Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

Microwave-assisted synthesis of 3-sulfenylindoles by sulfonyl hydrazides using organic ionic base-Brønsted acid

Rajjakfur Rahaman, Namita Devi, Kuladip Sarma and Pranjit Barman*

Department of Chemistry, National Institute of Technology Silchar, Silchar 788010, India

**Email: barmanpranjit@yahoo.co.in*

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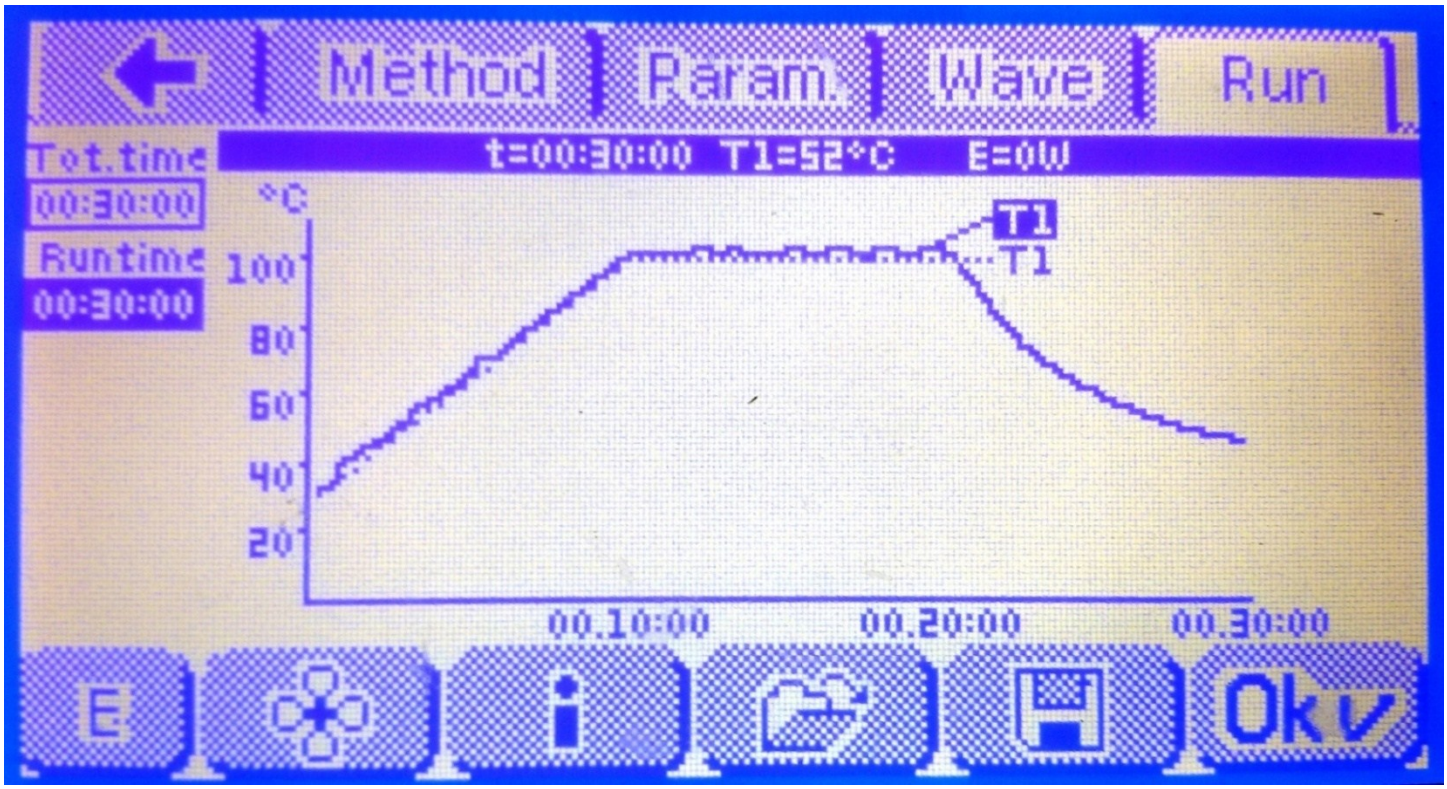
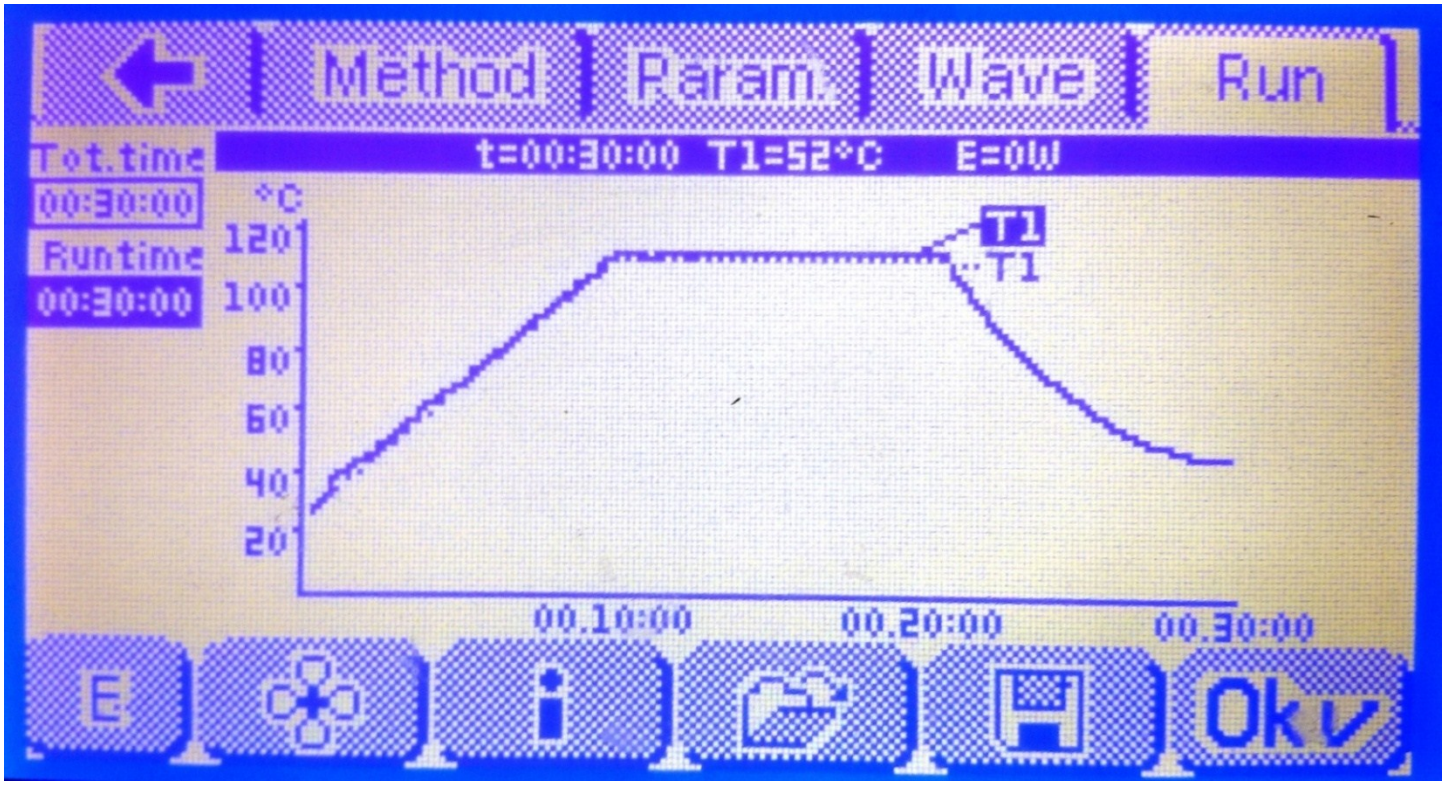
The optimization heating curves for microwave assisted synthesis:

All the synthesis processes were performed on a programmed microwave synthesis reactor (START SYNTH, Milestone). All the reaction parameters were programmed with optimized increased time, target temperature, standing time and temperature. The three different optimization temperature curves are given below (as recorded in Terminal 260):

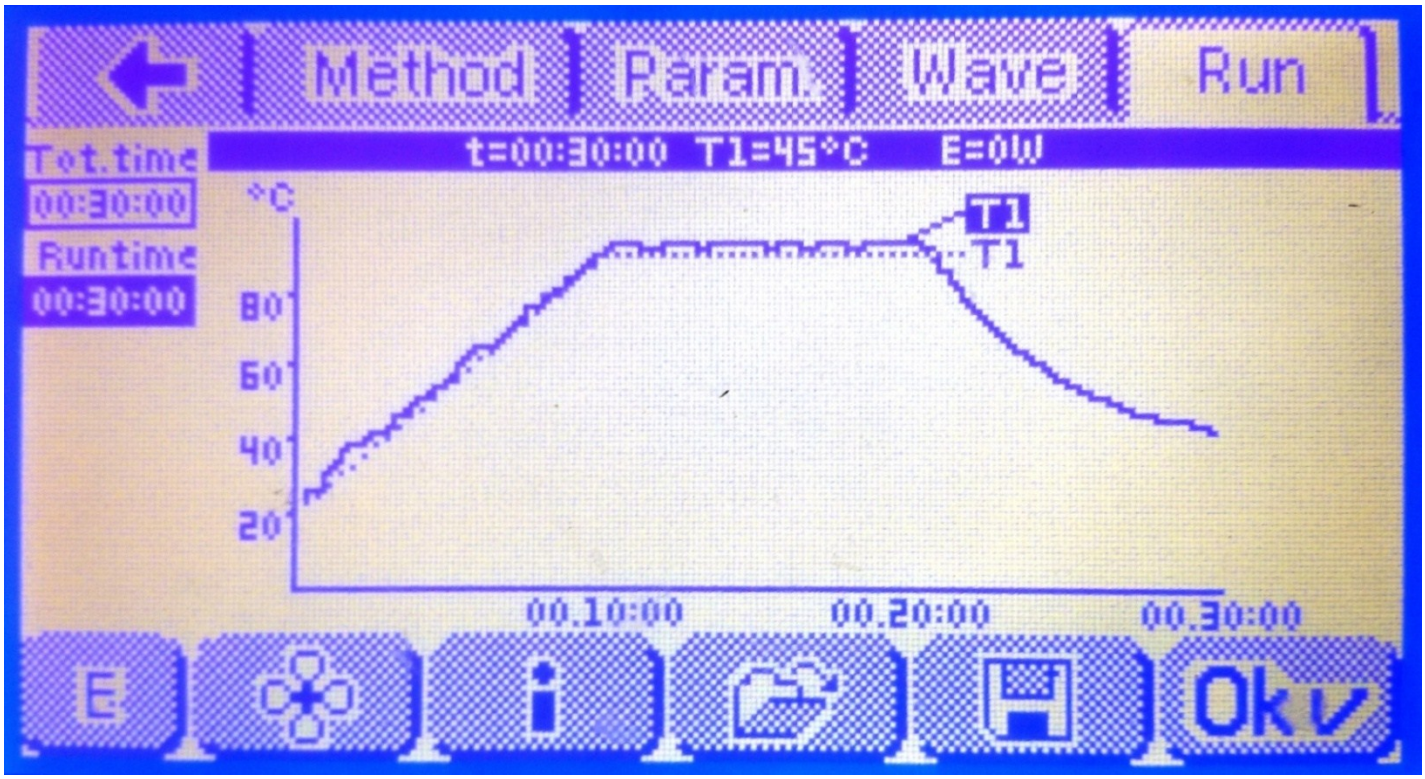
1. 80 W, 100 ^{o}C, 10 min



2. 80 W, 110 °C, 10 min

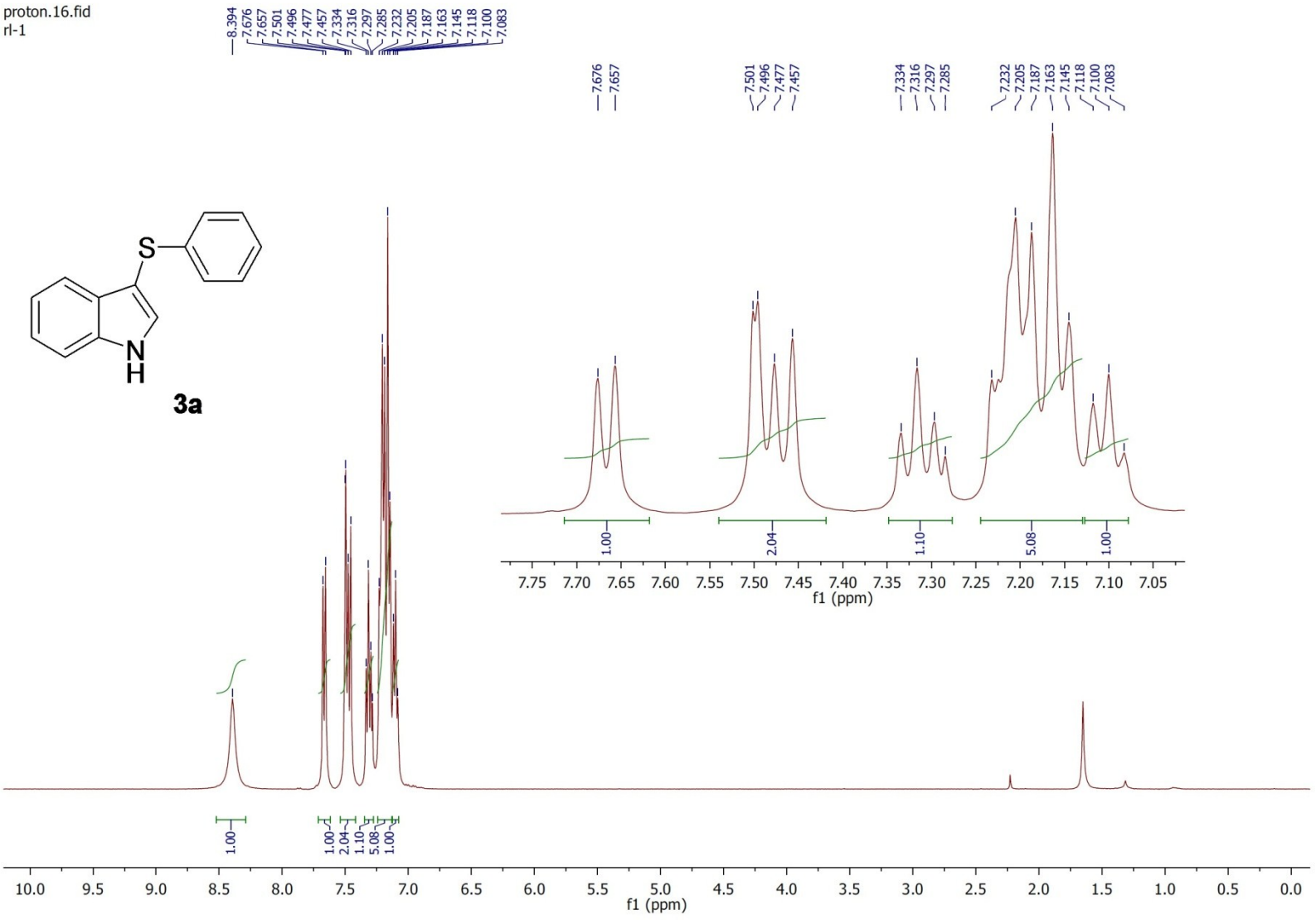


3. 80 W, 90 °C, 10 min

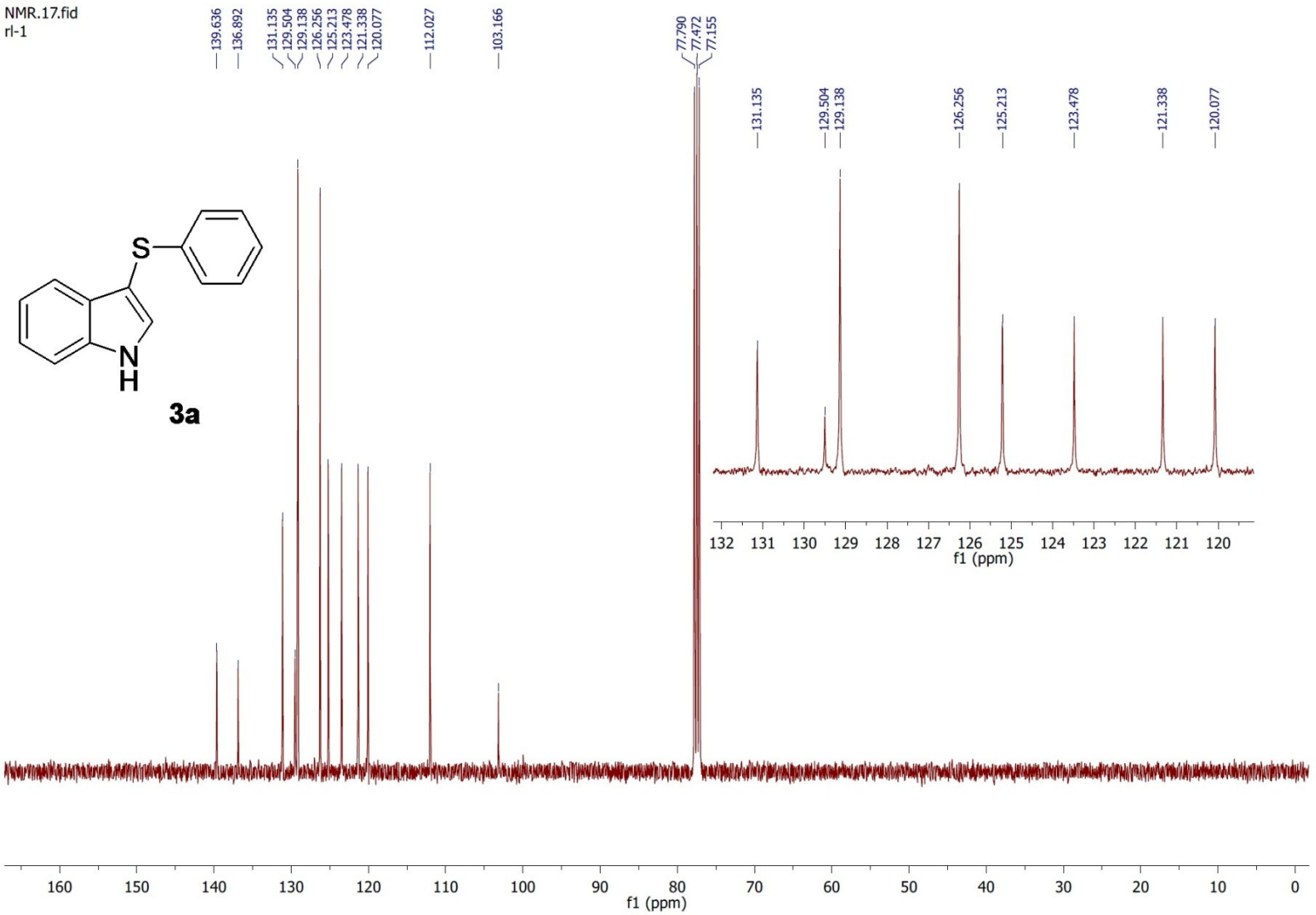


Characterization data of the synthesized compounds

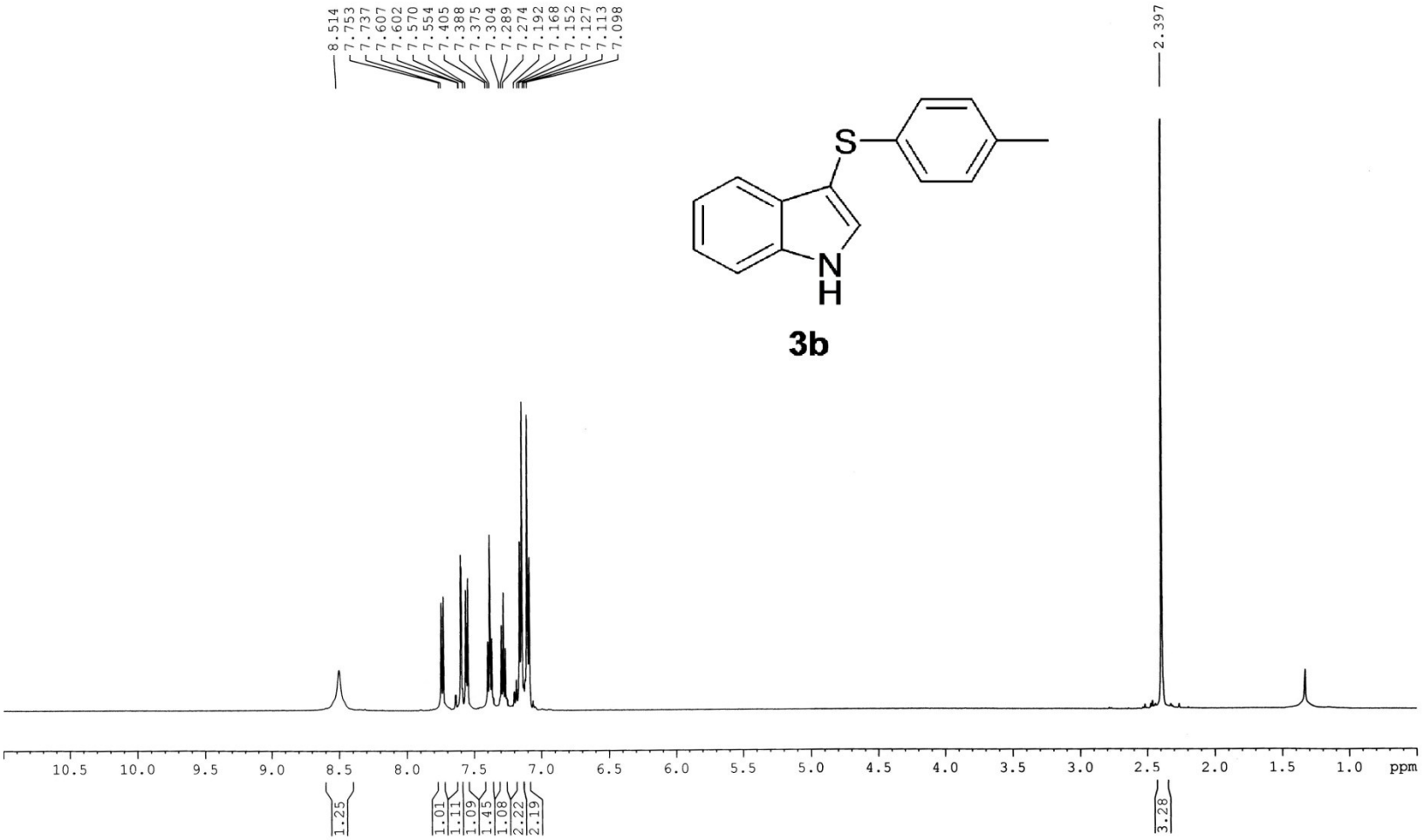
^{1}H NMR of compound **3a** ($CDCl_3$, 400 MHz)



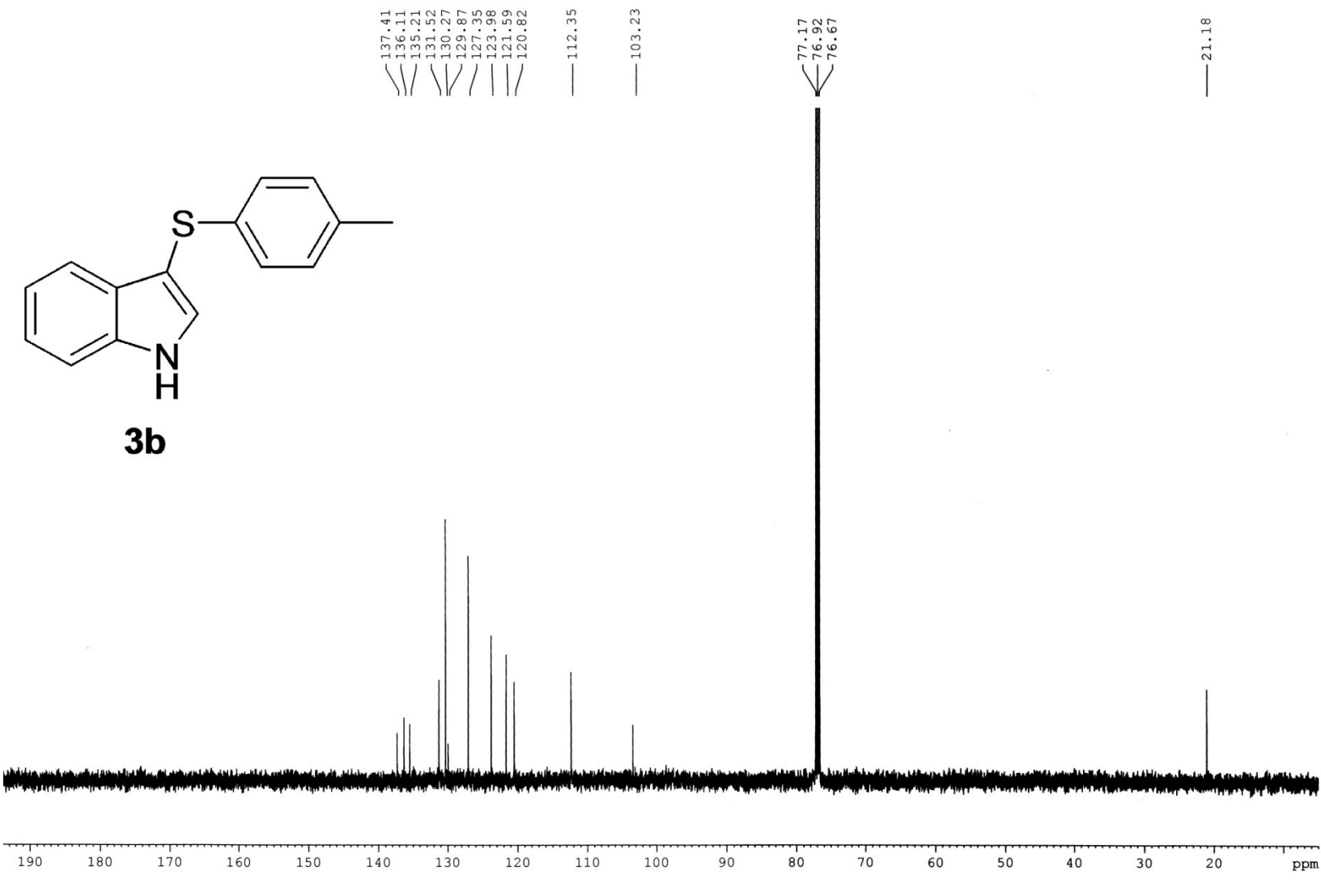
^{13}C NMR of compound **3a** ($CDCl_3$, 100 MHz)



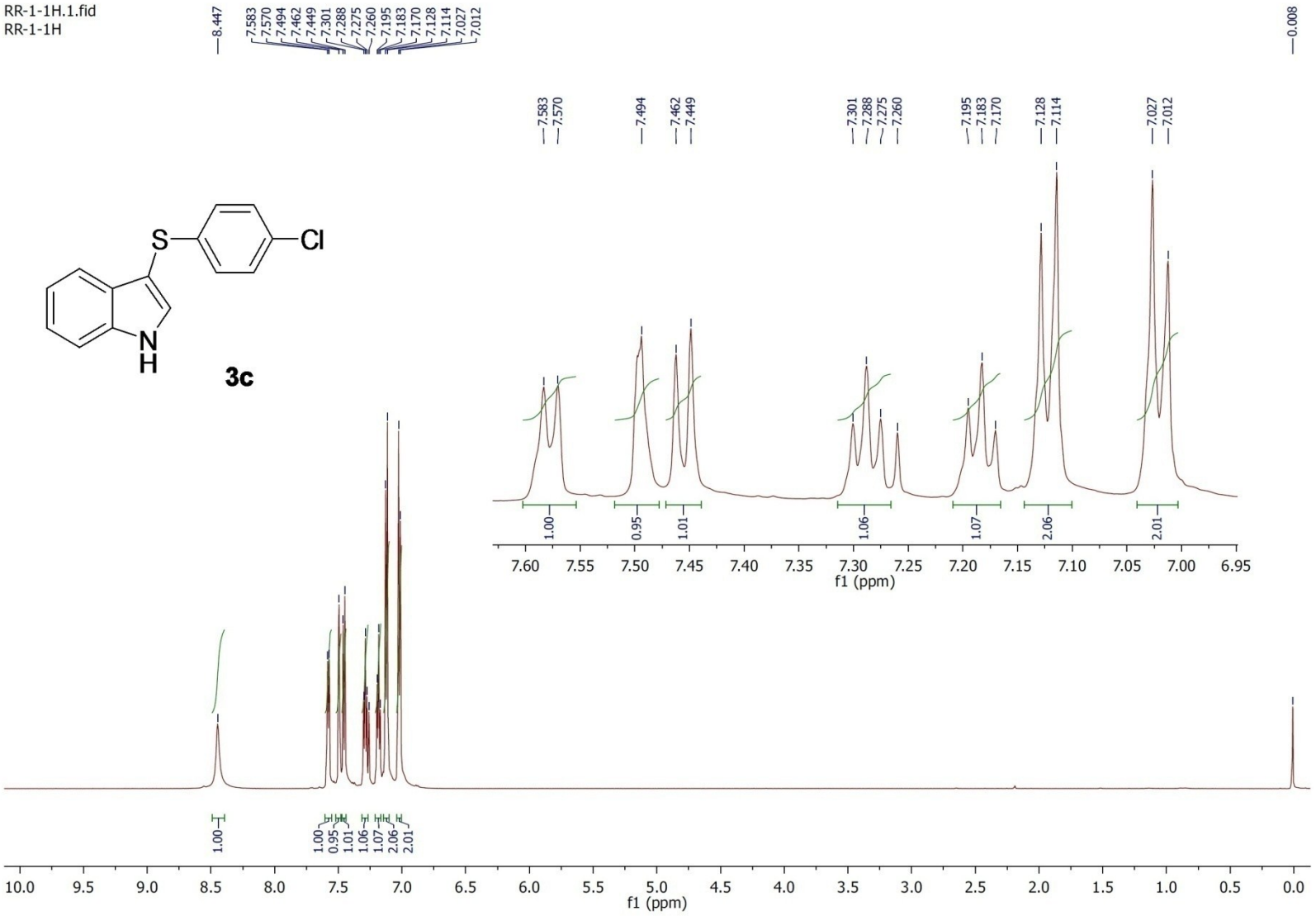
^{1}H NMR of compound **3b** ($CDCl_3$, 400 MHz)



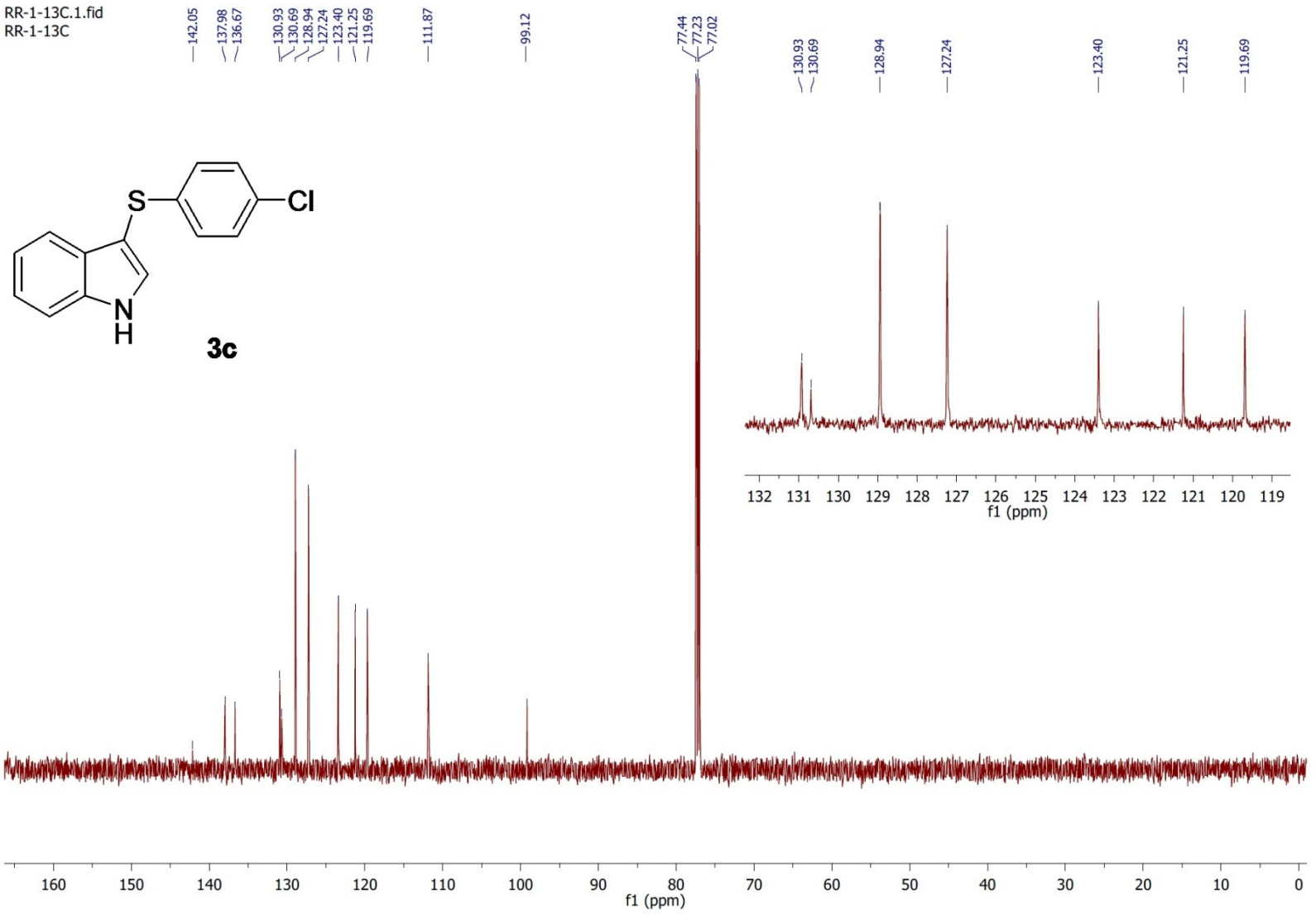
^{13}C NMR of compound **3b** ($CDCl_3$, 125 MHz)



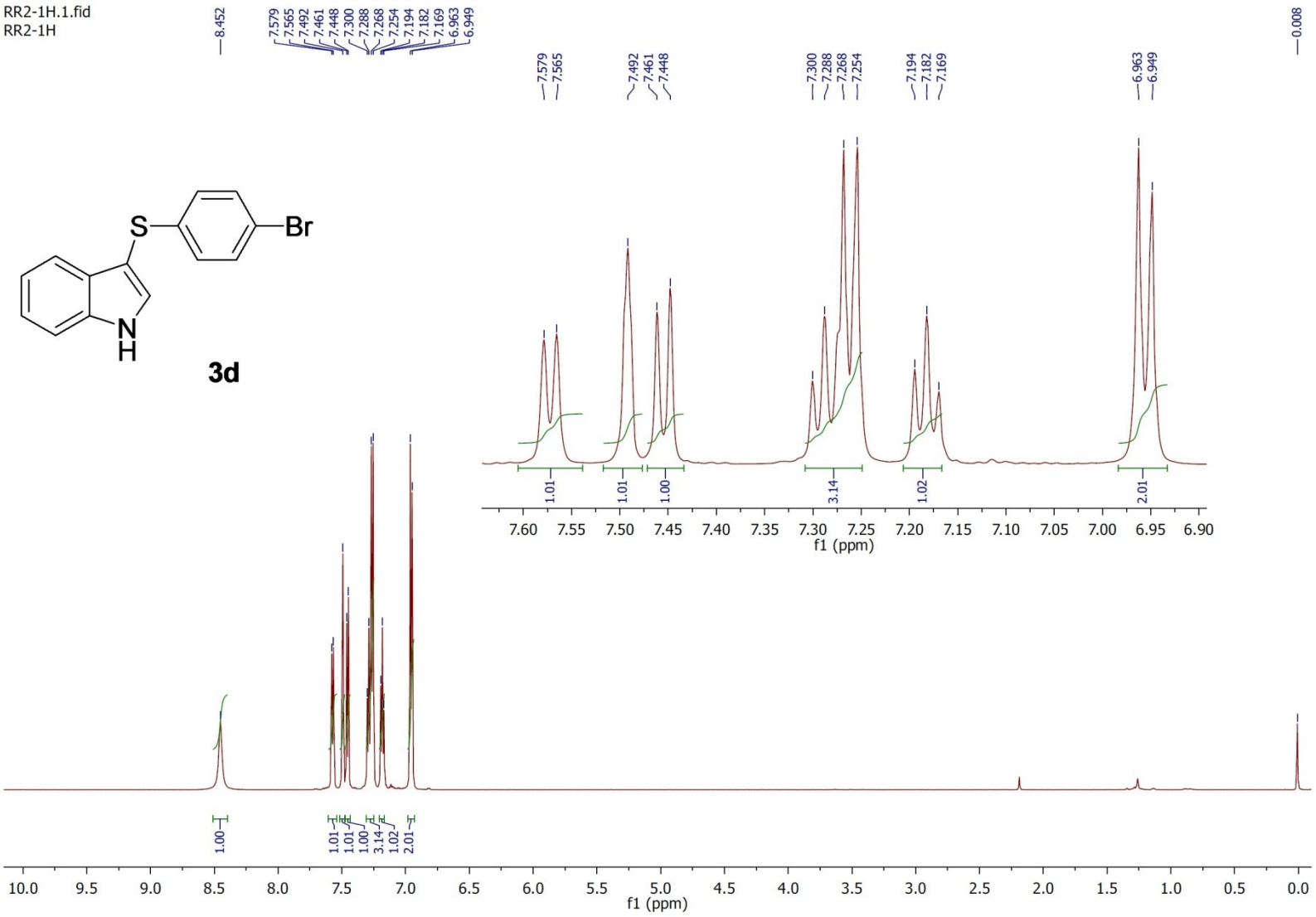
^{1}H NMR of compound **3c** ($CDCl_3$, 600 MHz)



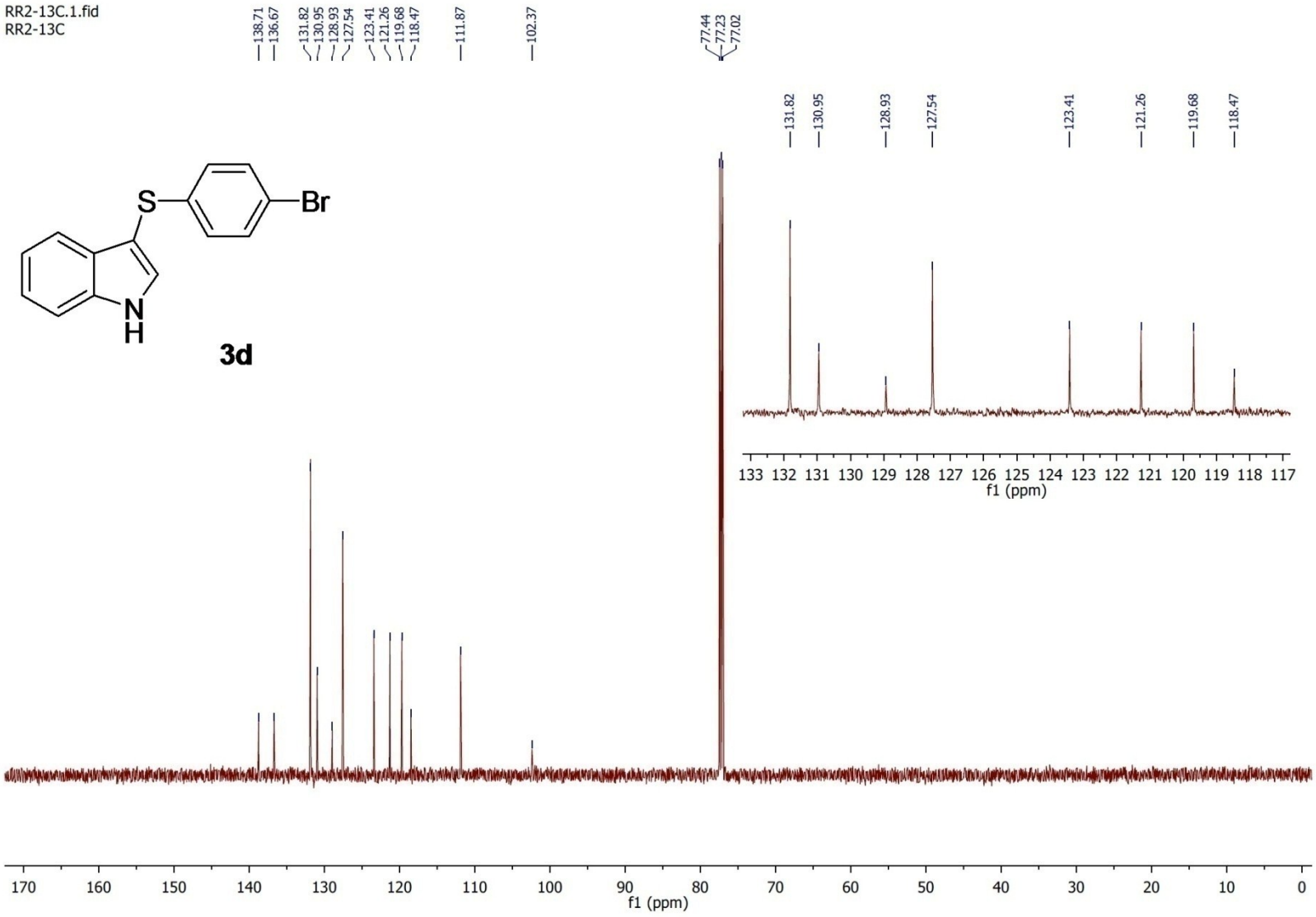
^{13}C NMR of compound **3c** ($CDCl_3$, 150 MHz)



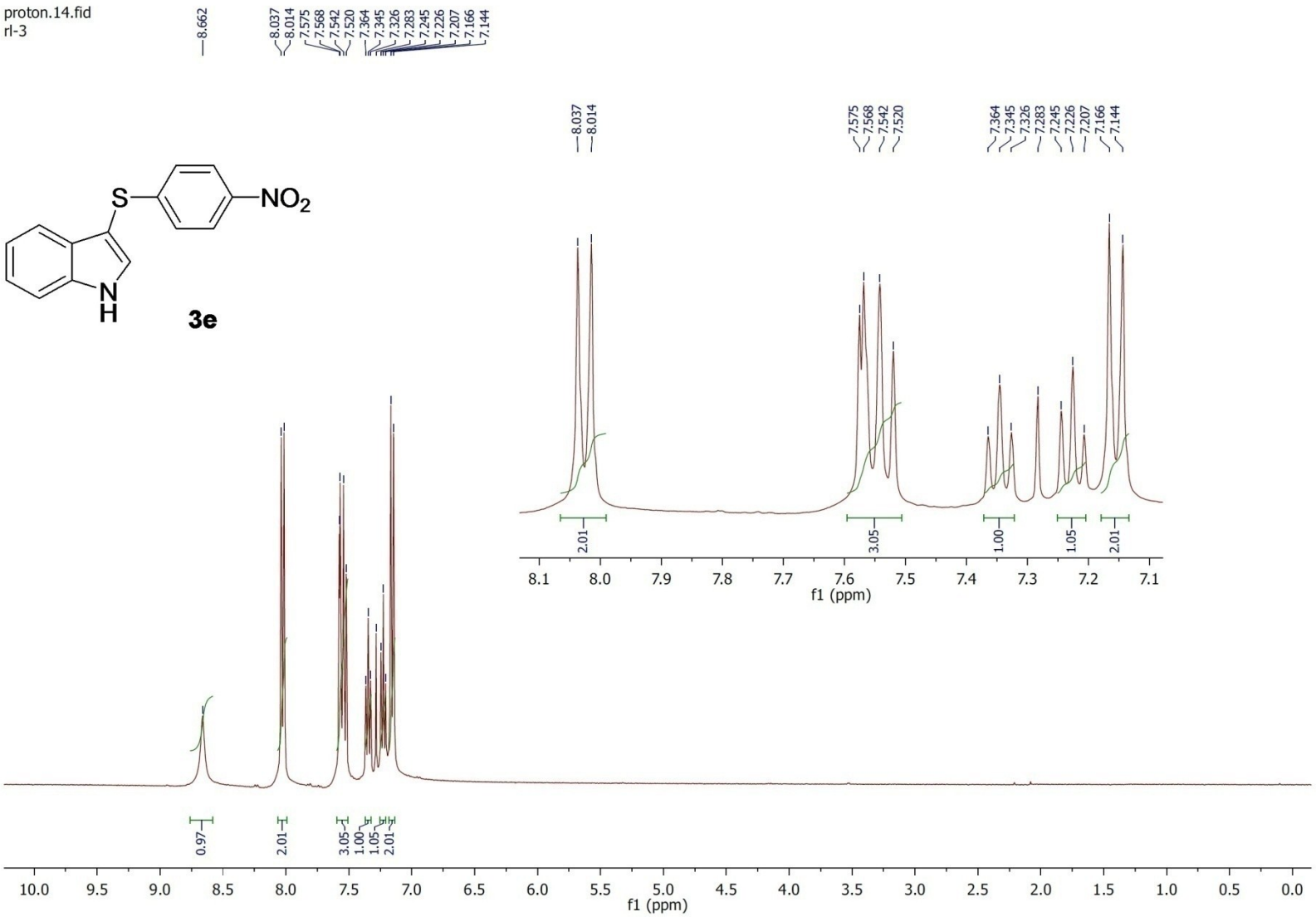
^{1}H NMR of compound **3d** ($CDCl_3$, 600 MHz)



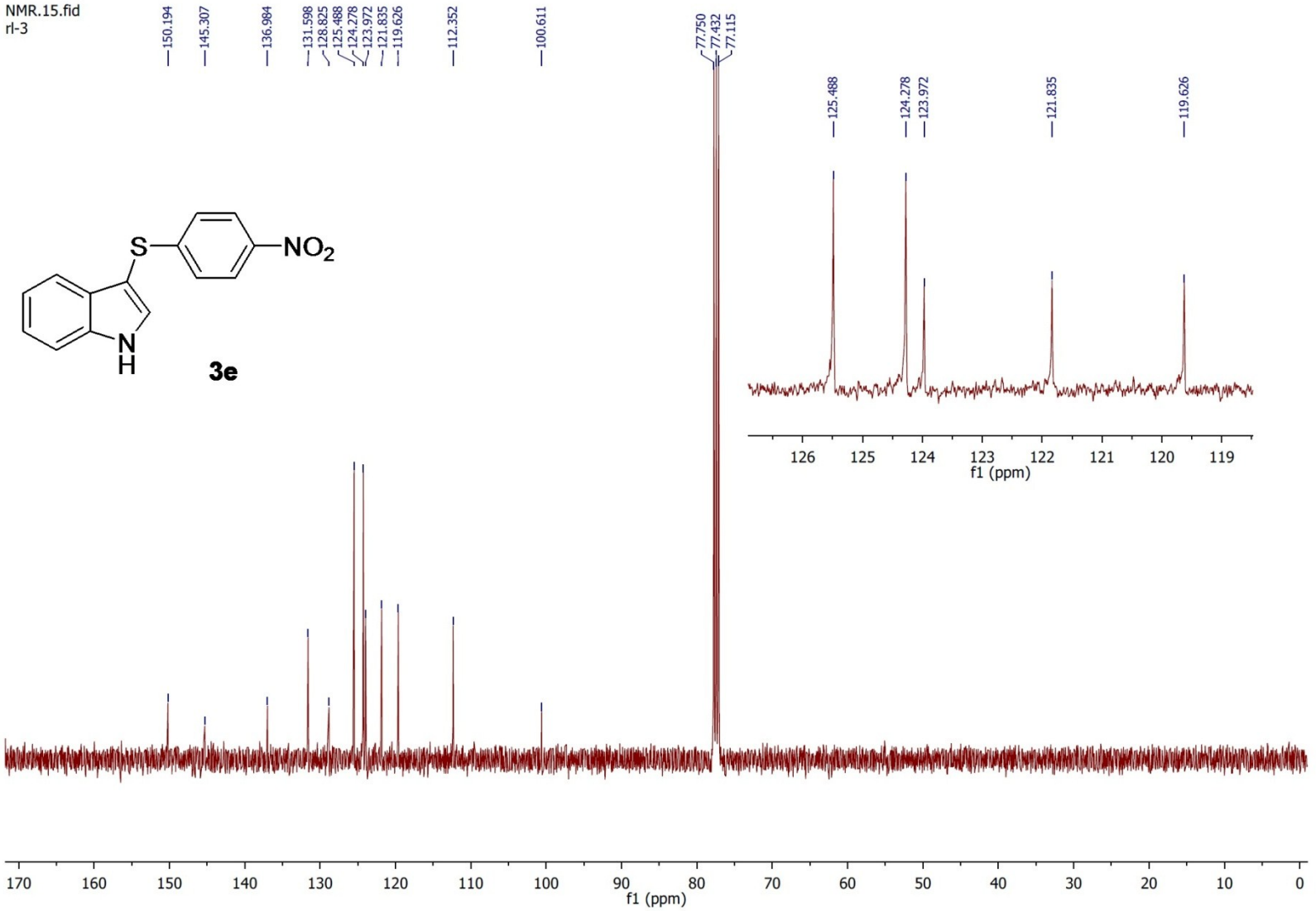
^{13}C NMR of compound **3d** ($CDCl_3$, 125 MHz)



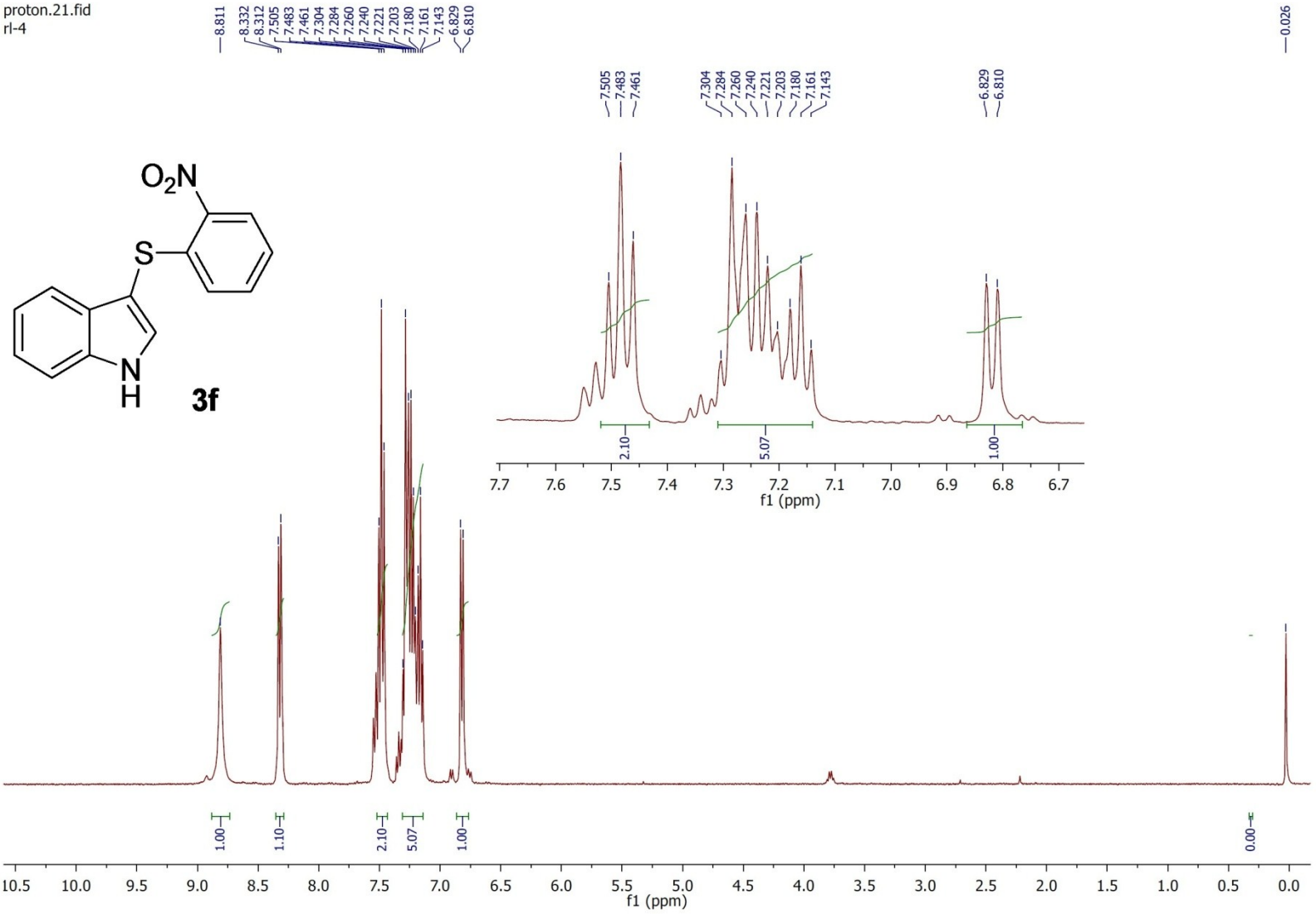
^{1}H NMR of compound **3e** ($CDCl_3$, 400 MHz)



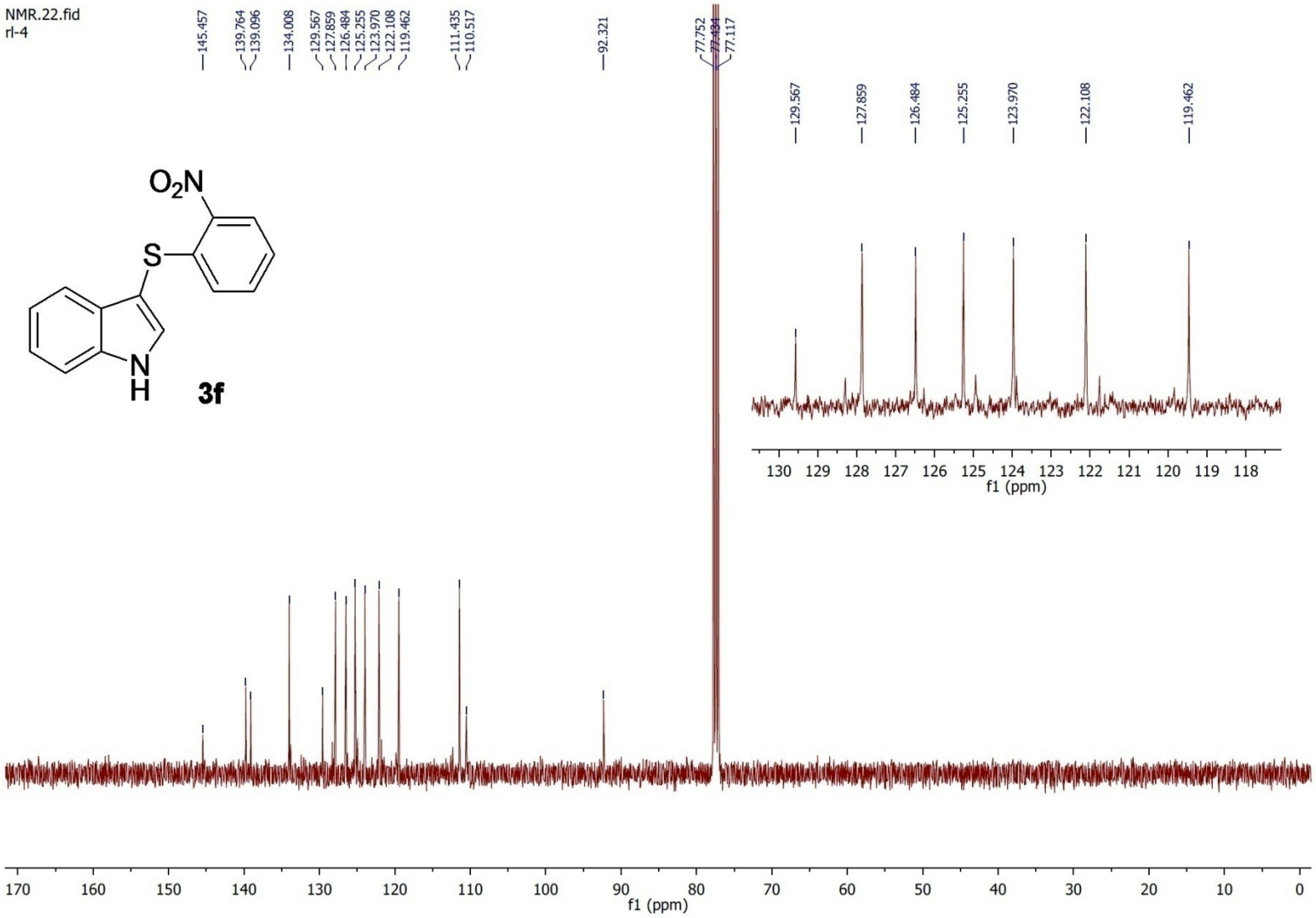
^{13}C NMR of compound **3e** ($CDCl_3$, 100 MHz)



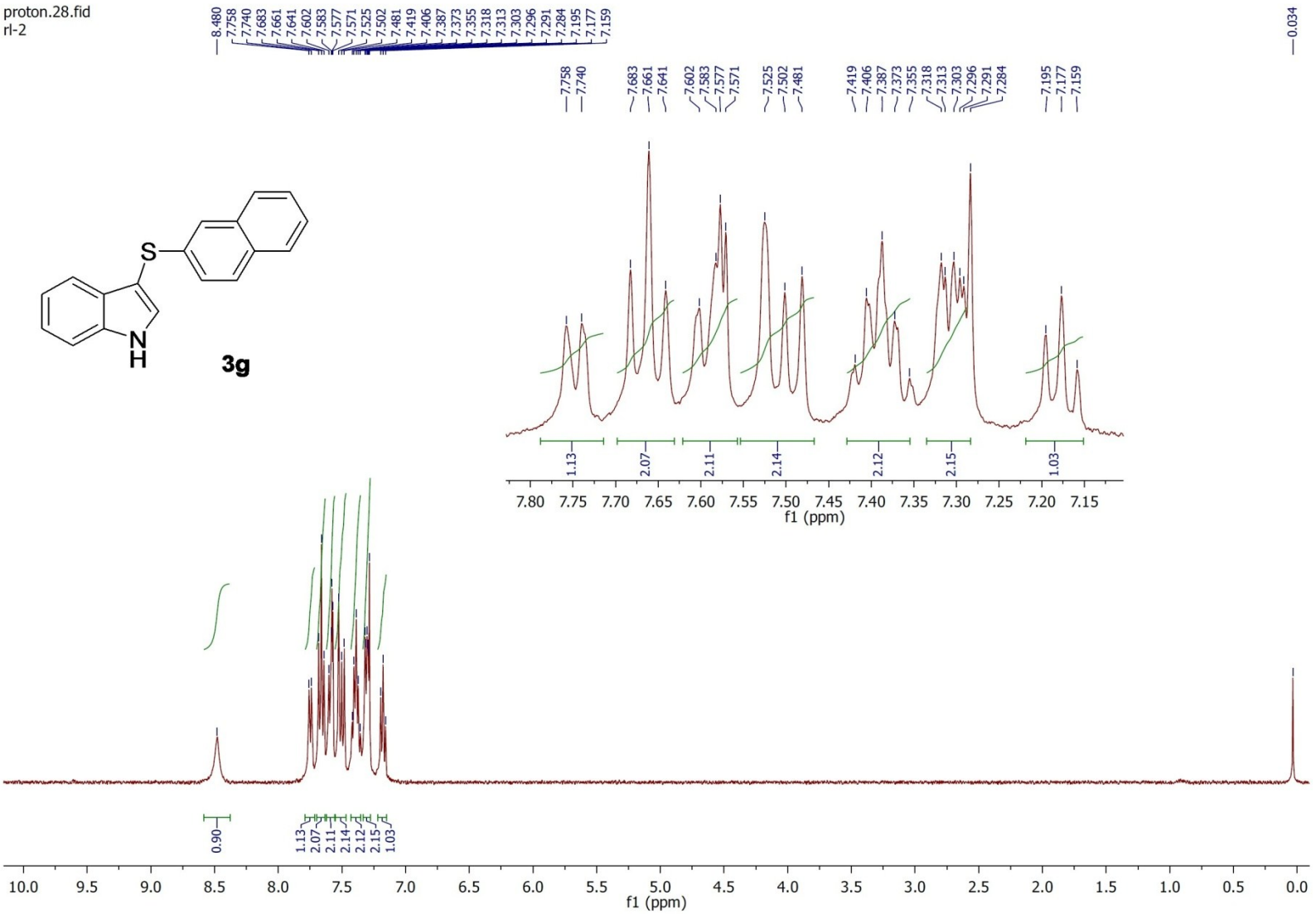
^{1}H NMR of compound **3f** ($CDCl_3$, 400 MHz)



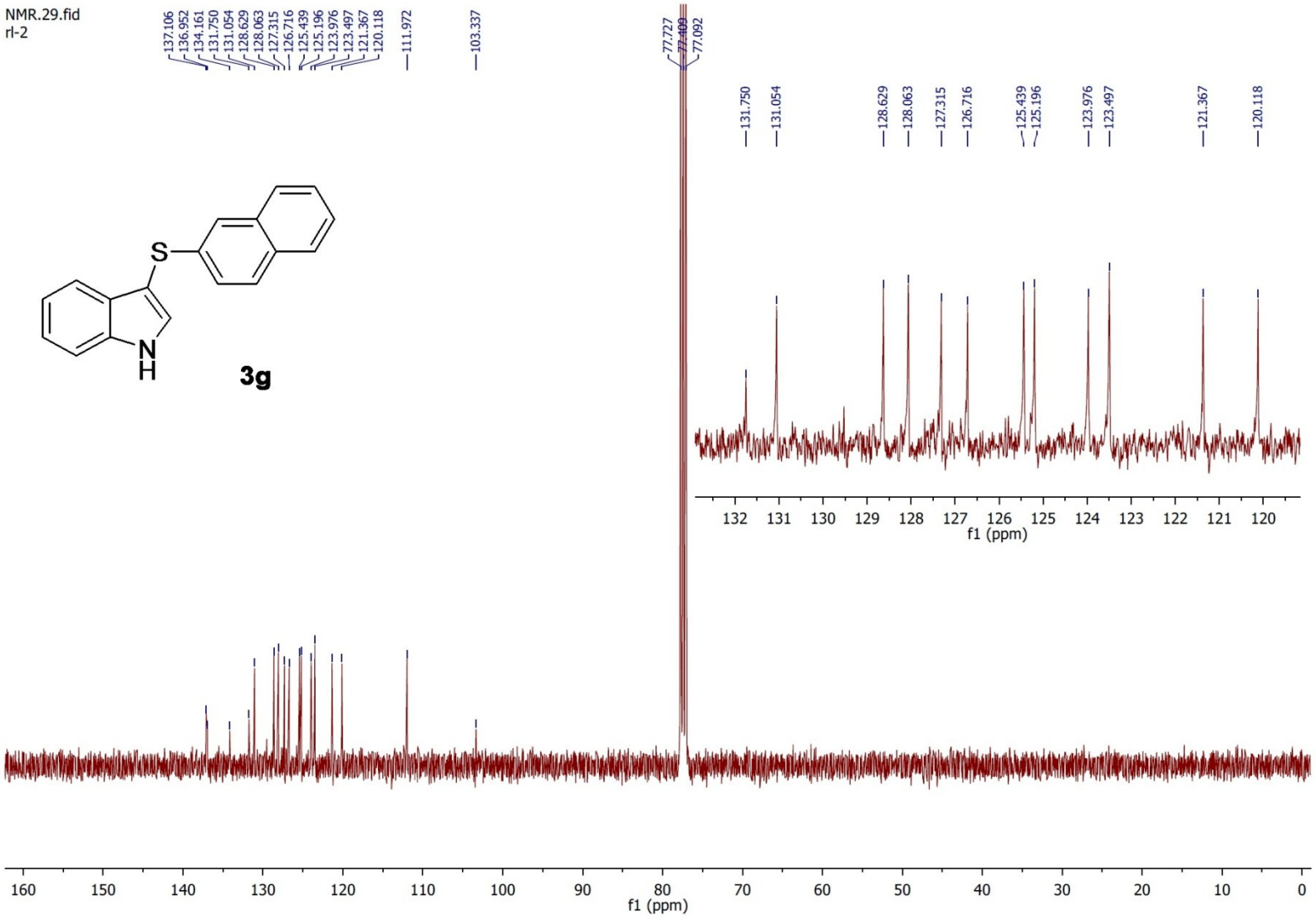
^{13}C NMR of compound **3f** ($CDCl_3$, 100 MHz)



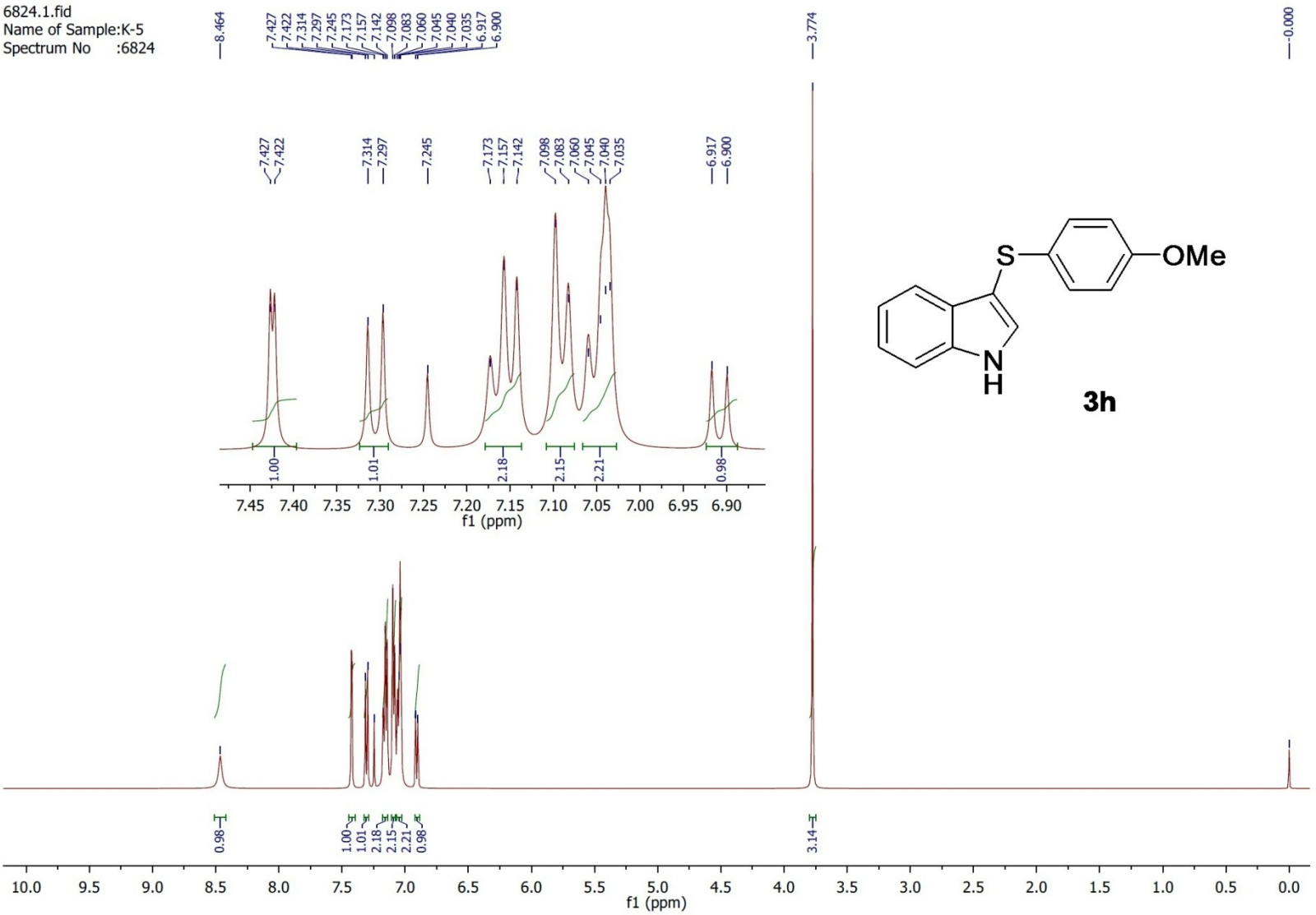
^{1}H NMR of compound **3g** ($CDCl_3$, 400 MHz)



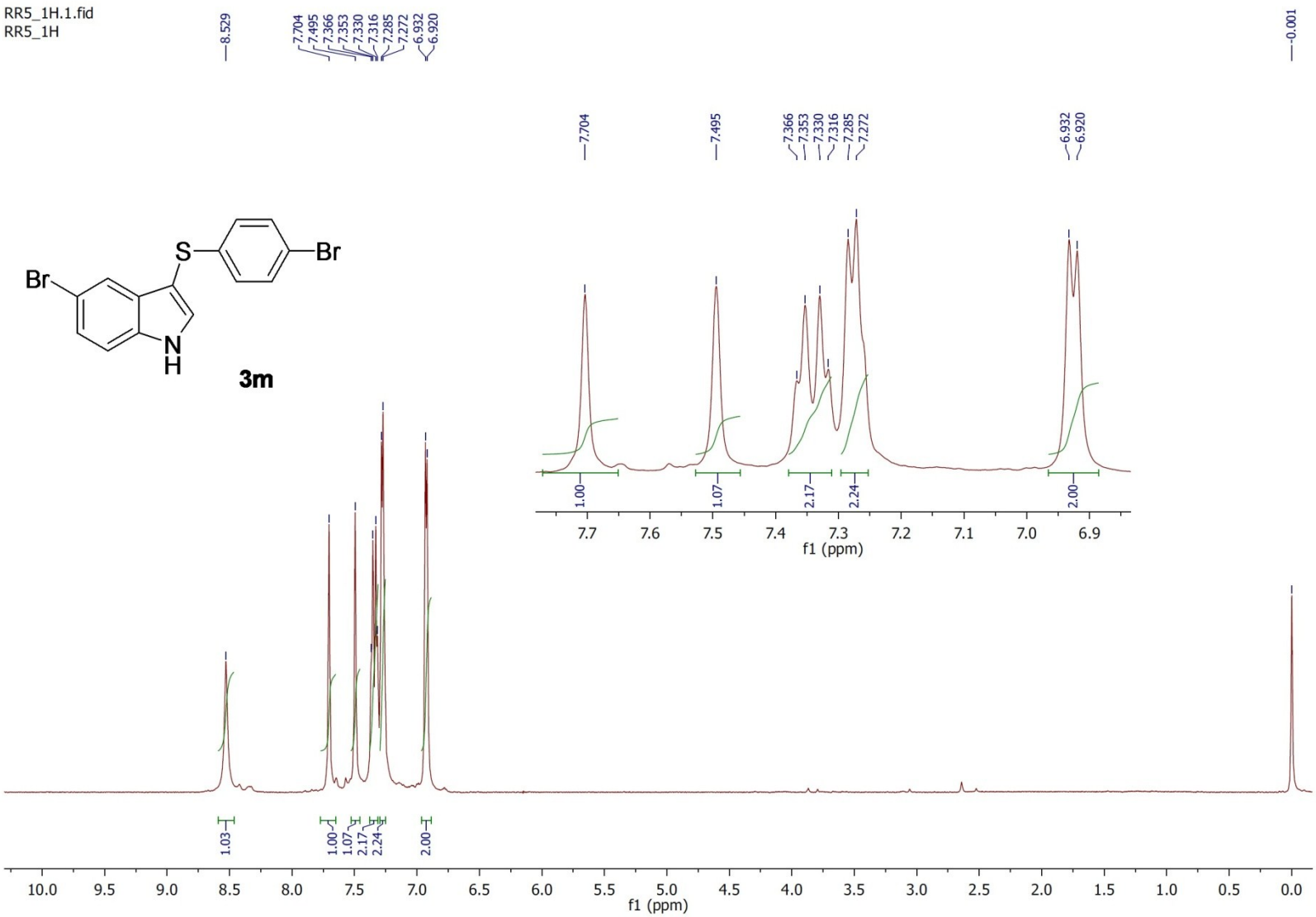
^{13}C NMR of compound **3g** ($CDCl_3$, 100 MHz)



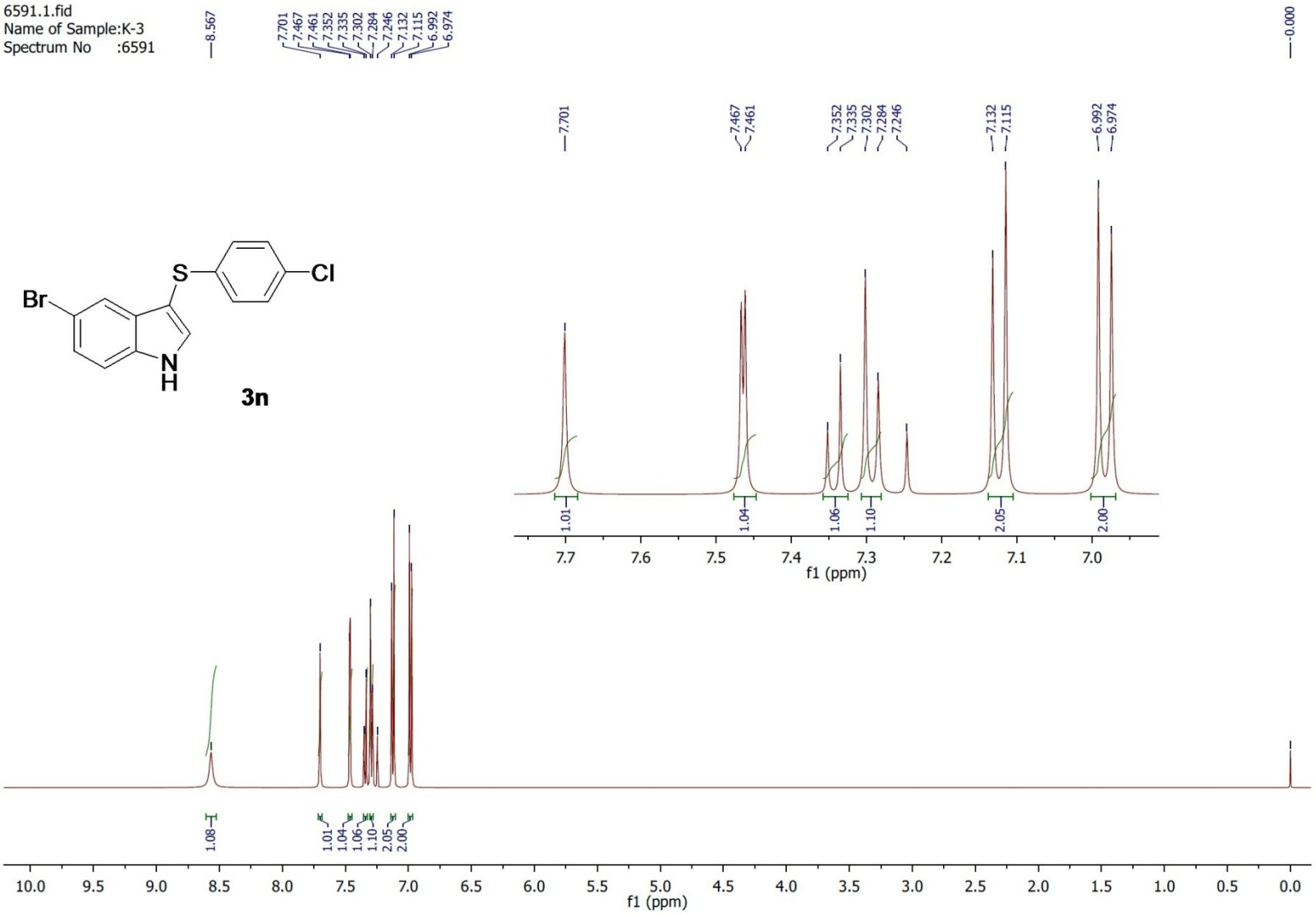
^{1}H NMR of compound **3h** ($CDCl_3$, 400 MHz)



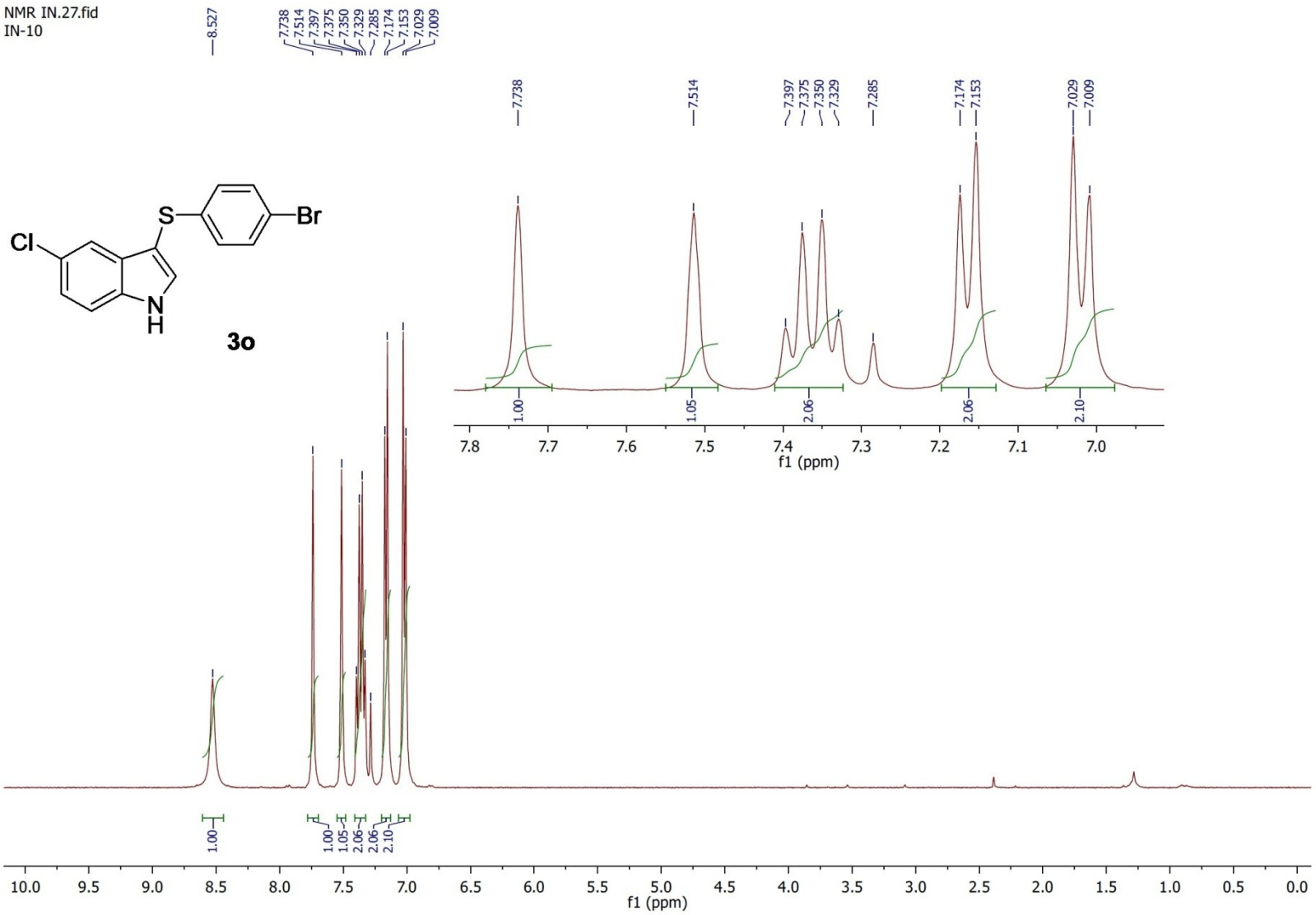
^{1}H NMR of compound **3m** ($CDCl_3$, 600 MHz)



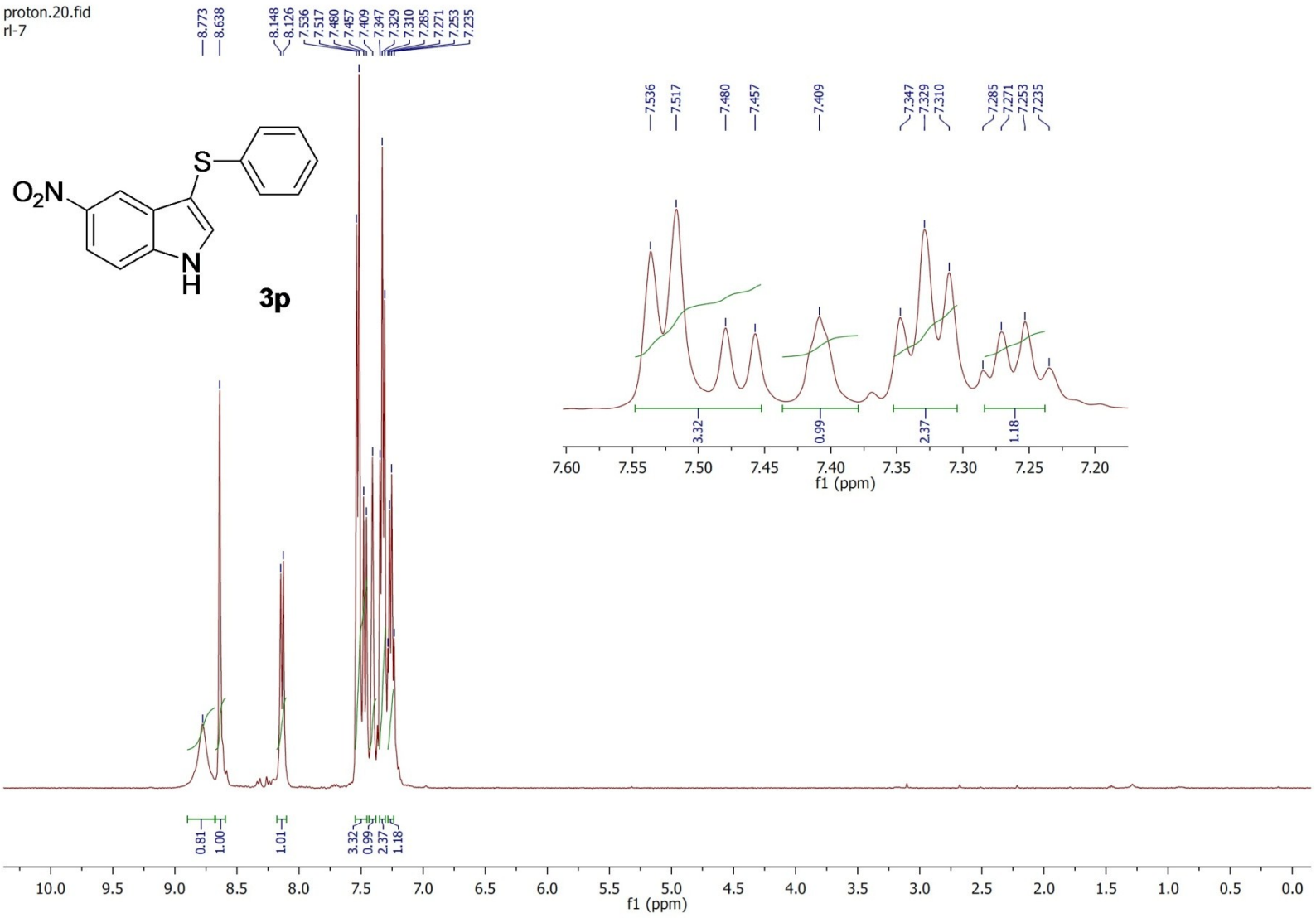
^{1}H NMR of compound **3n** (DMSO-d_6, 400 MHz)



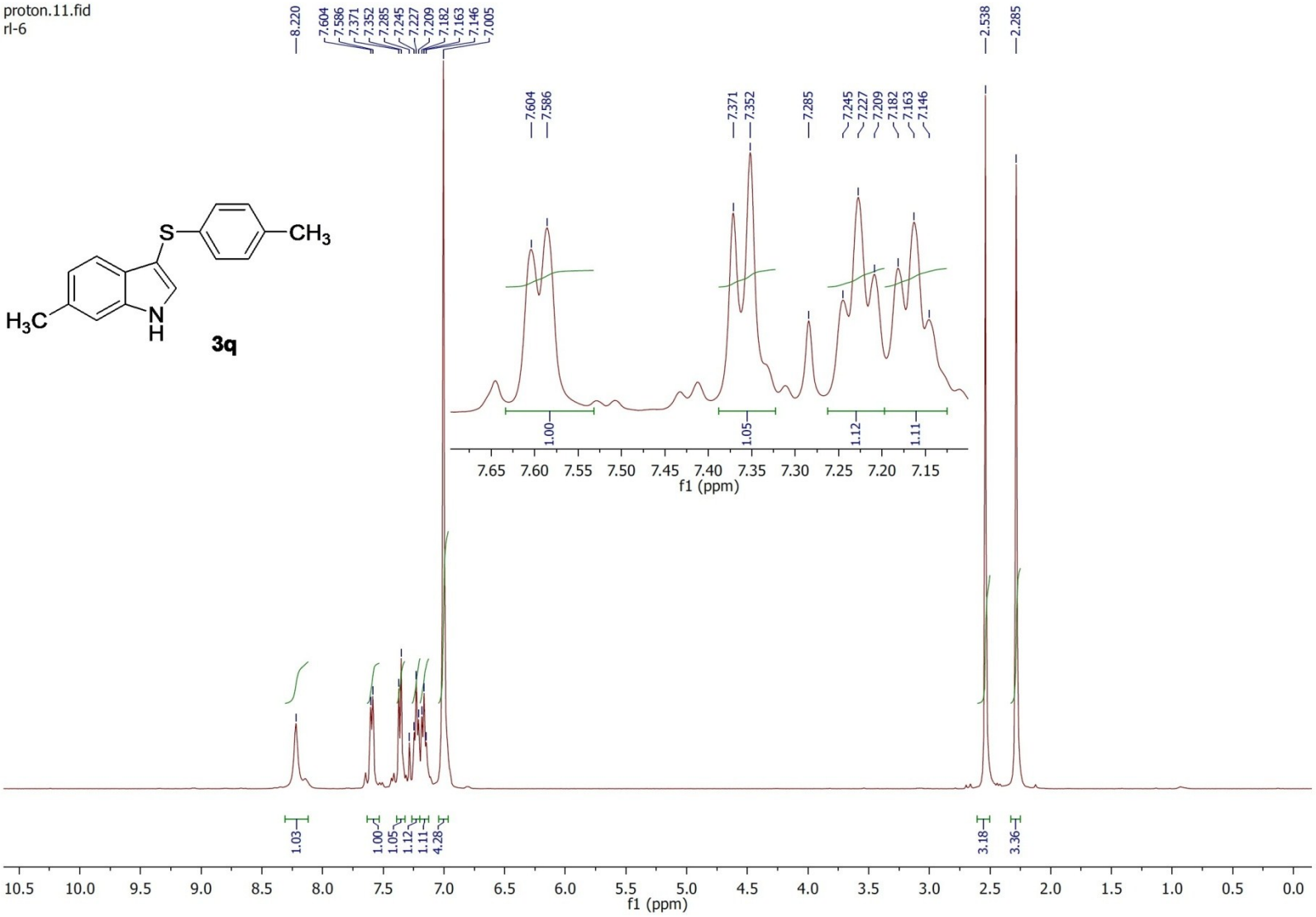
^{1}H NMR of compound **3o** ($CDCl_3$, 400 MHz)



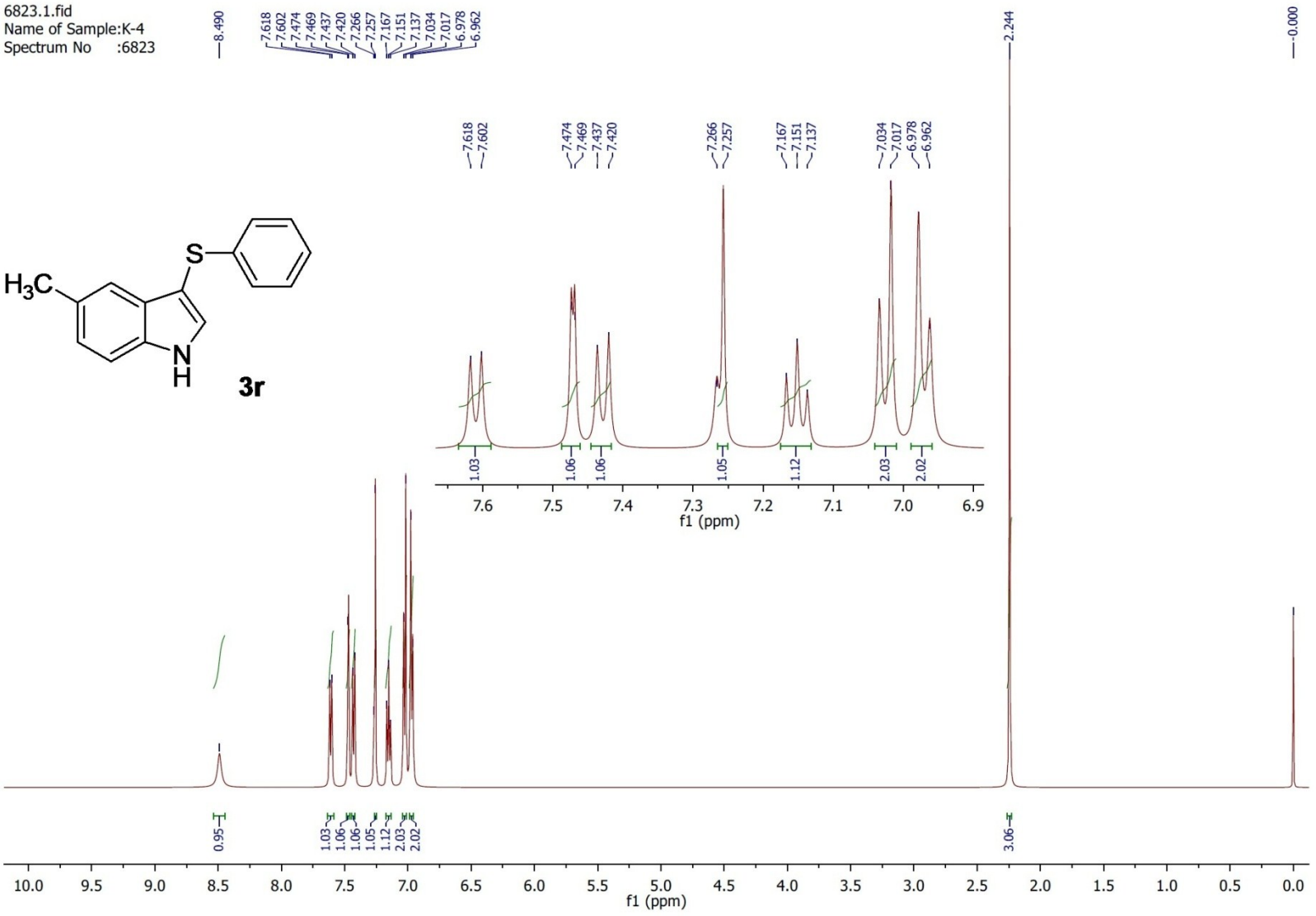
^{1}H NMR of compound **3p** ($CDCl_3$, 400 MHz)



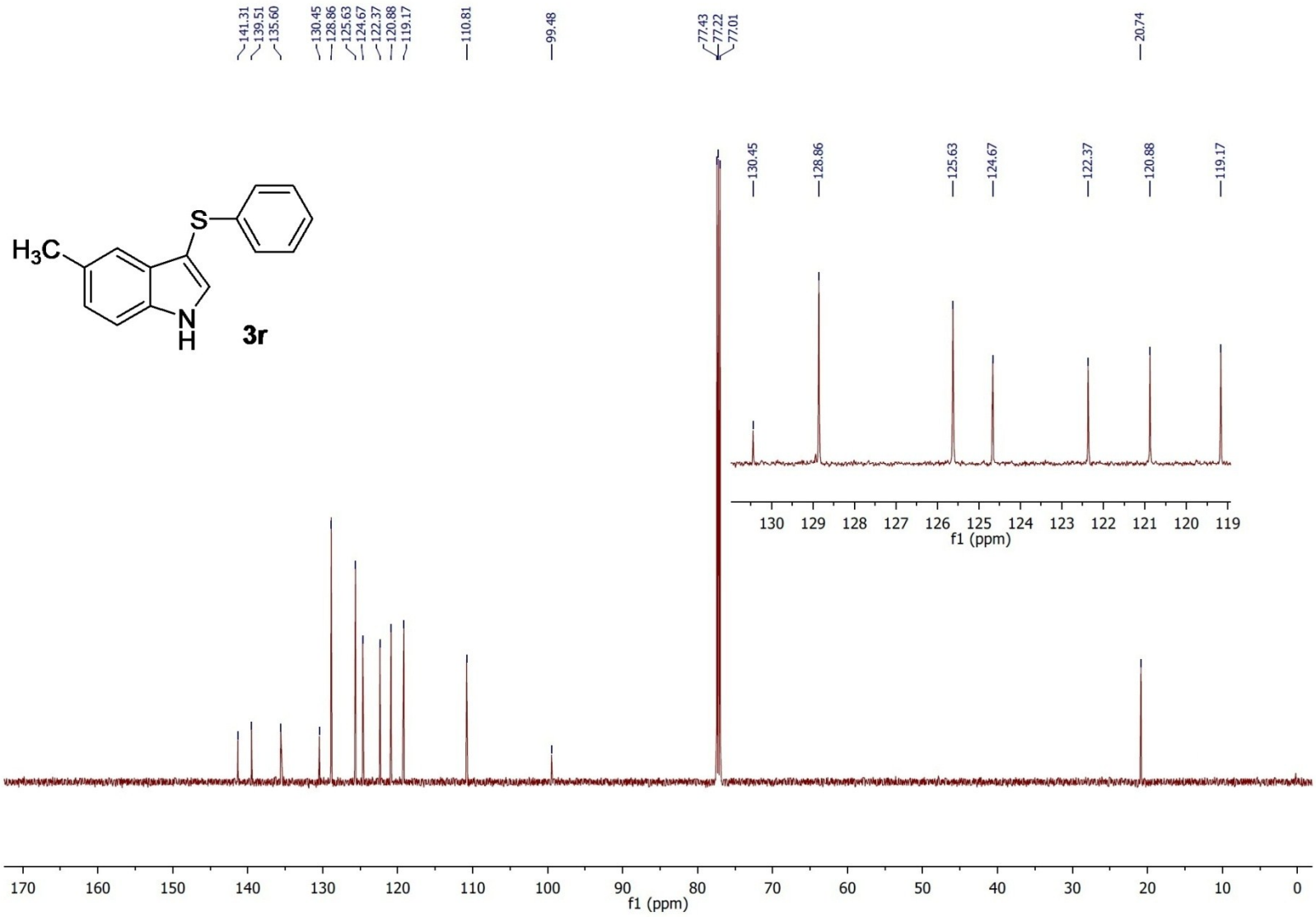
^{1}H NMR of compound **3q** ($CDCl_3$, 400 MHz)



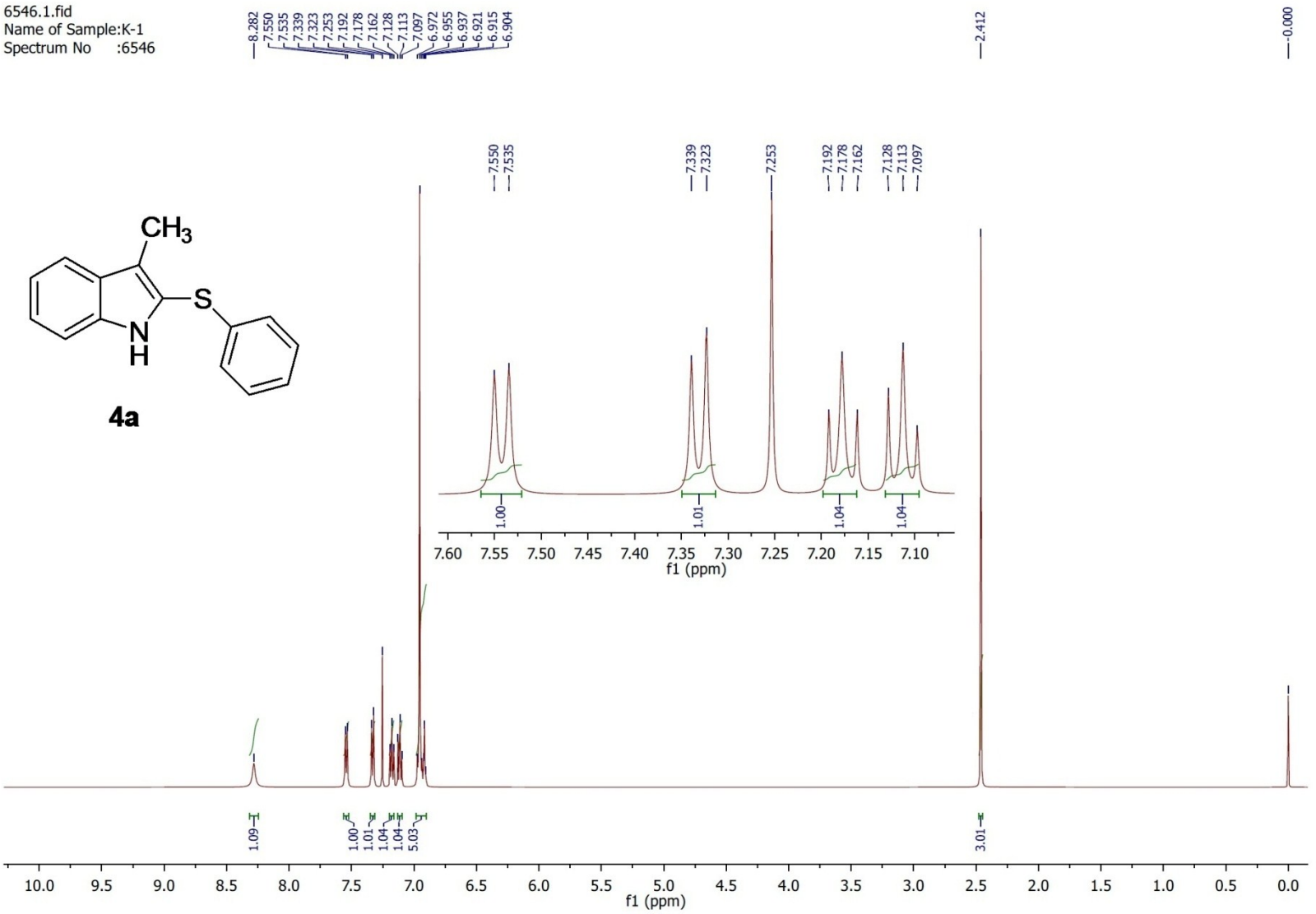
^{1}H NMR of compound **3r** ($CDCl_3$, 400 MHz)



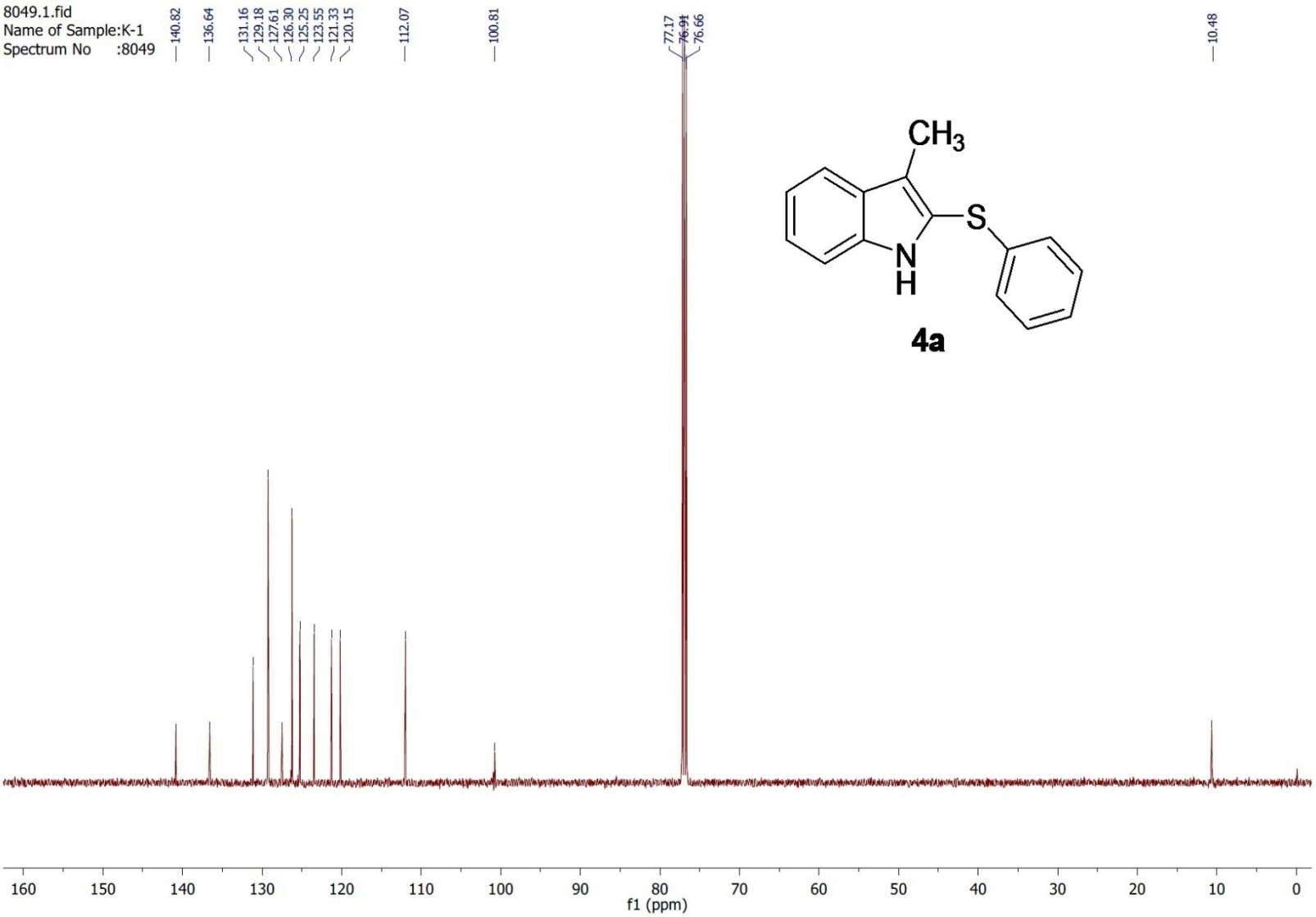
^{13}C NMR of compound **3r** ($CDCl_3$, 125 MHz)



^{1}H NMR of compound **4a** (DMSO-d_6, 400 MHz)



^{13}C NMR of compound **4a** ($CDCl_3$, 100 MHz)



^{1}H NMR of compound **Ha** ($CDCl_3$, 400 MHz)