

Supplementary Information

Chiral Amino and Imino-Alcohols Based on (*R*)-Limonene

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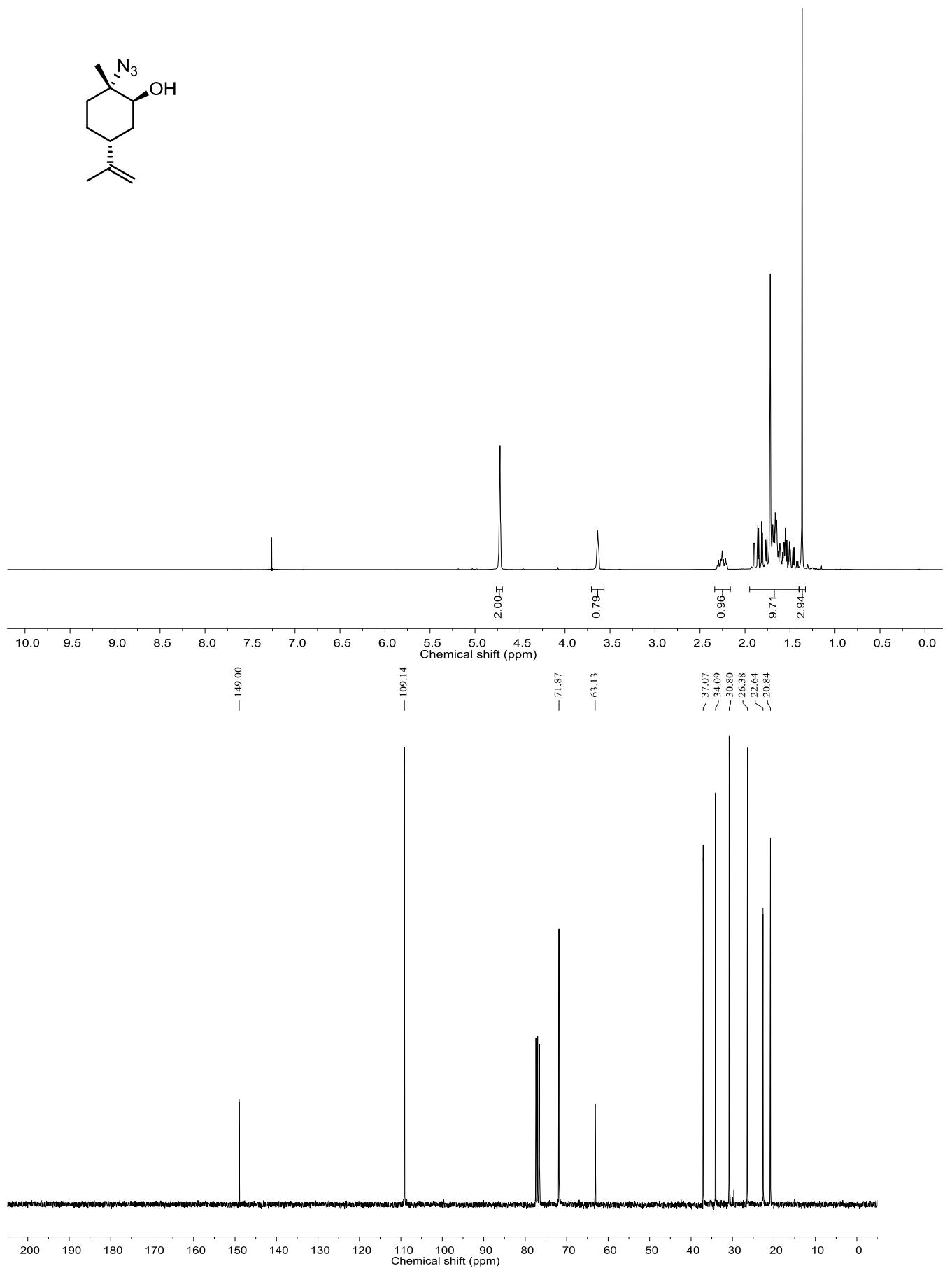


Figure S1. ¹H (300 MHz) and ¹³C (75 MHz) nuclear magnetic resonance (NMR) spectra of **2a** in CDCl₃.

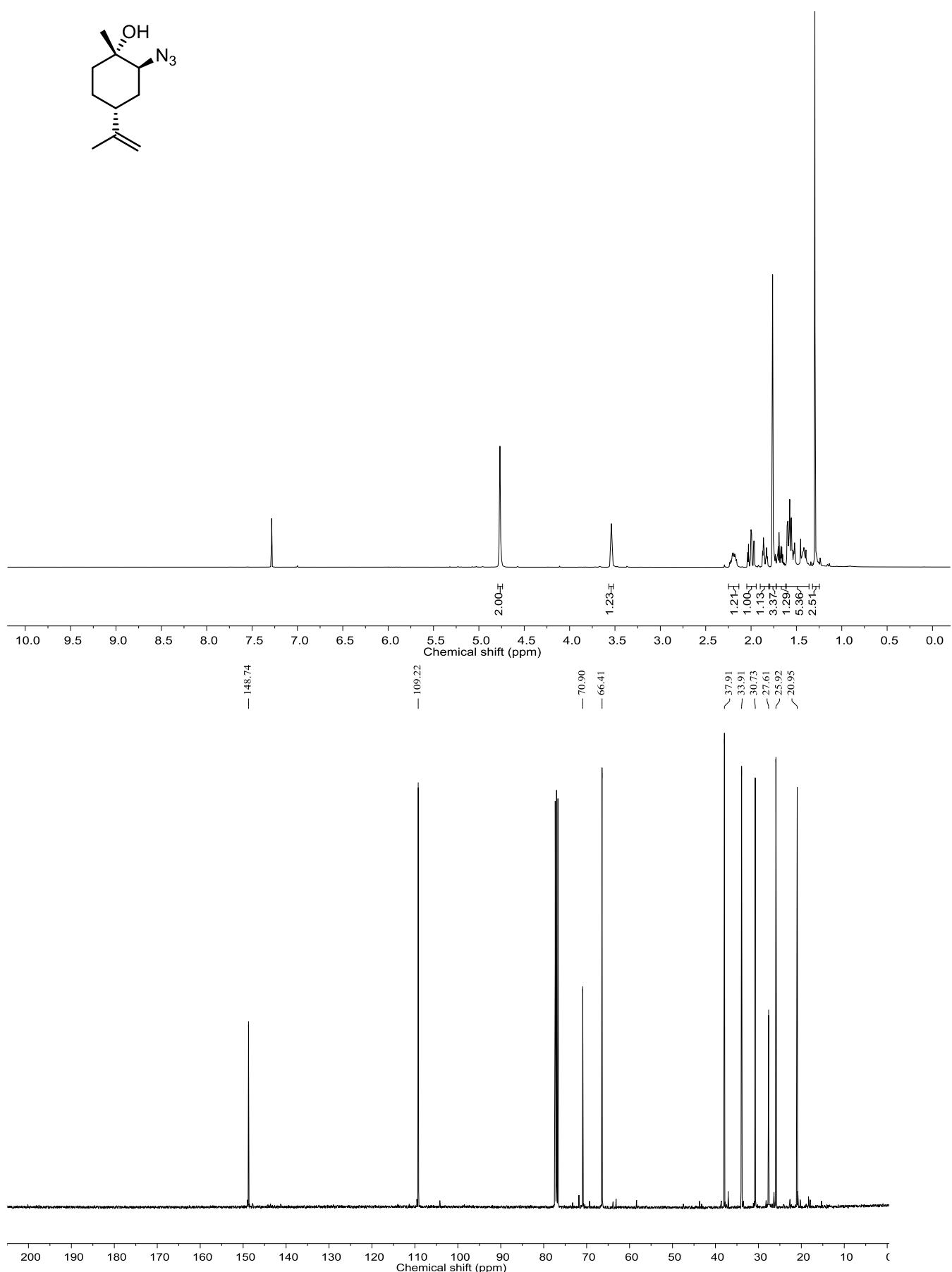


Figure S2. ¹H (400 MHz) and ¹³C (100 MHz) NMR spectra of **2b** in CDCl₃.

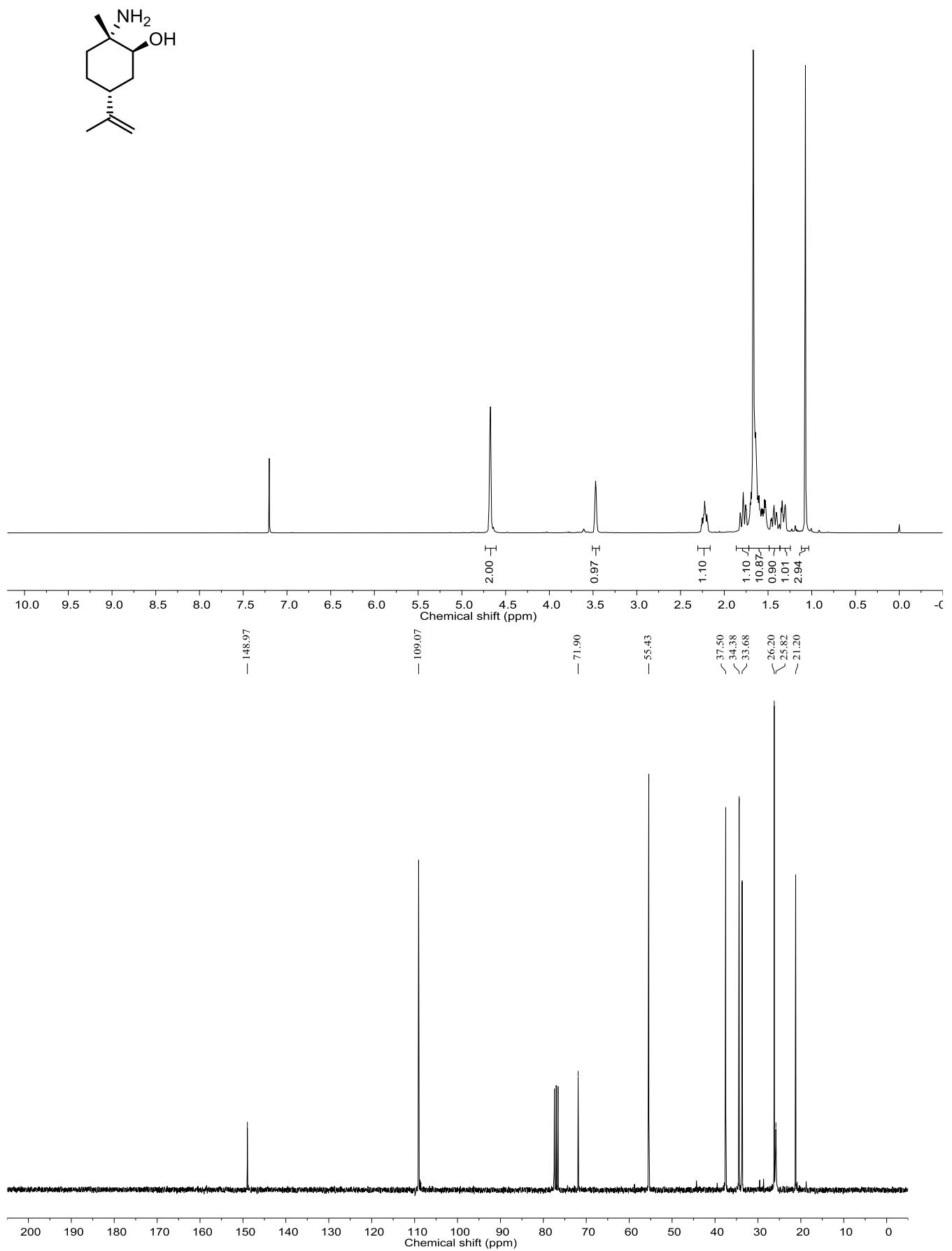


Figure S3. ¹H (400 MHz) and ¹³C (75 MHz) NMR spectra of **3a** in CDCl₃.

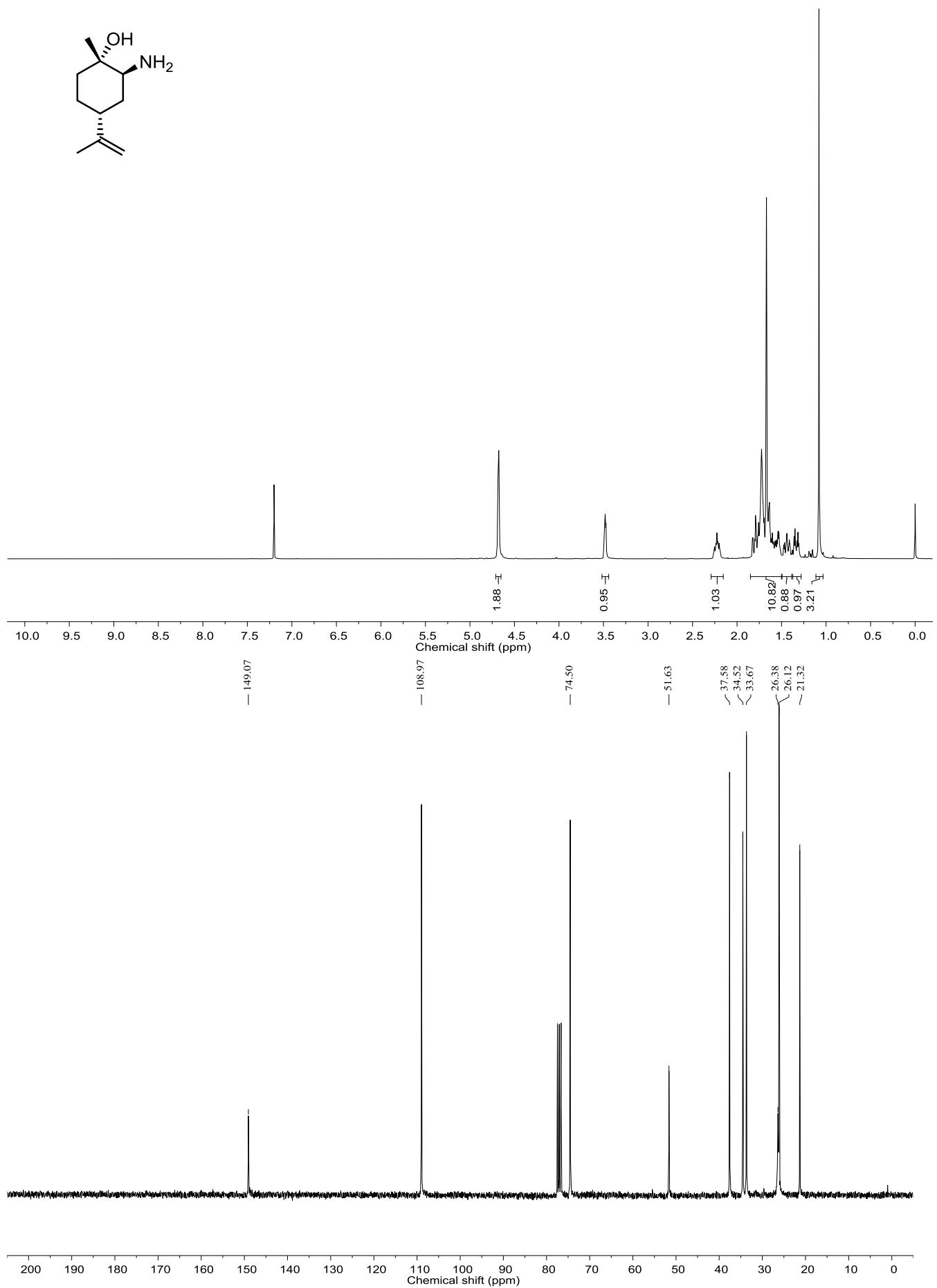


Figure S4. ¹H (400 MHz) and ¹³C (75 MHz) NMR spectra of **3b** in CDCl₃.

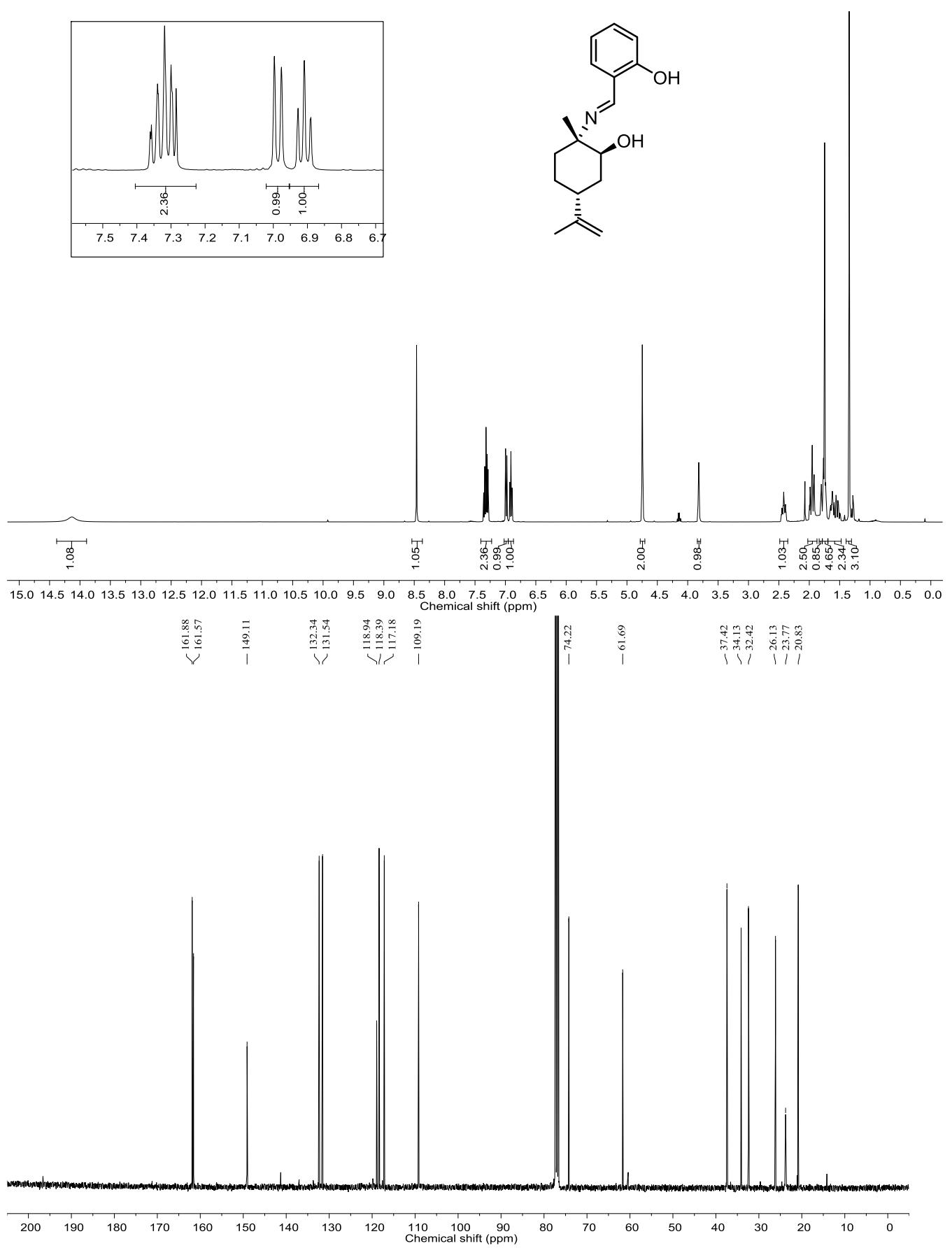


Figure S5. ^1H (400 MHz) and ^{13}C (100 MHz) NMR spectra of **4a** in CDCl_3 .

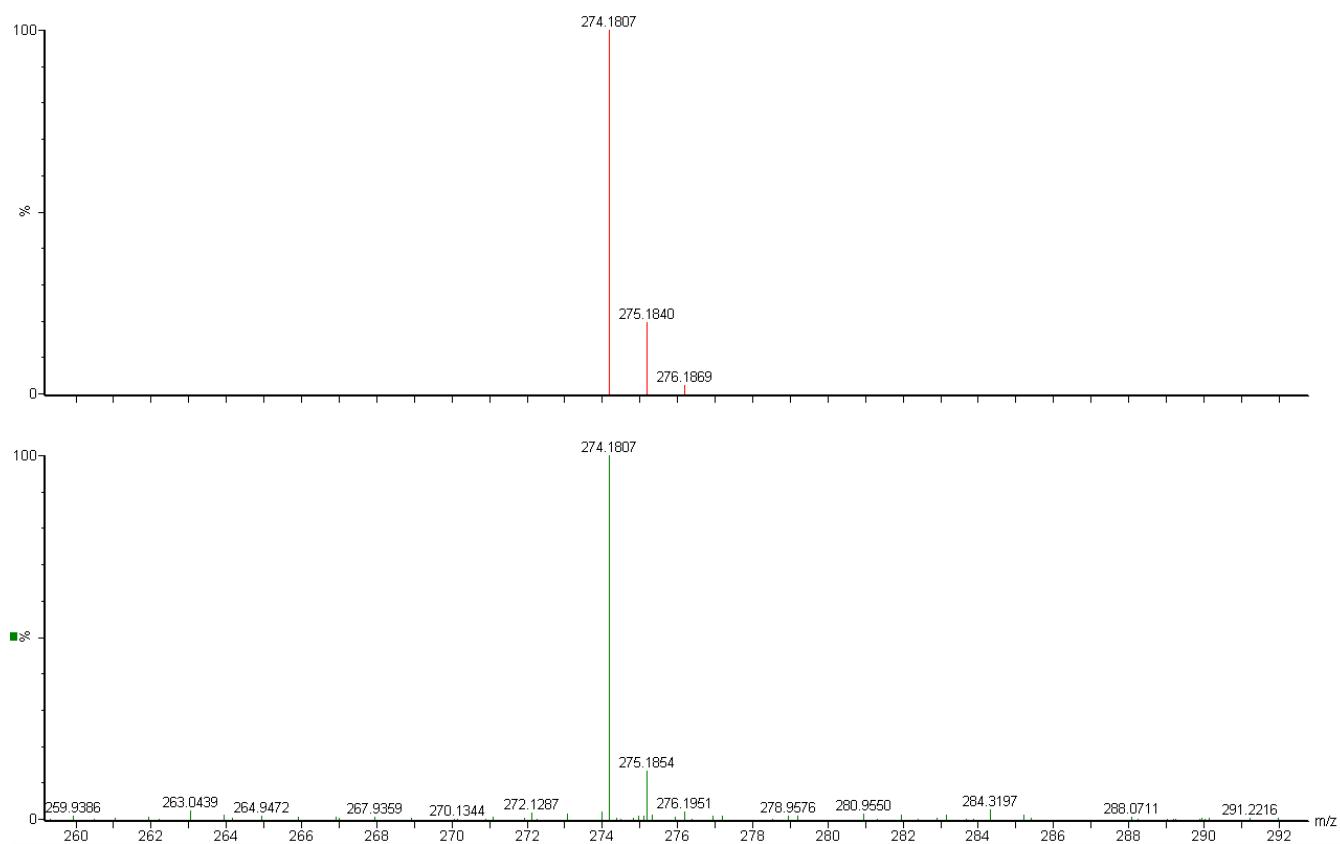
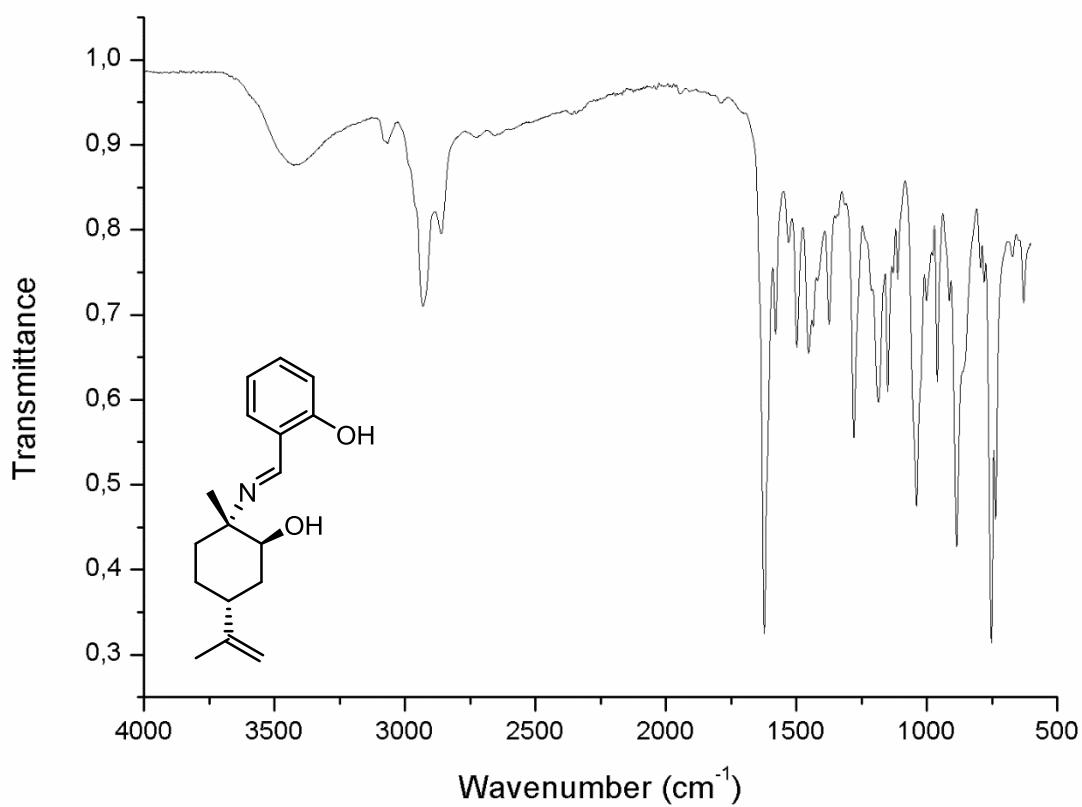


Figure S6. Fourier-transform infrared spectroscopy (FTIR) and high-resolution mass spectroscopy (HRMS) of **4a**.

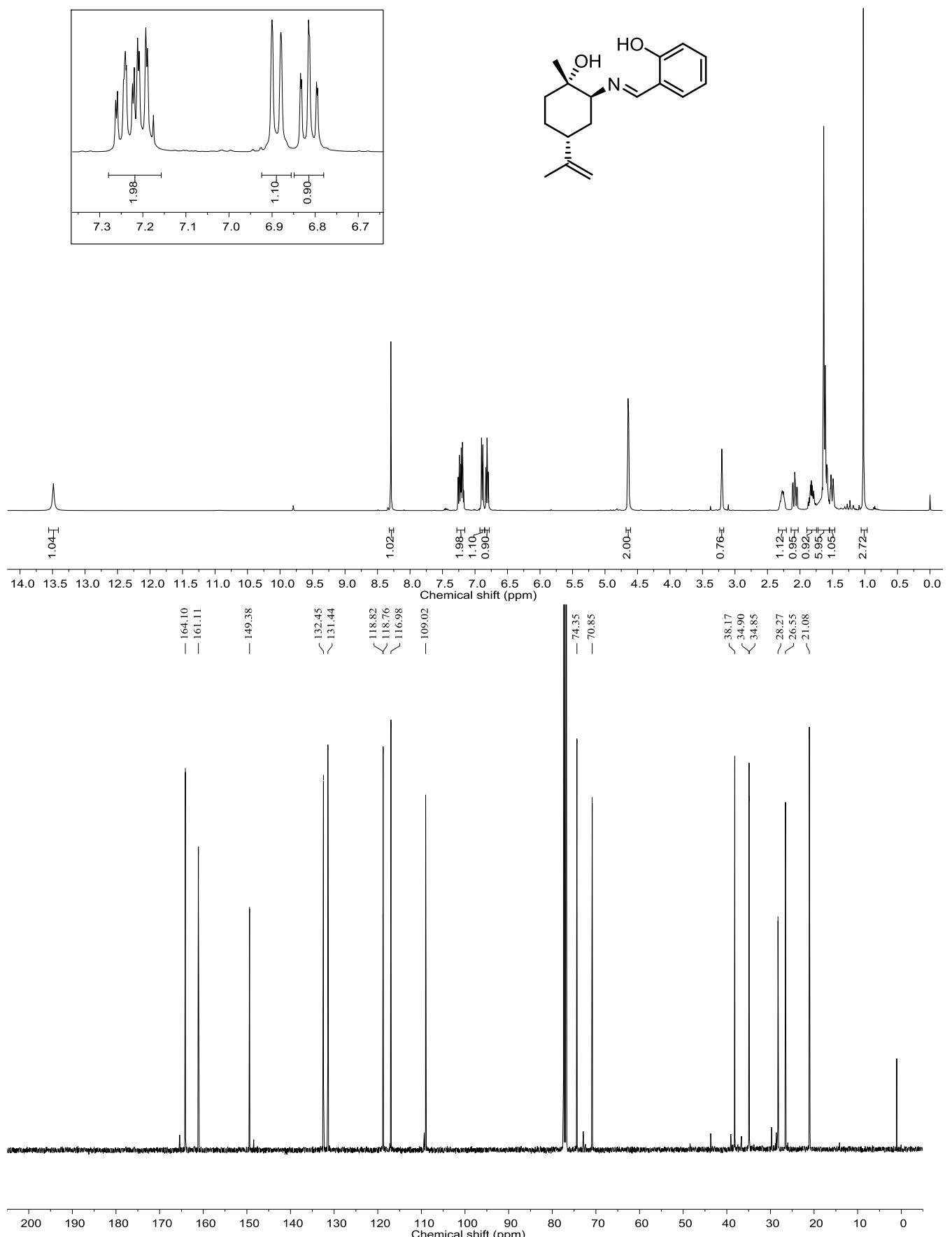


Figure S7. ^1H (400 MHz) and ^{13}C (100 MHz) NMR spectra of **4b** in CDCl_3 .

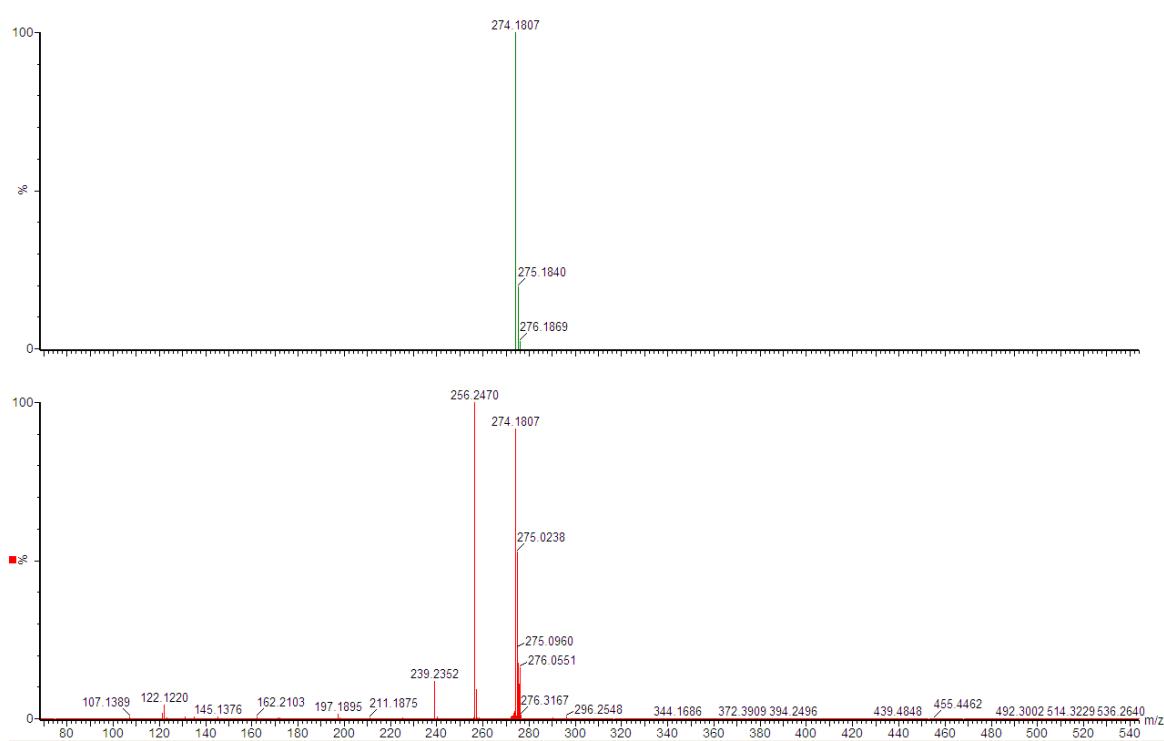
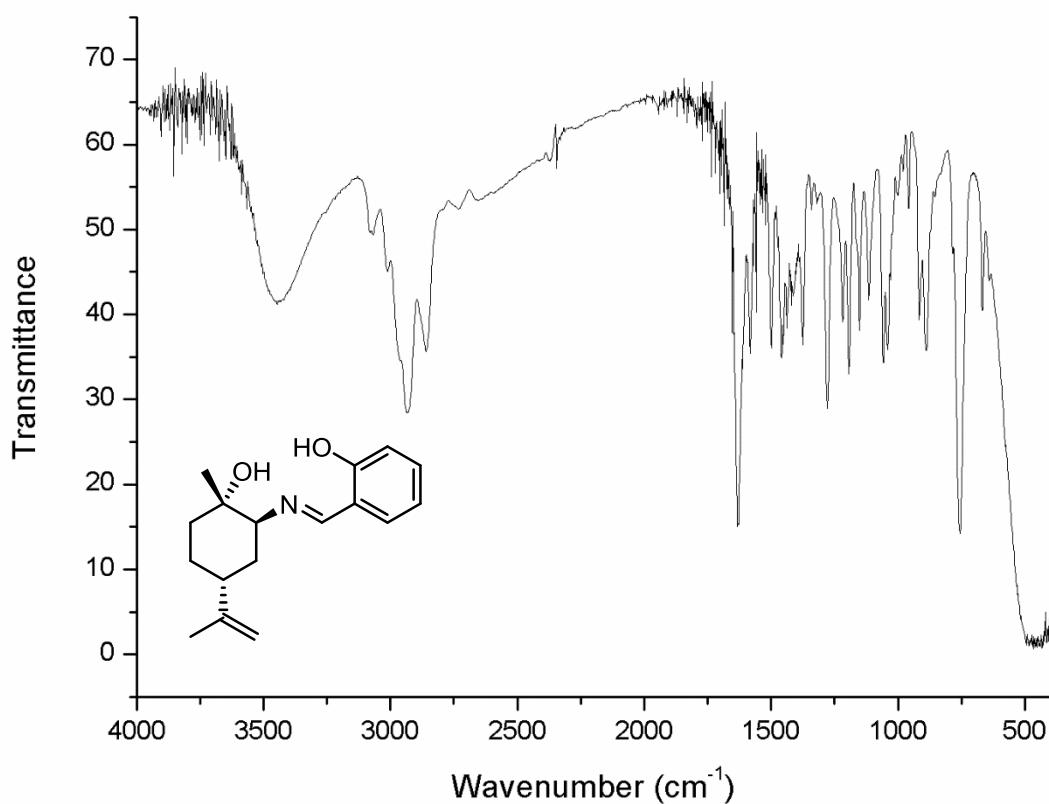


Figure S8. FTIR and HRMS of **4b**.

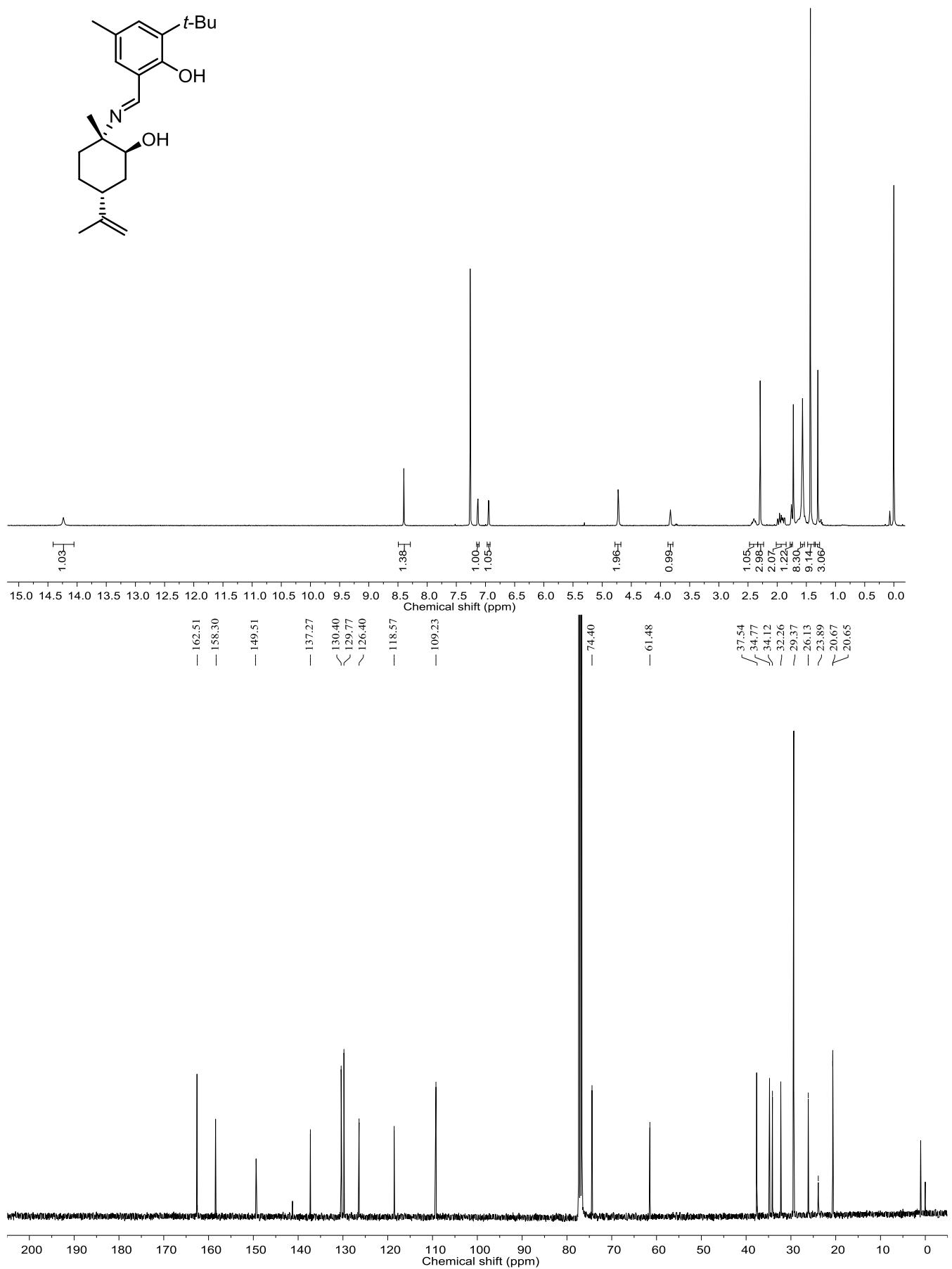


Figure S9. ¹H (400 MHz) and ¹³C (100 MHz) NMR spectra of **5a** in CDCl₃.

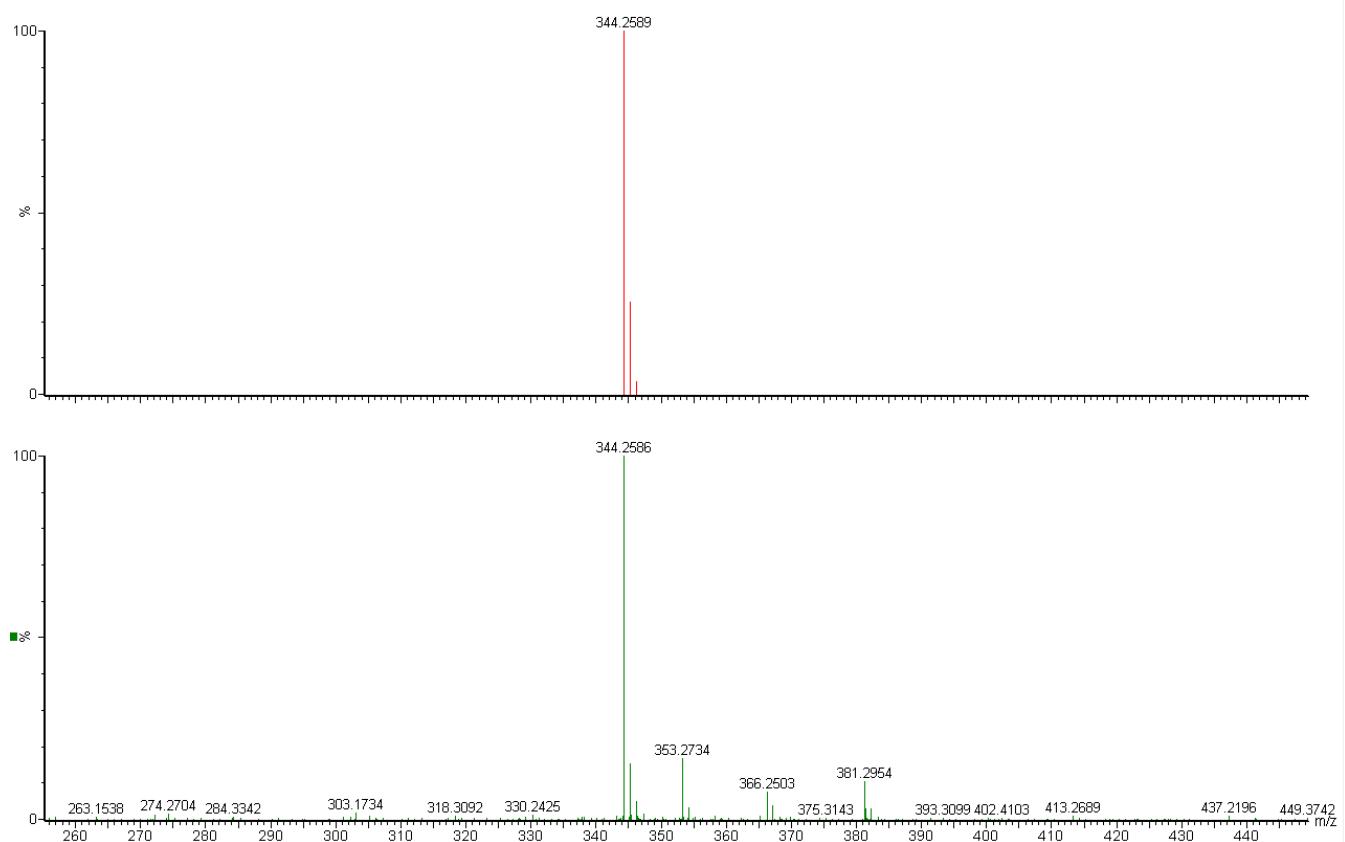
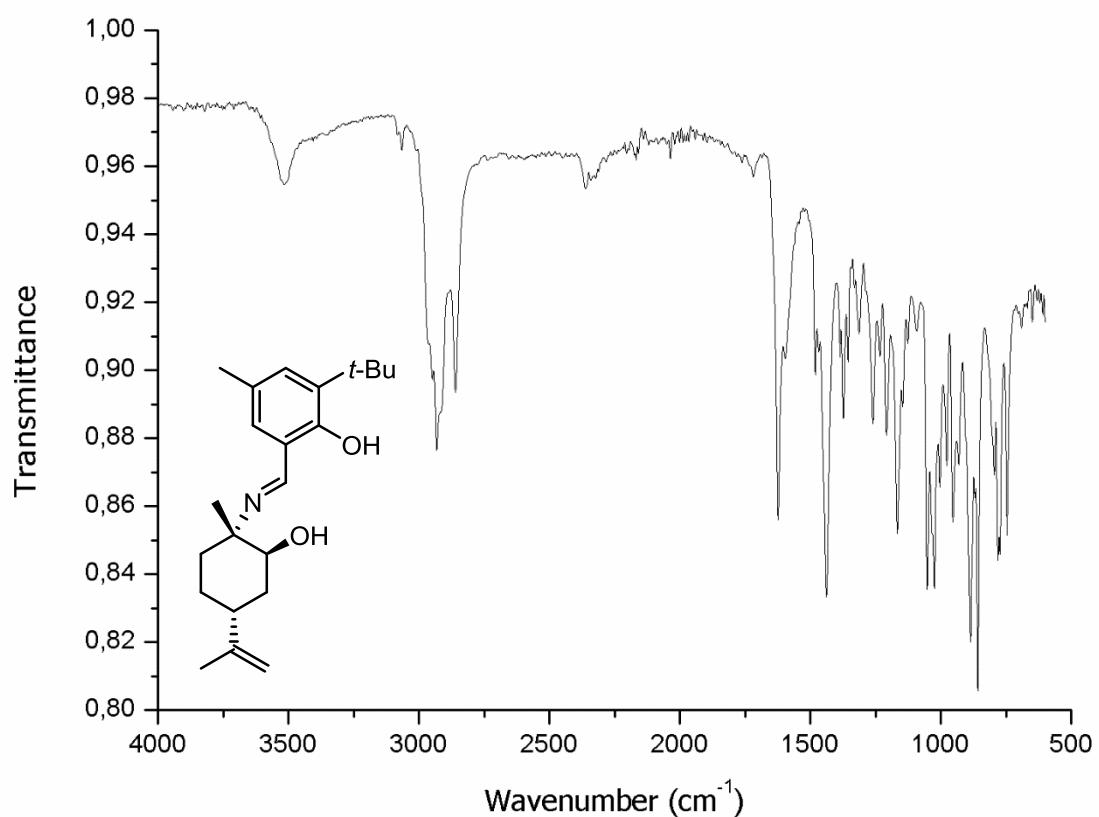


Figure S10. FTIR and HRMS of **5a**.

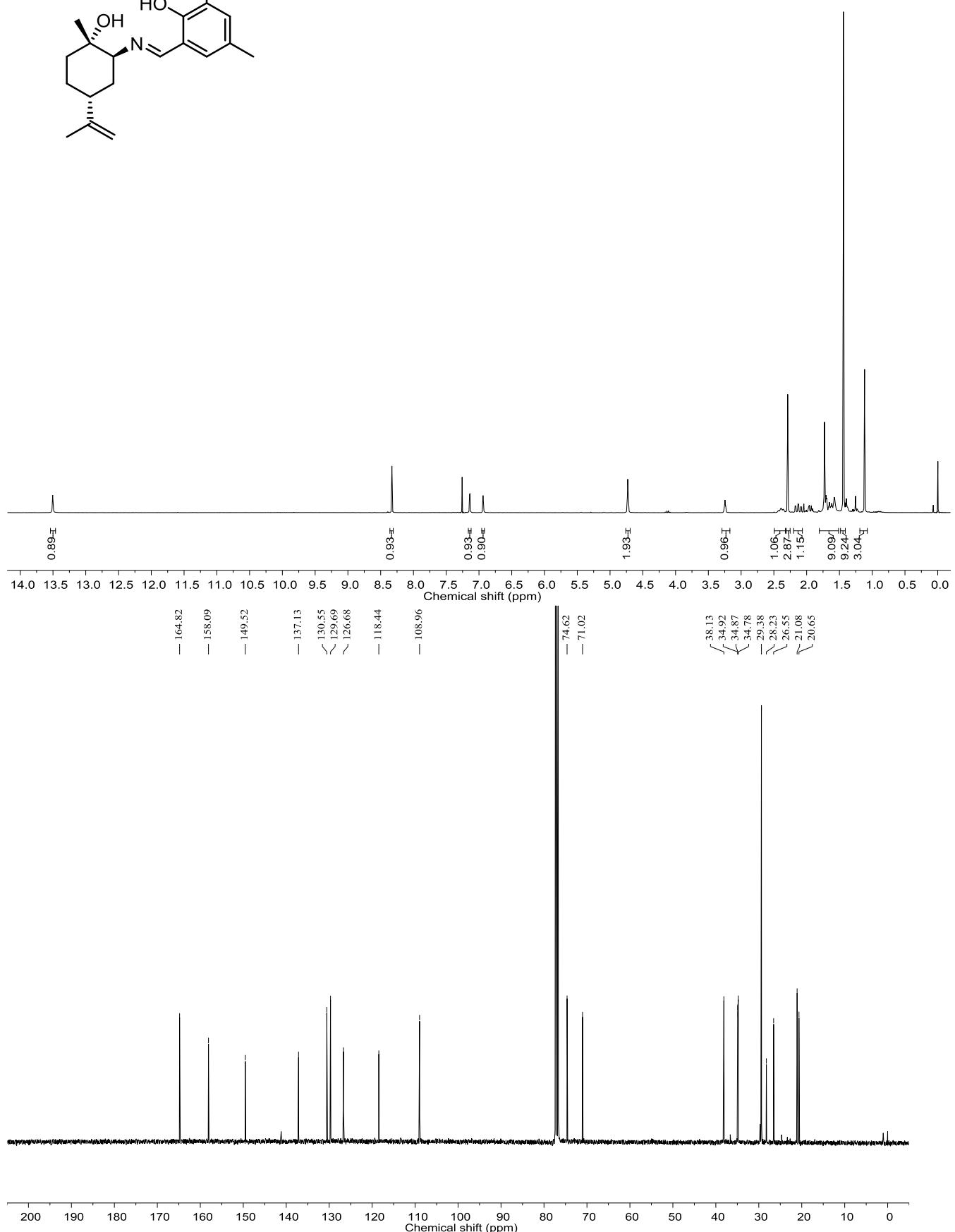
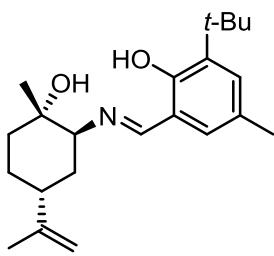


Figure S11. ^1H (300 MHz) and ^{13}C (100 MHz) NMR spectra of **5b** in CDCl_3 .

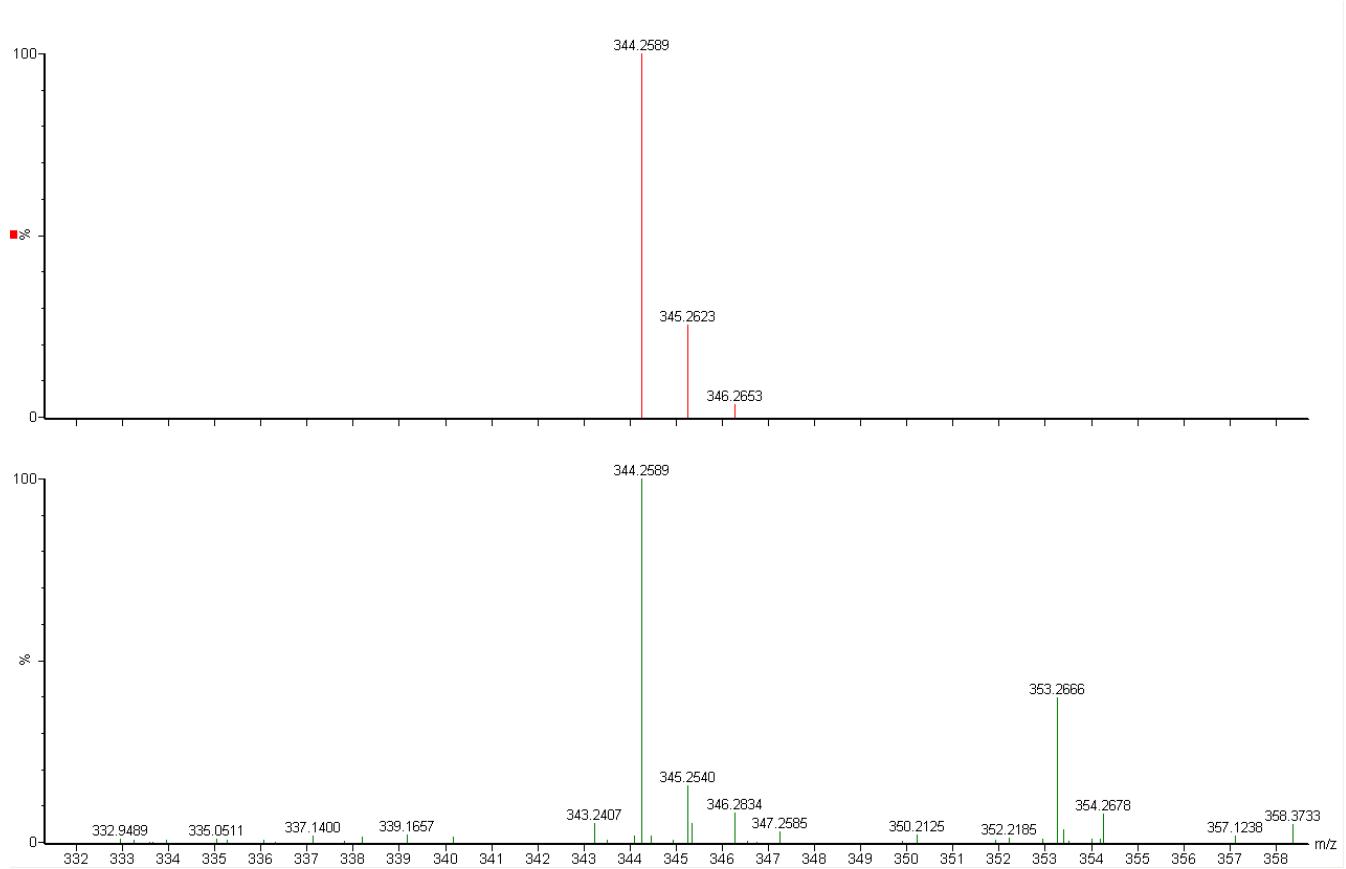
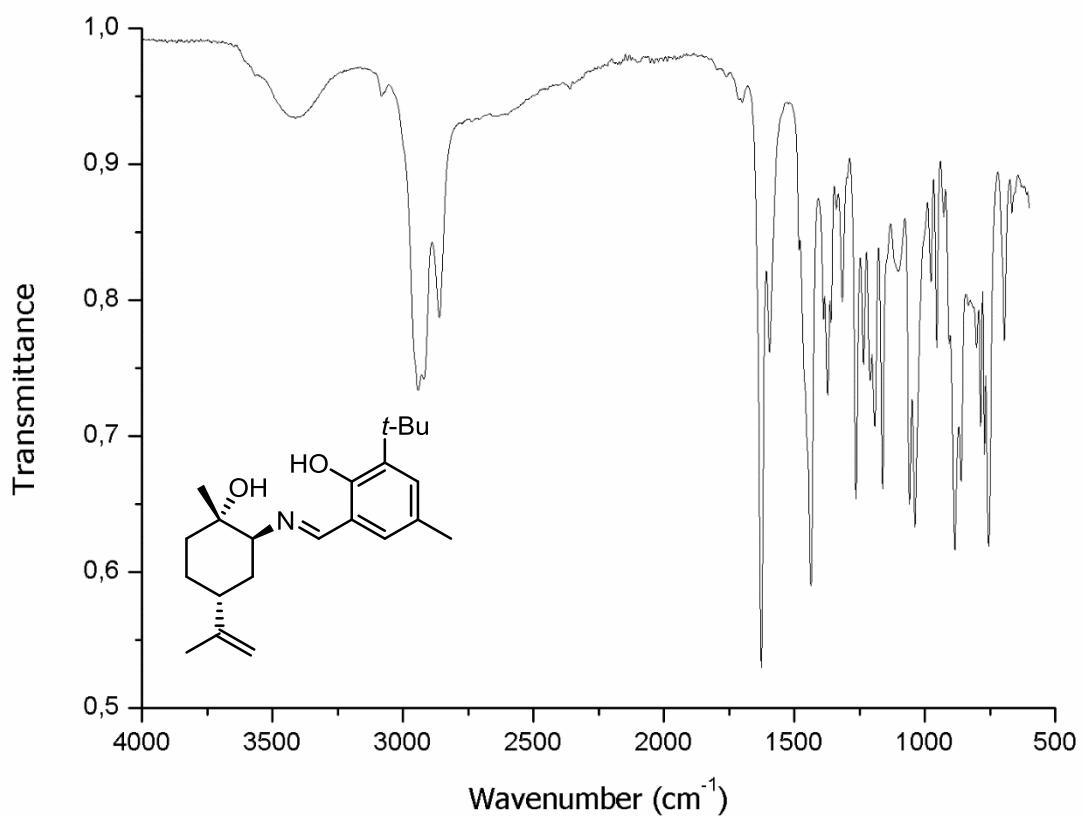


Figure S12. FTIR and HRMS of **5b**.

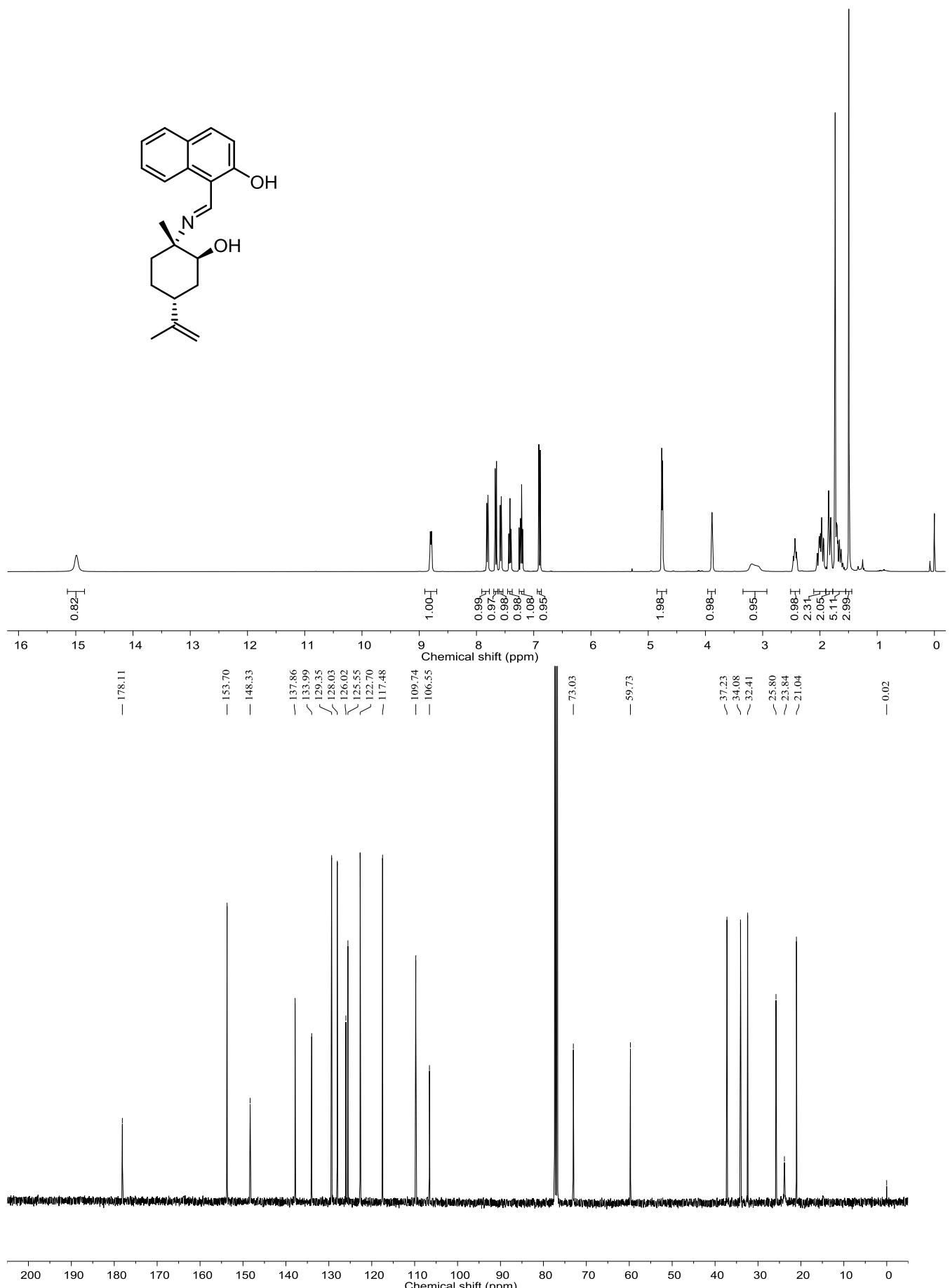


Figure S13. ¹H (400 MHz) and ¹³C (100 MHz) NMR spectra of **6a** in CDCl₃.

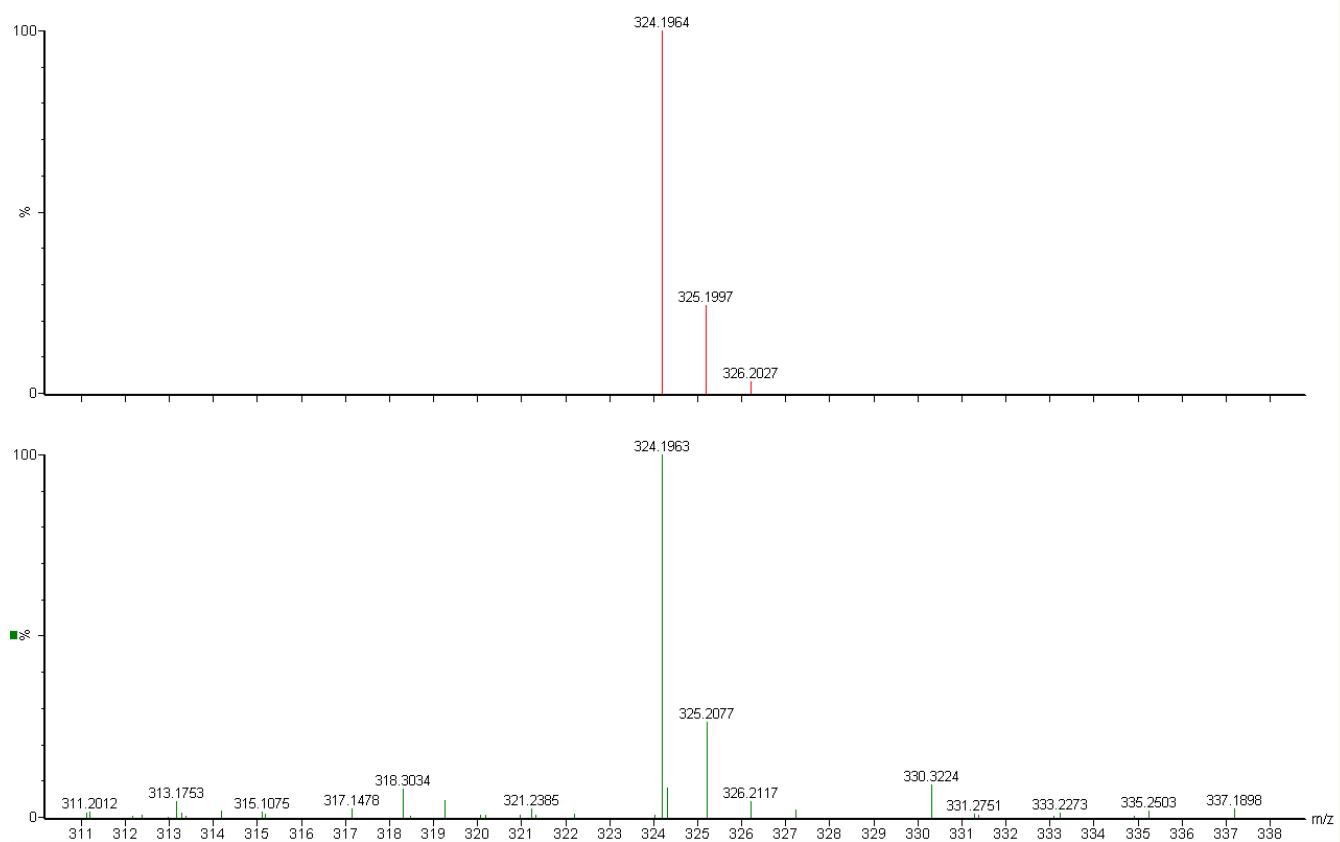
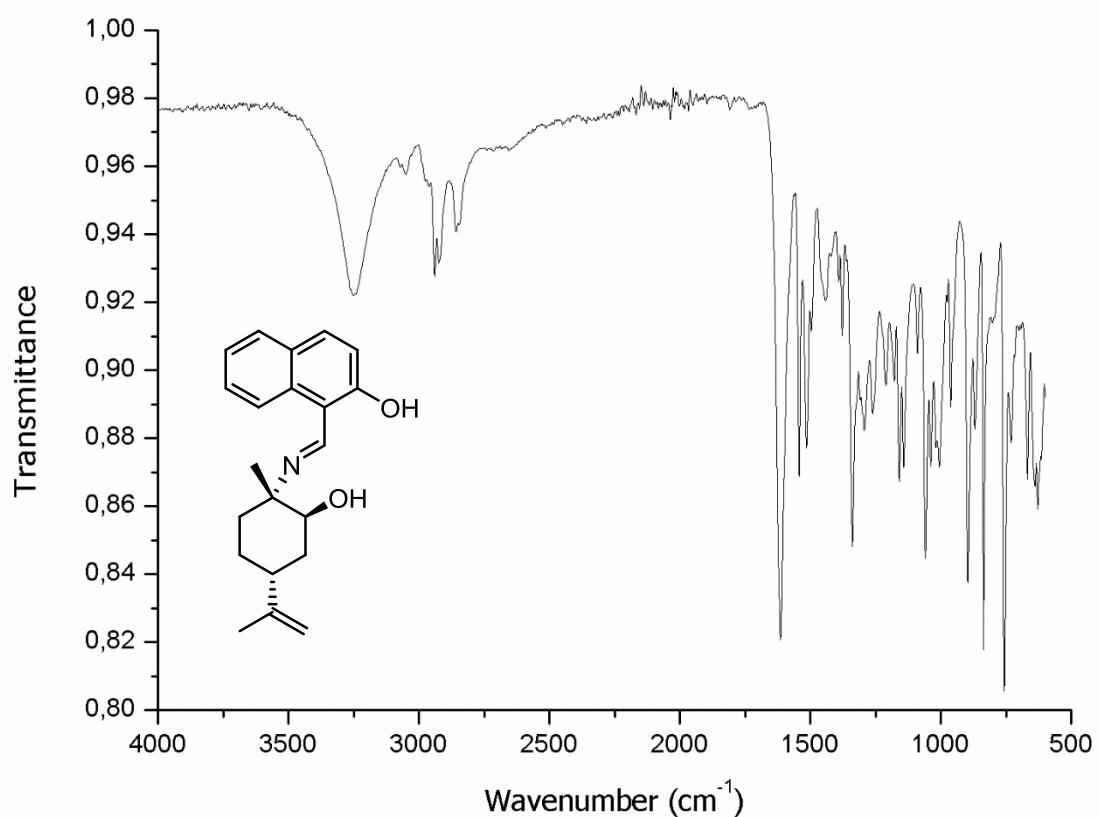


Figure S14. FTIR and HRMS of **6a**.

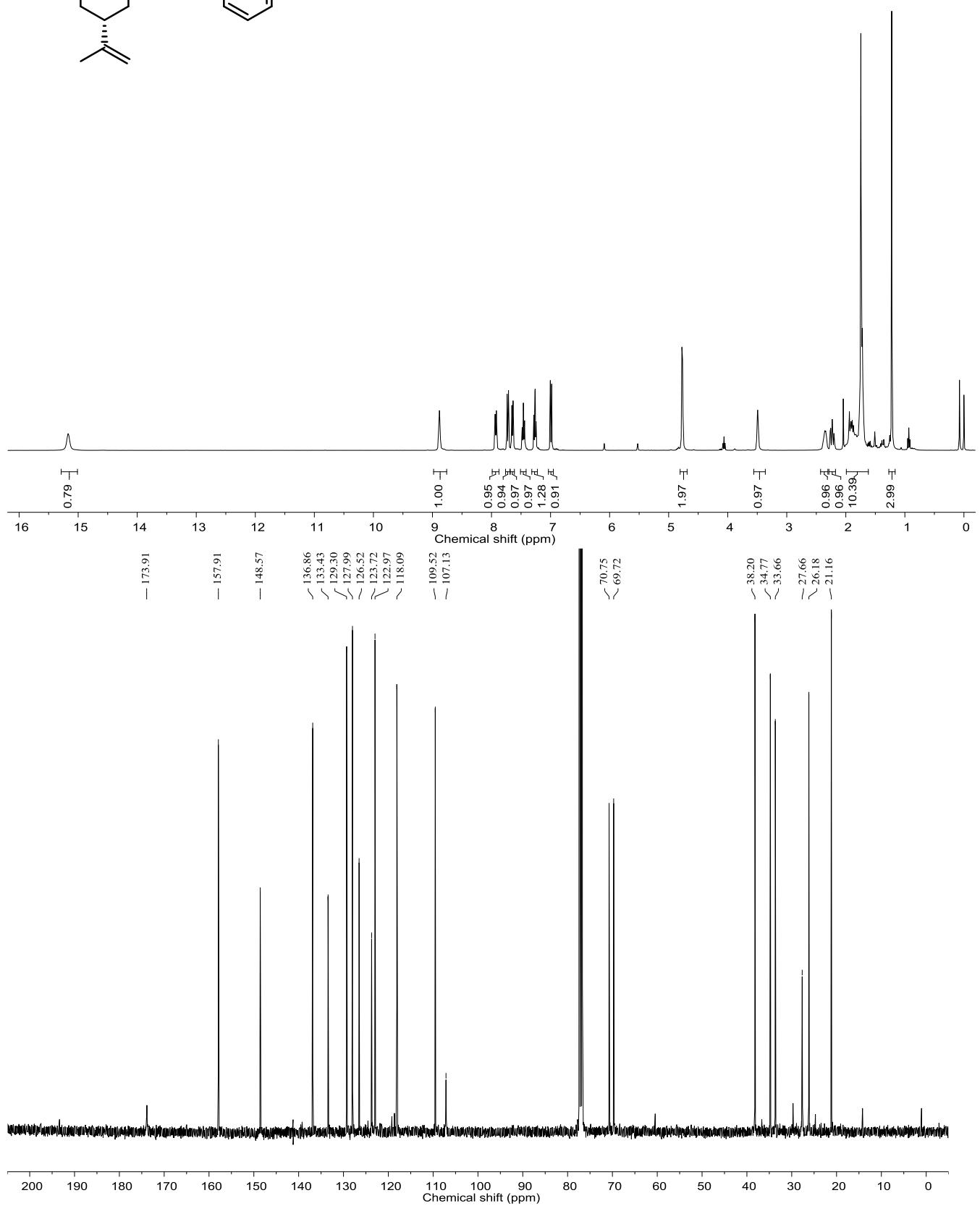
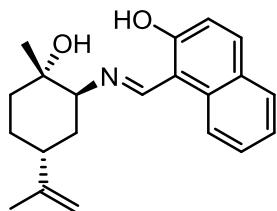


Figure S15. ^1H (400 MHz) and ^{13}C (100 MHz) NMR spectra of **6b** in CDCl_3 .

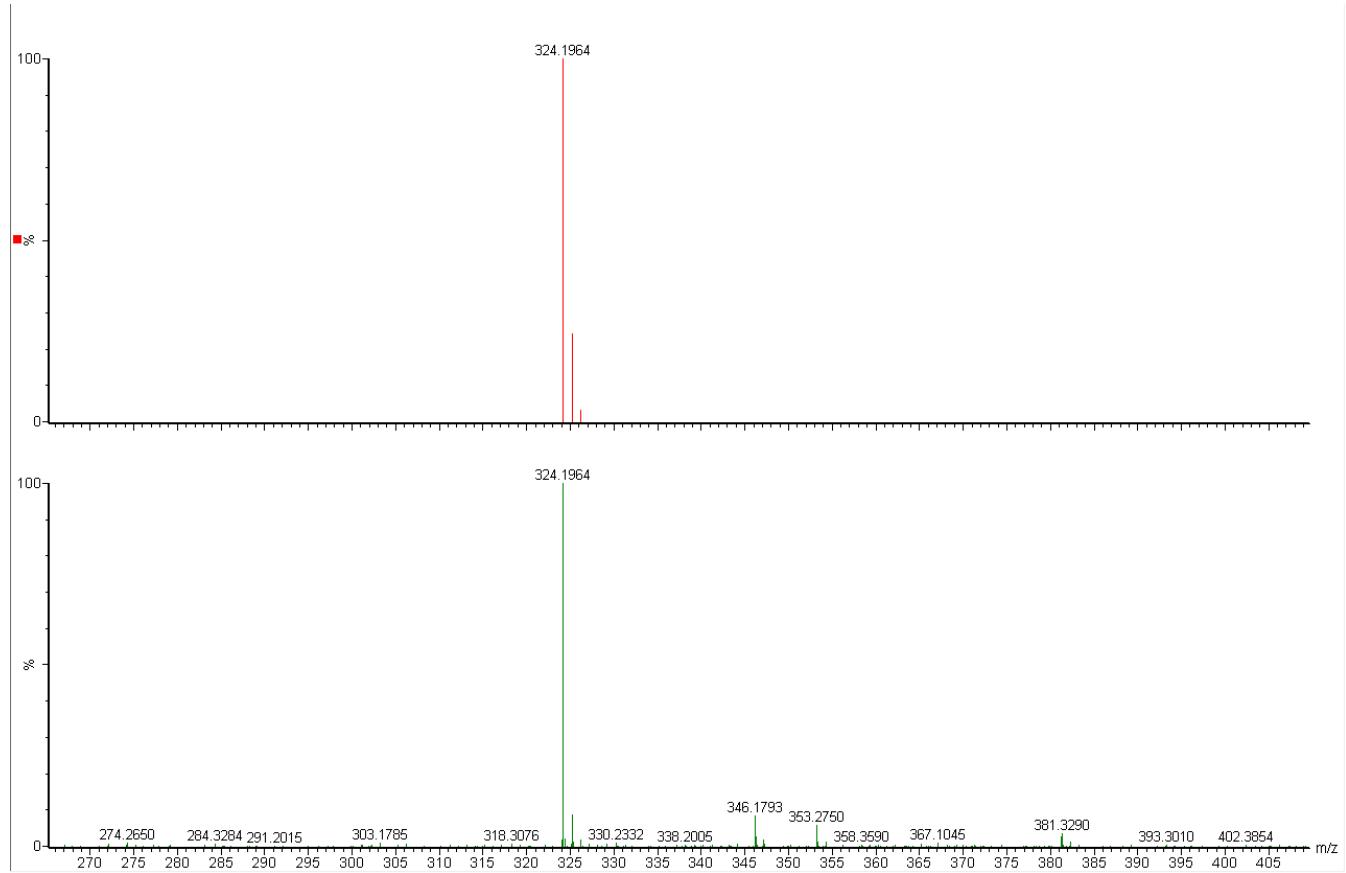
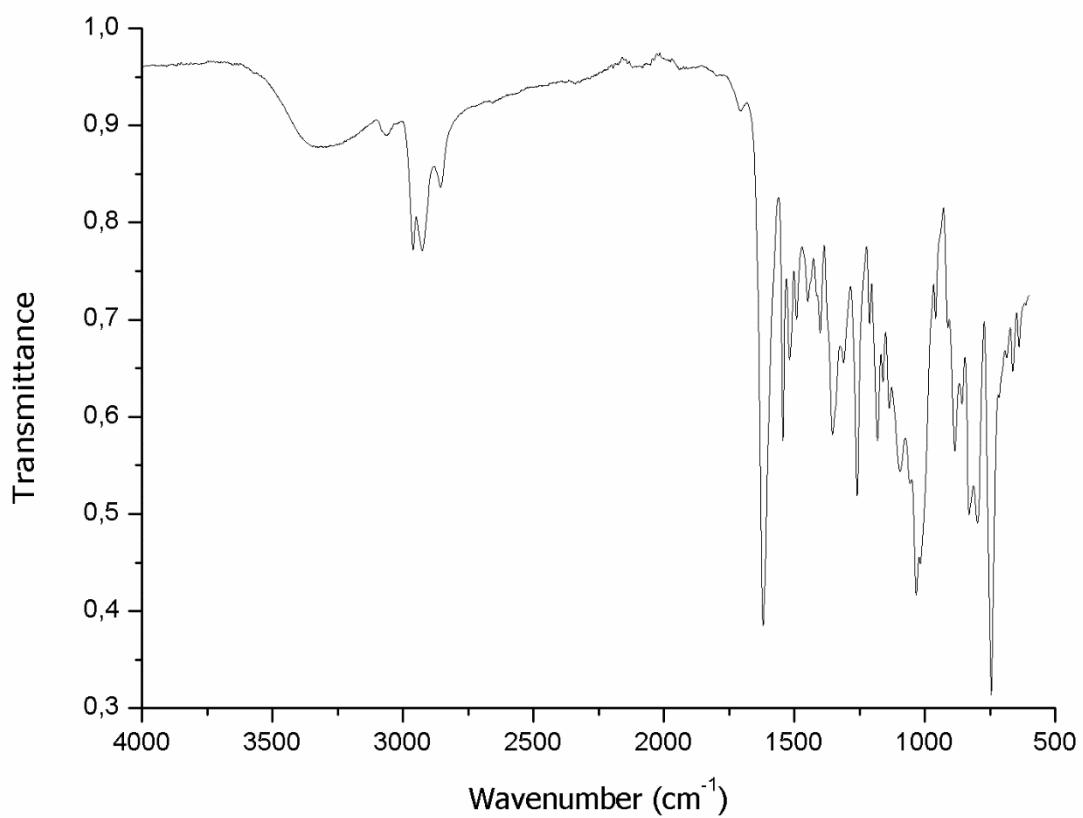


Figure S16. FTIR and HRMS of **6b**.

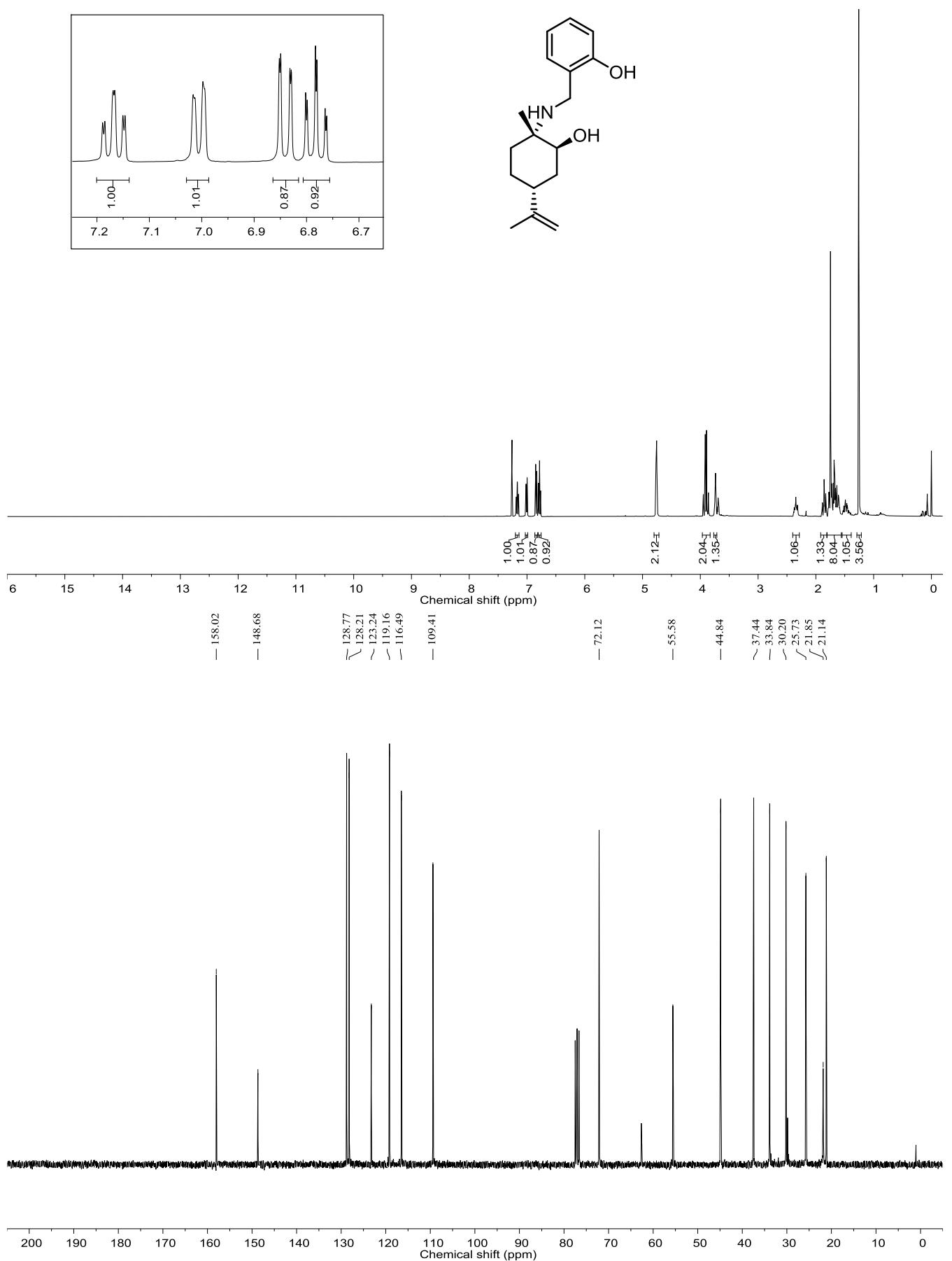


Figure S17. ^1H (400 MHz) and ^{13}C (75 MHz) NMR spectra of **7a** in CDCl_3 .

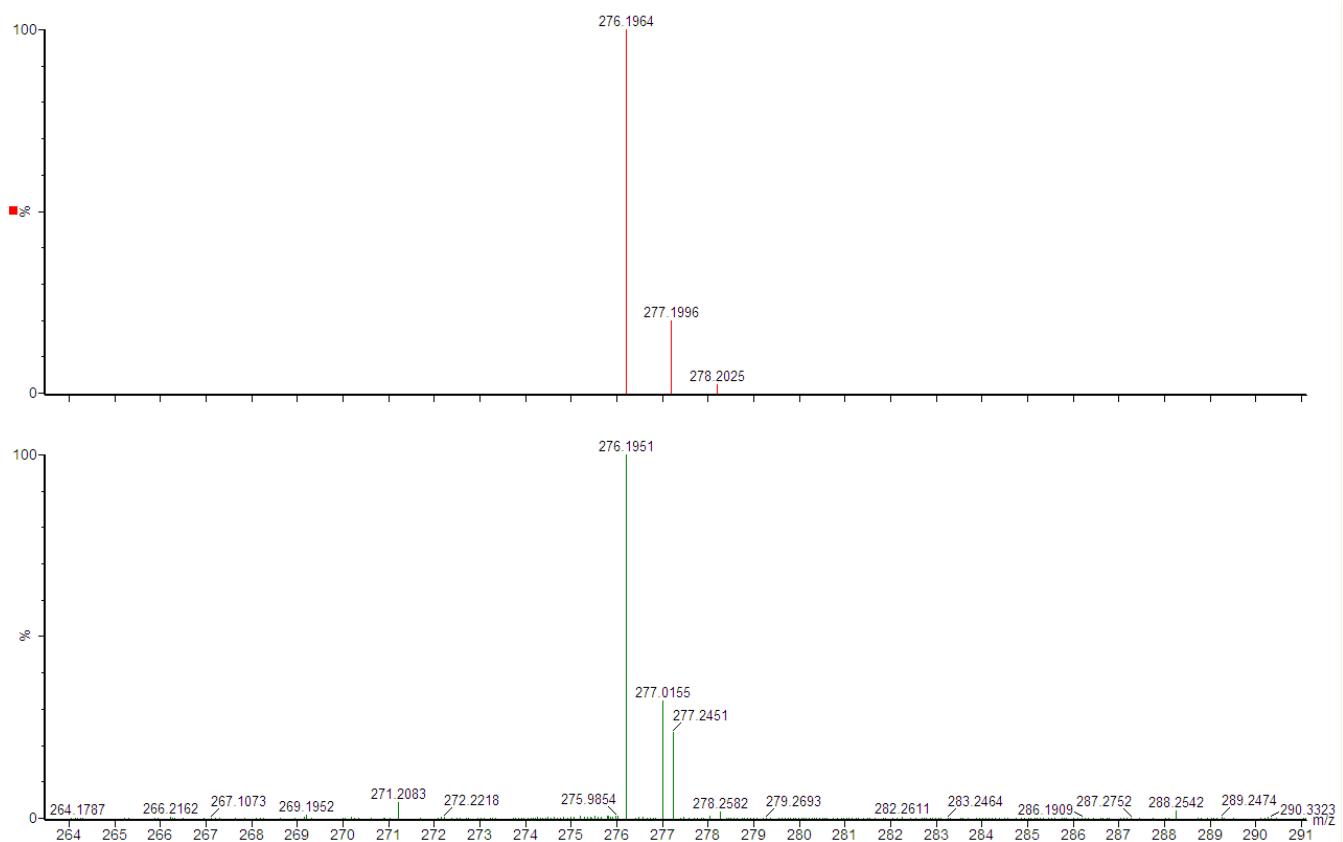
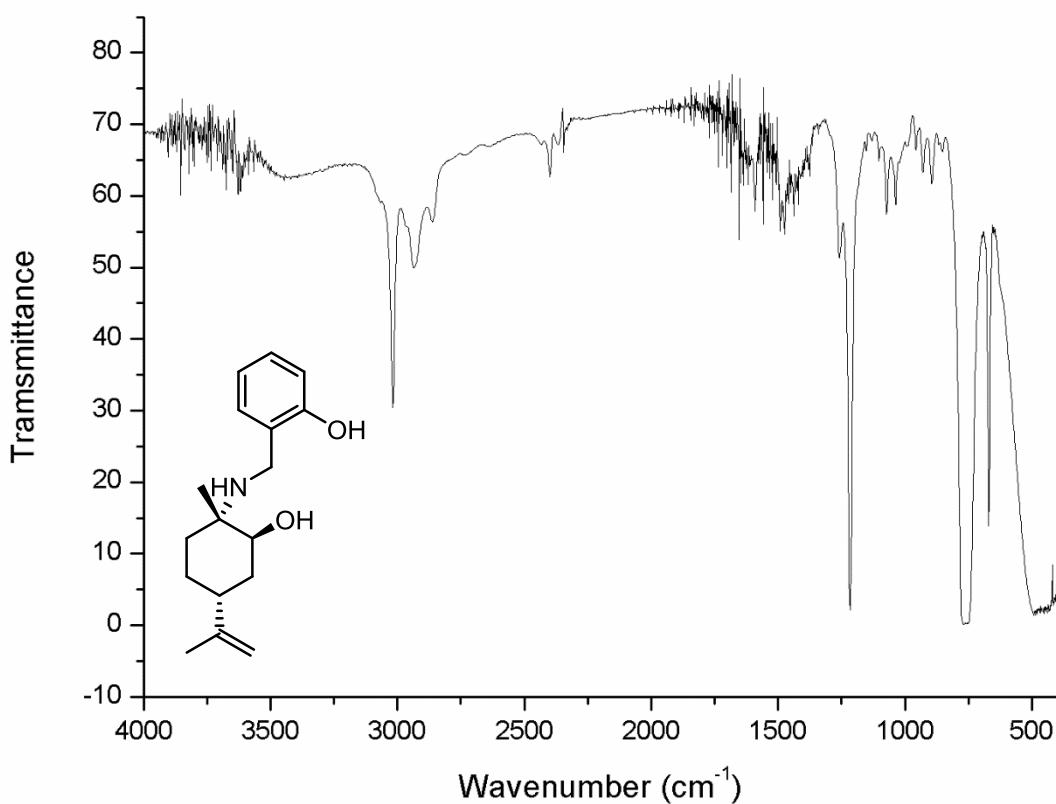


Figure S18. FTIR and HRMS of **7a**.

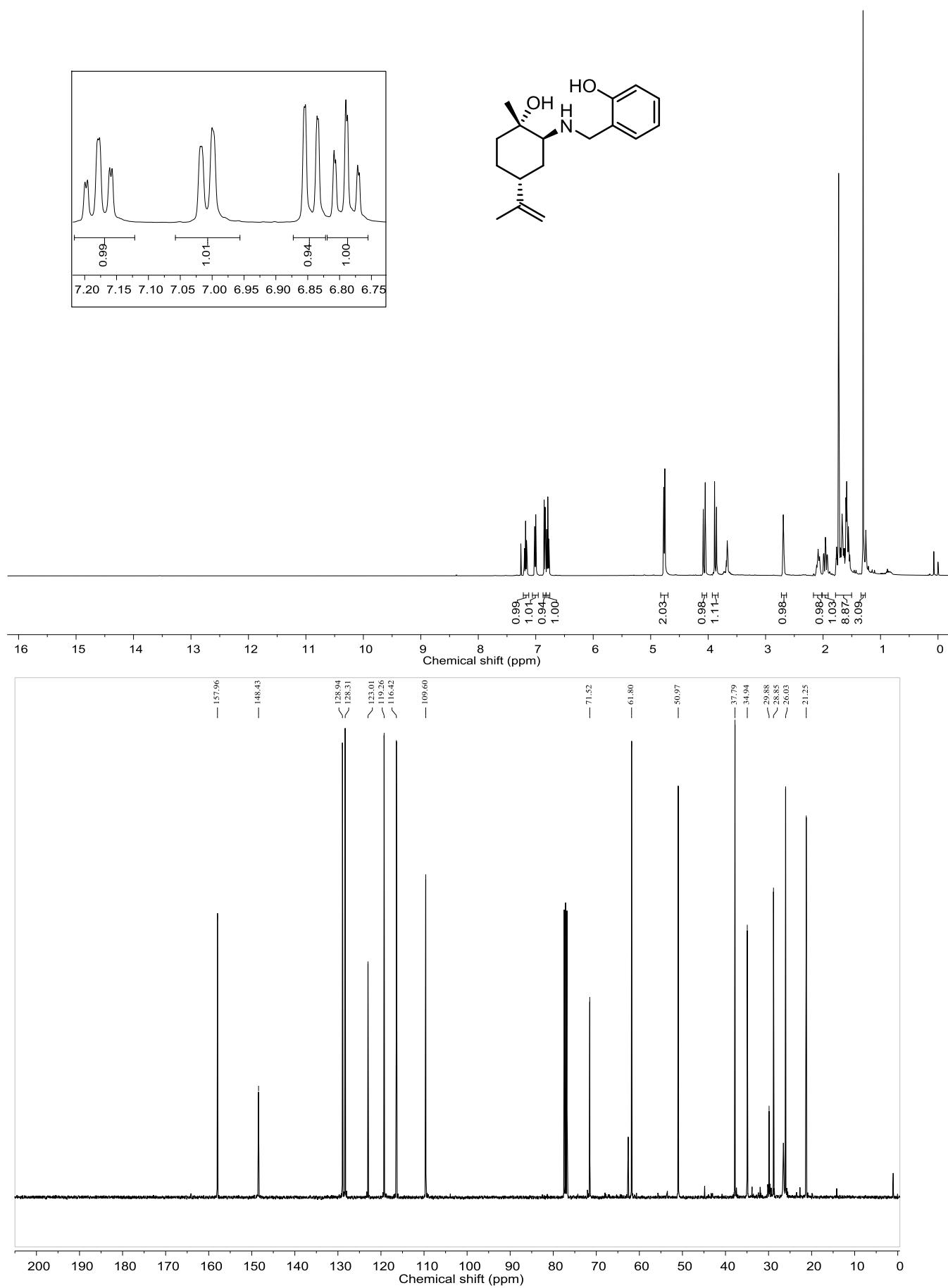


Figure S19. ^1H (400 MHz) and ^{13}C (100 MHz) NMR spectra of **7b** in CDCl_3 .

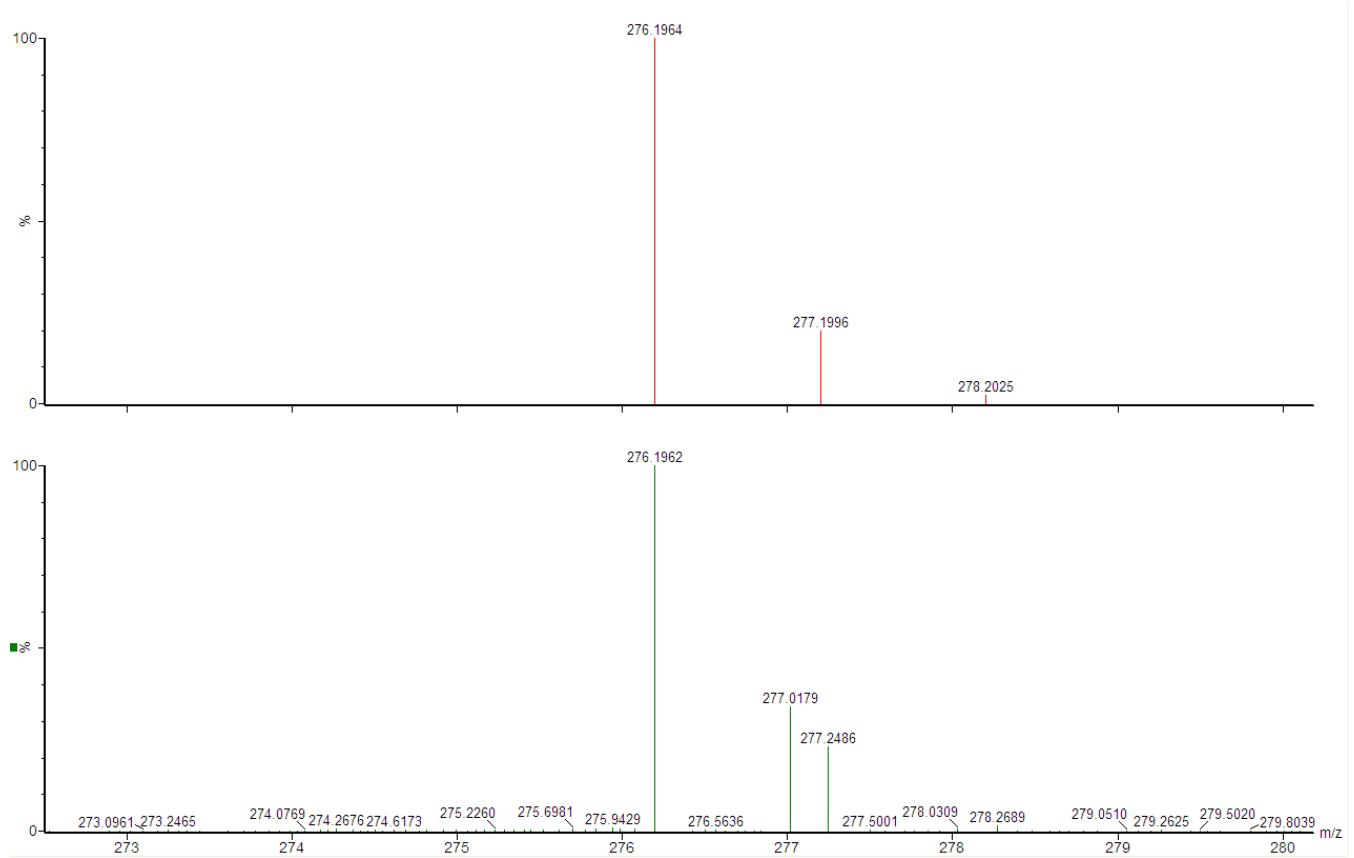
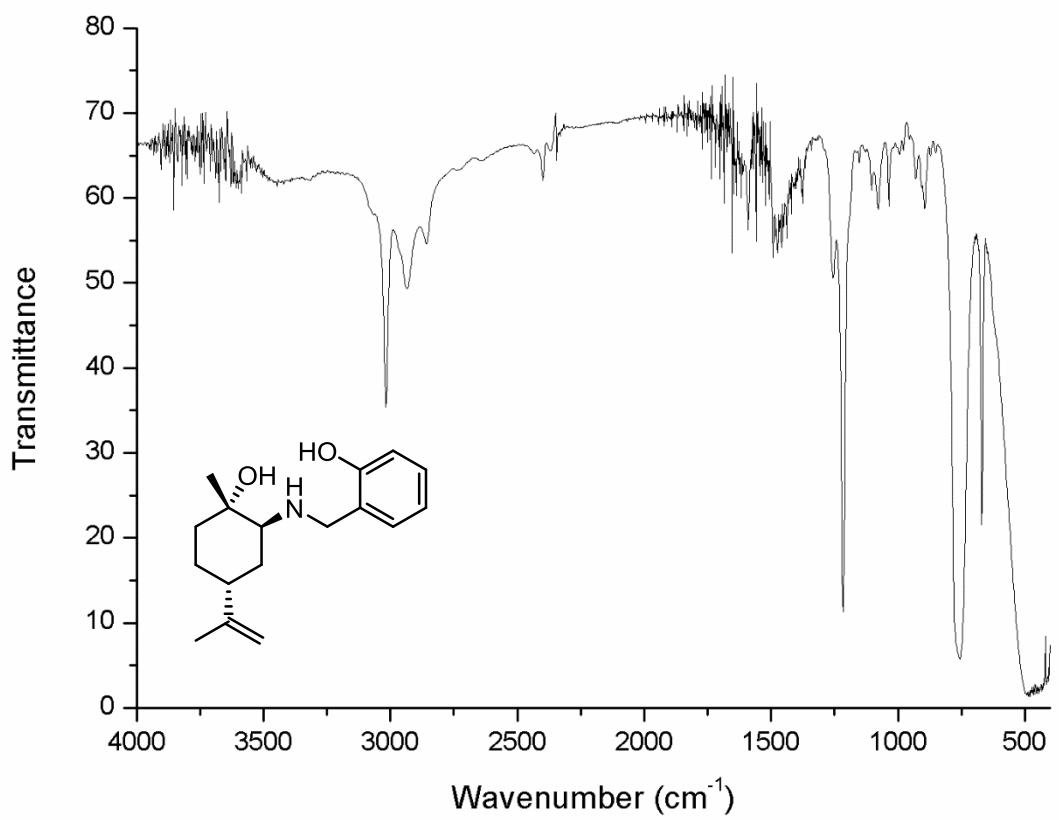


Figure S20. FTIR and HRMS of **7b**.

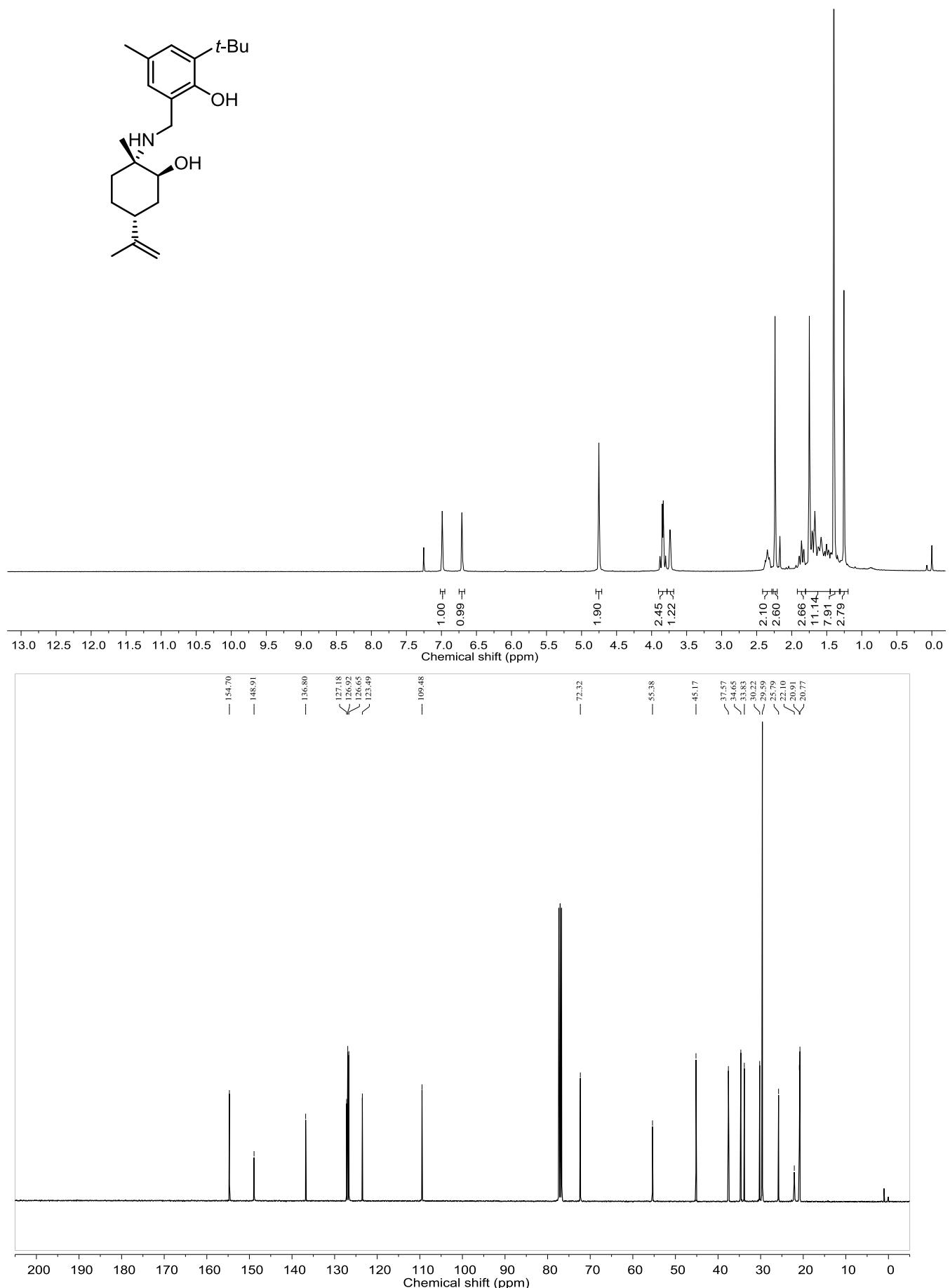


Figure S21. ¹H (400 MHz) and ¹³C (100 MHz) NMR spectra of **8a** in CDCl₃.

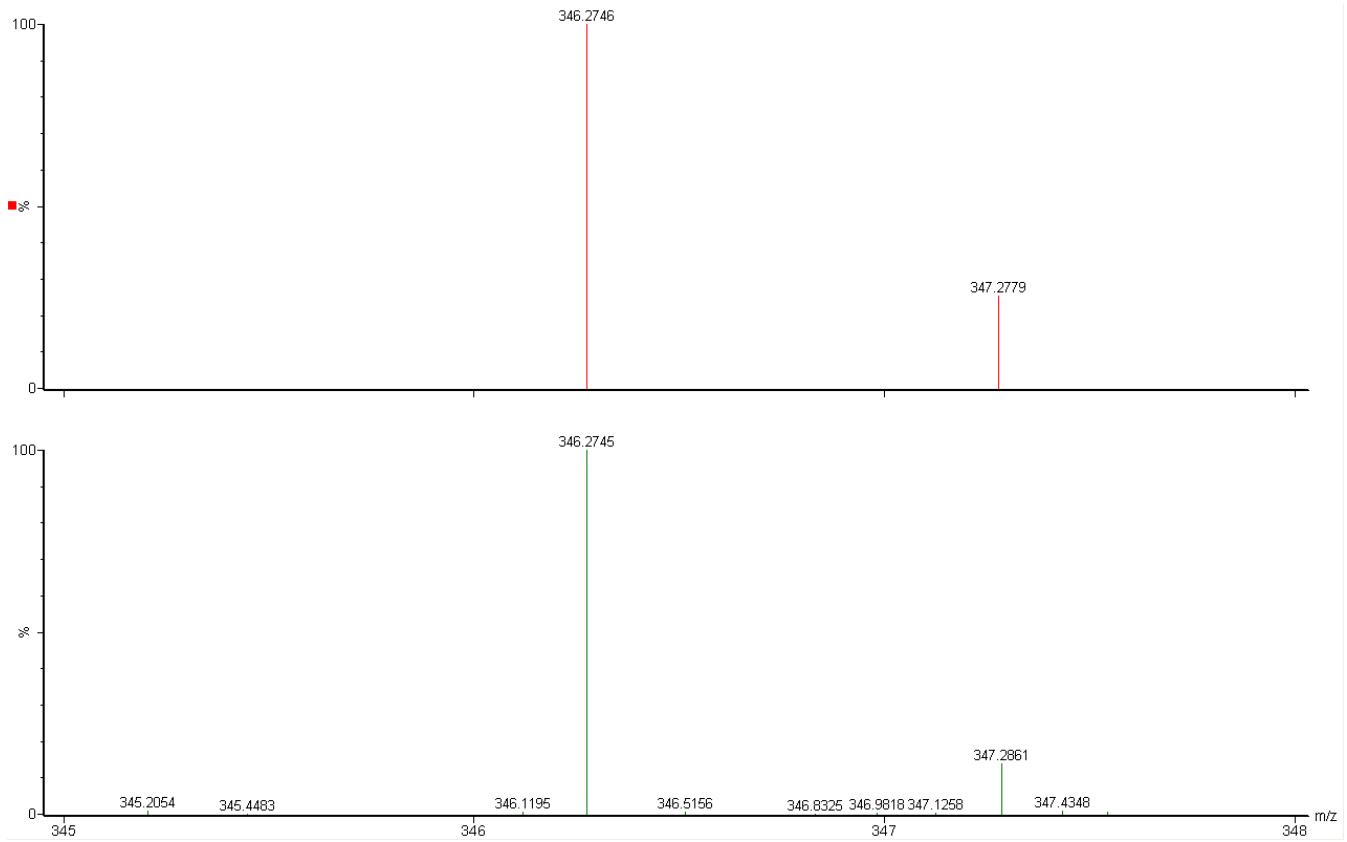
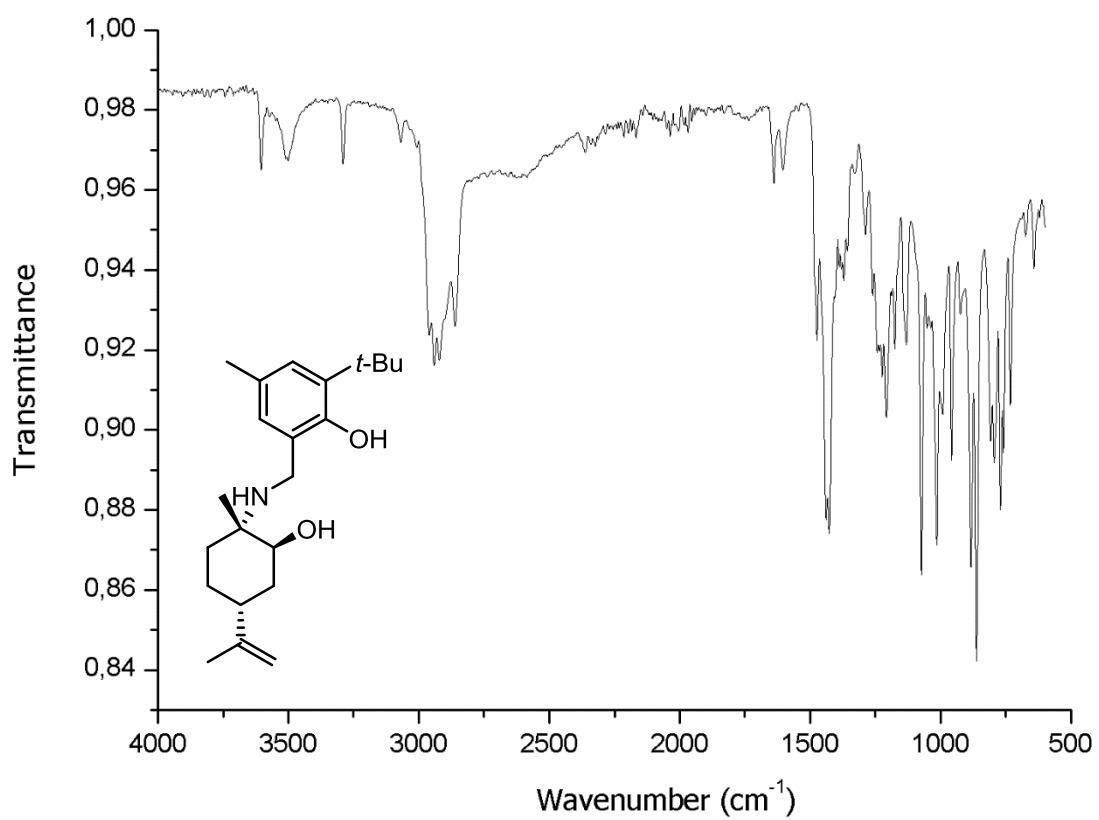


Figure S22. FTIR and HRMS of **8a**.

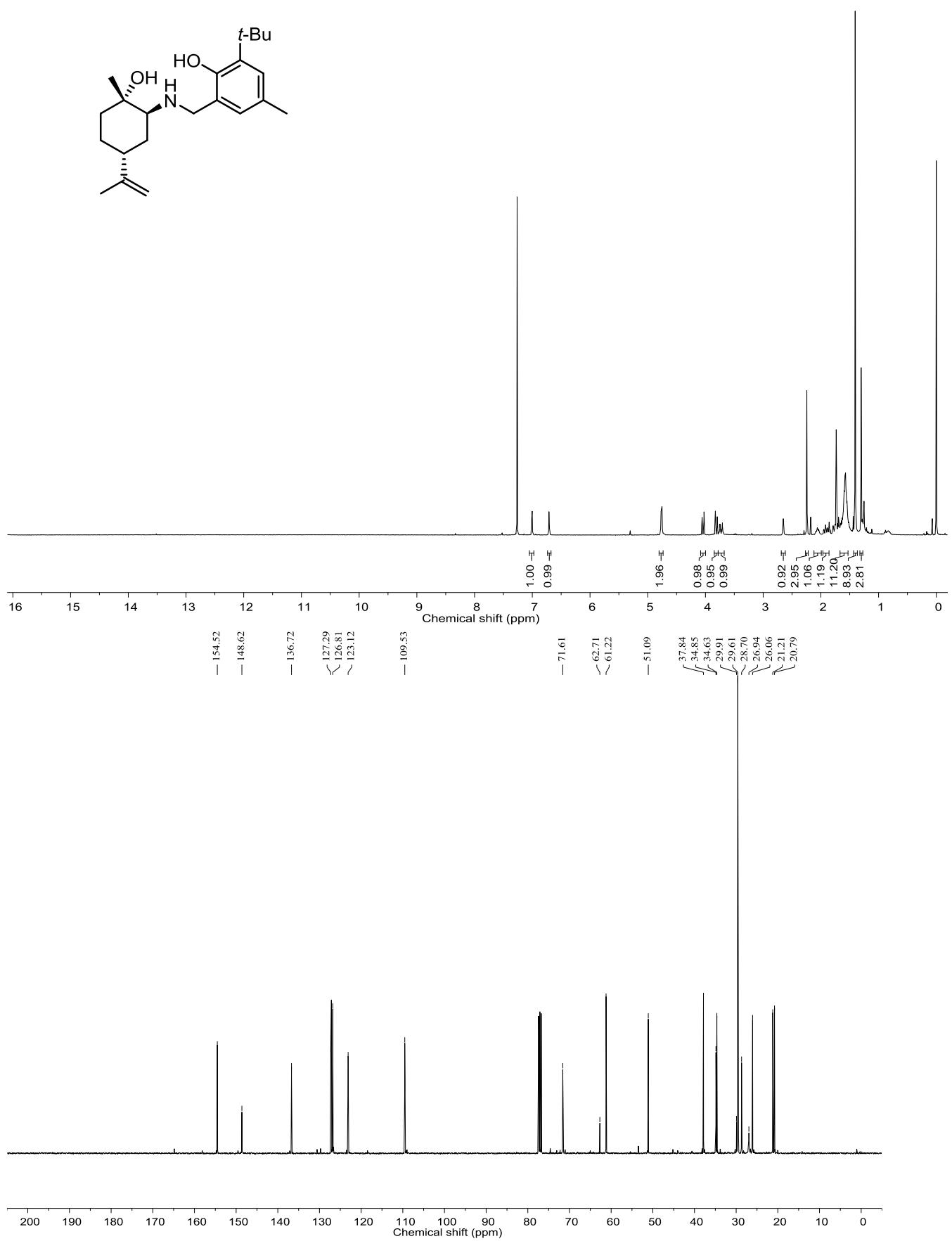


Figure S23. ^1H (400 MHz) and ^{13}C (100 MHz) NMR spectra of **8b** in CDCl_3 .

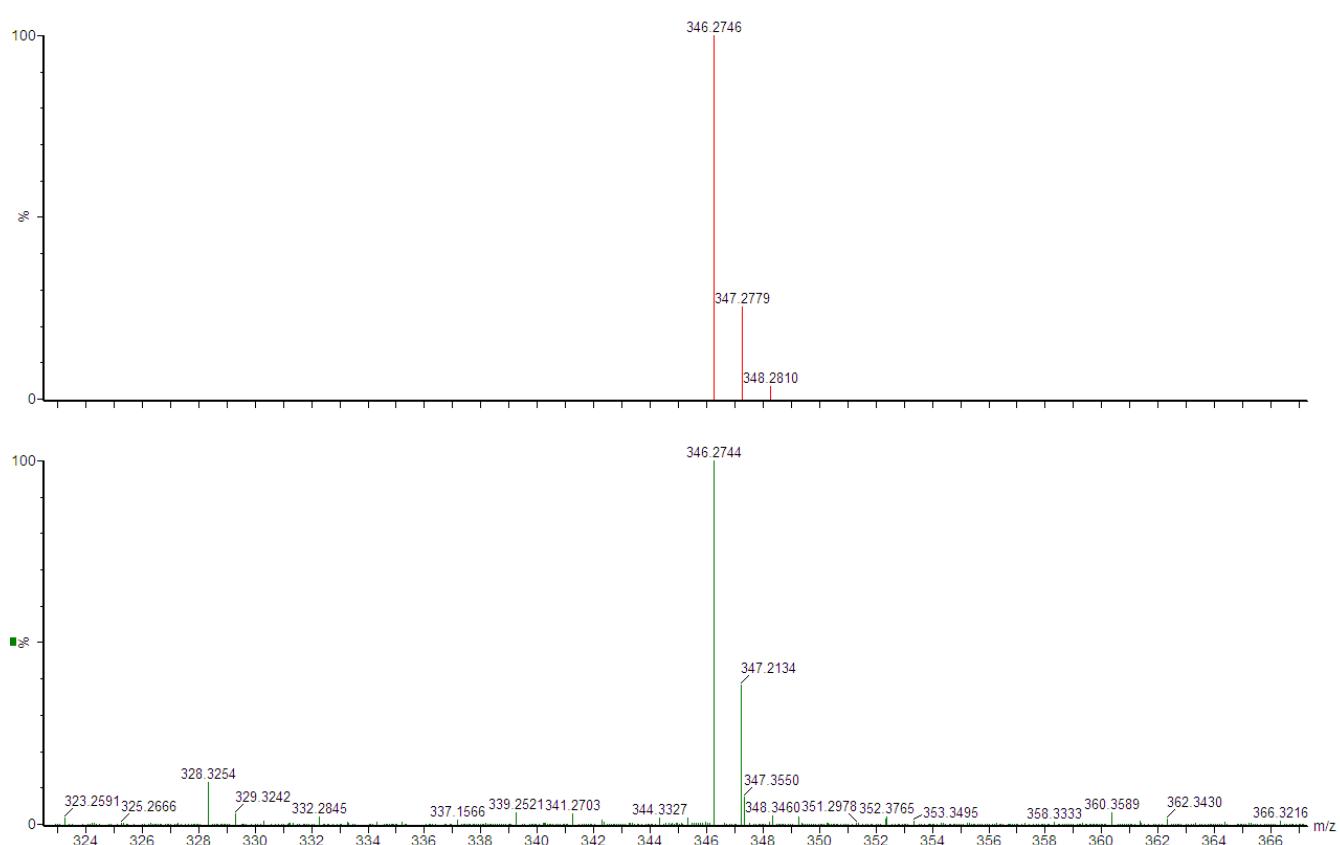
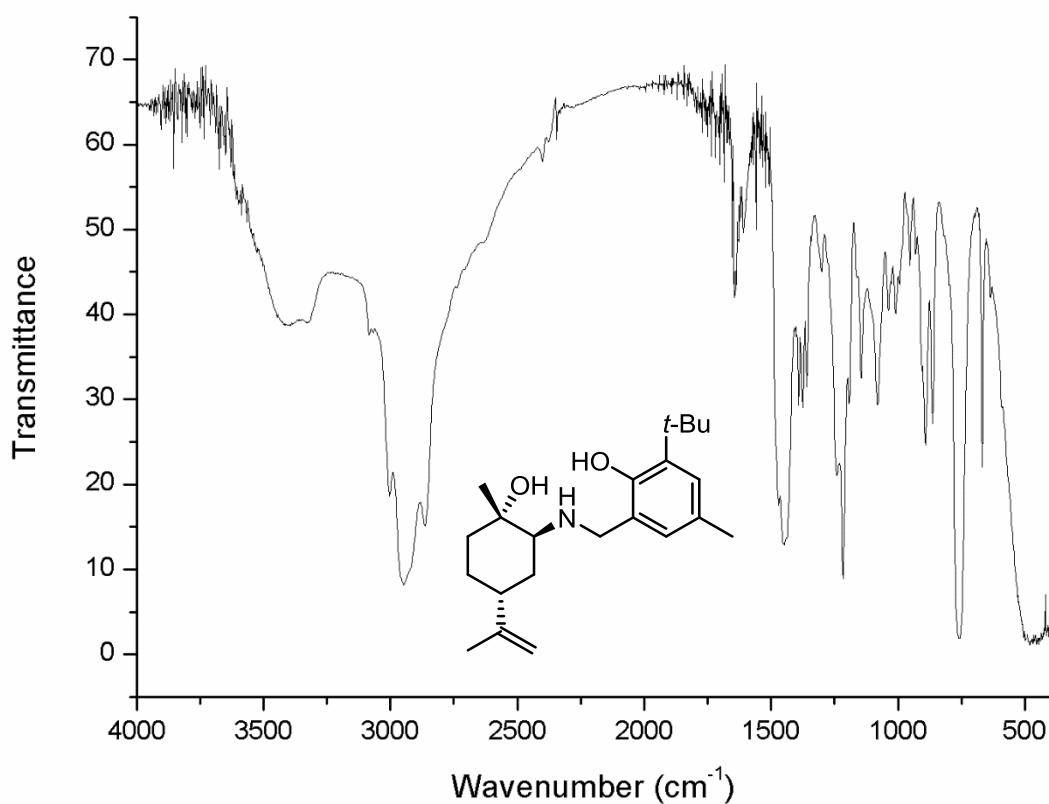


Figure S24. FTIR and HRMS of **8b**.

Table S1. Crystallographic data and structure refinement parameters for **5a** and **6a**

Compound	5a	6a
Molecular formula	C ₂₂ H ₃₃ NO ₂	C ₂₁ H ₂₅ NO ₂
Formula weight / (g mol ⁻¹)	343.49	323.42
Temperature / K	293 (2)	110 (2)
Crystal system	monoclinic	orthorhombic
Space group	<i>P</i> 2 ₁	<i>P</i> 2 ₁ 2 ₁ 2 ₁
<i>a</i> / Å	9.3772 (3)	6.2042 (3)
<i>b</i> / Å	10.4752 (4)	12.7176 (6)
<i>c</i> / Å	10.7791 (4)	22.4491 (10)
α / degree	90	90
β / degree	103.807 (2)	90
γ / degree	90	90
Volume / Å ³	1028.22 (6)	1771.29 (14)
<i>Z</i>	2	4
Radiation type	Cu K α	MoK α
ρ_{calcd} / (g cm ⁻³)	1.109	1.213
μ / mm ⁻¹	0.541	0.077
<i>F</i> (000)	376	696
Crystal size / mm	0.47 × 0.24 × 0.17	0.31 × 0.23 × 0.16
θ_{range} / degree	4.223 to 74.426	2.420 to 28.417
	$-11 \leq h \leq 11$	$-8 \leq h \leq 8$
Limiting indices (<i>h</i> , <i>k</i> , <i>l</i>)	$-13 \leq k \leq 11$	$-16 \leq k \leq 16$
	$-13 \leq l \leq 13$	$-29 \leq l \leq 30$
Reflections collected	32585	67570
Reflections unique (R_{int})	4134 (0.1629)	4433 (0.0281)
Completeness to θ_{max} / %	99.8	99.5
Data / restraints / param.	4134 / 1 / 231	4433 / 0 / 220
Absorption correction	multiscan	multiscan
Min. and max. transmission	0.5728 and 0.7538	0.7229 and 0.7457
R_1 [$I > 2\sigma(I)$] ^a	0.0597	0.0339
wR ₂ [$I > 2\sigma(I)$] ^a	0.1438	0.1006
R_1 (all data) ^a	0.0904	0.0400
wR ₂ (all data) ^a	0.1589	0.1140
S on F^2 ^a	1.013	1.170
Largest diff. peak and hole / (e Å ⁻³)	0.250 and -0.318	0.592 and -0.681
	Flack x determined using 1099	Flack x determined using 1823
Absolute structure ¹	quotients [(I ⁺)-(I ⁻)]/[(I ⁺)+(I ⁻)]	quotients [(I ⁺)-(I ⁻)]/[(I ⁺)+(I ⁻)]
Absolute structure parameter ¹	0.1 (2)	0.24 (13)

^aAs defined by the SHELXL program; *a-c* and α - γ : unit cell parameters; *Z*: formula unit per unit cell; F²: squared structure factor.

Reference

1. Parsons, S.; Flack, H. D.; Wagner, T.; *Acta Cryst.* **2013**, *B69*, 249.



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