

Supplementary Information for (New Journal of Chemistry):

Design, Synthesis, *in vitro* α -Glucosidase Inhibition, Molecular Modeling, and Kinetic Study of Novel Coumarin Fused Pyridine Derivatives as Potent Antidiabetic Agents

Mehdi Adib^{a*}, Fariba Peytam^a, Mahmoud Rahmanian-Jazi^a, Maryam Mohammadi-Khanaposhtani^b, Shabnam Mahernia^{c,d}, Hamid Reza Bijanzadeh^e, Mehdi Jahani^a, Somaye Imanparast^f, Mohammad Ali Faramarzi^f, Mohammad Mahdavi^g and Bagher Larijani^{g*}

^a *School of Chemistry, College of Science, University of Tehran, PO Box 14155-6455, Tehran, Iran*

^b *Cellular and Molecular Biology Research Center, Health Research Institute, Babol University of Medical Sciences, Babol, Iran*

^c *Department of Medicinal Chemistry, Drug Design and Development Research Center, Faculty of Pharmacy, Tehran University of Medical Sciences, Tehran, Iran*

^d *Pharmaceutical Sciences Research Center, The Institute of Pharmaceutical Sciences, Tehran University of Medical Sciences, Tehran, Iran*

^e *Environmental Science Department, Faculty of Natural Resources and Marine Sciences, Tarbiat Modares University, Tehran, Iran*

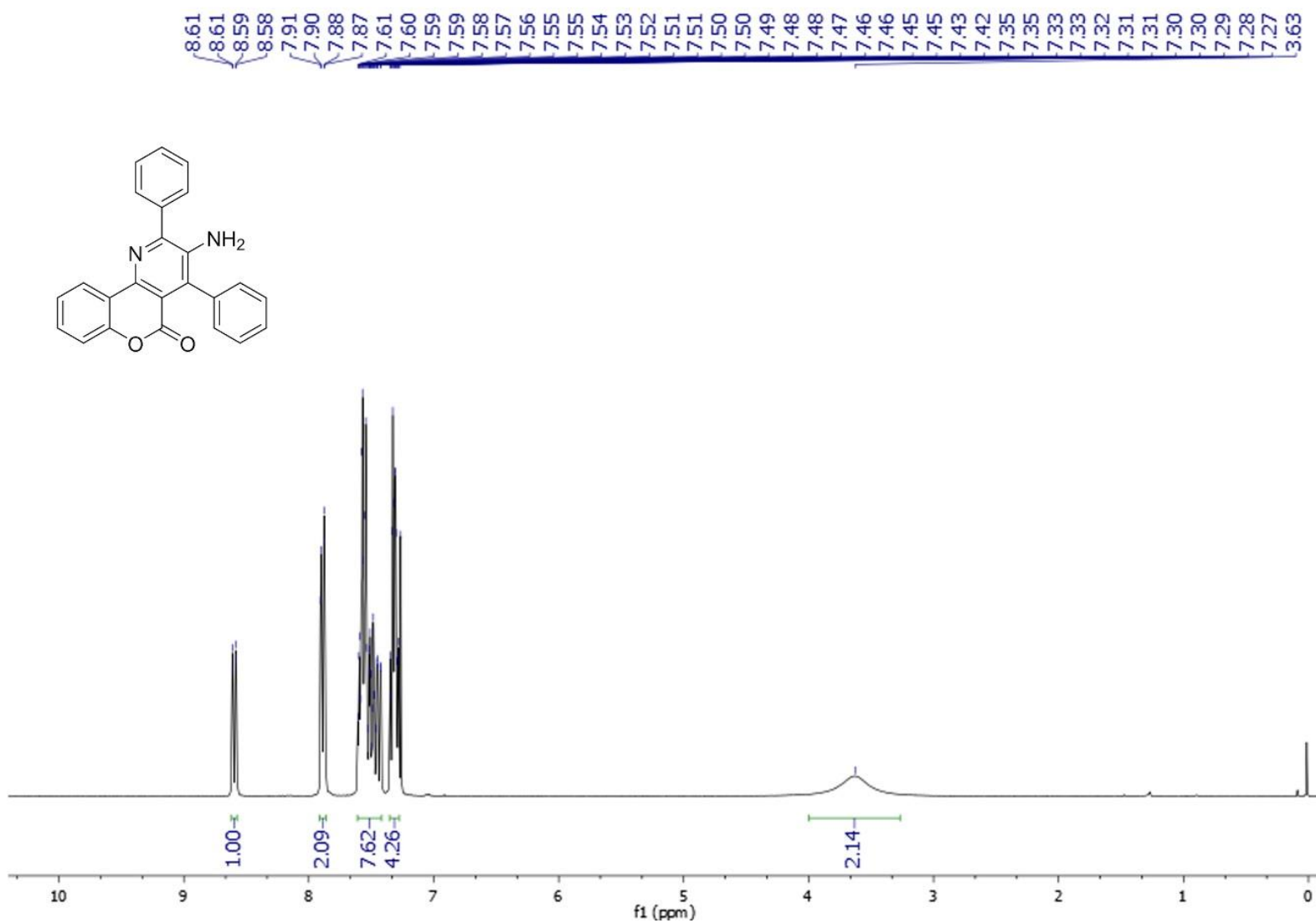
^f *Department of Pharmaceutical Biotechnology, Faculty of Pharmacy and Biotechnology Research Center, Tehran University of Medical Sciences, Tehran, Iran*

^g *Endocrinology and Metabolism Research Center, Endocrinology and Metabolism Clinical Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran*

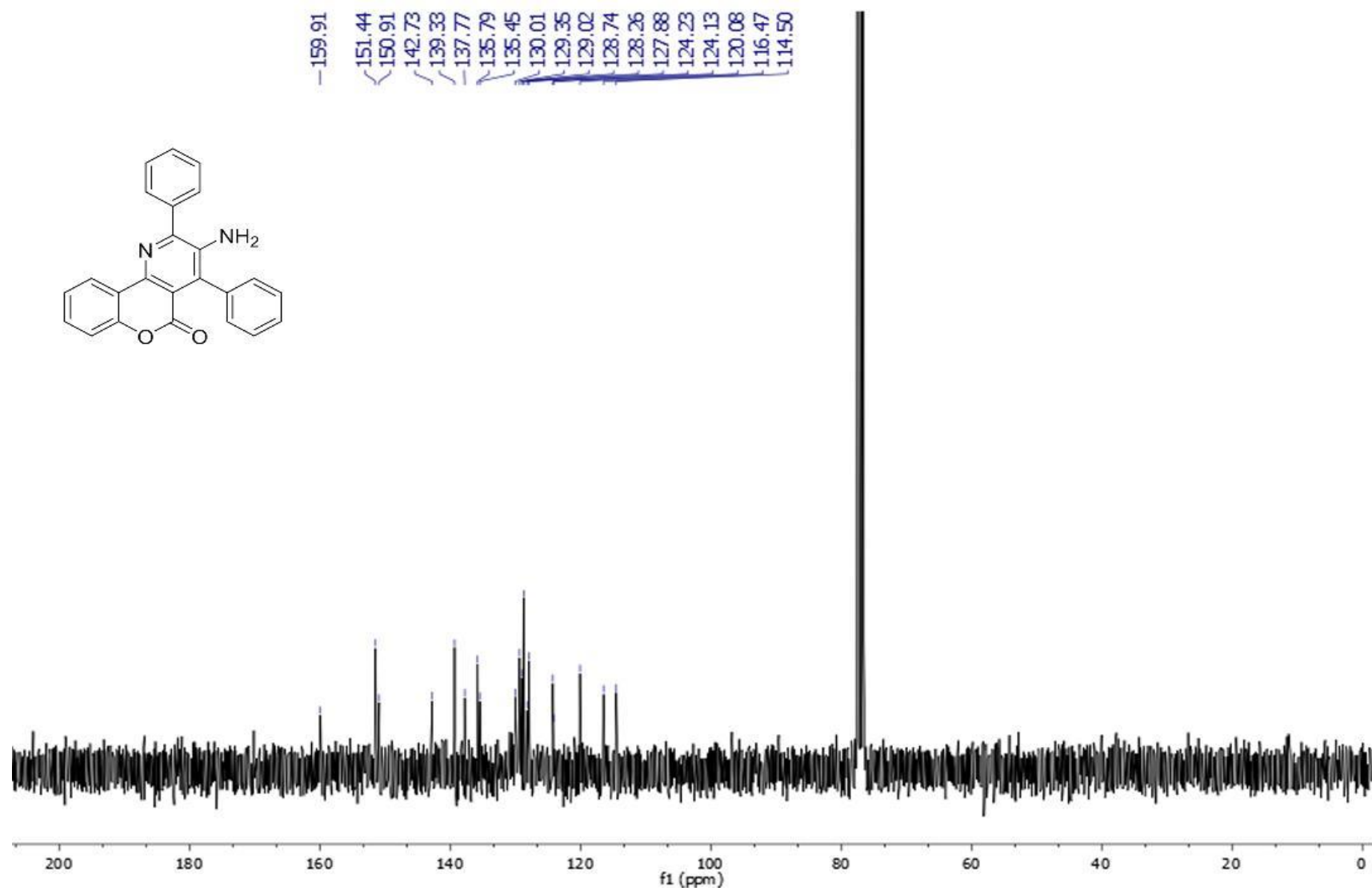
List of contents	Page
Title, author's name address and Table	S1–S2
¹ H NMR spectrum of 4a	S3
¹³ C NMR spectrum of 4a	S4

¹ H NMR spectrum of 4b	S5
¹³ C NMR spectrum of 4b	S6
¹ H NMR spectrum of 4c	S7
¹³ C NMR spectrum of 4c	S8
¹ H NMR spectrum of 4d	S9
¹³ C NMR spectrum of 4d	S10
¹ H NMR spectrum of 4e	S11
¹³ C NMR spectrum of 4e	S12
¹ H NMR spectrum of 4f	S13
¹³ C NMR spectrum of 4f	S14
¹ H NMR spectrum of 4g	S15
¹³ C NMR spectrum of 4g	S16
¹ H NMR spectrum of 4h	S17
¹³ C NMR spectrum of 4h	S18
¹ H NMR spectrum of 4i	S19
¹³ C NMR spectrum of 4i	S20
¹ H NMR spectrum of 4j	S21
¹³ C NMR spectrum of 4j	S22
¹ H NMR spectrum of 4k	S23
¹³ C NMR spectrum of 4k	S24
¹ H NMR spectrum of 4l	S25
¹³ C NMR spectrum of 4l	S26
¹ H NMR spectrum of 4m	S27
¹³ C NMR spectrum of 4m	S28
¹ H NMR spectrum of 4n	S29
¹³ C NMR spectrum of 4n	S30
¹ H NMR spectrum of 4o	S31
¹³ C NMR spectrum of 4o	S32
¹ H NMR spectrum of 4p	S33
¹³ C NMR spectrum of 4p	S34

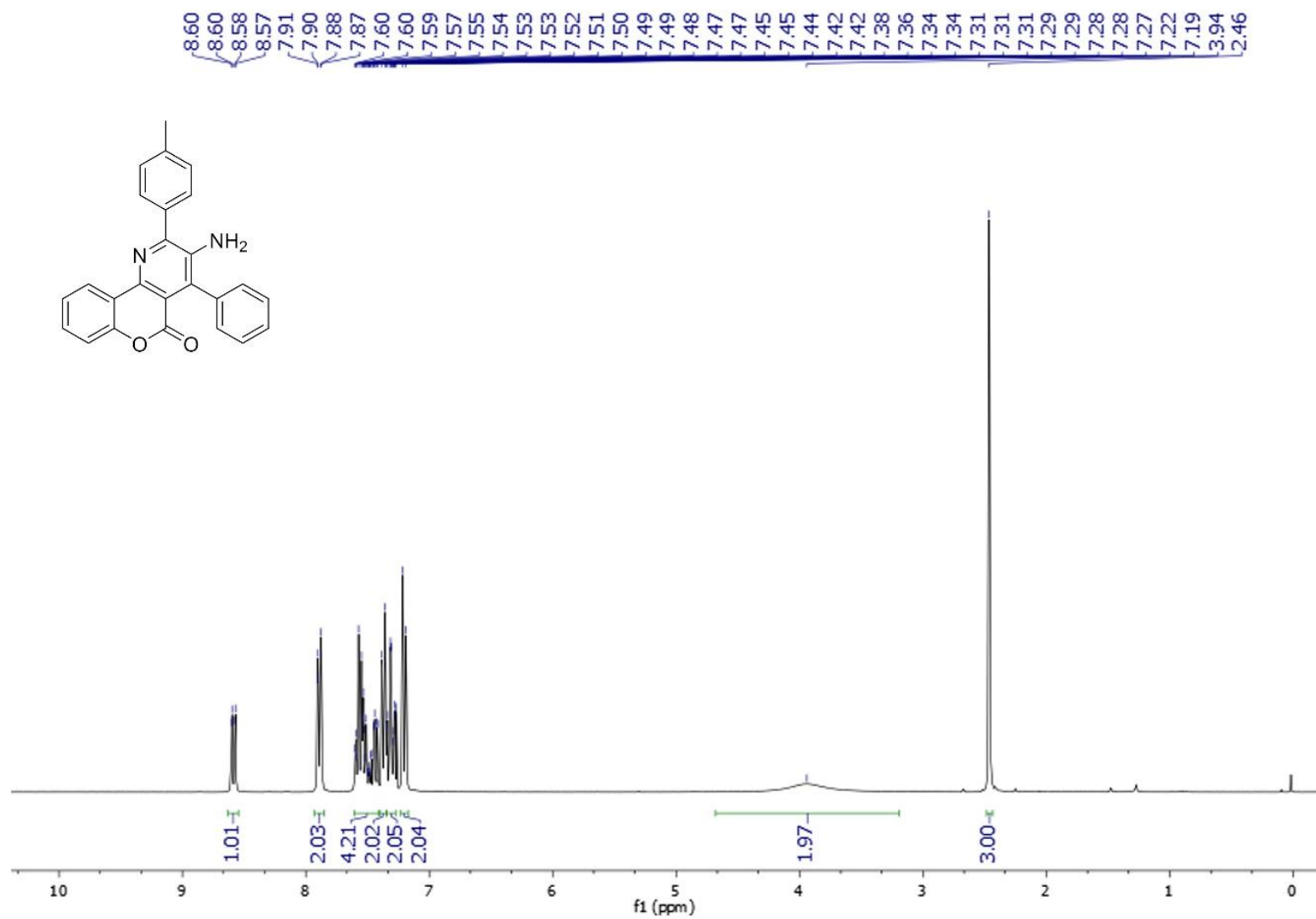
¹H NMR spectrum of 3-Amino-2,4-diphenyl-5H-chromeno[4,3-b]pyridine-5-one (**4a**)



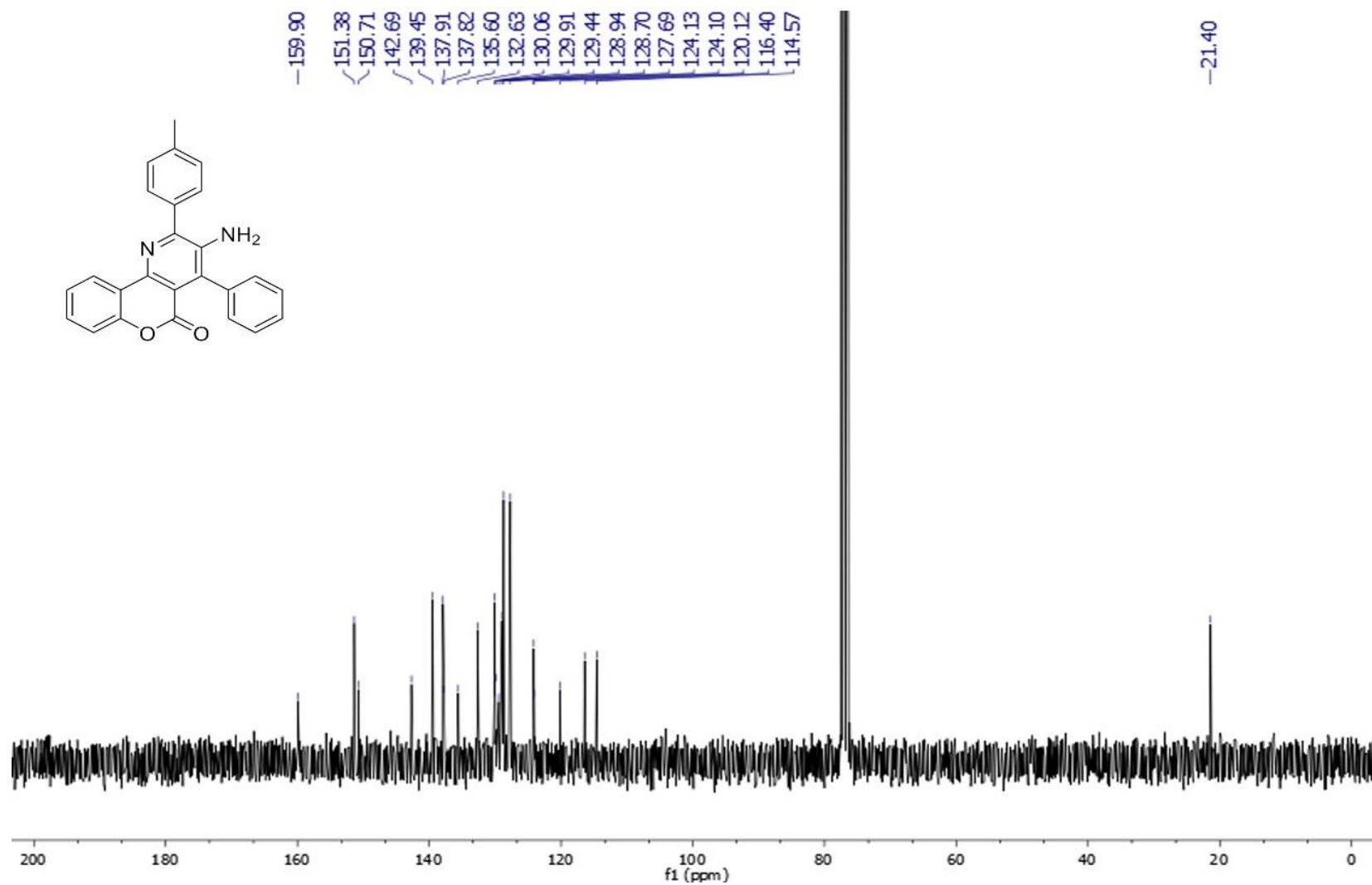
¹³C NMR spectrum of 3-Amino-2,4-diphenyl-5H-chromeno[4,3-b]pyridine-5-one (**4a**)



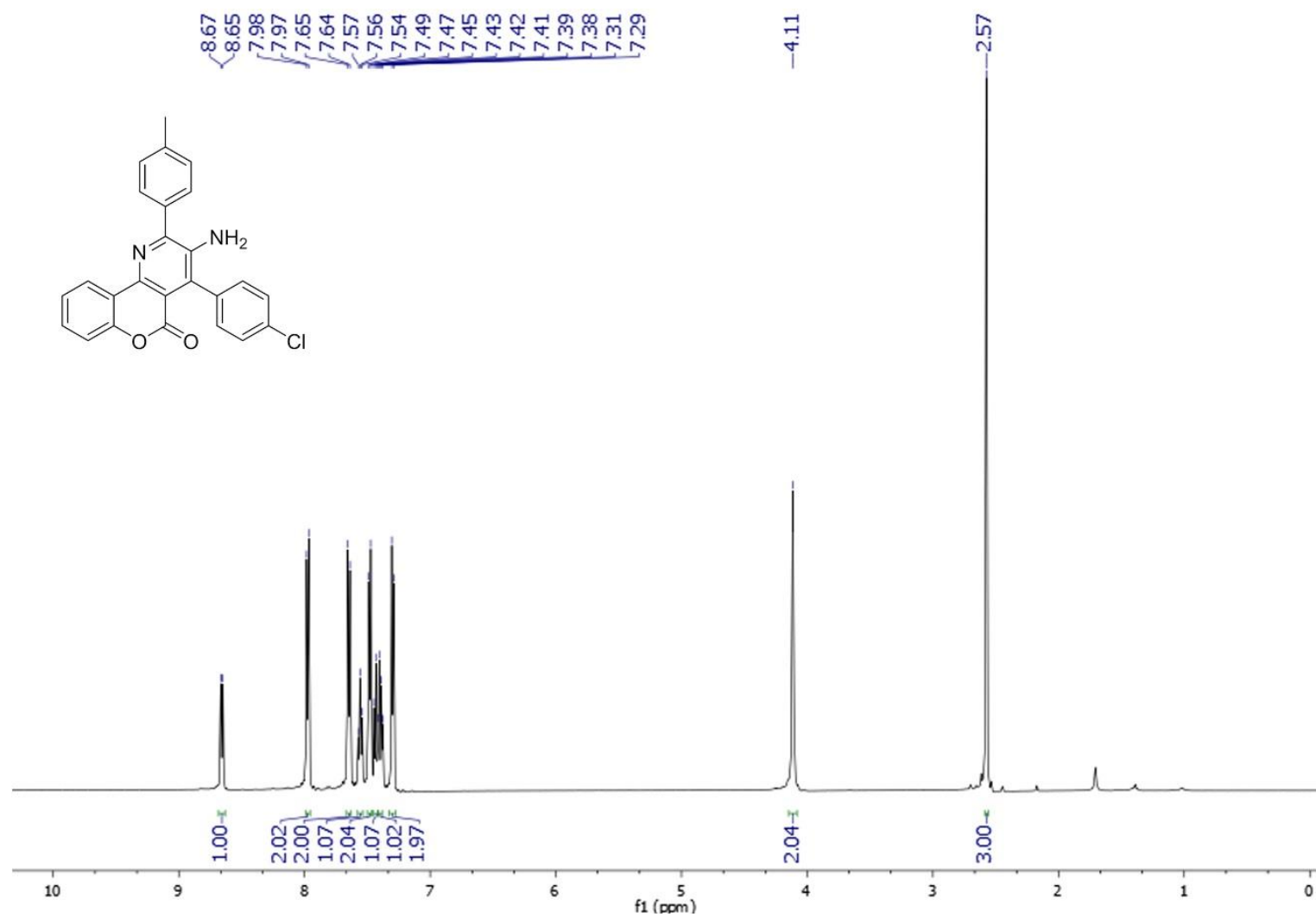
^1H NMR spectrum of 3-Amino-2-(4-methylphenyl)-4-phenyl-5H-chromeno[4,3-b]pyridine-5-one (**4b**)



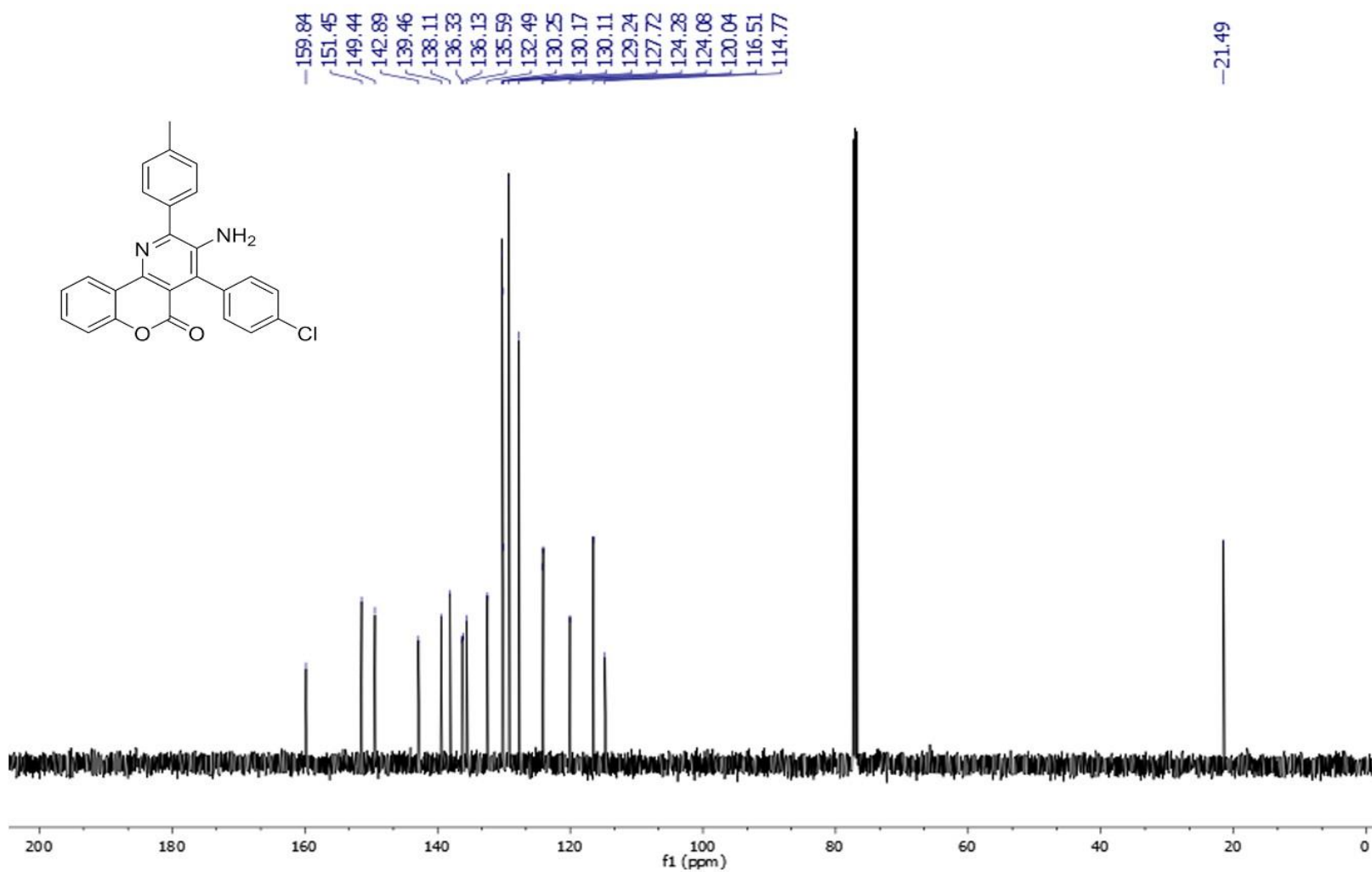
^{13}C NMR spectrum of 3-Amino-2-(4-methylphenyl)-4-phenyl-5H-chromeno[4,3-b]pyridine-5-one (**4b**)



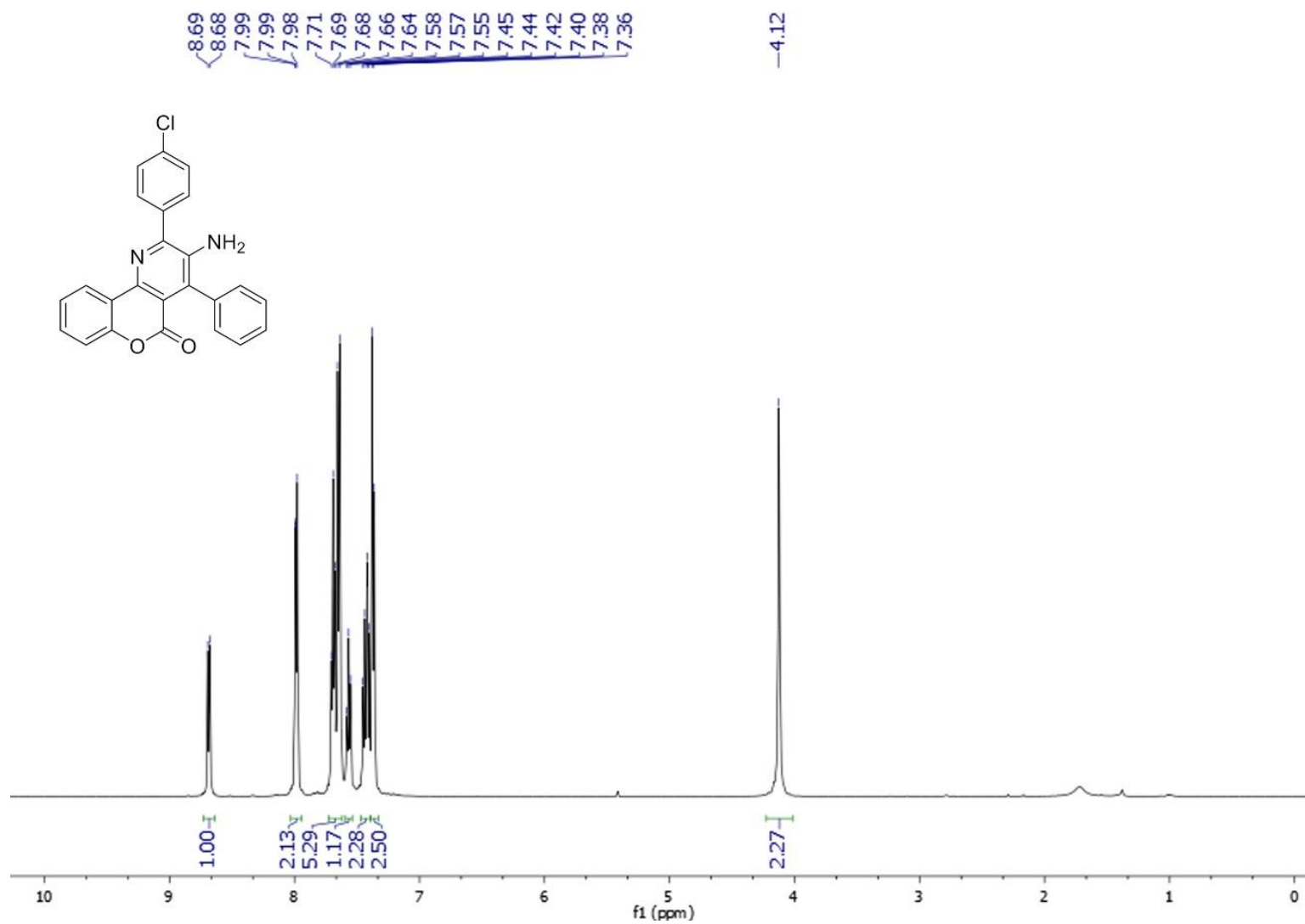
^1H NMR spectrum of 3-Amino-2-(4-methylphenyl)-4-(4-chlorophenyl)-5H-chromeno[4,3-b]pyridine-5-one (**4c**)



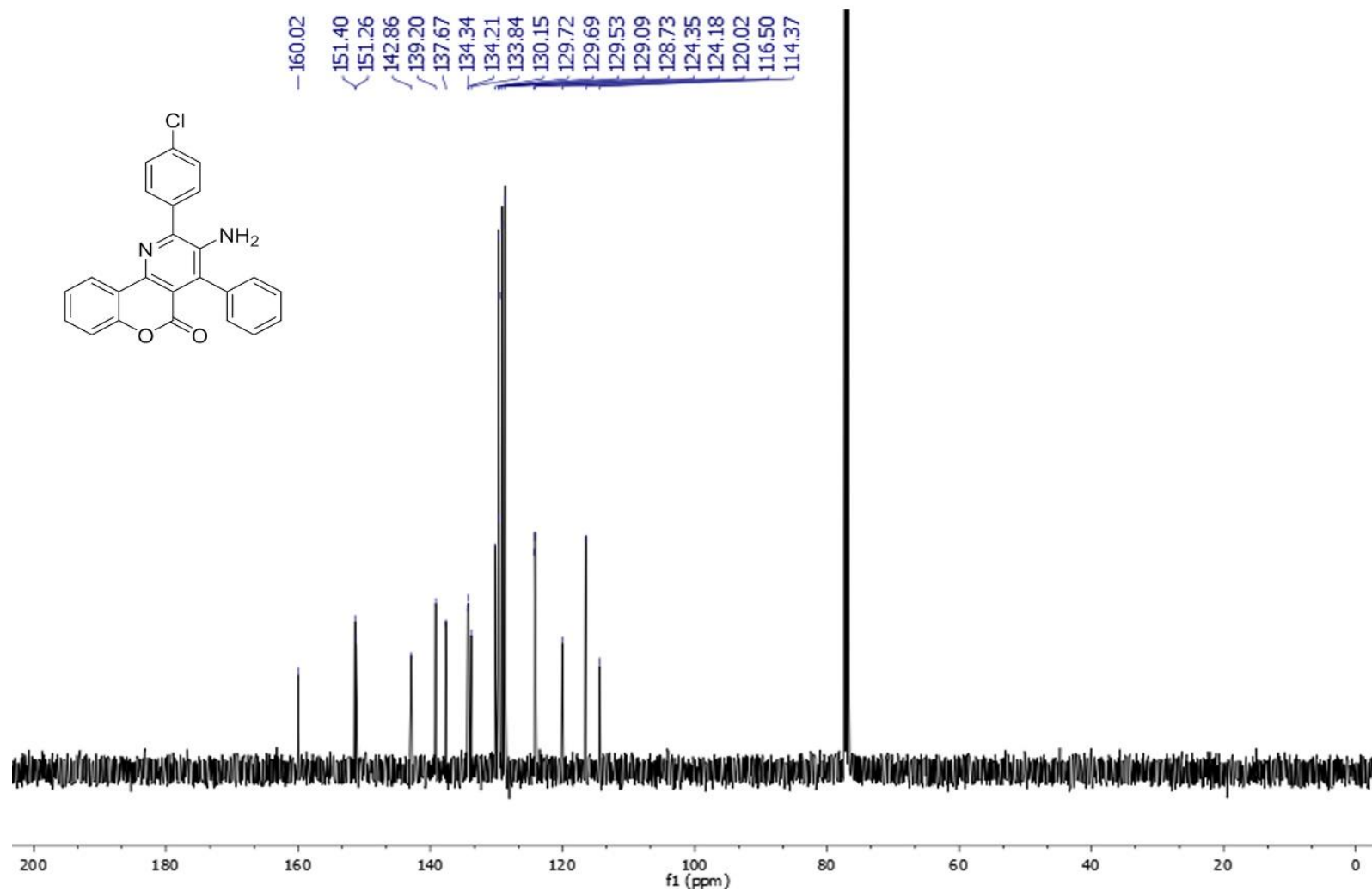
^{13}C NMR spectrum of 3-Amino-2-(4-methylphenyl)-4-(4-chlorophenyl)-5H-chromeno[4,3-b]pyridine-5-one (**4c**)



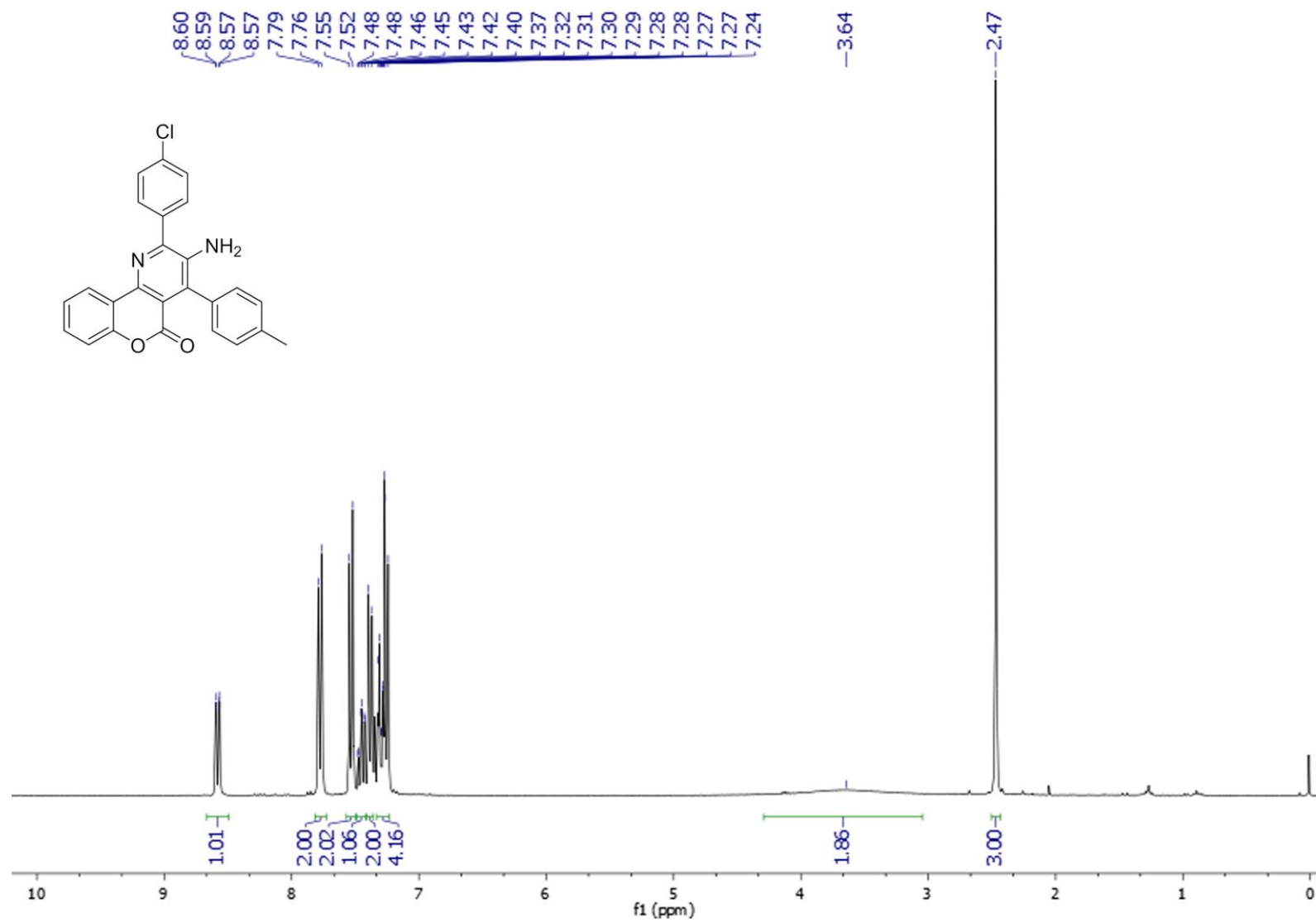
^1H NMR spectrum of 3-Amino-2-(4-chlorophenyl)-4-phenyl-5H-chromeno[4,3-b]pyridine-5-one (**4d**)



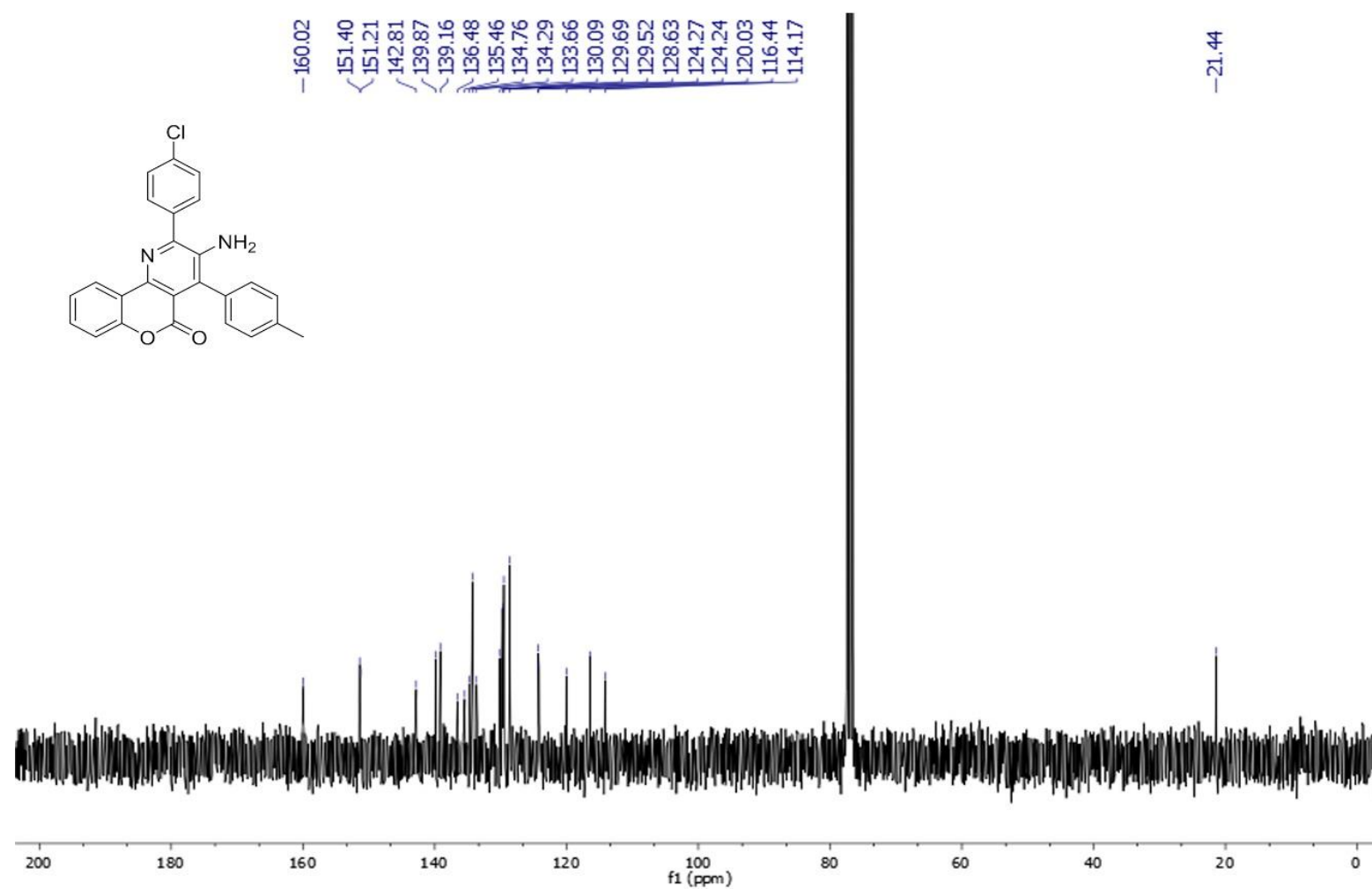
^{13}C NMR spectrum of 3-Amino-2-(4-chlorophenyl)-4-phenyl-5H-chromeno[4,3-b]pyridine-5-one (**4d**)



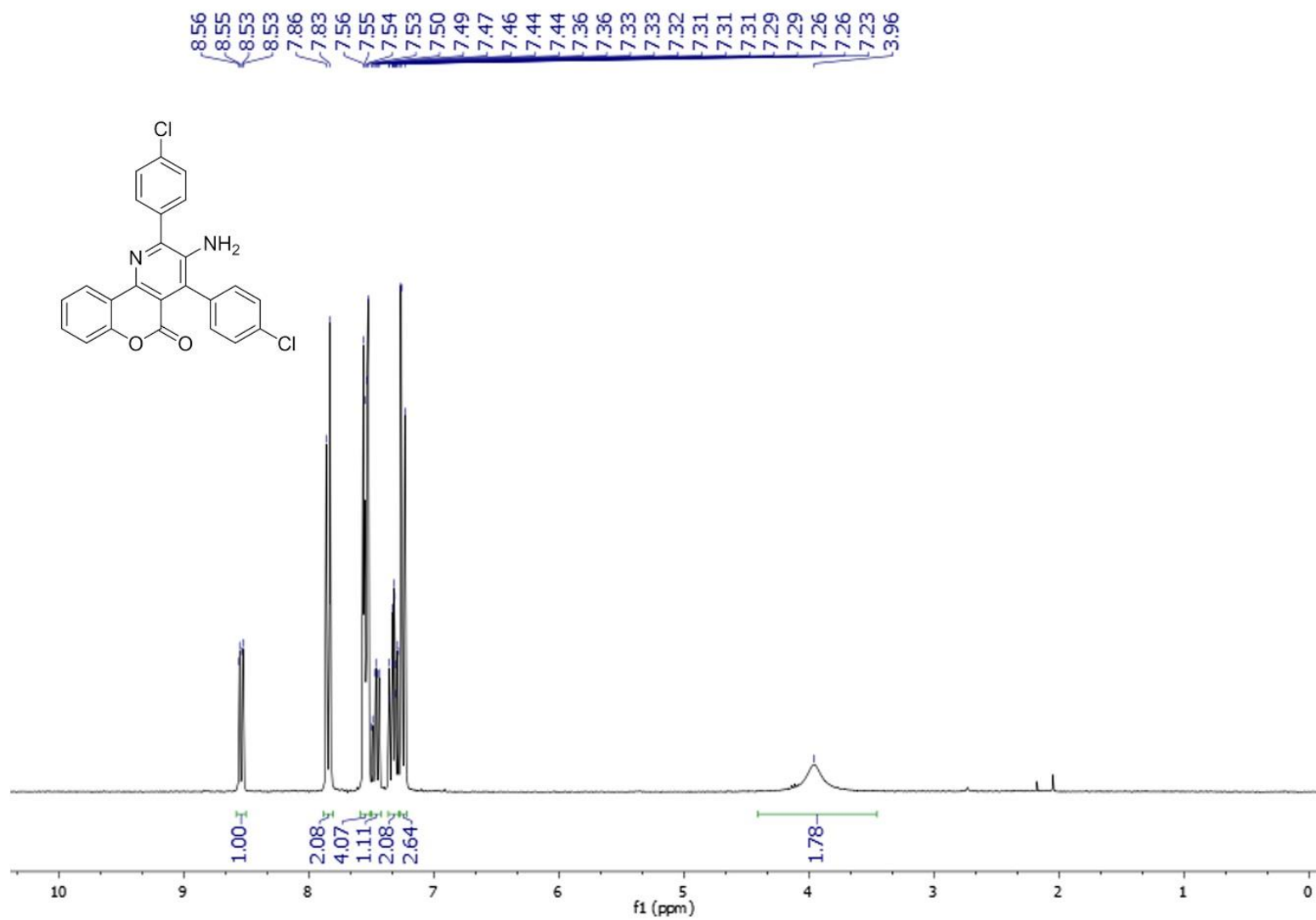
^1H NMR spectrum of 3-Amino-2-(4-chlorophenyl)-4-(4-methylphenyl)-5H-chromeno[4,3-b]pyridine-5-one (**4e**)



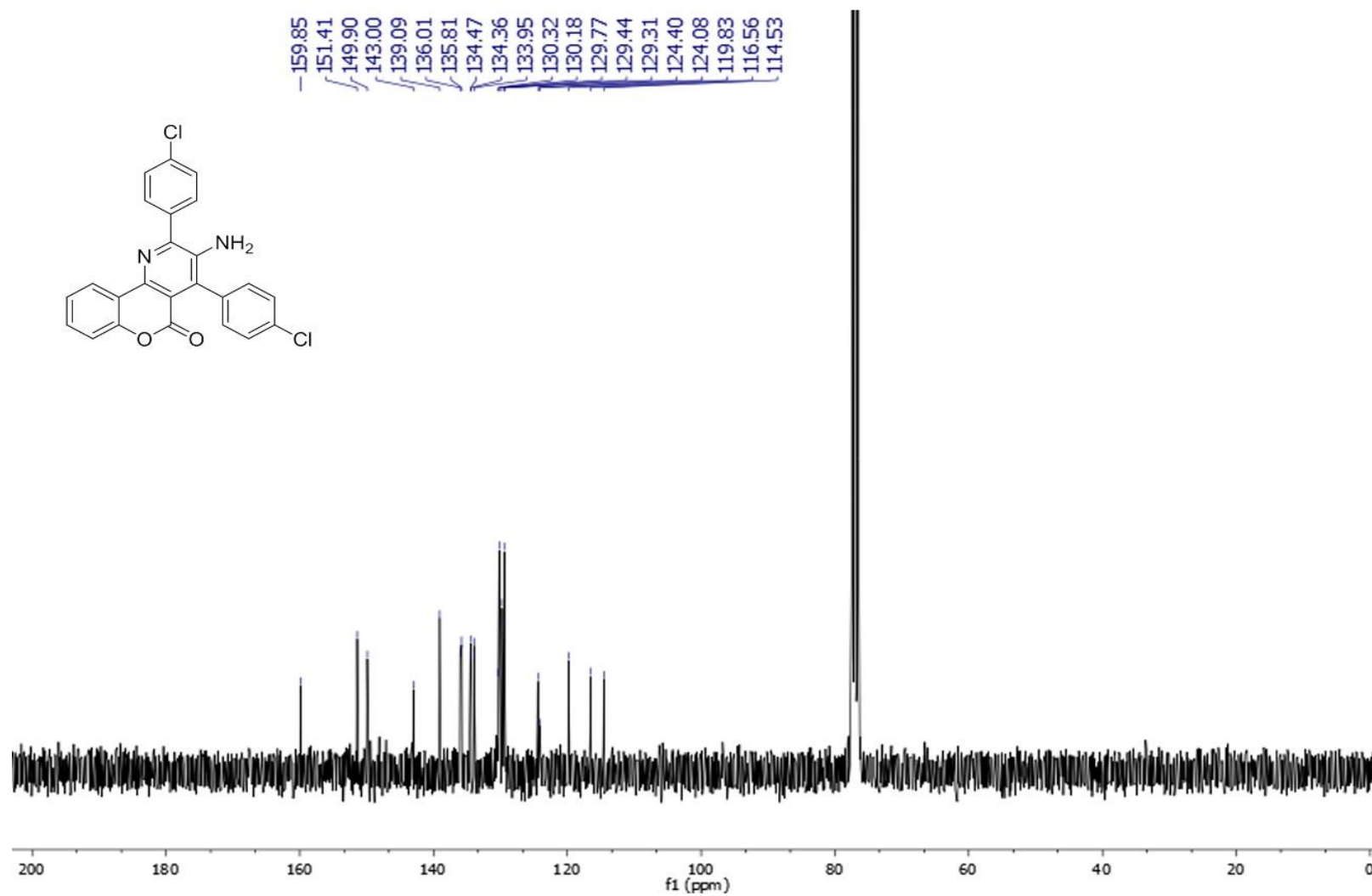
^{13}C NMR spectrum of 3-Amino-2-(4-chlorophenyl)-4-(4-methylphenyl)-5H-chromeno[4,3-b]pyridine-5-one (**4e**)



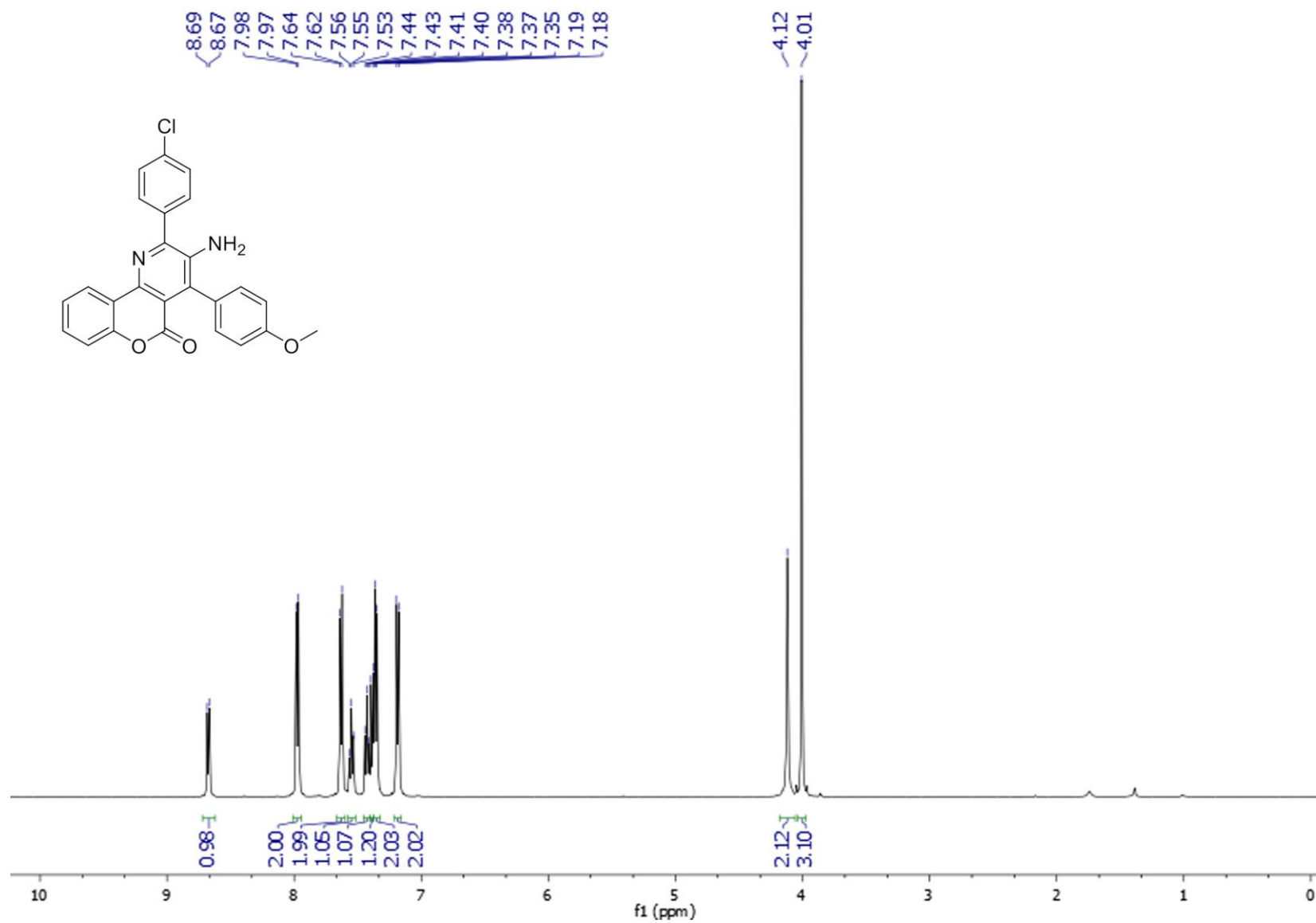
^1H NMR spectrum of 3-Amino-2,4-bis(4-chlorophenyl)-5H-chromeno[4,3-b]pyridine-5-one (**4f**)



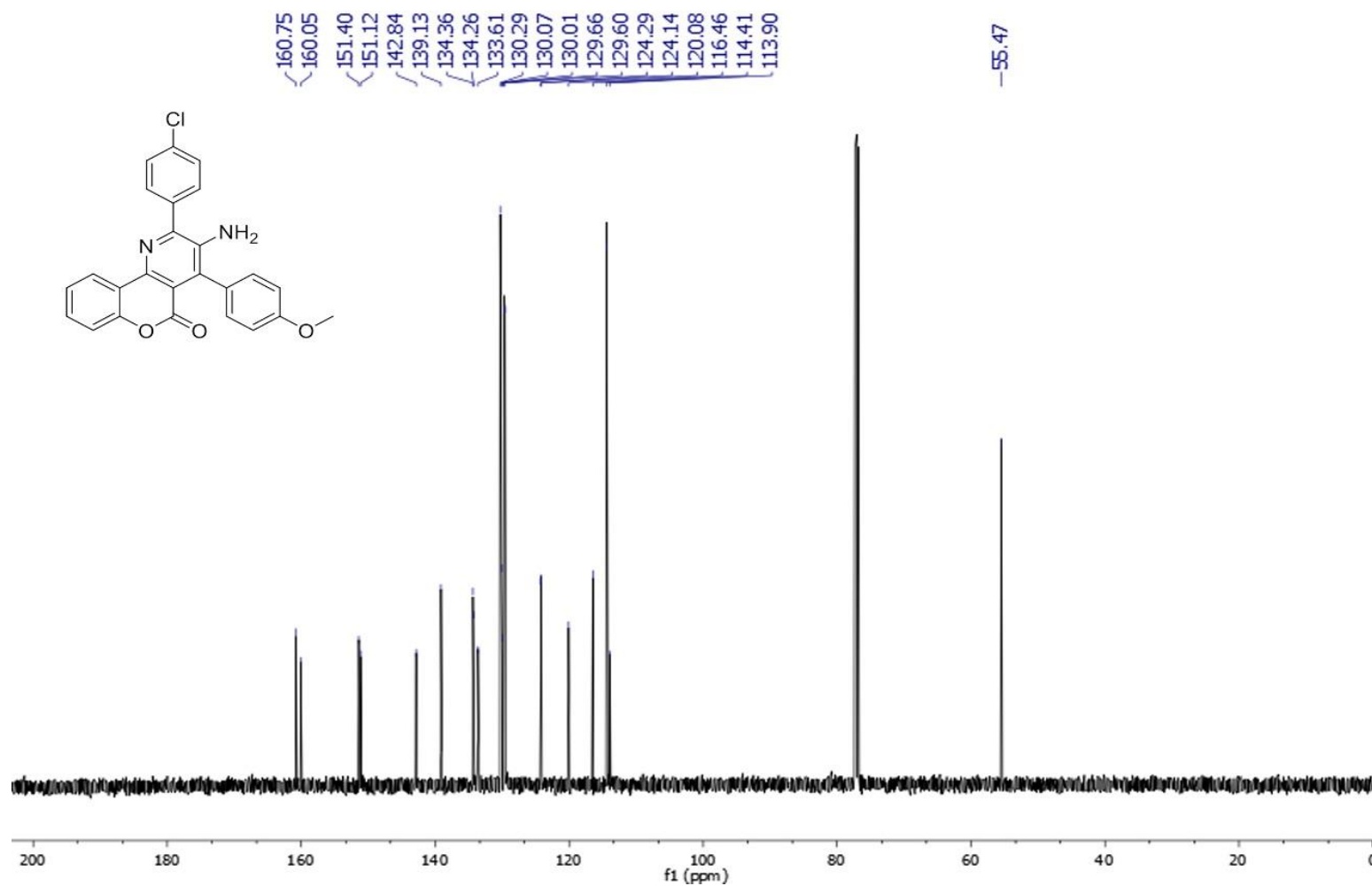
¹³C NMR spectrum of 3-Amino-2,4-bis(4-chlorophenyl)-5H-chromeno[4,3-b]pyridine-5-one (**4f**)



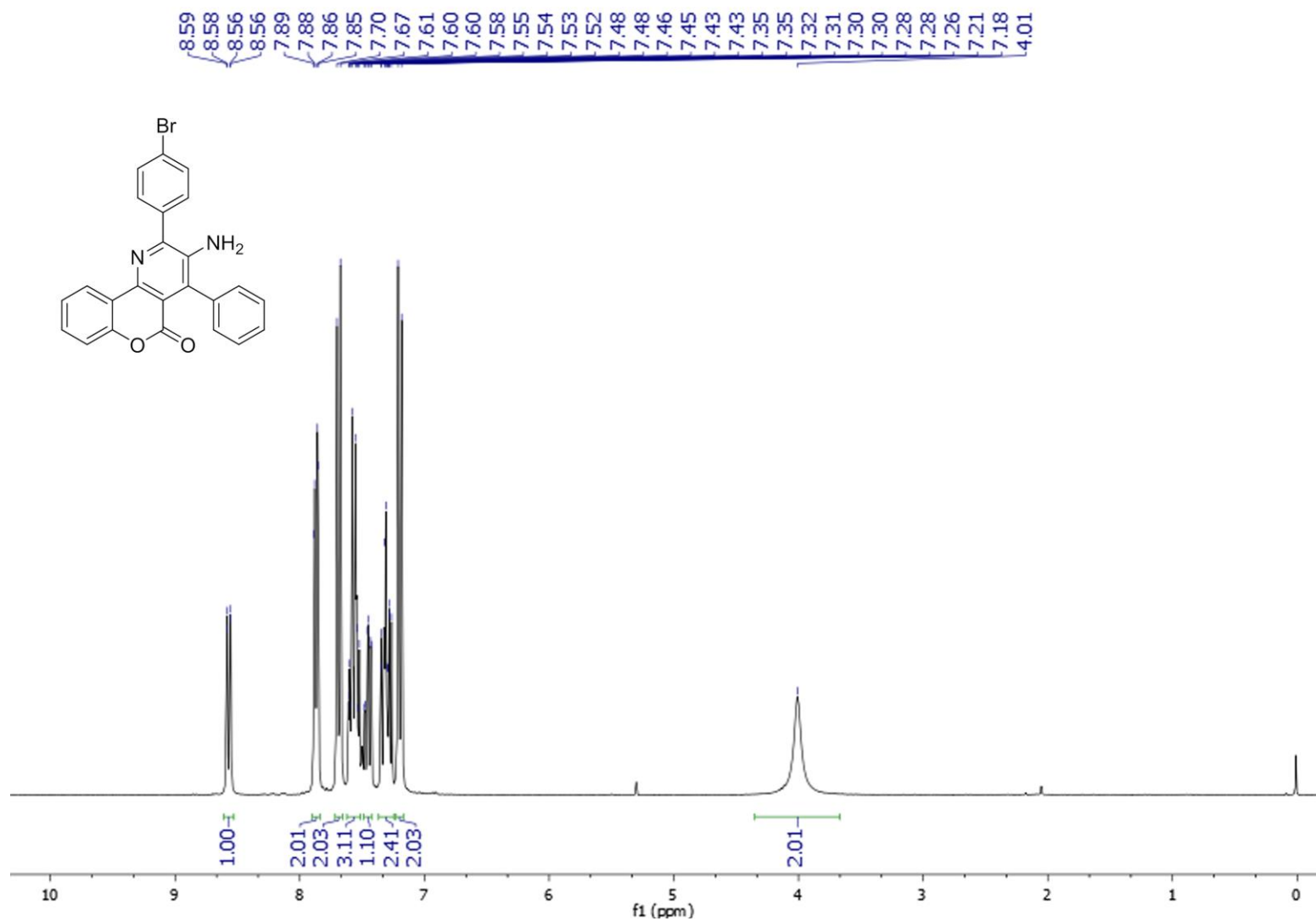
¹H NMR spectrum of 3-Amino-2-(4-chlorophenyl)-4-(4-methoxyphenyl)-5H-chromeno[4,3-b]pyridine-5-one (**4g**)



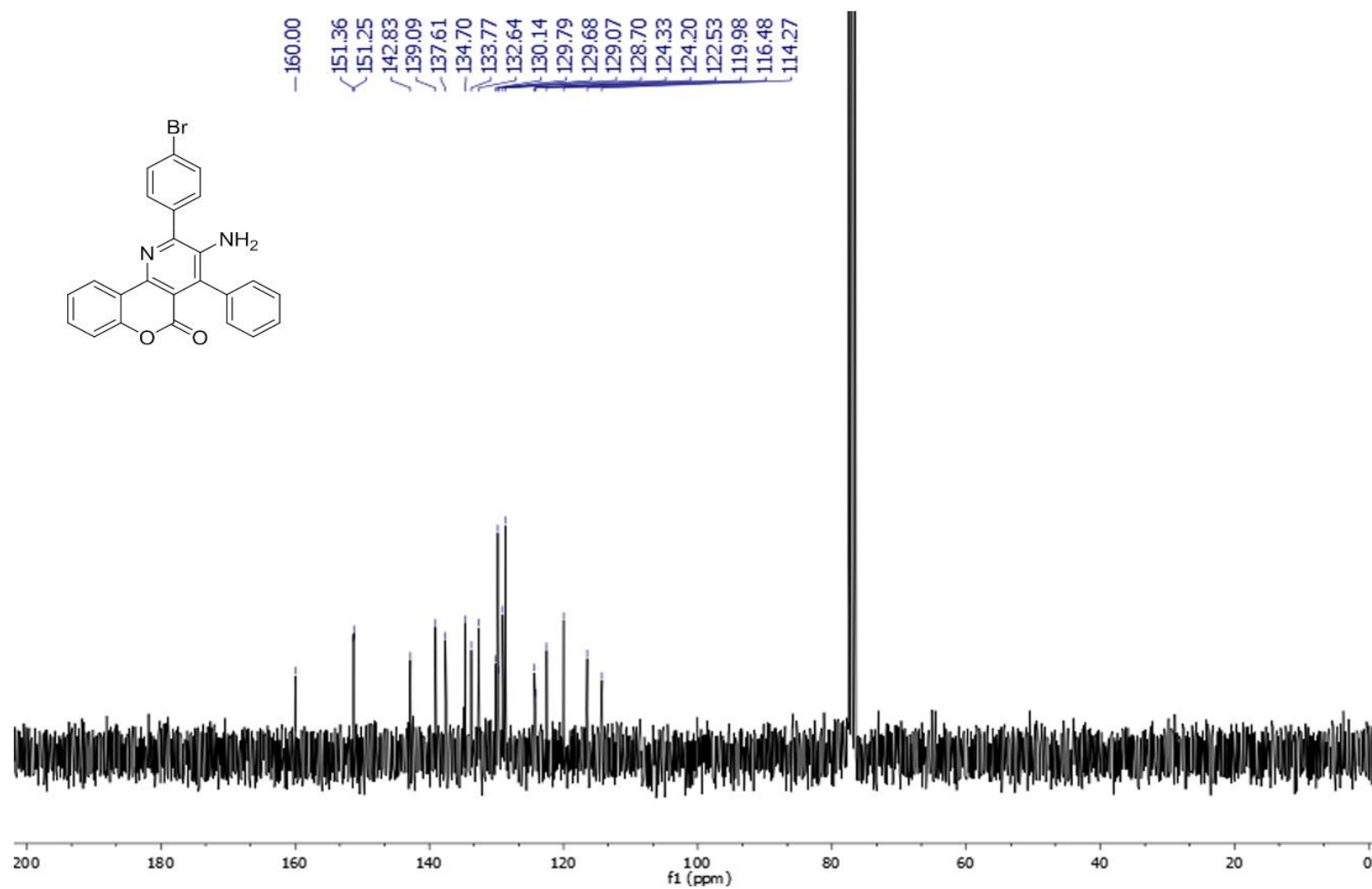
^{13}C NMR spectrum of 3-Amino-2-(4-chlorophenyl)-4-(4-methoxyphenyl)-5H-chromeno[4,3-b]pyridine-5-one (**4g**)



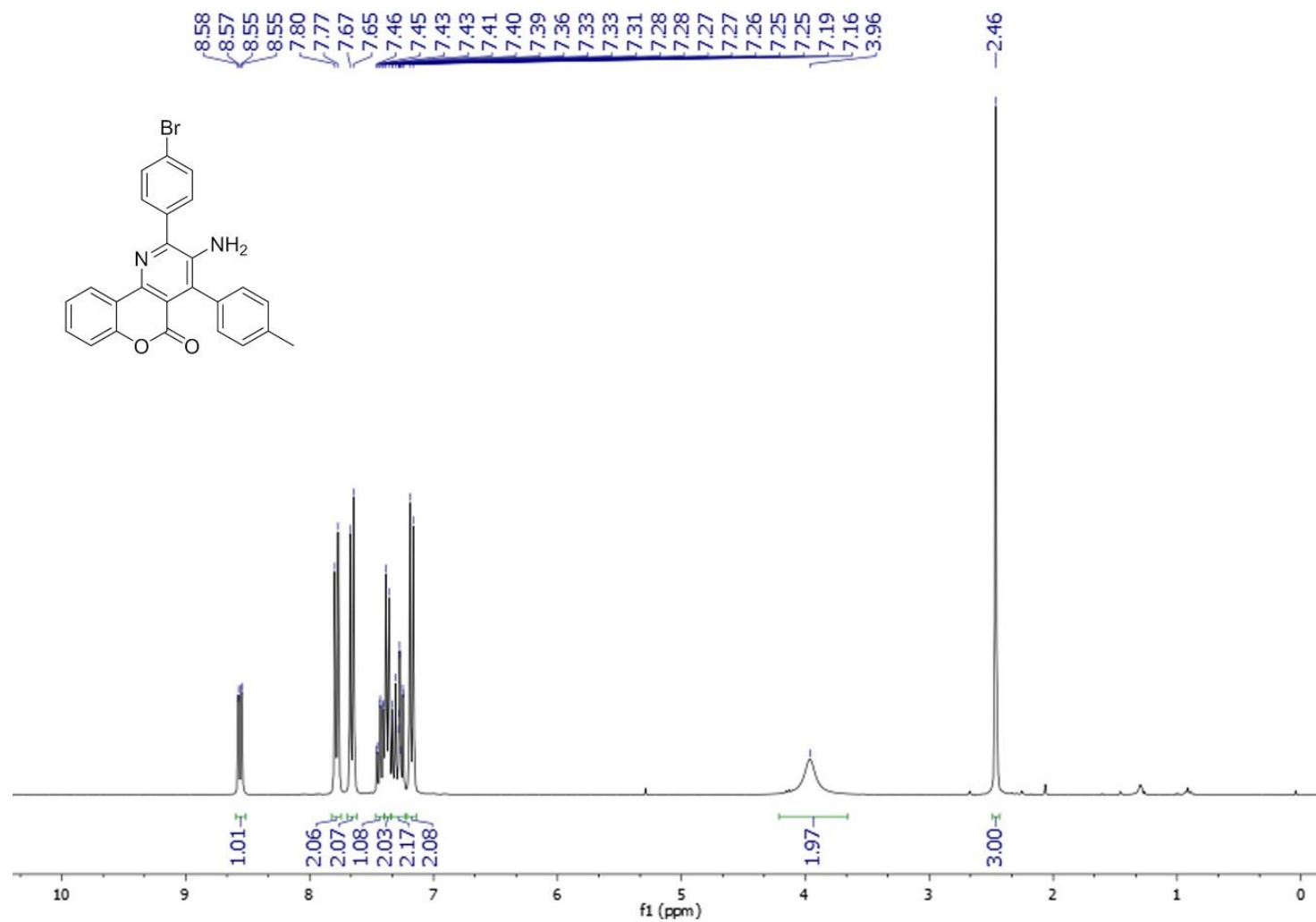
^1H NMR spectrum of 3-Amino-2-(4-bromophenyl)-4-phenyl-5H-chromeno[4,3-b]pyridine-5-one (**4h**)



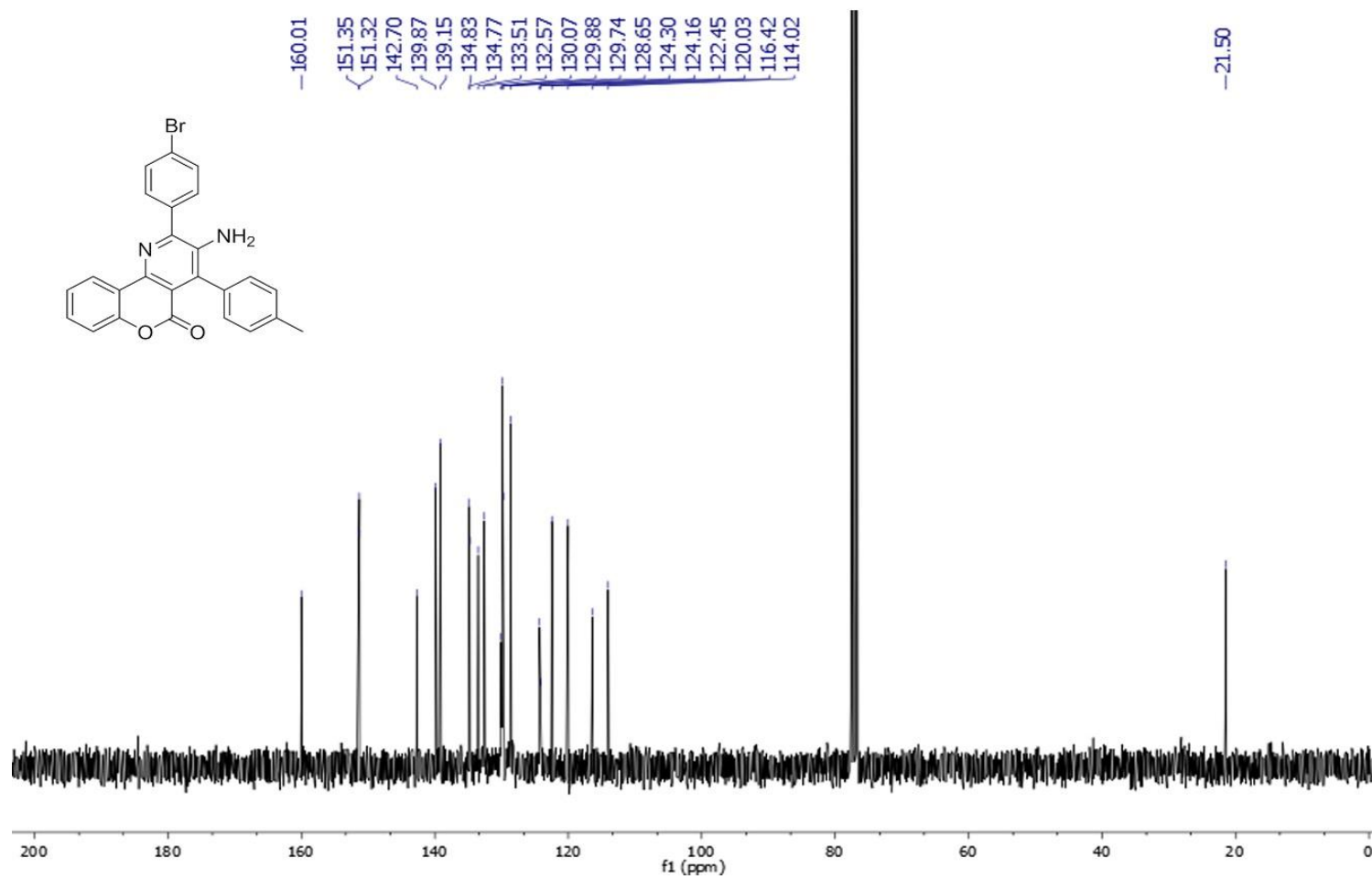
^{13}C NMR spectrum of 3-Amino-2-(4-bromophenyl)-4-phenyl-5H-chromeno[4,3-b]pyridine-5-one (**4h**)



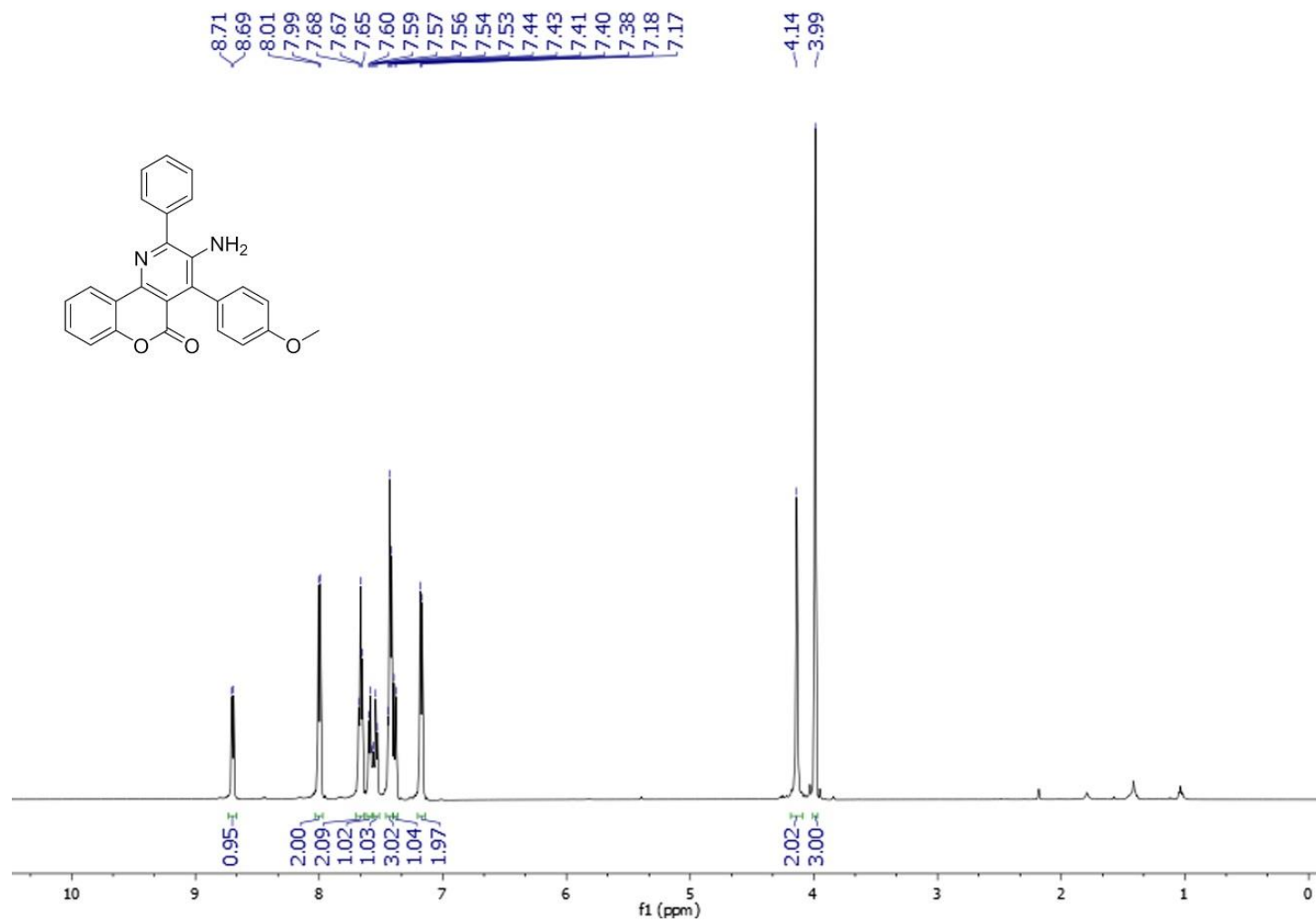
^1H NMR spectrum of 3-Amino-2-(4-bromophenyl)-4-(4-methylphenyl)-5H-chromeno[4,3-b]pyridine-5-one (**4i**)



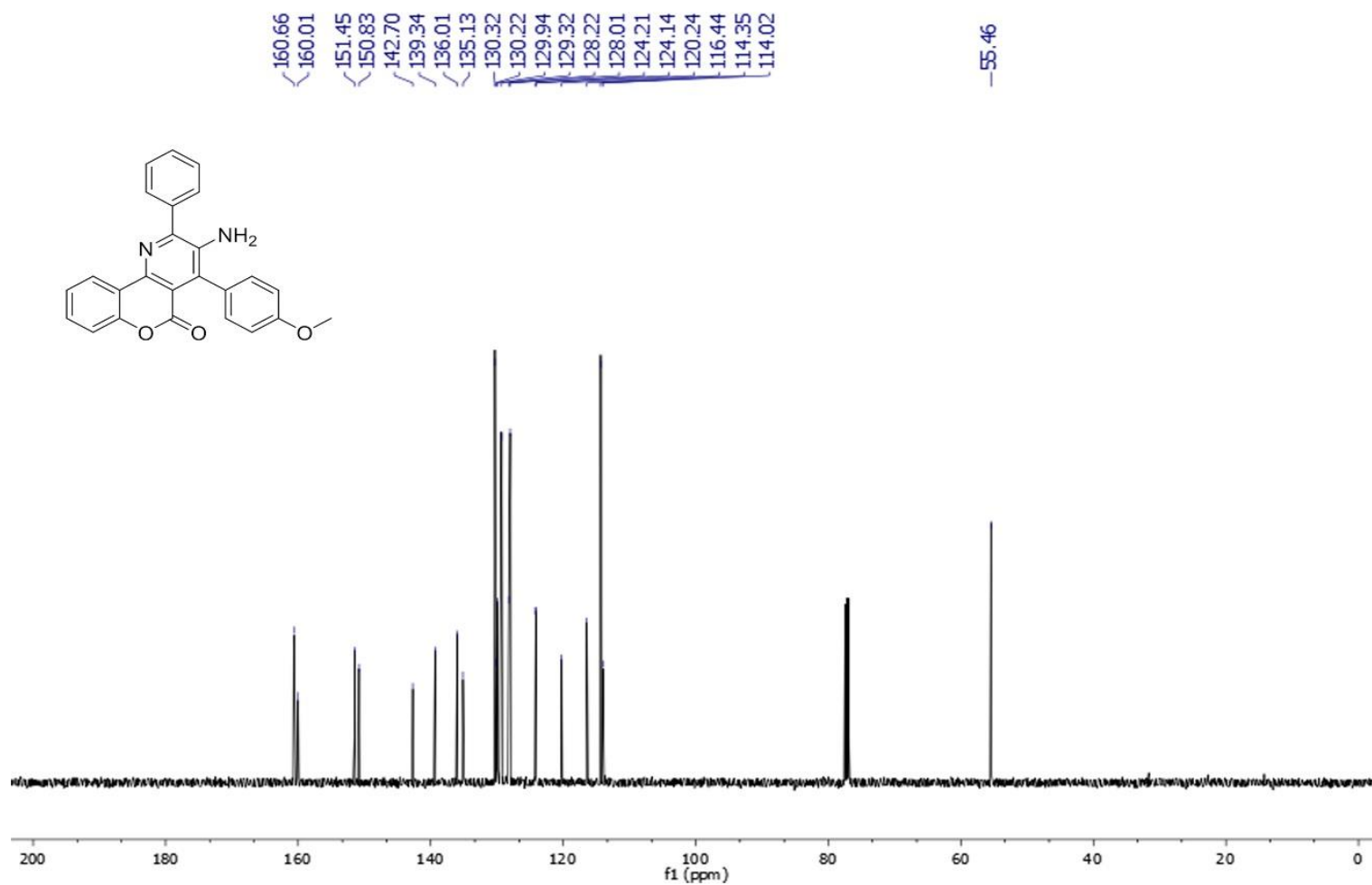
^{13}C NMR spectrum of 3-Amino-2-(4-bromophenyl)-4-(4-methylphenyl)-5H-chromeno[4,3-b]pyridine-5-one (**4i**)



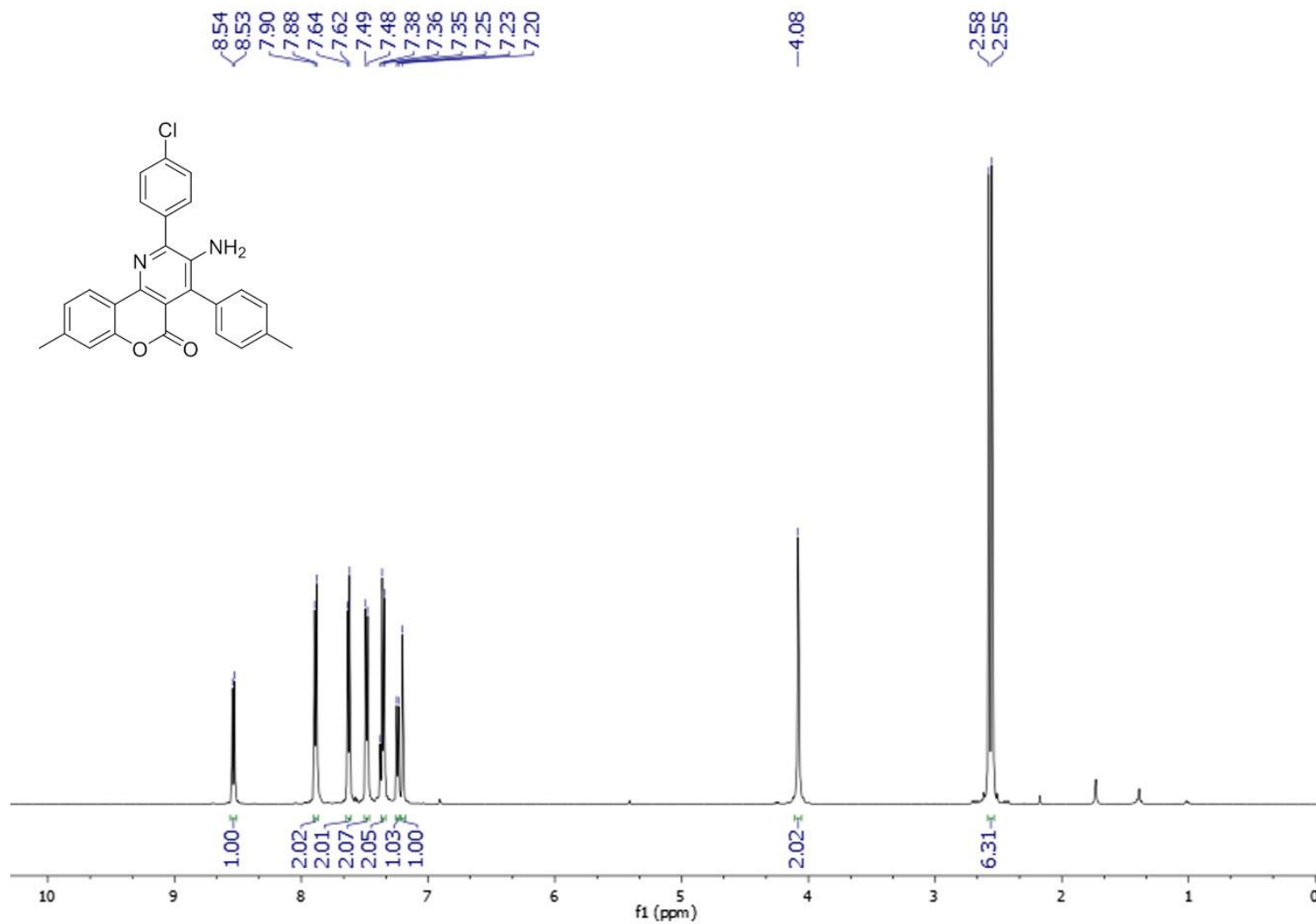
^1H NMR spectrum of 3-Amino-2-phenyl-4-(4-methoxyphenyl)-5H-chromeno[4,3-b]pyridine-5-one (**4j**)



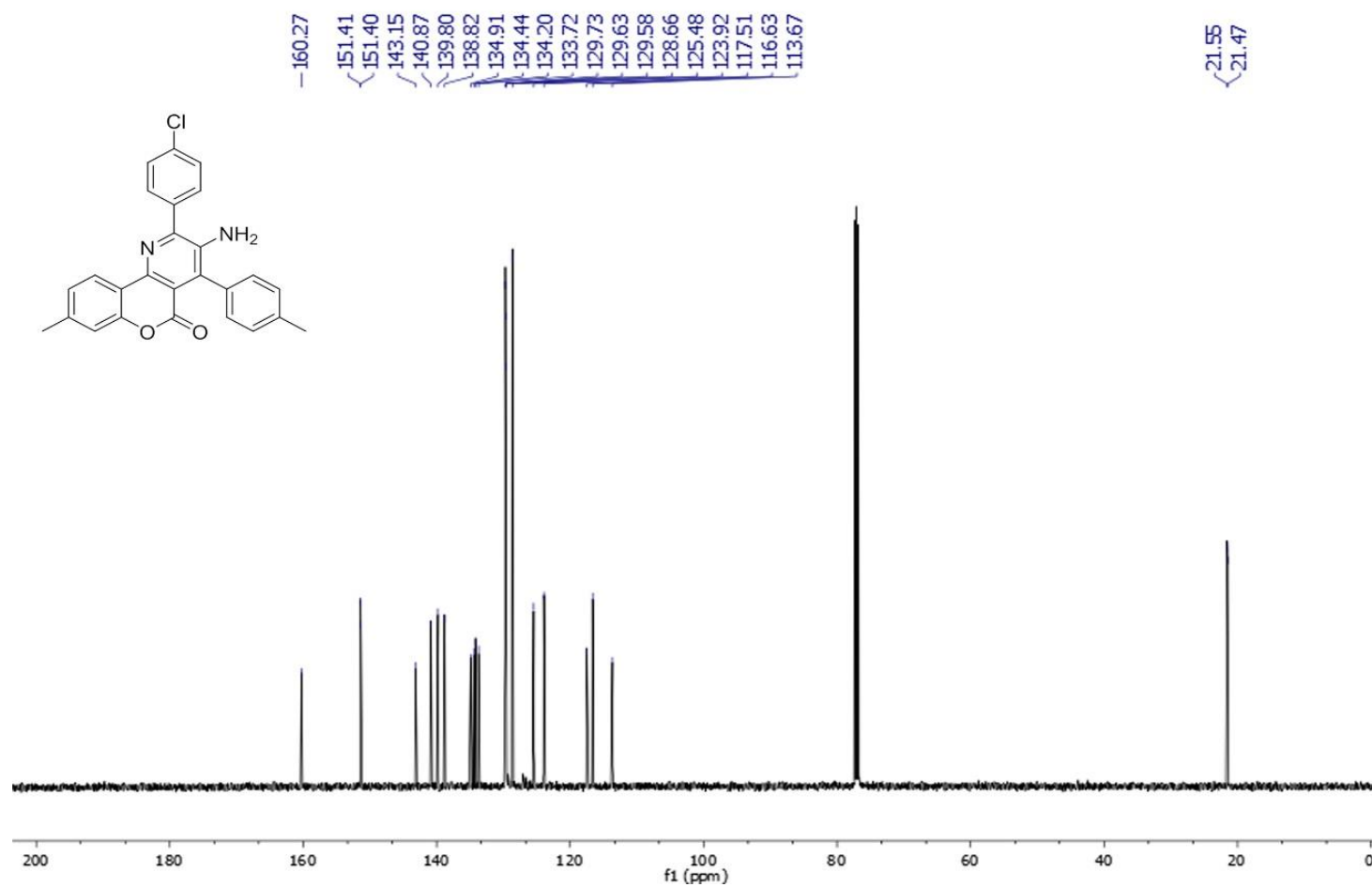
^{13}C NMR spectrum of 3-Amino-2-phenyl-4-(4-methoxyphenyl)-5H-chromeno[4,3-b]pyridine-5-one (**4j**)



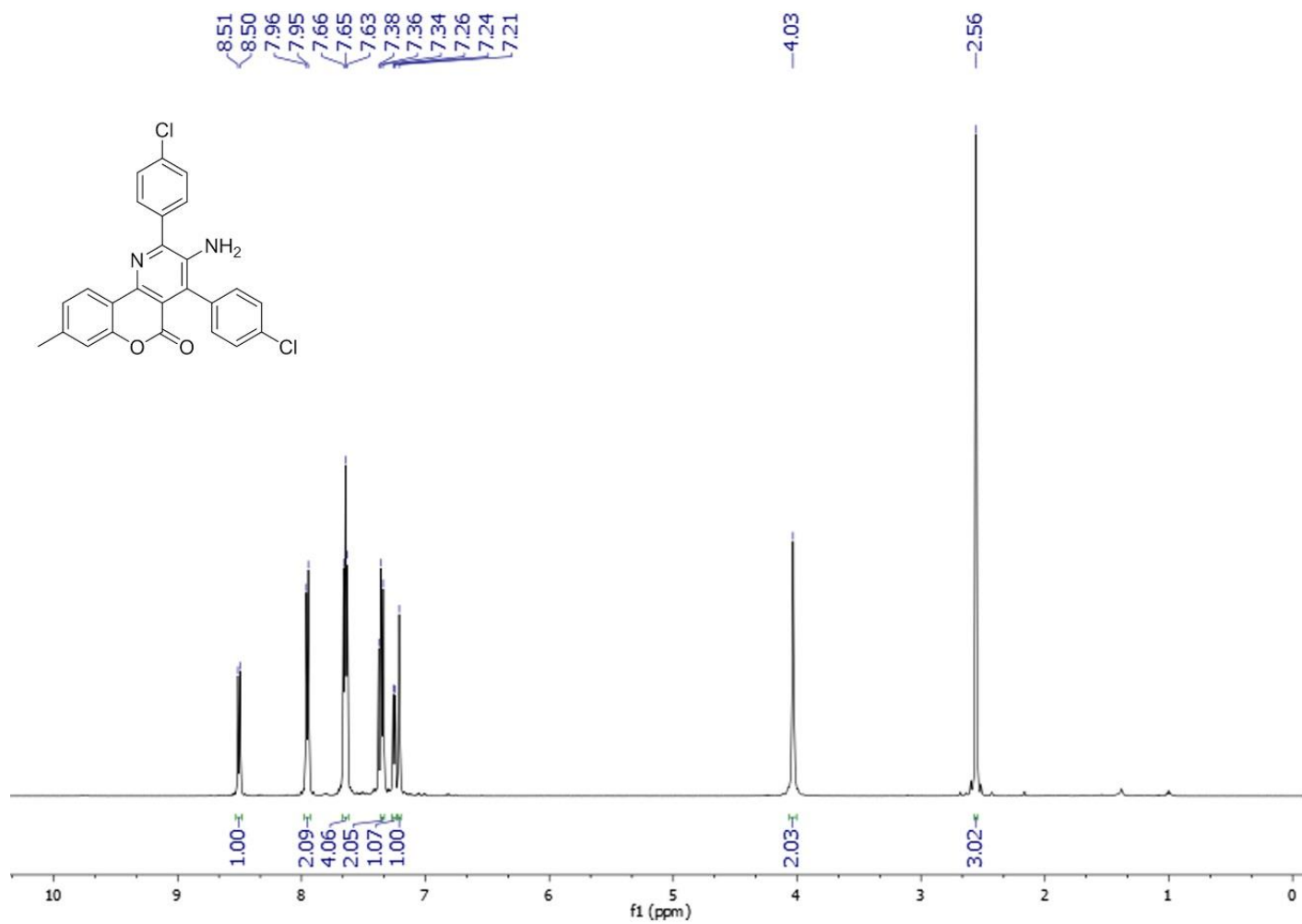
^1H NMR spectrum of 3-Amino-2-(4-chlorophenyl)-4-(4-methylphenyl)-8-methyl-5H-chromeno[4,3-b]pyridine-5-one (**4k**)



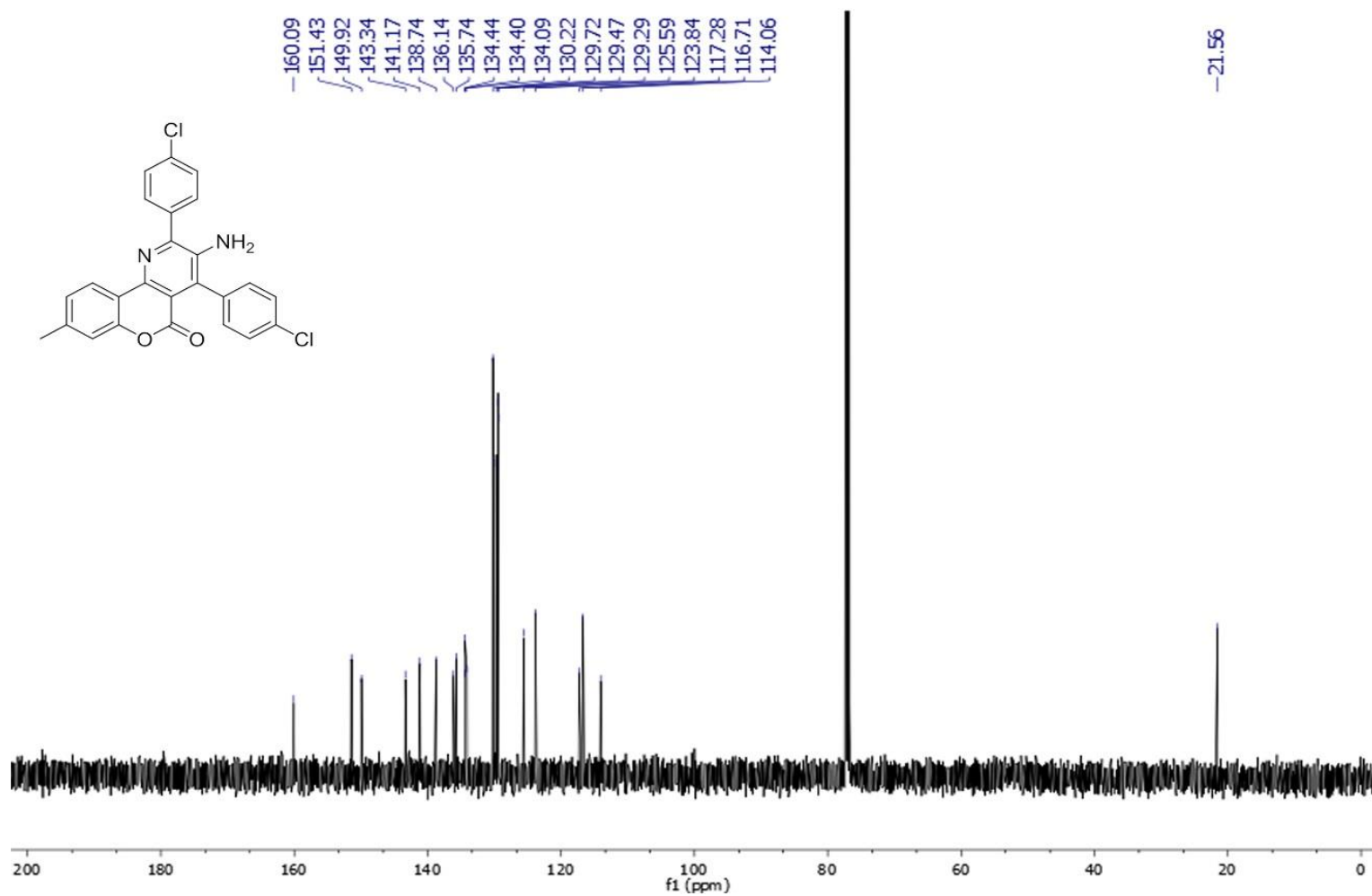
^{13}C NMR spectrum of 3-Amino-2-(4-chlorophenyl)-4-(4-methylphenyl)-8-methyl-5H-chromeno[4,3-b]pyridine-5-one (**4k**)



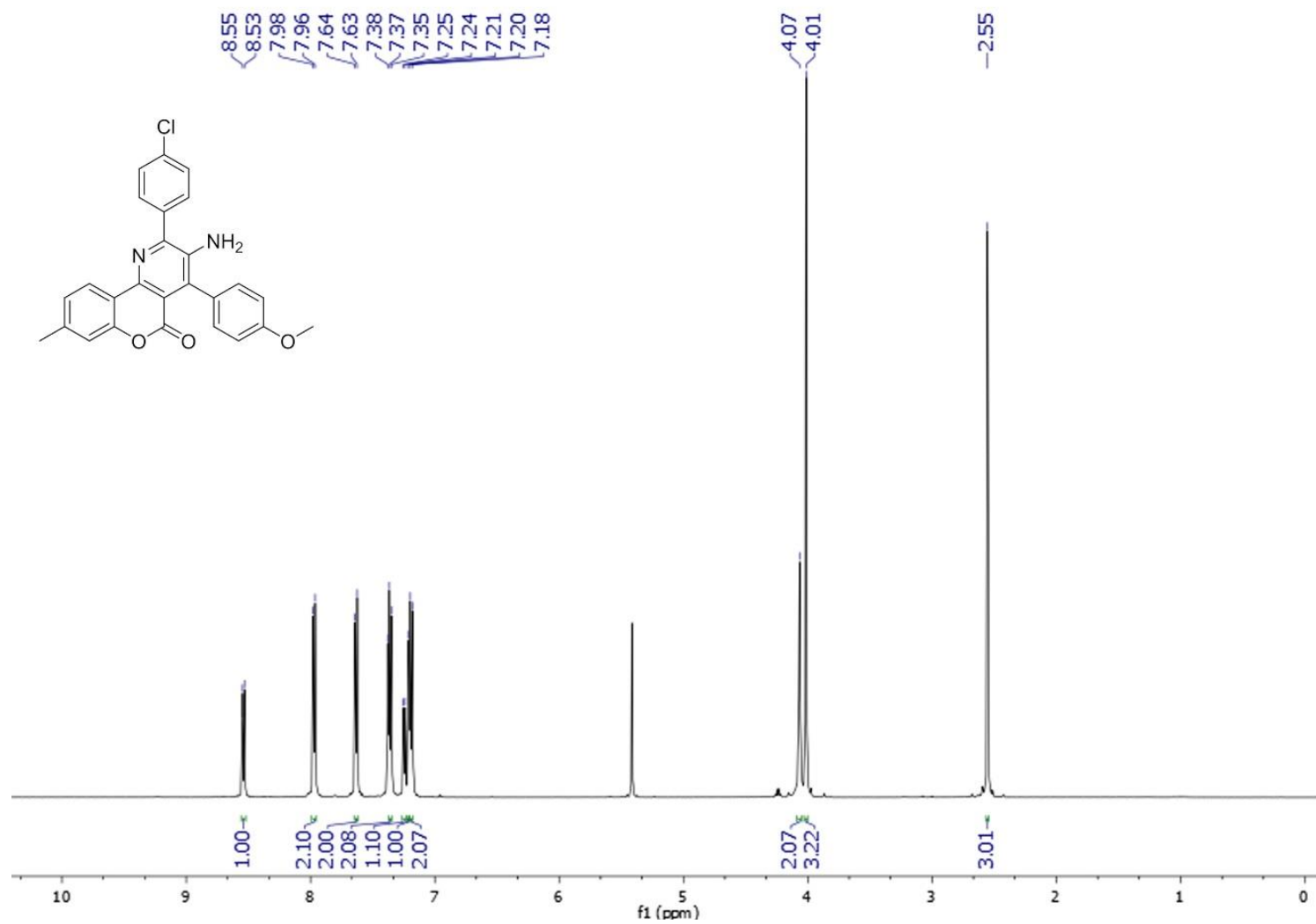
¹H NMR spectrum of 3-Amino-2,4-bis(4-chlorophenyl)-8-methyl-5H-chromeno[4,3-b]pyridine-5-one (**4l**)



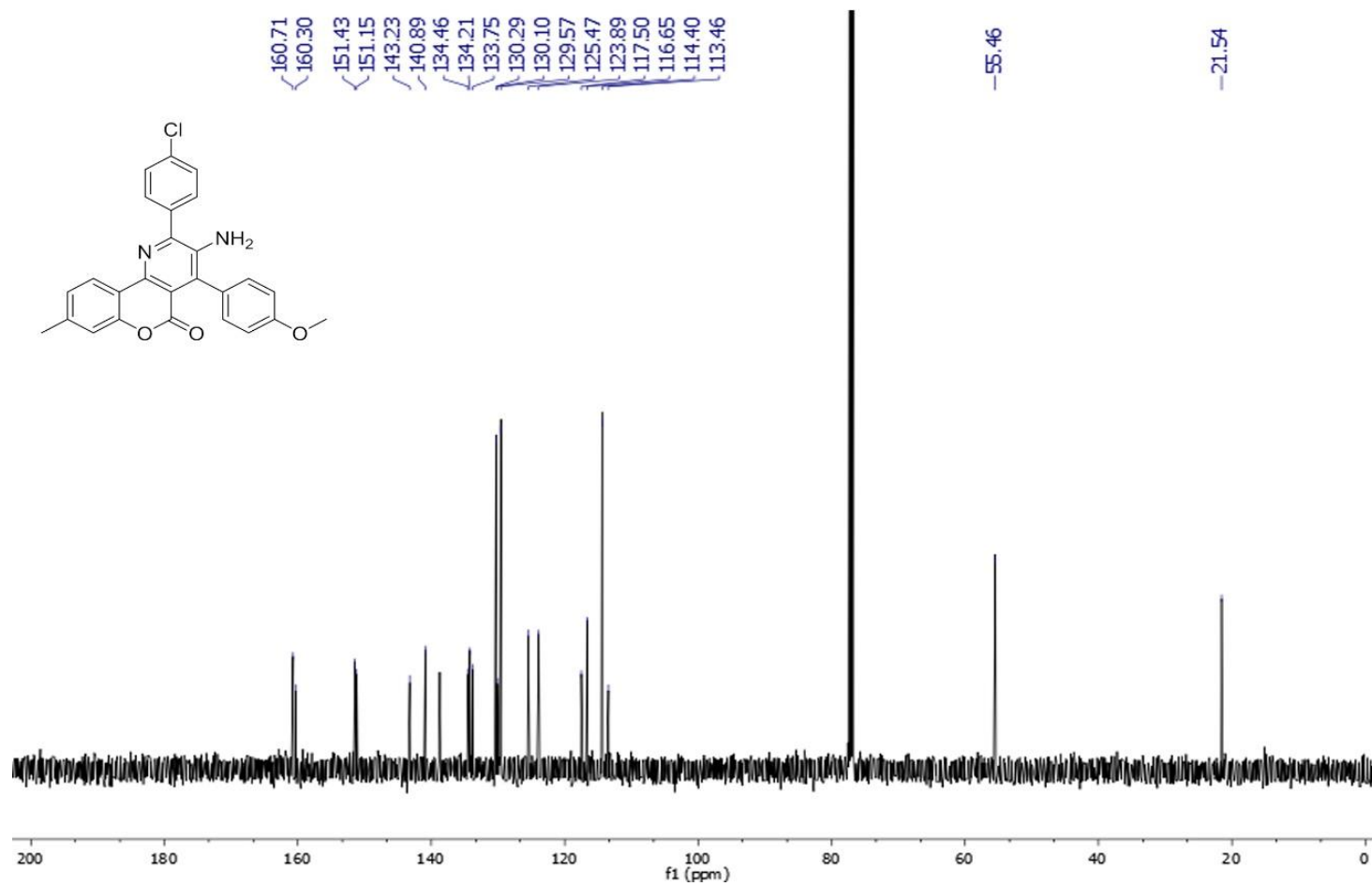
^{13}C NMR spectrum of 3-Amino-2,4-bis(4-chlorophenyl)-8-methyl-5H-chromeno[4,3-b]pyridine-5-one (**4l**)



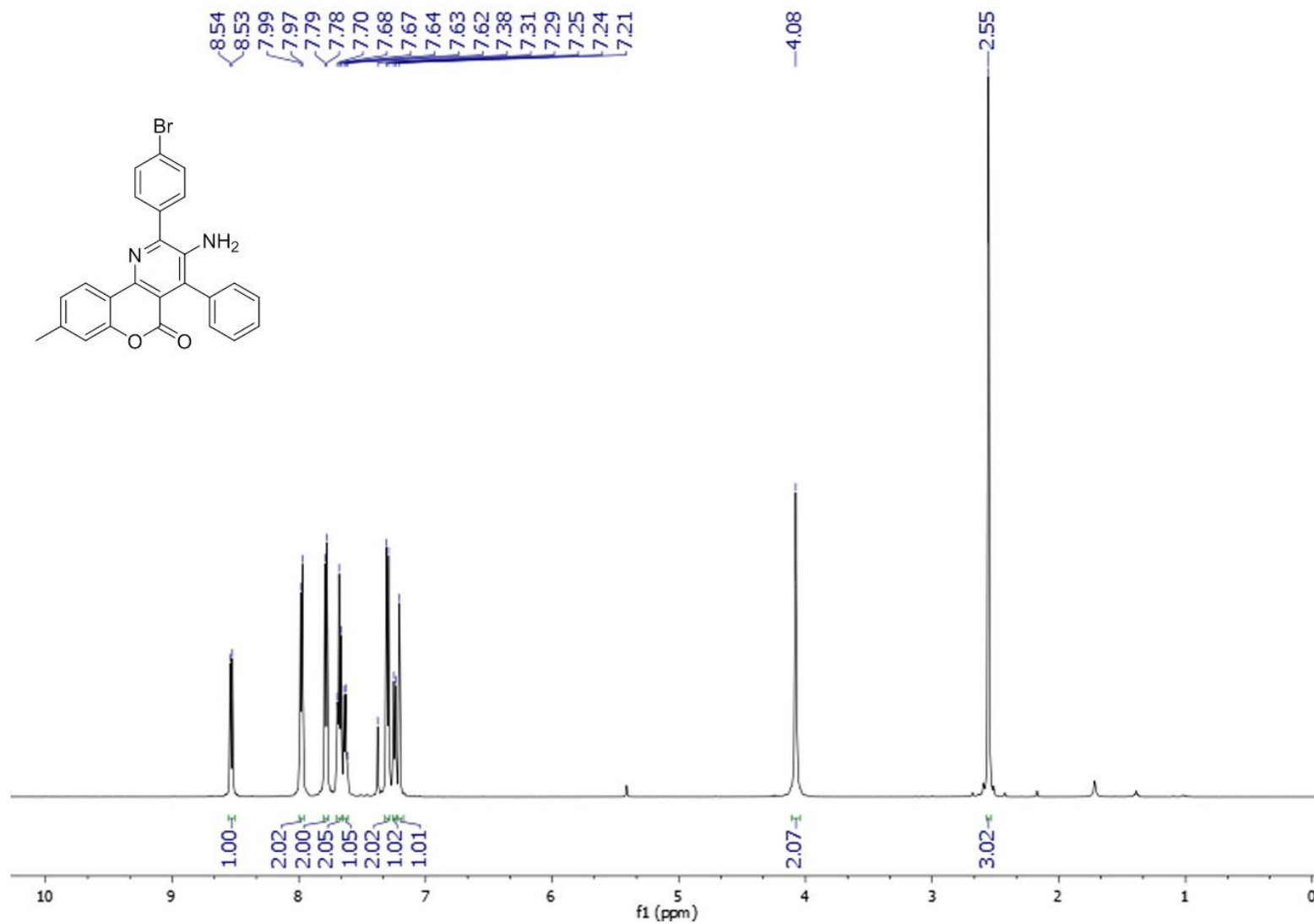
^1H NMR spectrum of 3-Amino-2-(4-chlorophenyl)-4-(4-methoxyphenyl)-8-methyl-5H-chromeno[4,3-b]pyridine-5-one (**4m**)



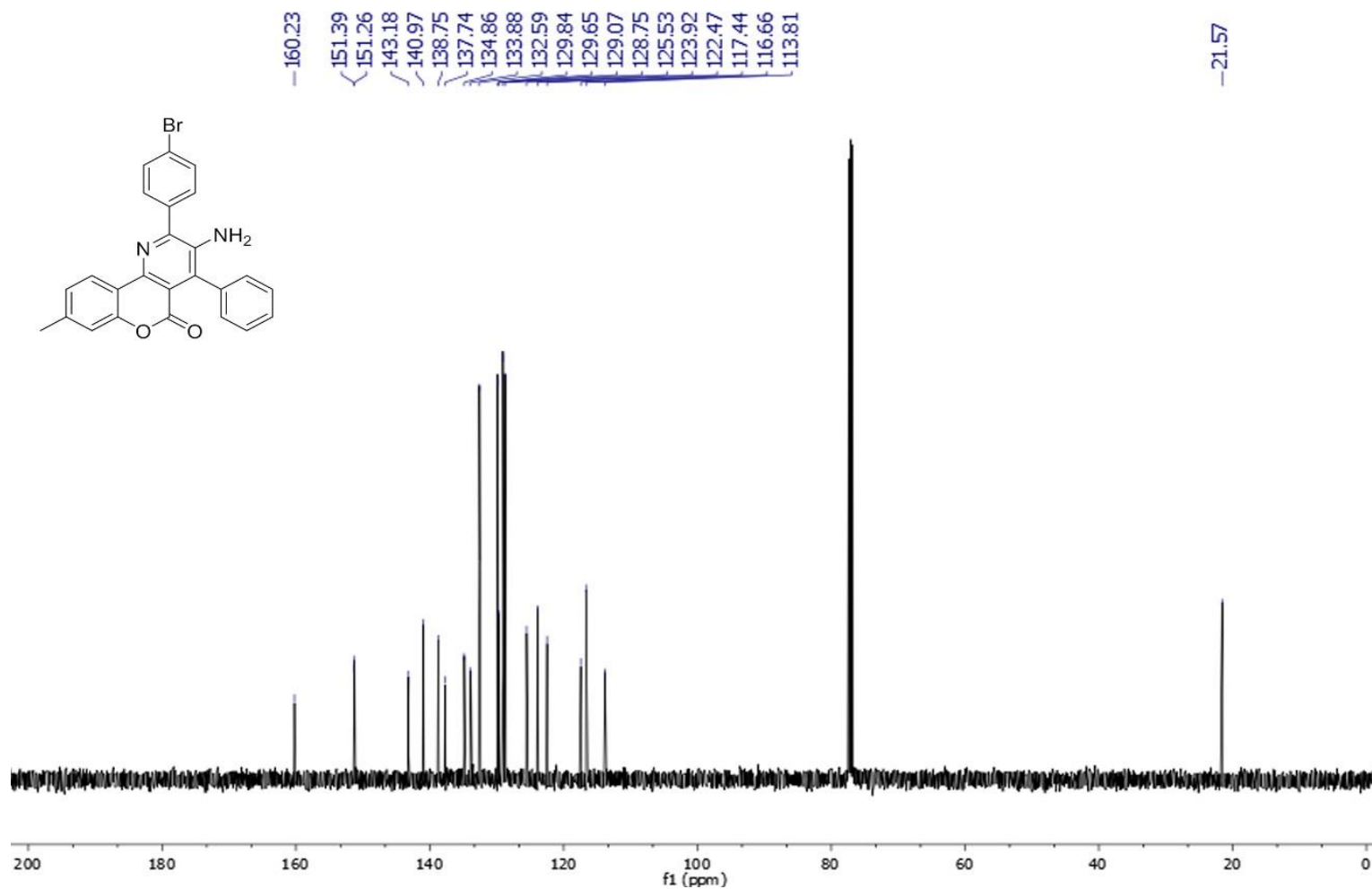
^{13}C NMR spectrum of 3-Amino-2-(4-chlorophenyl)-4-(4-methoxyphenyl)-8-methyl-5H-chromeno[4,3-b]pyridine-5-one (**4m**)



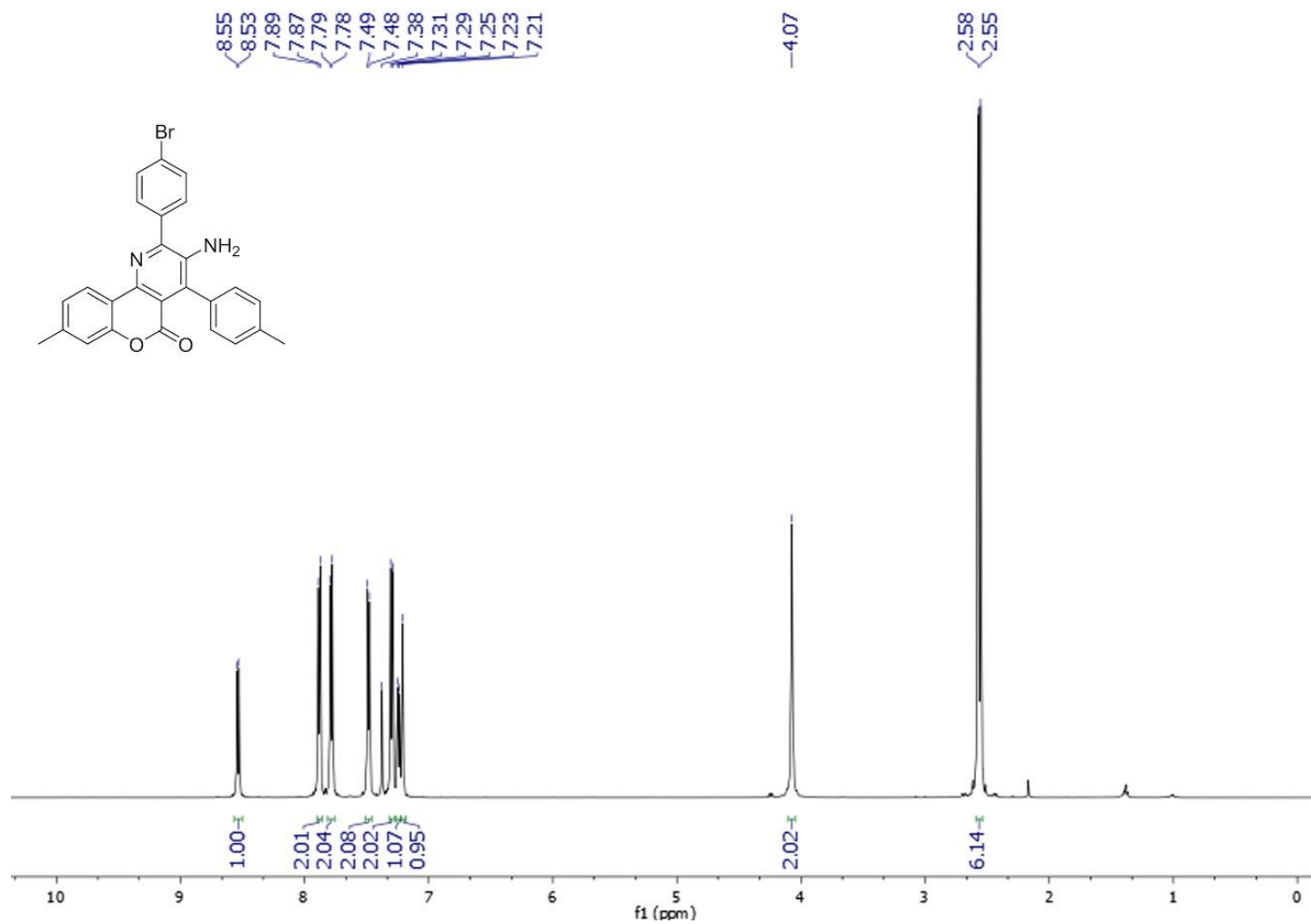
^1H NMR spectrum of 3-Amino-2-(4-bromophenyl)-4-phenyl-8-methyl-5H-chromeno[4,3-b]pyridine-5-one (**4n**)



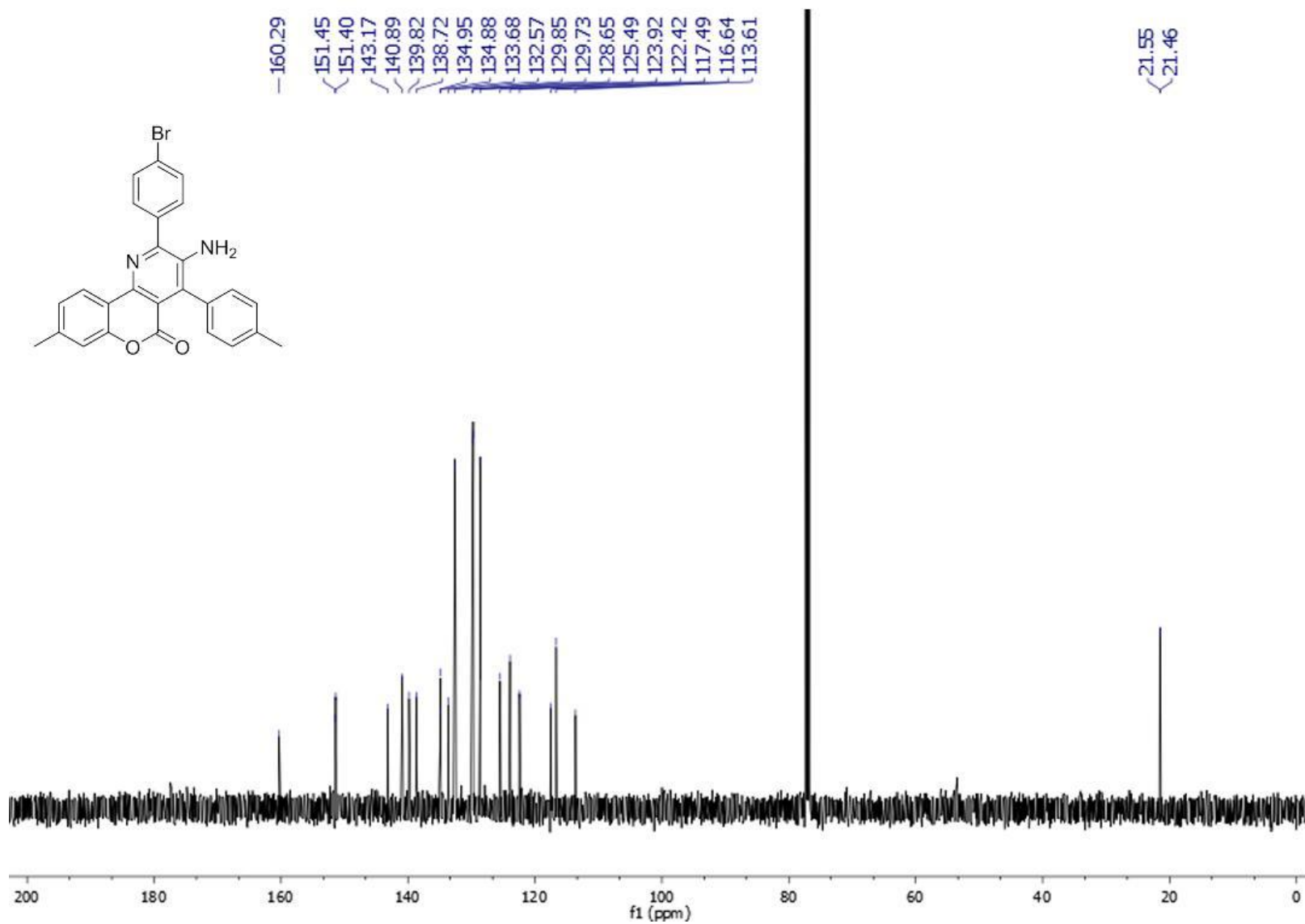
¹³C NMR spectrum of 3-Amino-2-(4-bromophenyl)-4-phenyl-8-methyl-5H-chromeno[4,3-b]pyridine-5-one (**4n**)



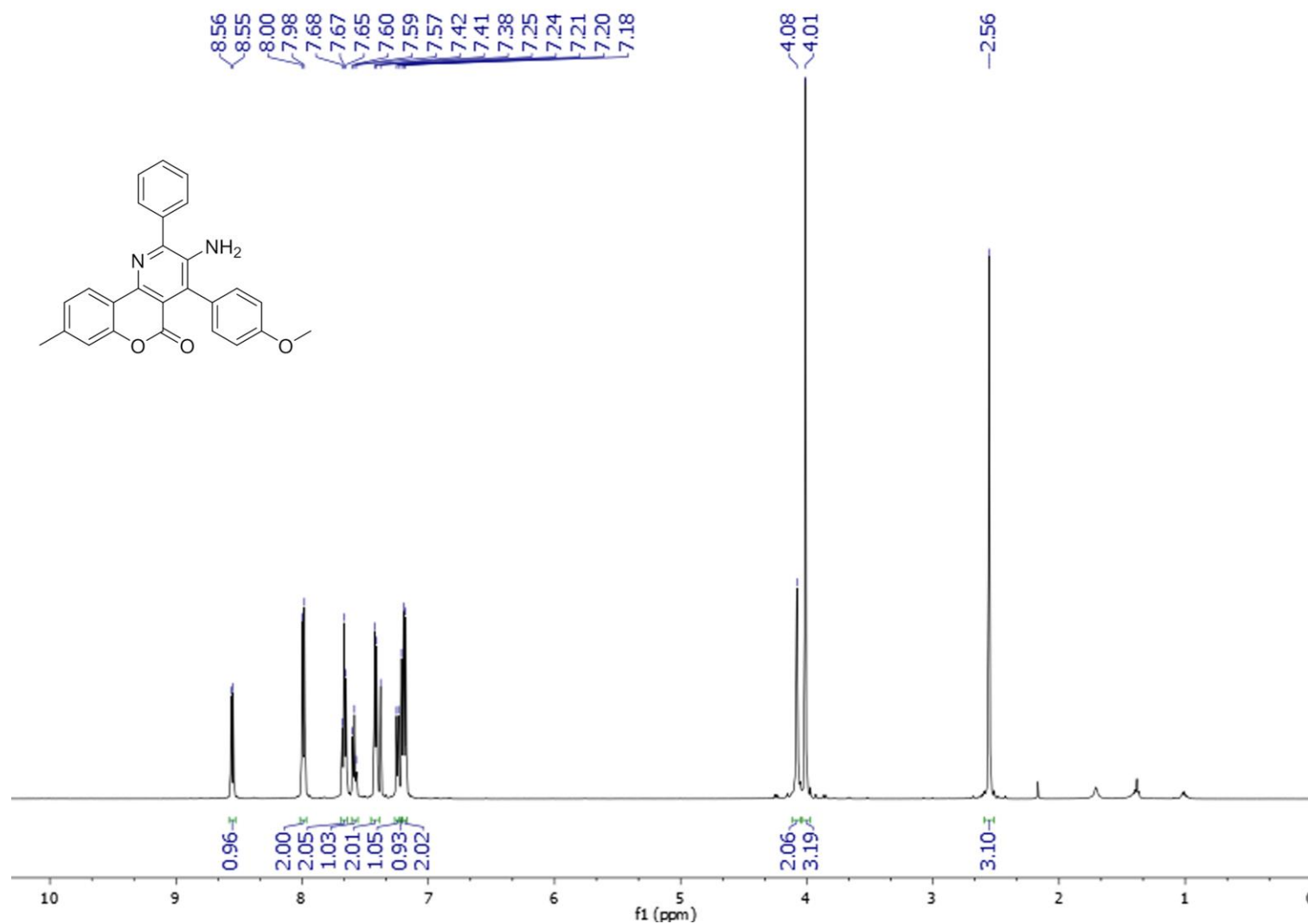
^1H NMR spectrum of 3-Amino-2-(4-bromophenyl)-4-(4-methylphenyl)-8-methyl-5H-chromeno[4,3-b]pyridine-5-one (**4o**)



^{13}C NMR spectrum of 3-Amino-2-(4-bromophenyl)-4-(4-methylphenyl)-8-methyl-5H-chromeno[4,3-b]pyridine-5-one (**4o**)



^1H NMR spectrum of 3-Amino-2-phenyl-4-(4-methoxyphenyl)-8-methyl-5H-chromeno[4,3-b]pyridine-5-one (**4p**)



^{13}C NMR spectrum of 3-Amino-2-phenyl-4-(4-methoxyphenyl)-8-methyl-5H-chromeno[4,3-b]pyridine-5-one (**4p**)

