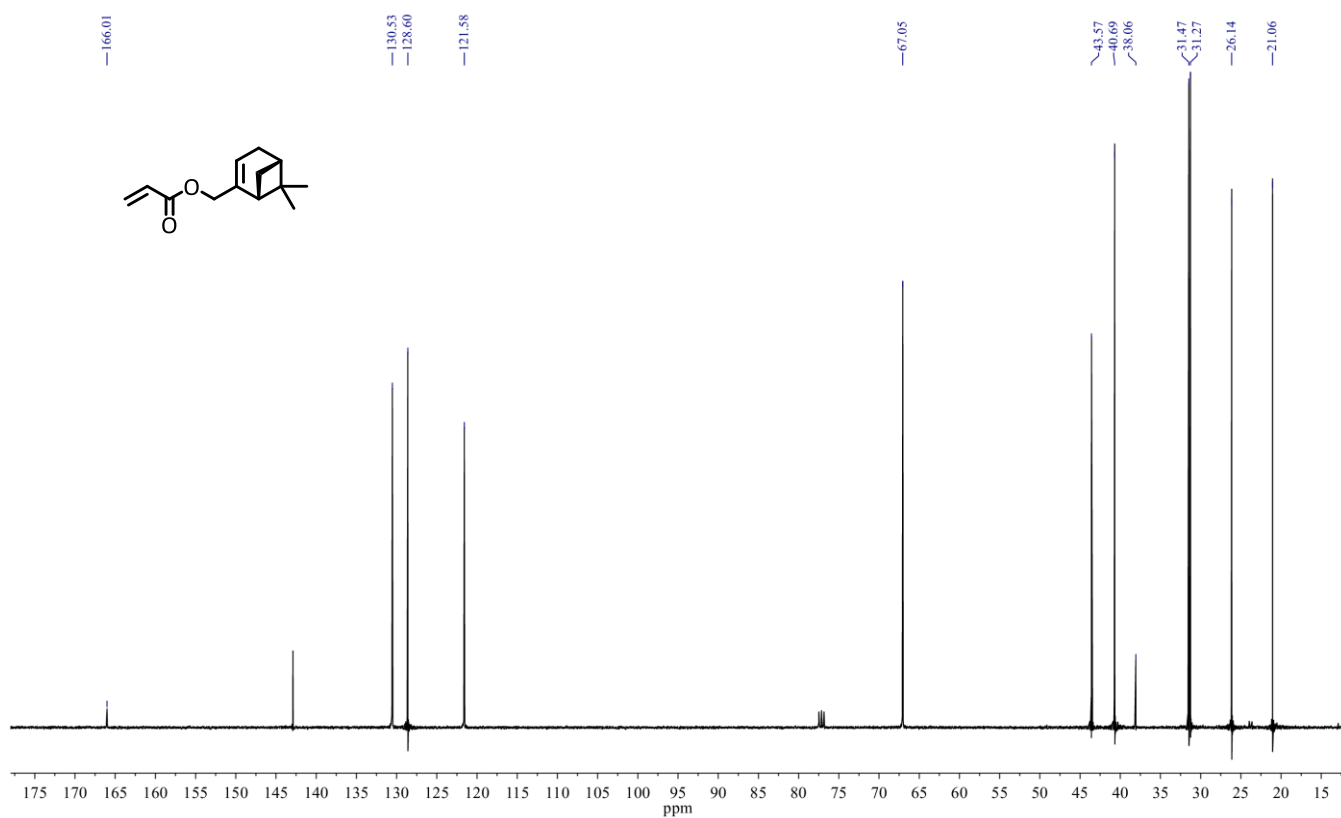


Figure S17.  $^{13}\text{C}$  NMR spectrum of the compound **2c**,  $\text{CDCl}_3$ , 298 K, 100 MHz.

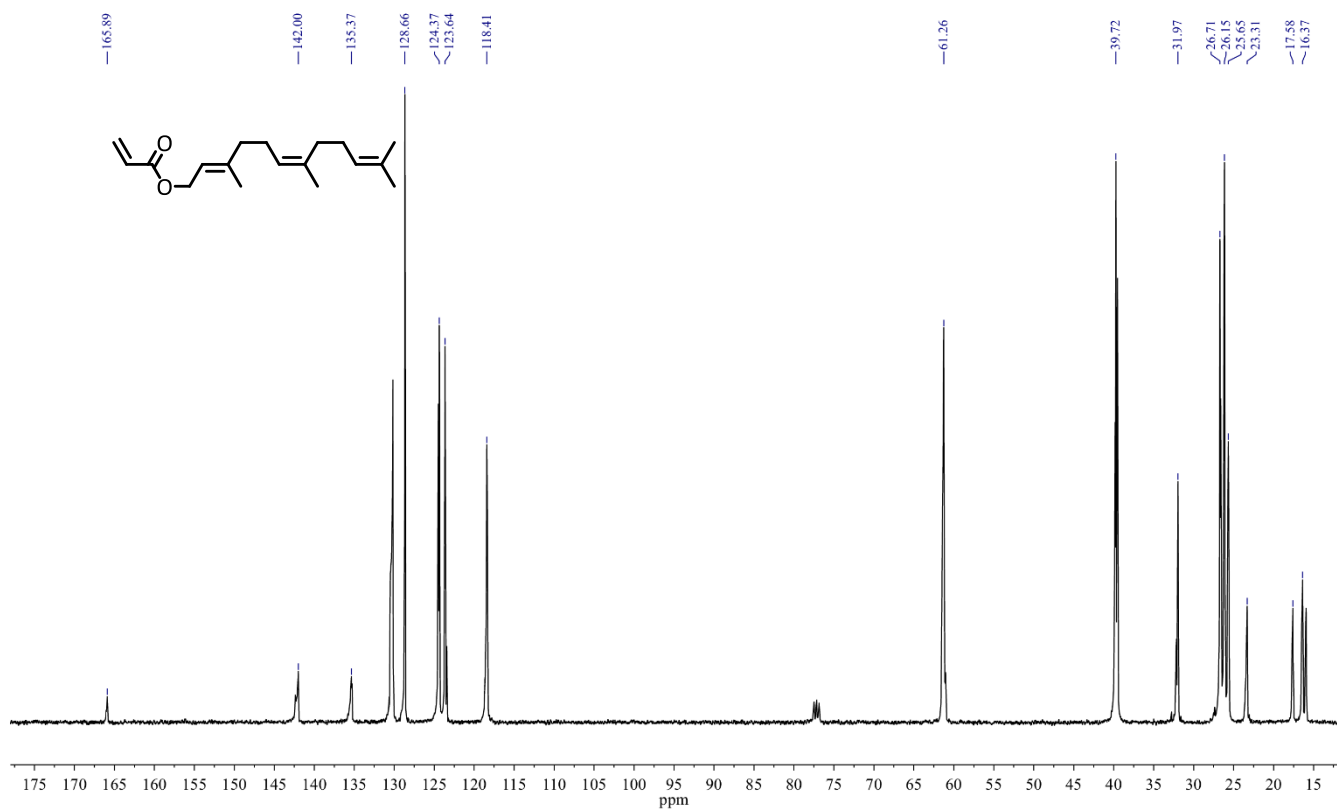


Figure S18.  $^{13}\text{C}$  NMR spectrum of the compound **2d**,  $\text{CDCl}_3$ , 298 K, 100 MHz.

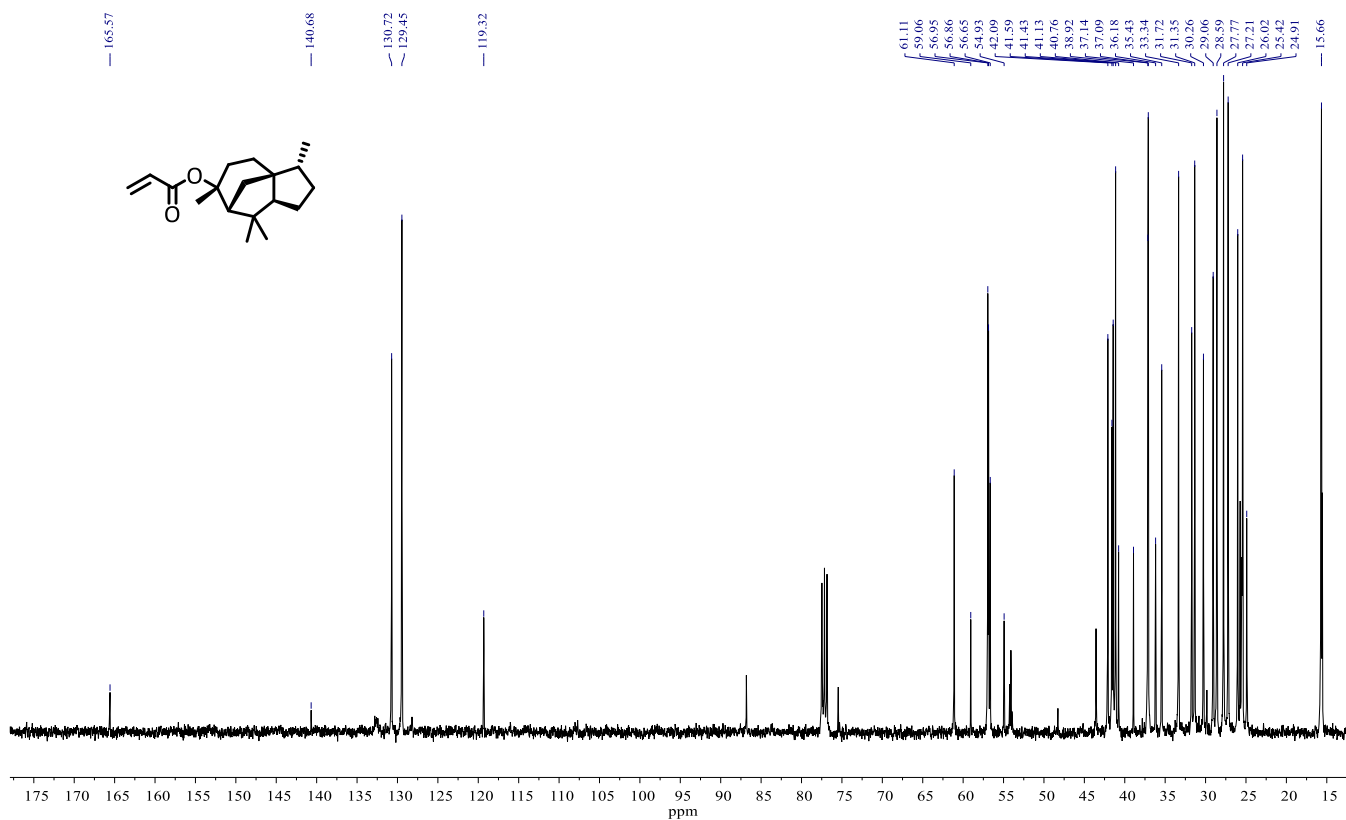


Figure S19.  $^{13}\text{C}$  NMR spectrum of the compound **2e**,  $\text{CDCl}_3$ , 298 K, 100 MHz.

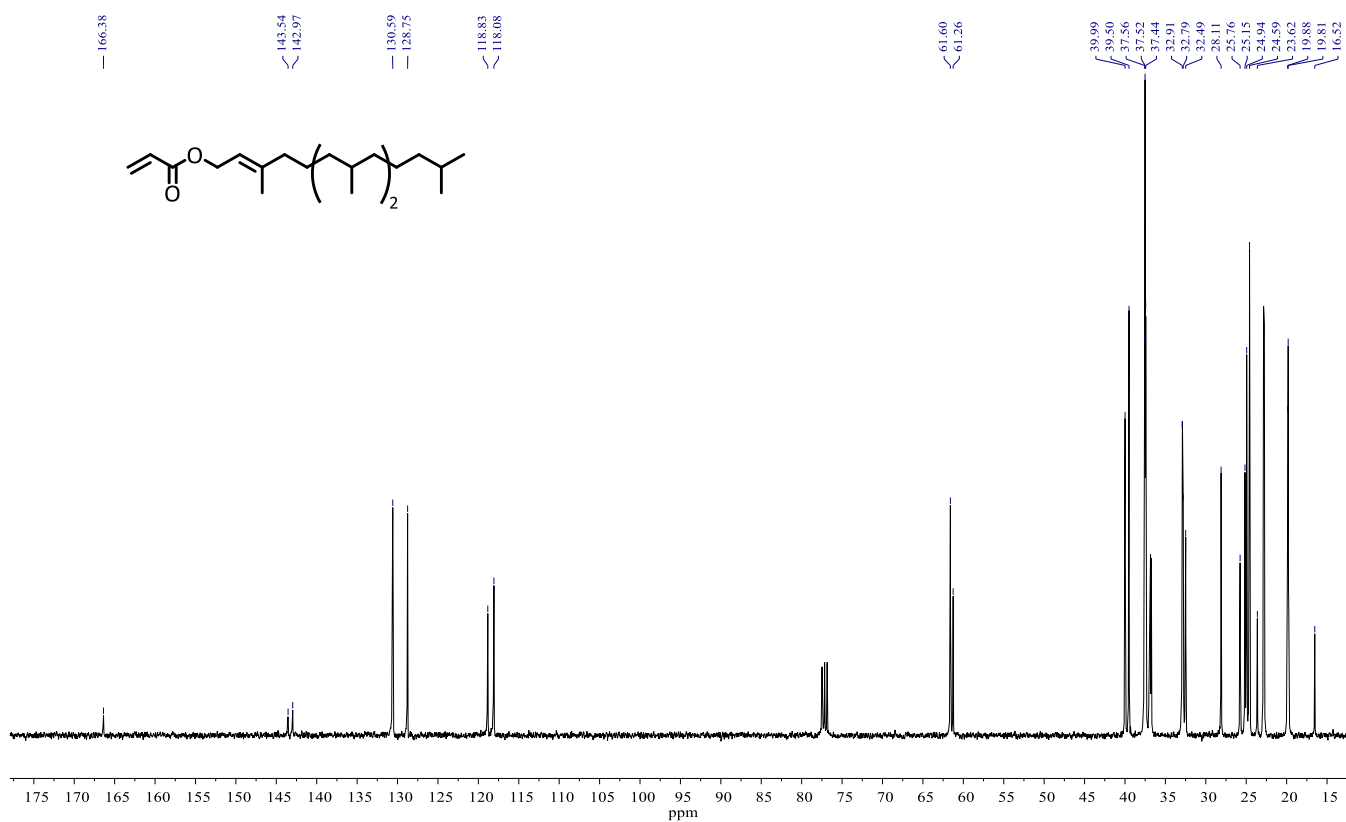


Figure S20.  $^{13}\text{C}$  NMR spectrum of the compound **2f**,  $\text{CDCl}_3$ , 298 K, 100 MHz.

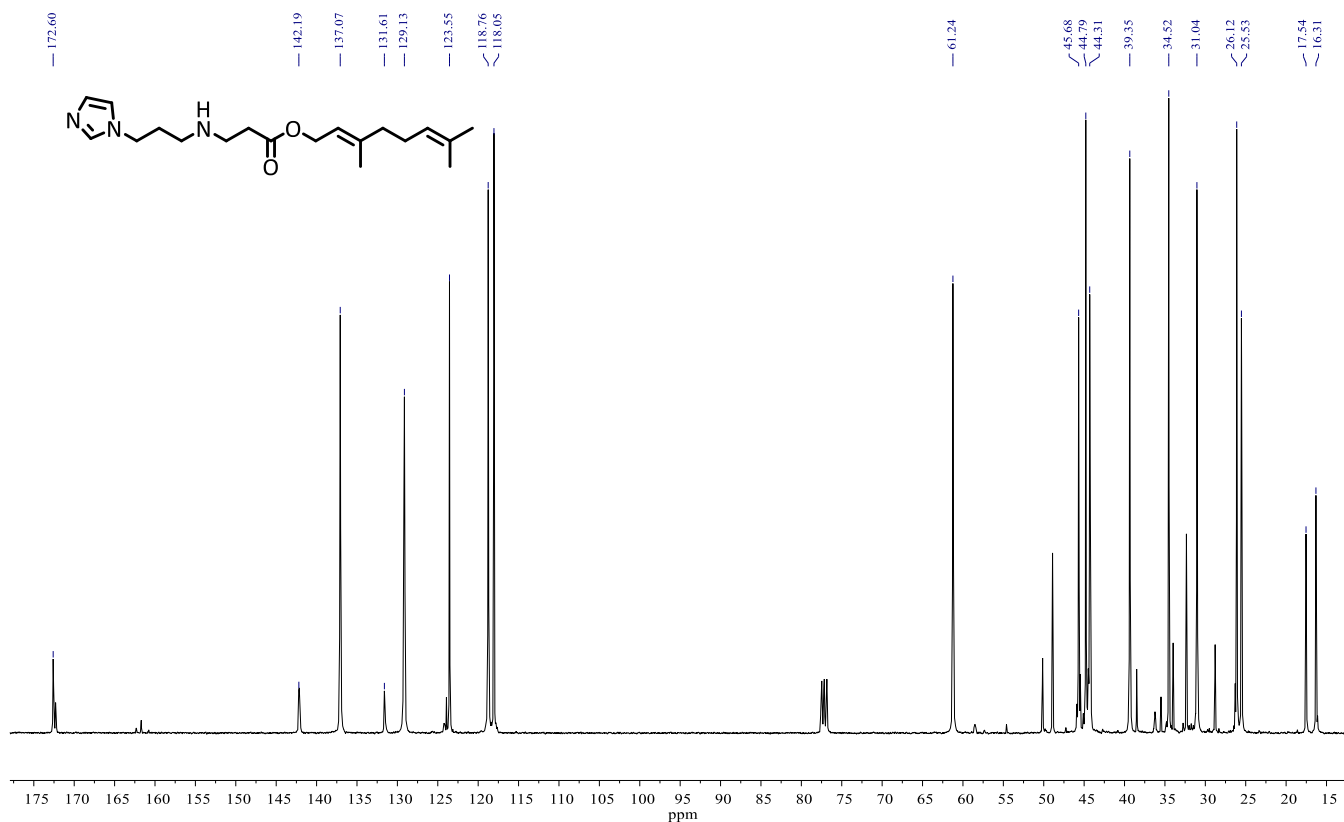


Figure S21. <sup>13</sup>C NMR spectrum of the compound **3a**, CDCl<sub>3</sub>, 298 K, 100 MHz.

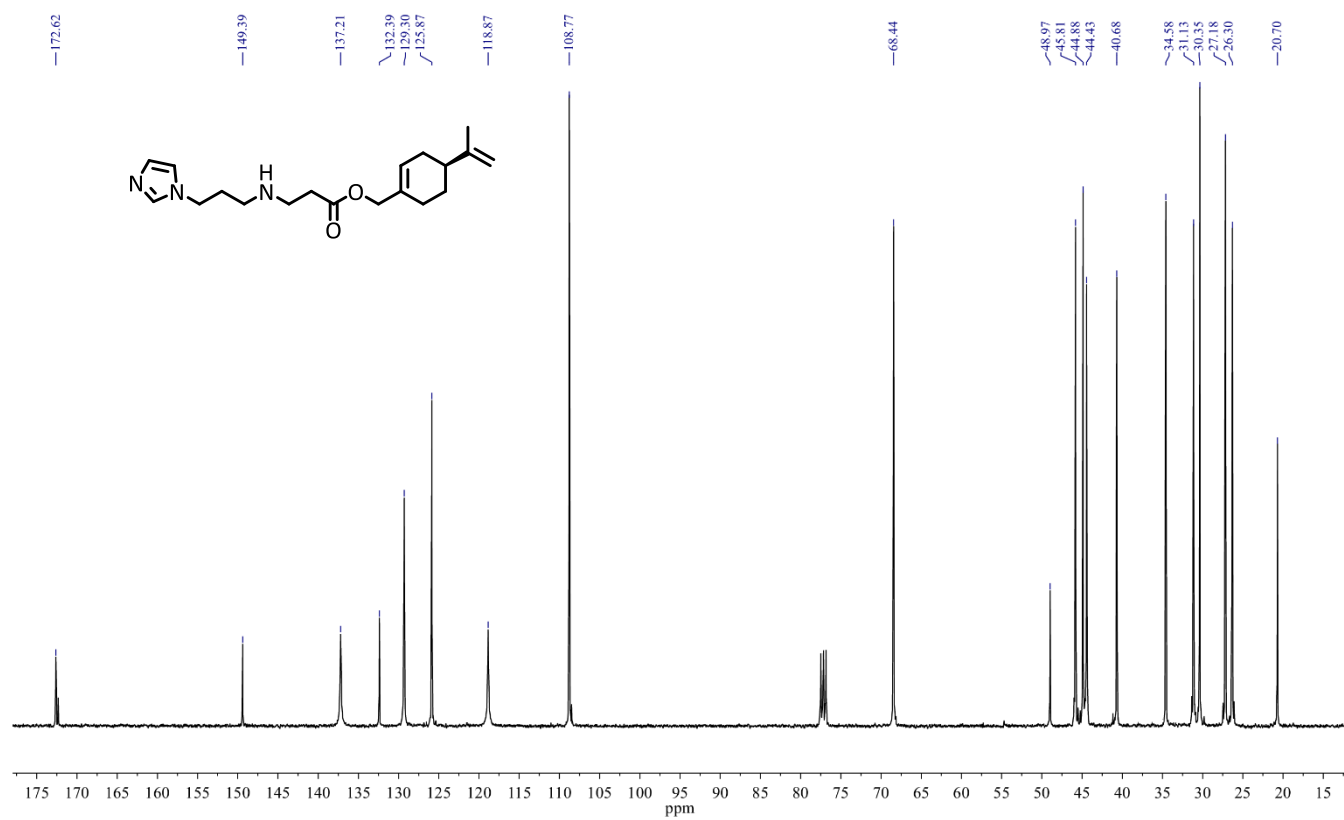


Figure S22. <sup>13</sup>C NMR spectrum of the compound **3b**, CDCl<sub>3</sub>, 298 K, 100 MHz.

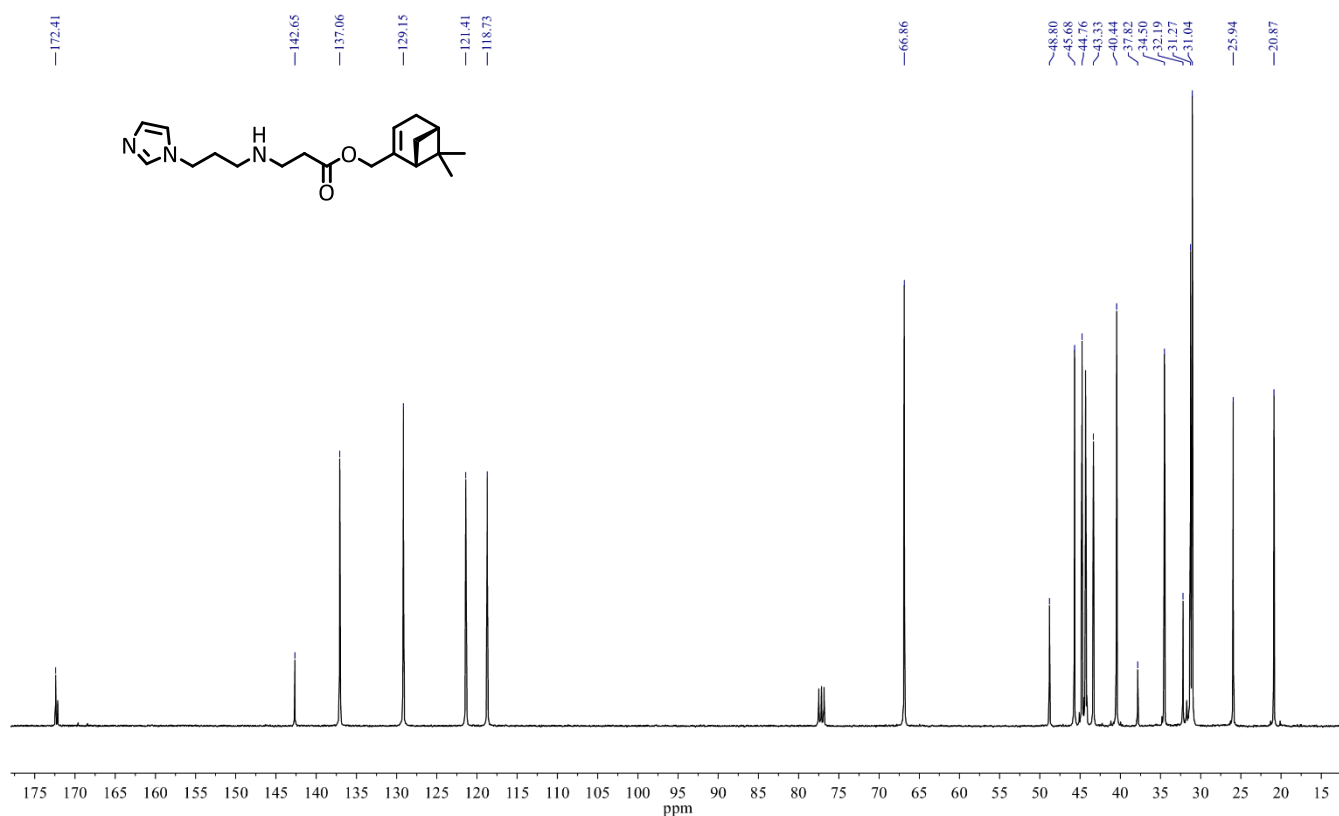


Figure S23.  $^{13}\text{C}$  NMR spectrum of the compound **3c**,  $\text{CDCl}_3$ , 298 K, 100 MHz.

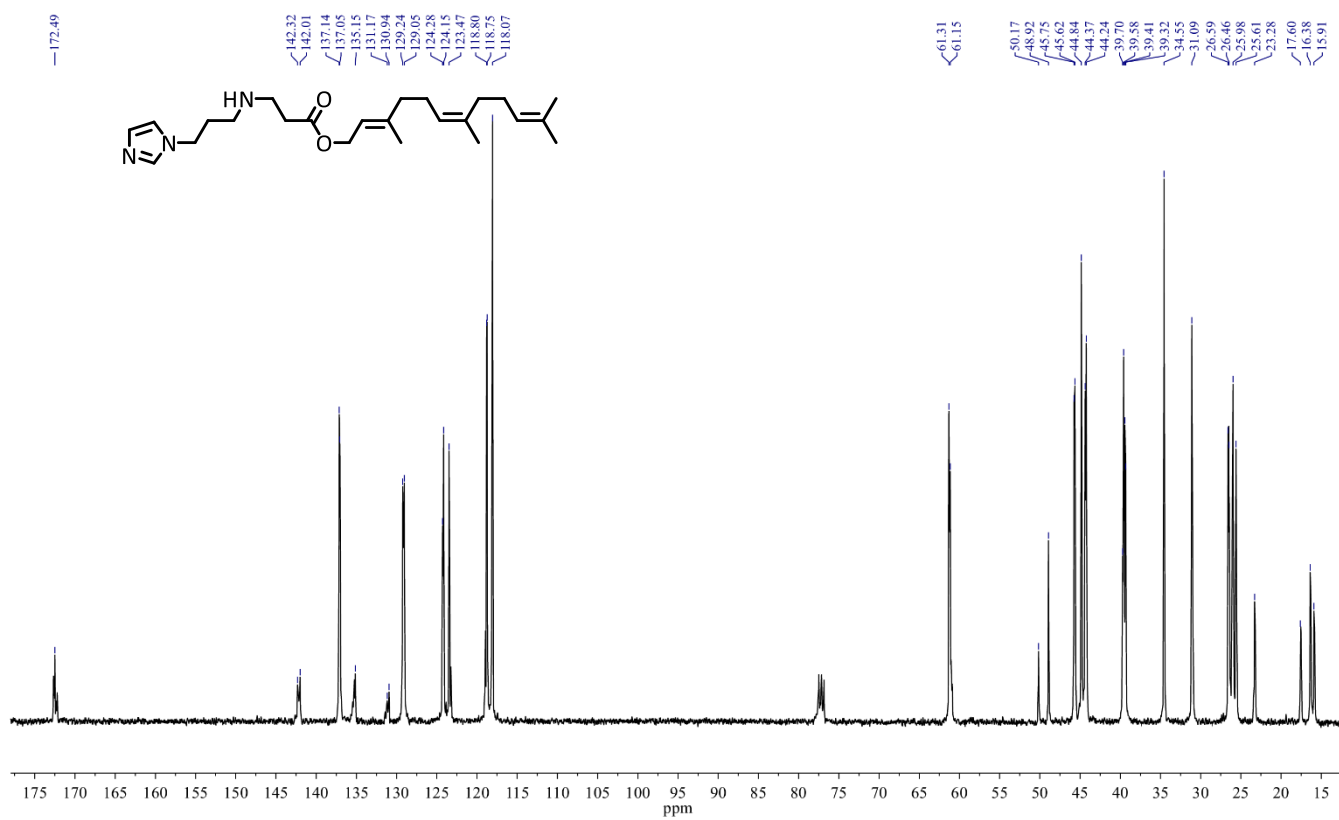


Figure S24.  $^{13}\text{C}$  NMR spectrum of the compound **3d**,  $\text{CDCl}_3$ , 298 K, 100 MHz.

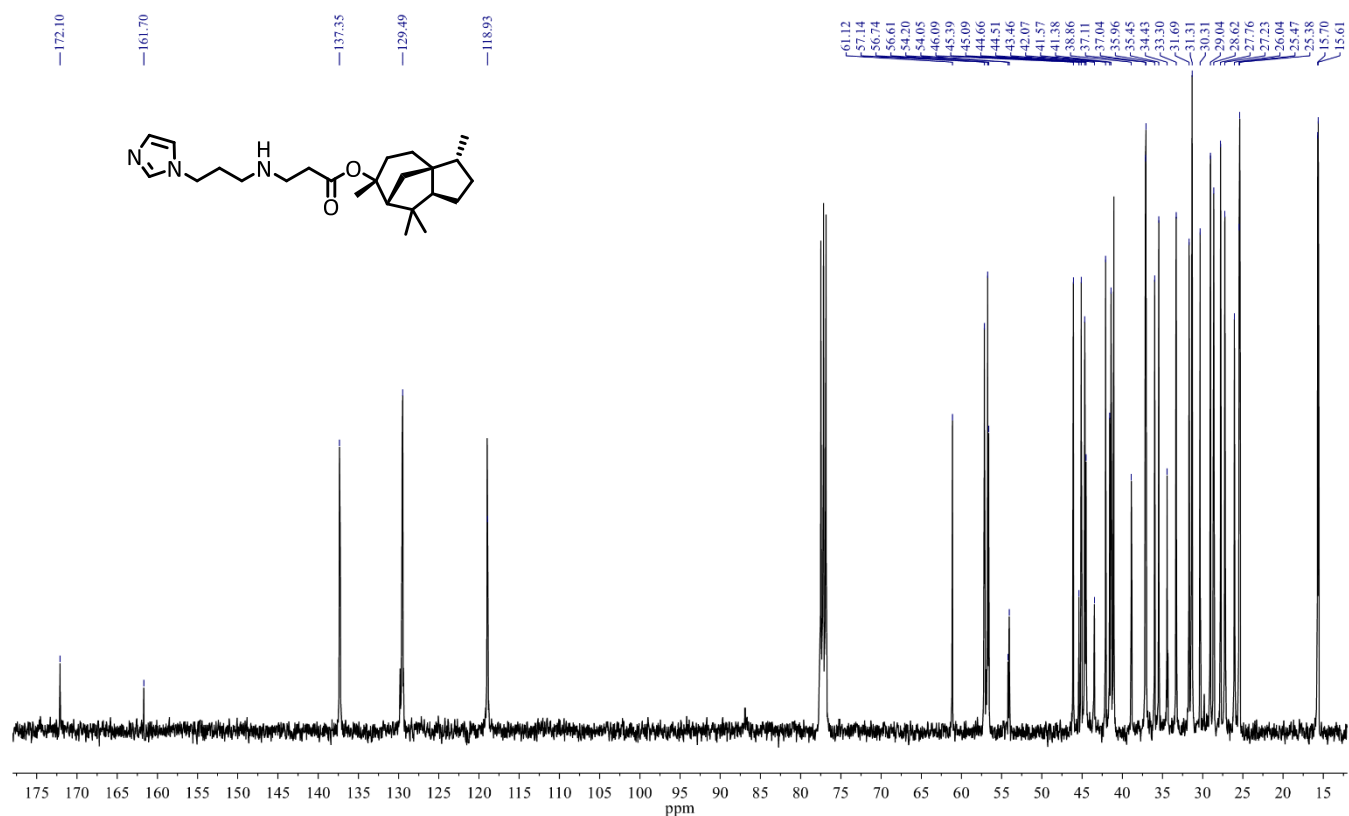


Figure S25. <sup>13</sup>C NMR spectrum of the compound **3e**, CDCl<sub>3</sub>, 298 K, 100 MHz.

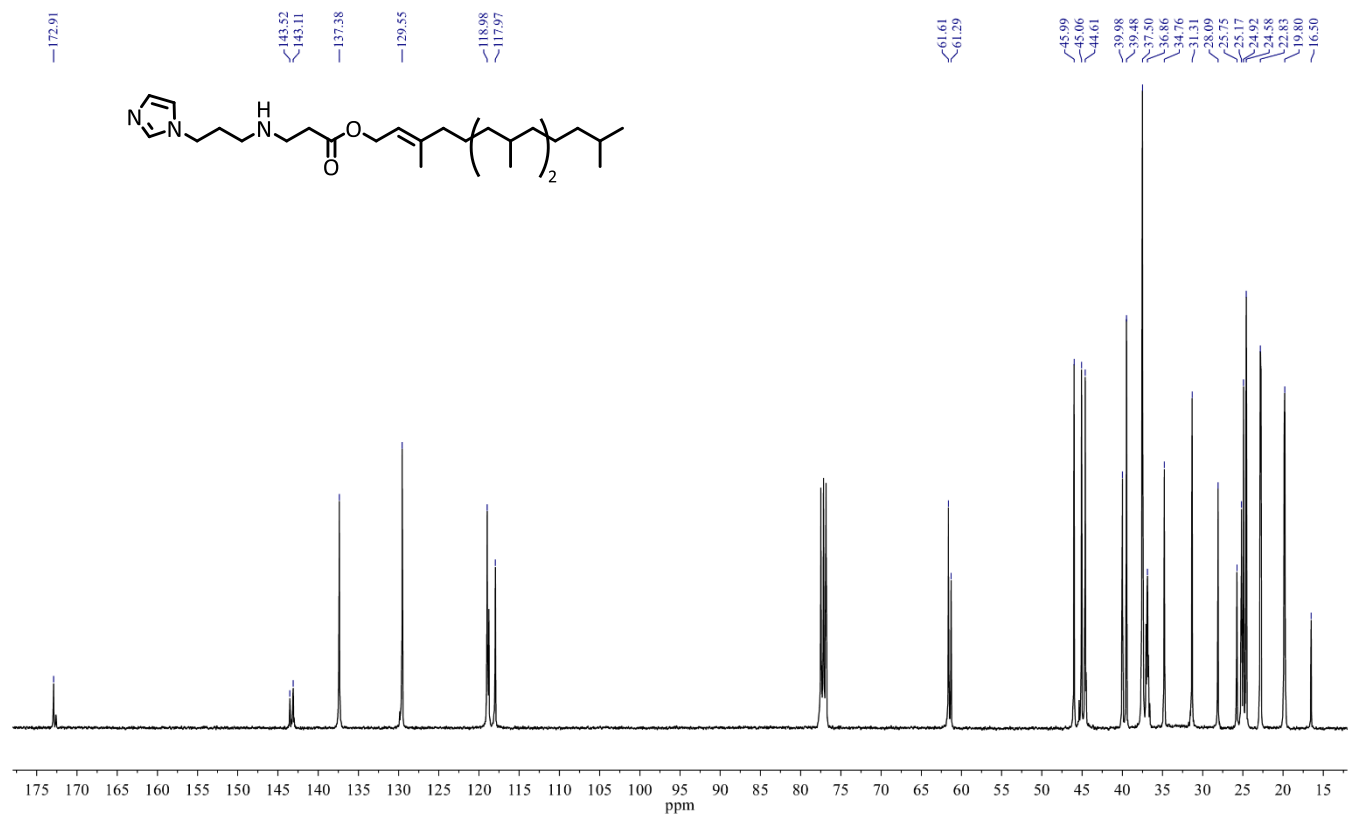


Figure S26. <sup>13</sup>C NMR spectrum of the compound **3f**, CDCl<sub>3</sub>, 298 K, 100 MHz.

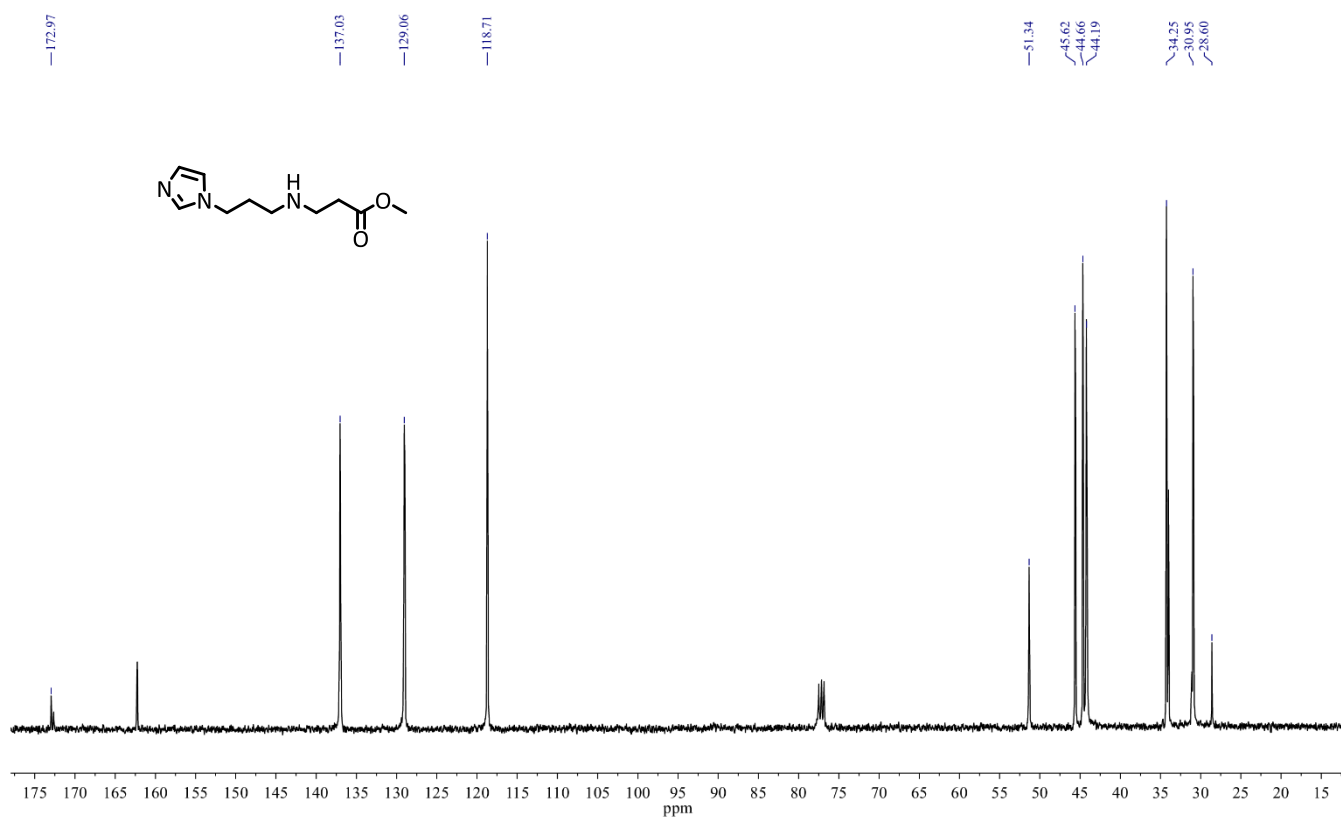


Figure S27.  $^{13}\text{C}$  NMR spectrum of the compound **3g**,  $\text{CDCl}_3$ , 298 K, 100 MHz.

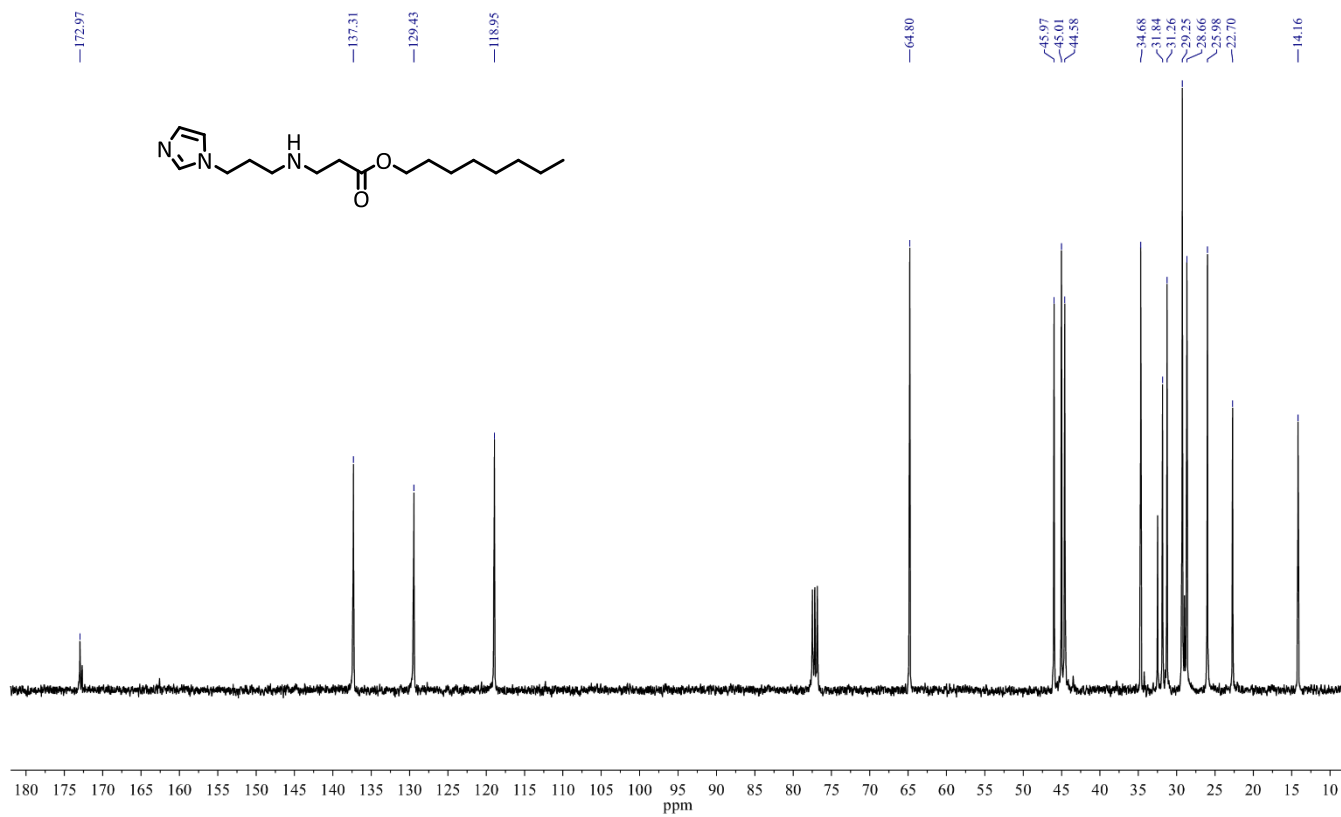


Figure S28.  $^{13}\text{C}$  NMR spectrum of the compound **3h**,  $\text{CDCl}_3$ , 298 K, 100 MHz.

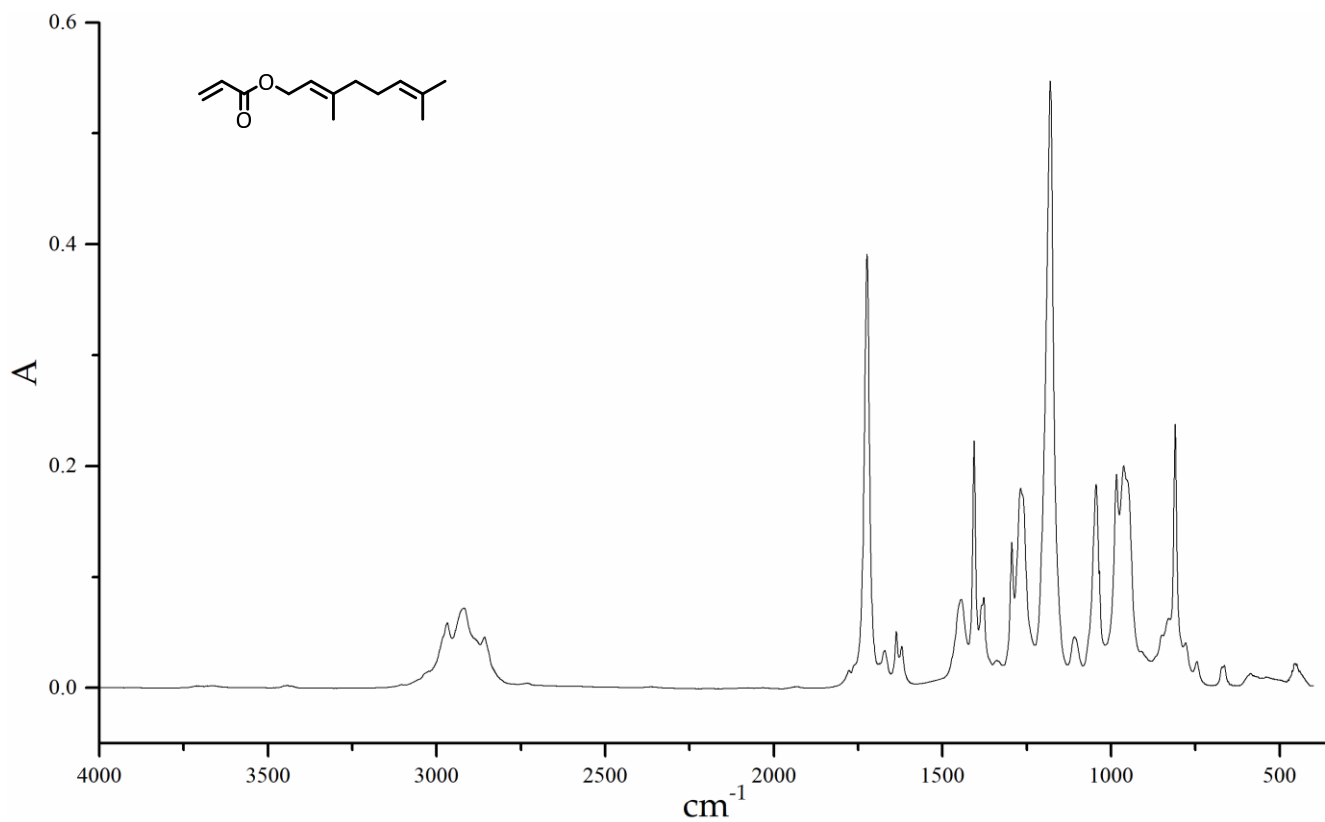


Figure S29. FT-IR spectrum of the compound **2a**.

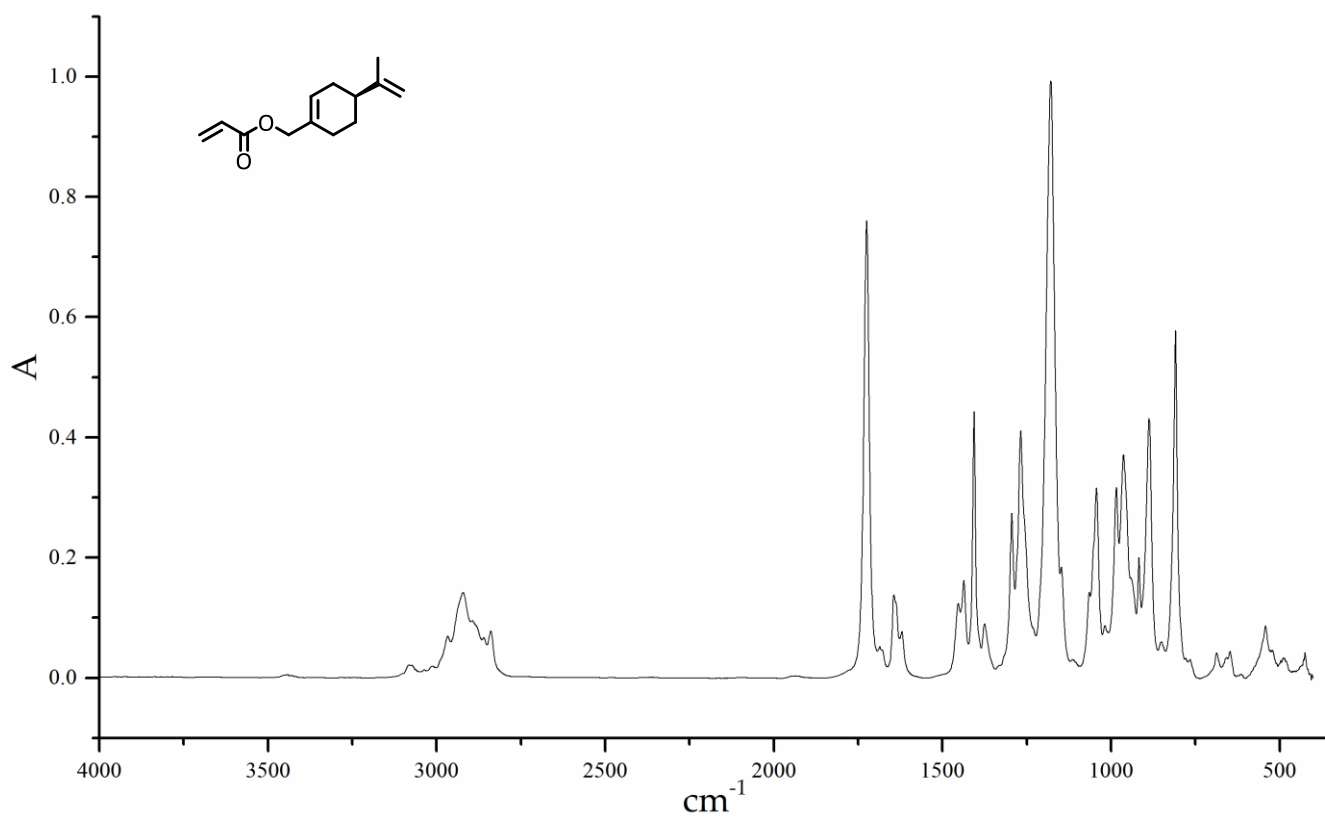


Figure S30. FT-IR spectrum of the compound **2b**.



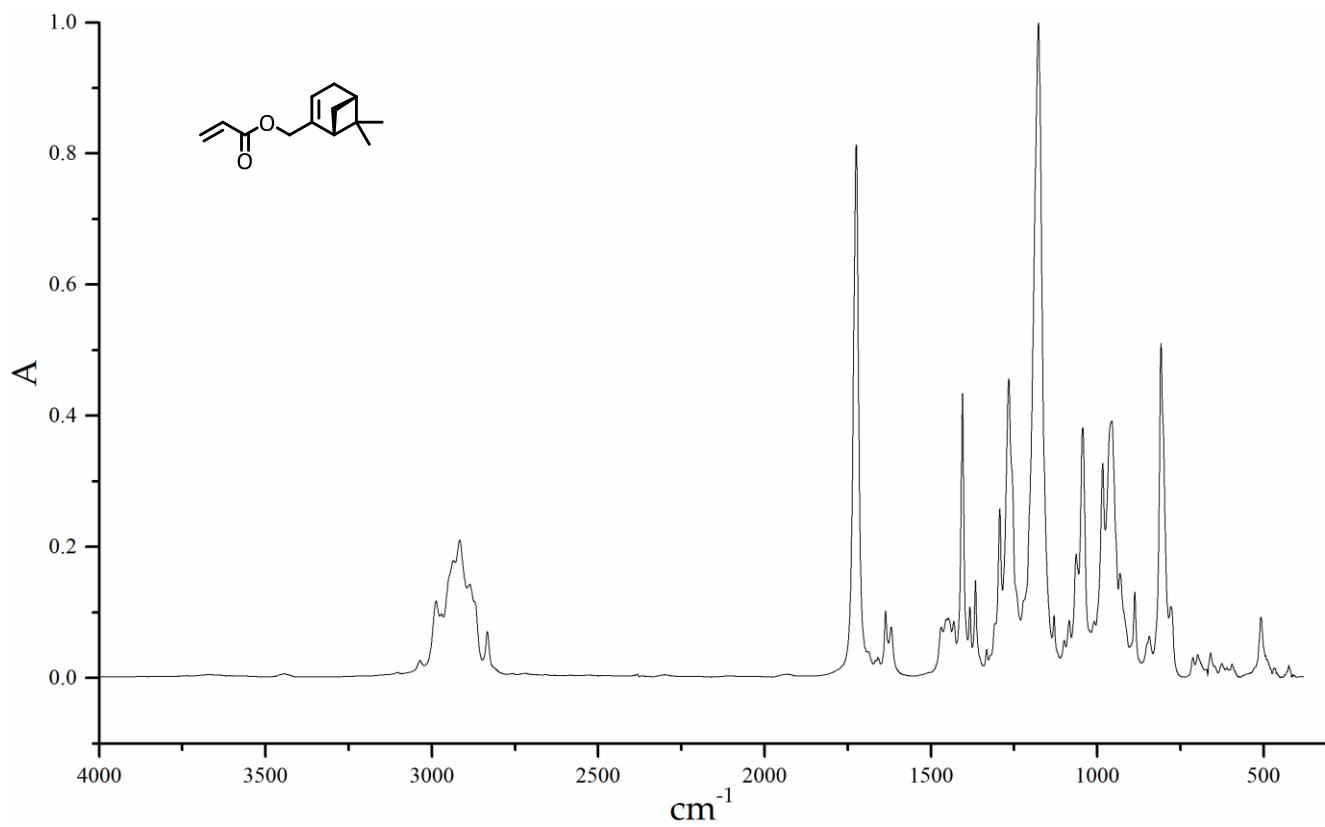


Figure S31. FT-IR spectrum of the compound **2c**.

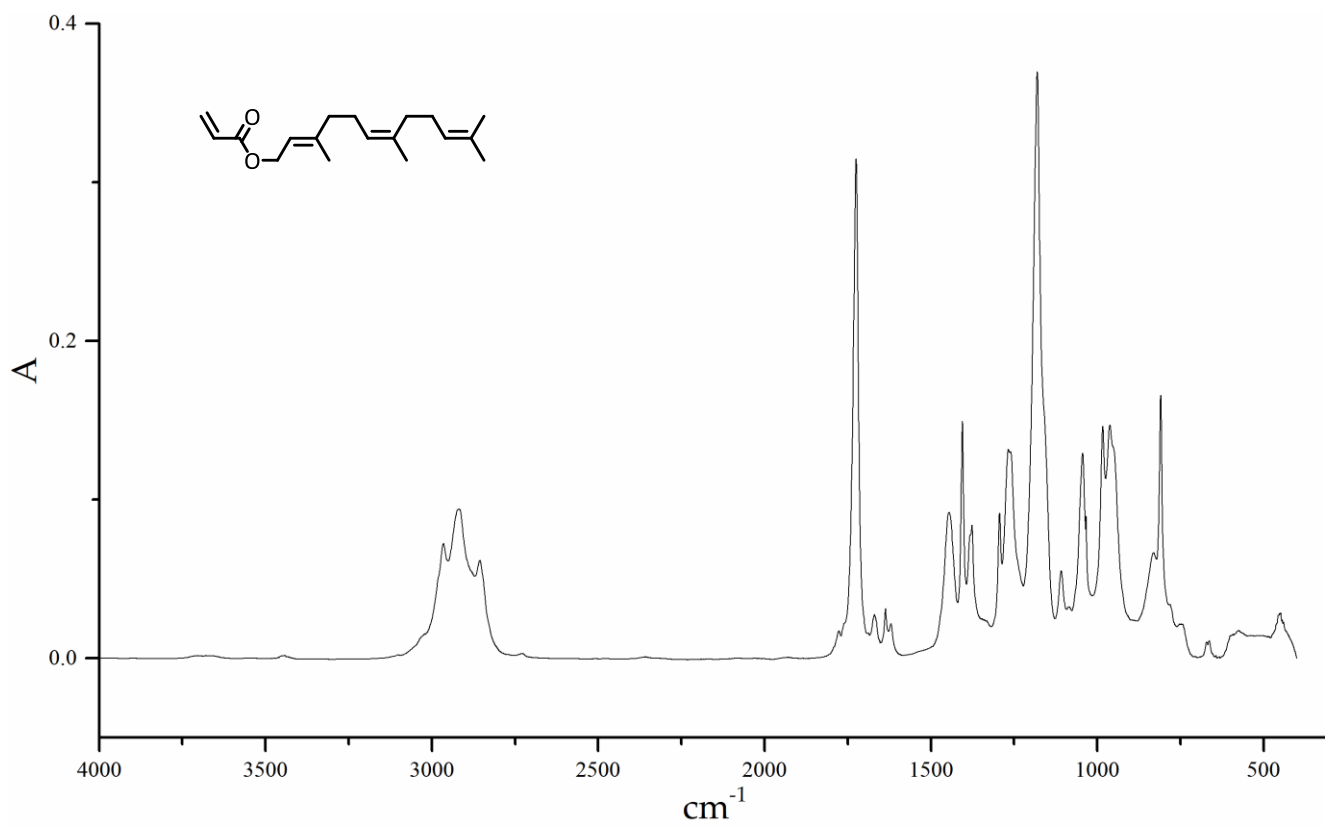


Figure S32. FT-IR spectrum of the compound **2d**.

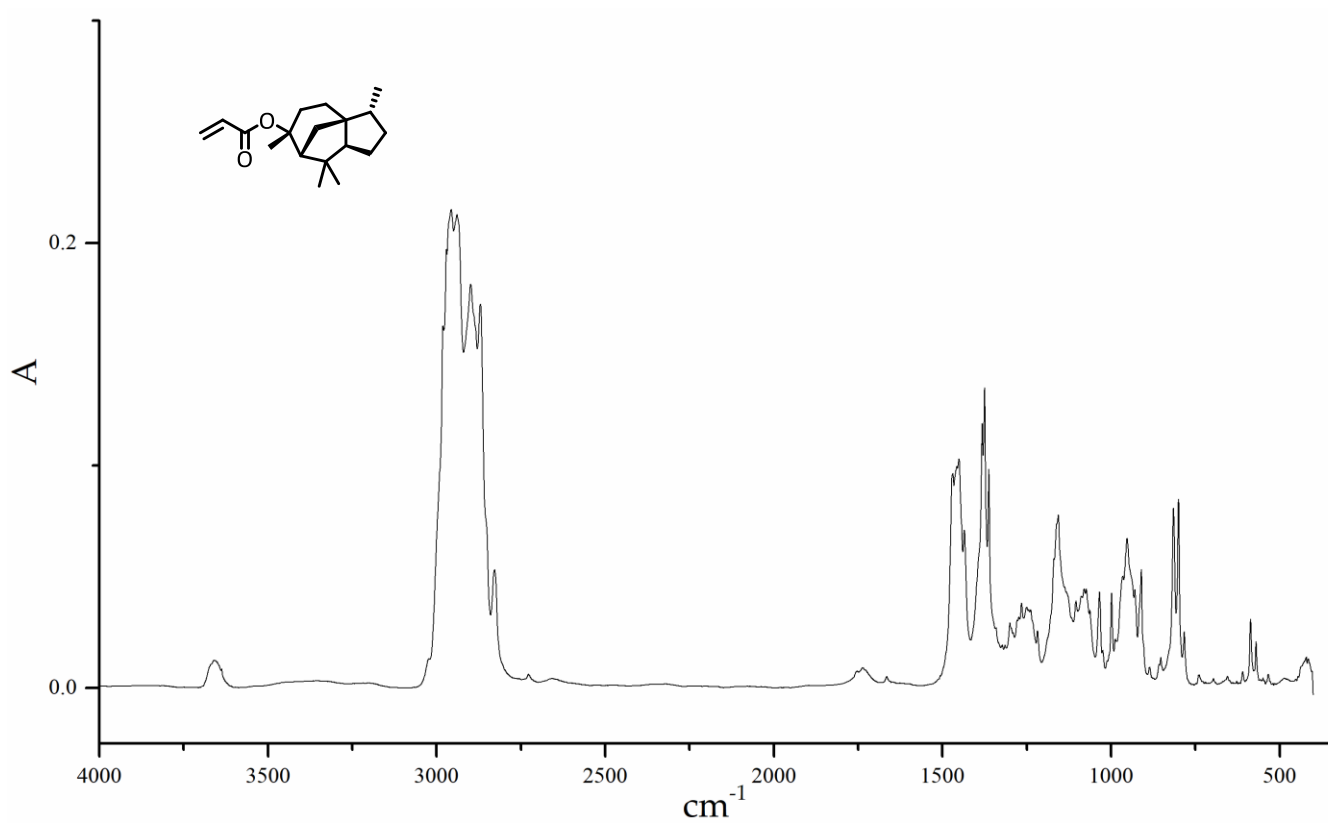


Figure S33. FT-IR spectrum of the compound **2e**.

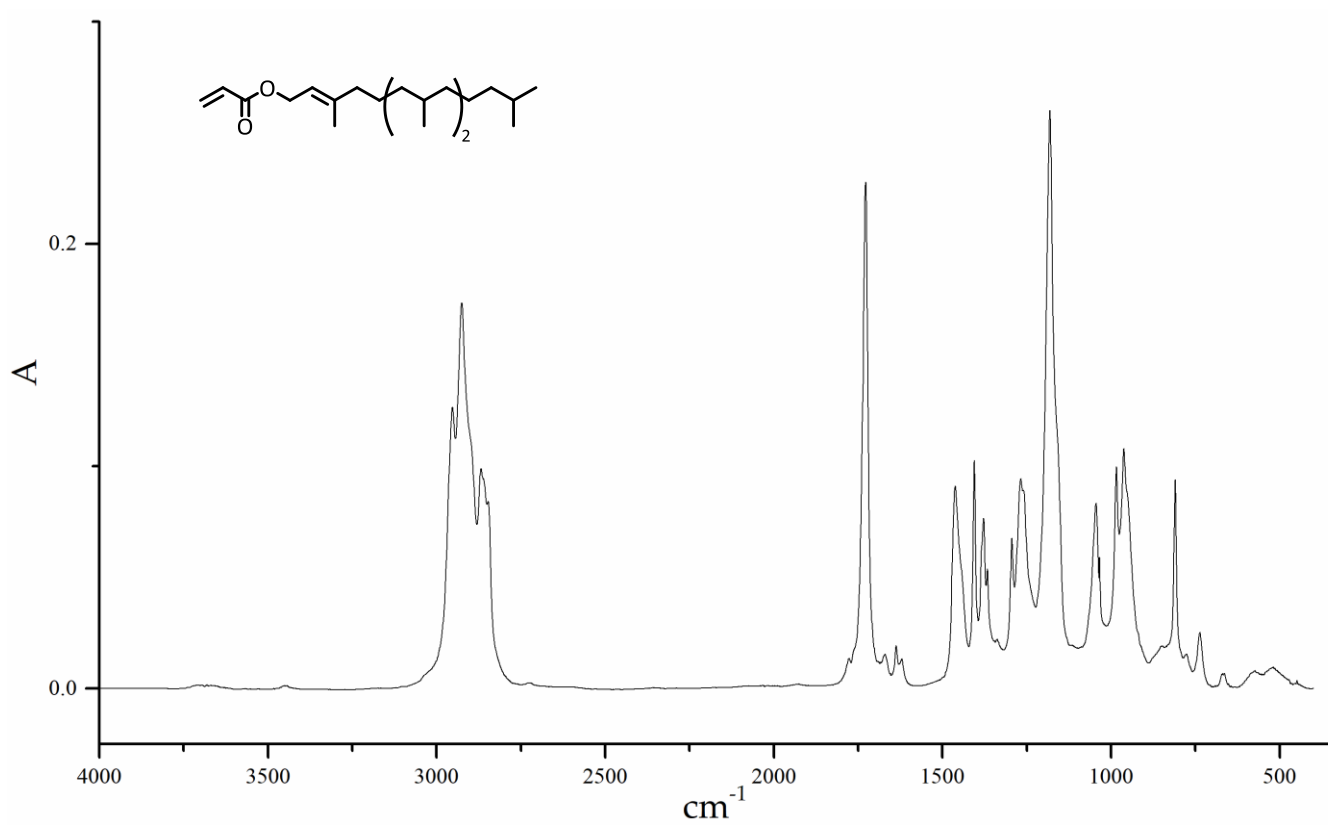


Figure S34. FT-IR spectrum of the compound **2f**.

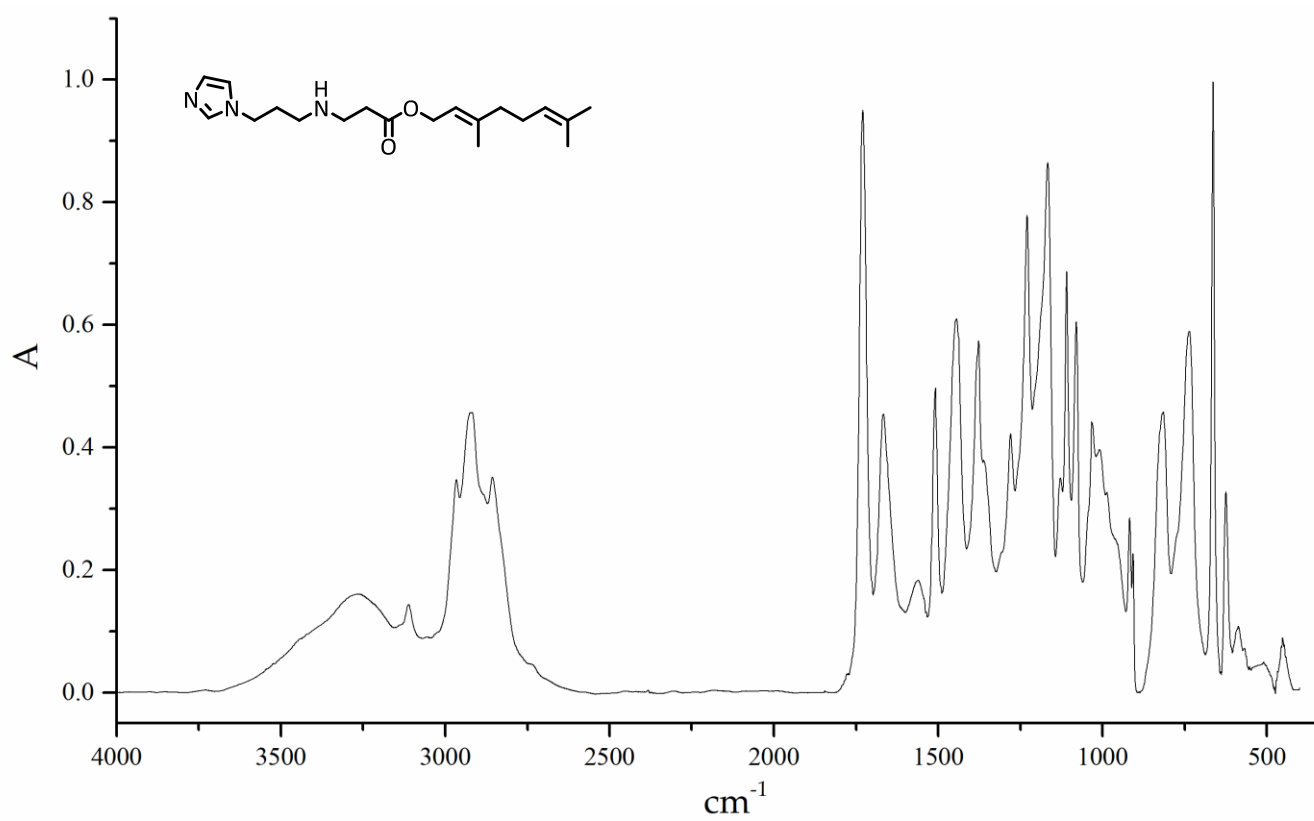


Figure S35. FT-IR spectrum of the compound **3a**.

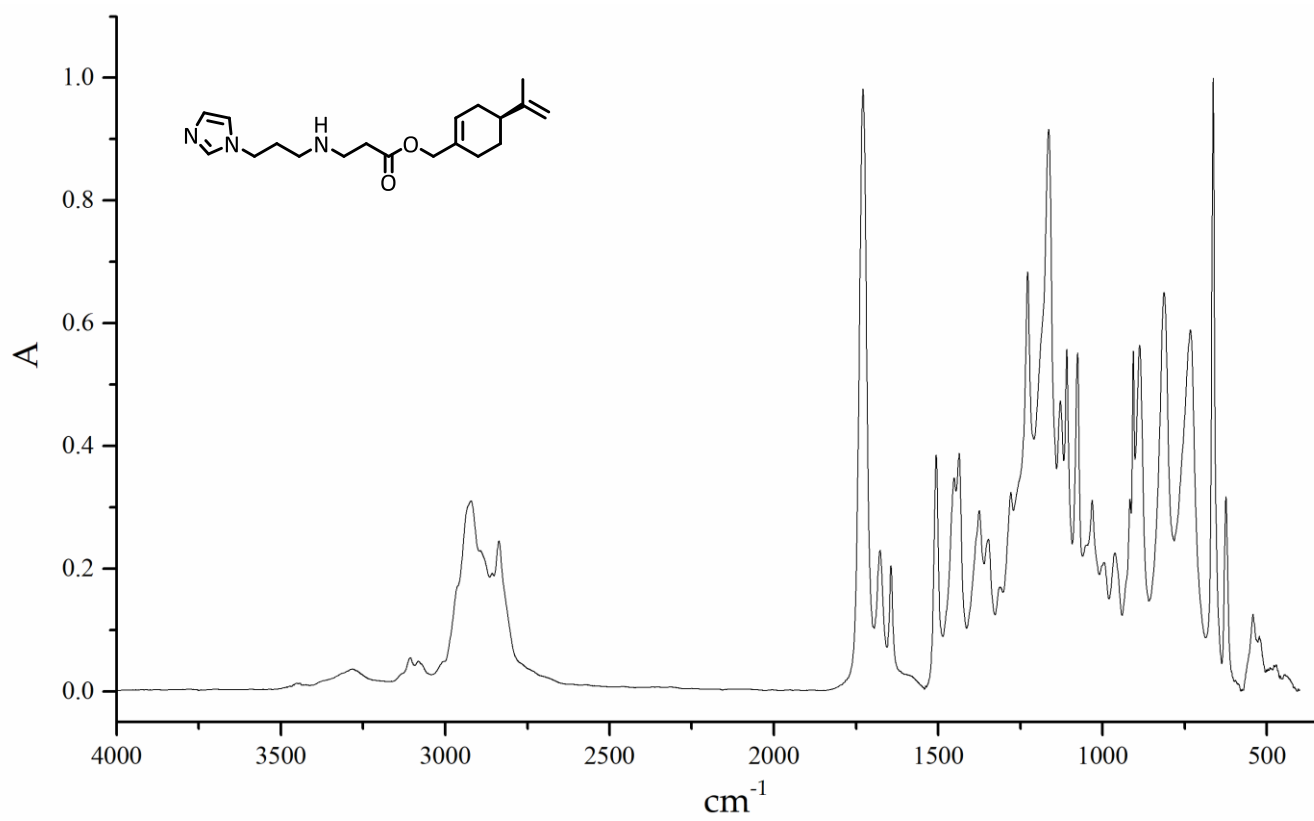


Figure S36. FT-IR spectrum of the compound **3b**.

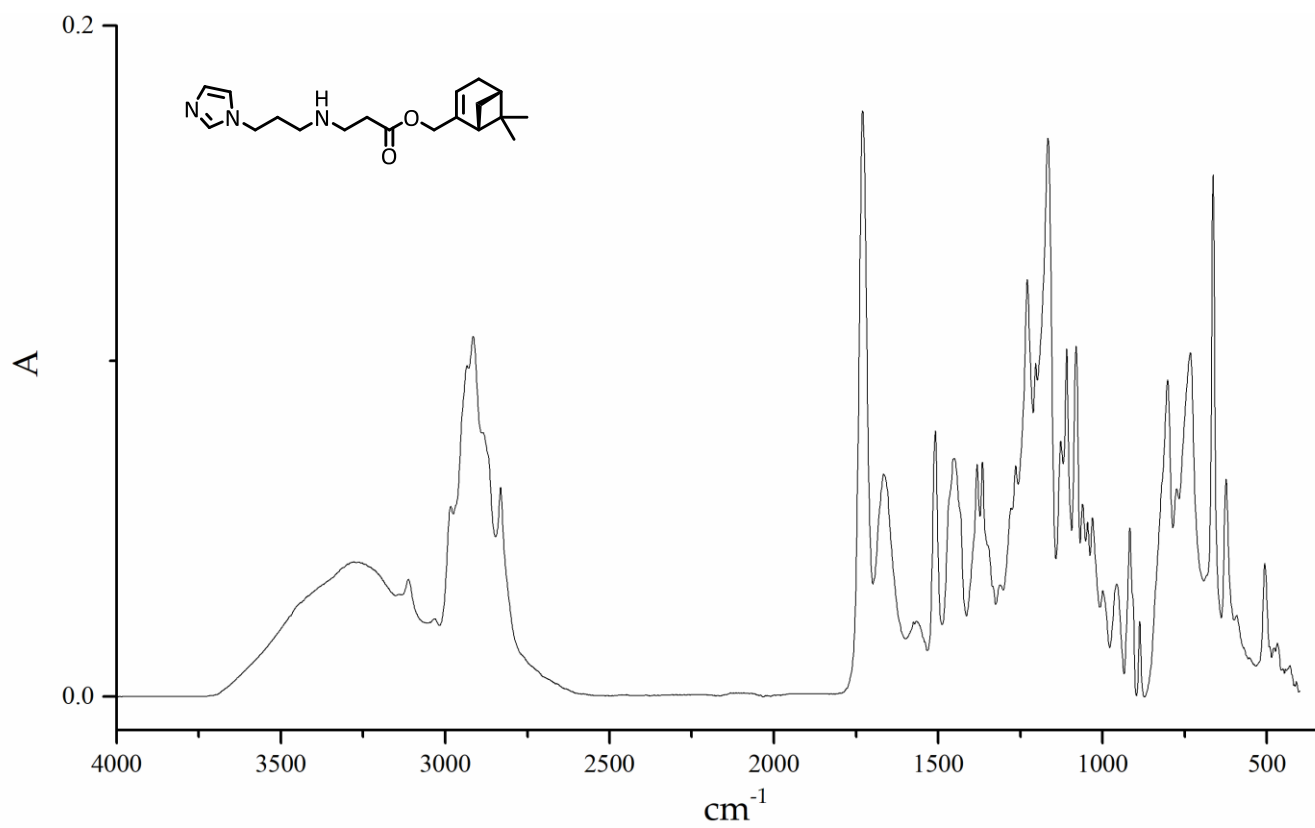


Figure S37. FT-IR spectrum of the compound **3c**.

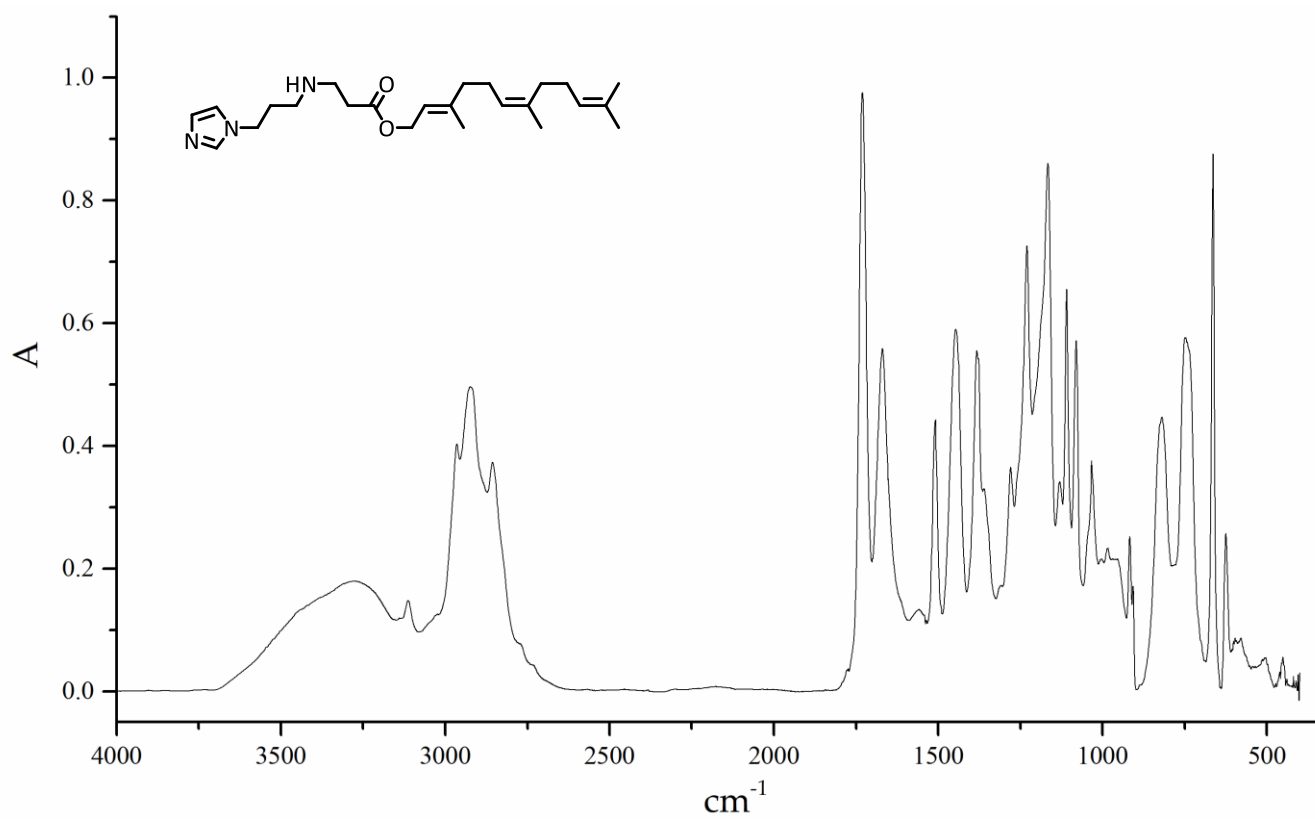


Figure S38. FT-IR spectrum of the compound **3d**.

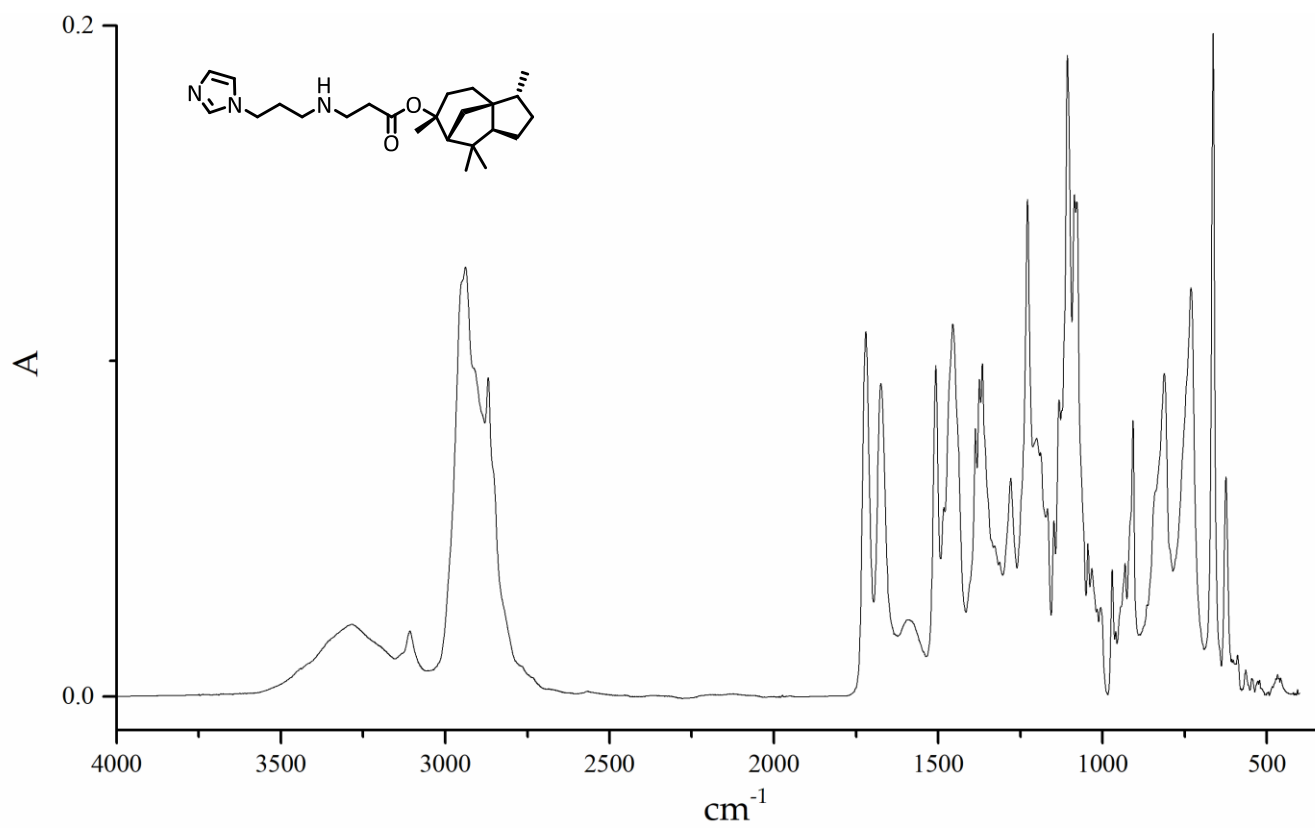


Figure S39. FT-IR spectrum of the compound **3e**.

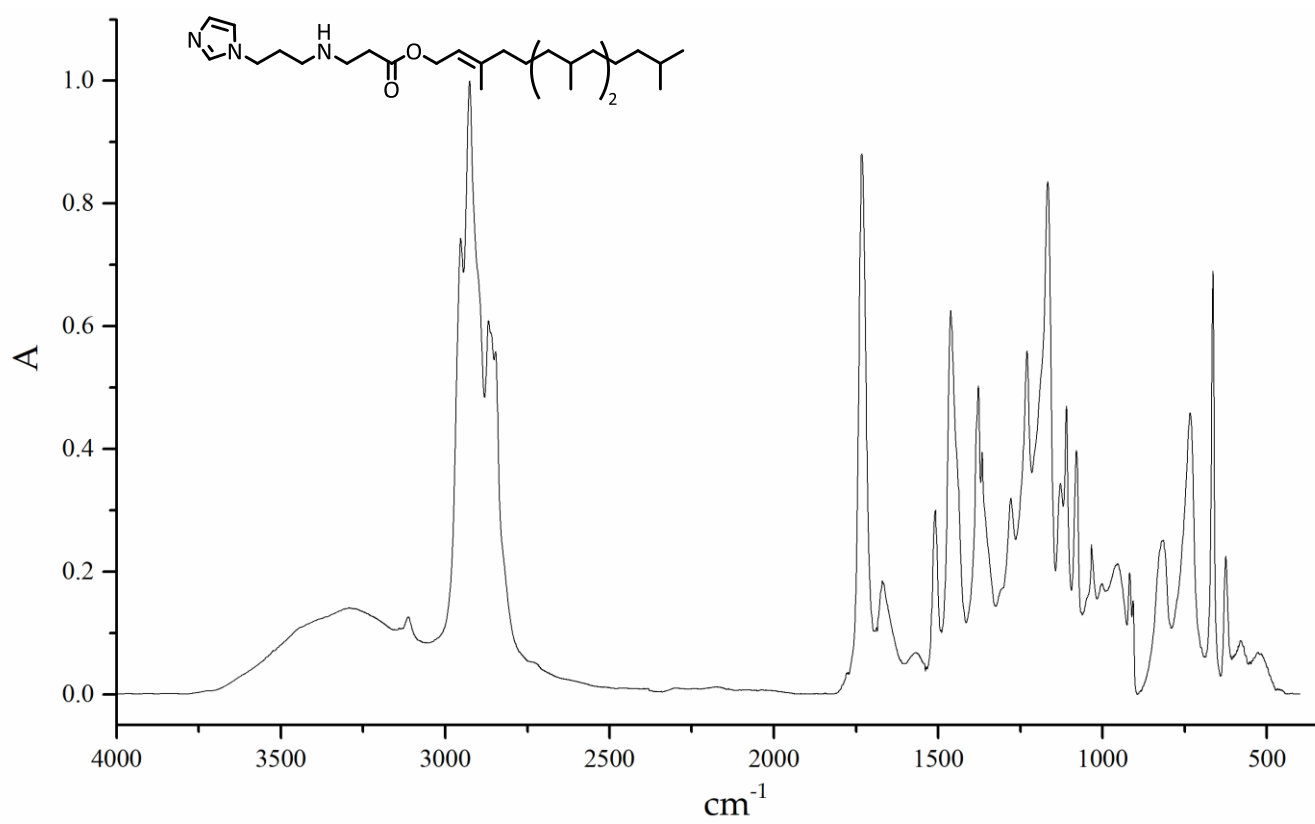


Figure S40. FT-IR spectrum of the compound **3f**.

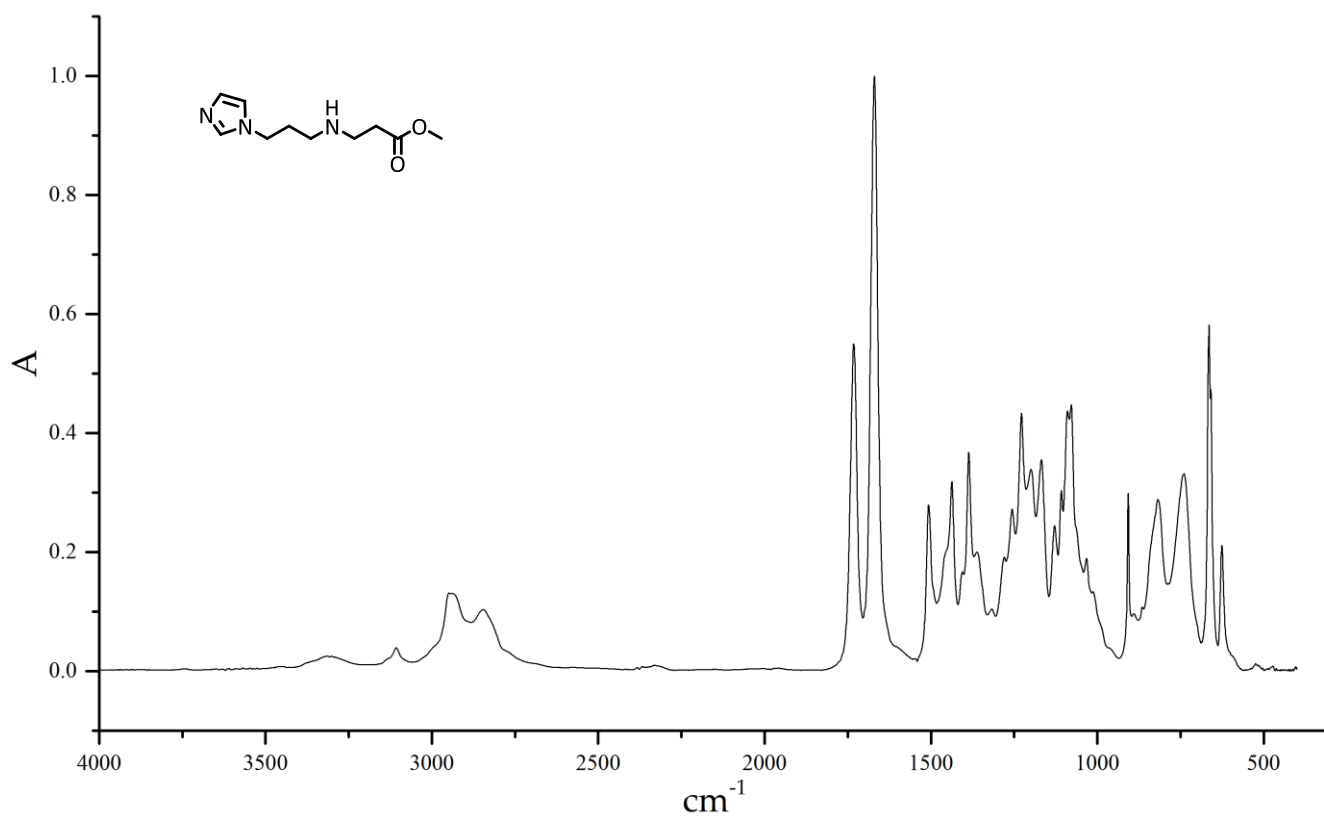


Figure S41. FT-IR spectrum of the compound **3g**.

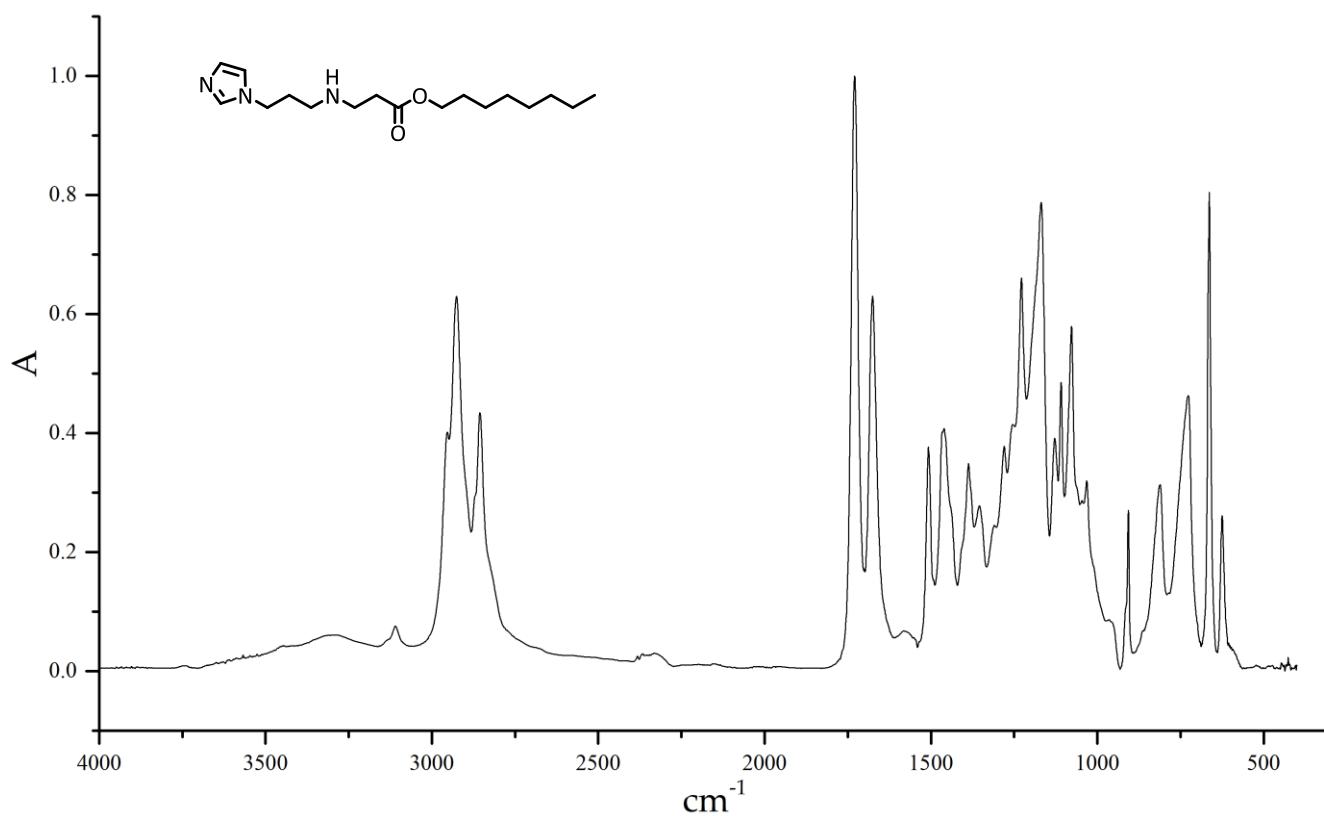


Figure S42. FT-IR spectrum of the compound **3h**.

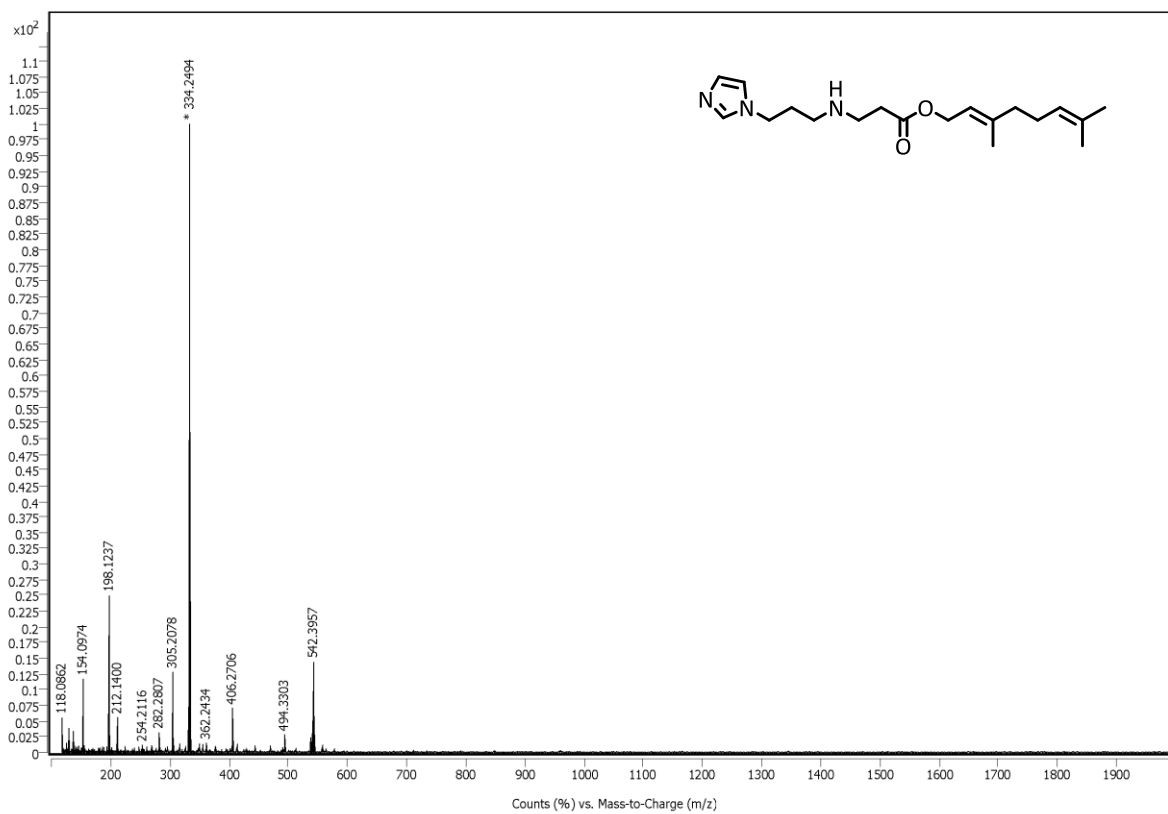


Figure S43. HRMS spectrum of the compound **3a**.

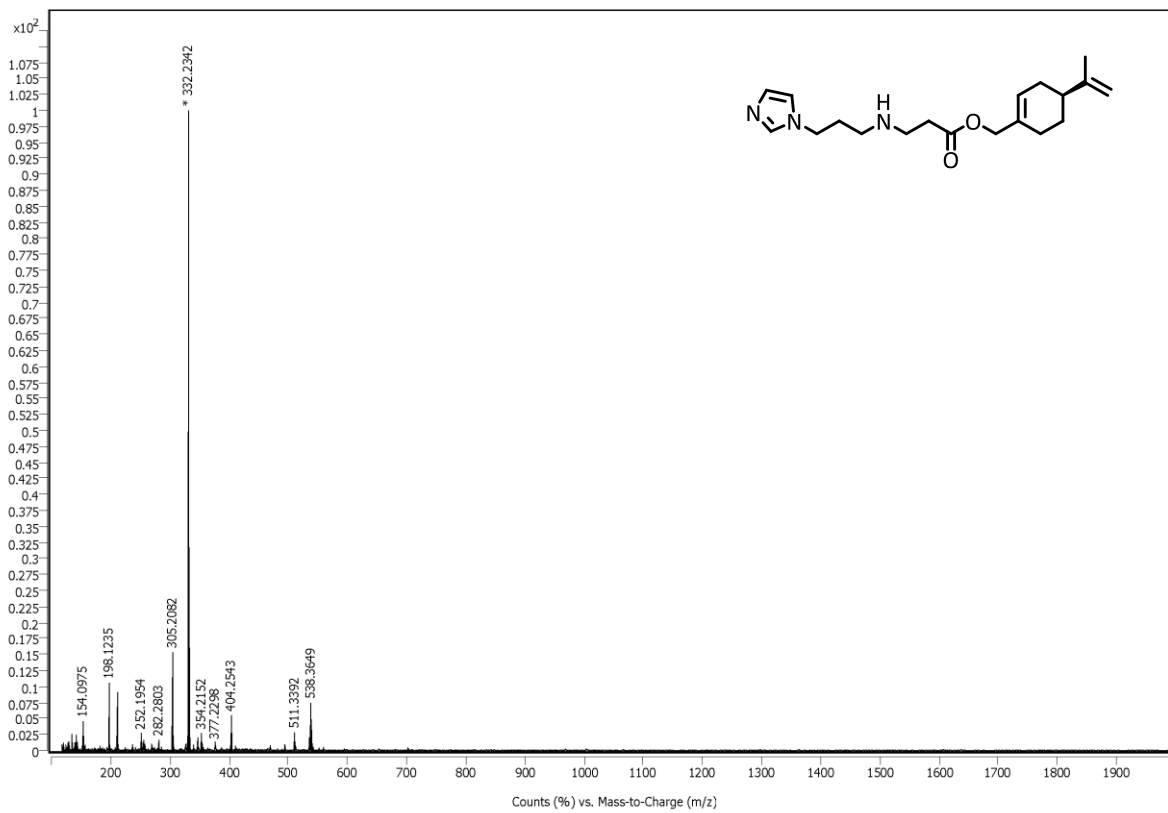


Figure S44. HRMS spectrum of the compound **3b**.

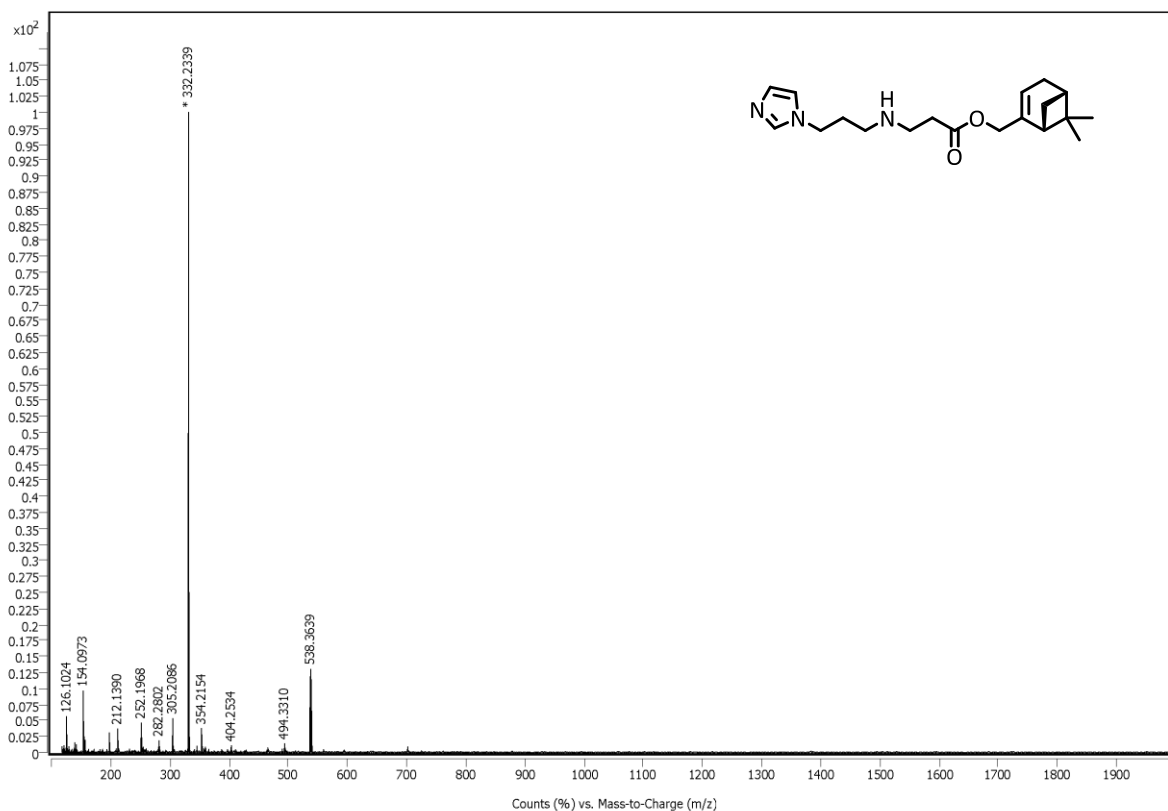


Figure S45. HRMS spectrum of the compound **3c**.

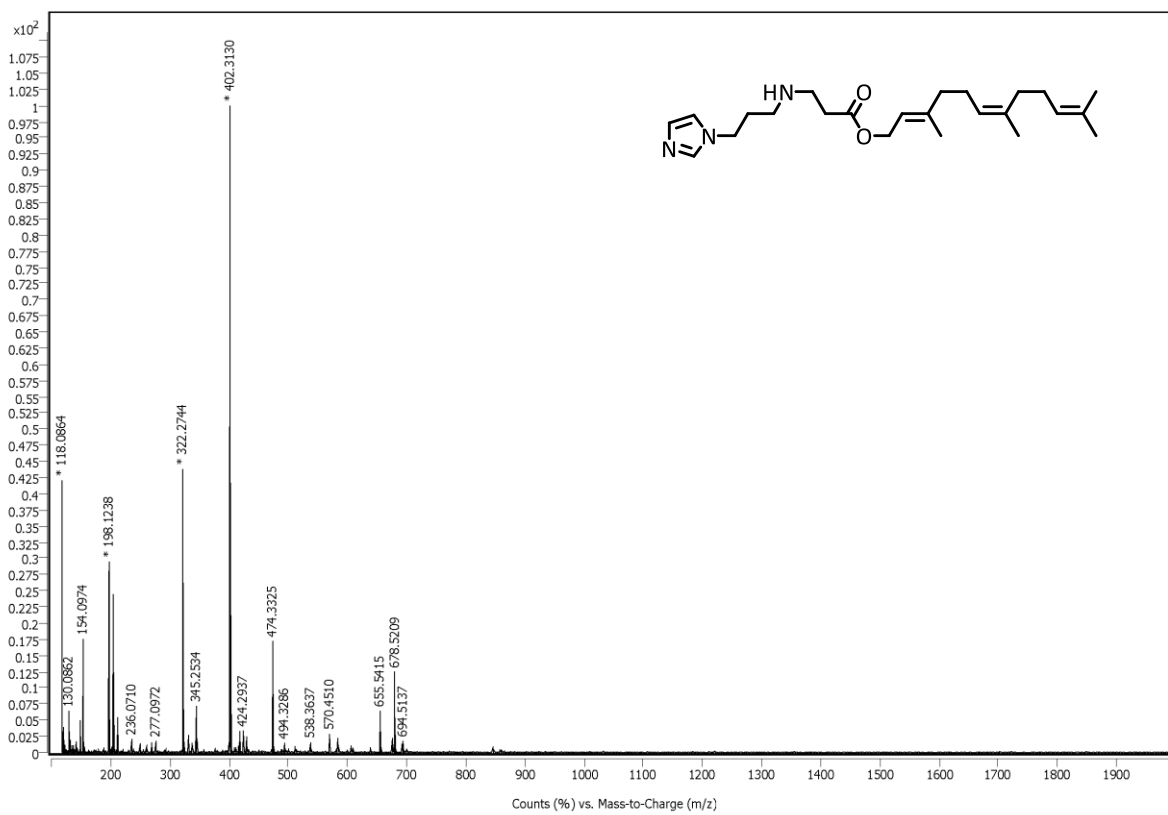


Figure S46. HRMS spectrum of the compound **3d**.



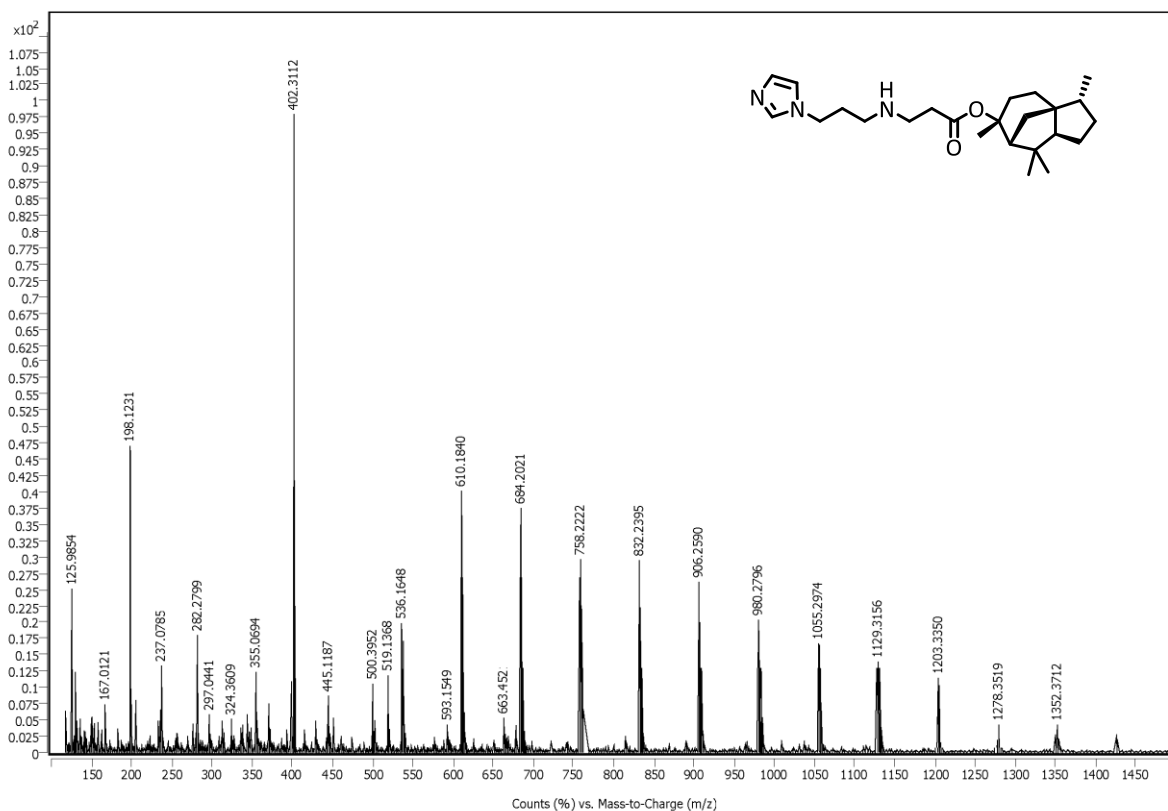


Figure S47. HRMS spectrum of the compound **3e**.

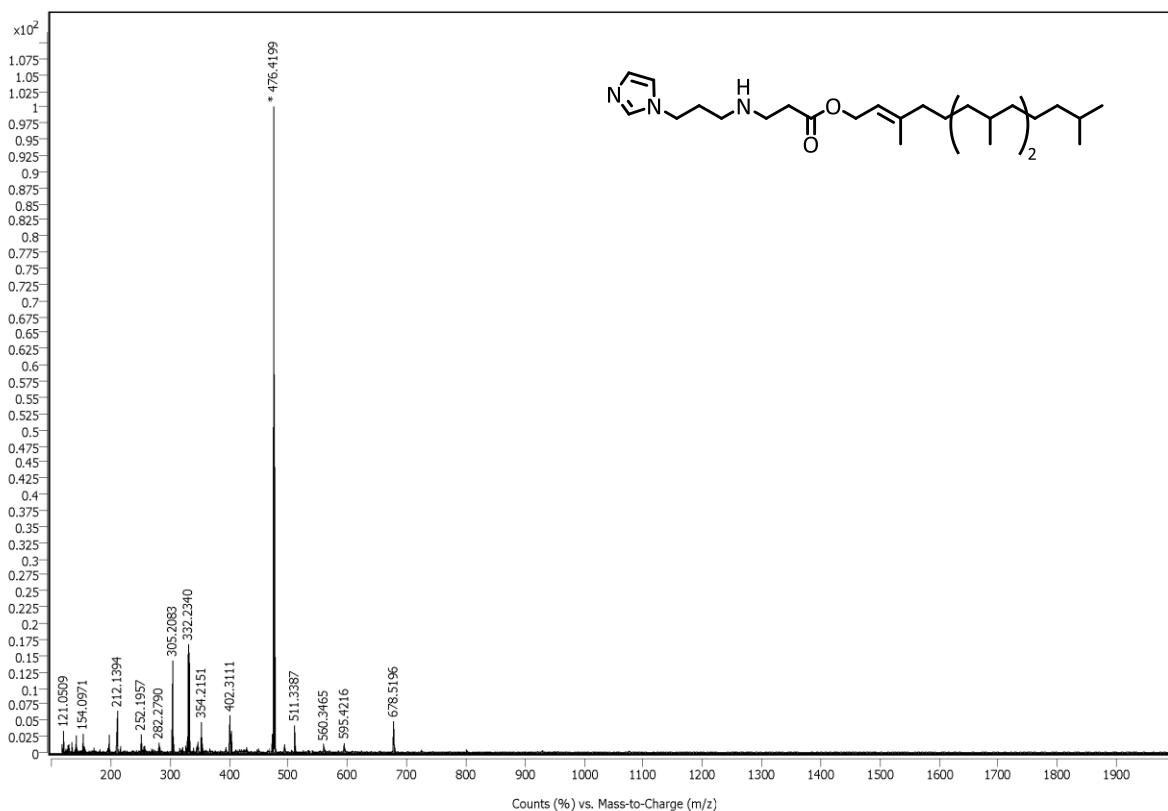


Figure S48. HRMS spectrum of the compound **3f**.

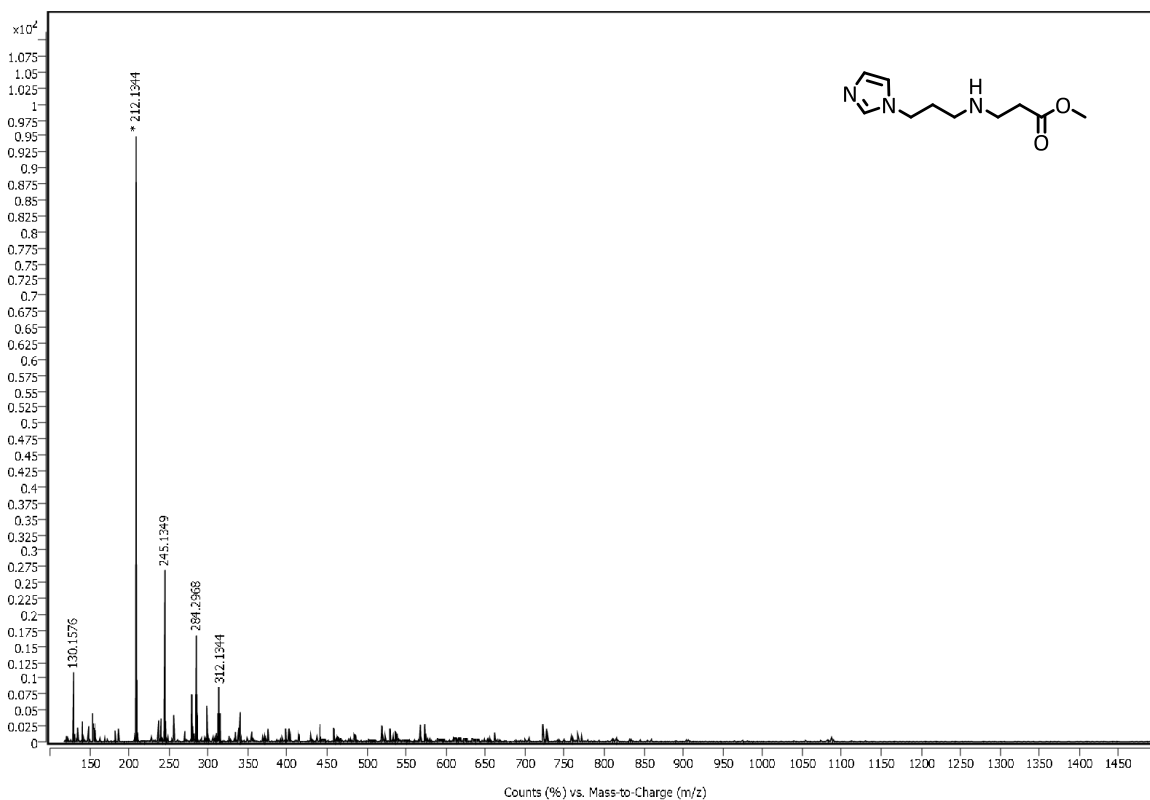


Figure S49. HRMS spectrum of the compound **3e**.

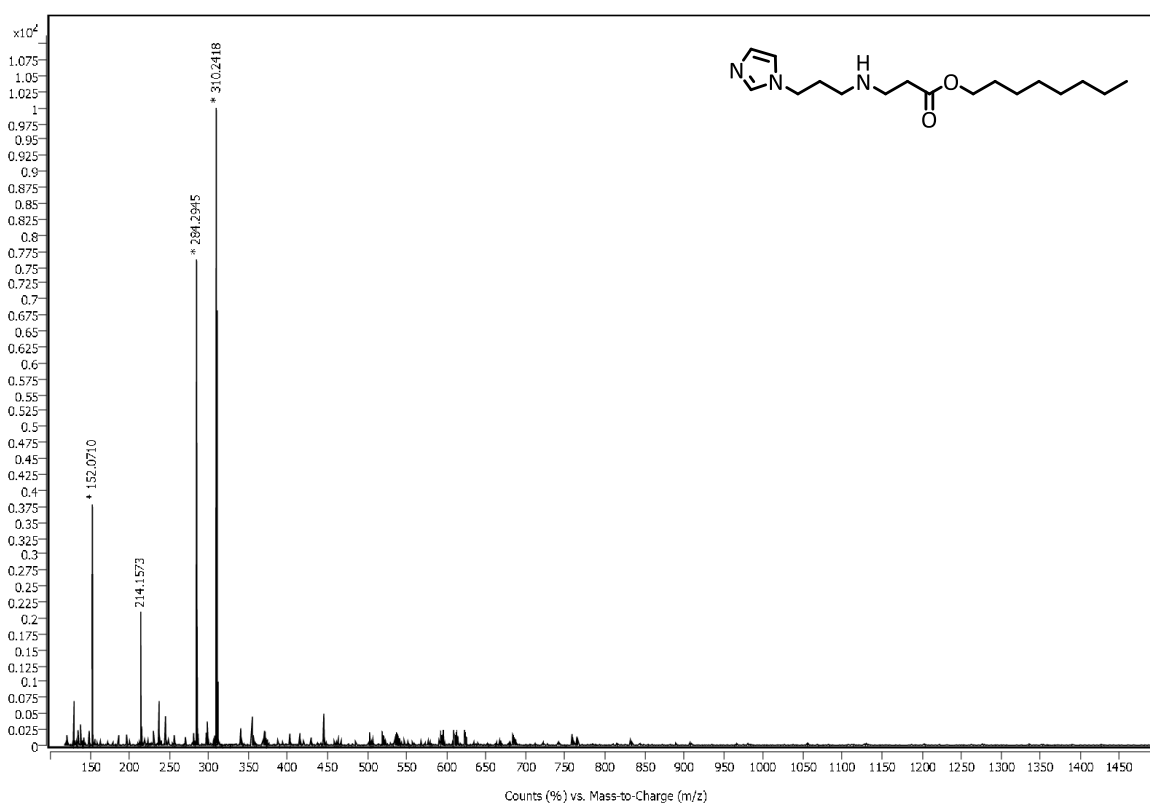
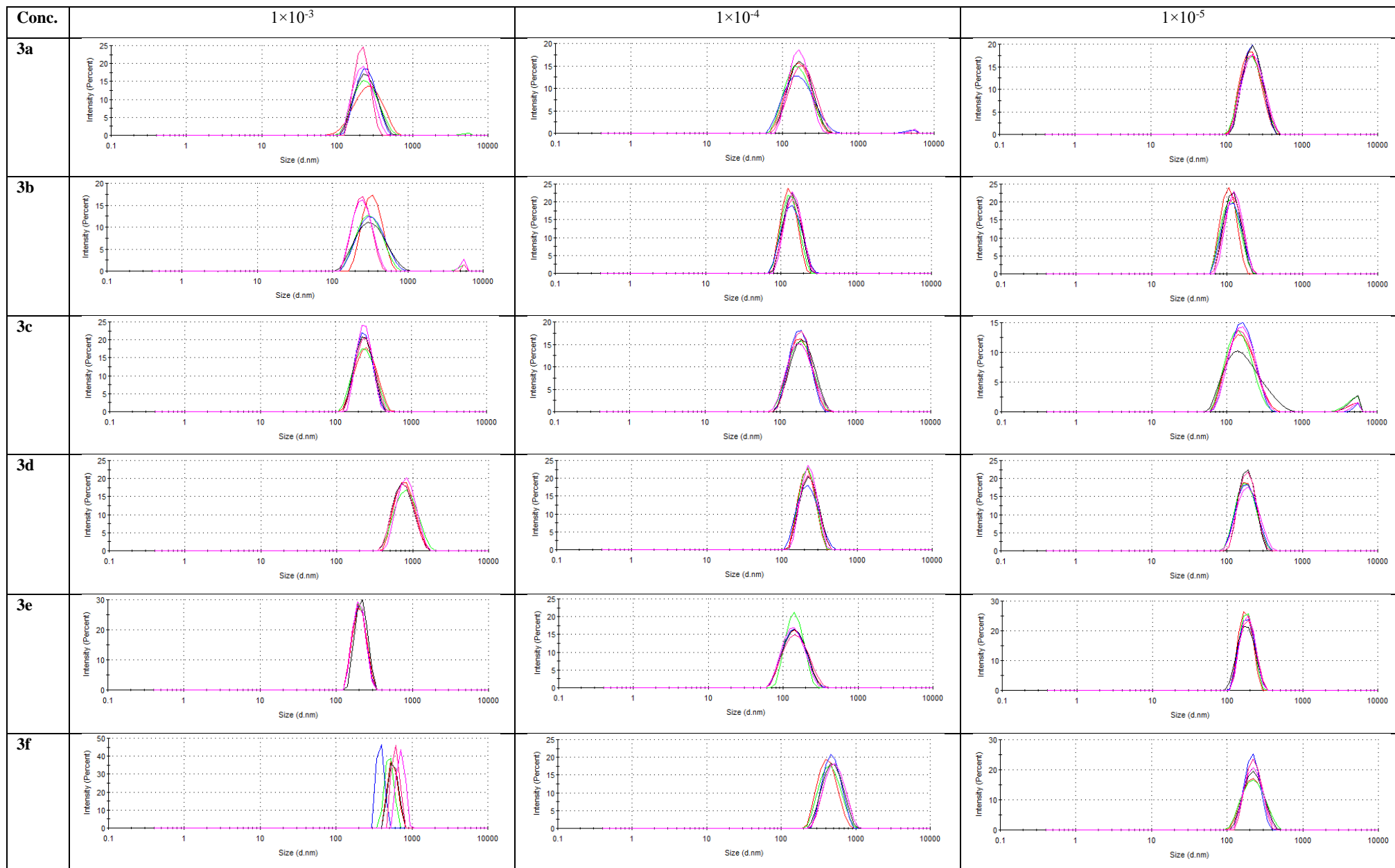


Figure S50. HRMS spectrum of the compound **3h**.

# Dynamic light scattering



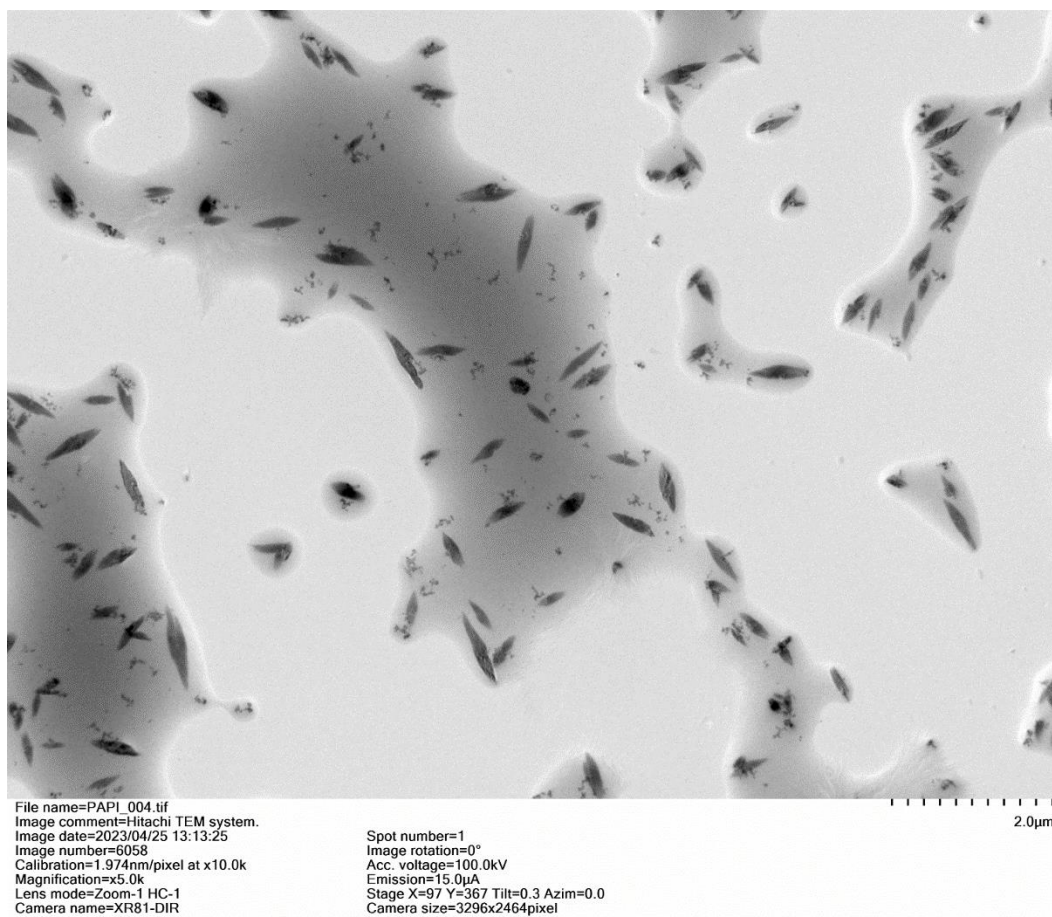


Figure S51. TEM image of associates of the compounds **3f**

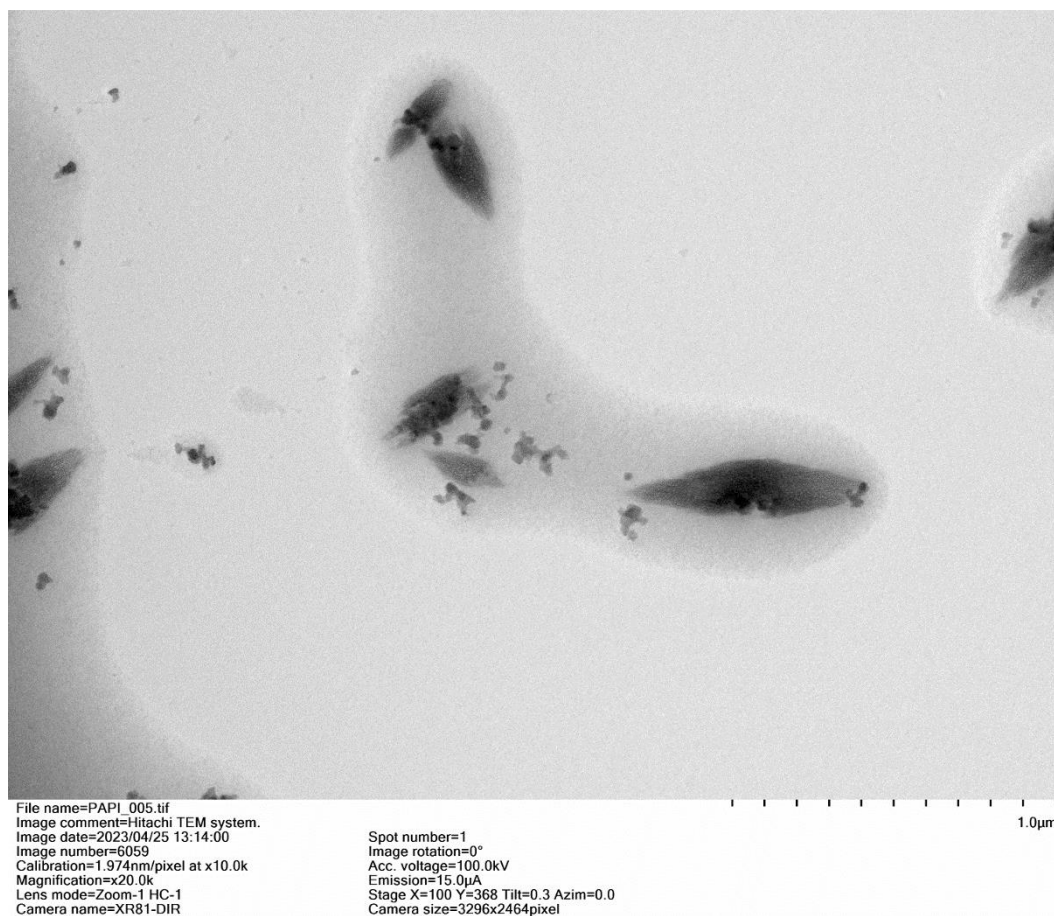


Figure S52. TEM image of associates of the compounds **3f**

### Linear equation parameters of $T_m$ against Molar ratio

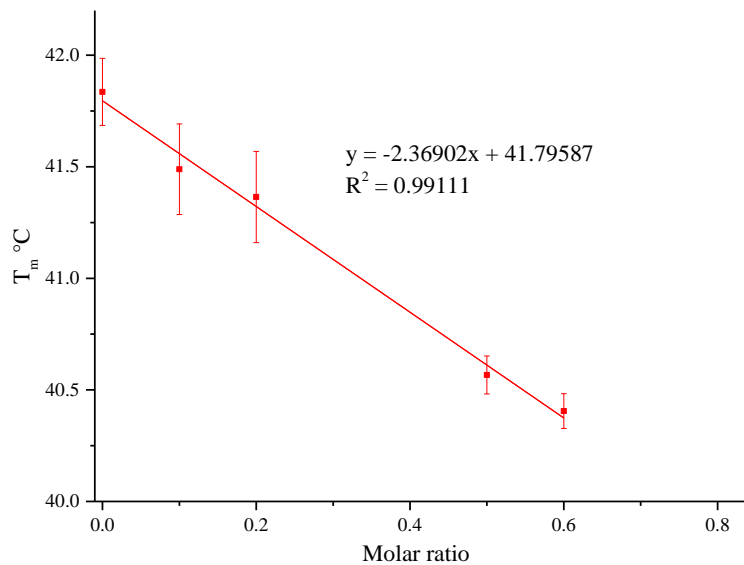


Figure S53. Linear dependence of  $T_m$  against Molar ratio for compound **3a**

| Compound 3a |          |            |
|-------------|----------|------------|
| Molar ratio | $T_m$    | $T_mEr\pm$ |
| 0           | 41.83555 | 0.15025    |
| 0.1         | 41.48899 | 0.20304    |
| 0.2         | 41.3646  | 0.20434    |
| 0.5         | 40.56708 | 0.08498    |
| 0.6         | 40.40513 | 0.0779     |

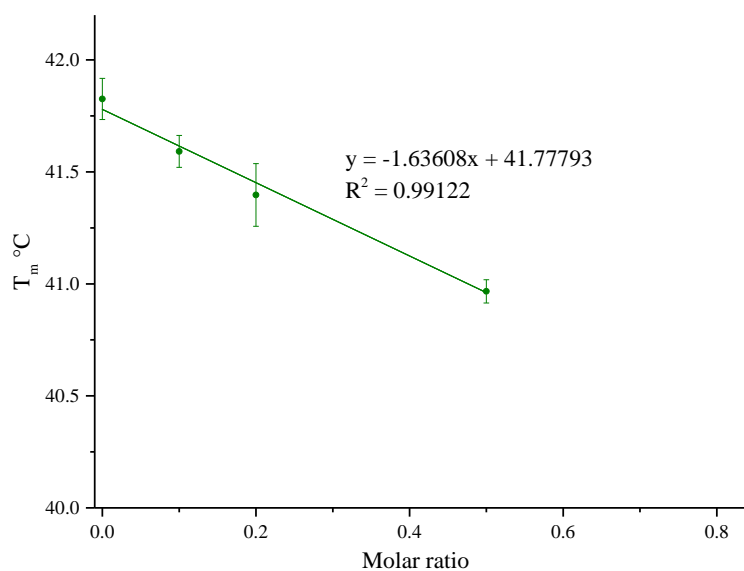


Figure S54. Linear dependence of  $T_m$  against Molar ratio for compound **3b**

| Compound 3b |          |            |
|-------------|----------|------------|
| Molar ratio | $T_m$    | $T_mEr\pm$ |
| 0           | 41.82553 | 0.09189    |
| 0.1         | 41.59147 | 0.07145    |
| 0.2         | 41.39715 | 0.14003    |
| 0.5         | 40.96678 | 0.05187    |

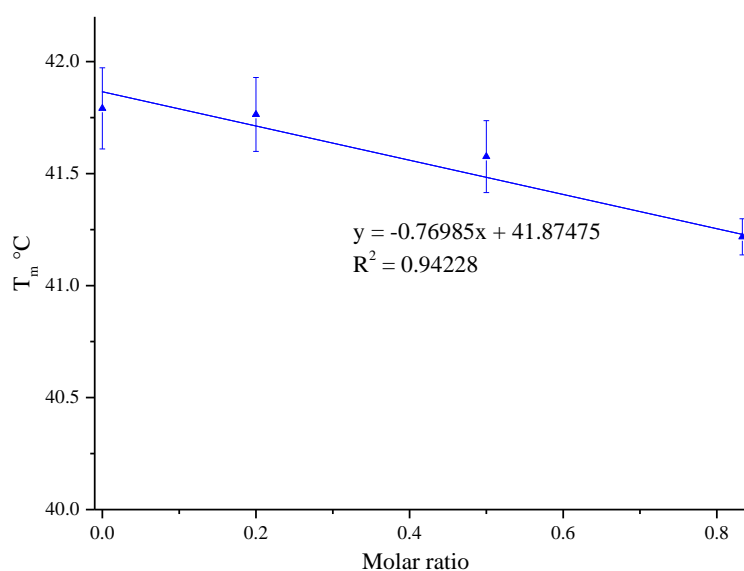


Figure S55. Linear dependence of  $T_m$  against Molar ratio for compound **3c**

| Compound 3c |          |            |
|-------------|----------|------------|
| Molar ratio | $T_m$    | $T_mEr\pm$ |
| 0           | 41.7911  | 0.1811     |
| 0.2         | 41.76406 | 0.16477    |
| 0.5         | 41.57609 | 0.16054    |
| 0.83333     | 41.21769 | 0.08057    |

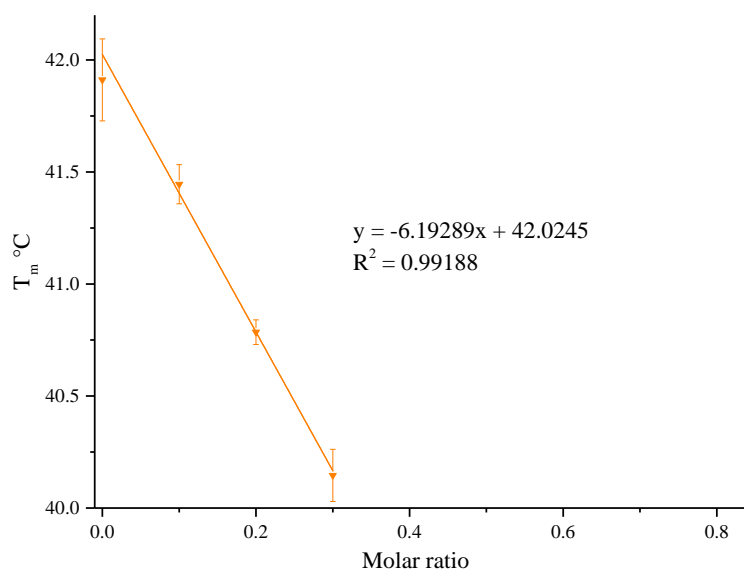
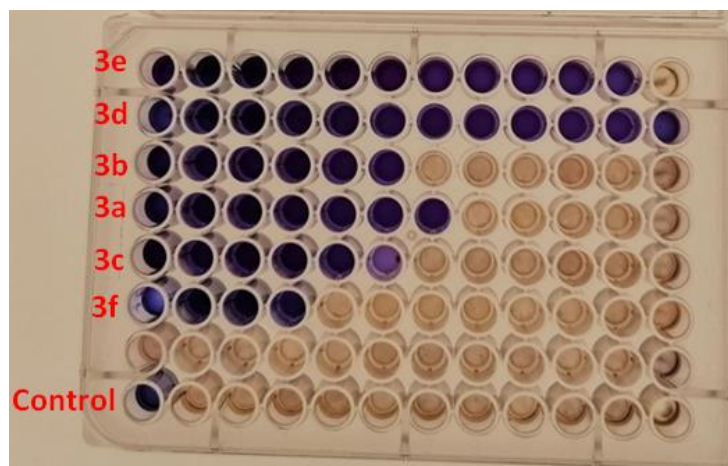


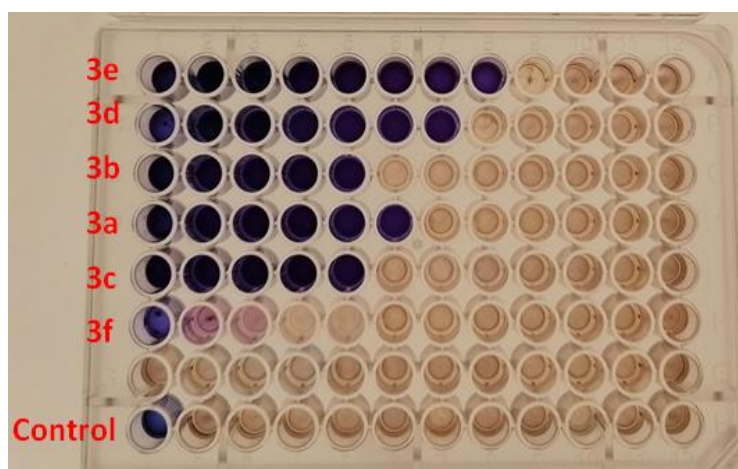
Figure S56. Linear dependence of  $T_m$  against Molar ratio for compound **3e**

| Compound 3e |          |            |
|-------------|----------|------------|
| Molar ratio | $T_m$    | $T_mEr\pm$ |
| 0           | 41.91109 | 0.18306    |
| 0.1         | 41.44516 | 0.08743    |
| 0.2         | 40.78502 | 0.05515    |
| 0.3         | 40.14568 | 0.11654    |

## Resazurin assay



Figures S57. The ability of terpenoids (**3e**, **3d**, **3b**, **3a**, **3c**, **3f** respectively) to inhibit the growth of *Saccharomyces cerevisiae*



Figures S58. The ability of terpenoids (**3e**, **3d**, **3b**, **3a**, **3c**, **3f** respectively) to inhibit the growth of *Candida sp.*



Figures S59. The ability of compounds **3g-h** to inhibit the growth of *Saccharomyces cerevisiae* and *Candida sp.*