

# Combined *in silico* and *in vitro* analyses to assess the anti-cancer potential of thiazolidinedione-thiosemicarbazone hybrid molecules

Agata Paneth<sup>1</sup>, Barbara Kaproń<sup>2</sup>, Tomasz Plech<sup>3</sup>, Roman Paduch<sup>4</sup>, Nazar Trotsko<sup>1\*</sup>, and Piotr Paneth<sup>5\*</sup>

<sup>1</sup> Chair and Department of Organic Chemistry, Faculty of Pharmacy, Medical University of Lublin, Lublin, Poland

<sup>2</sup> Department of Clinical Genetics, *Faculty of Medicine*, Medical University of Lublin, Lublin, Poland

<sup>3</sup> Department of Pharmacology, *Faculty of Health Sciences*, Medical University of Lublin, Lublin, Poland

<sup>4</sup> Department of Virology and Immunology, Institute of Biological Sciences, Faculty of Biology and Biotechnology, Maria Curie-Skłodowska University, Lublin, Poland

<sup>5</sup> Institute of Applied Radiation Chemistry, Faculty of Chemistry, Lodz University of Technology, Poland

\* Correspondence: piotr.paneth@p.lodz.pl (P.P.) and nazar.trotsko@umlub.pl (N.T.)

## Supplementary Materials

**Table S1.** DPPH free radical scavenging activity and Ferric-reducing antioxidant power (FRAP) of TZD-TSCs **2-5**.....

3

**Figure S1.**  $^1\text{H}$  NMR spectra for **2**.....

4

**Figure S2.**  $^{13}\text{C}$  NMR spectra for **2**.....

5

**Figure S3.**  $^1\text{H}$  NMR spectra for **3**.....

6

**Figure S4.**  $^{13}\text{C}$  NMR spectra for **3**.....

7

**Figure S5.**  $^1\text{H}$  NMR spectra for **4**.....

8

**Figure S6.**  $^{13}\text{C}$  NMR spectra for **4**.....

9

**Figure S7.**  $^1\text{H}$  NMR spectra for **5**.....

10

**Figure S8.**  $^{13}\text{C}$  NMR spectra for **5**.....

11

**Table S1.** DPPH free radical scavenging activity and Ferric-reducing antioxidant power (FRAP) of TZD-TSCs 2-5.

Samples	Concentration [ $\mu\text{g/mL}$ ]			
	25	75	150	200
<b>DPPH assay (reduction values corresponding to the appropriate concentration of Trolox, <math>\mu\text{g/mL}</math>)</b>				
2	2.942 $\pm$ 1.587	6.670 $\pm$ 0.205	11.412 $\pm$ 0.358	15.068 $\pm$ 0.307
3	2.616 $\pm$ 0.102	9.168 $\pm$ 0.358	17.167 $\pm$ 0.410	21.439 $\pm$ 0.410
4	2.834 $\pm$ 0.717	6.381 $\pm$ 0.410	13.982 $\pm$ 0.717	17.638 $\pm$ 0.256
5	0.768 $\pm$ 0.191	2.689 $\pm$ 0.307	9.964 $\pm$ 0.358	15.177 $\pm$ 0.051
<b>FRAP assay (reduction values corresponding to the appropriate concentration of ascorbic acid, <math>\mu\text{g/mL}</math>)</b>				
TZD-TSC 2	2.43 $\pm$ 0.54	4.32 $\pm$ 1.62	3.51 $\pm$ 0.24	7.84 $\pm$ 2.43
TZD-TSC 3	0.81 $\pm$ 0.72	0.27 $\pm$ 0.21	1.08 $\pm$ 0.72	1.89 $\pm$ 0.72
TZD-TSC 4	1.62 $\pm$ 0.81	5.95 $\pm$ 2.30	4.05 $\pm$ 0.54	5.41 $\pm$ 0.90
TZD-TSC 5	2.70 $\pm$ 0.90	2.43 $\pm$ 0.81	4.59 $\pm$ 0.54	9.19 $\pm$ 4.32

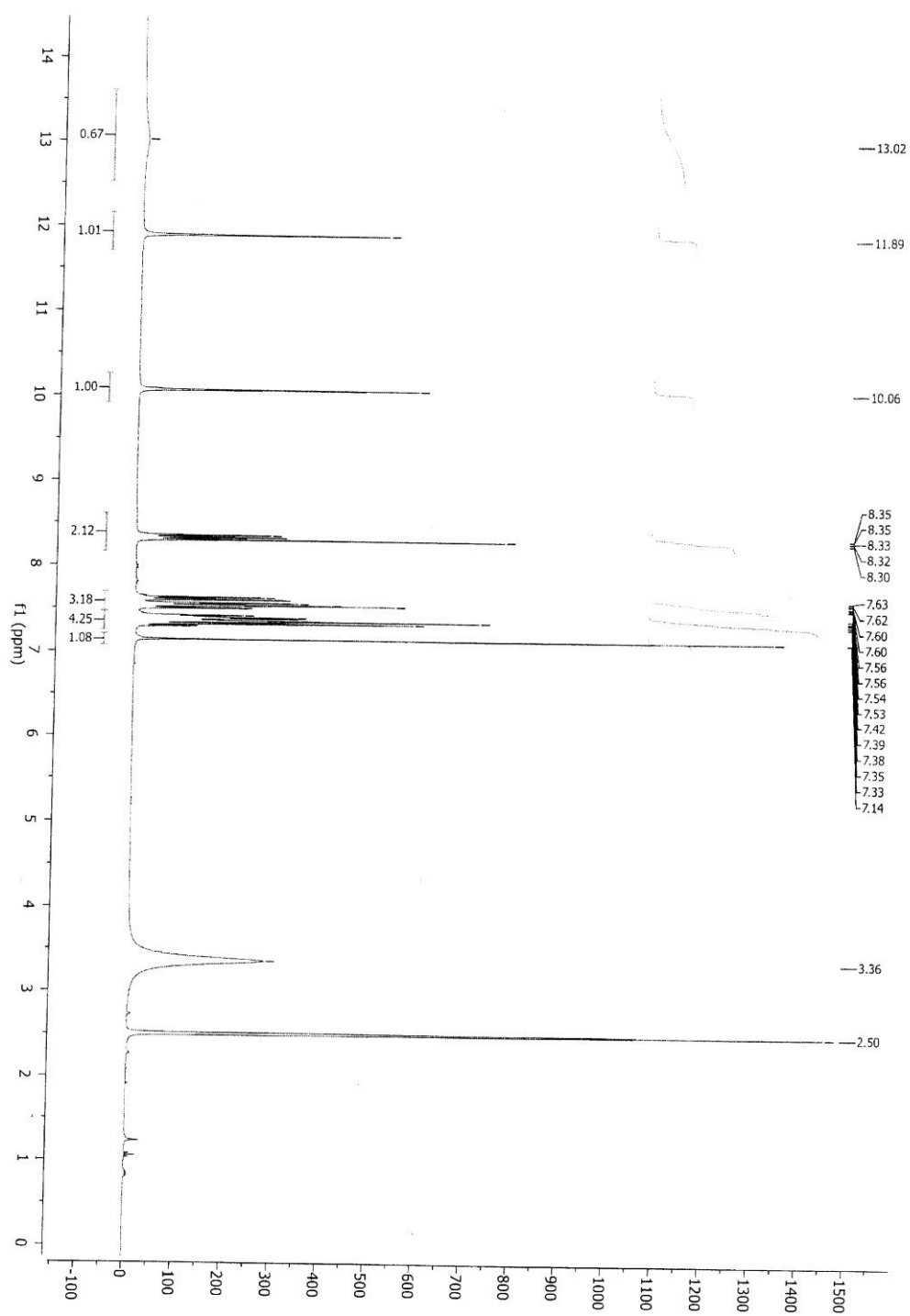


Figure S1. <sup>1</sup>H NMR spectra for 2

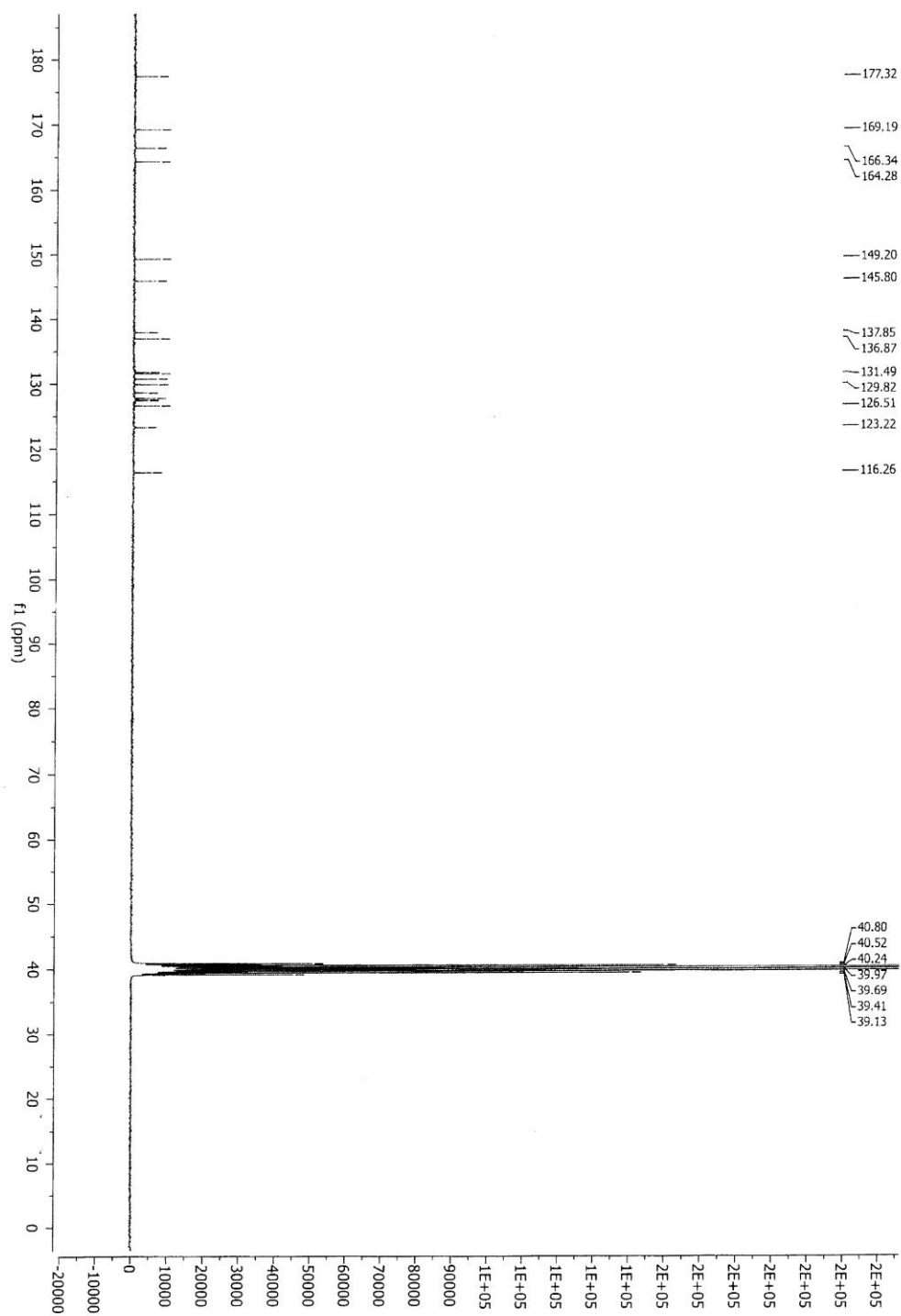


Figure S2.  $^{13}\text{C}$  NMR spectra for 2

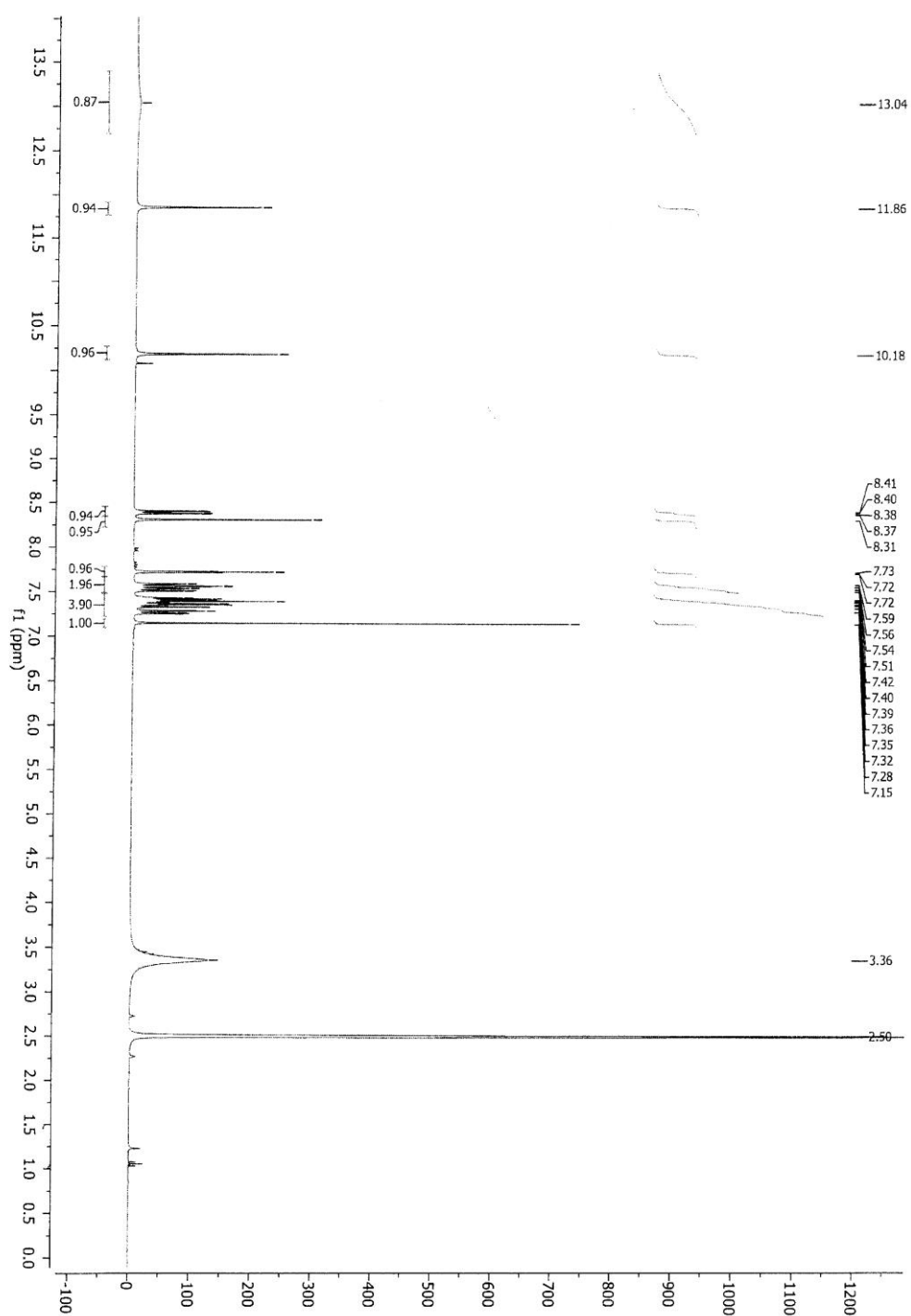


Figure S3.  $^1\text{H}$  NMR spectra for 3

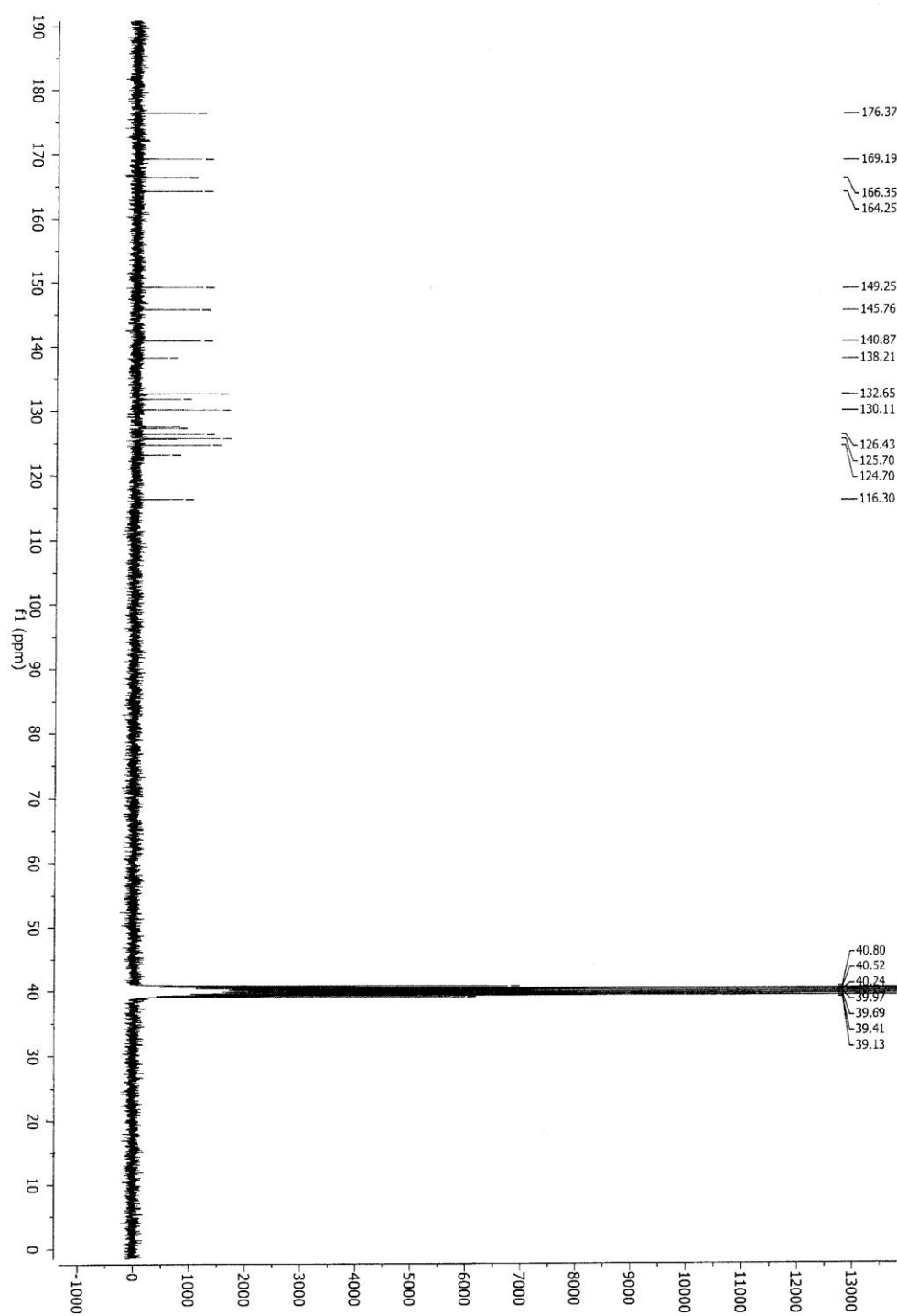


Figure S4. <sup>13</sup>C NMR spectra for 3

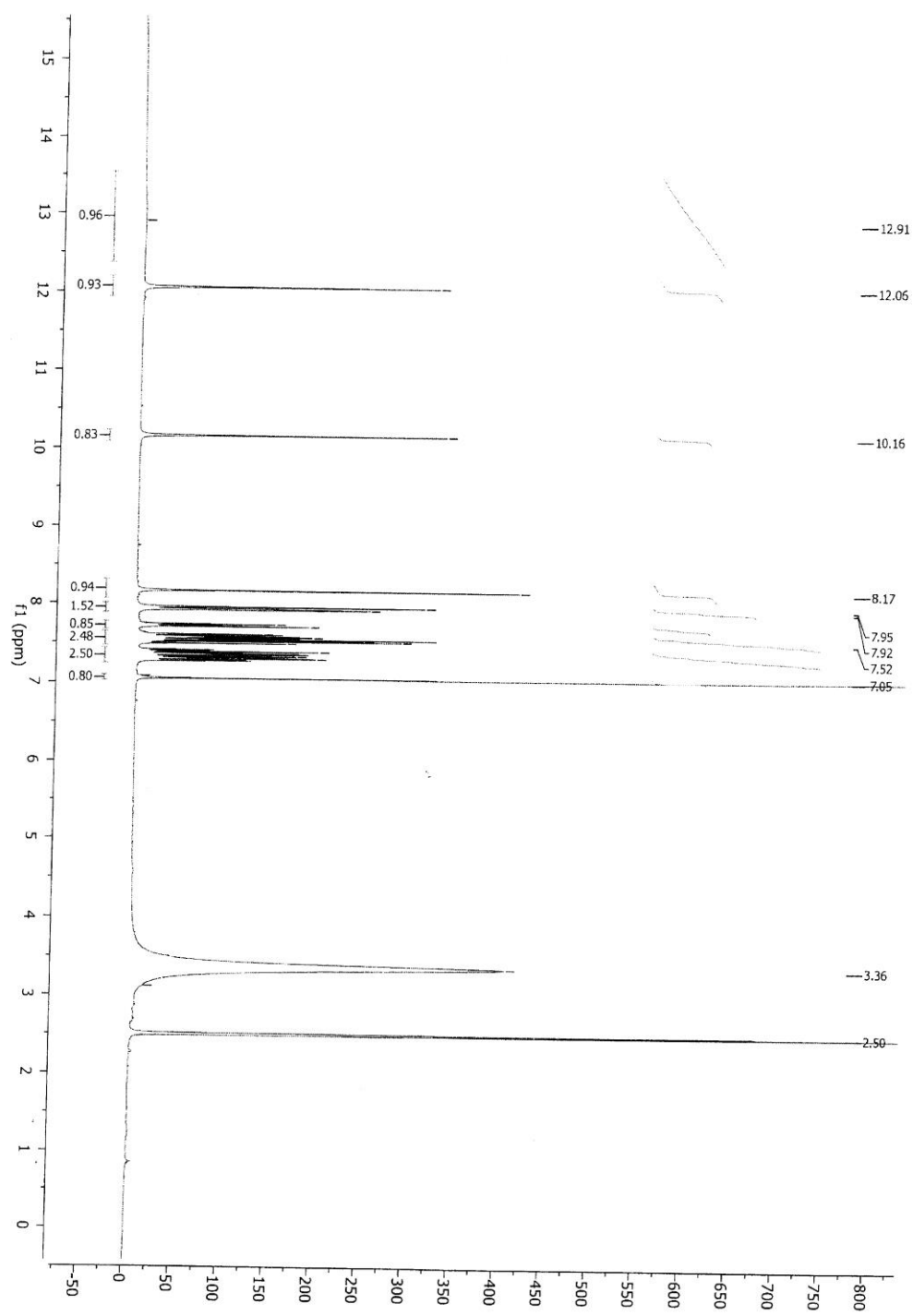


Figure S5.  $^1\text{H}$  NMR spectra for **4**



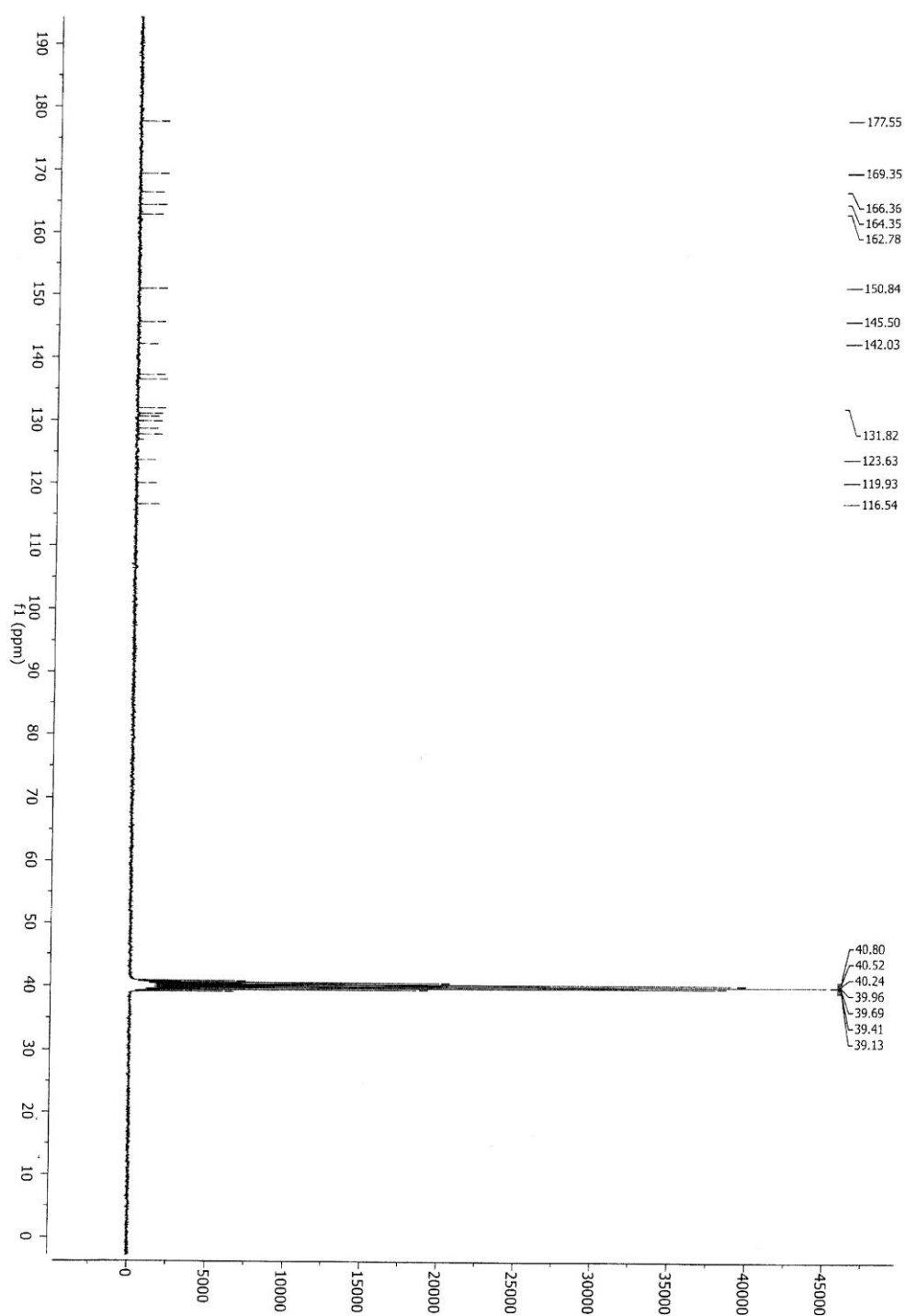


Figure S6. <sup>13</sup>C NMR spectra for 4

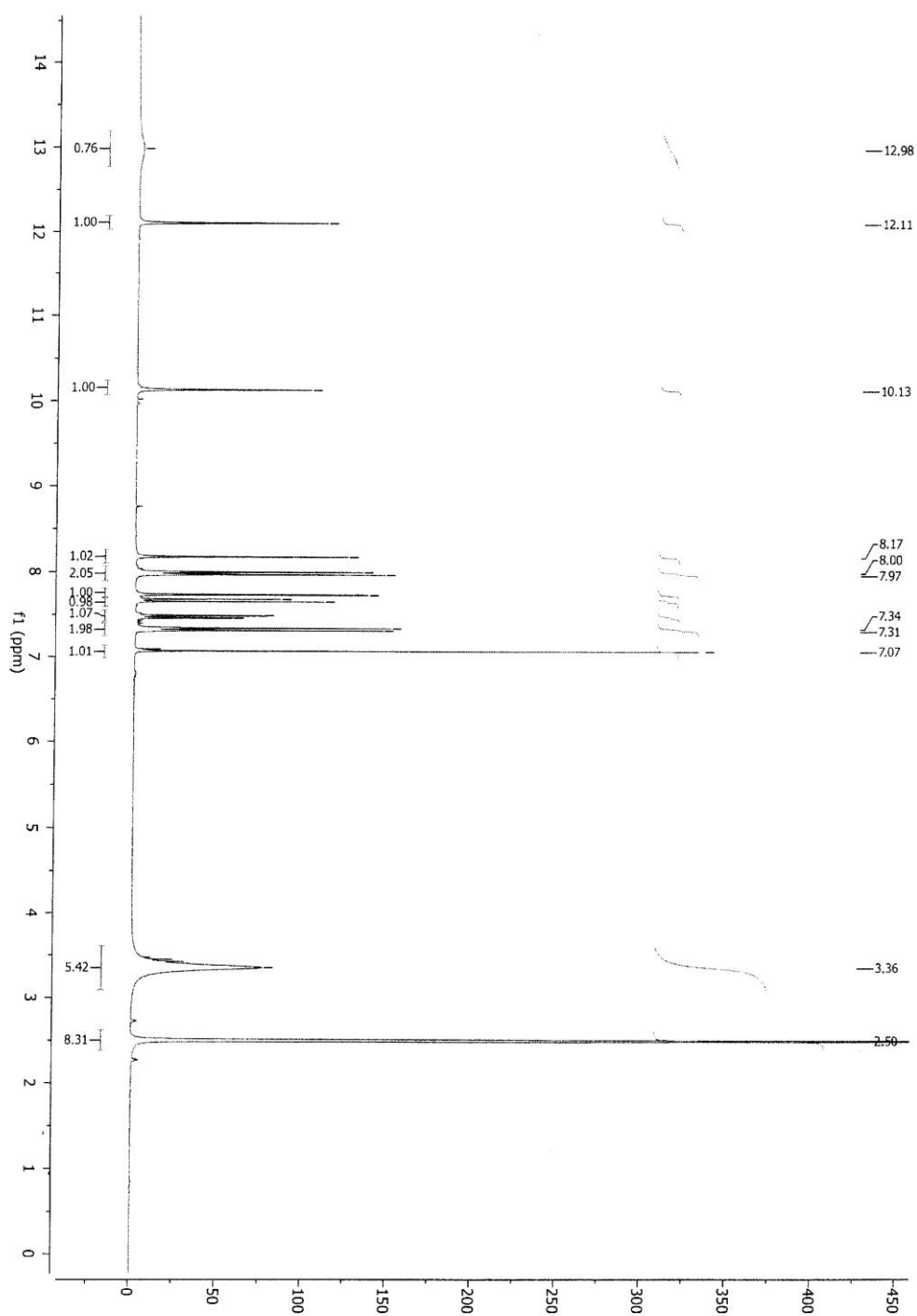


Figure S7.  $^1\text{H}$  NMR spectra for 5

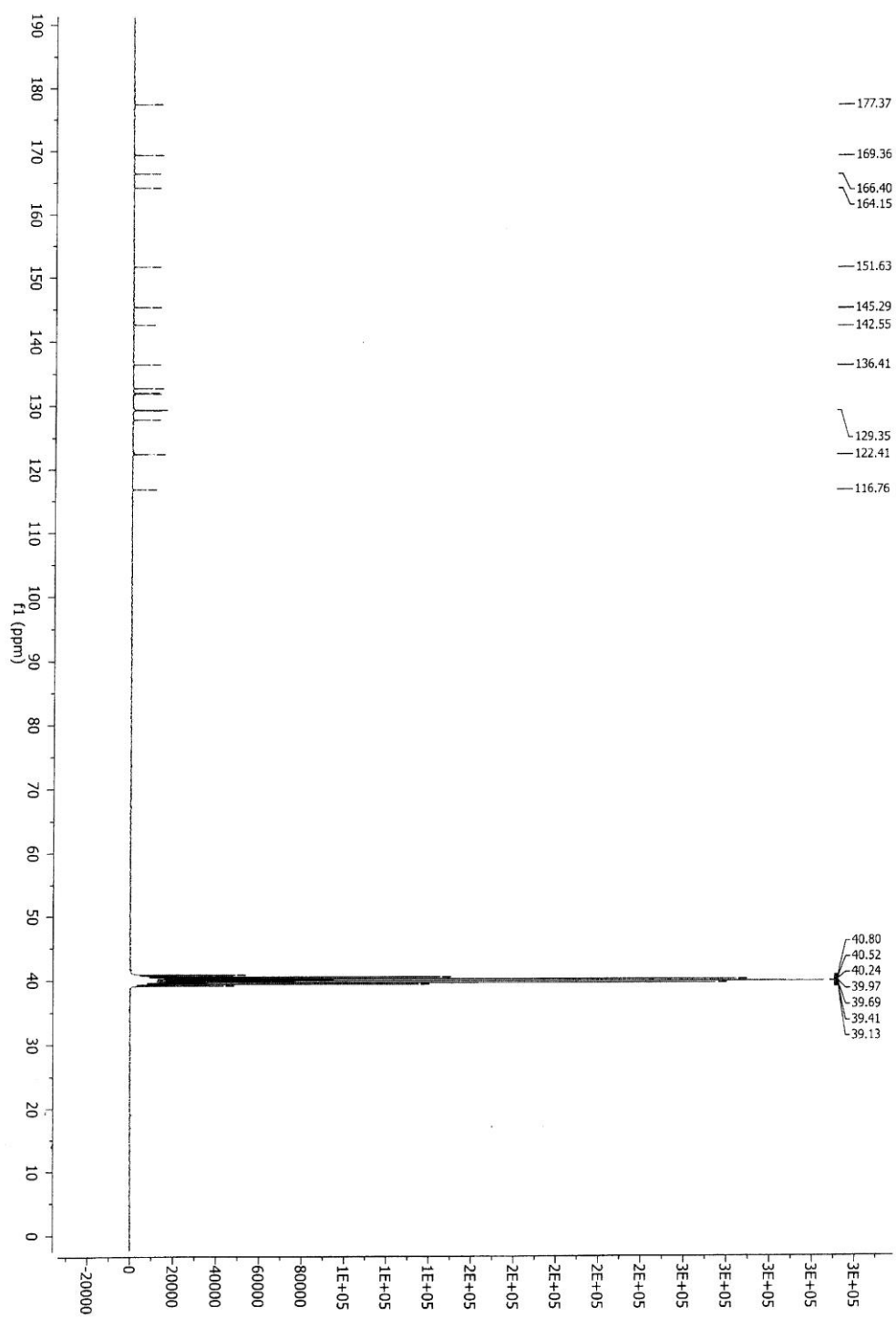


Figure S8. <sup>13</sup>C NMR spectra for 5