

Supplementary Material

Synthesis of *N*-acylbenzotriazole using acid anhydride

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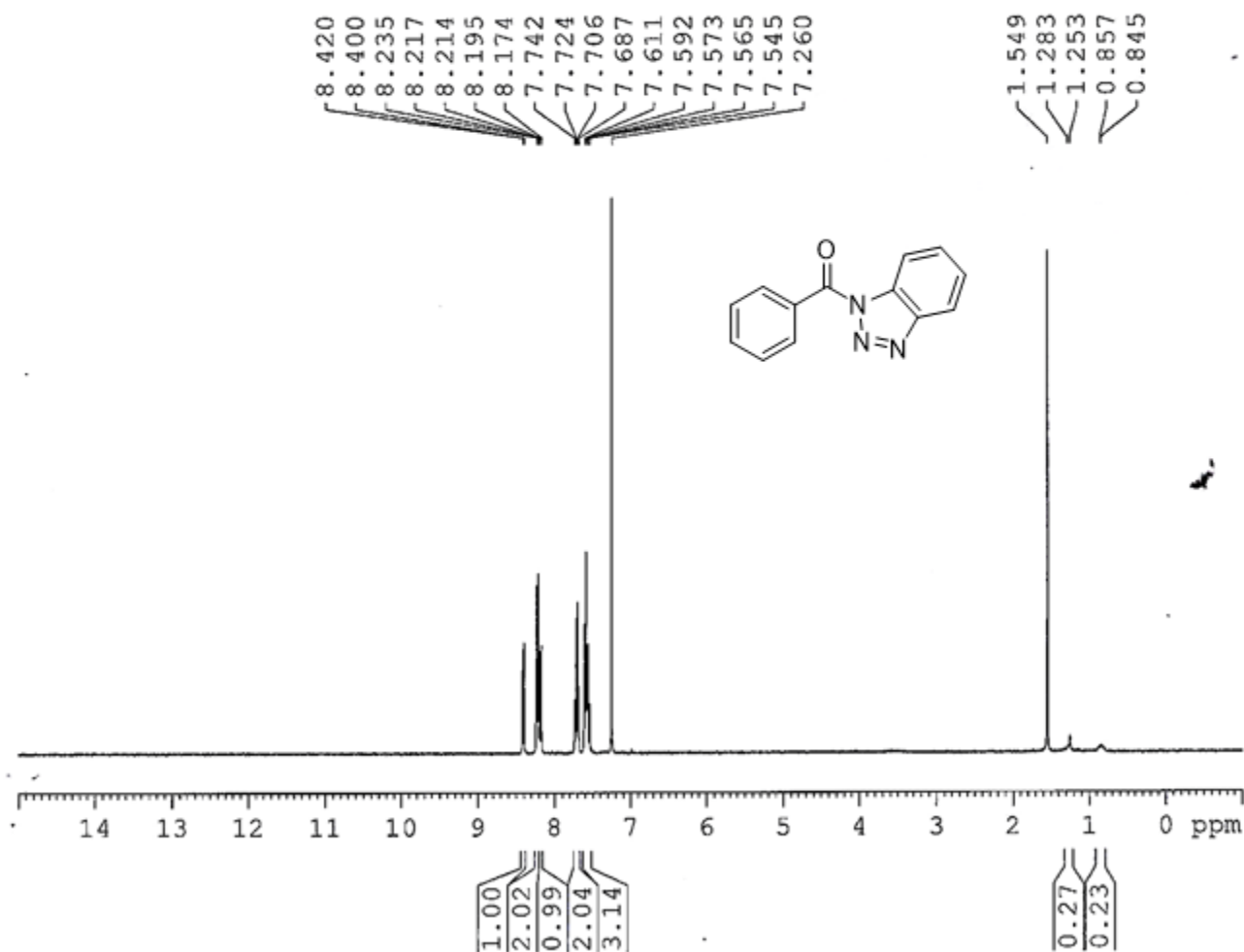
Email: anoopshyambhu7@gmail.com; anoop.singh4@jubilantbiosys.com

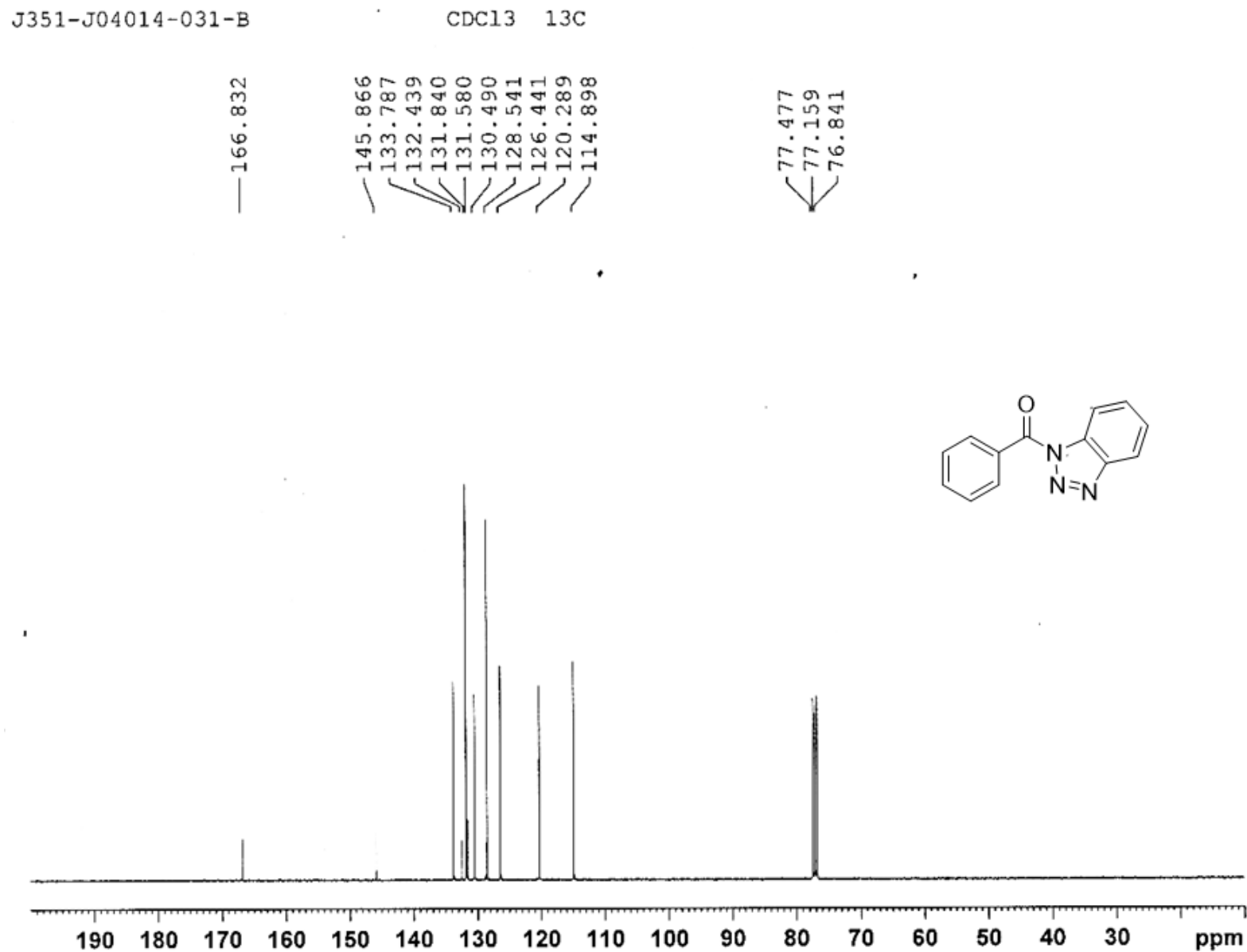
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¹ H and ¹³ C NMR Spectra of <i>N</i> -acyl-benzotriazole (2a-y).....	S2
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^1H and ^{13}C NMR Spectra of *N*-acyl-benzotriazole (**2a-2y**)

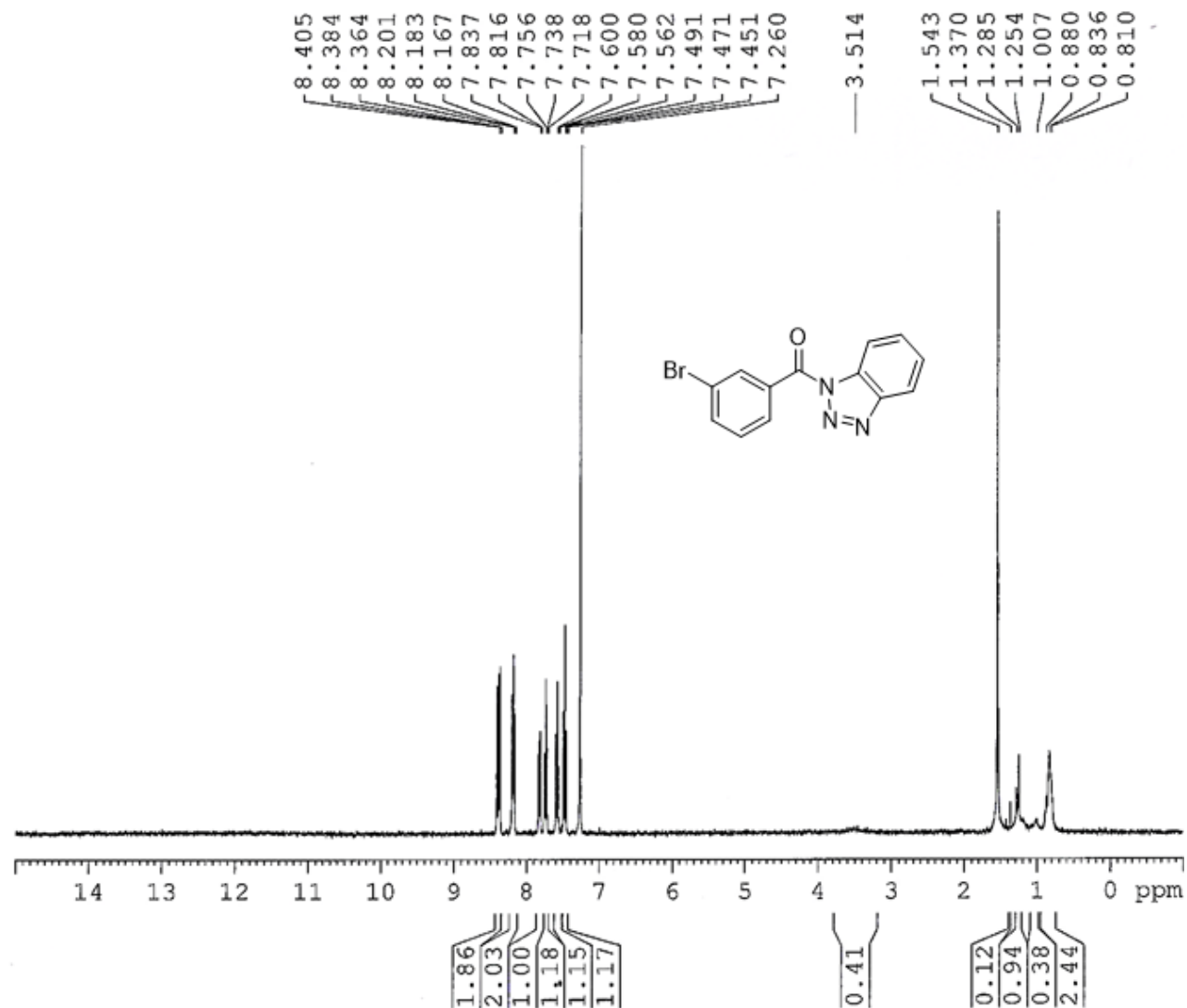
J351-Z02117-021-PP

CDCl₃**Spectra 1.** ^1H NMR (400 MHz, CDCl₃) of compound **2a** [With the impurity of water (1.54 ppm) and grease (1.27, 0.85 ppm)]



Spectra 2. ¹³C NMR (100 MHz, CDCl₃) of compound **2a**

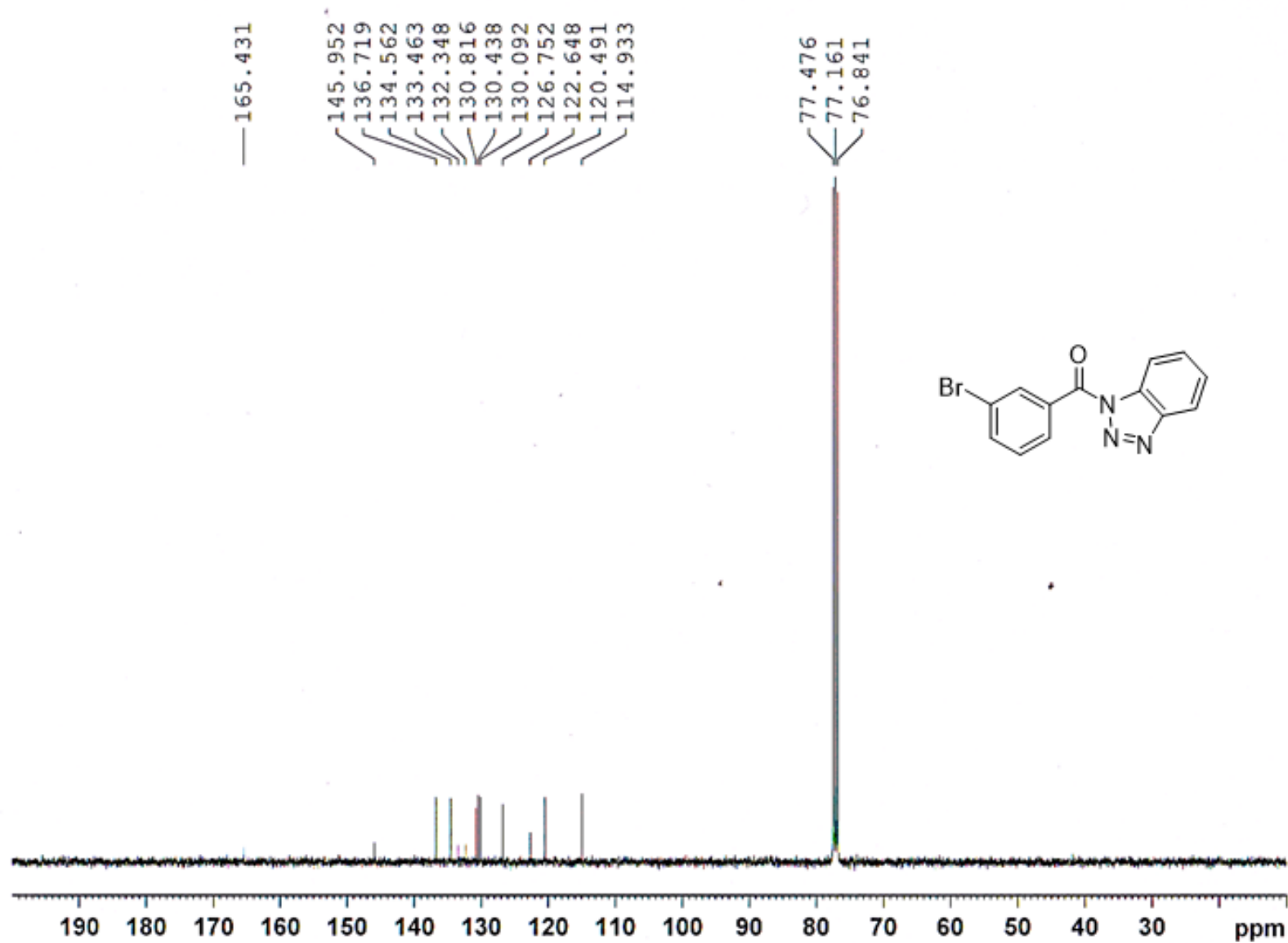
J351-Z02117-089

CDCl₃

Spectra 3. ¹H NMR (400 MHz, CDCl₃) of compound **2b** [With the impurity of water (1.54 ppm) , methanol (3.51 ppm) and grease (1.27, 0.83 ppm)]

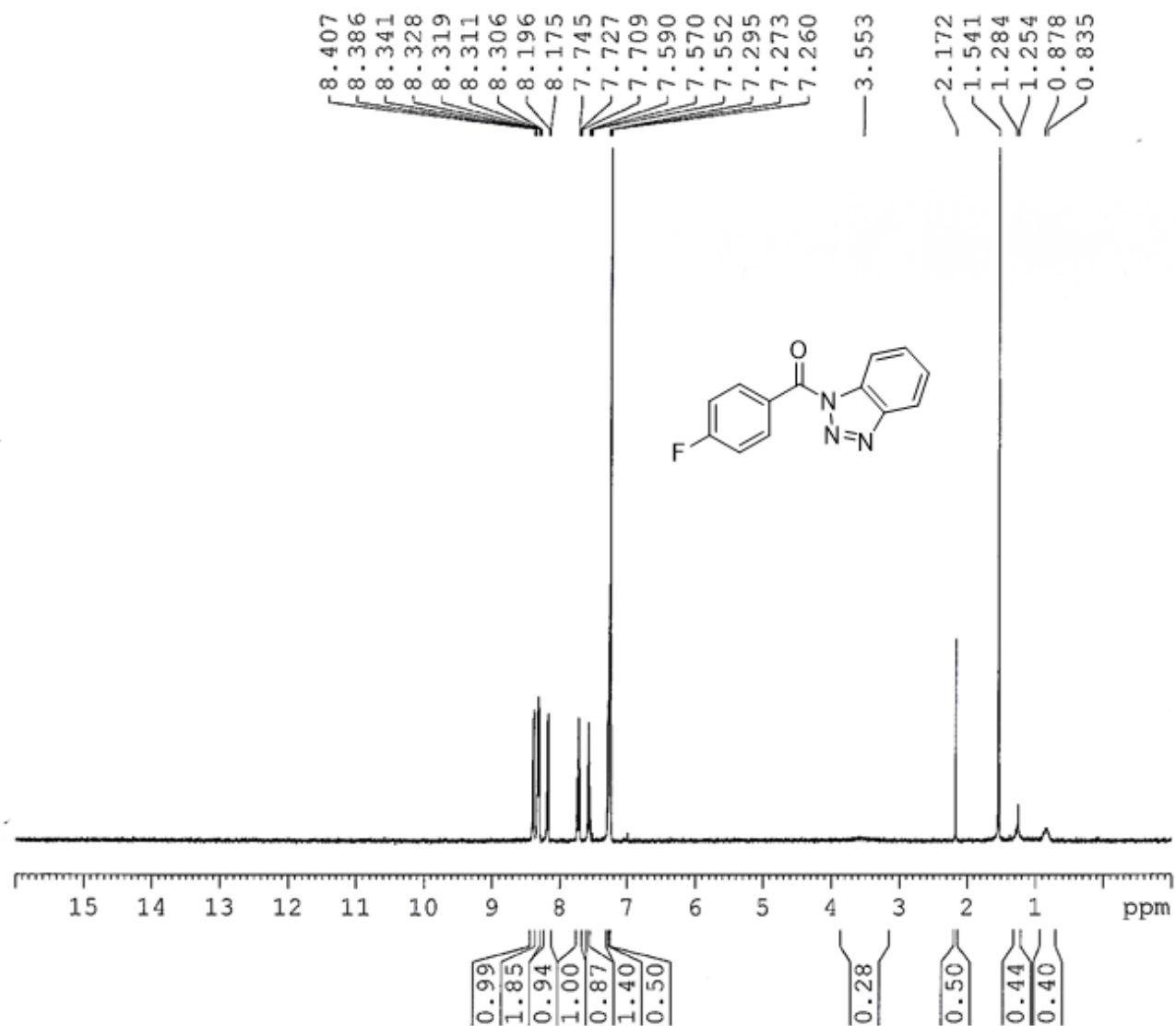
J351-202117-089

CDC13

Spectra 4. ¹³C NMR (100 MHz, CDCl₃) of compound **2b**

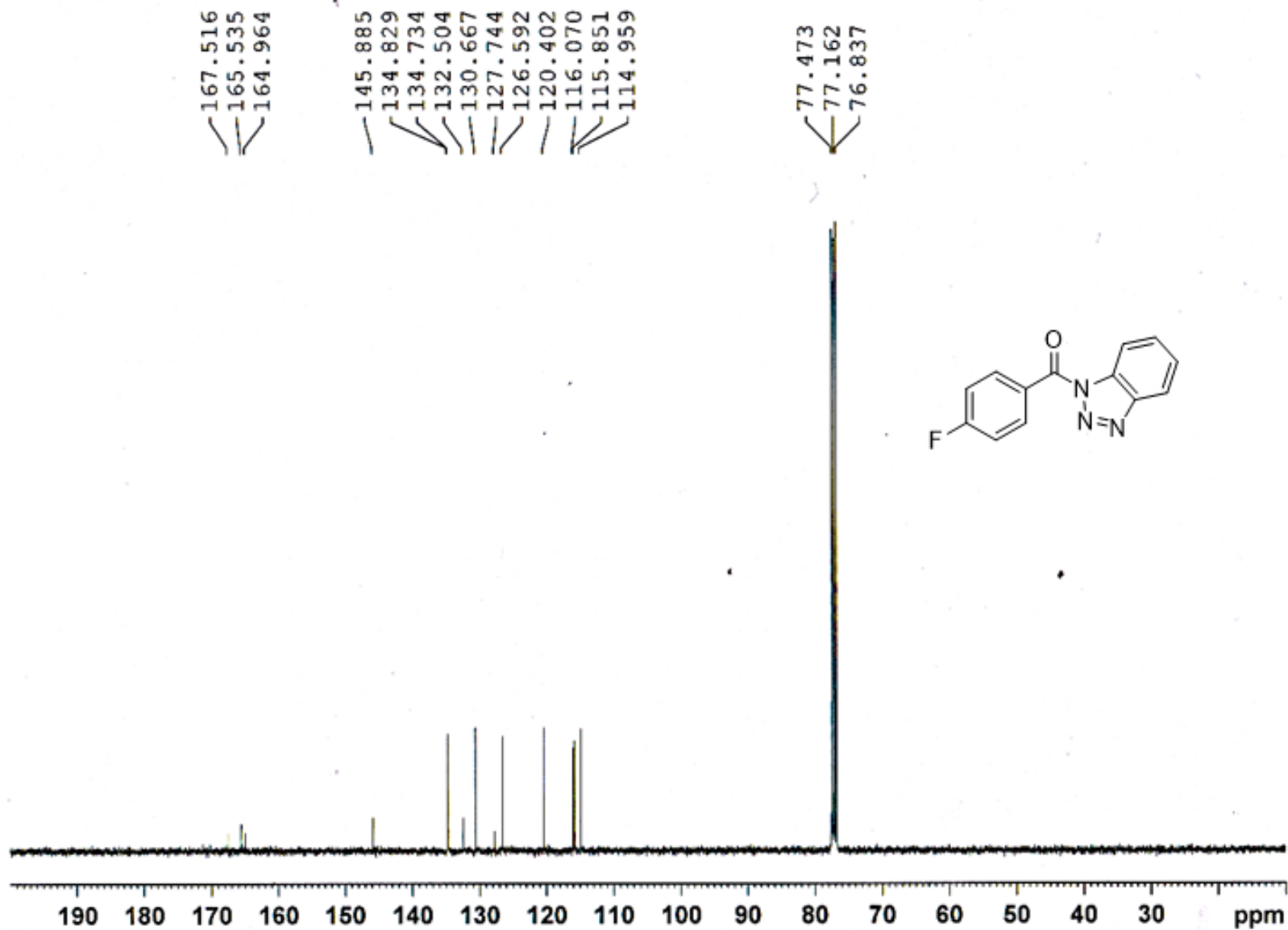
J351-Z02117-073

CDC13 P.S

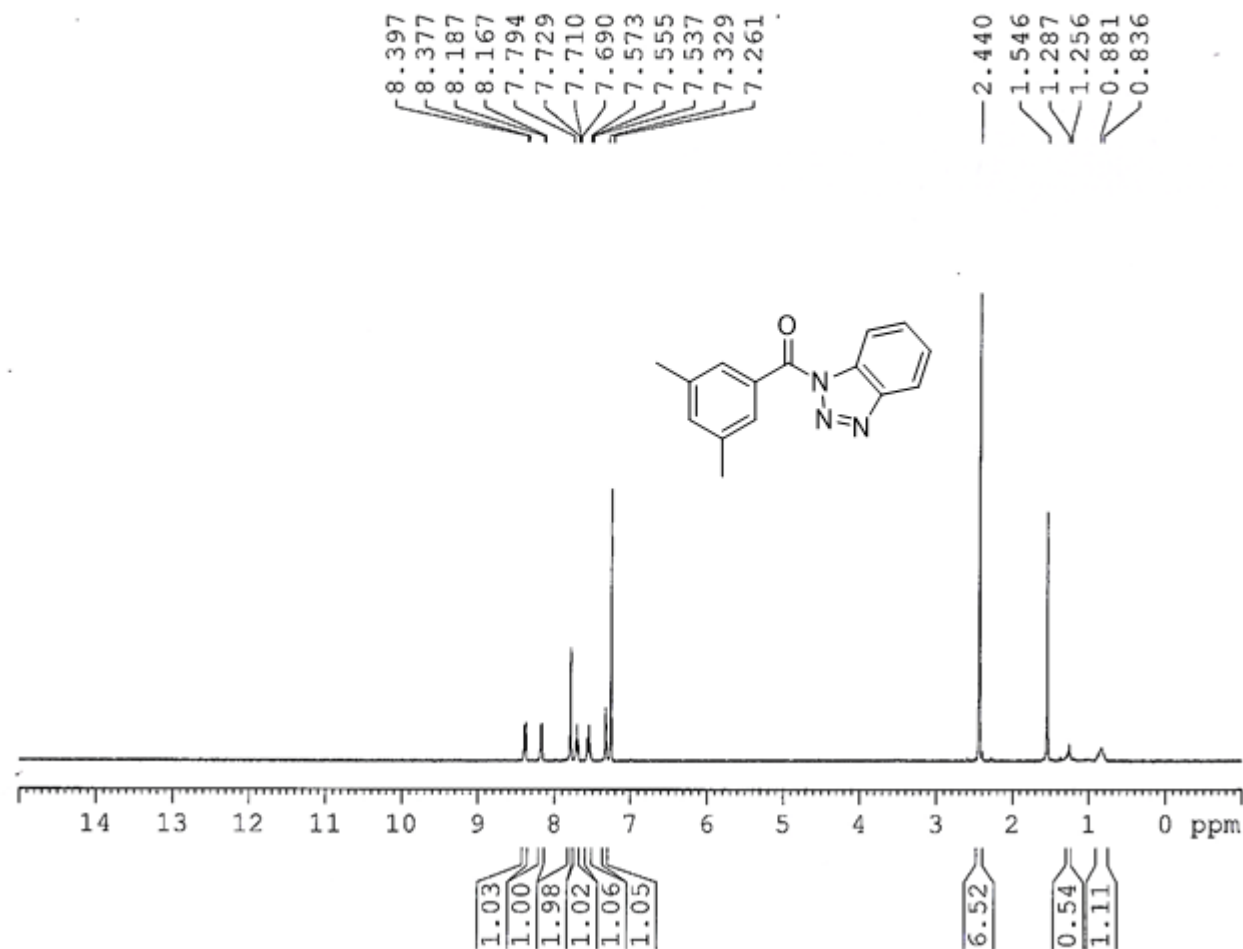


Spectra 5. ¹H NMR (400 MHz, CDCl₃) of compound **2c** [With the impurity of water (1.54 ppm), methanol (3.55 ppm), acetone (2.17 ppm) and grease(1.27, 0.86 ppm)]

J351-202117-073

CDCl₃ 13CSpectra 6. ¹³C NMR (100 MHz, CDCl₃) of compound 2c

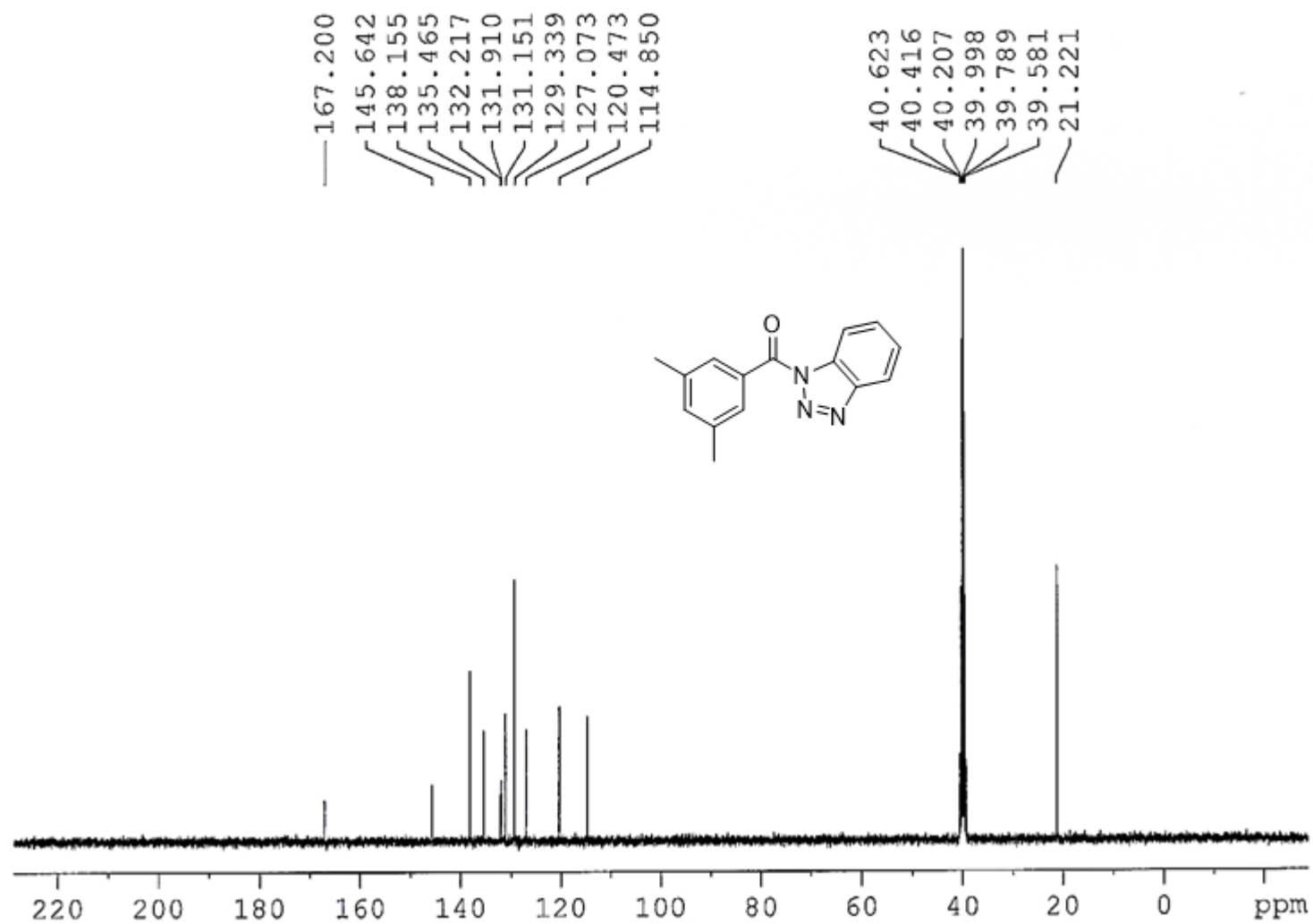
J351-Z02117-095

CDCl₃

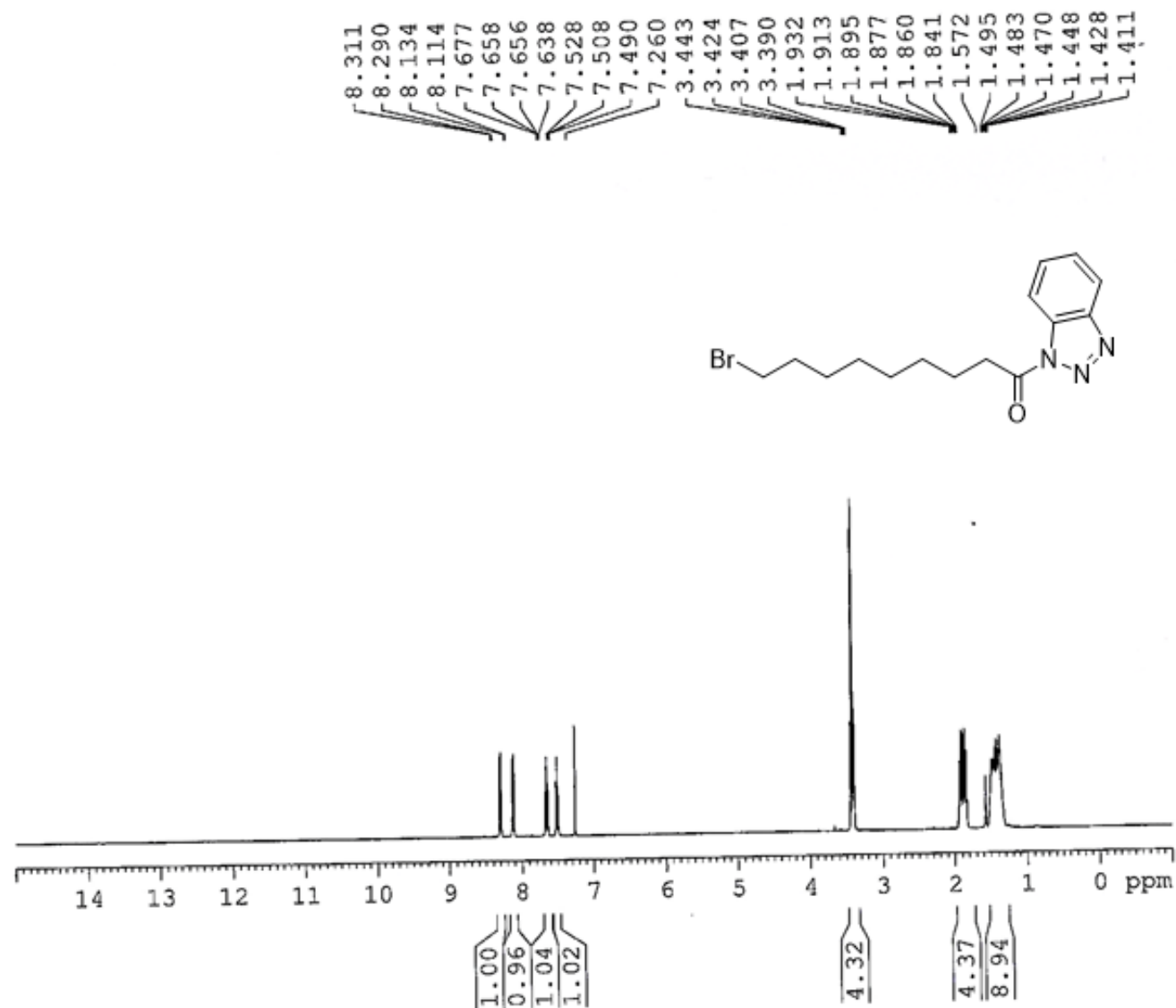
Spectra 7. ¹H NMR (400 MHz, CDCl₃) of compound **2d** [With the impurity of water (1.54 ppm) and grease (1.27, 0.86 ppm)]

J351-Z02117-095

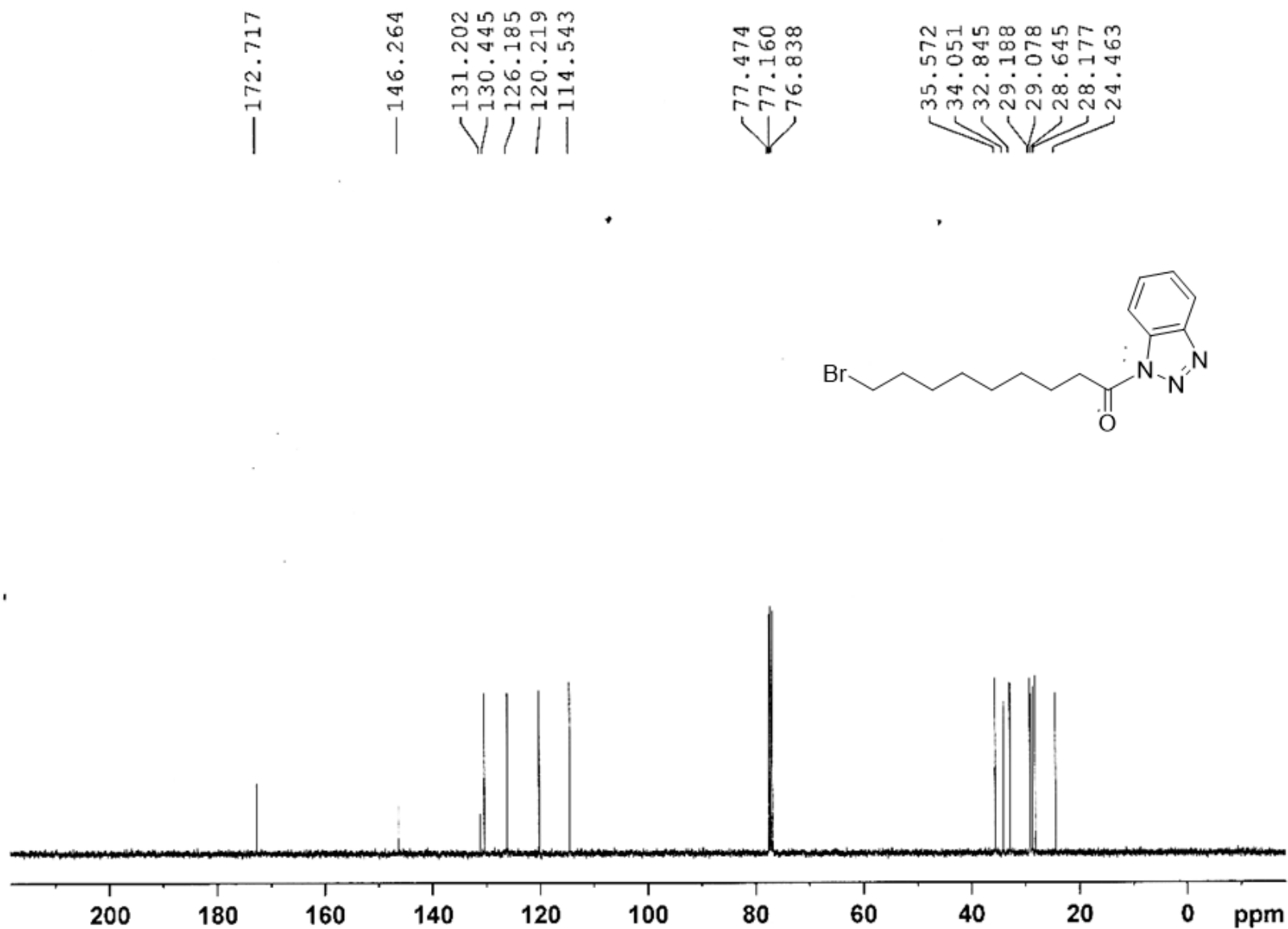
DMSO 13C

Spectra 8. ¹³C NMR (100 MHz, DMSO-*d*₆) of compound 2d

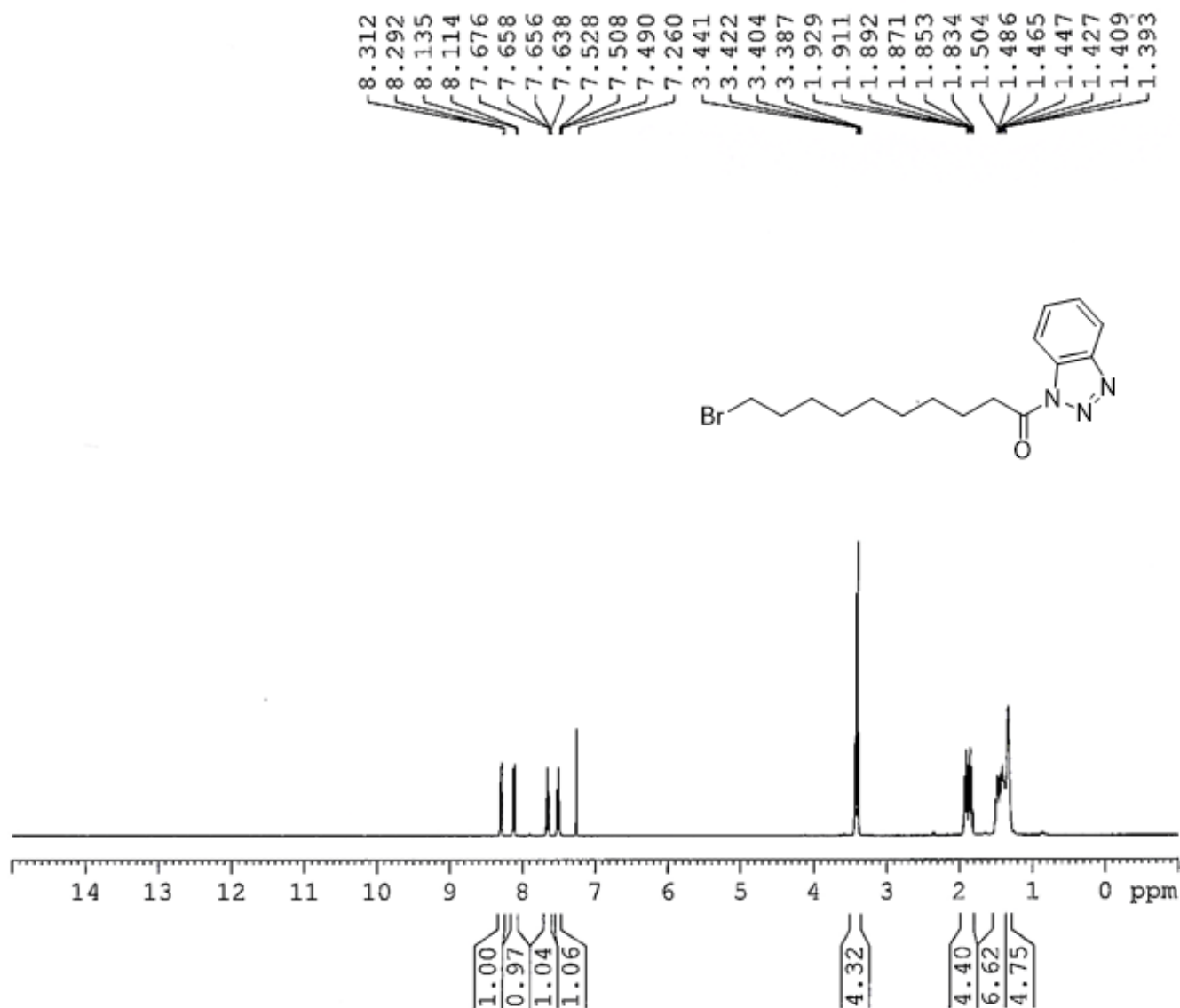
J351-Z02117-023

CDCl₃Spectra 9. ¹H NMR (400 MHz, CDCl₃) of compound 2e

J351-Z02117-023

CDCl₃¹³CSpectra 10. ¹³C NMR (100 MHz, CDCl₃) of compound 2e

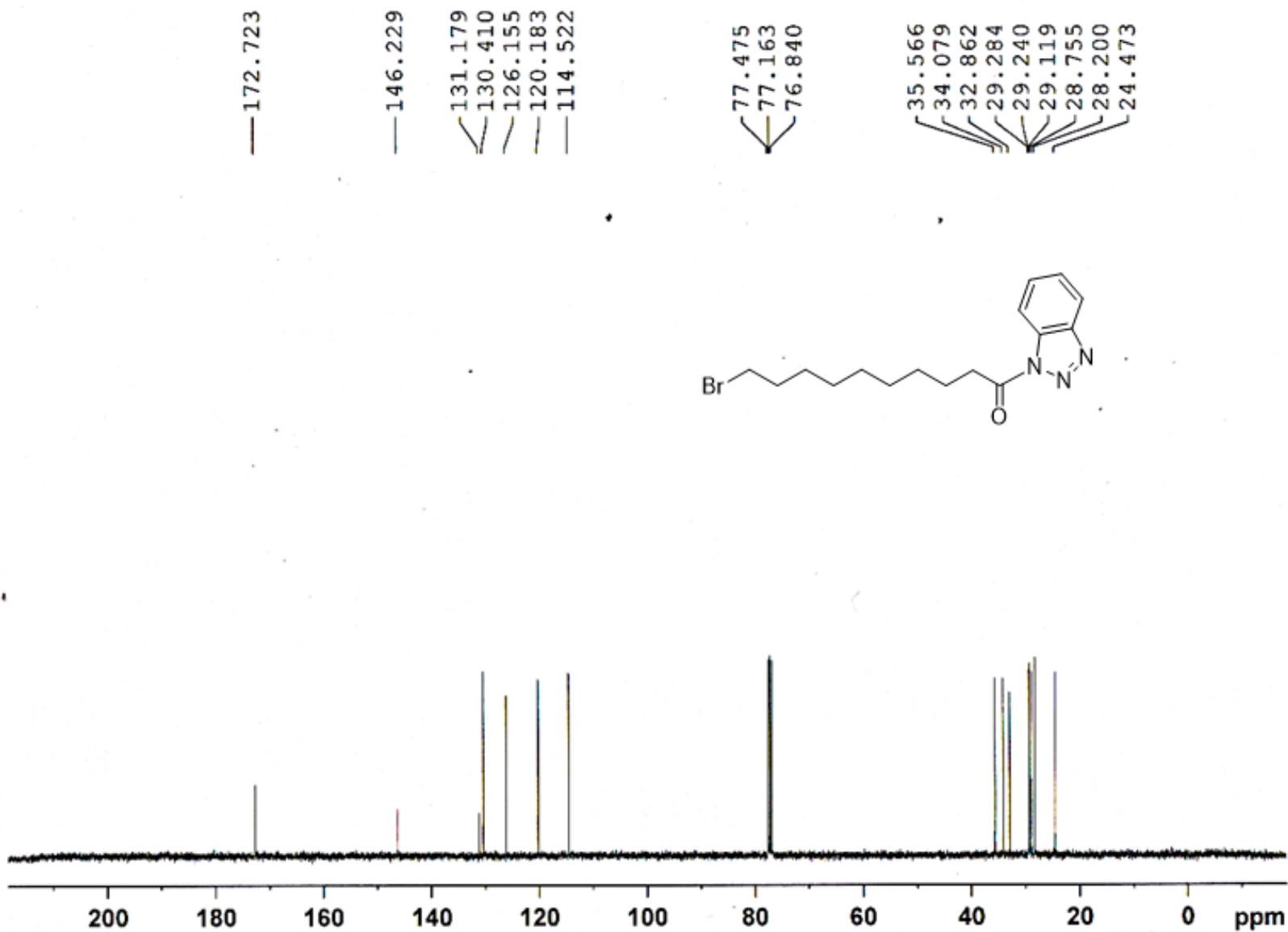
J351-Z02117-025

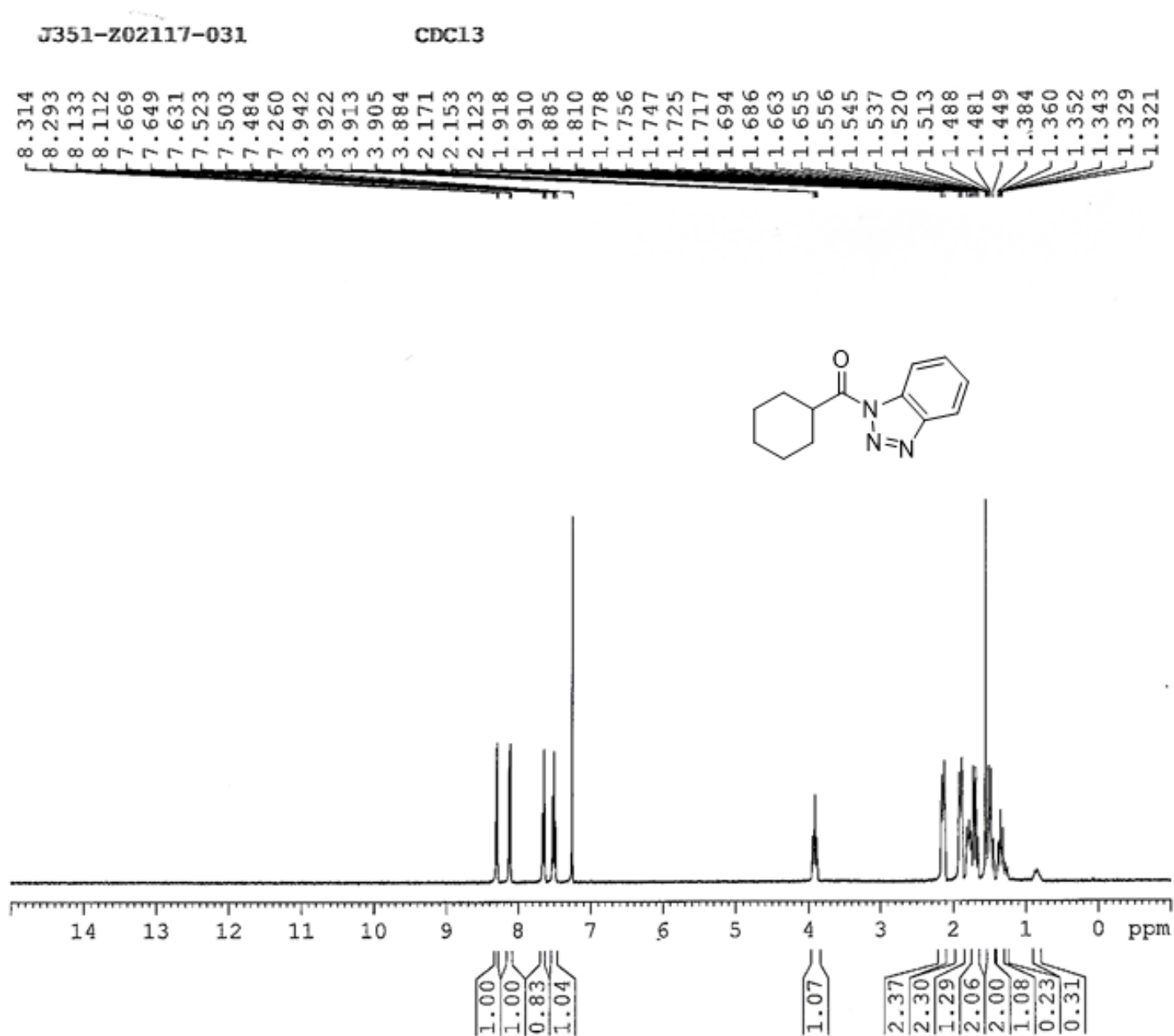
CDCl₃Spectra 11. ¹H NMR (400 MHz, CDCl₃) of compound 2f

J351-Z02117-025

CDCl₃

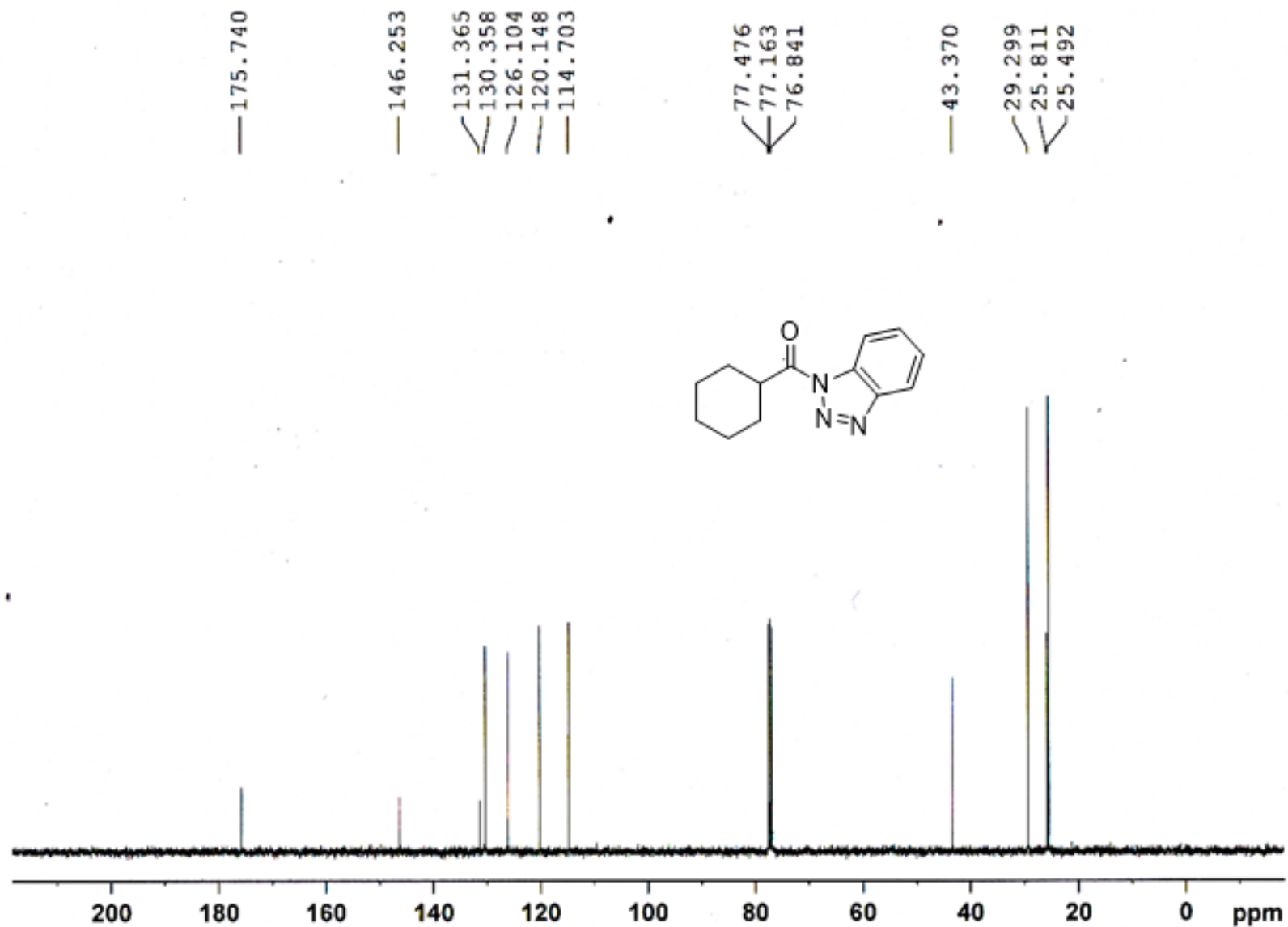
13C

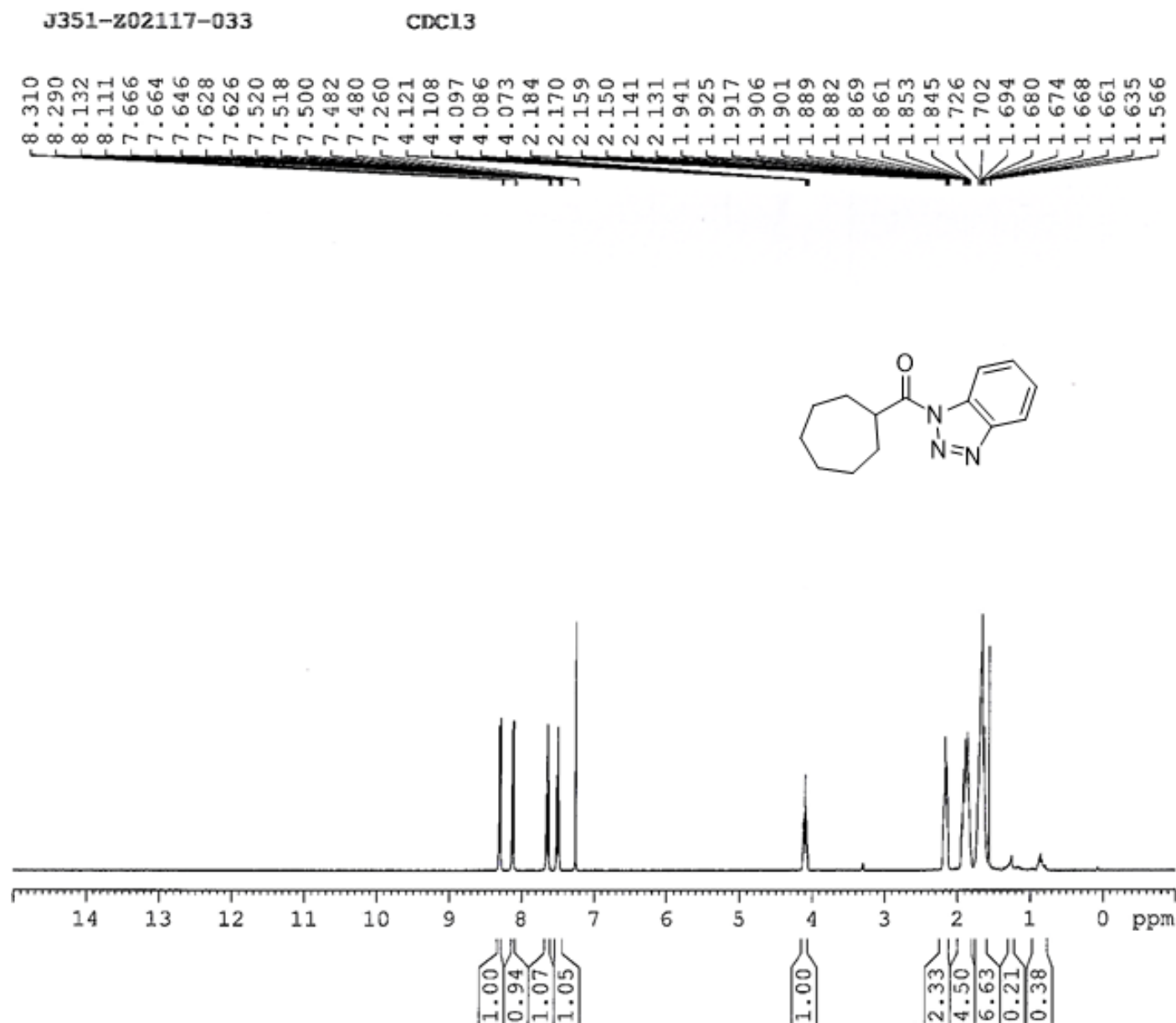
Spectra 12. ¹³C NMR (100 MHz, CDCl₃) of compound **2f**



Spectra 13. ^1H NMR (400 MHz, CDCl_3) of compound **2g** [With the impurity of water (1.54 ppm)]

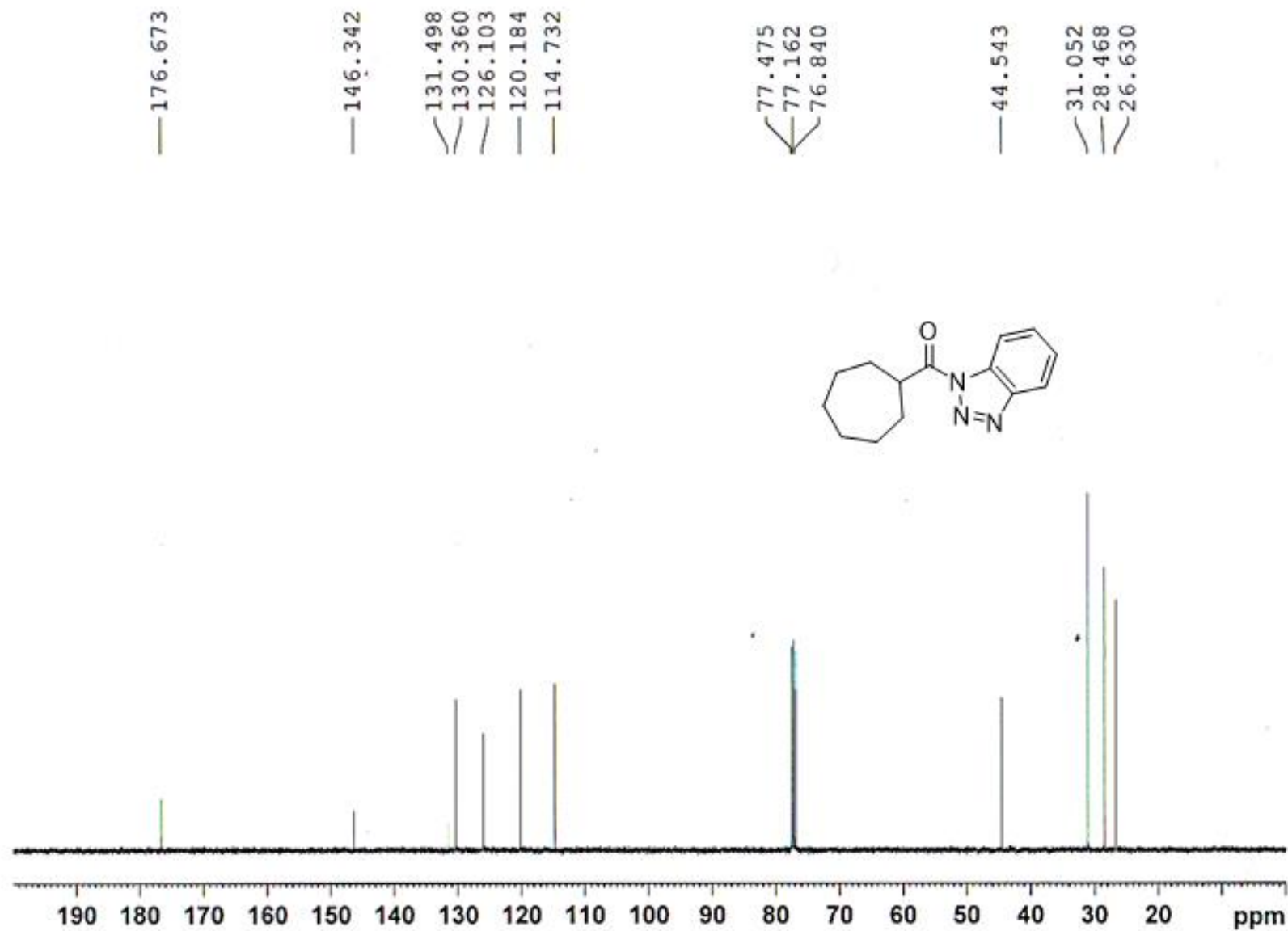
J351-Z02117-031

CDCl₃ C13CPDSpectra 14. ¹³C NMR (100 MHz, CDCl₃) of compound 2g

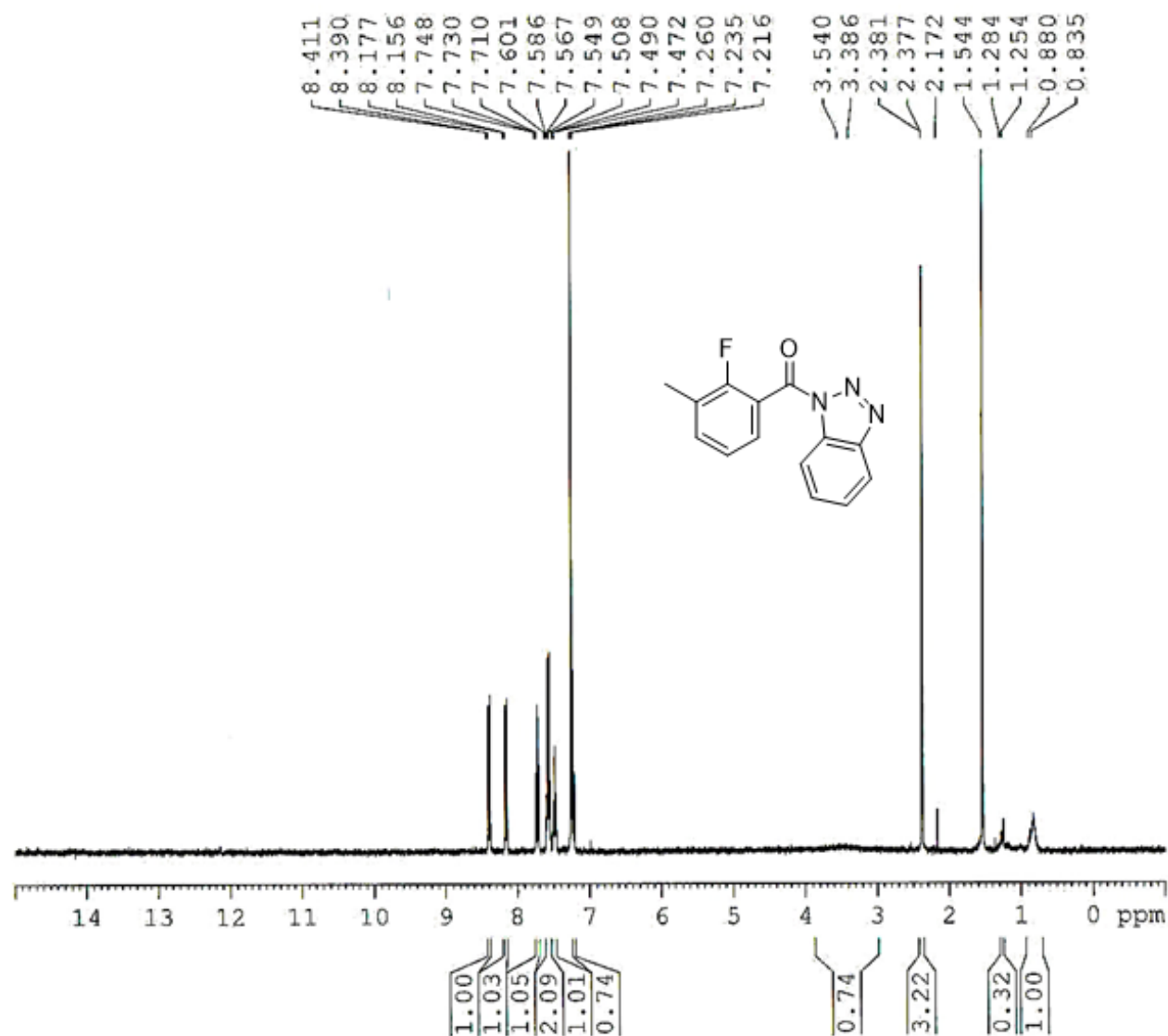


Spectra 15. ¹H NMR (400 MHz, CDCl₃) of compound **2h** [With the impurity of water (1.54 ppm) and grease (1.27, 0.86 ppm)]

J351-Z02117-033

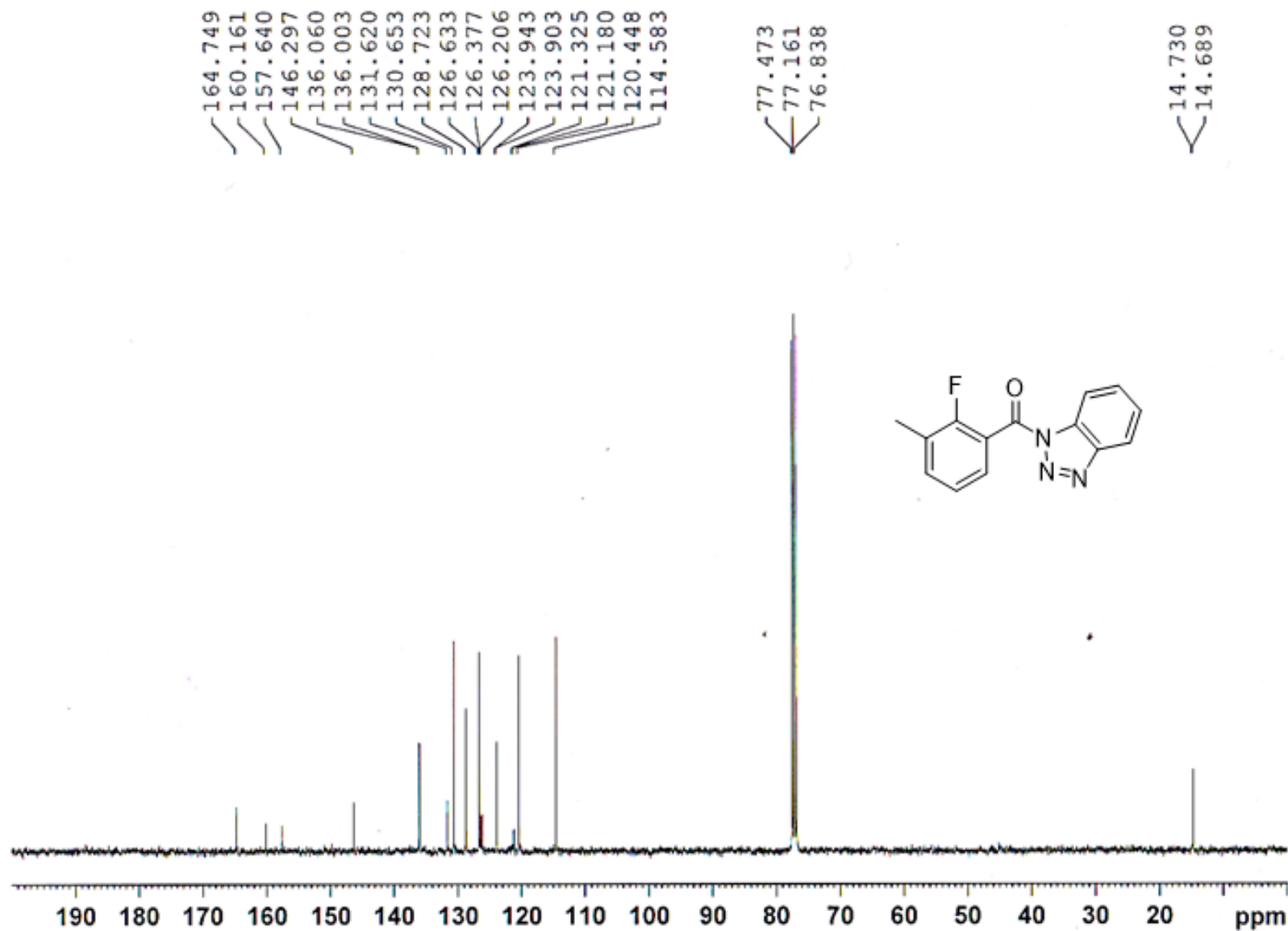
CDCl₃ C13CPDSpectra 16. ¹³C NMR (100 MHz, CDCl₃) of compound 2h

J351-Z02117-069

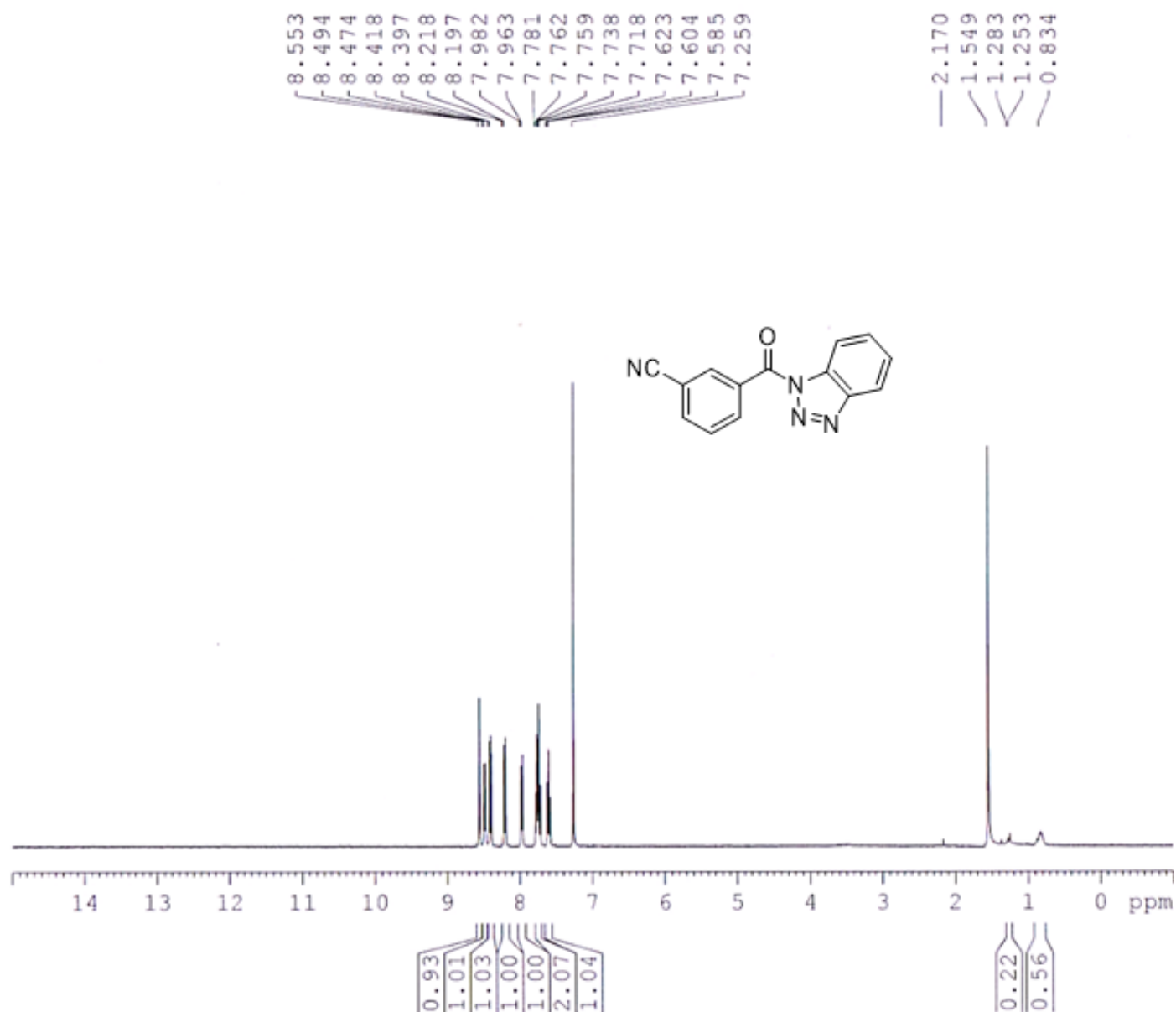
CDCl₃

Spectra 17. ¹H NMR (400 MHz, CDCl₃) of compound **2i** [With the impurity of water (1.54 ppm), methanol (3.54 ppm), Acetone (2.17 ppm) and grease (1.27, 0.86 ppm)]

J351-Z02117-069

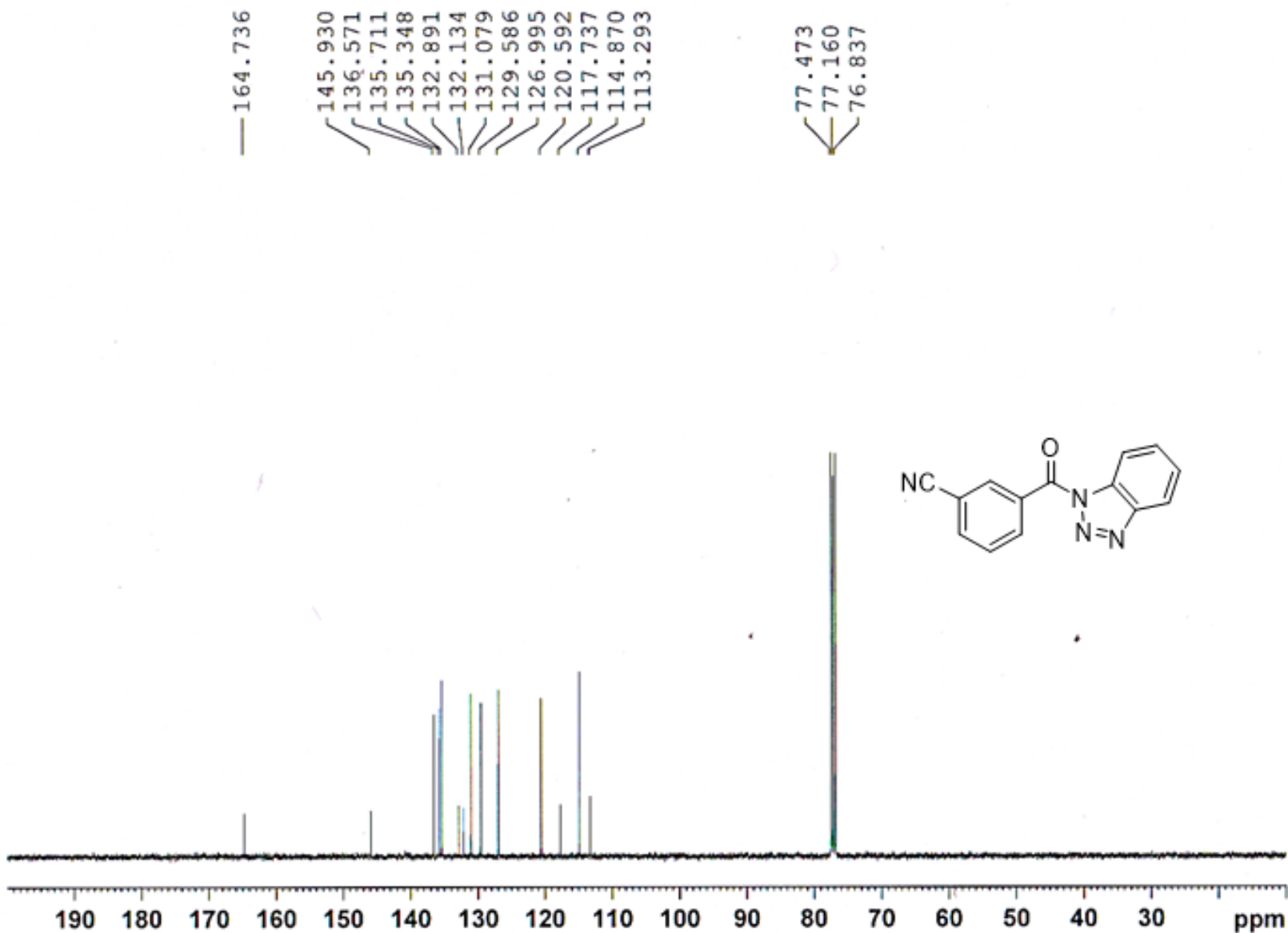
CDCl₃¹³CSpectra18. ¹³C NMR (100 MHz, CDCl₃) of compound **2i**

J351-202117-085-Upper

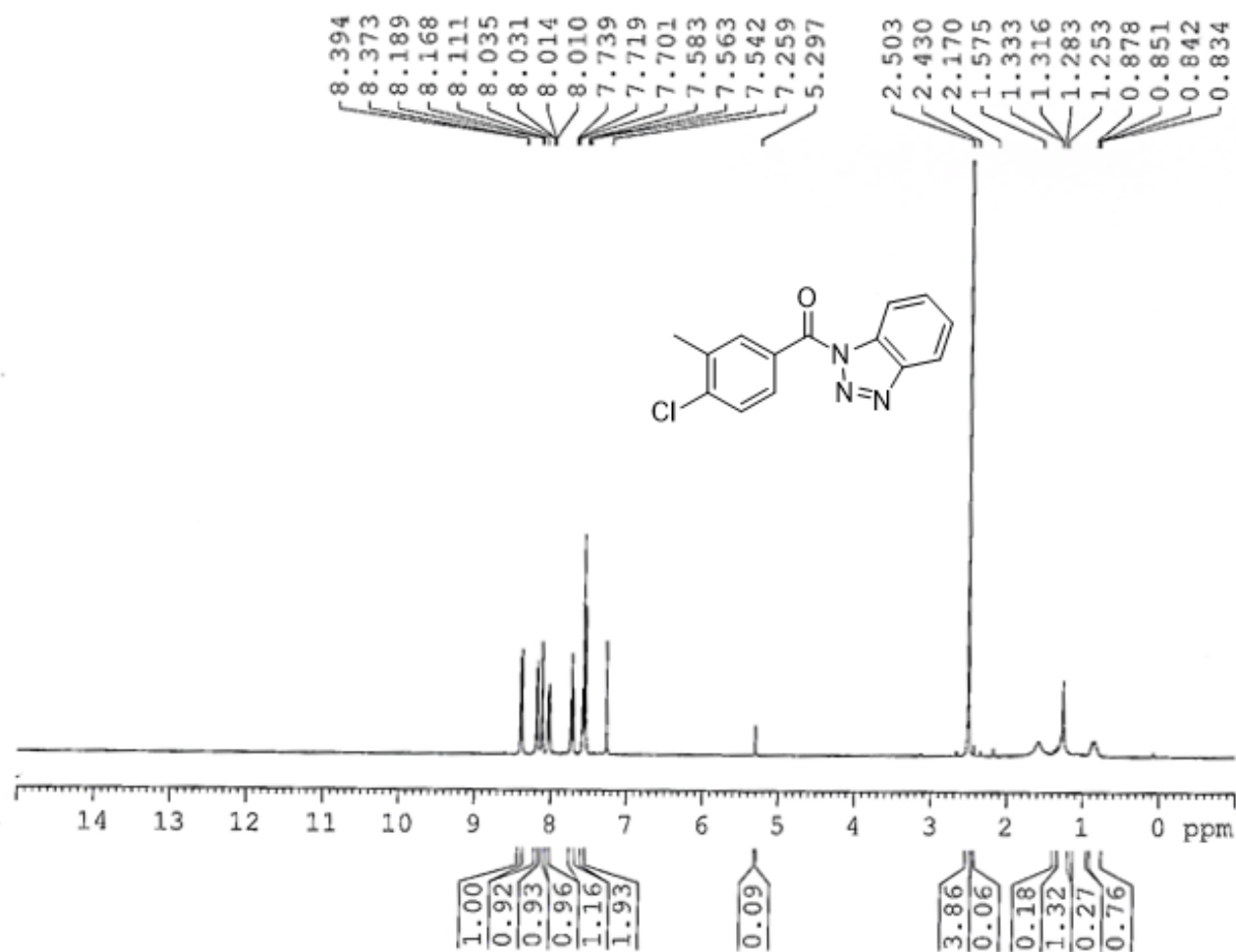
CDCl₃

Spectra 19. ¹H NMR (400 MHz, CDCl₃) of compound **2j** [With the impurity of water (1.54 ppm) and grease (1.27 ppm, 0.83 ppm)]

J351-202117-085

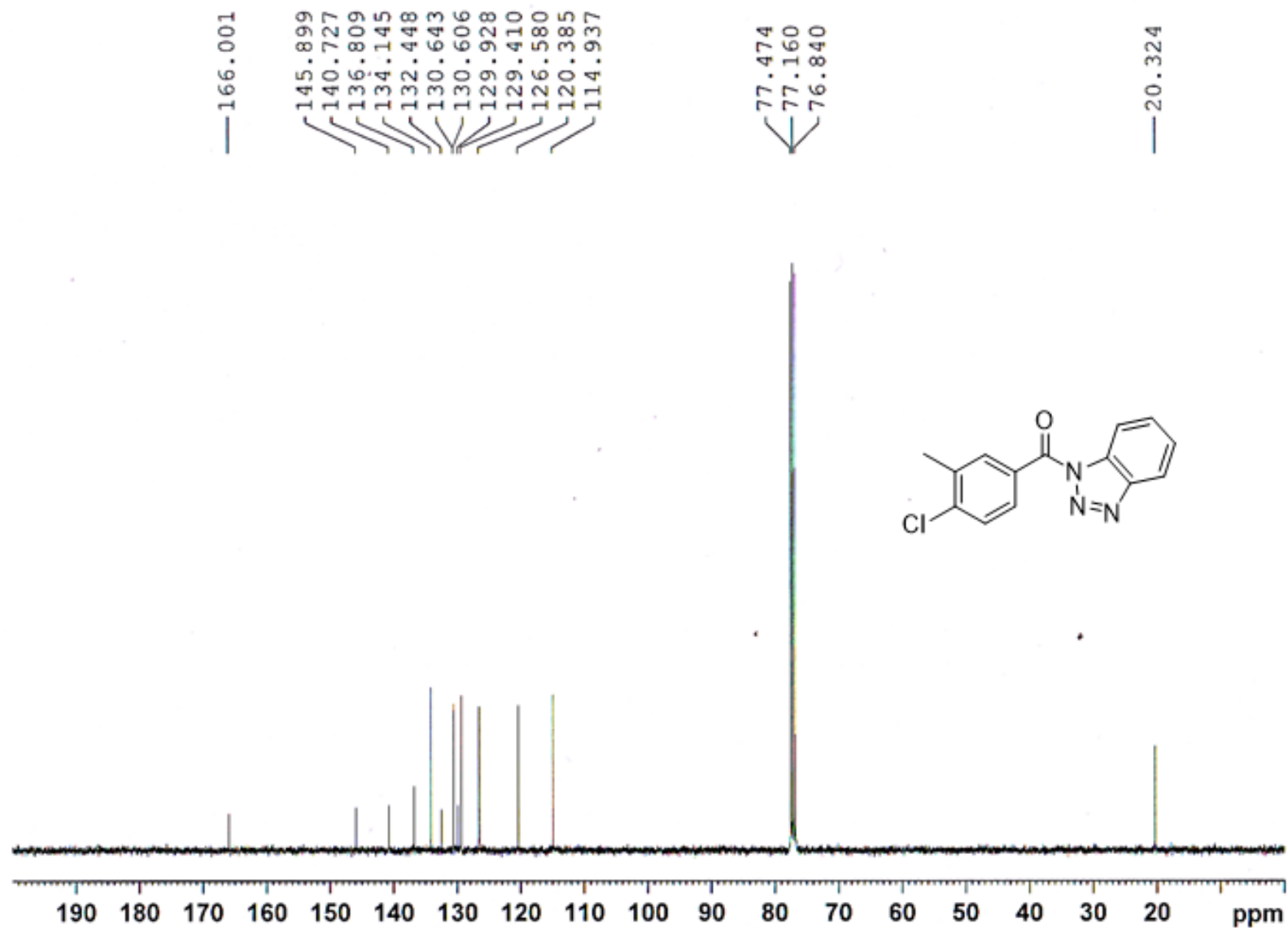
CDCl₃ 13CSpectra 20. ¹³C NMR (100 MHz, CDCl₃) of compound **2j**

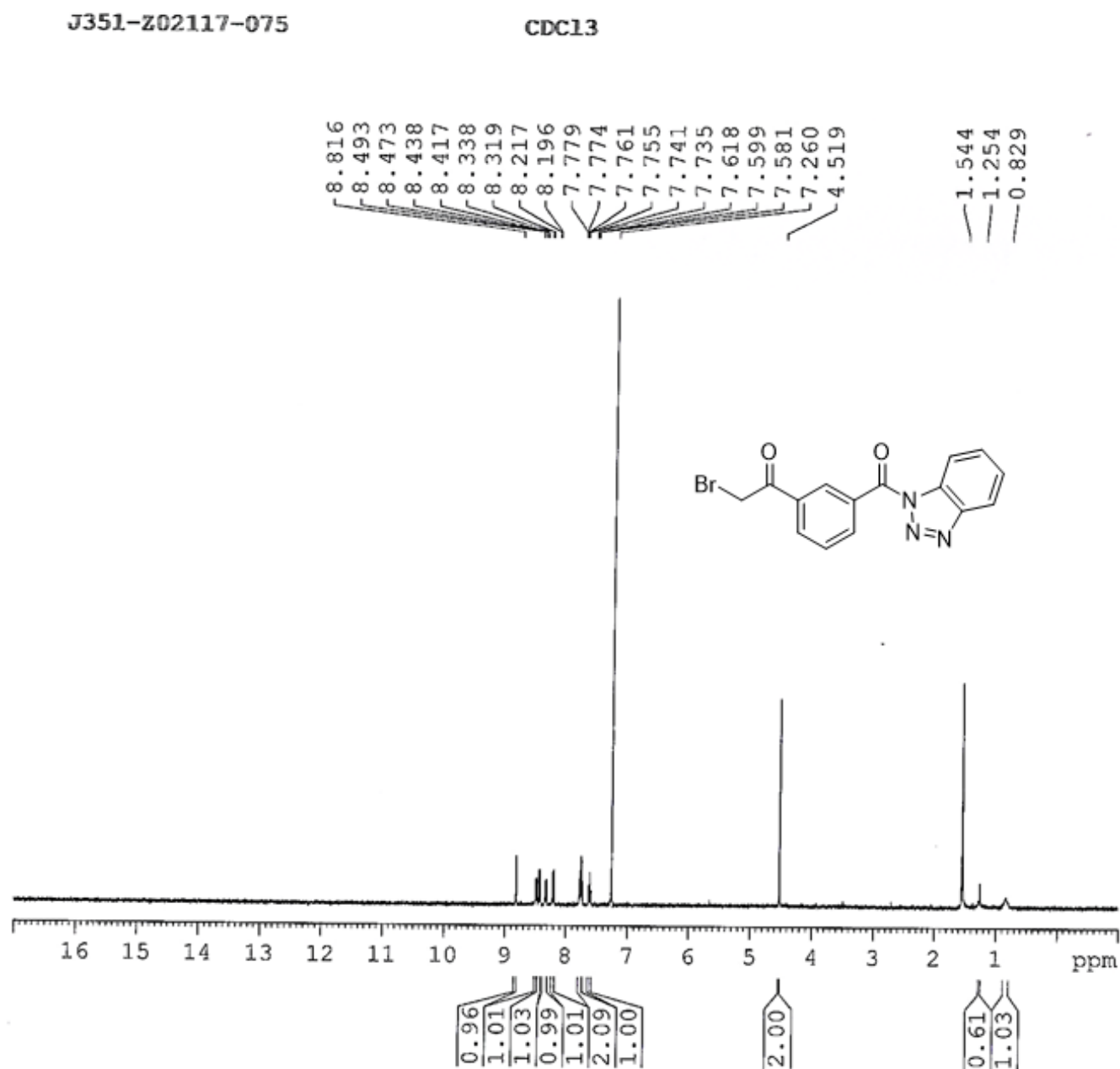
J351-Z02117-087

CDCl₃

Spectra 21. ¹H NMR (400 MHz, CDCl₃) of compound **2k** [With the impurity of Dichloromethane (5.29 ppm), water (1.57 ppm) and grease (1.28, 0.85 ppm)]

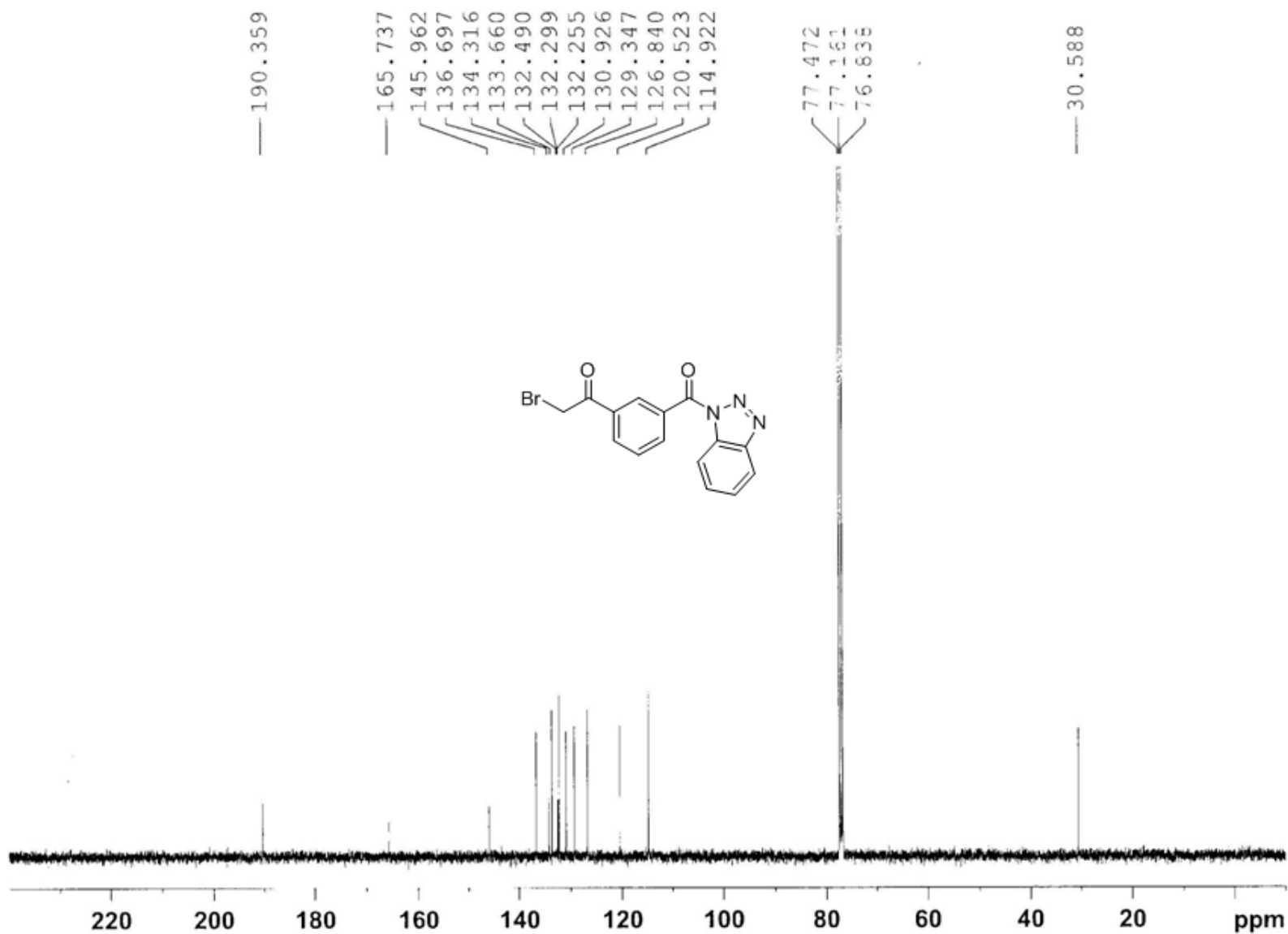
J351-Z02117-087

CDCl₃Spectra 22. ¹³C NMR (100 MHz, CDCl₃) of compound 2k



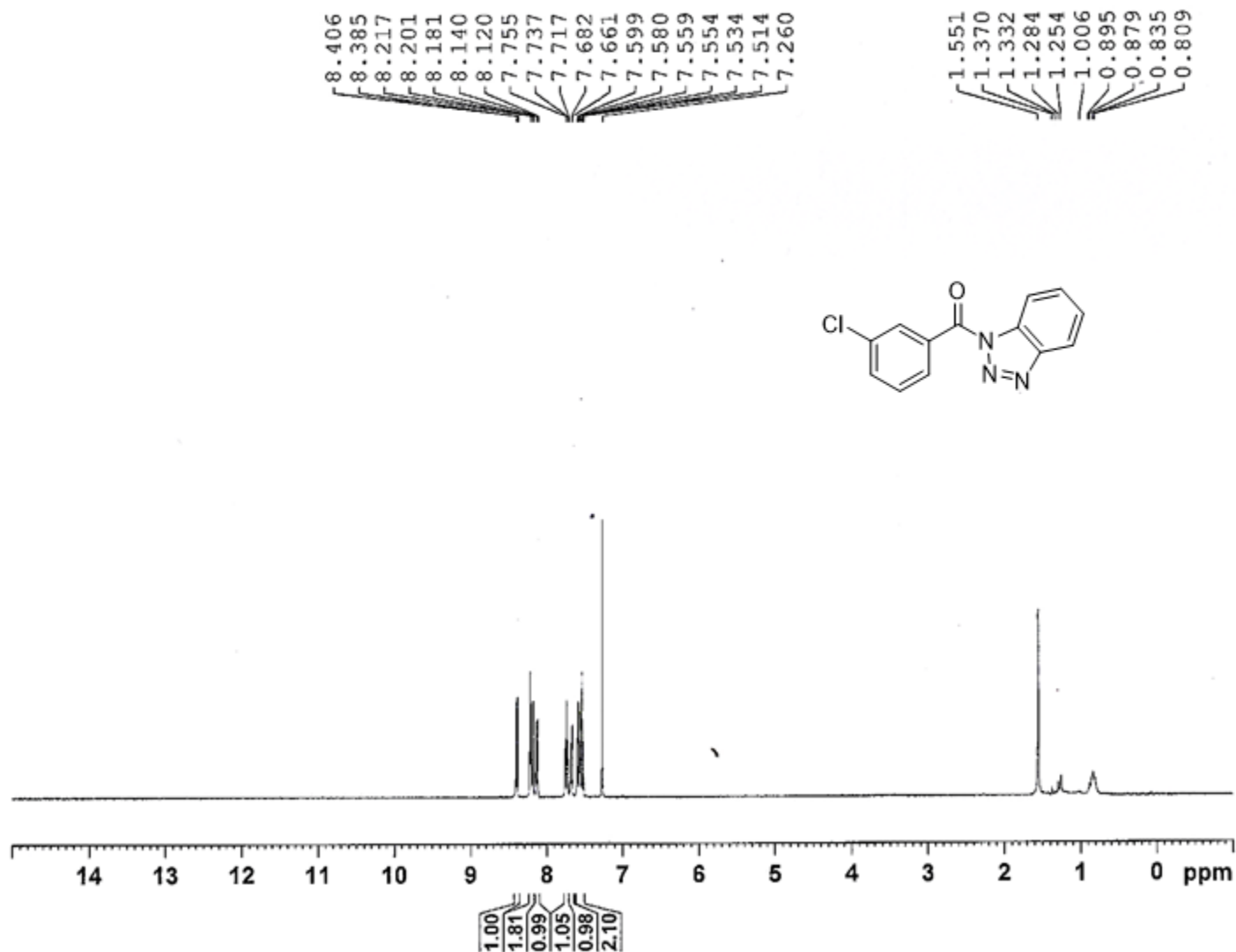
Spectra 23. ^1H NMR (400 MHz, CDCl_3) of compound **2I** [With the impurity of water (1.54 ppm) and grease (1.25, 0.83 ppm)]

J351-Z02117-075

CDCl₃Spectra 24. ¹³C NMR (100 MHz, CDCl₃) of compound 2I

J351-Z02117-065

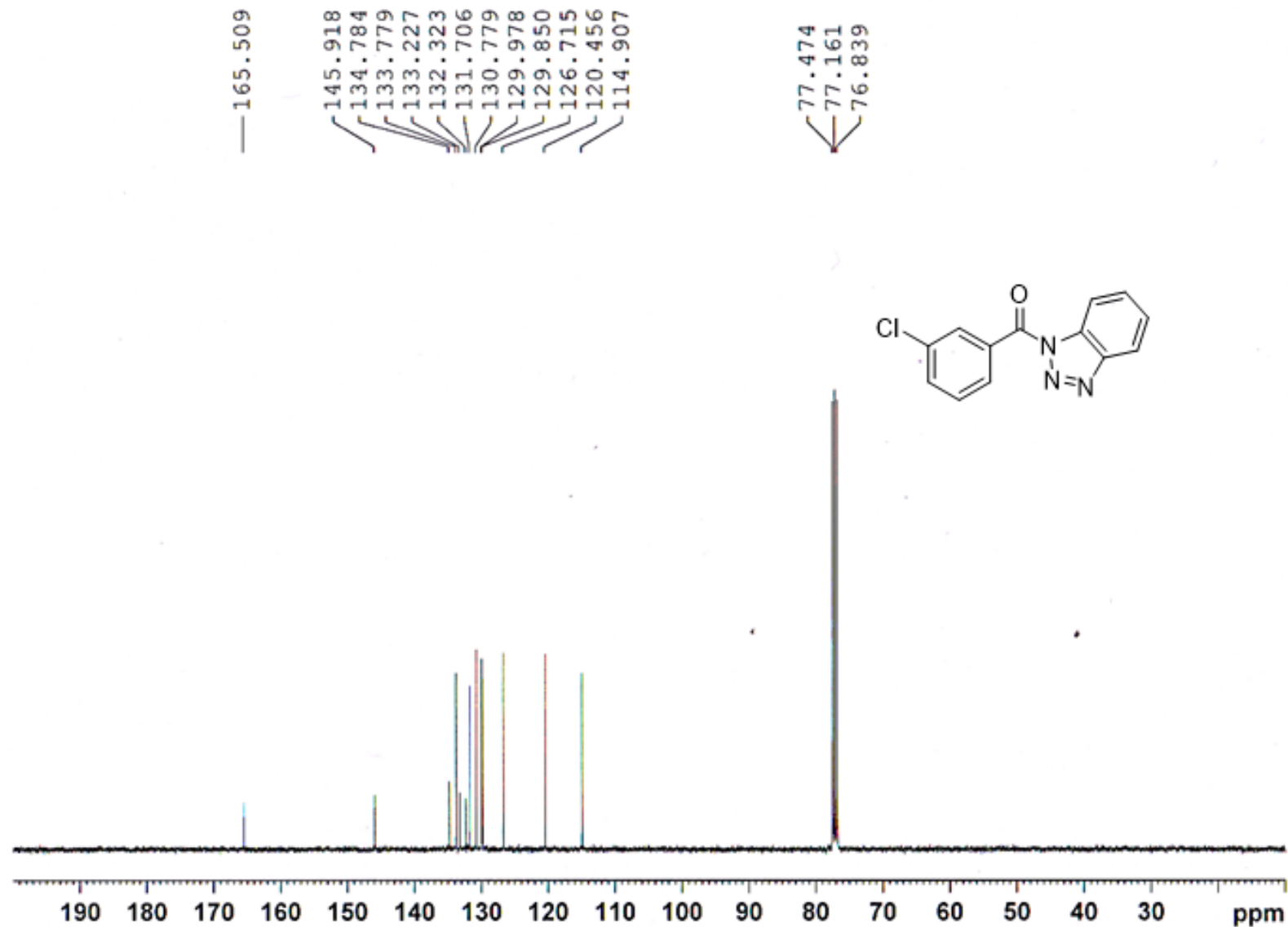
CDC13



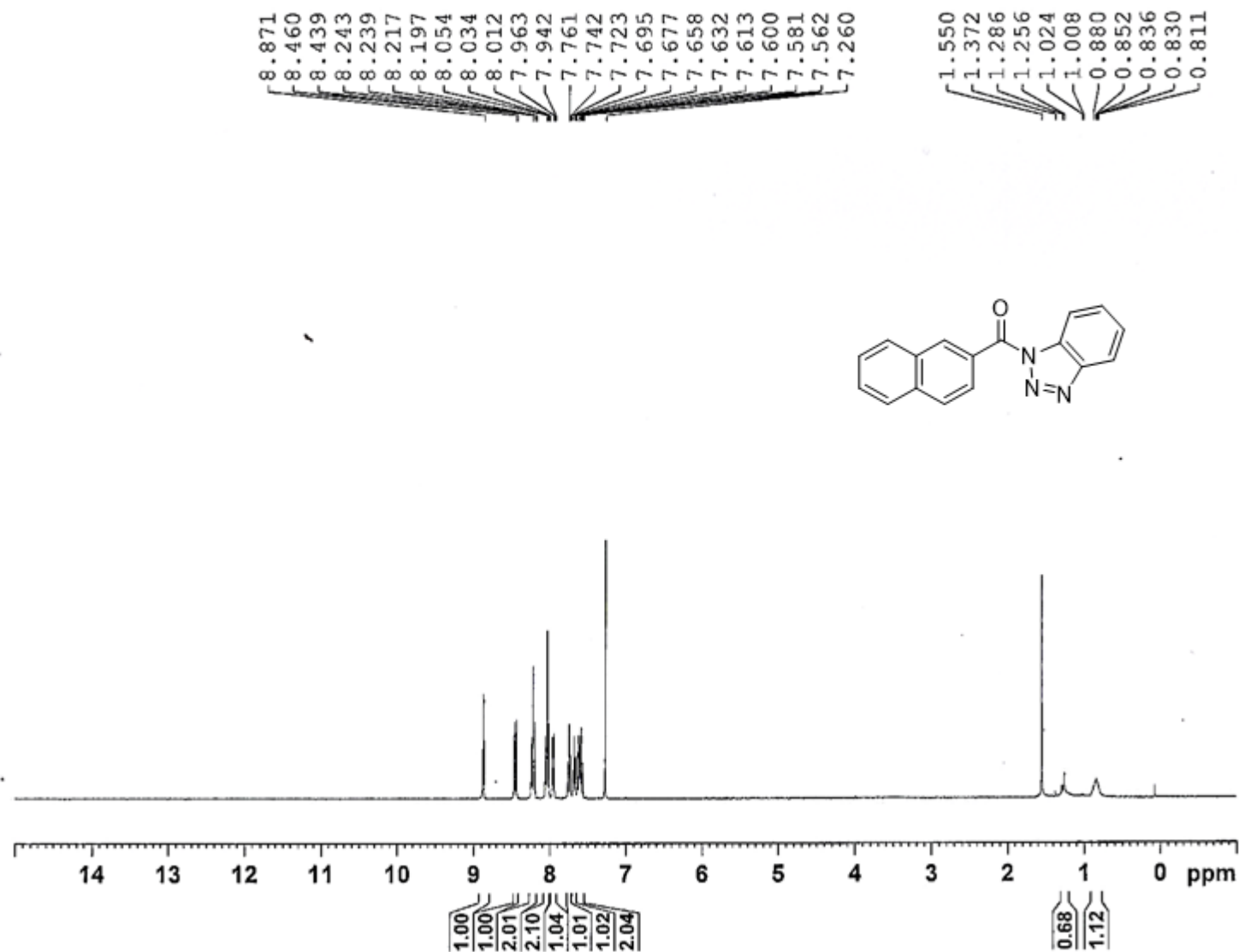
Spectra 25. ¹H NMR (400 MHz, CDCl₃) of compound **2m** [With the impurity of water (1.54 ppm) and grease (1.28, 0.86 ppm)]

J351-202117-065

CDC13 C13CPD

Spectra 26. ¹³C NMR (100 MHz, CDCl₃) of compound 2m

J351-Z02117-059

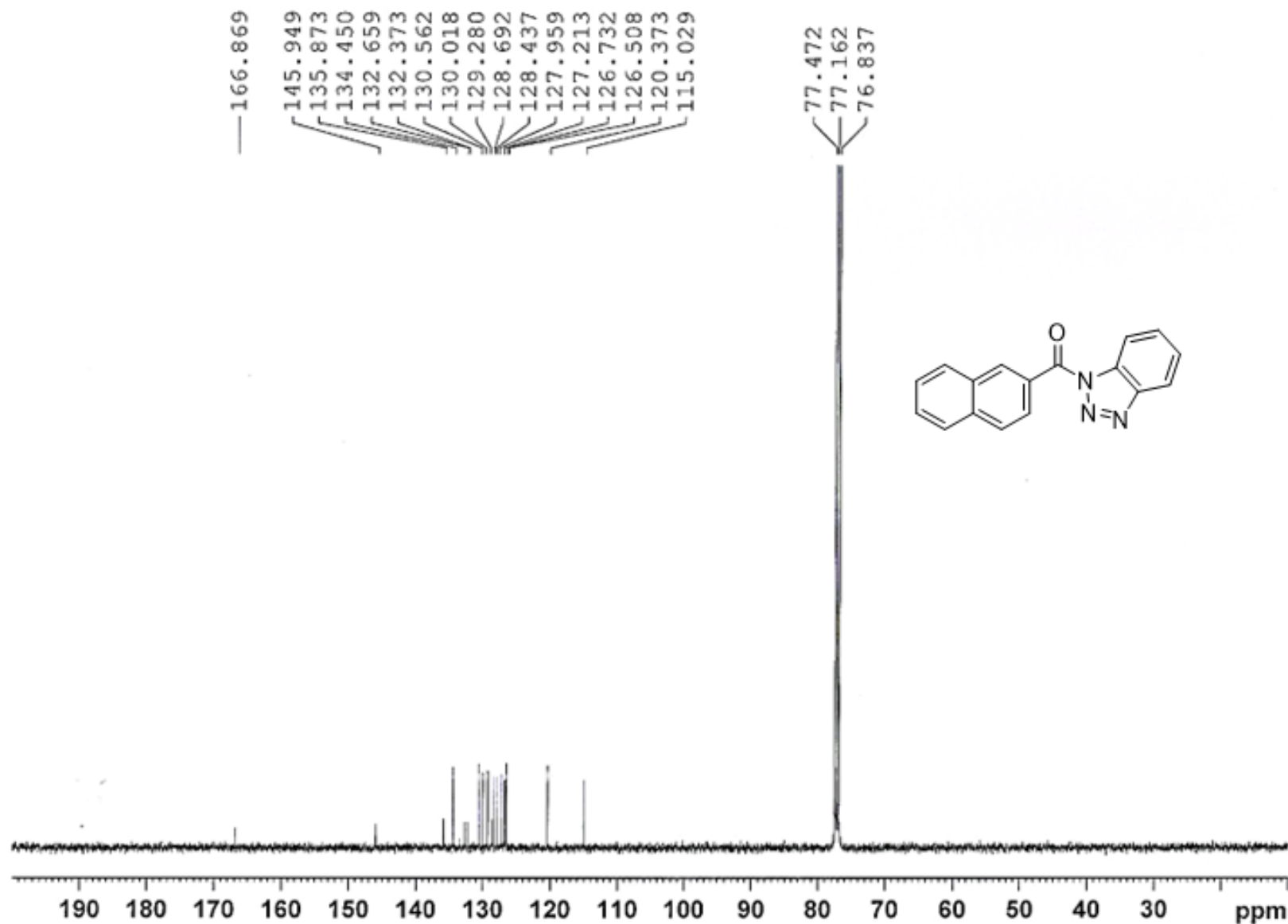
CDCl₃

Spectra 27. ¹H NMR (400 MHz, CDCl₃) of compound **2n** [With the impurity of water (1.55 ppm) and grease (1.27, 0.86 ppm)]

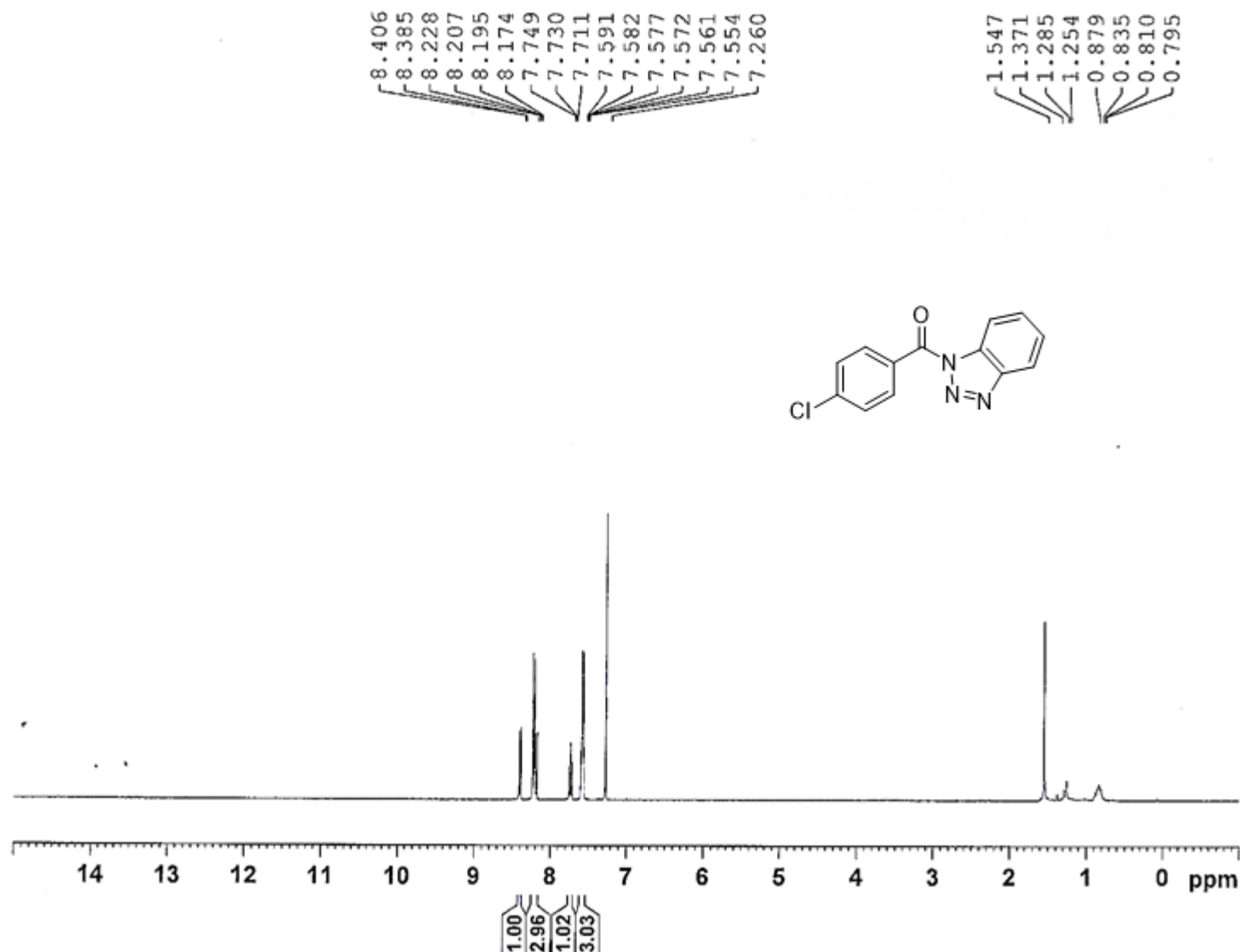
J351-202117-059

CDCl₃

13C

Spectra28. ¹³C NMR (100 MHz, CDCl₃) of compound 2n

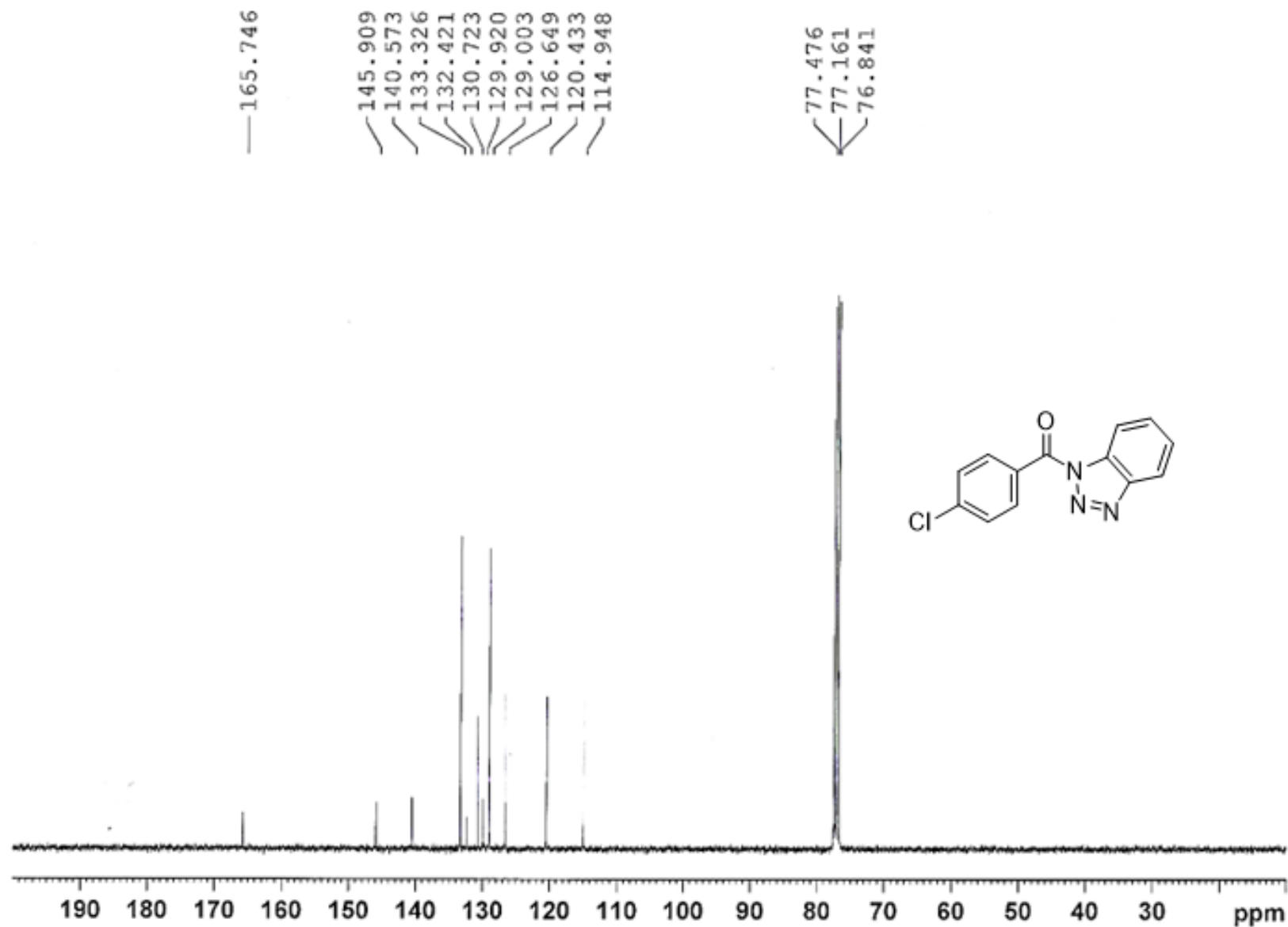
J351-Z02117-099

CDCl₃

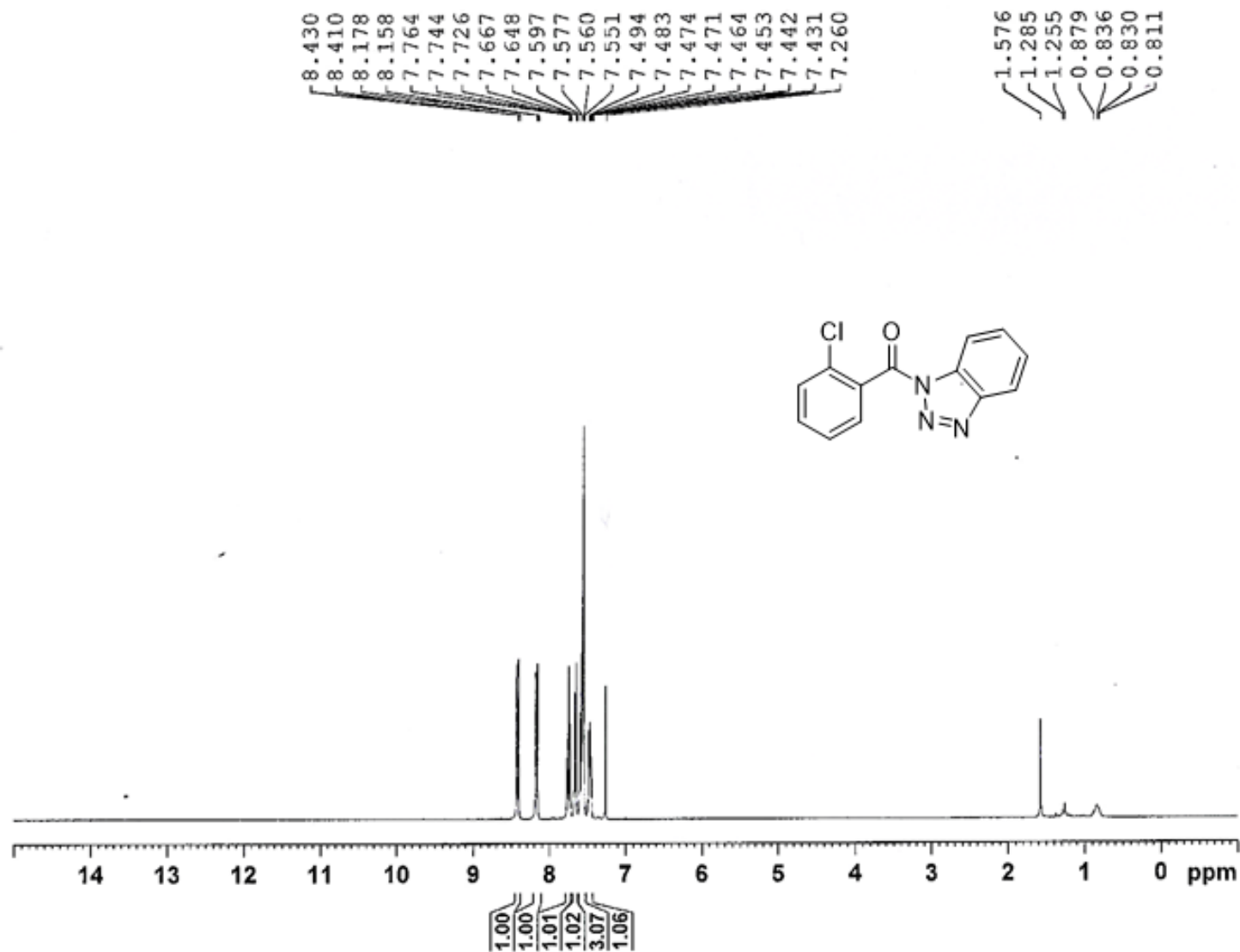
Spectra 29. ¹H NMR (400 MHz, CDCl₃) of compound **2o** [With the impurity of water (1.54 ppm) and grease (1.27, 0.83 ppm)]

J351-202117-099

CDC13 C13CPD

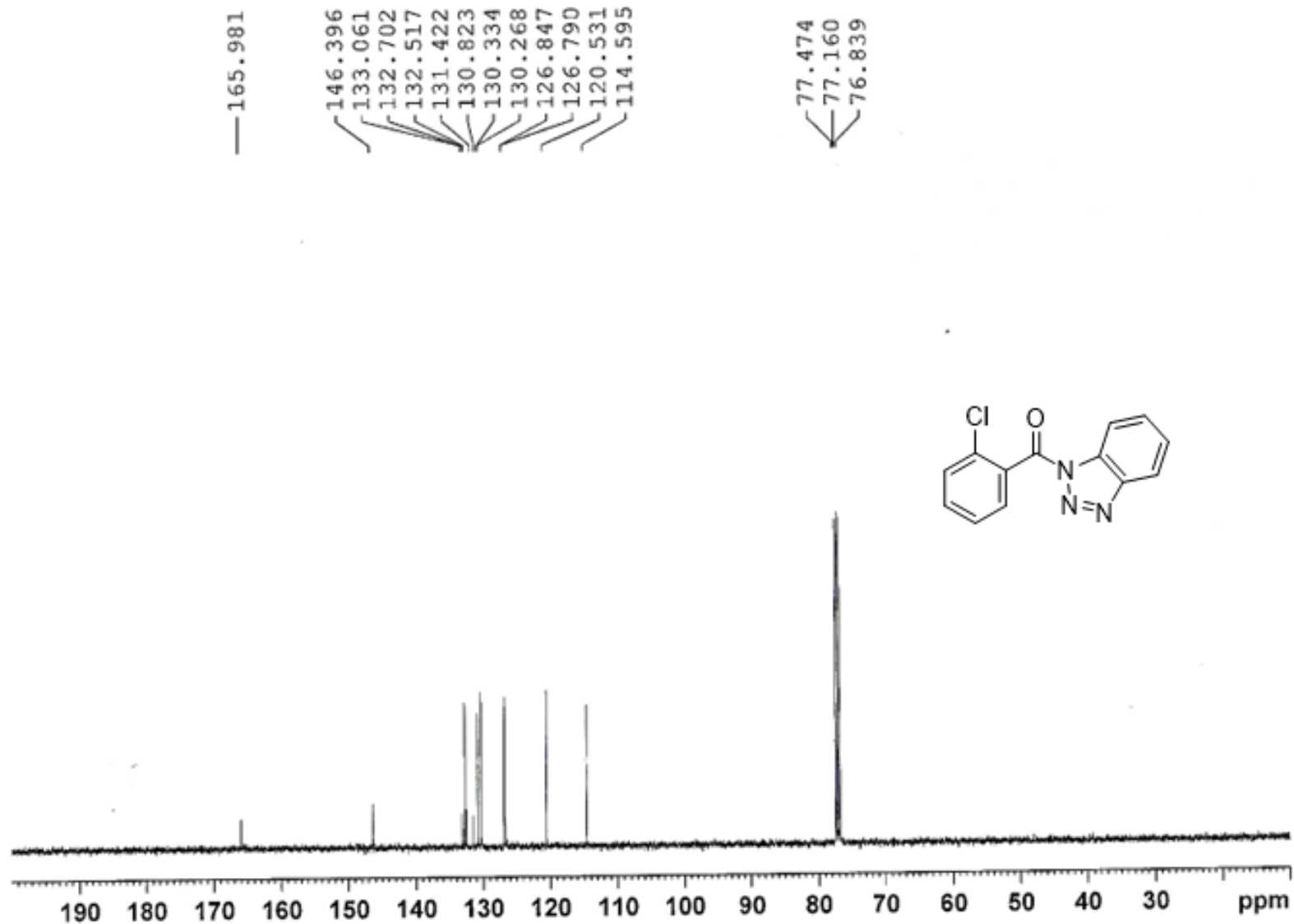
Spectra 30. ¹³C NMR (100 MHz, CDCl₃) of compound **2o**

J351-Z02117-055

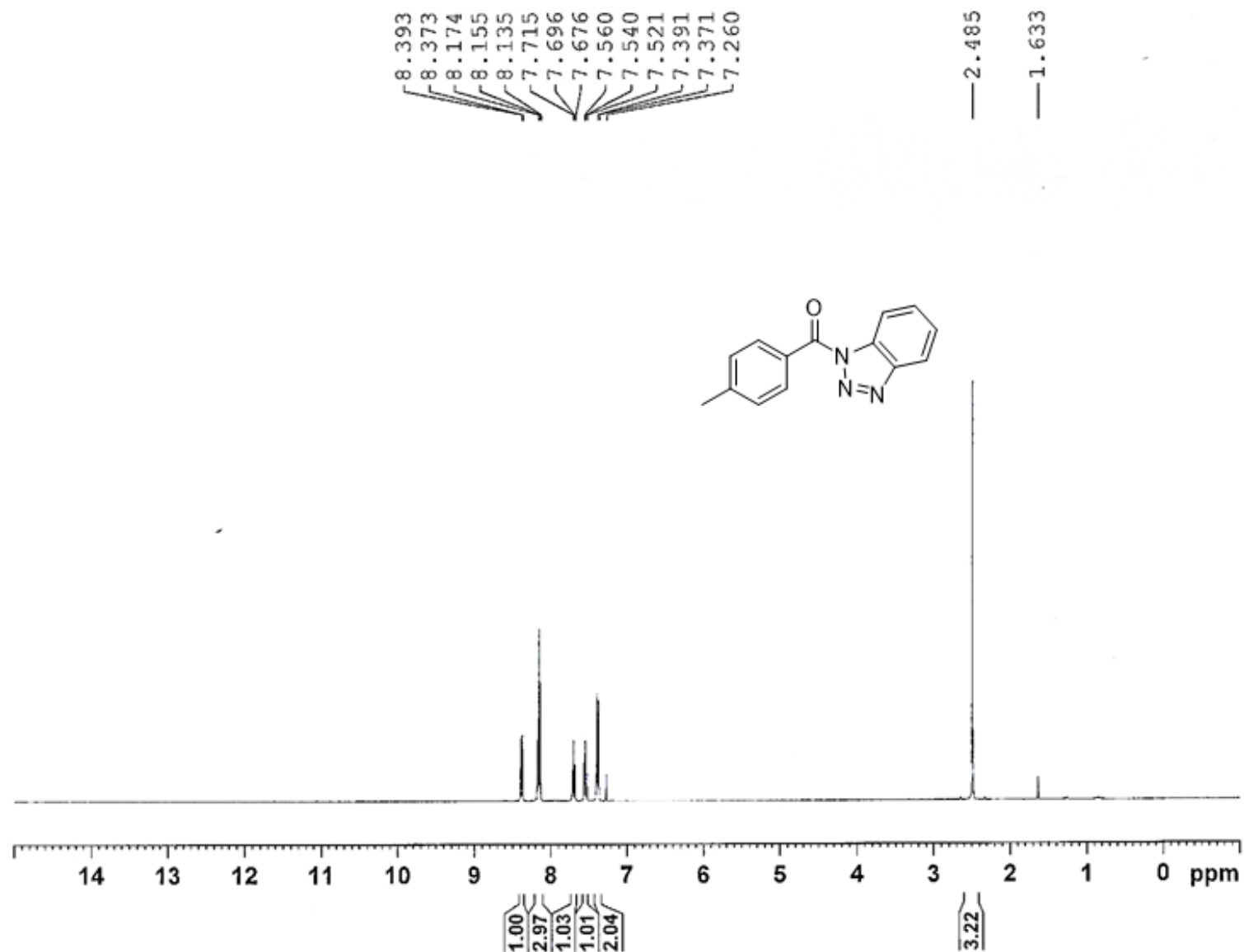
CDCl₃

Spectra 31. ¹H NMR (400 MHz, CDCl₃) of compound **2p** [With the impurity of water (1.57 ppm) and grease (1.27, 0.86 ppm)]

J351-202117-055

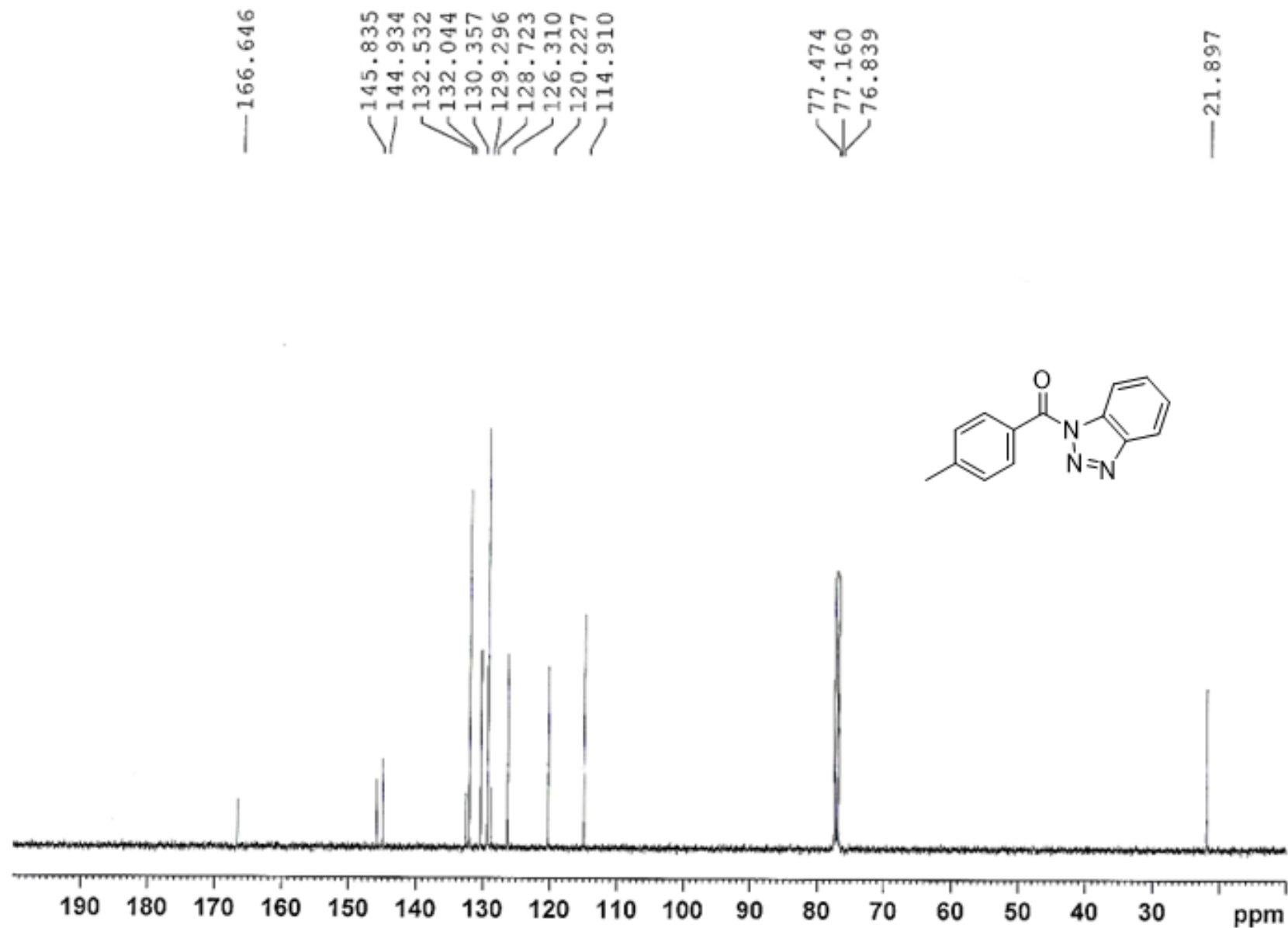
CDCl₃ C13CPDSpectra 32. ¹³C NMR (100 MHz, CDCl₃) of compound 2p

J351-Z02117-079

CDCl₃Spectra 33. ¹H NMR (400 MHz, CDCl₃) of compound **2q**

J351-Z02117-079

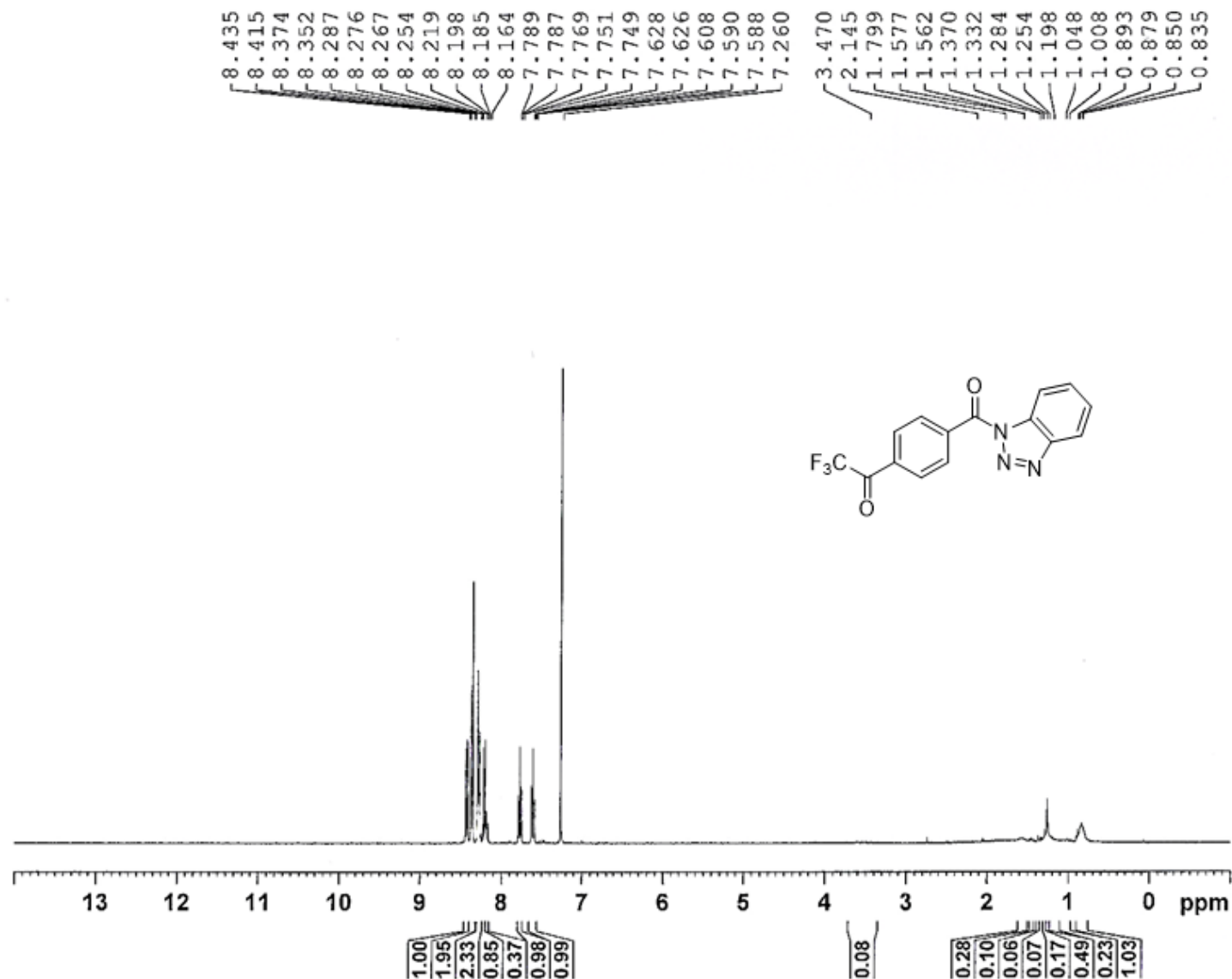
CDC13 C13CPD

Spectra 34. ¹³C NMR (100 MHz, CDCl₃) of compound **2q**

J351-Z02117-091-Fr1

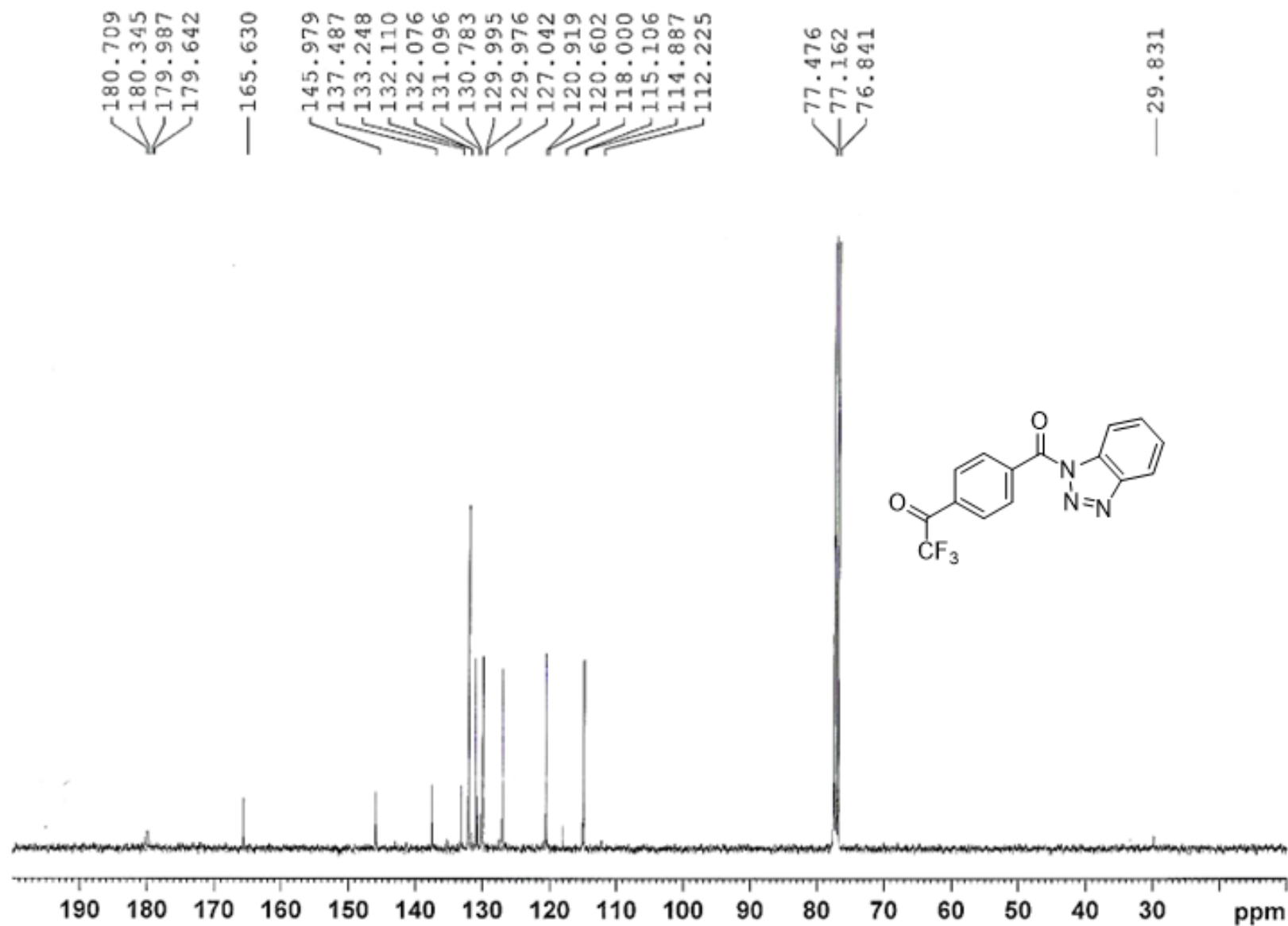
CDCl₃

3

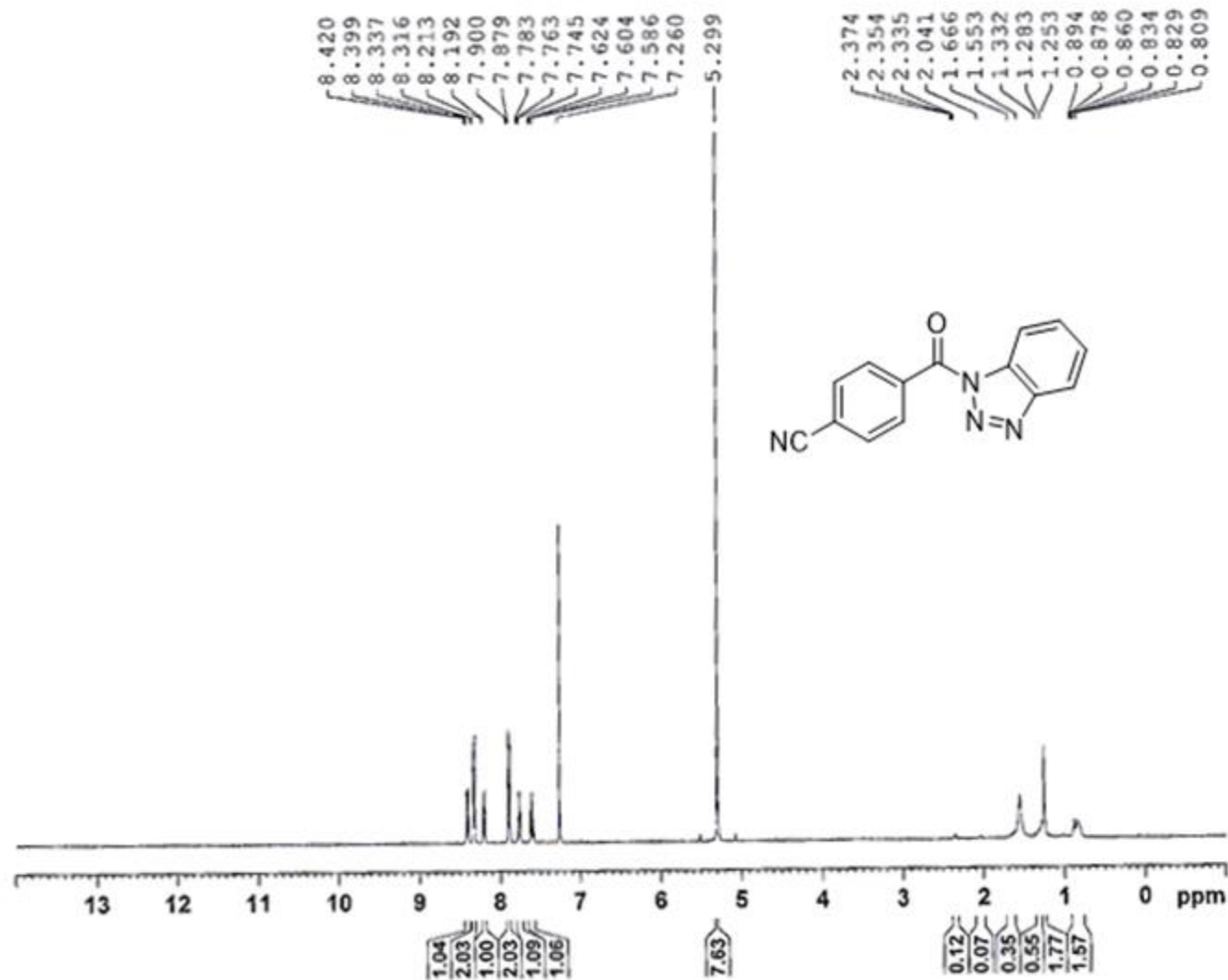


Spectra 35. ¹H NMR (400 MHz, CDCl₃) of compound **2r** [With the impurity of methanol (3.47 ppm), acetone (2.15 ppm), water (1.56 ppm) and grease (1.27, 0.86 ppm)]

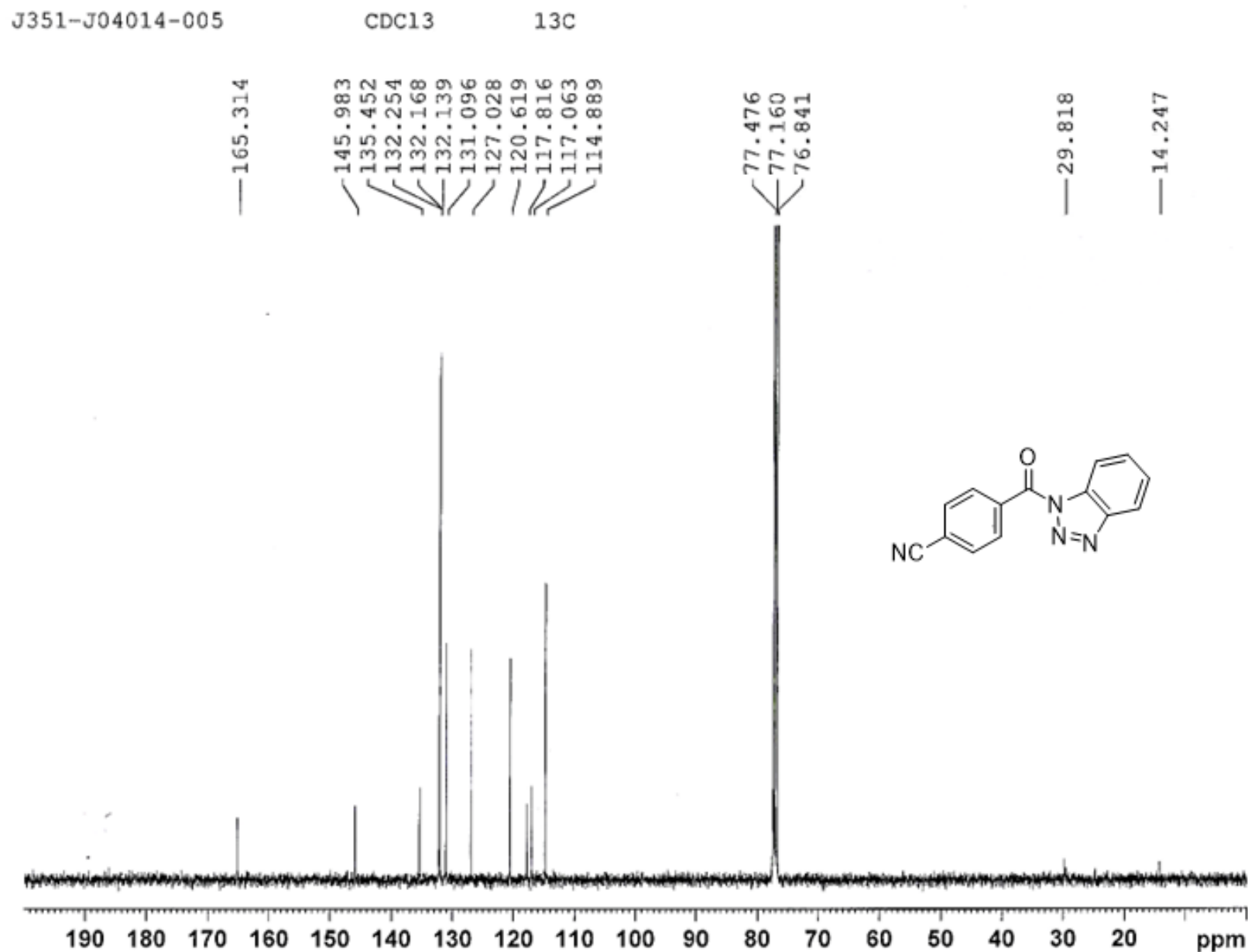
J351-Z02117-091-Fr1

CDCl₃ (P.S)Spectra 36. ¹³C NMR (100 MHz, CDCl₃) of compound 2r

J351-J04014-005

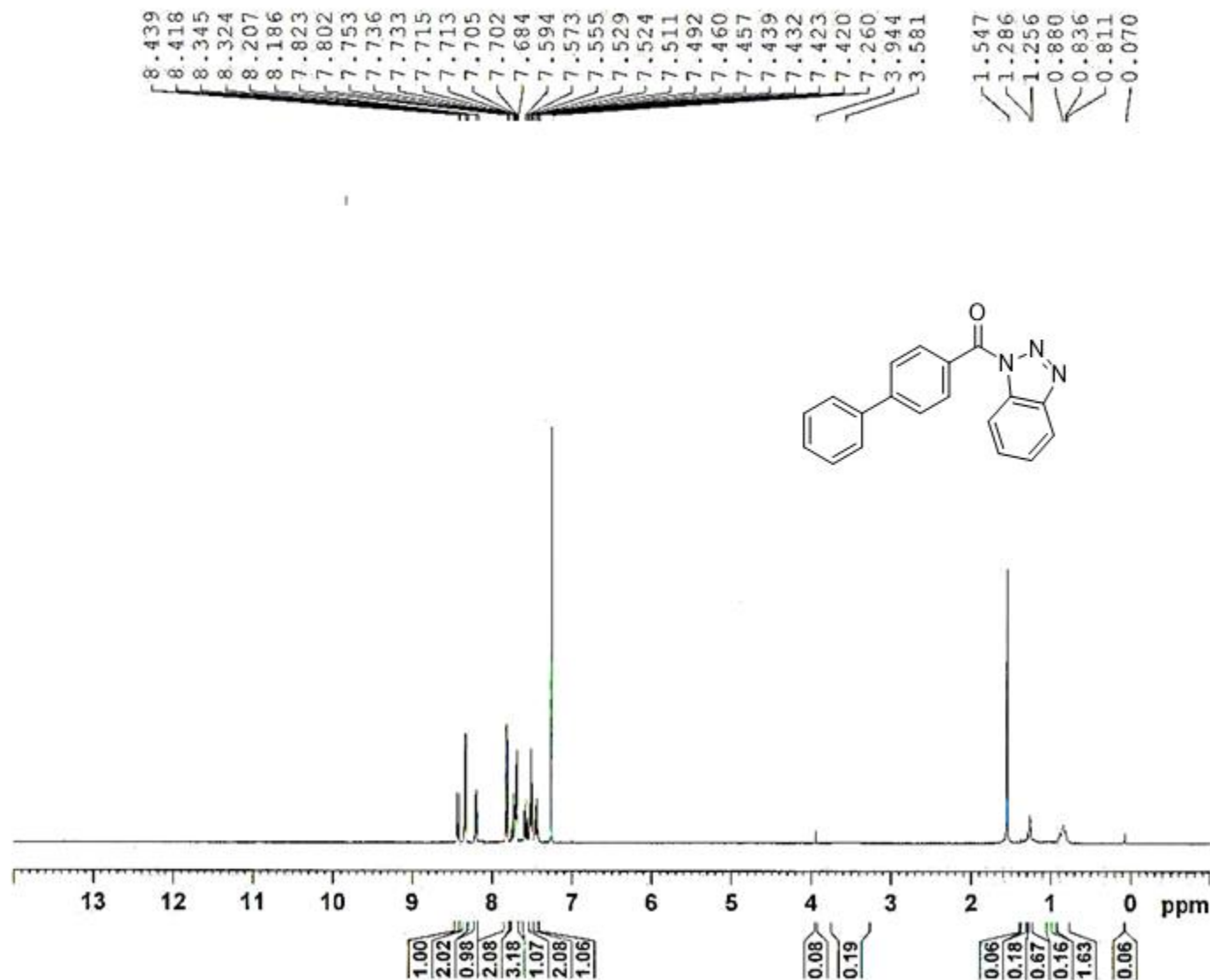
CDCl₃

Spectra 37. ¹H NMR (400 MHz, CDCl₃) of compound **2s** [With the impurity of Dichloromethane (5.29 ppm), water (1.57 ppm) and grease (1.27, 0.86 ppm)]



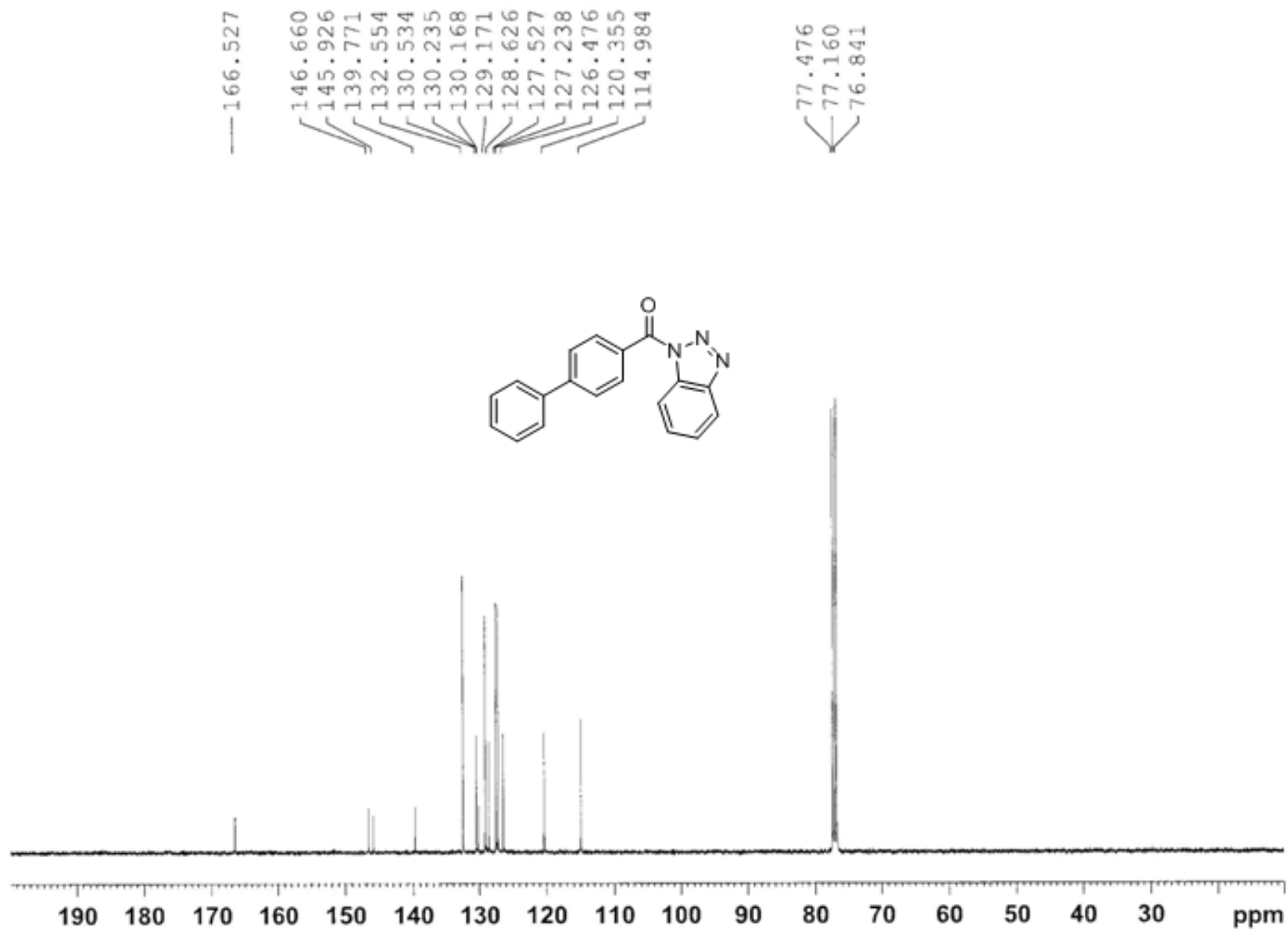
Spectra 38. ¹³C NMR (100 MHz, CDCl₃) of compound **2s** [With the impurity of grease (29.8, 14.2 ppm)]

J351-J04014-007

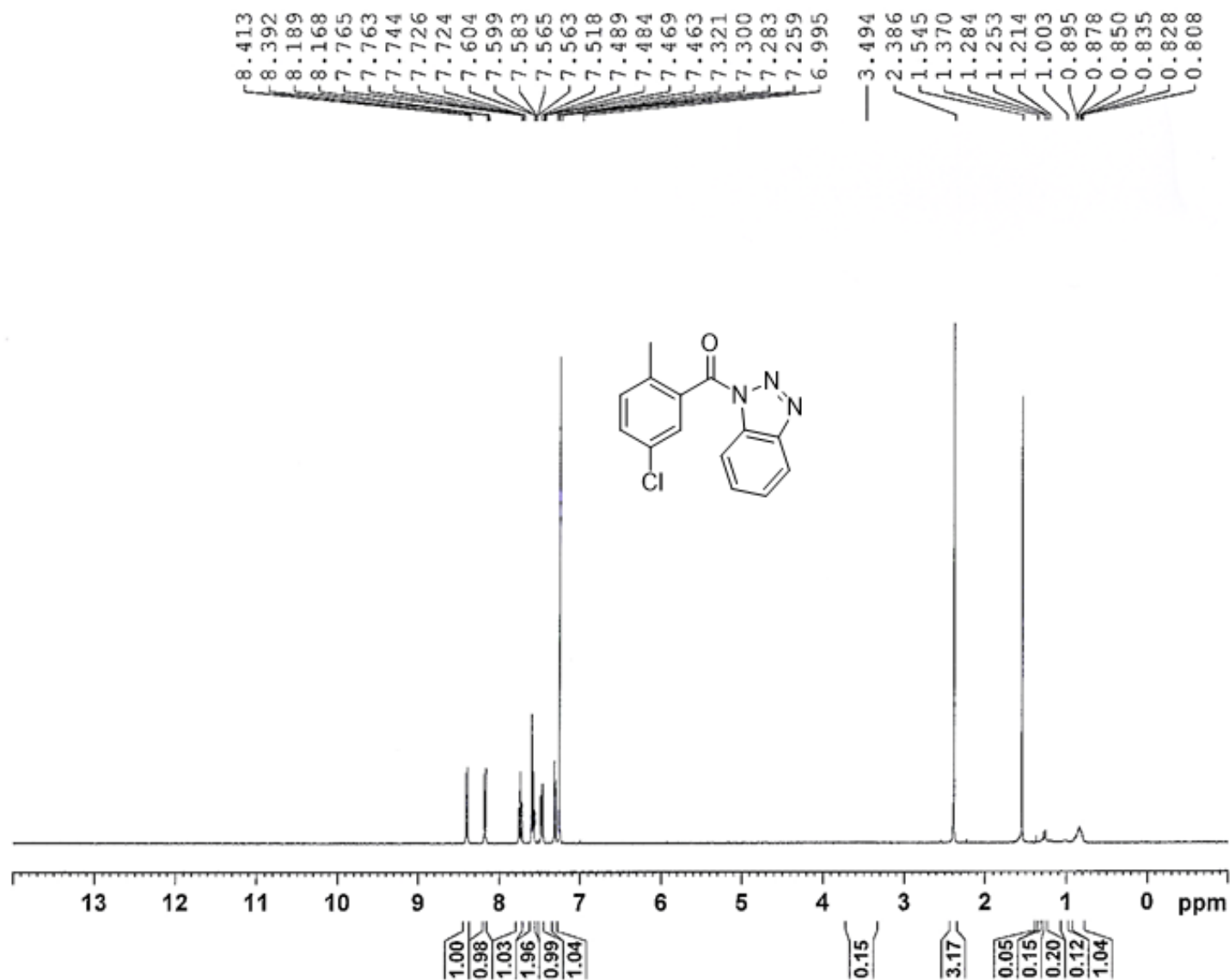
CDCl₃

Spectra 39. ¹H NMR (500 MHz, CDCl₃) of compound **2t** [With the impurity of water (1.54 ppm) and grease (1.27, 0.86 ppm)]

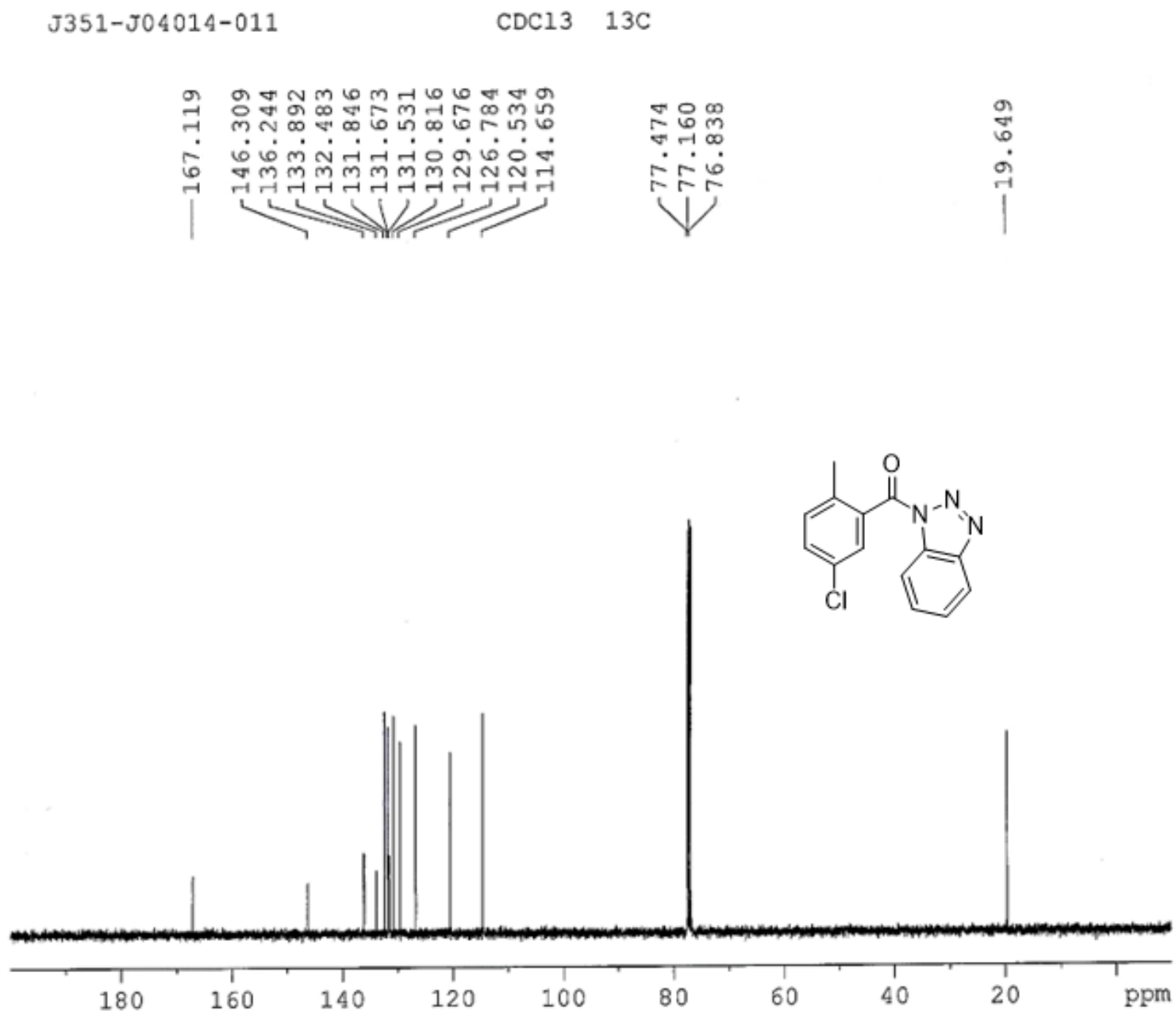
J351-J04014-007

CDCl₃¹³CSpectra 40. ¹³C NMR (100 MHz, CDCl₃) of compound 2t

J351-J04014-011

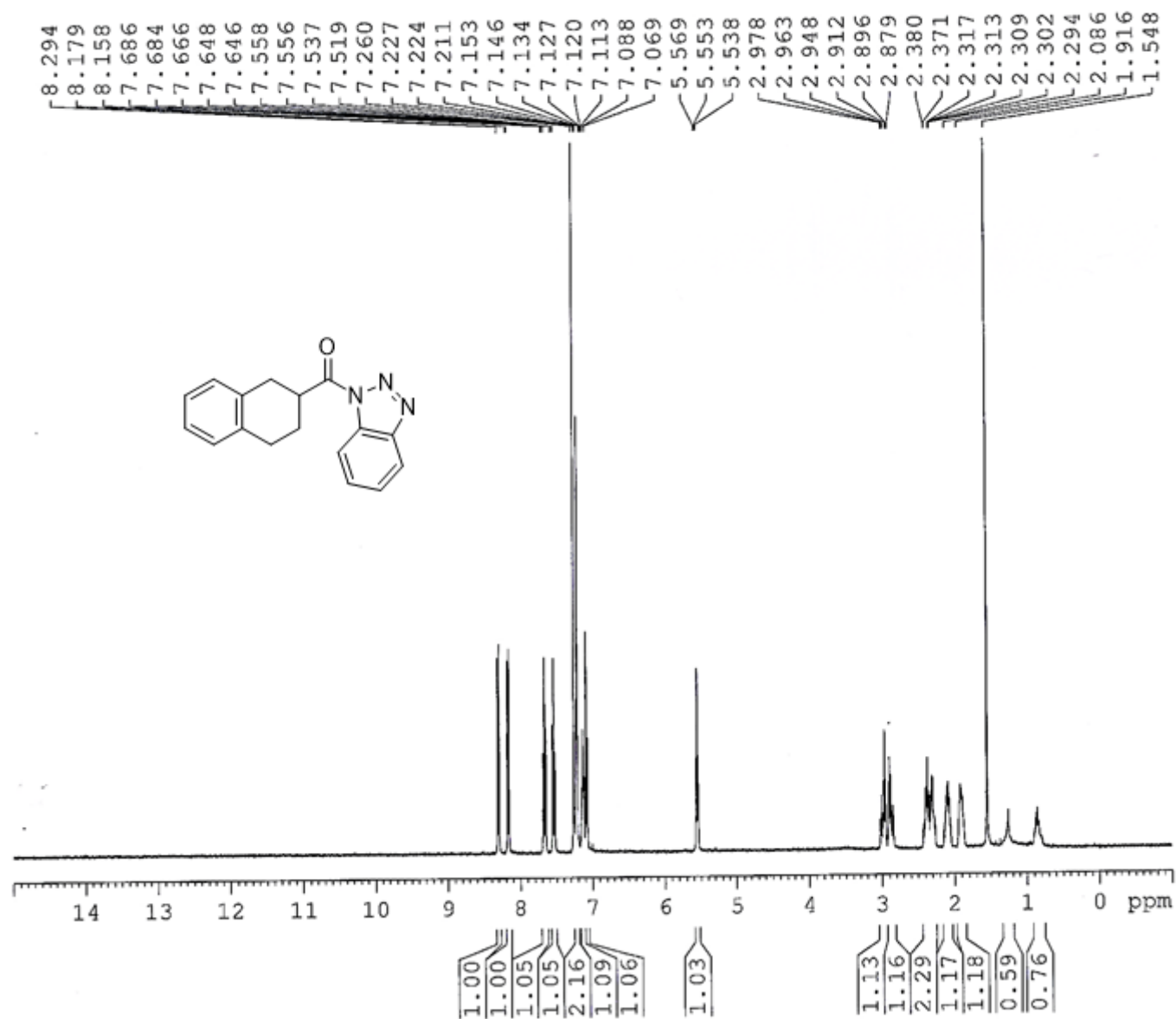
CDCl₃

Spectra 41. ¹H NMR (400 MHz, CDCl₃) of compound **2u** [With the impurity of methanol (3.49 ppm), water (1.54 ppm) and grease (1.27, 0.86 ppm)]

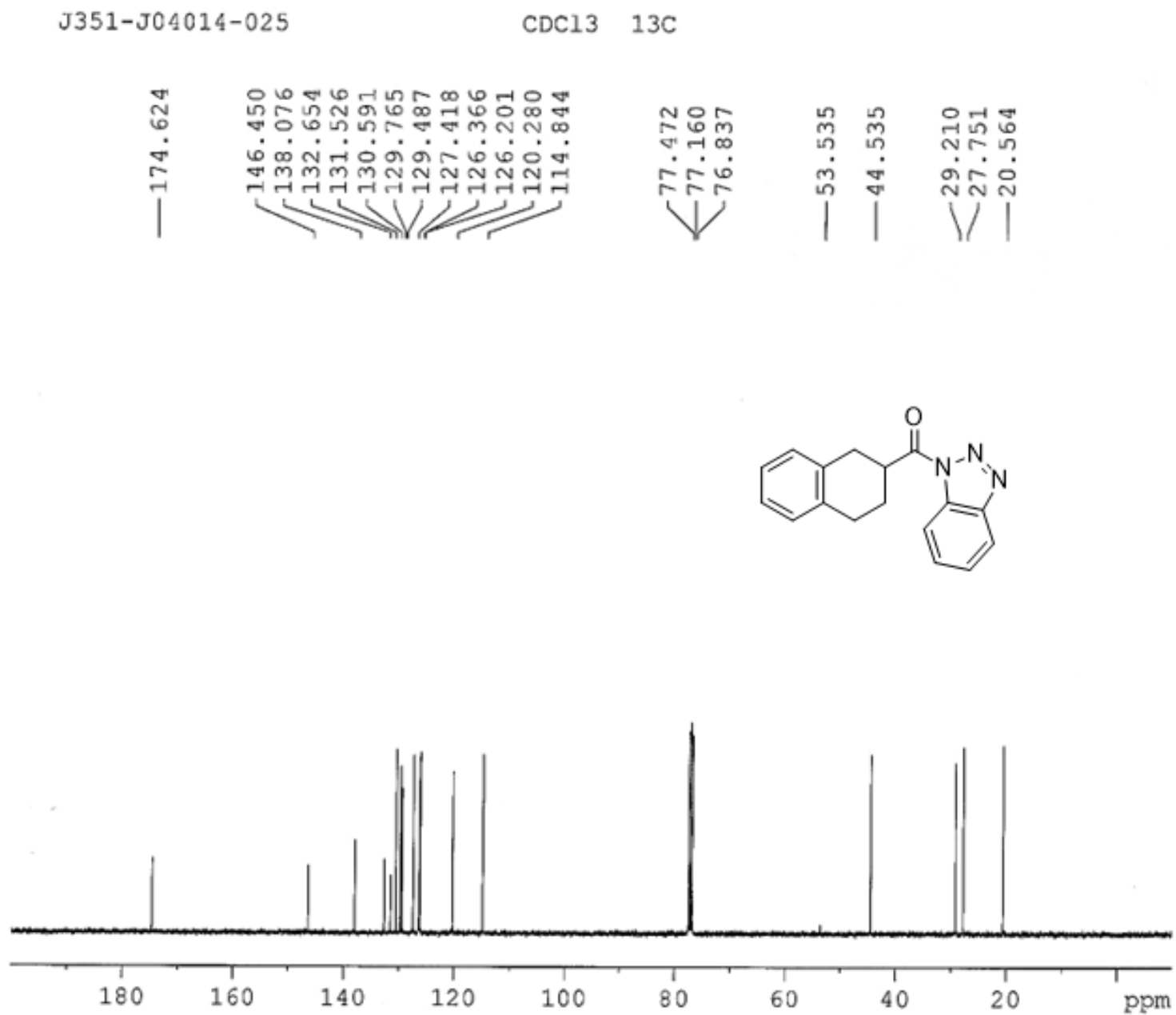


Spectra 42. ^{13}C NMR (100 MHz, CDCl_3) of compound 2u

J351-J04014-025

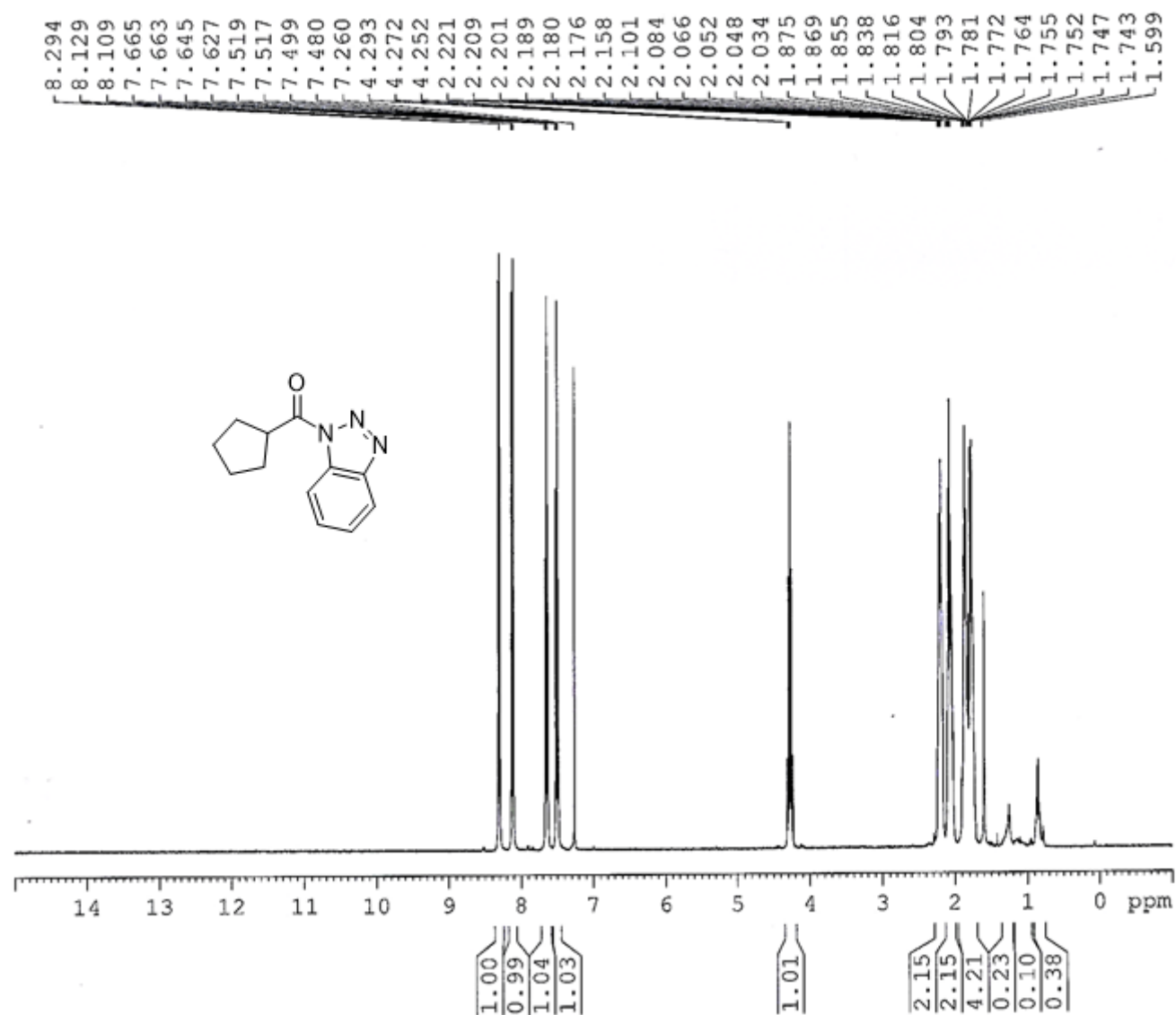
CDCl₃

Spectra 43. ¹H NMR (400 MHz, CDCl₃) of compound **2v** [With the impurity of water (1.54 ppm) and grease (1.27, 0.86 ppm)]

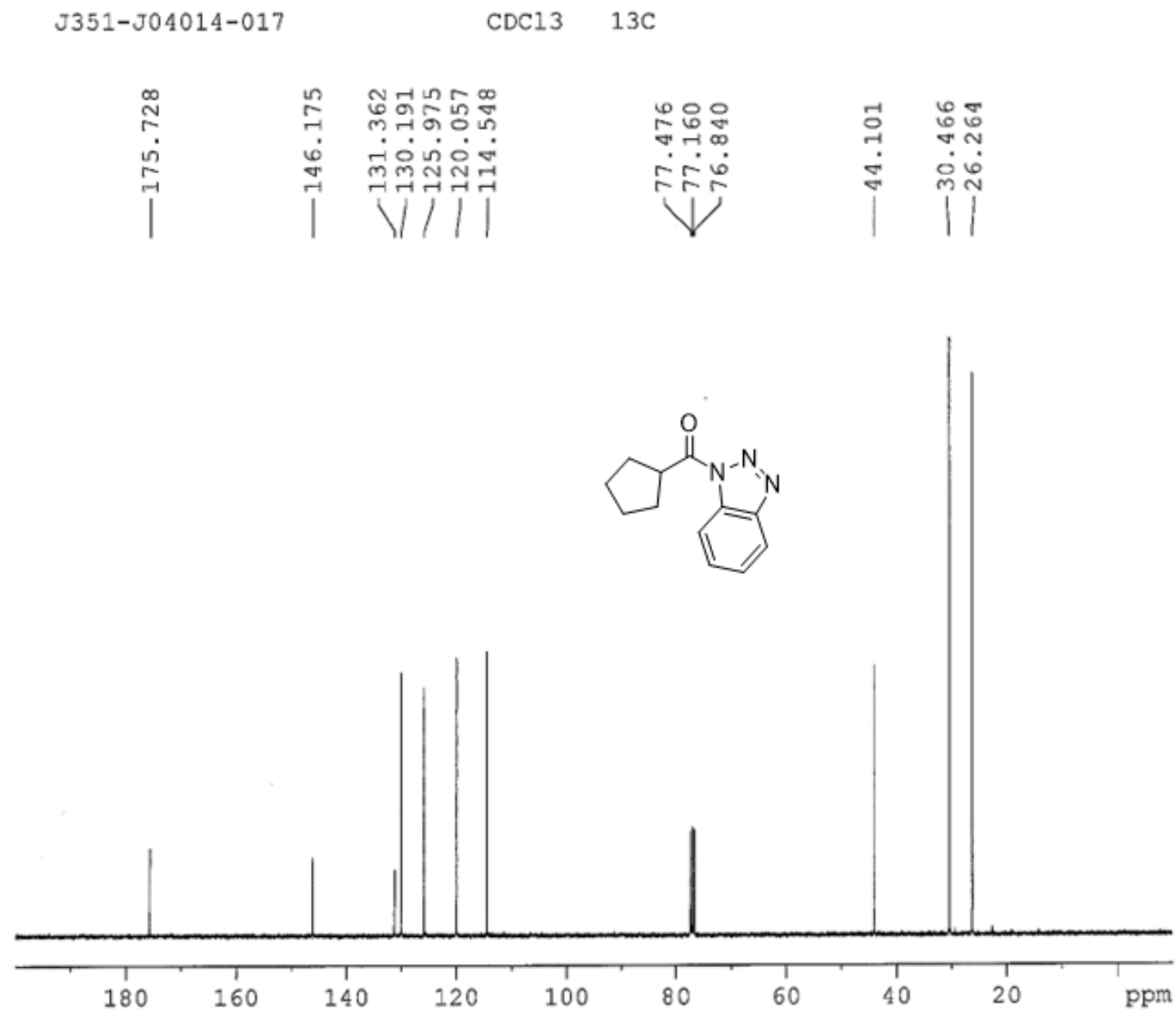


Spectra 44. ^{13}C NMR (100 MHz, CDCl_3) of compound **2v**

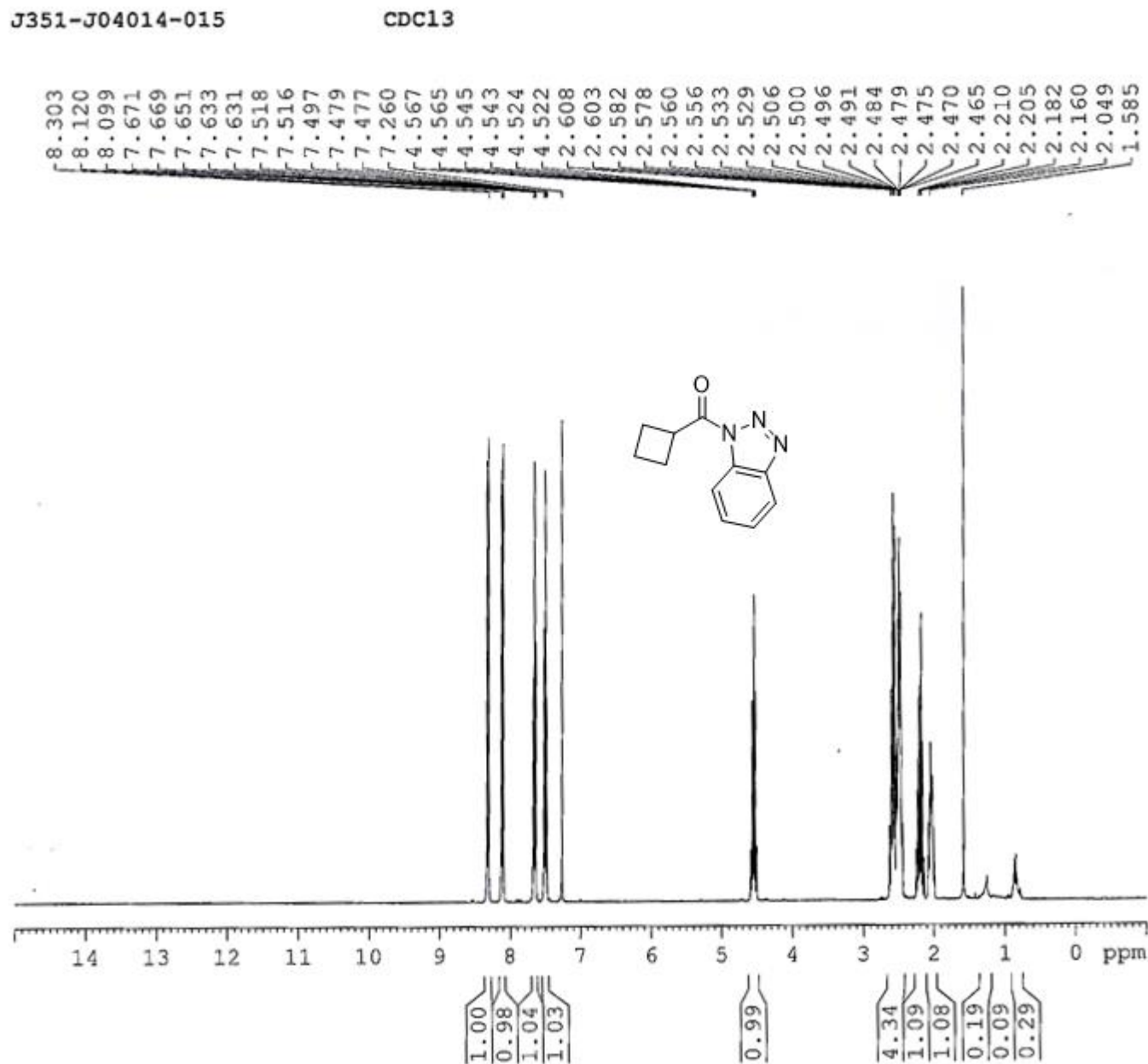
J351-J04014-017

CDCl₃

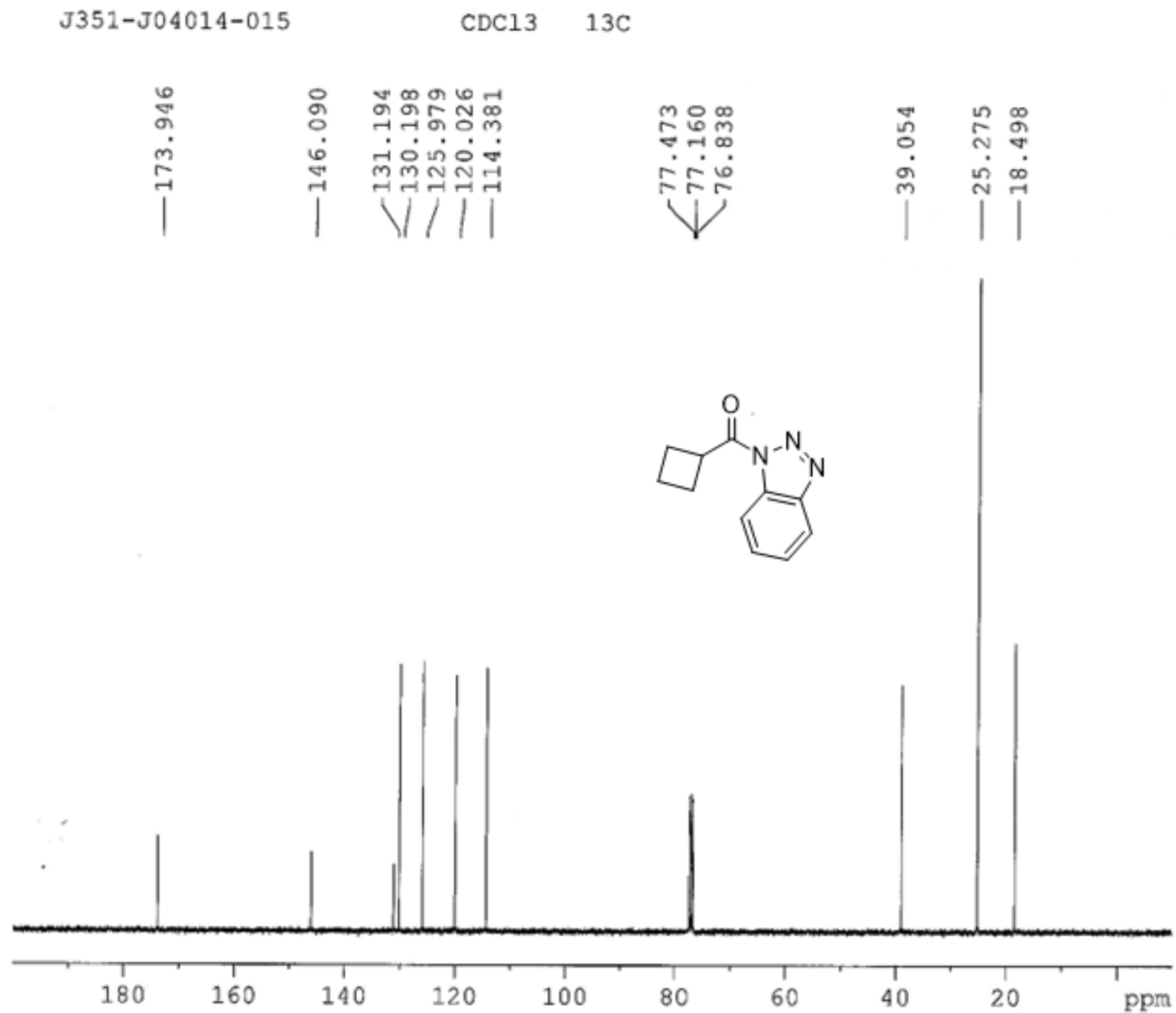
Spectra 45. ¹H NMR (400 MHz, CDCl₃) of compound **2w** [With the impurity of water (1.59 ppm) and grease (1.27, 0.86 ppm)]



Spectra 46. ¹³C NMR (100 MHz, CDCl₃) of compound **2w**

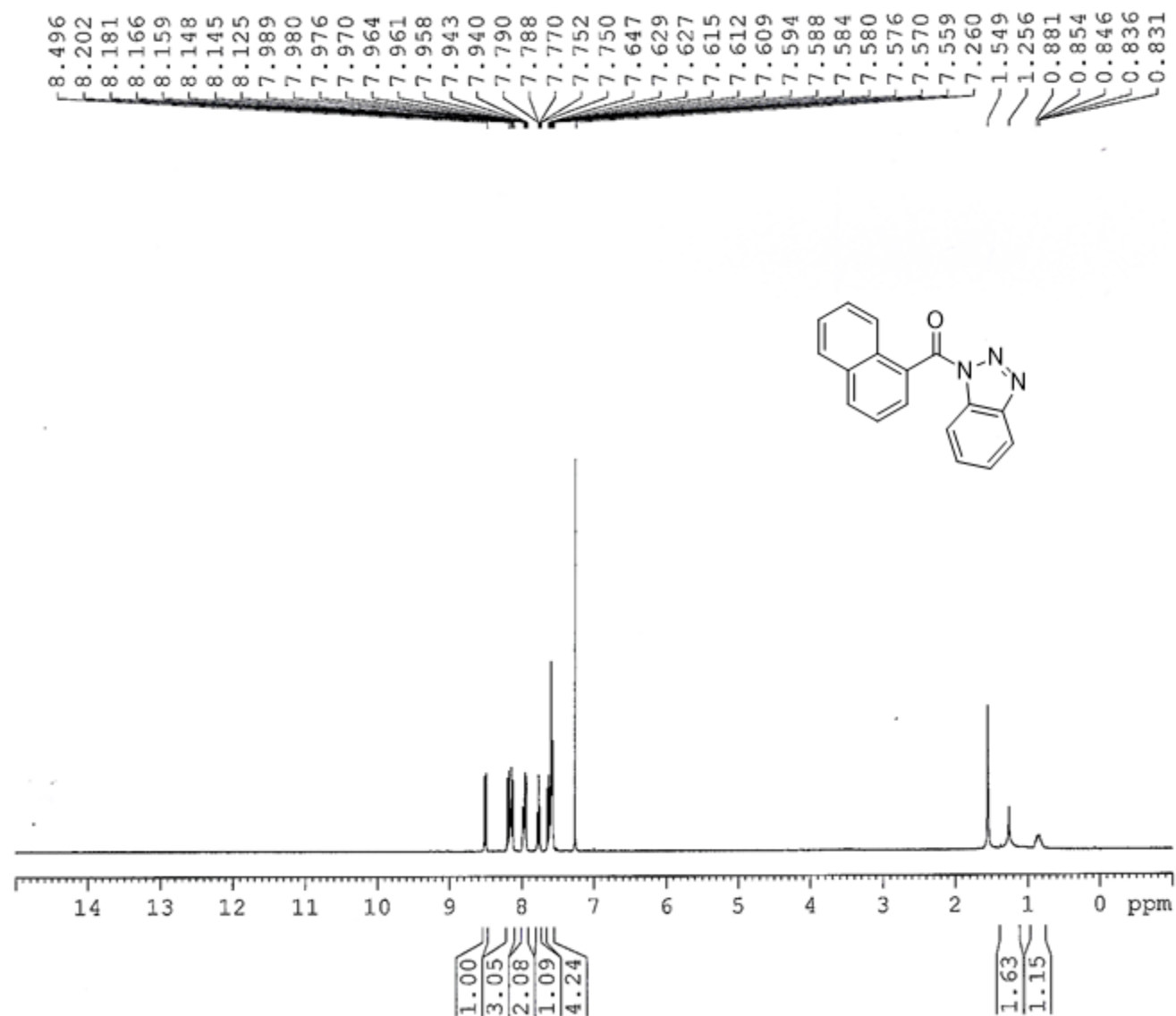


Spectra 47. ^1H NMR (400 MHz CDCl_3) of compound **2x** [With the impurity of water (1.58 ppm) and grease (1.27, 0.86 ppm)]

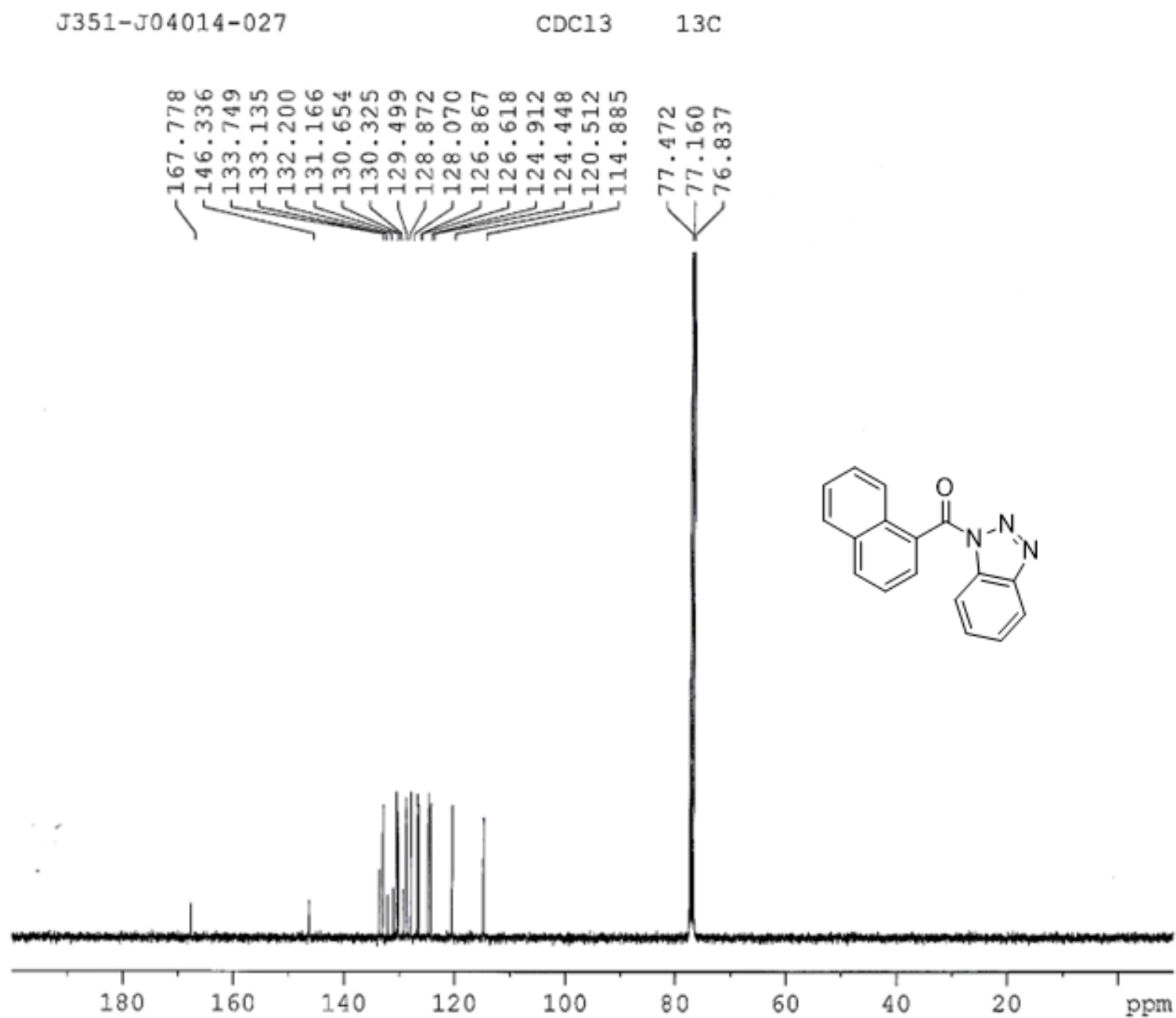


Spectra 48. ^{13}C NMR (100 MHz, CDCl_3) of compound 2x

J351-J04014-027

CDCl₃

Spectra 49. ¹H NMR (400 MHz, CDCl₃) of compound **2y** [With the impurity of water (1.54 ppm) and grease (1.26, 0.86 ppm)]



Spectra 50. ^{13}C NMR (100 MHz, CDCl_3) of compound **2y**