Supplementary material

The following are the Supplementary data to this article:

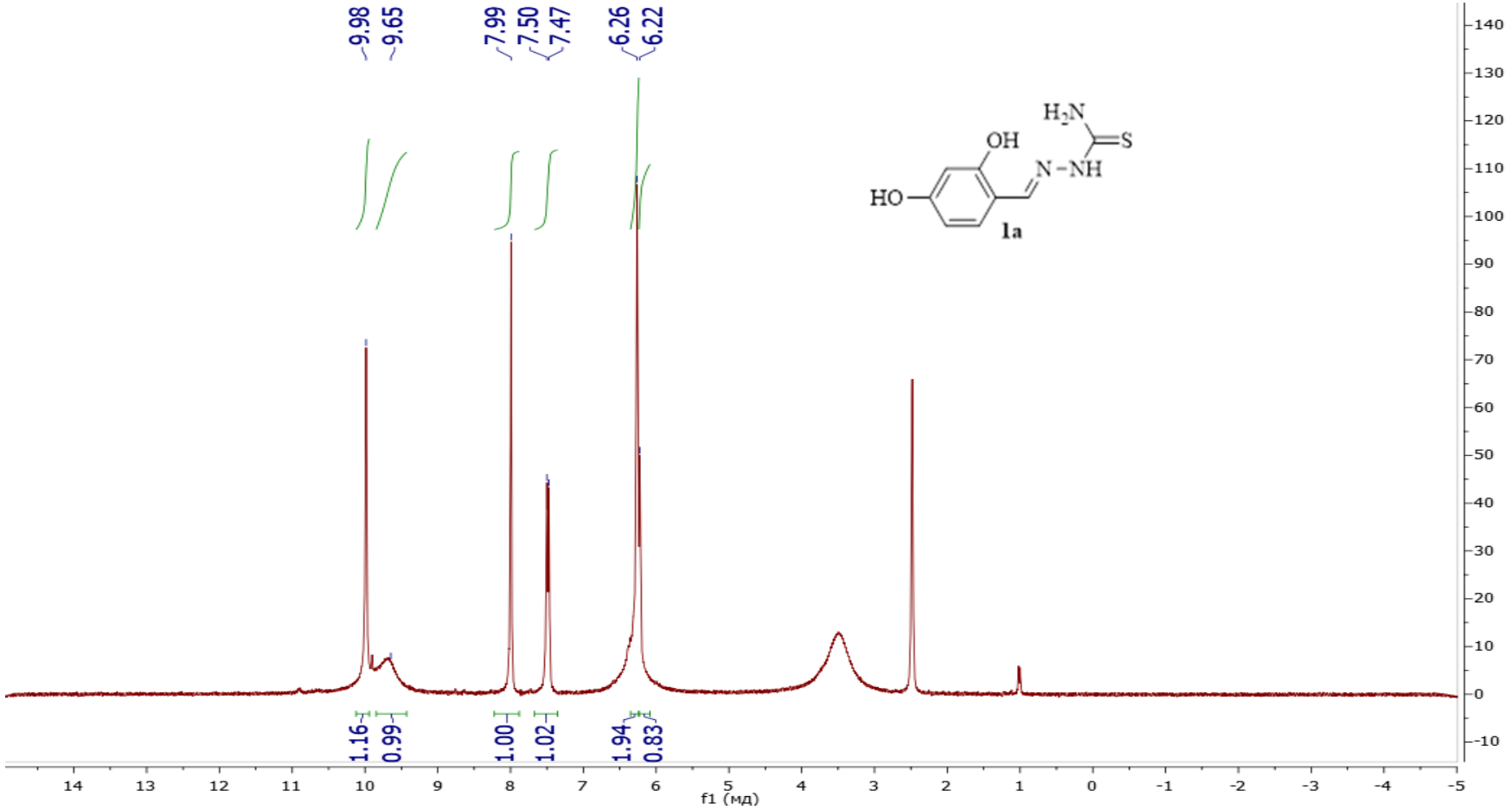


Figure S1: ^{1}H NMR spectra of **1a** 2-(2,4-dihydroxybenzylidene)hydrazine-1-carbothioamide

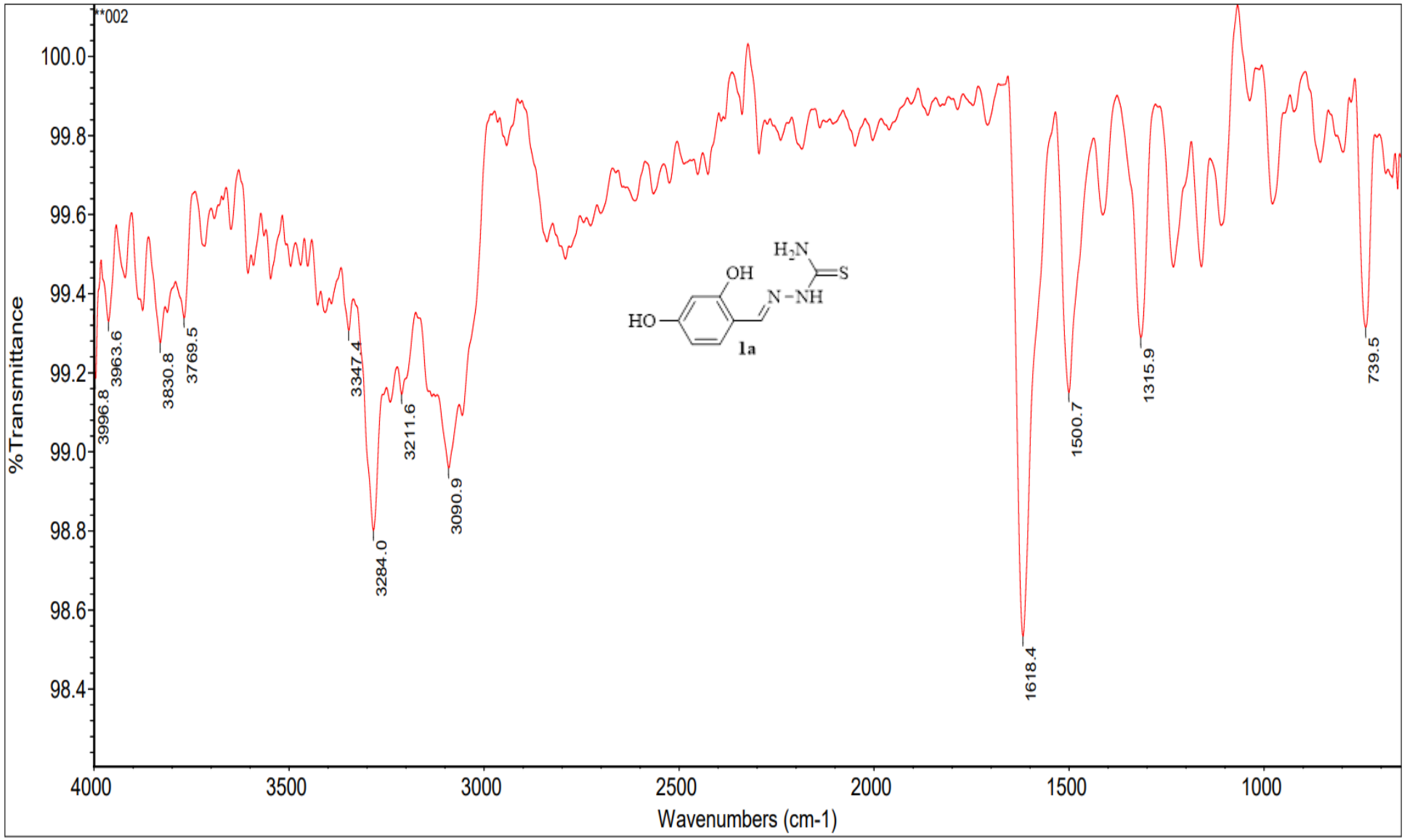


Figure S2: IR spectra of **1a** 2-(2,4-dihydroxybenzylidene)hydrazine-1-carbothioamide

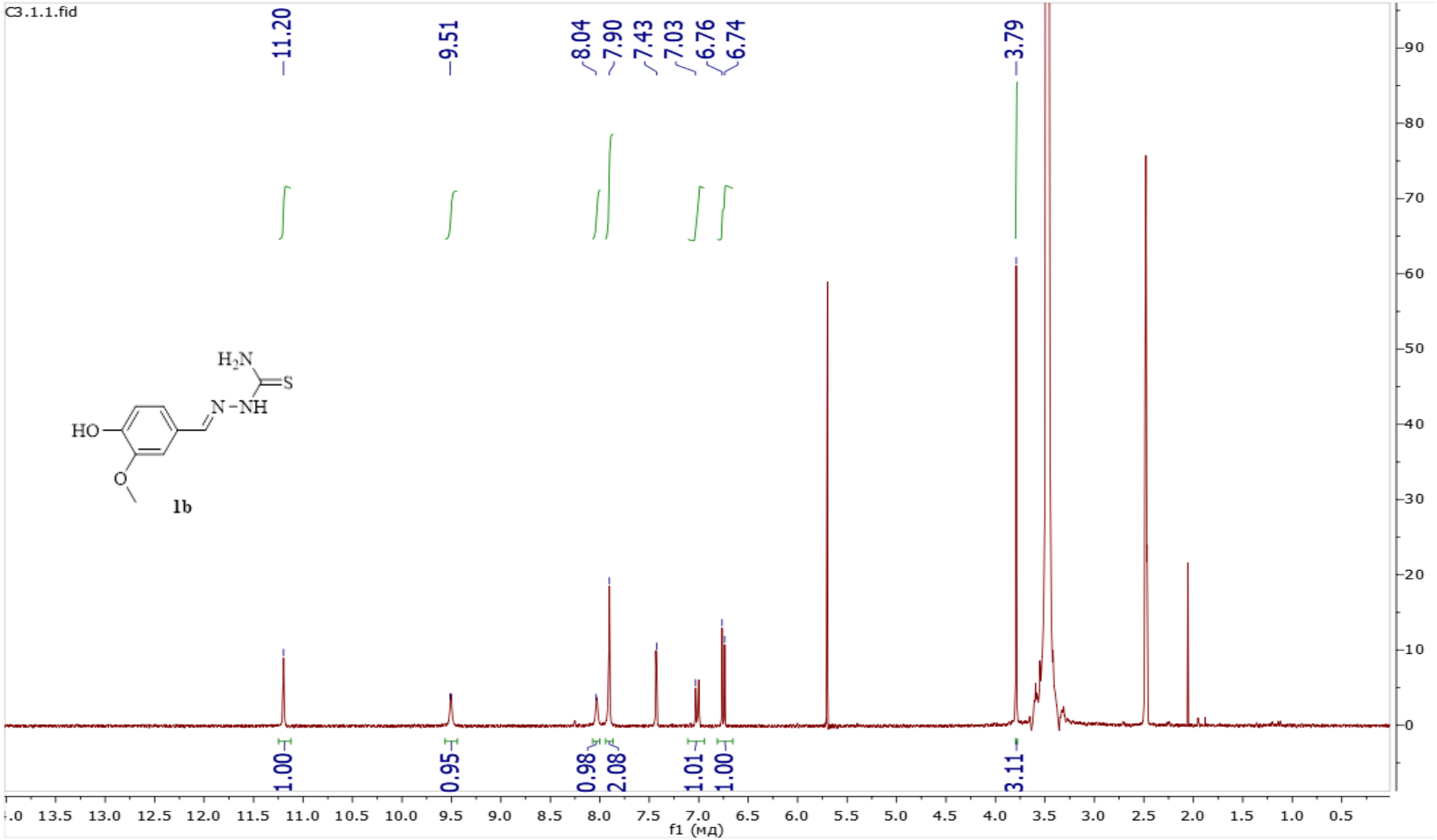


Figure S3: [1]H NMR spectra of **1b** 2-(4-hydroxy-3-methoxybenzylidene)hydrazine-1-carbothioamide

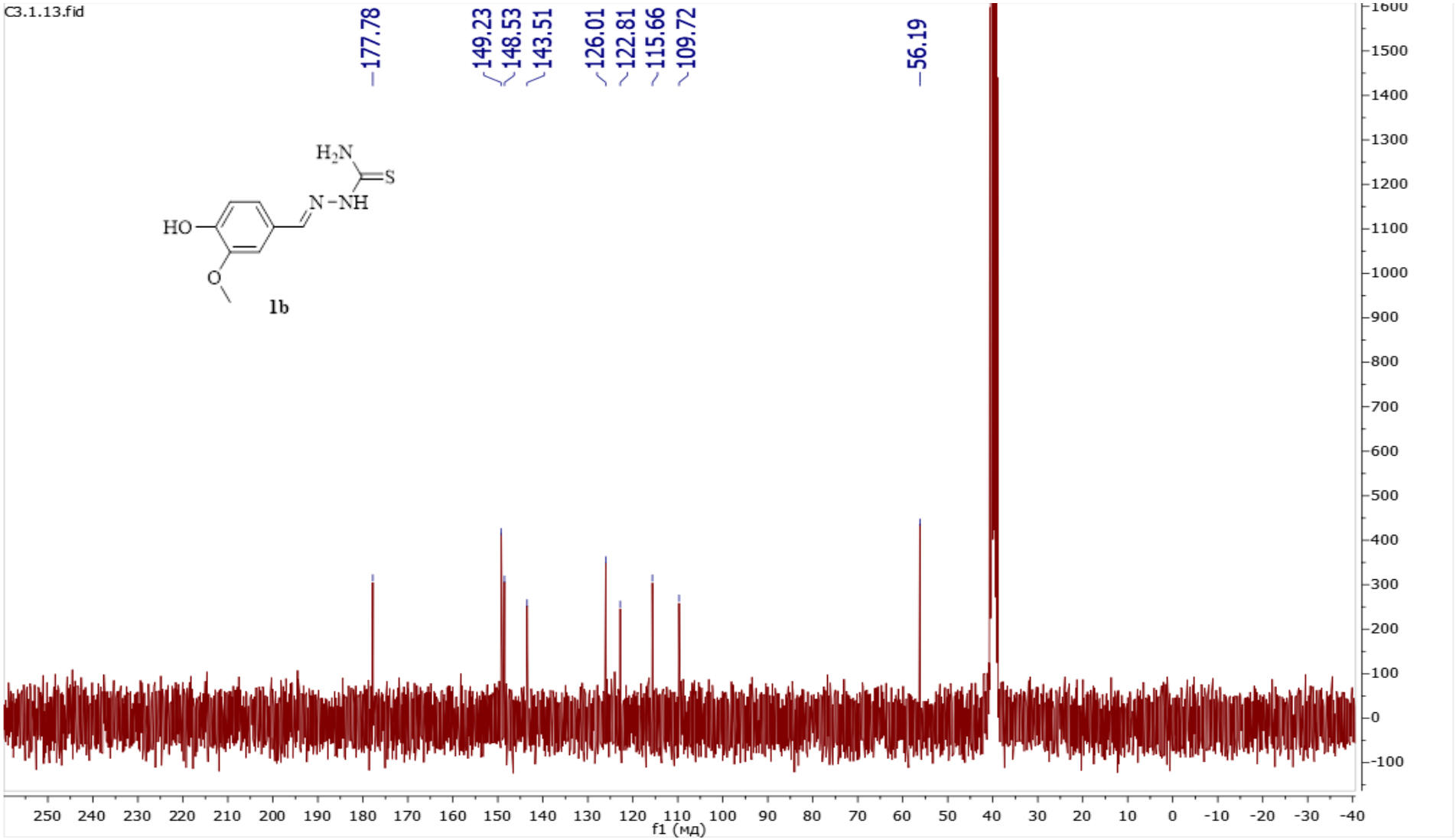


Figure S4: ^{13}C NMR spectra of **1b** 2-(4-hydroxy-3-methoxybenzylidene)hydrazine-1-carbothioamide

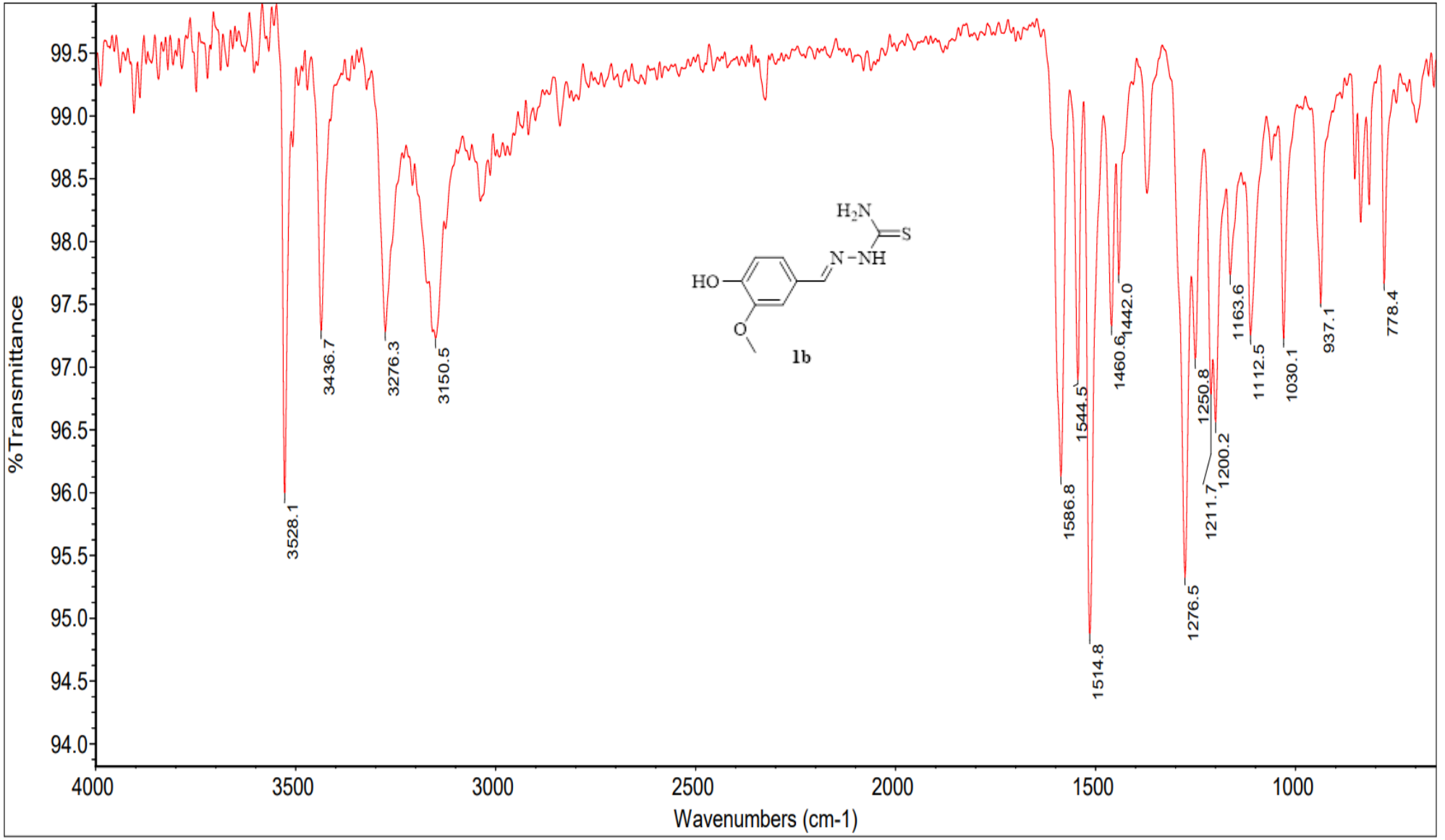


Figure S5: IR spectra of **1b** 2-(4-hydroxy-3-methoxybenzylidene)hydrazine-1-carbothioamide

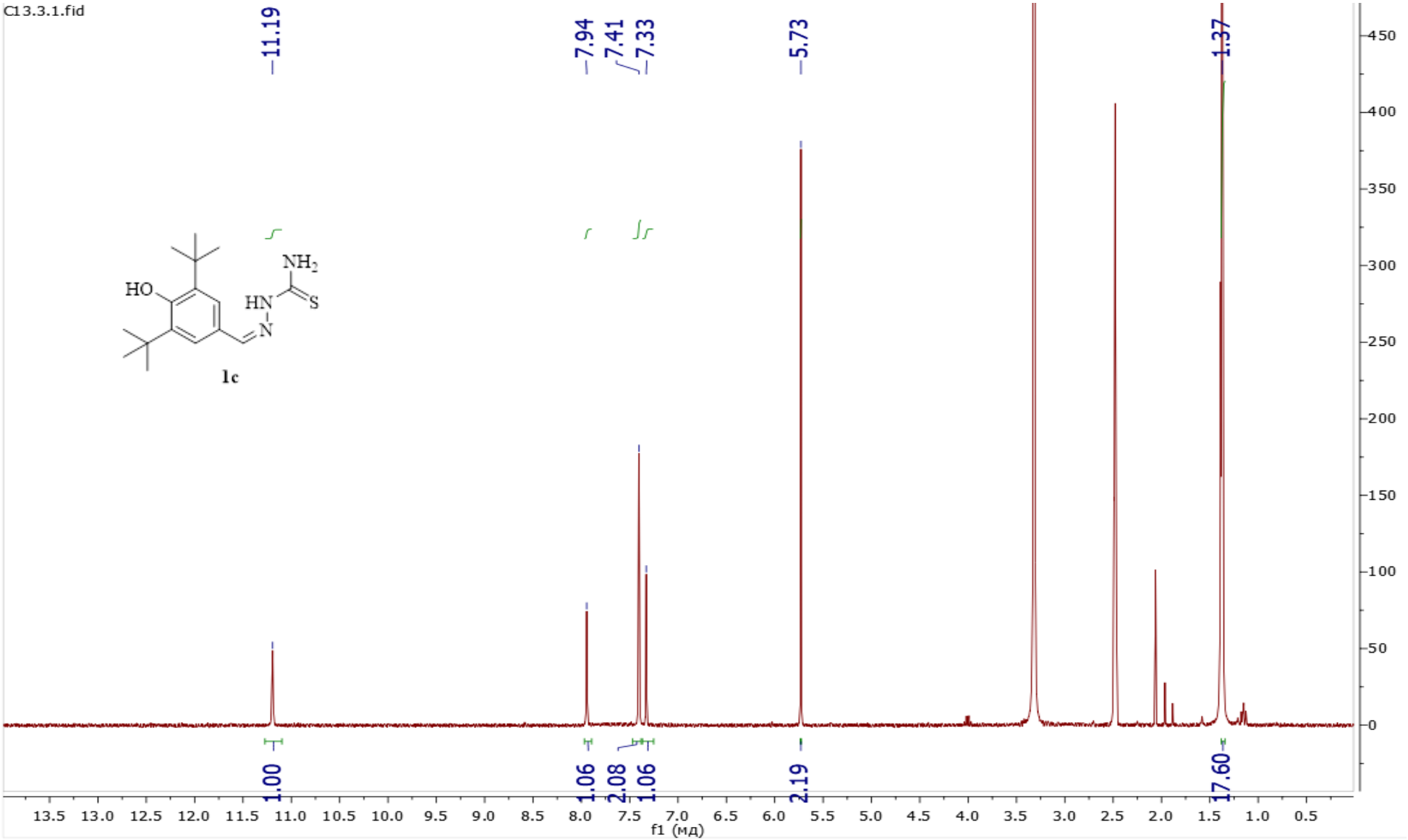


Figure S6: ^{1}H NMR spectra of **1c** 2-(3,5-di-*tert*-butyl-4-hydroxybenzylidene)hydrazine-1-carbothioamide

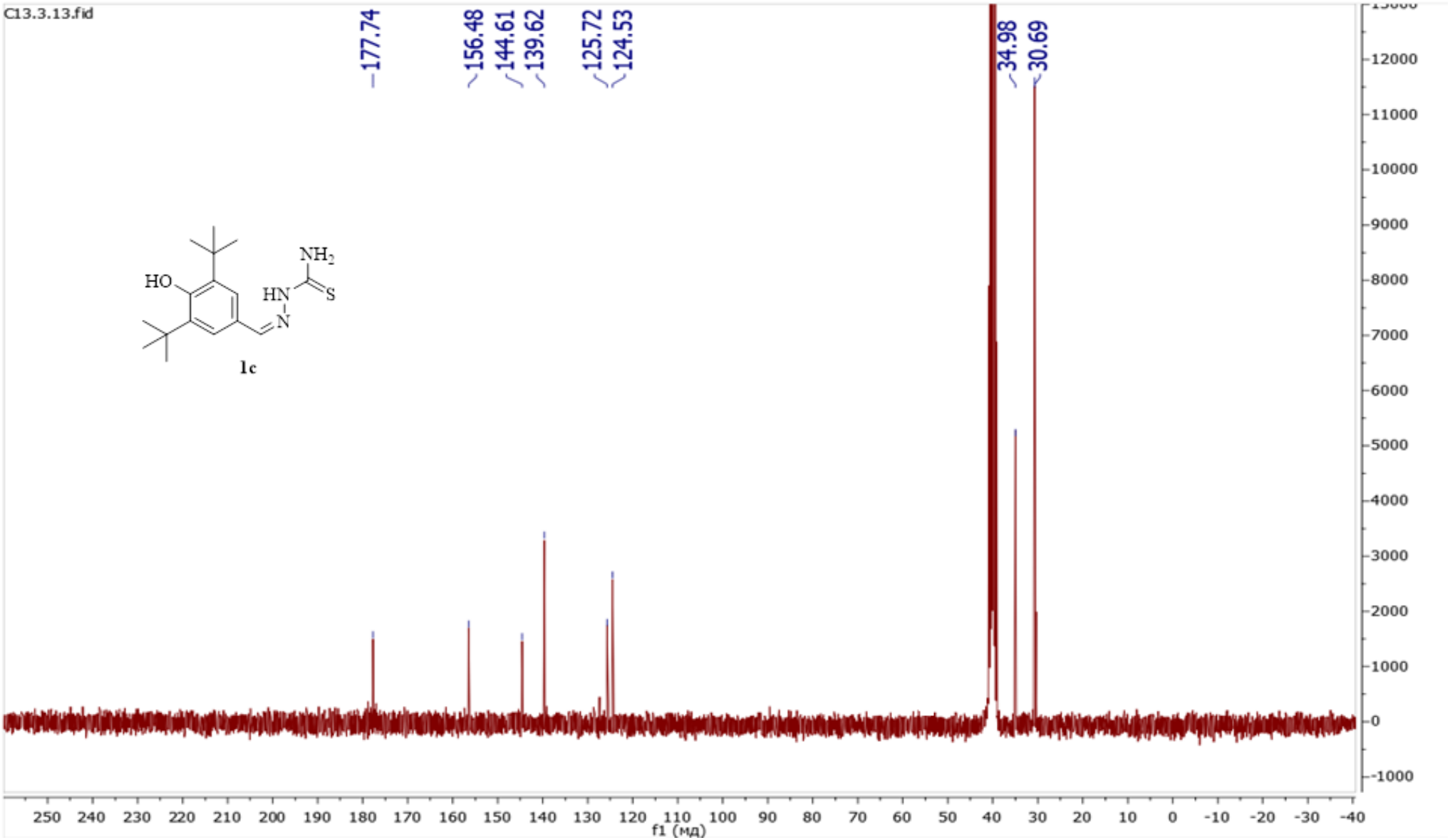


Figure S7: ^{13}C NMR spectra of **1c** 2-(3,5-di-*tert*-butyl-4-hydroxybenzylidene)hydrazine-1-carbothioamide

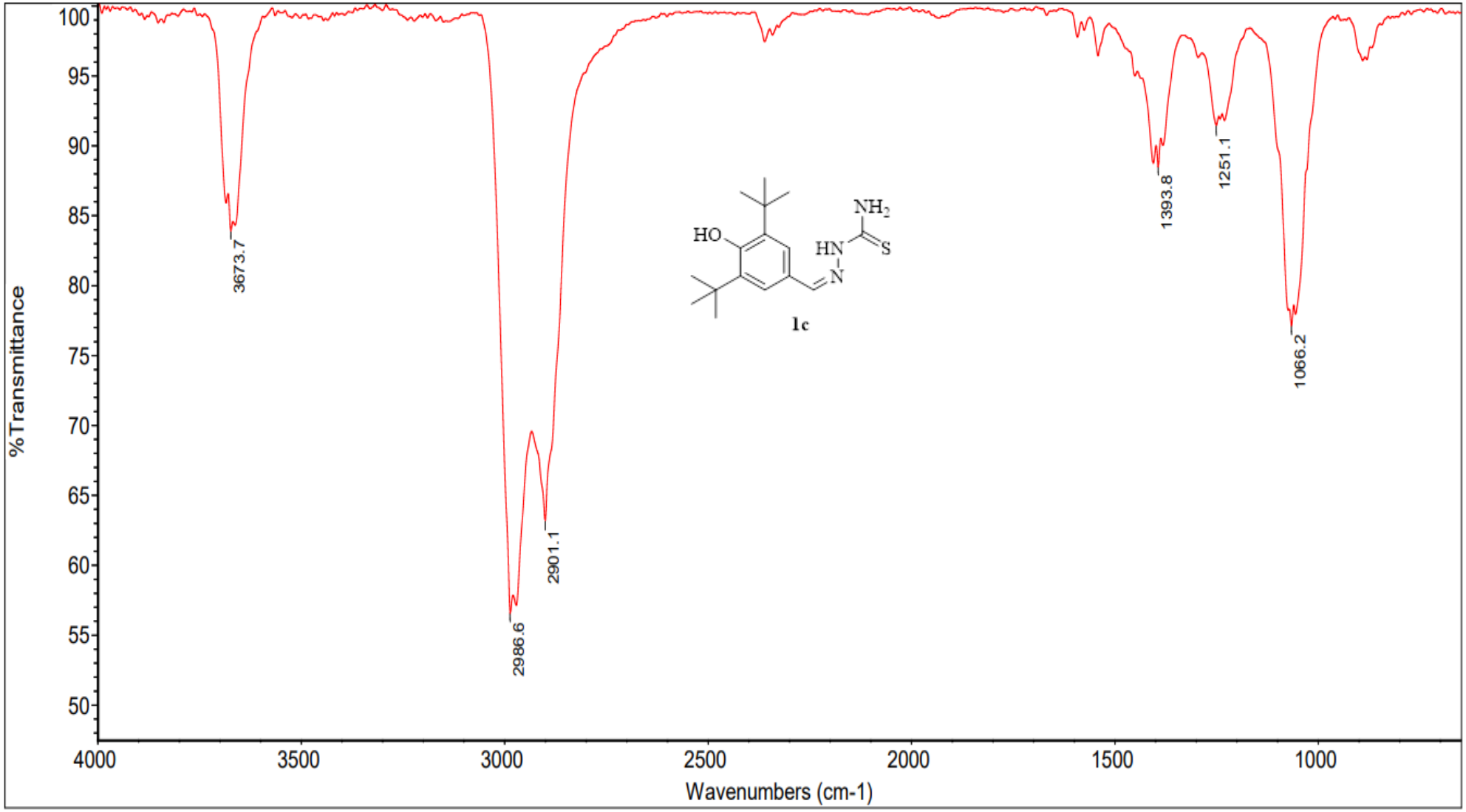


Figure S8: IR spectra of **1c** 2-(3,5-di-*tert*-butyl-4-hydroxybenzylidene)hydrazine-1-carbothioamide

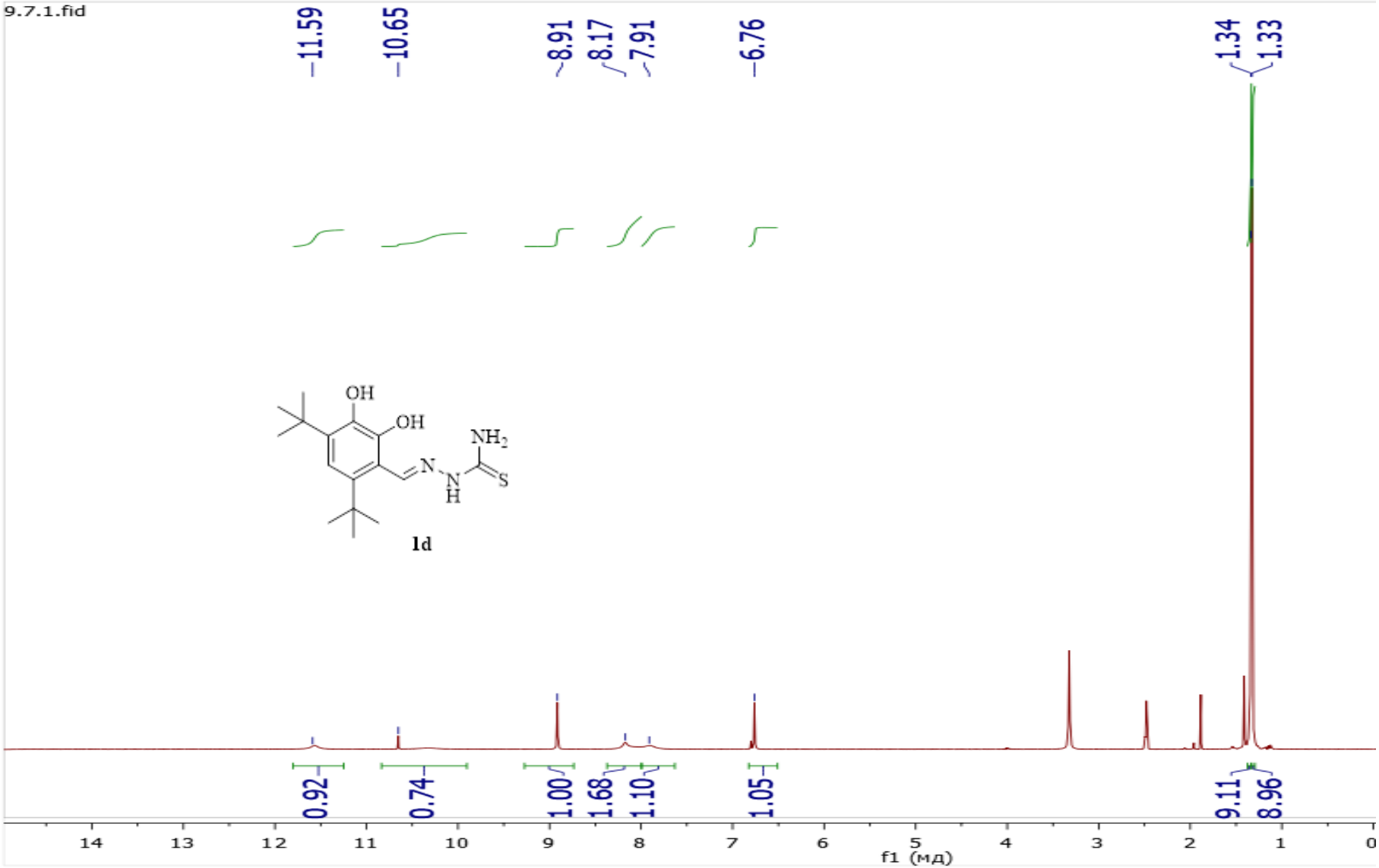


Figure S9: ^{1}H NMR spectra of **1d** 2-(4,6-di-*tert*-butyl-2,3-dihydroxybenzylidene)hydrazine-1-carbothioamide

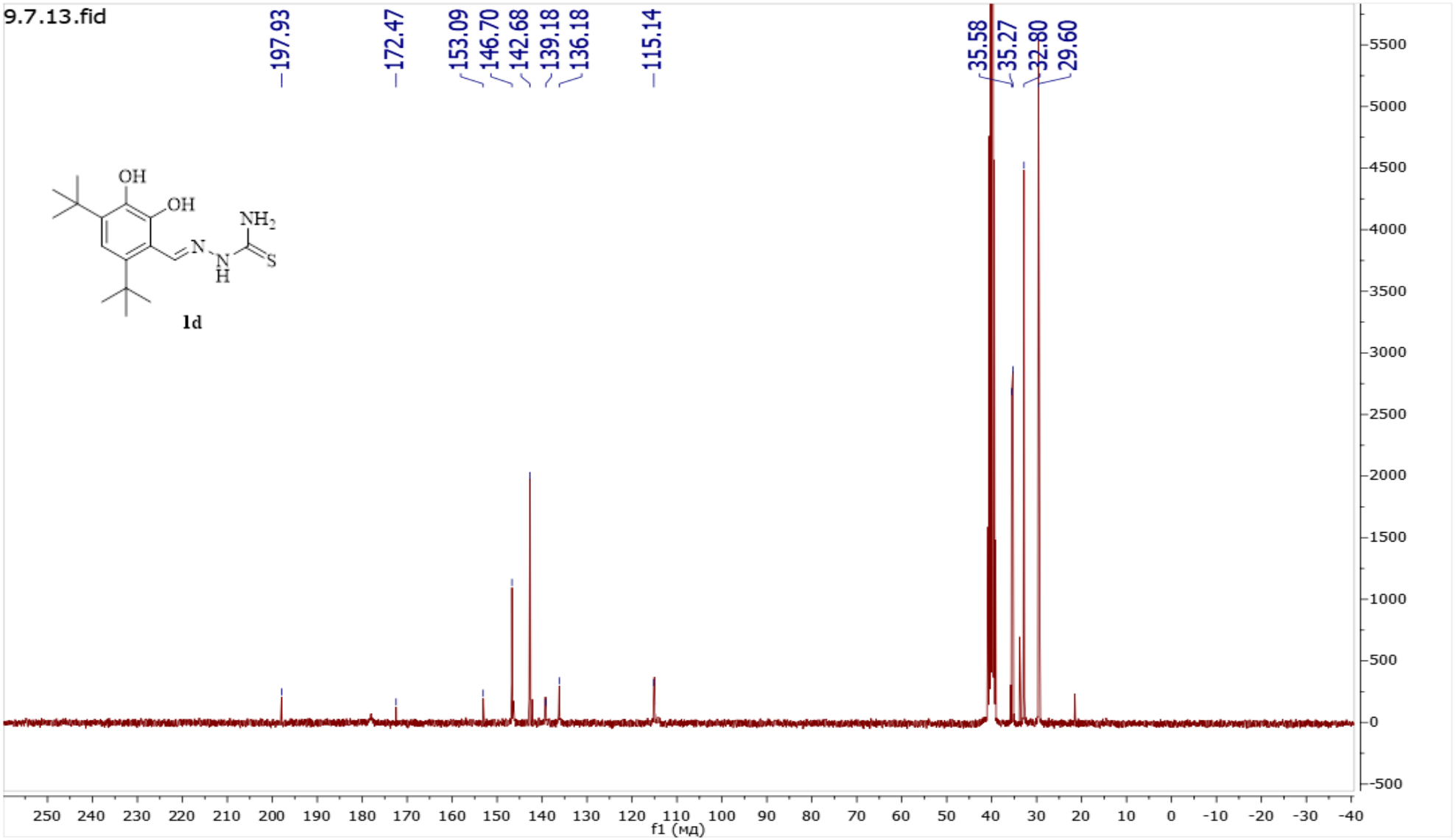


Figure S10: ^{13}C NMR spectra of **1d** 2-(4,6-di-*tert*-butyl-2,3-dihydroxybenzylidene)hydrazine-1-carbothioamide

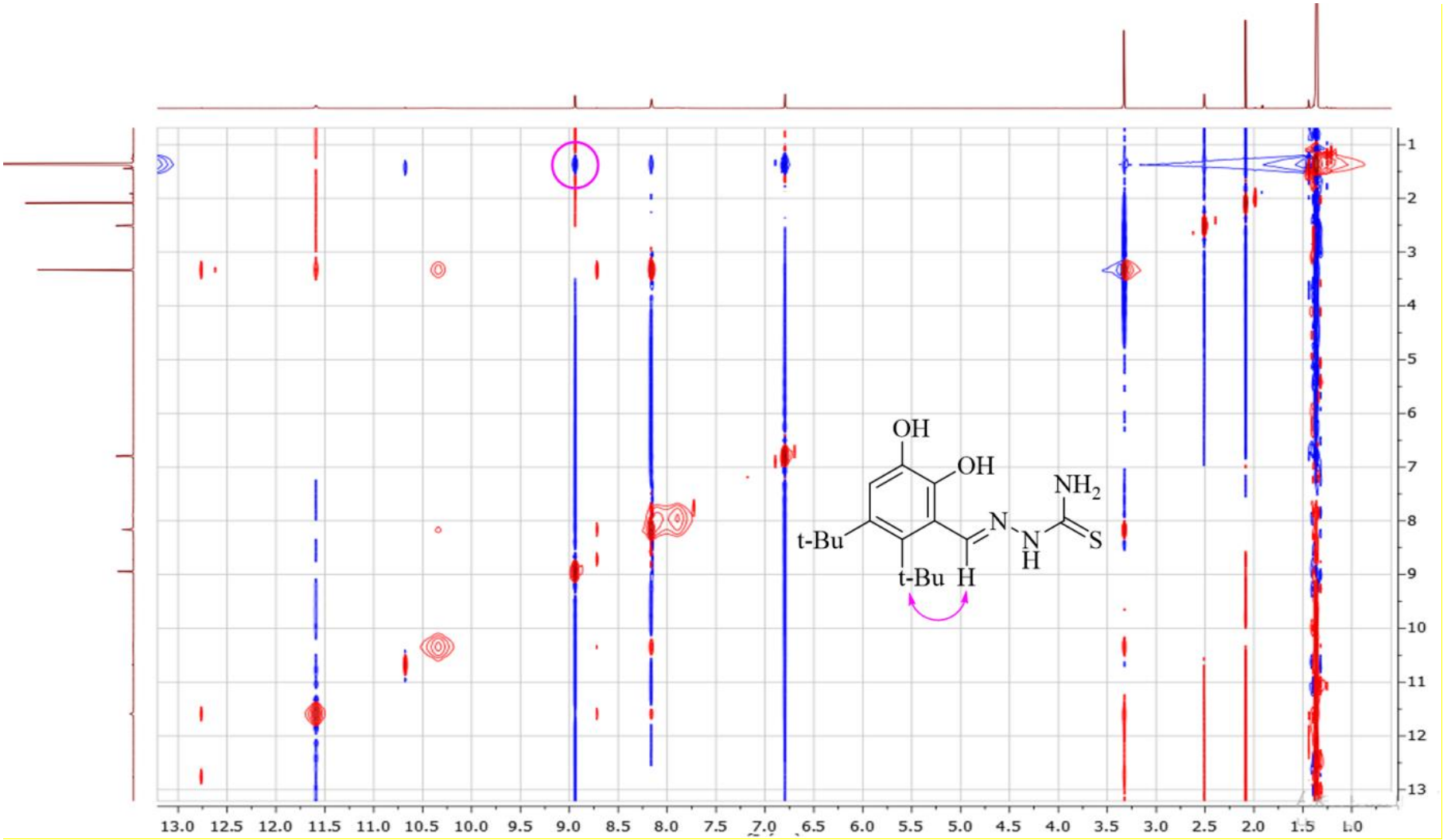


Figure S11: NOESY spectra of **1d** 2-(4,6-di-*tert*-butyl-2,3-dihydroxybenzylidene)hydrazine-1-carbothioamide

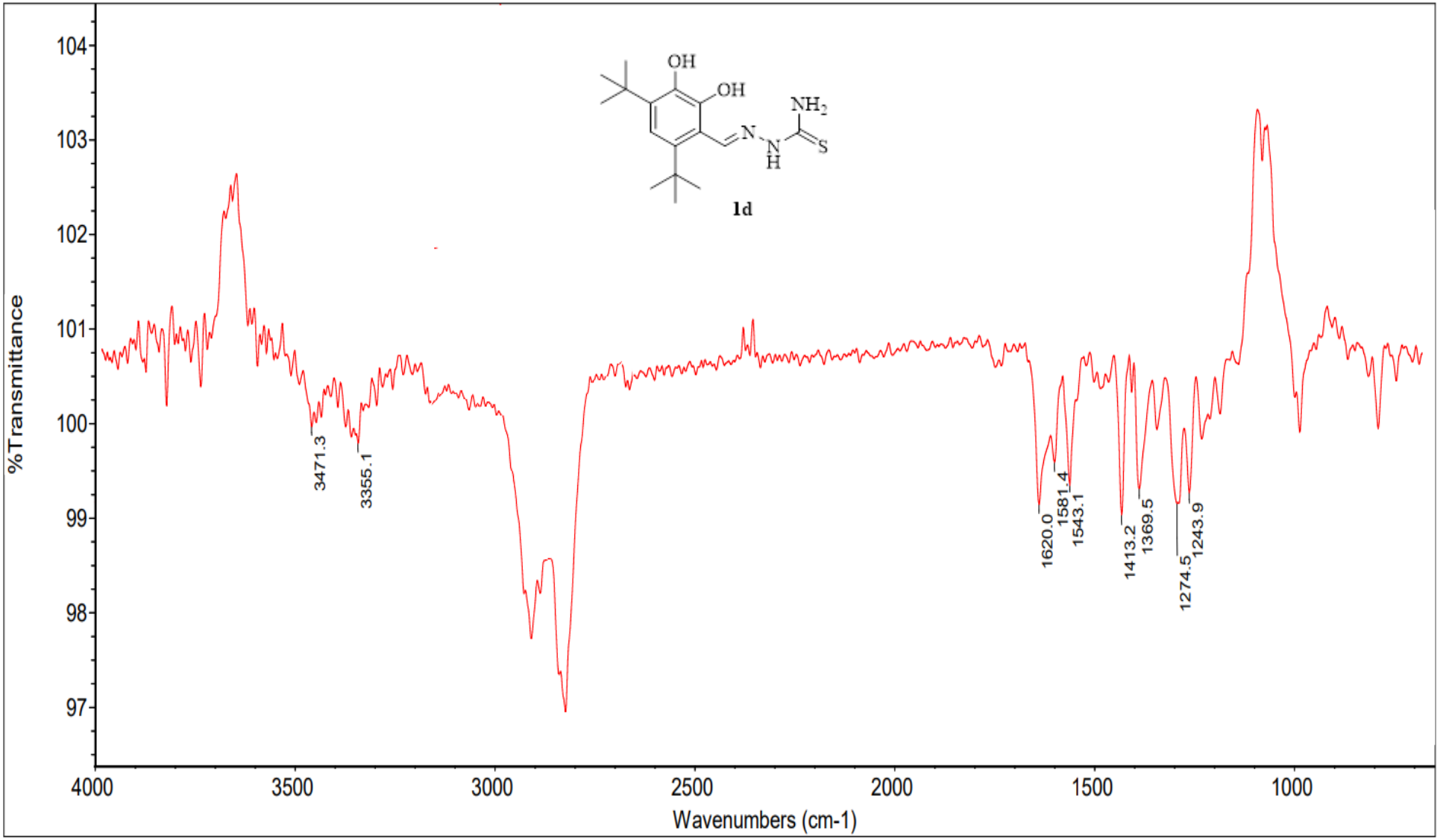


Figure S12: IR spectra of **1d** 2-(4,6-di-*tert*-butyl-2,3-dihydroxybenzylidene)hydrazine-1-carbothioamide

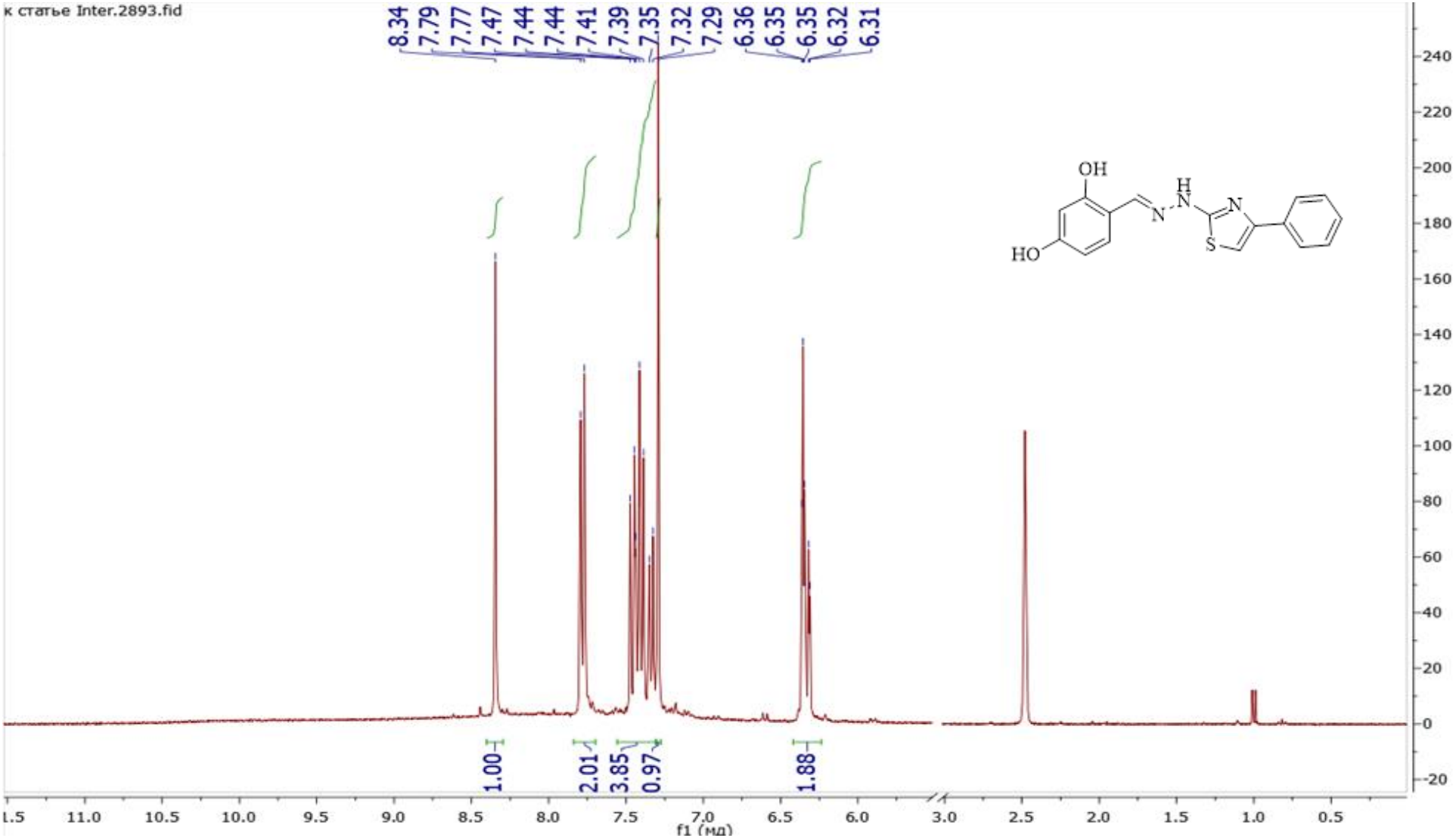


Figure S13: ^{1}H NMR spectra of **2a** 4-((2-(4-phenylthiazol-2-yl)hydrazono)methyl)benzene-1,3-diol

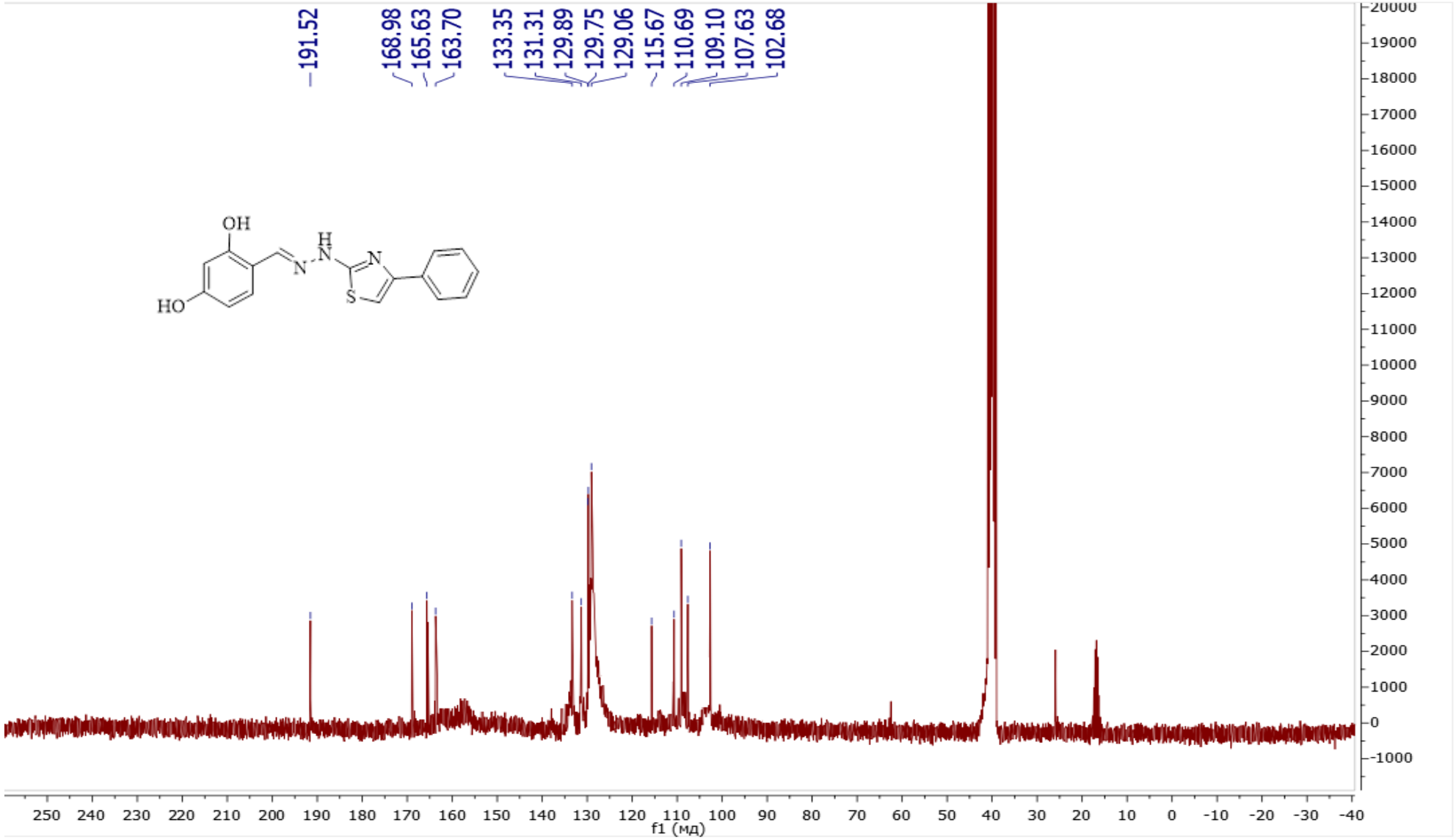


Figure S14: ^{1}H NMR spectra of **2a** 4-((2-(4-phenylthiazol-2-yl)hydrazono)methyl)benzene-1,3-diol

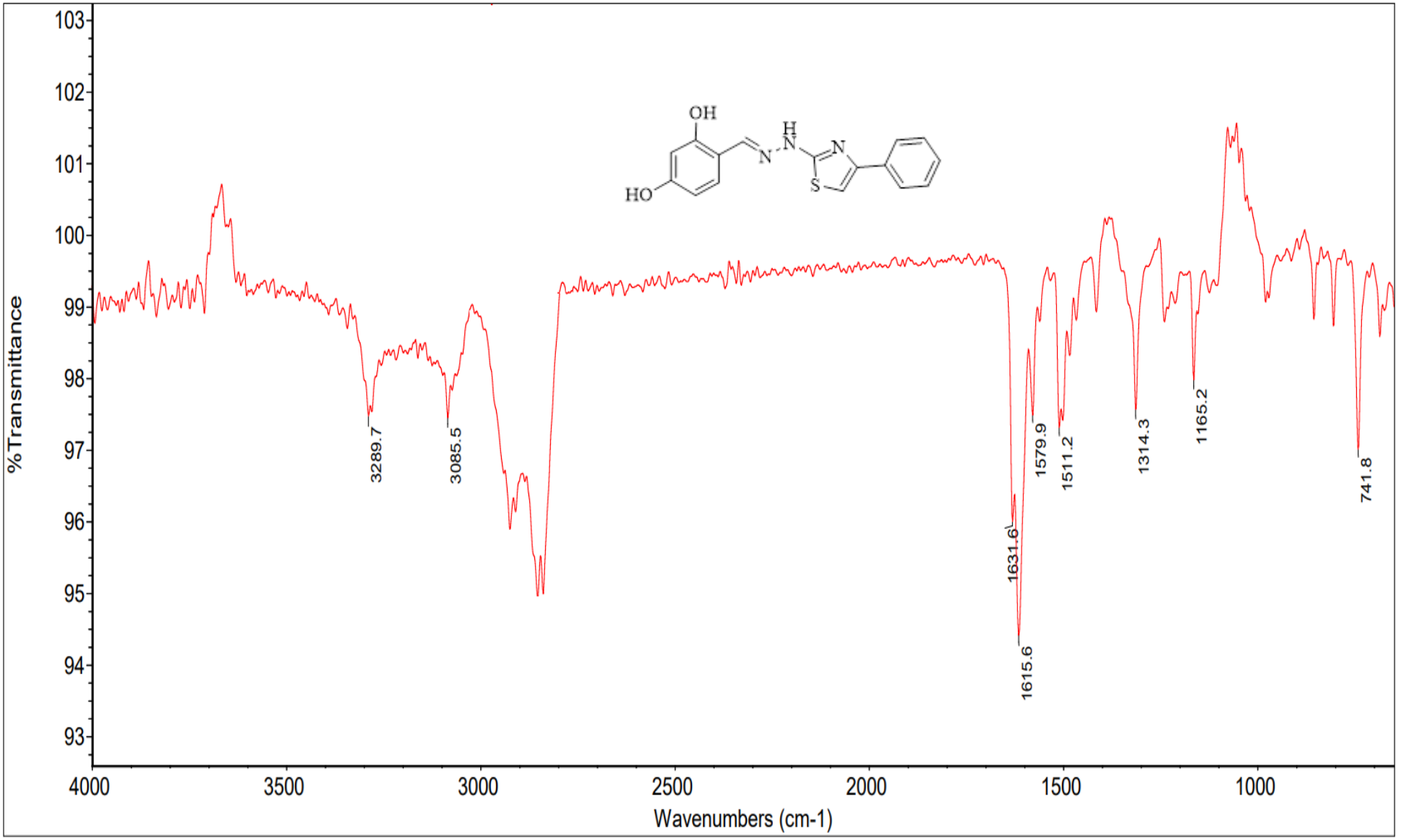


Figure S15: IR spectra of **2a** 4-((2-(4-phenylthiazol-2-yl)hydrazono)methyl)benzene-1,3-diol

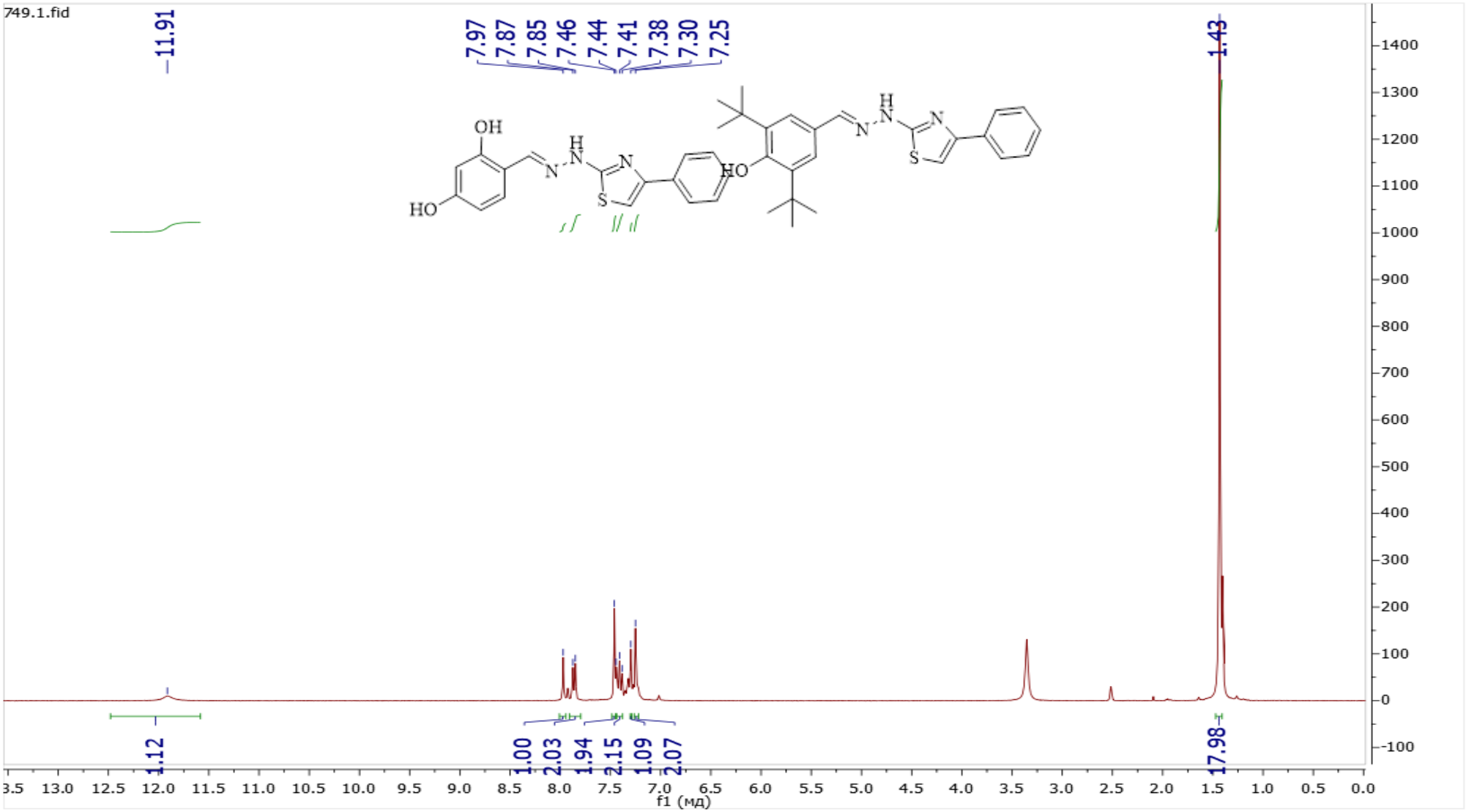


Figure S16: ^{1}H NMR spectra of **2b** 2,6-di-*tert*-butyl-4-((2-(4-phenylthiazol-2-yl)hydrazineylidene)methyl)phenol

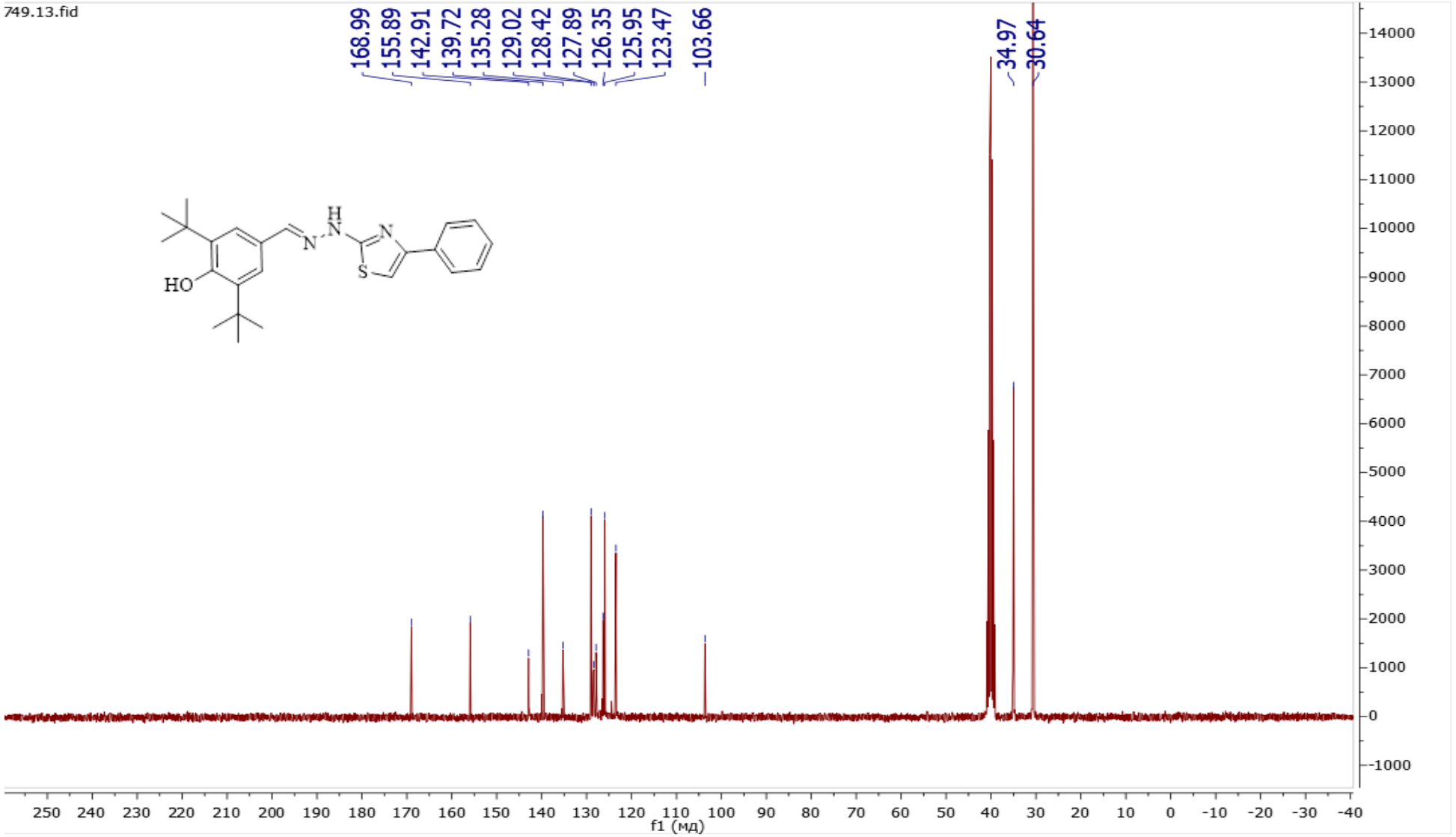


Figure S17: ^{13}C NMR spectra of **2b** 2,6-di-*tert*-butyl-4-((2-(4-phenylthiazol-2-yl)hydrazineylidene)methyl)phenol

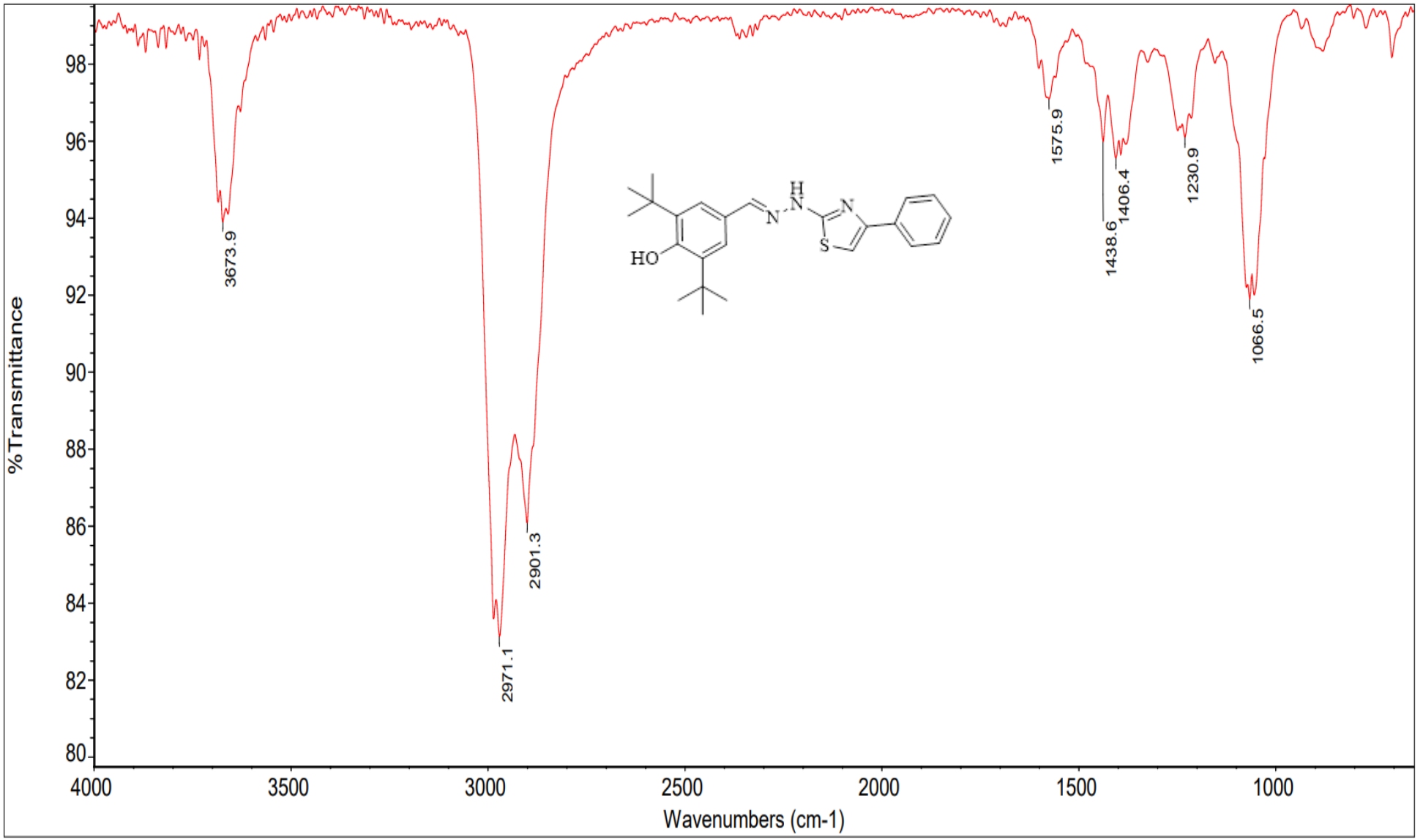


Figure S18: IR spectra of **2b** 2,6-di-*tert*-butyl-4-((2-(4-phenylthiazol-2-yl)hydrazineylidene)methyl)phenol

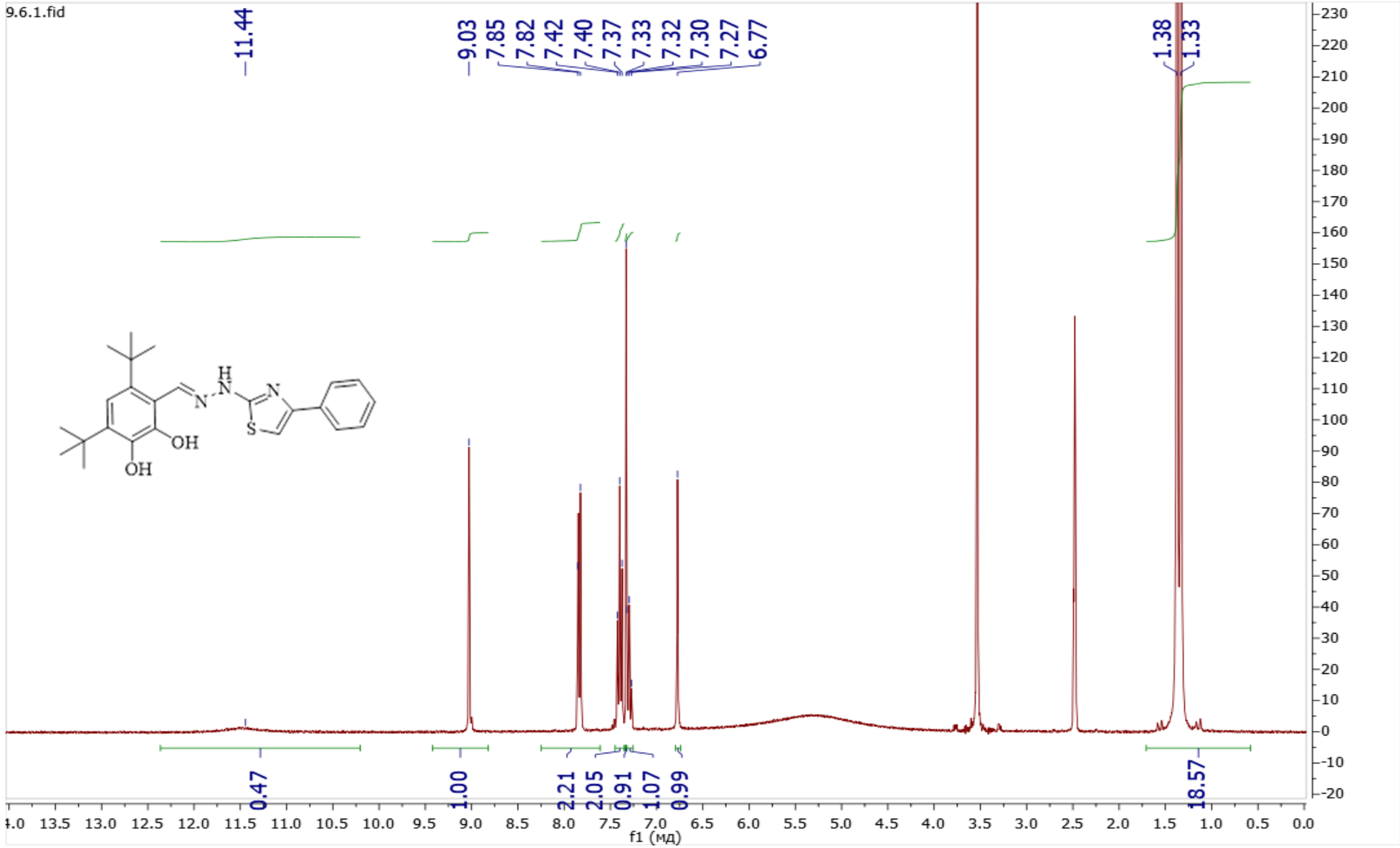


Figure S19: ^{1}H NMR spectra of **2c** 4,6-di-*tert*-butyl-3-((2-(4-phenylthiazol-2-yl)hydrazineylidene)methyl)benzene-1,2-diol

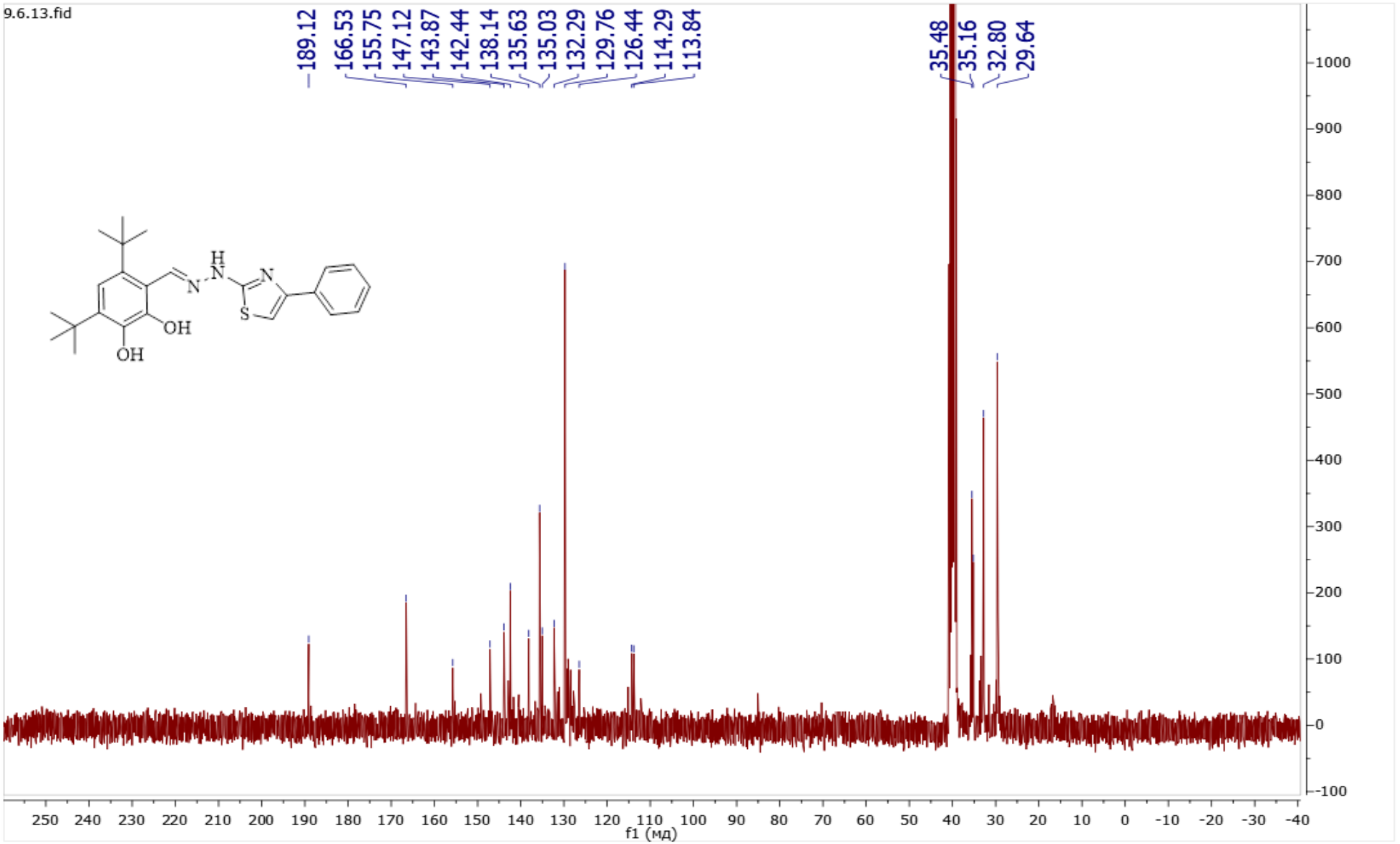


Figure S20: ^{13}C NMR spectra of **2c** 4,6-di-*tert*-butyl-3-((2-(4-phenylthiazol-2-yl)hydrazineylidene)methyl)benzene-1,2-diol

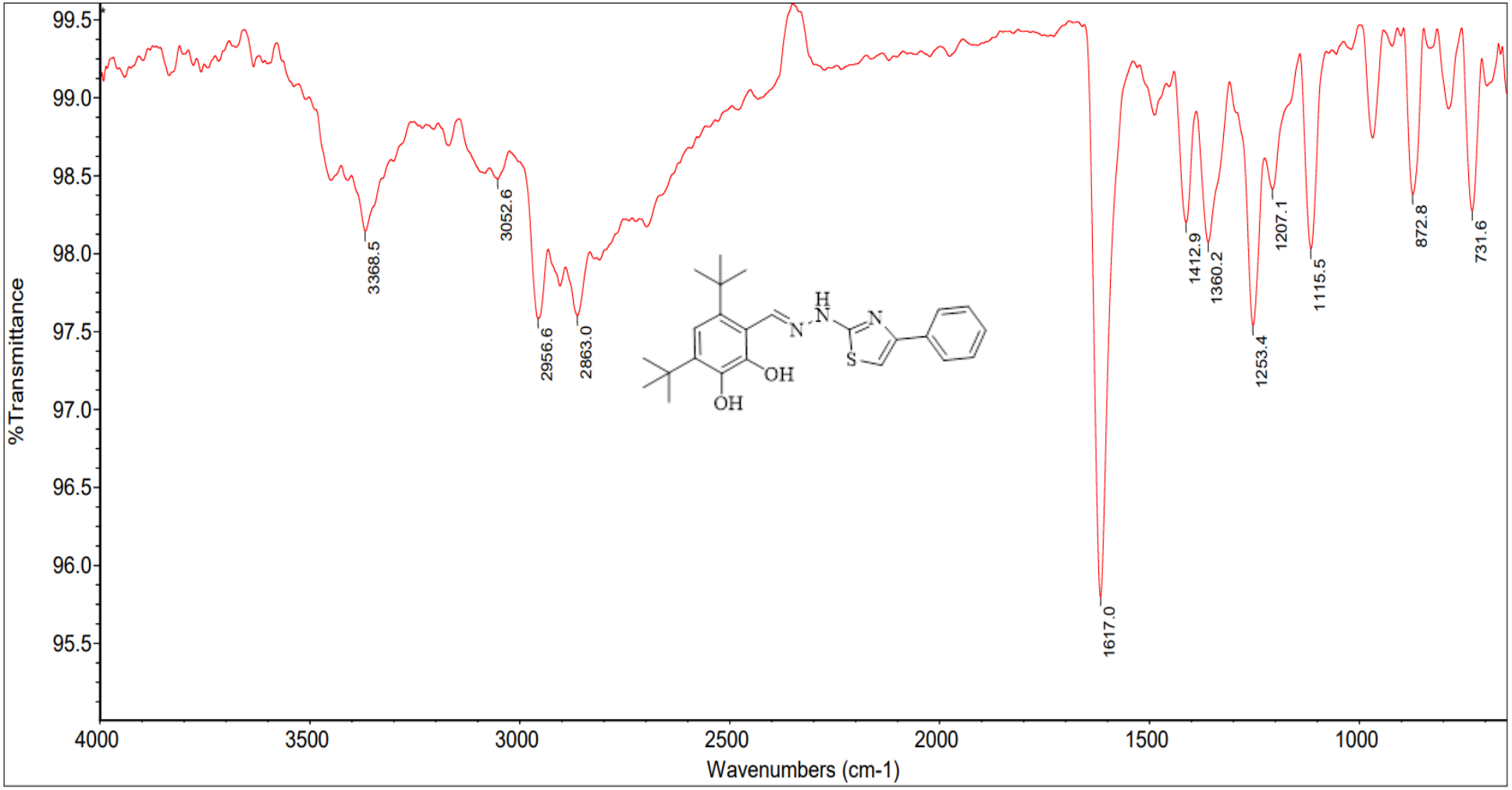


Figure S21: IR spectra of **2c** 4,6-di-*tert*-butyl-3-((2-(4-phenylthiazol-2-yl)hydrazineylidene)methyl)benzene-1,2-diol

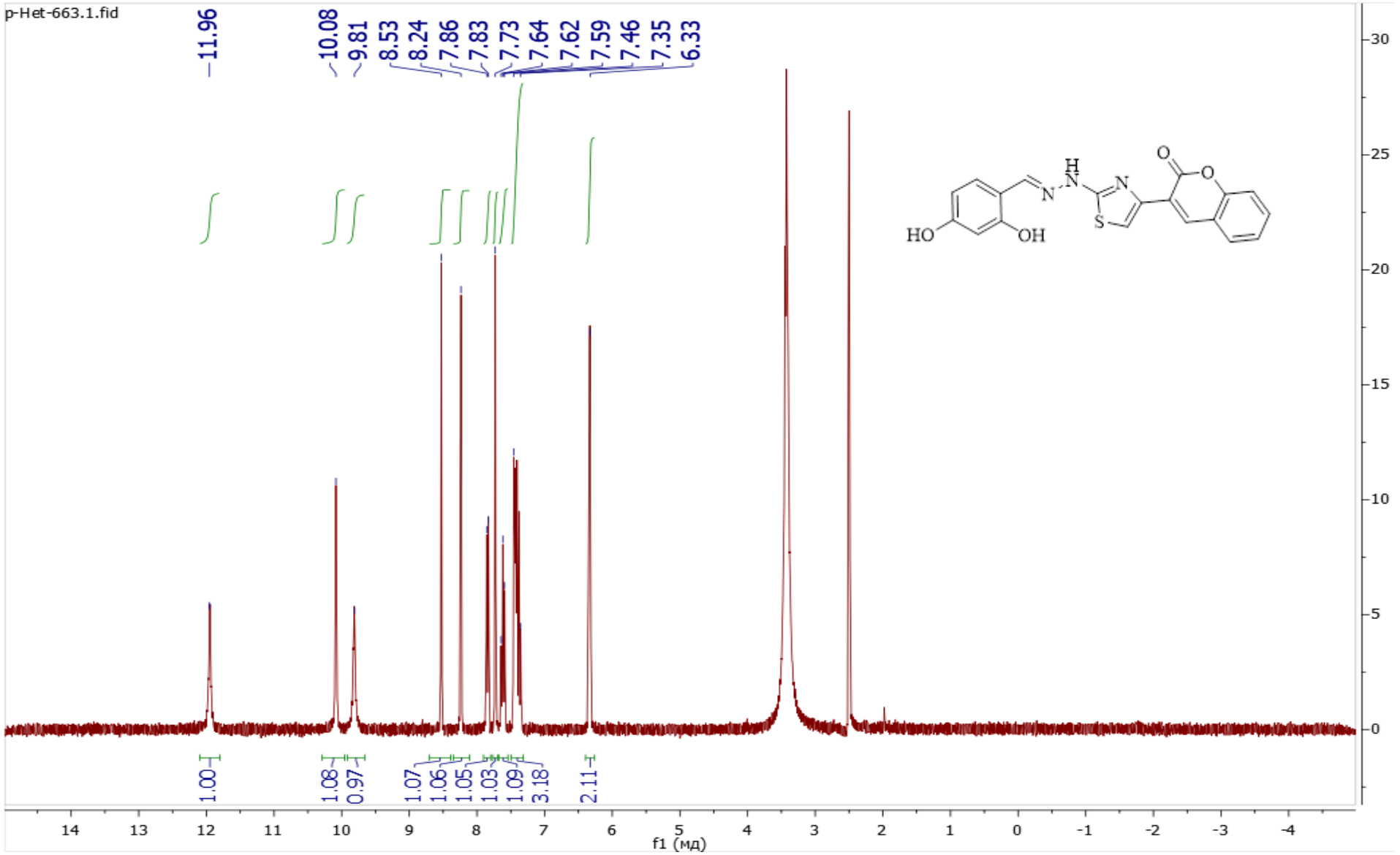


Figure S22: ^{1}H NMR spectra of **2d** 3-(2-(2-(2,4-dihydroxybenzylidene)hydrazineyl)thiazol-4-yl)-2H-chromen-2-one

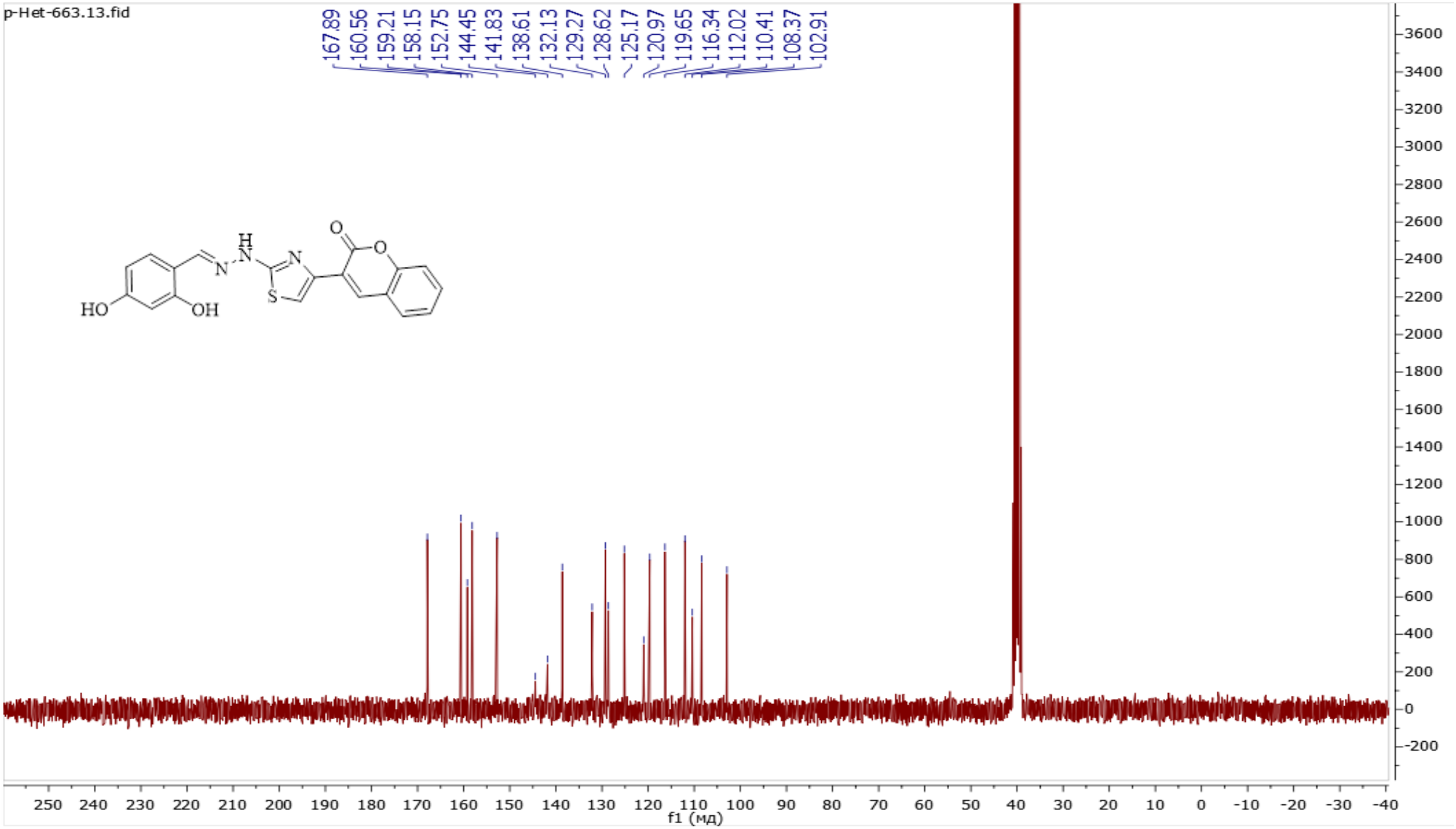


Figure S23: ^{13}C NMR spectra of 2d 3-(2-(2-(2,4-dihydroxybenzylidene)hydrazineyl)thiazol-4-yl)-2H-chromen-2-one

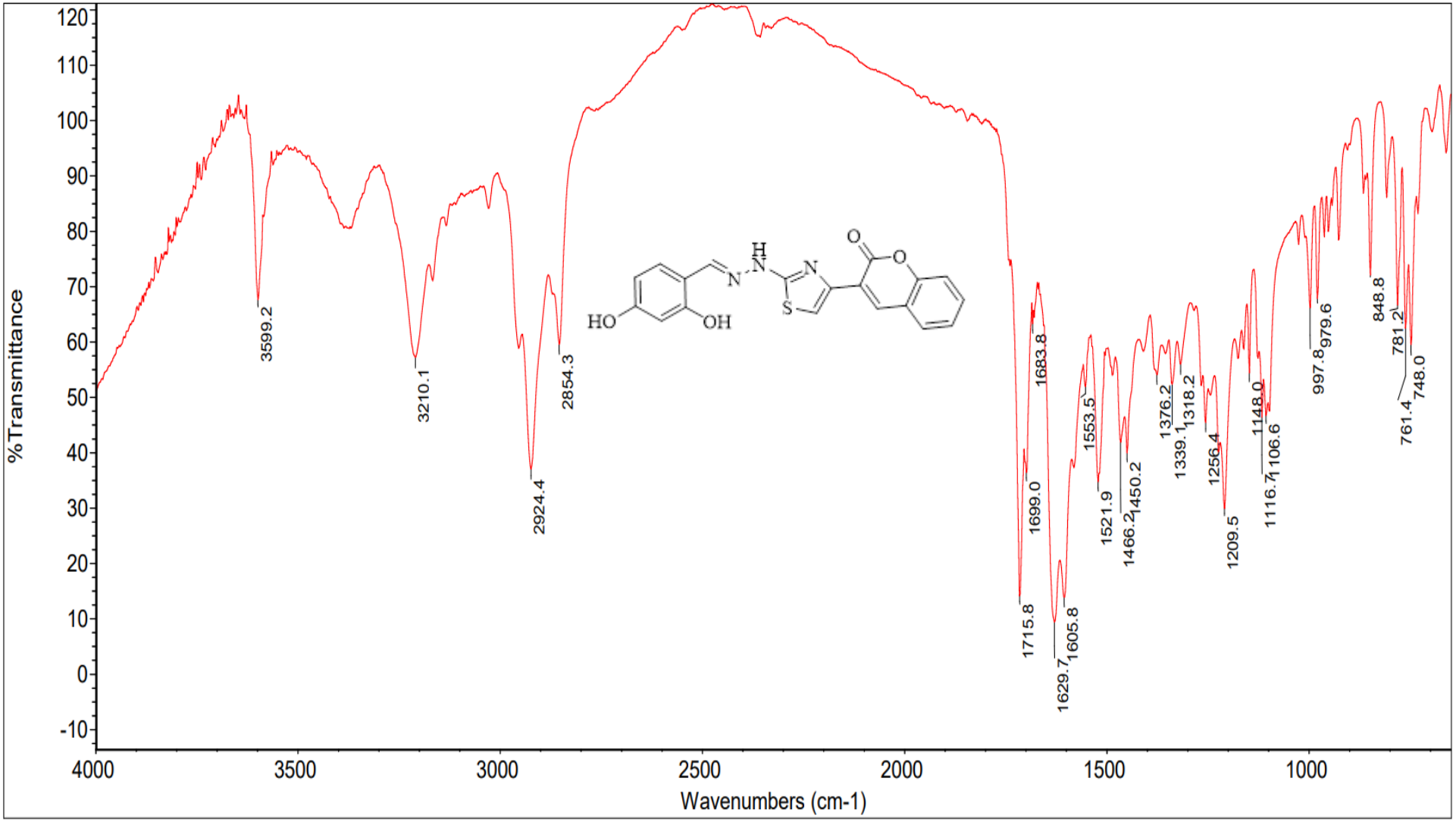


Figure S24: IR spectra of **2d** 3-(2-(2-(2,4-dihydroxybenzylidene)hydrazineyl)thiazol-4-yl)-2H-chromen-2-one

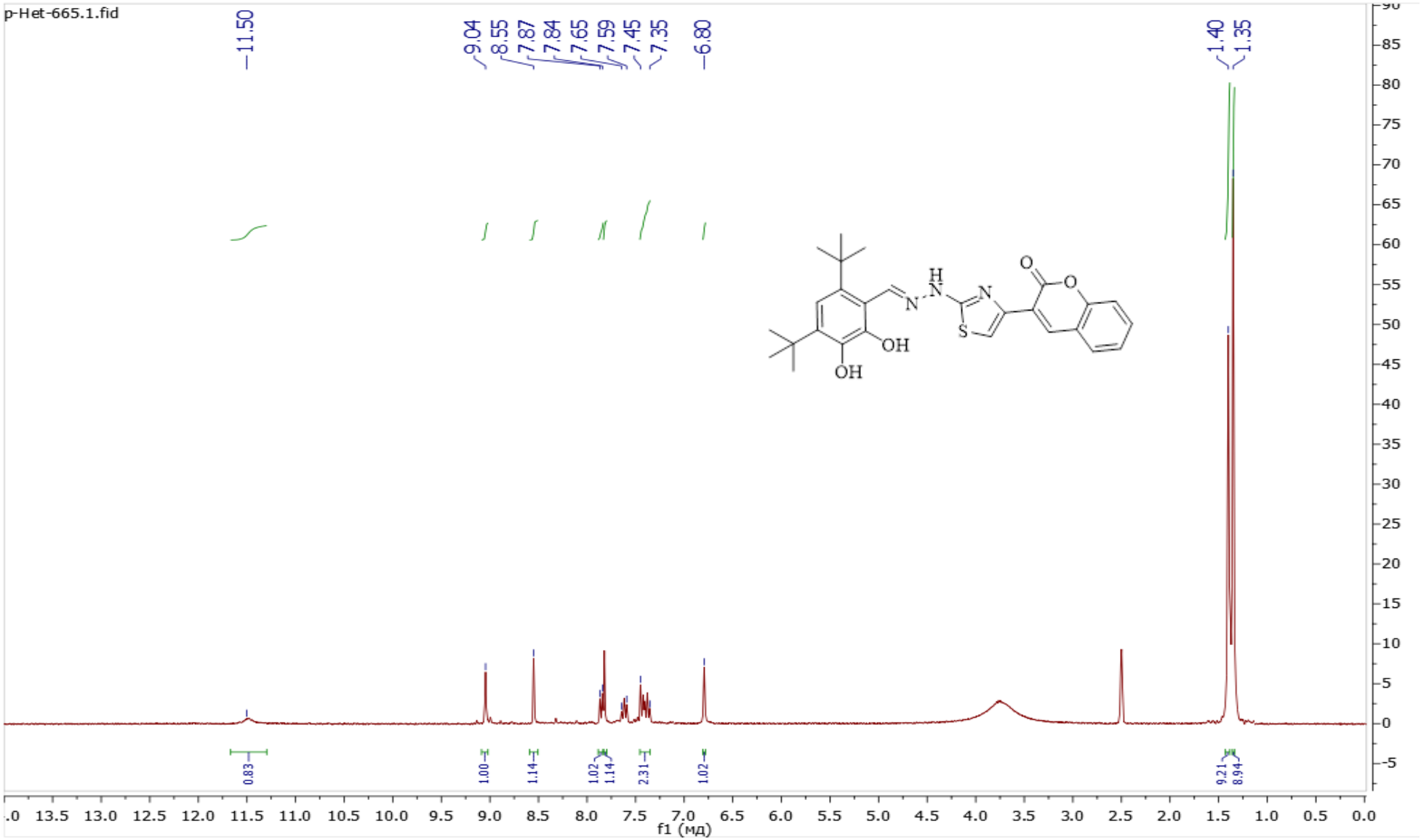


Figure S25: ^{1}H NMR spectra of **2e** 3-(4,6-di-*tert*-butyl-3-hydrazineyl)thiazol-4-yl)-2H-chromen-2-one

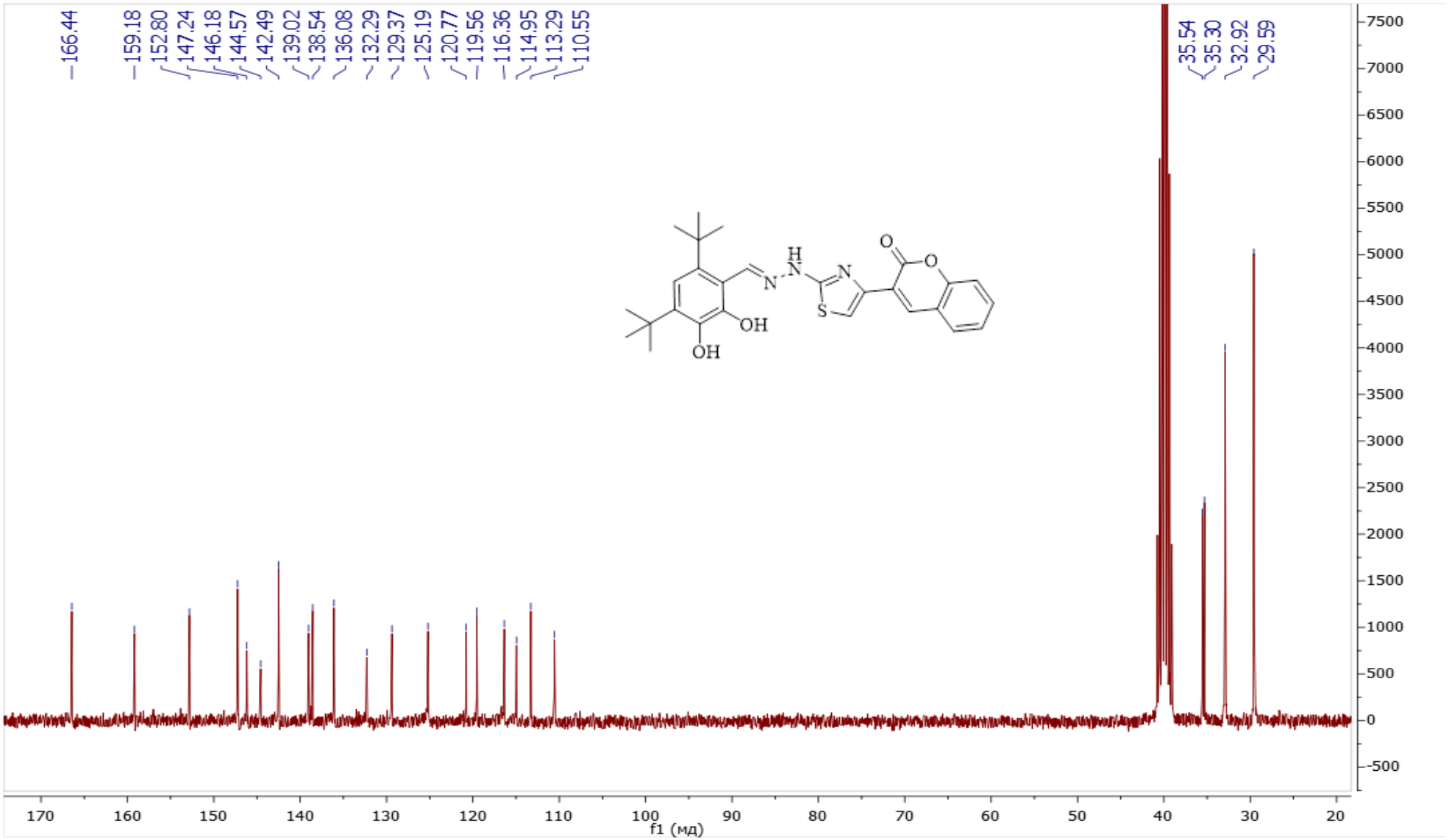


Figure S26: ^{13}C NMR spectra of **2e** 3-(2-(2-(4,6-di-*tert*-butyl-2,3-dihydroxybenzylidene)hydrazineyl)thiazol-4-yl)-2H-chromen-2-one

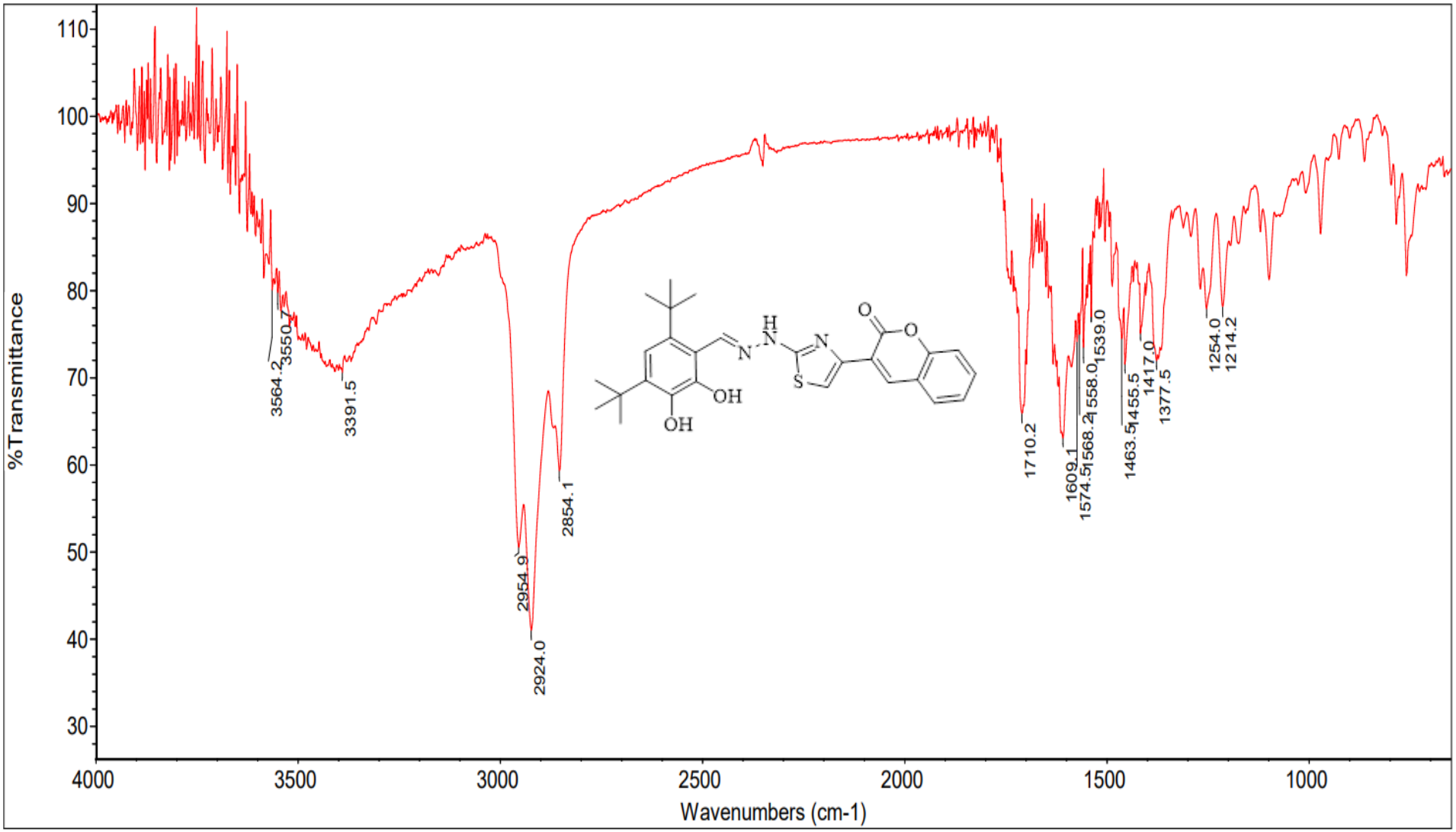


Figure S27: IR spectra of **2e** 3-(2-(2-(4,6-di-*tert*-butyl-2,3-dihydroxybenzylidene)hydrazineyl)thiazol-4-yl)-2H-chromen-2-one

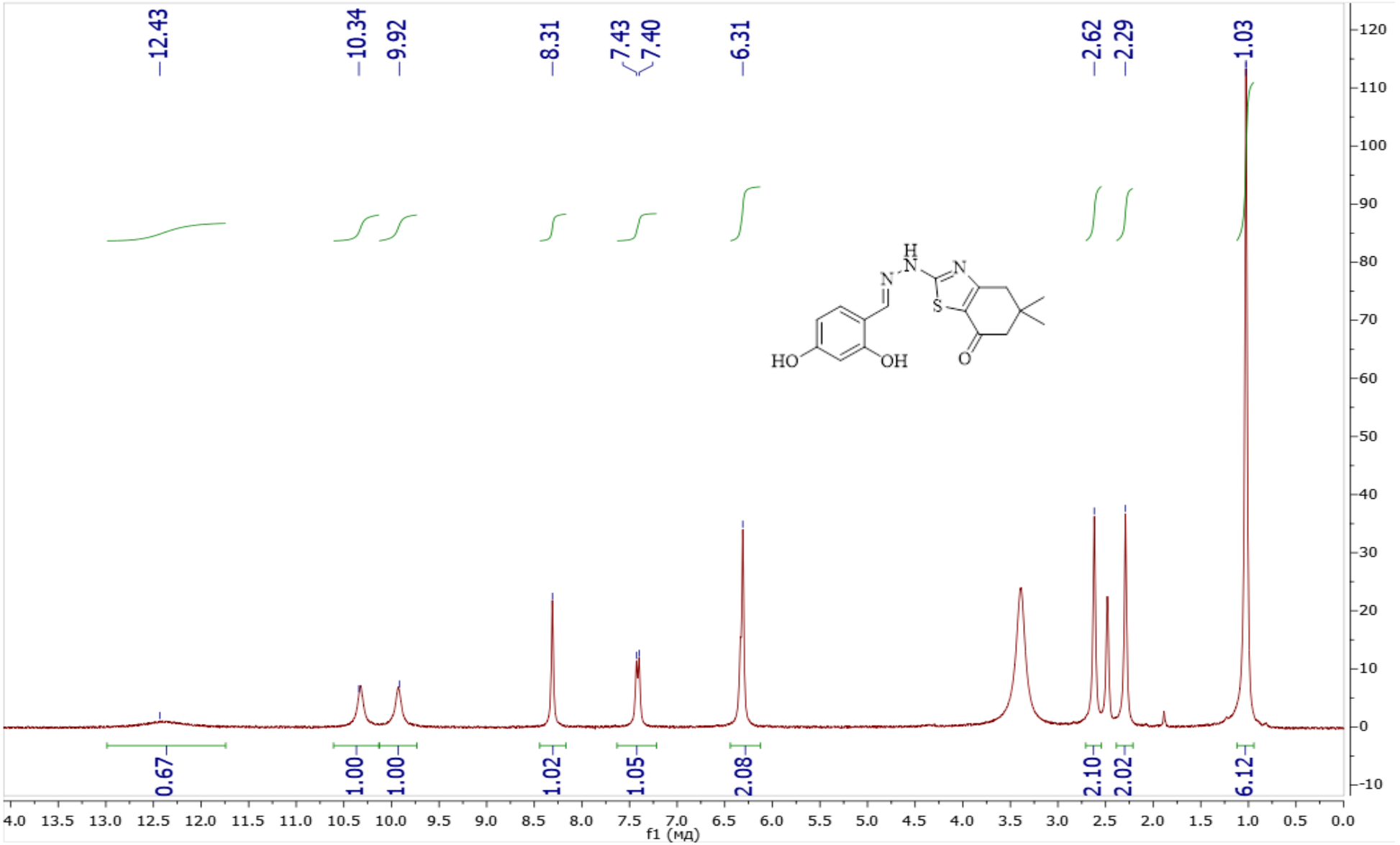


Figure S28: ^{1}H NMR of **3a** (2-(2,4-dihydroxybenzylidene)hydrazinyl)-5,5-dimethyl-5,6-dihydrobenzo[d]thiazol-7(4H)-one

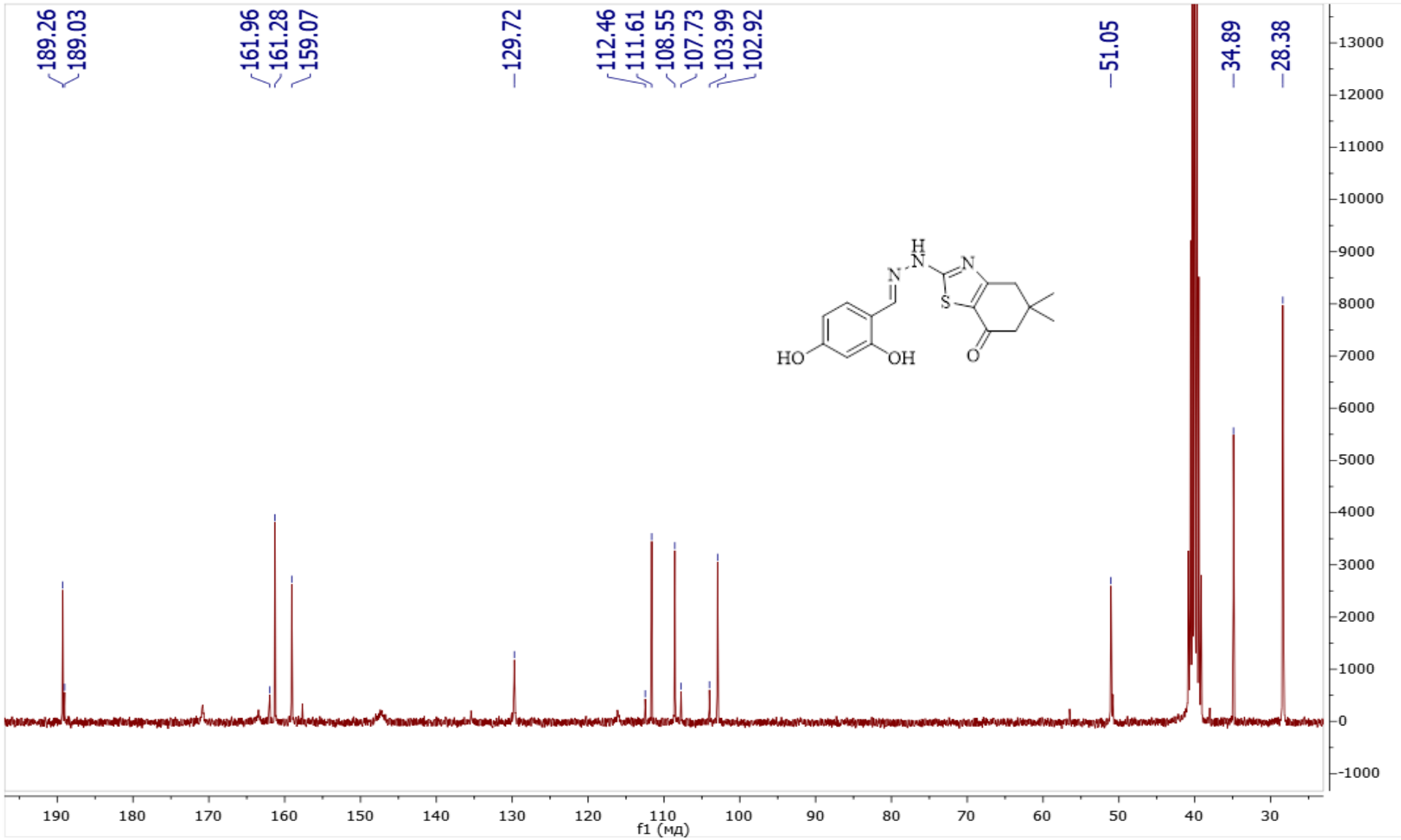


Figure S29: ^{13}C NMR of **3a** (2-(2,4-dihydroxybenzylidene)hydrazinyl)-5,5-dimethyl-5,6-dihydrobenzo[d]thiazol-7(4H)-one

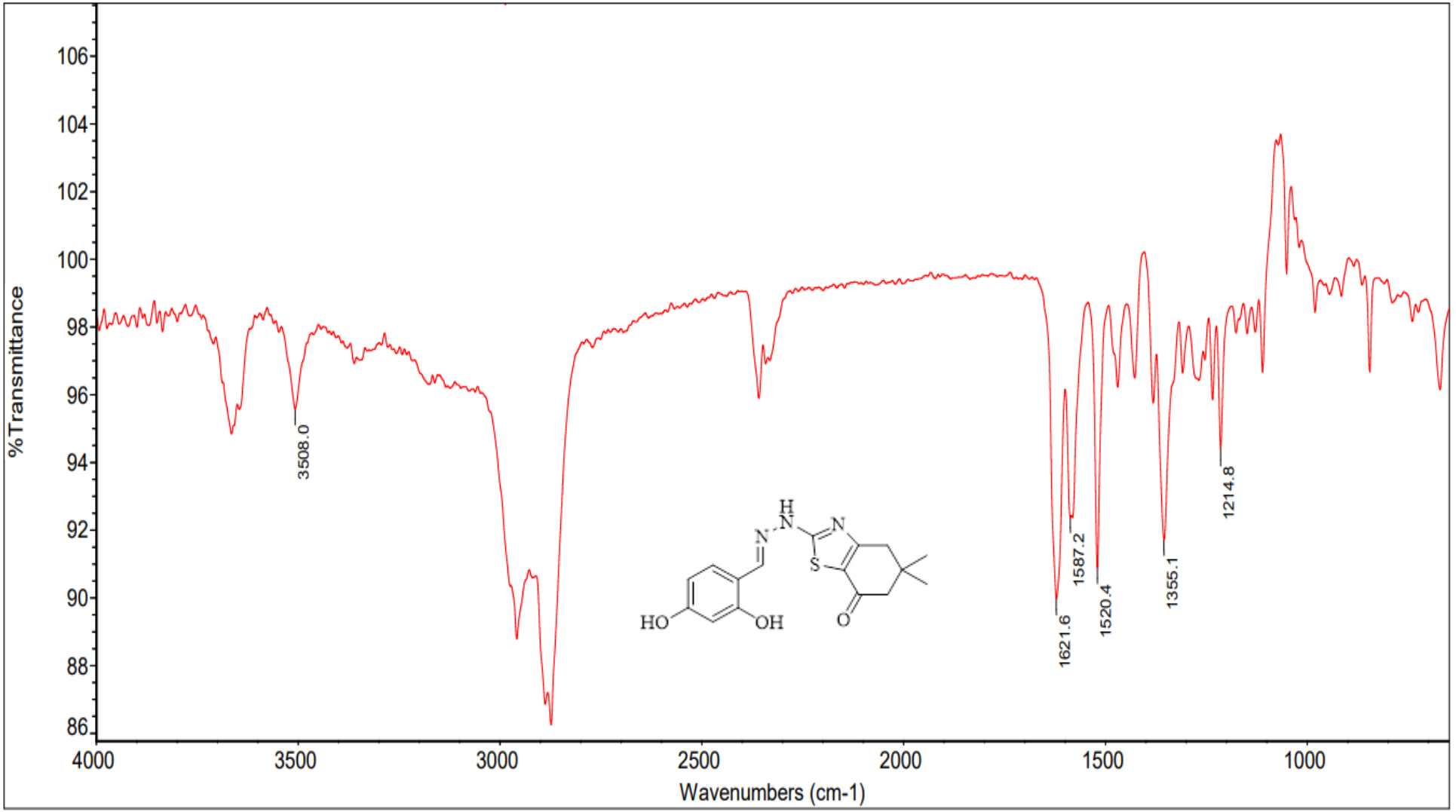


Figure S30: IR spectra of **3a** (2-(2,4-dihydroxybenzylidene)hydrazinyl)-5,5-dimethyl-5,6-dihydrobenzo[d]thiazol-7(4H)-one

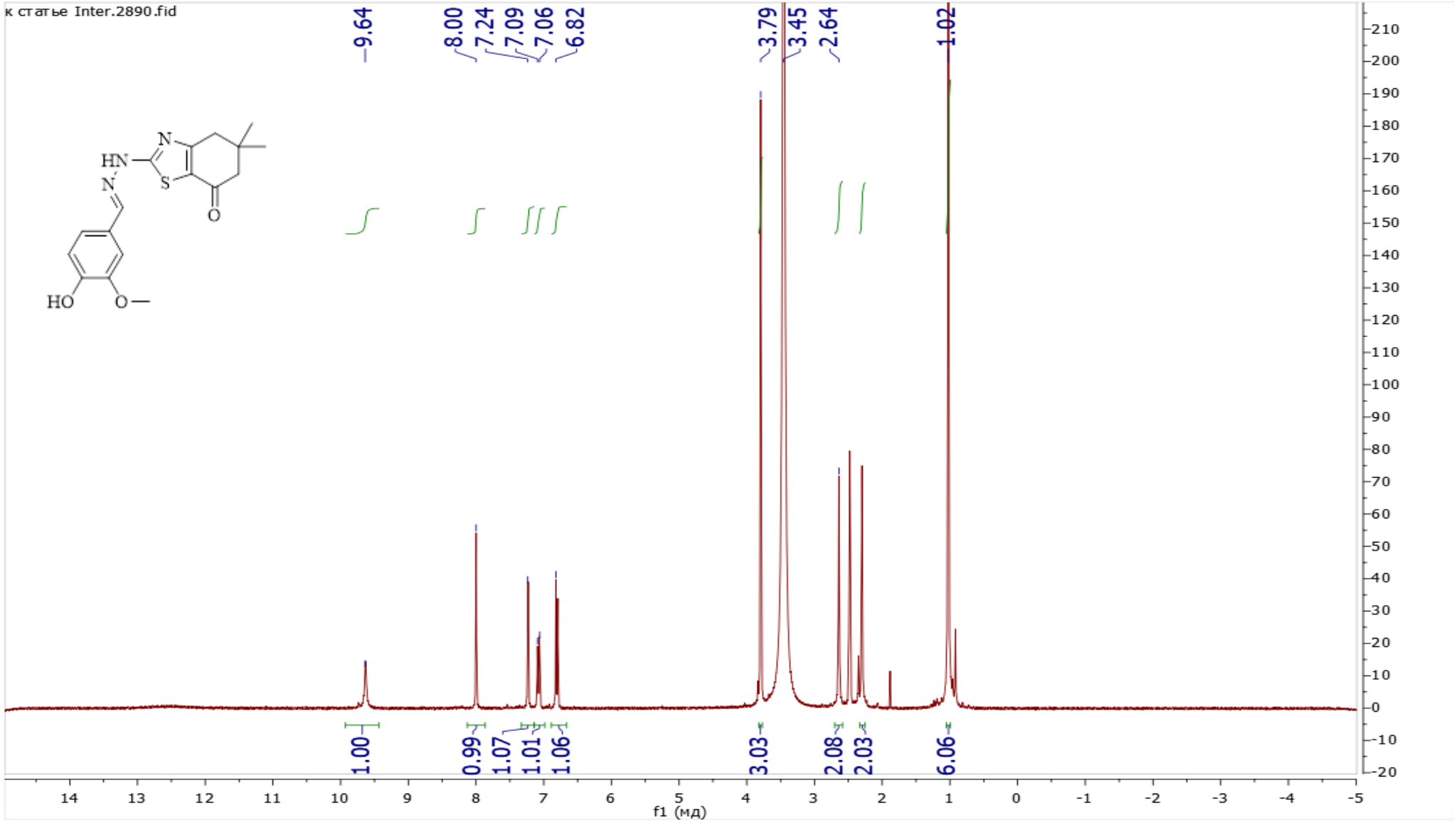


Figure S31: ^{1}H NMR spectra of **3b** (2-(2-hydroxy-3-metoxybenzylidene)hydrazinyl)-5,5-dimethyl-5,6-dihydrobenzo[d]thiazol-7(4H)-one

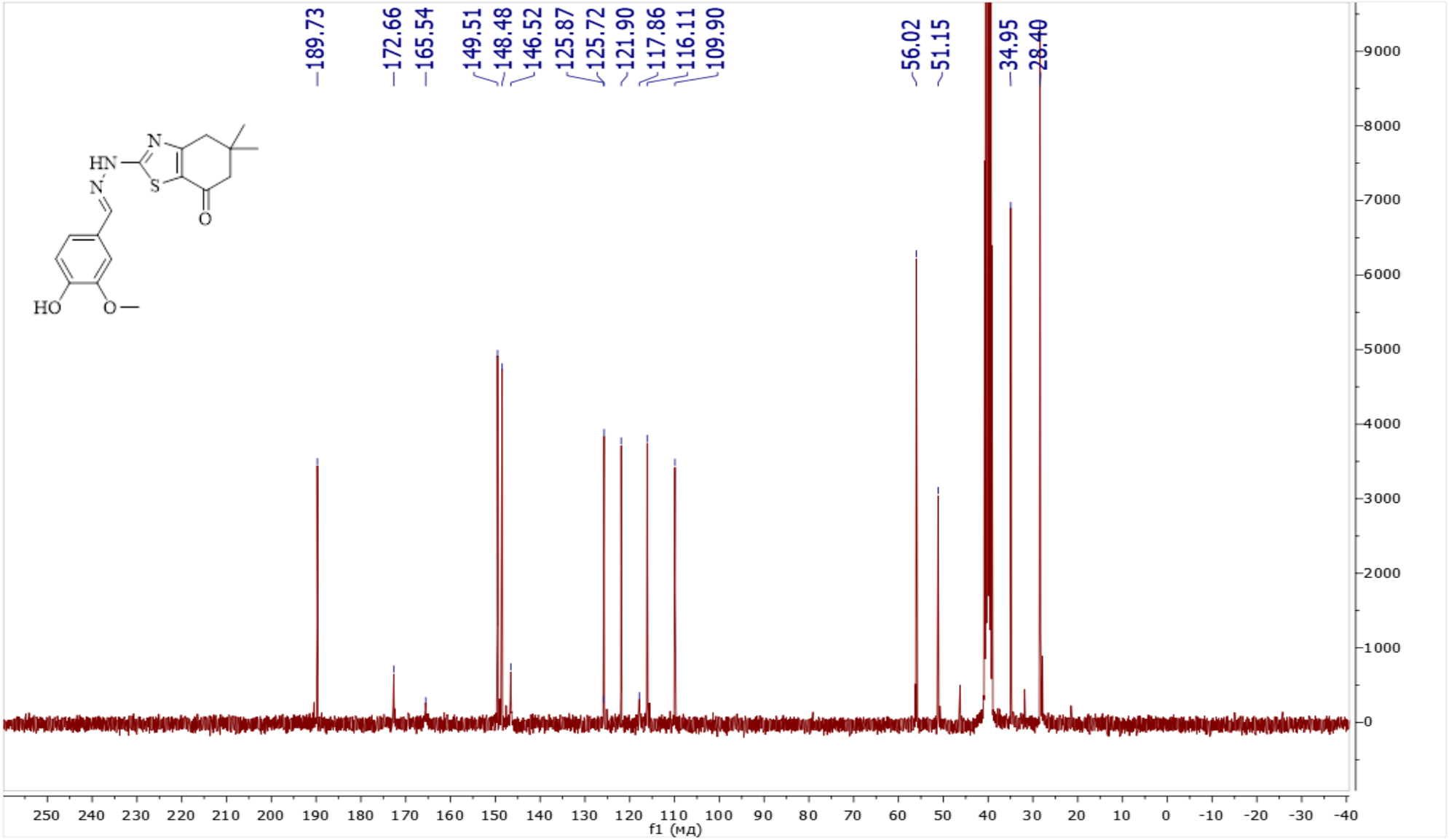


Figure S32: ^{13}C NMR spectra of **3b** (2-(2-hydroxy-3-metoxybenzylidene)hydrazinyl)-5,5-dimethyl-5,6-dihydrobenzo[d]thiazol-7(4H)-one

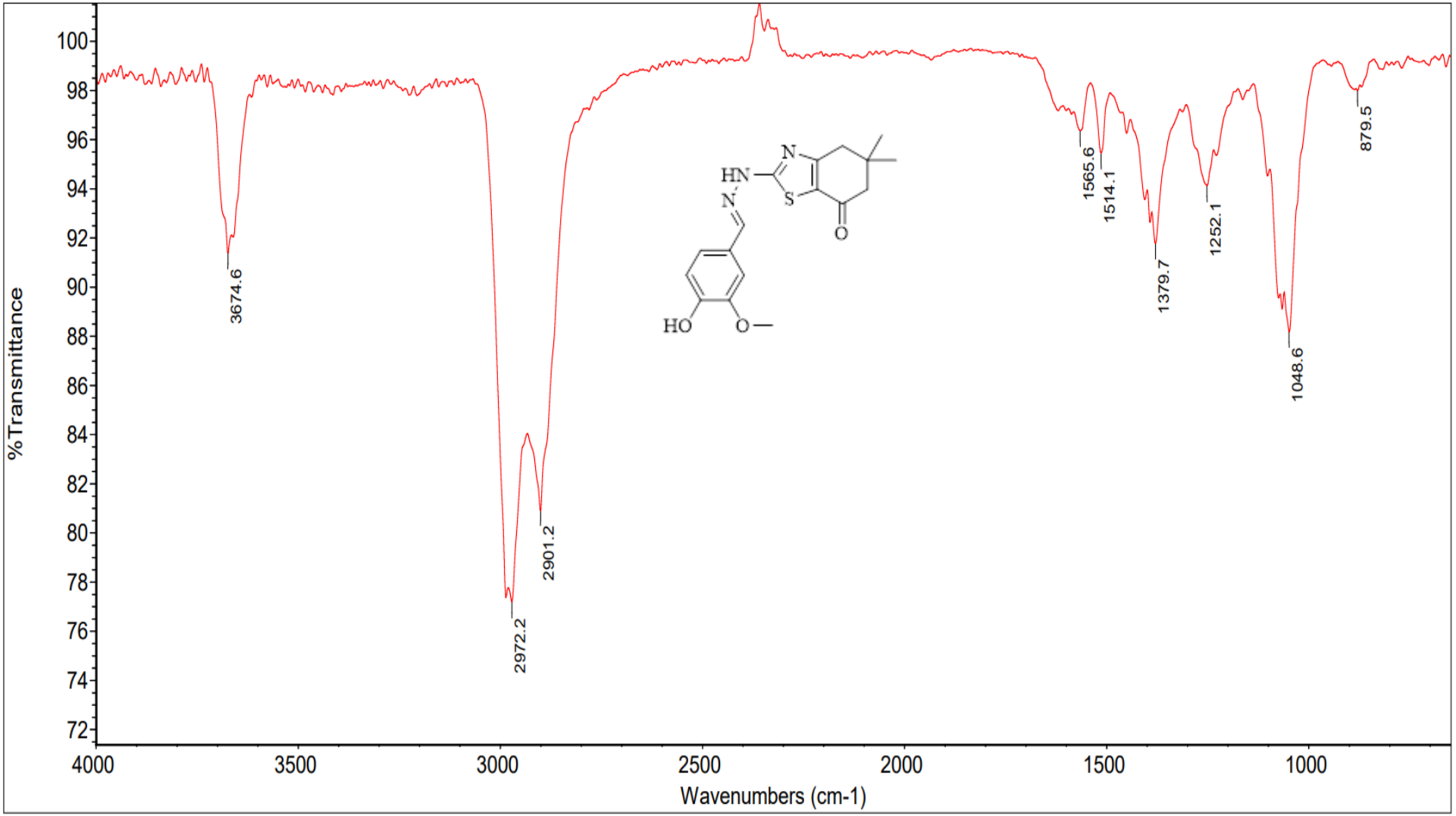


Figure S33: IR spectra of **3b** (2-(2-hydroxy-3-metoxybenzylidene)hydrazinyl)-5,5-dimethyl-5,6-dihydrobenzo[d]thiazol-7(4H)-one

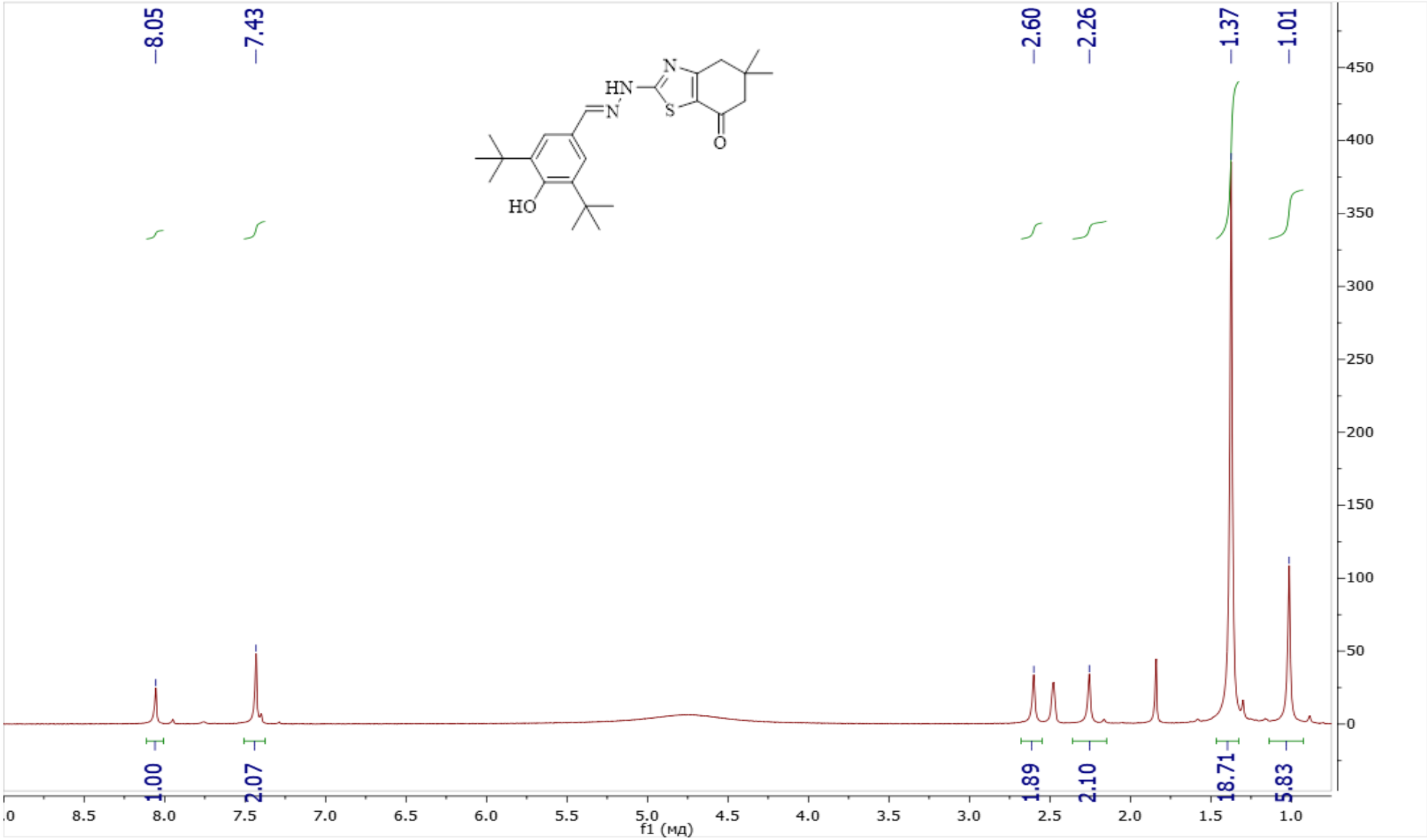


Figure S34: ^{1}H NMR spectra of **3c** 2-(2-(3,5-di-*tert*-butyl-4-hydroxybenzylidene)hydrazineyl)-5,5-dimethyl-5,6-dihydrobenzo[d]thiazol-7(4H)-one**.**

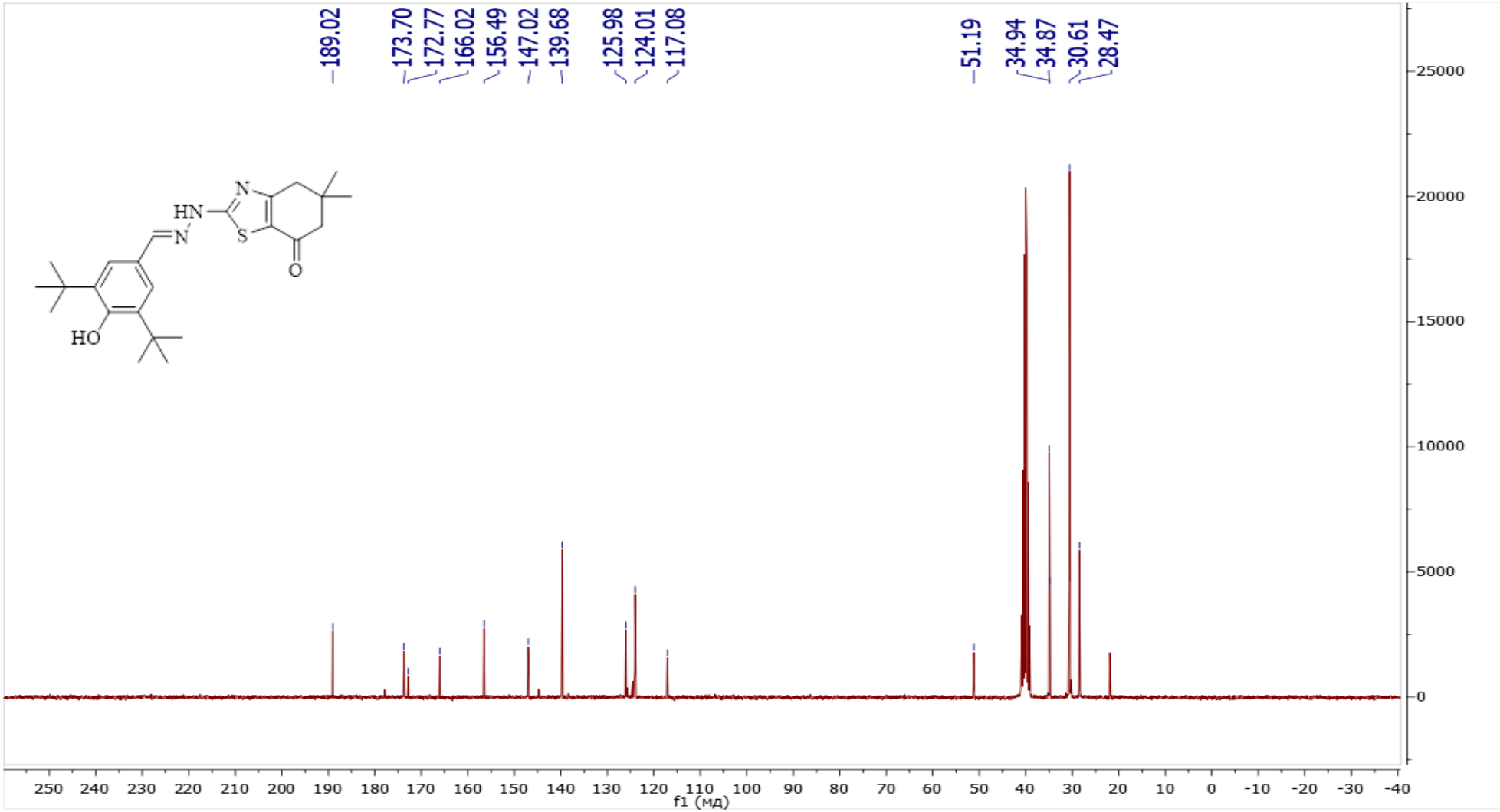


Figure S35: ^{13}C NMR spectra of **3c** 2-(2-(3,5-di-*tert*-butyl-4-hydroxybenzylidene)hydrazineyl)-5,5-dimethyl-5,6-dihydrobenzo[d]thiazol-7(4H)-one**.**

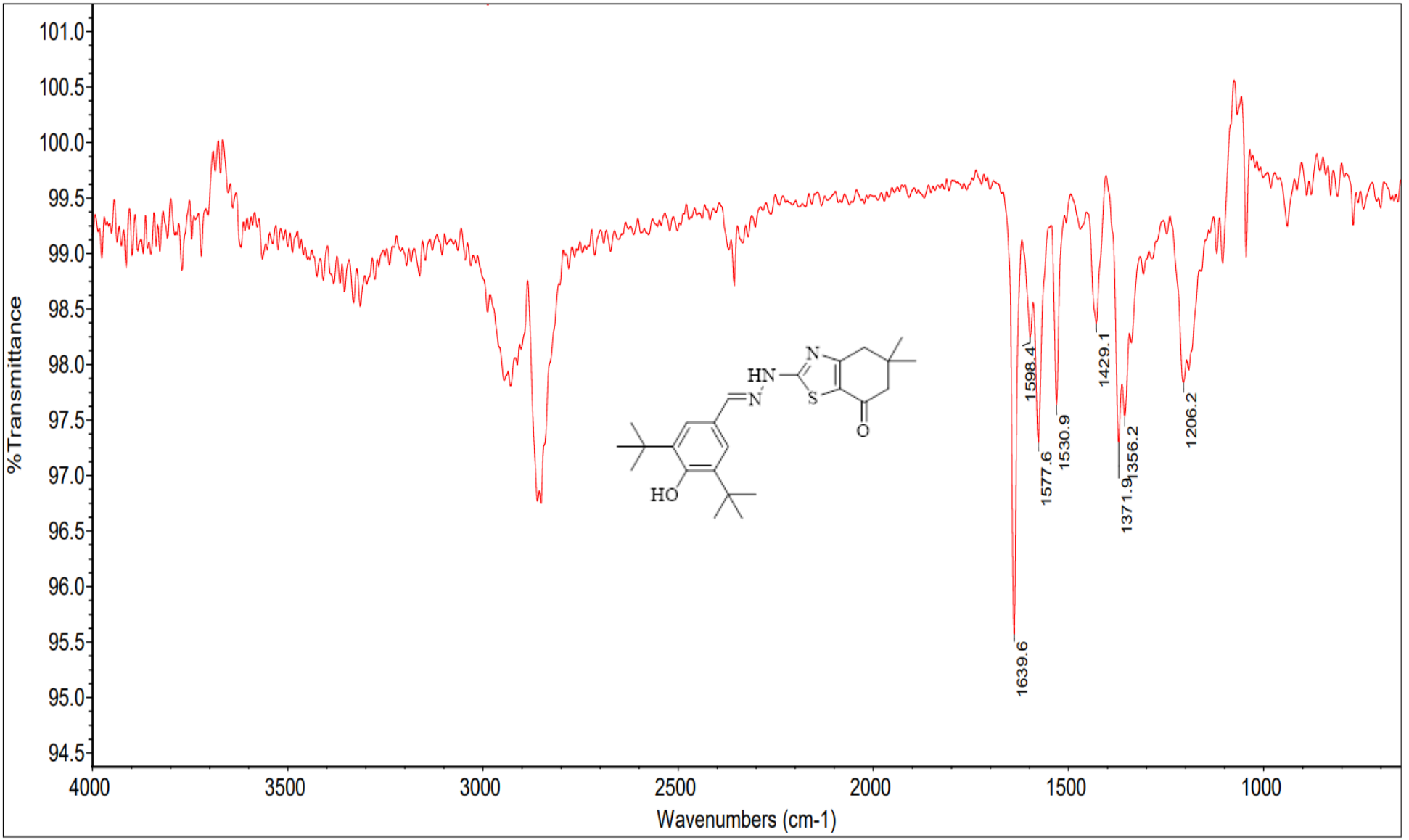


Figure S36: IR spectra of **3c** 2-(2-(3,5-di-*tert*-butyl-4-hydroxybenzylidene)hydrazineyl)-5,5-dimethyl-5,6-dihydrobenzo[d]thiazol-7(4H)-one**.**

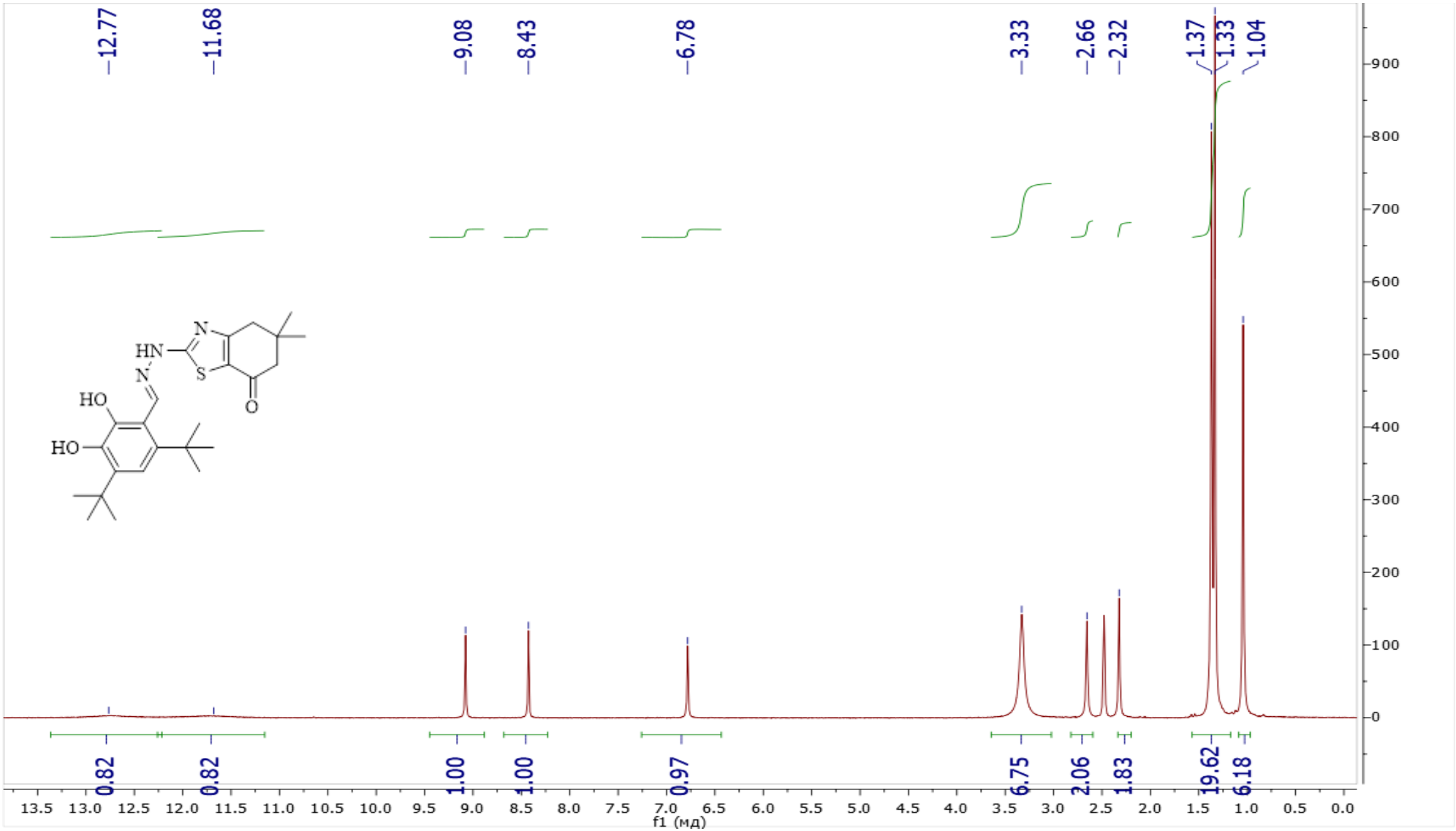


Figure S37: ^{1}H NMR spectra of **3d** 2-(2-(4,6-di-*tert*-butyl-2,3-dihydroxybenzylidene)hydrazineyl)-5,5-dimethyl-5,6-dihydrobenzo[d]thiazol-7(4H)-one

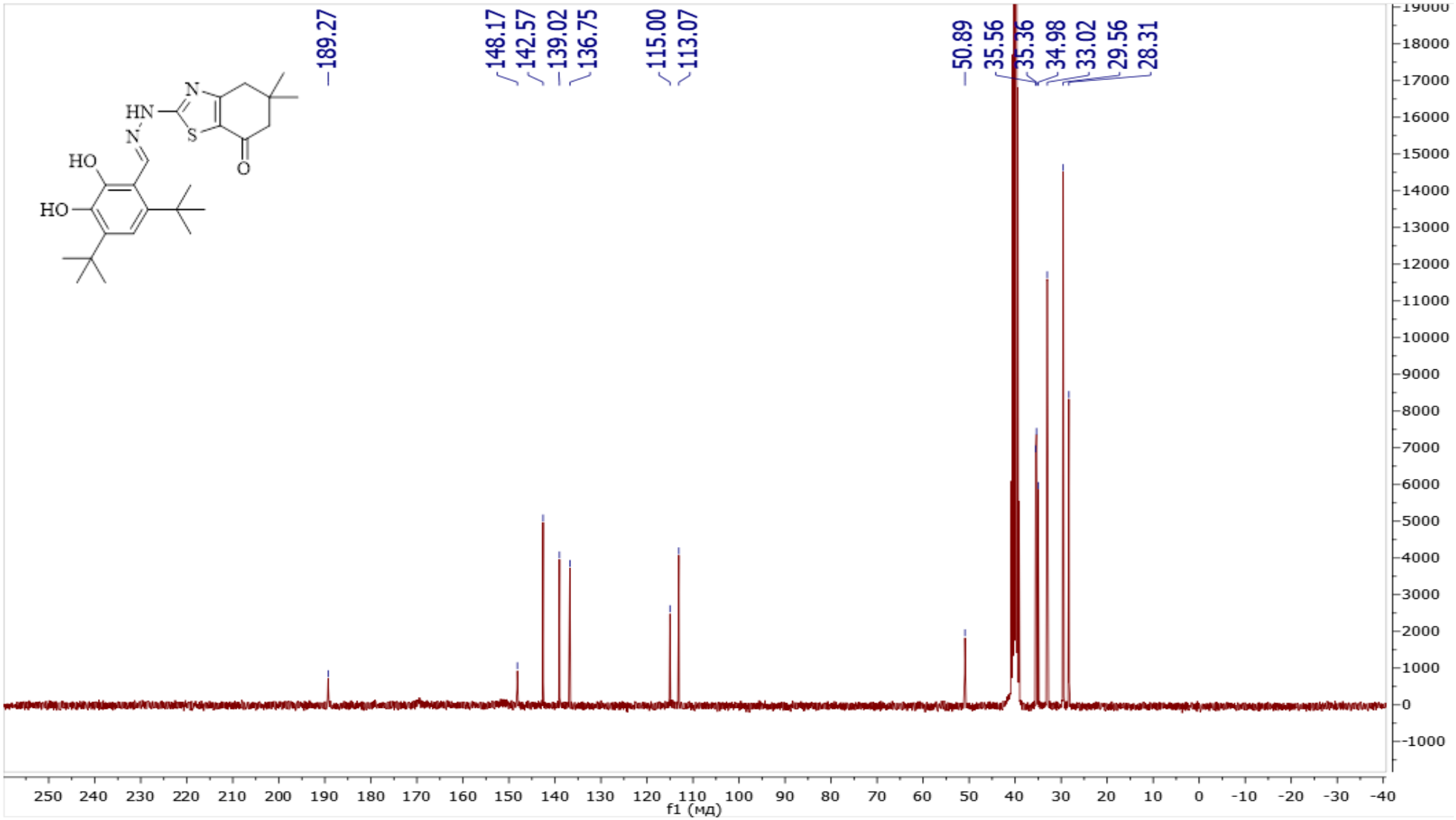


Figure S38: ^{13}C NMR spectra of **3d** 2-(2-(4,6-di-*tert*-butyl-2,3-dihydroxybenzylidene)hydrazineyl)-5,5-dimethyl-5,6-dihydrobenzo[d]thiazol-7(4H)-one

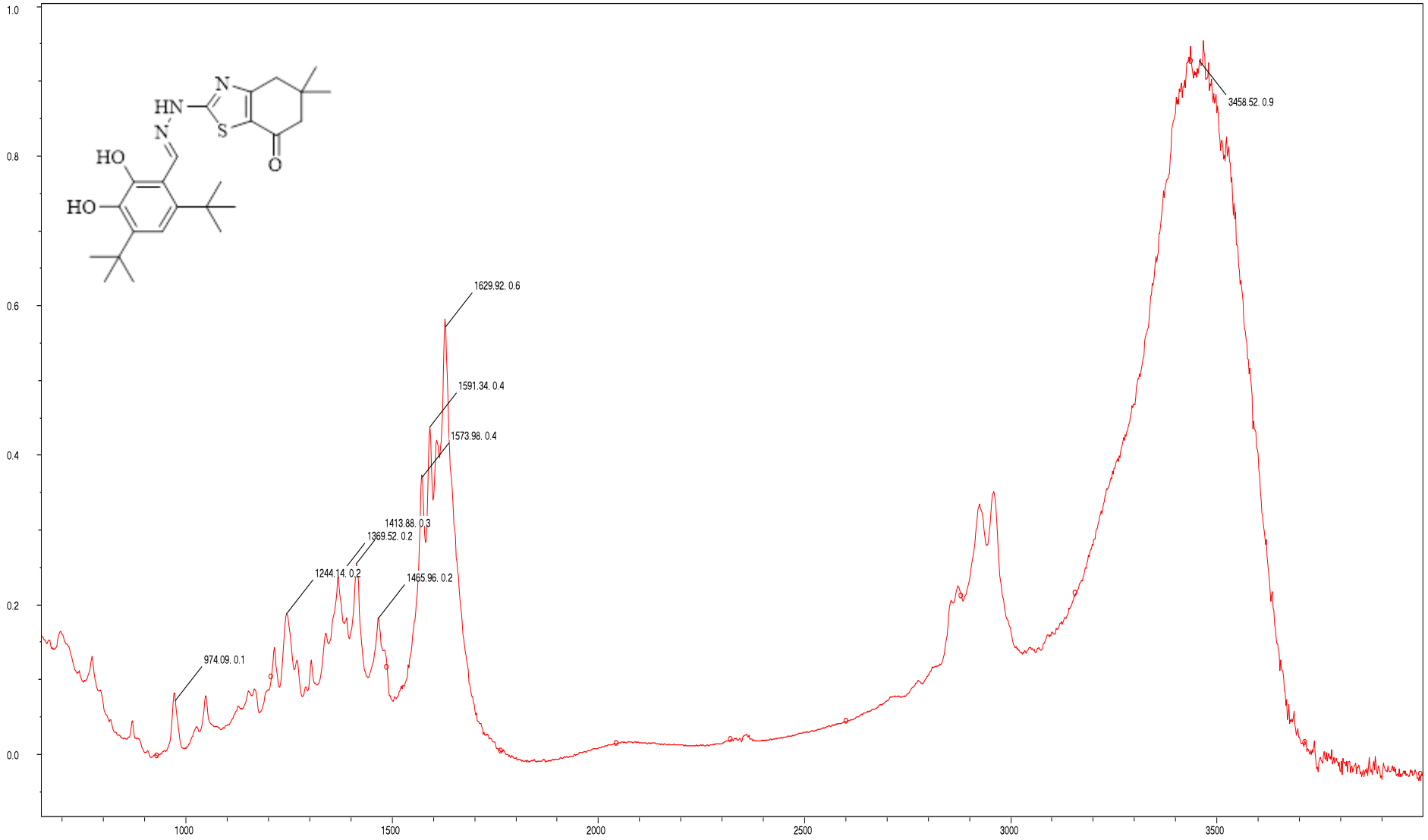


Figure S39: IR spectra of **3d** 2-(2-(4,6-di-*tert*-butyl-2,3-dihydroxybenzylidene)hydrazineyl)-5,5-dimethyl-5,6-dihydrobenzo[d]thiazol-7(4H)-one

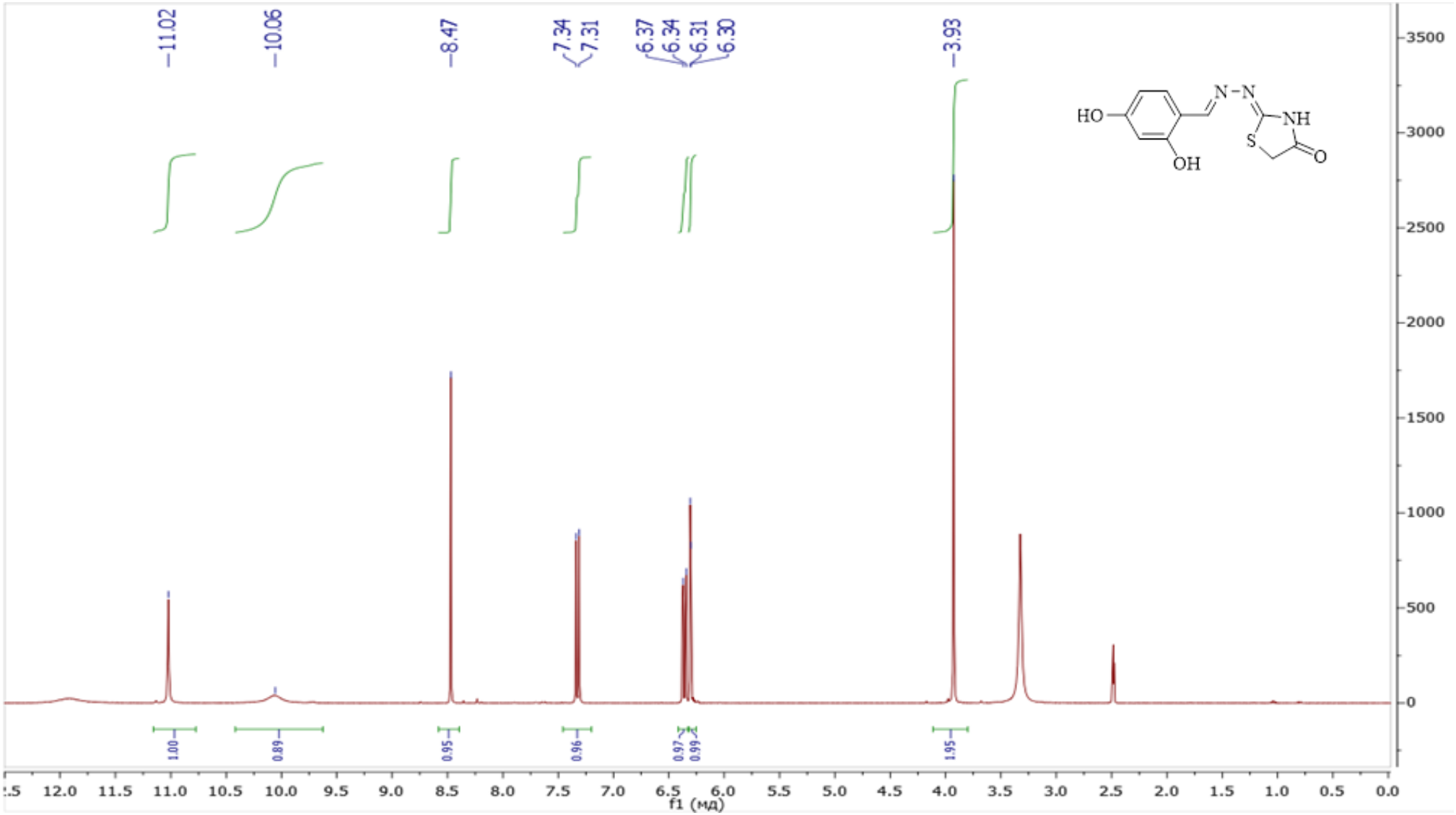


Figure S40: ^{1}H NMR spectra of **4a** 2-((2,4-dihydroxybenzylidene)hydrazineylidene)thiazolidin-4-one

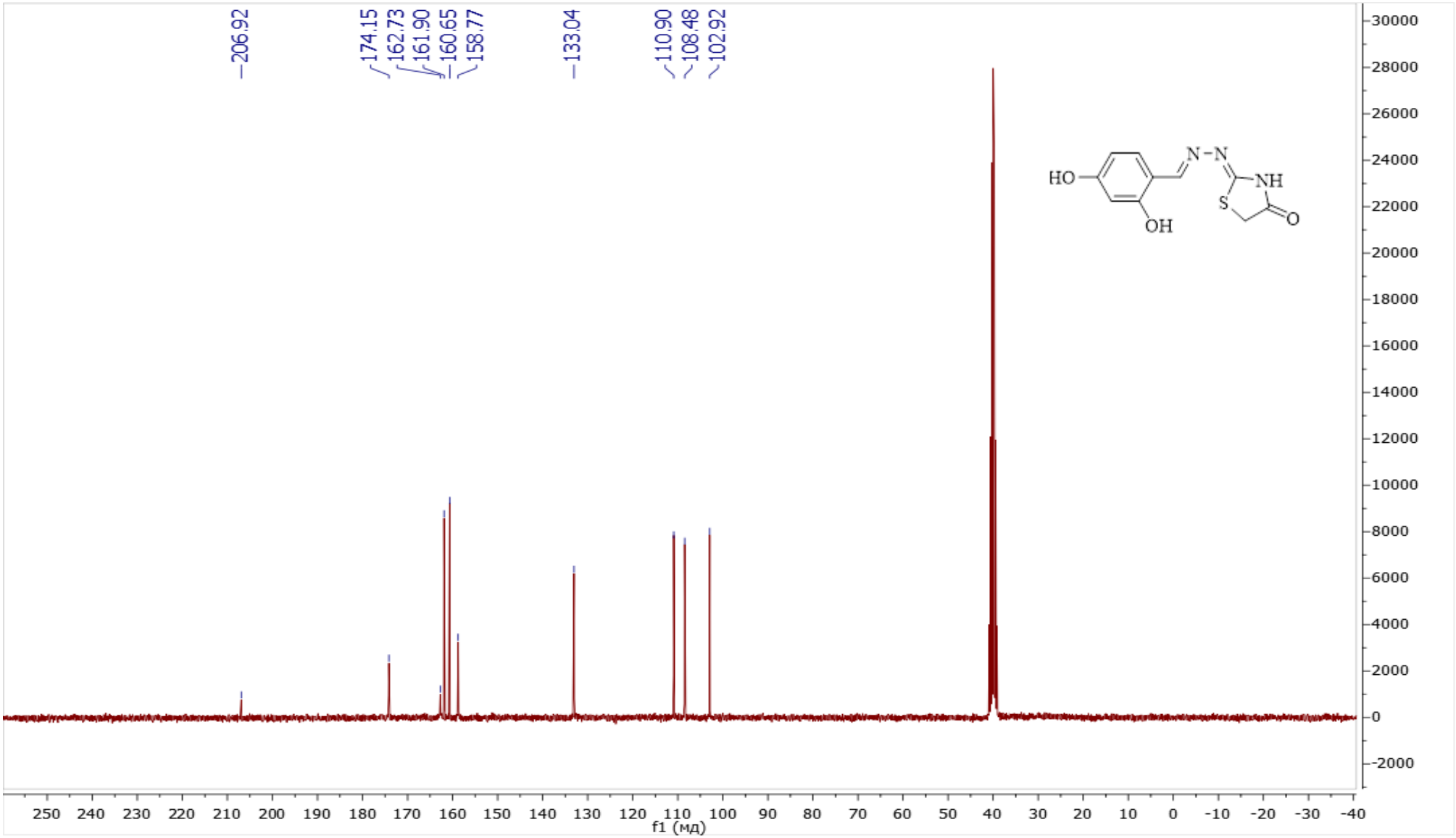


Figure S41: ^{13}C NMR spectra of **4a** 2-((2,4-dihydroxybenzylidene)hydrazineylidene)thiazolidin-4-one

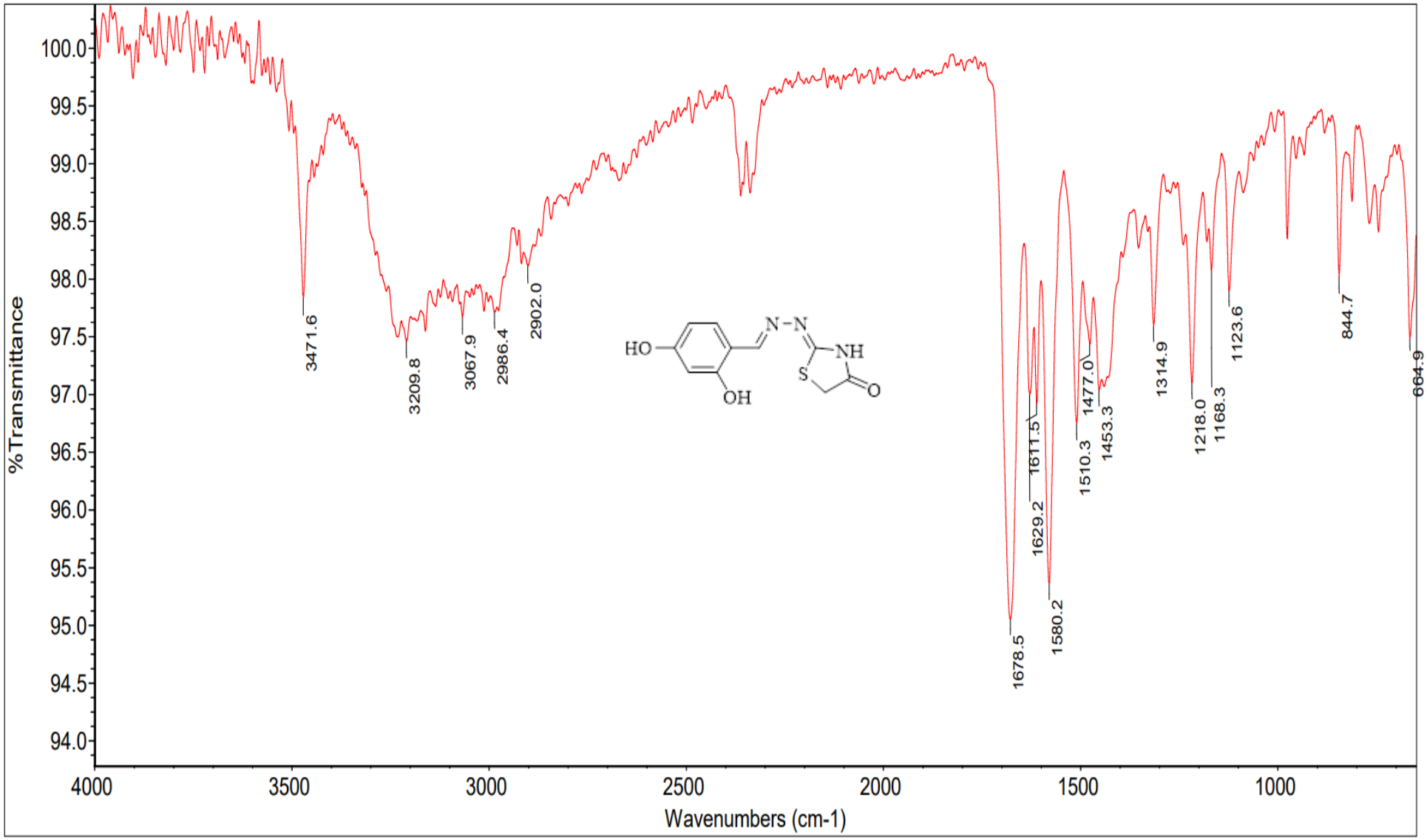


Figure S42: IR spectra of **4a** 2-((2,4-dihydroxybenzylidene)hydrazineylidene)thiazolidin-4-one

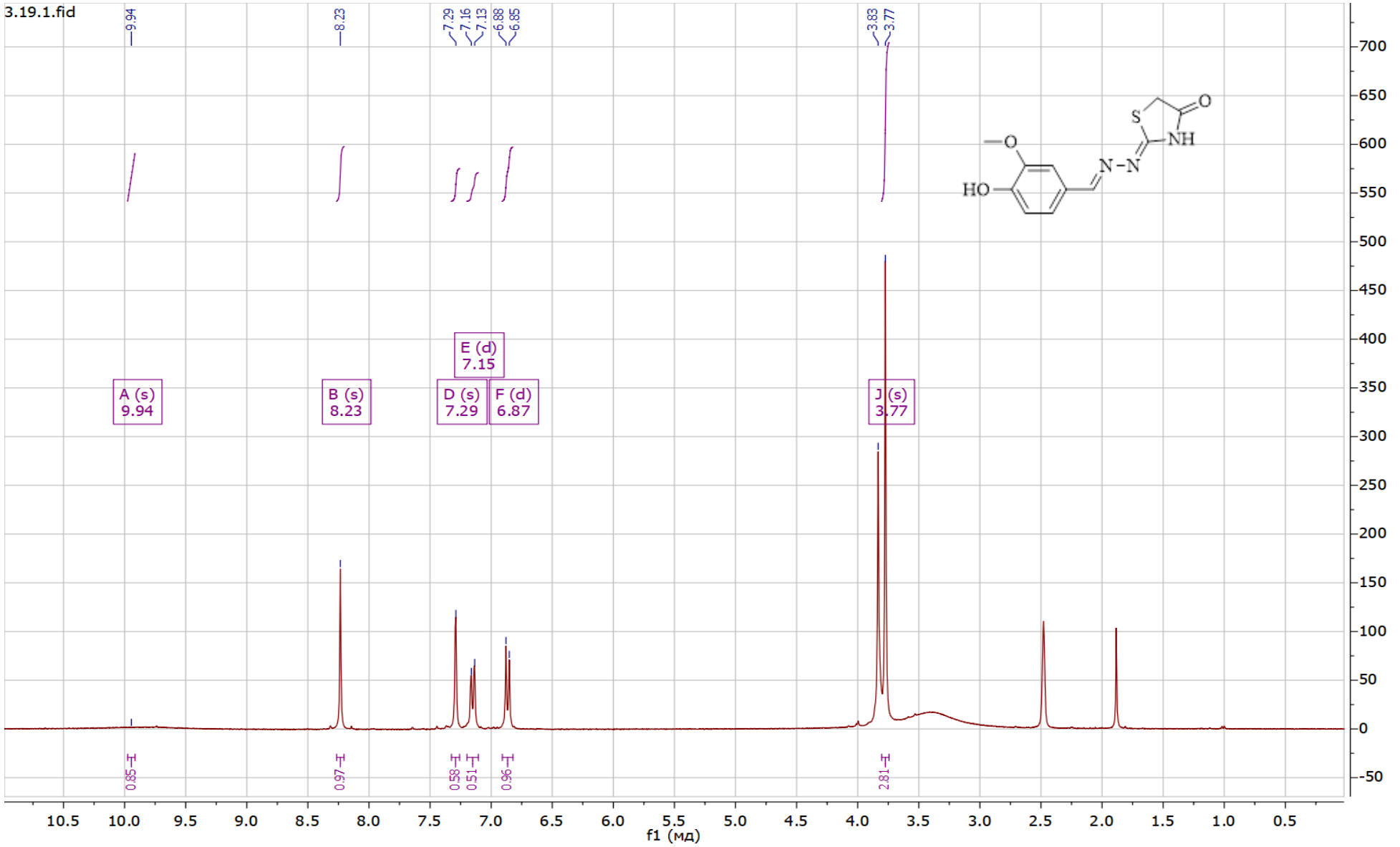


Figure S43: ^{1}H NMR spectra of **4b** 2-((4-hydroxy-3-methoxybenzylidene)hydrazineylidene)thiazolidin-4-one

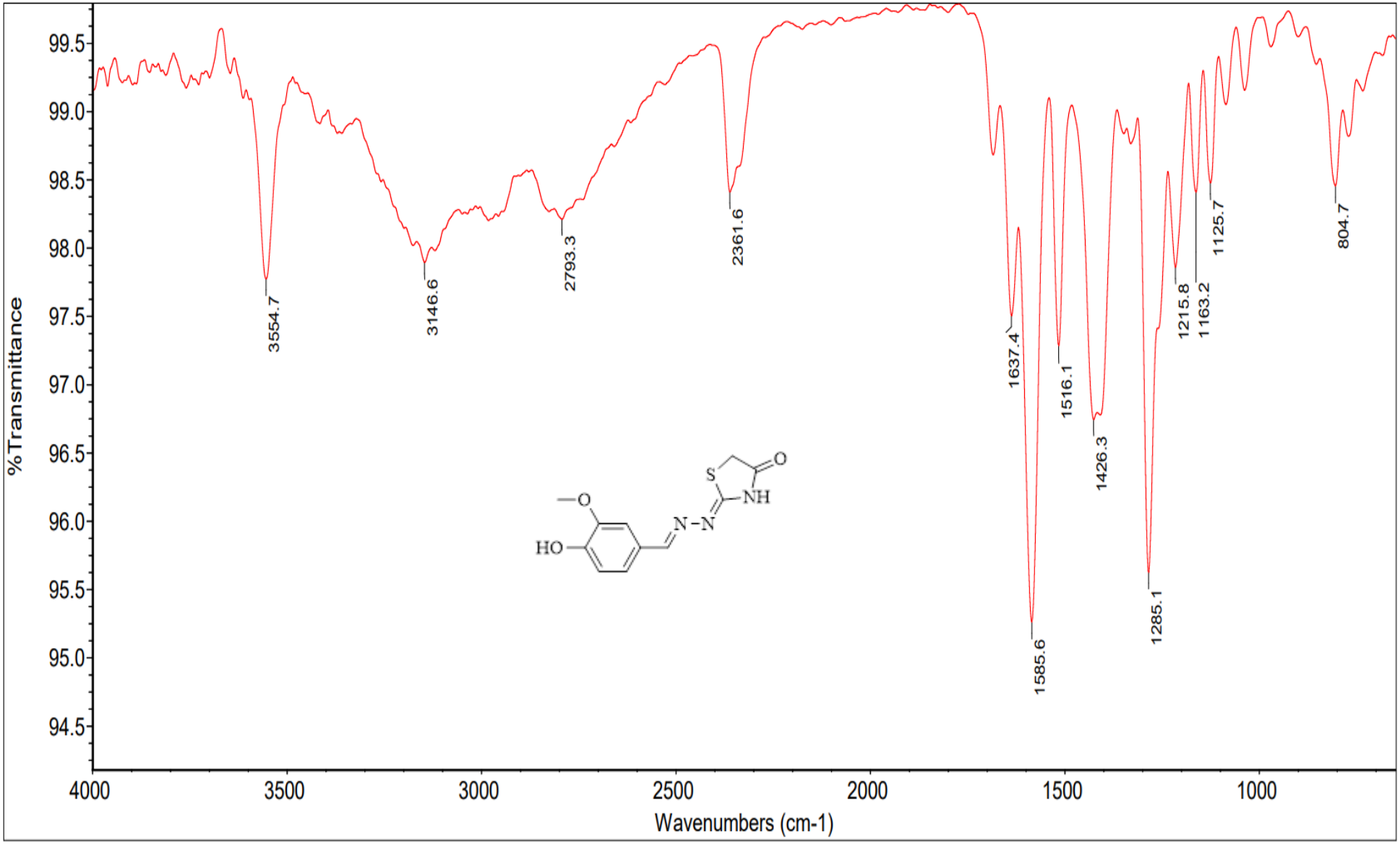


Figure S44: IR spectra of **4b** 2-((4-hydroxy-3-methoxybenzylidene)hydrazineylidene)thiazolidin-4-one

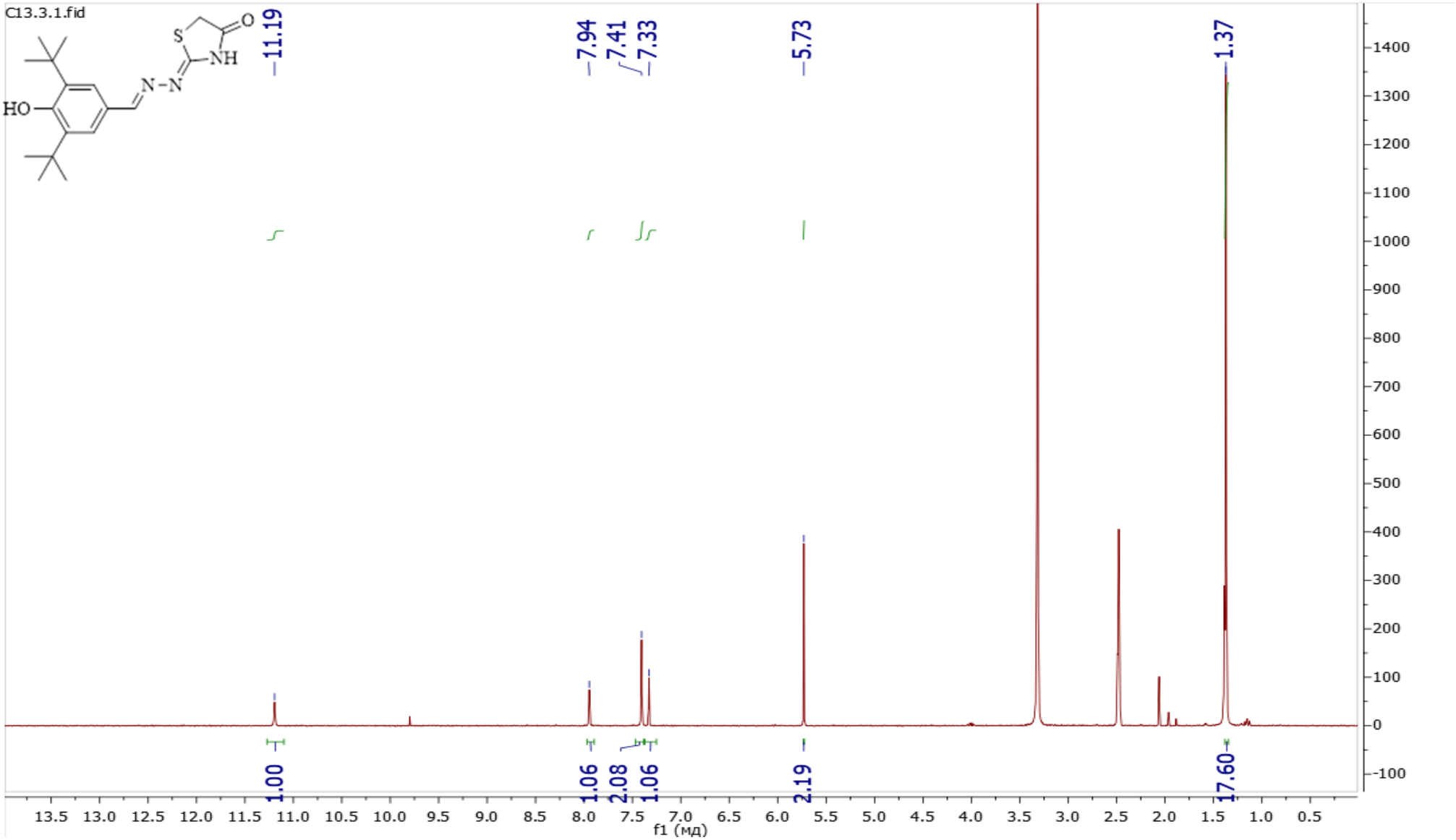


Figure S45: ^{1}H NMR spectra of **4c** 2-((3,5-di-*tert*-butyl-4-hydroxybenzylidene)hydrazineylidene)thiazolidin-4-one

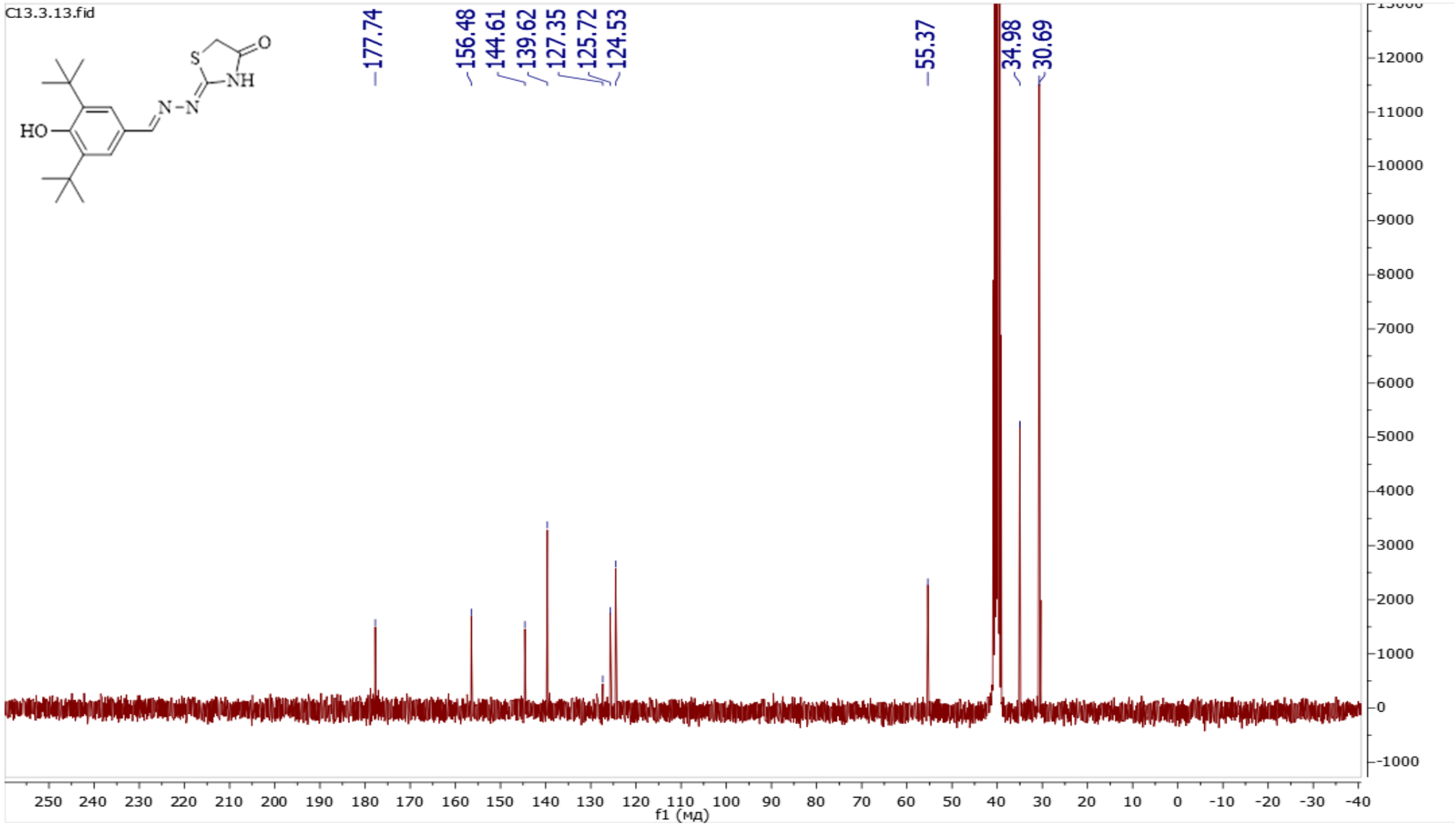


Figure S46: ^{13}C NMR spectra of **4c** 2-((3,5-di-*tert*-butyl-4-hydroxybenzylidene)hydrazineylidene)thiazolidin-4-one

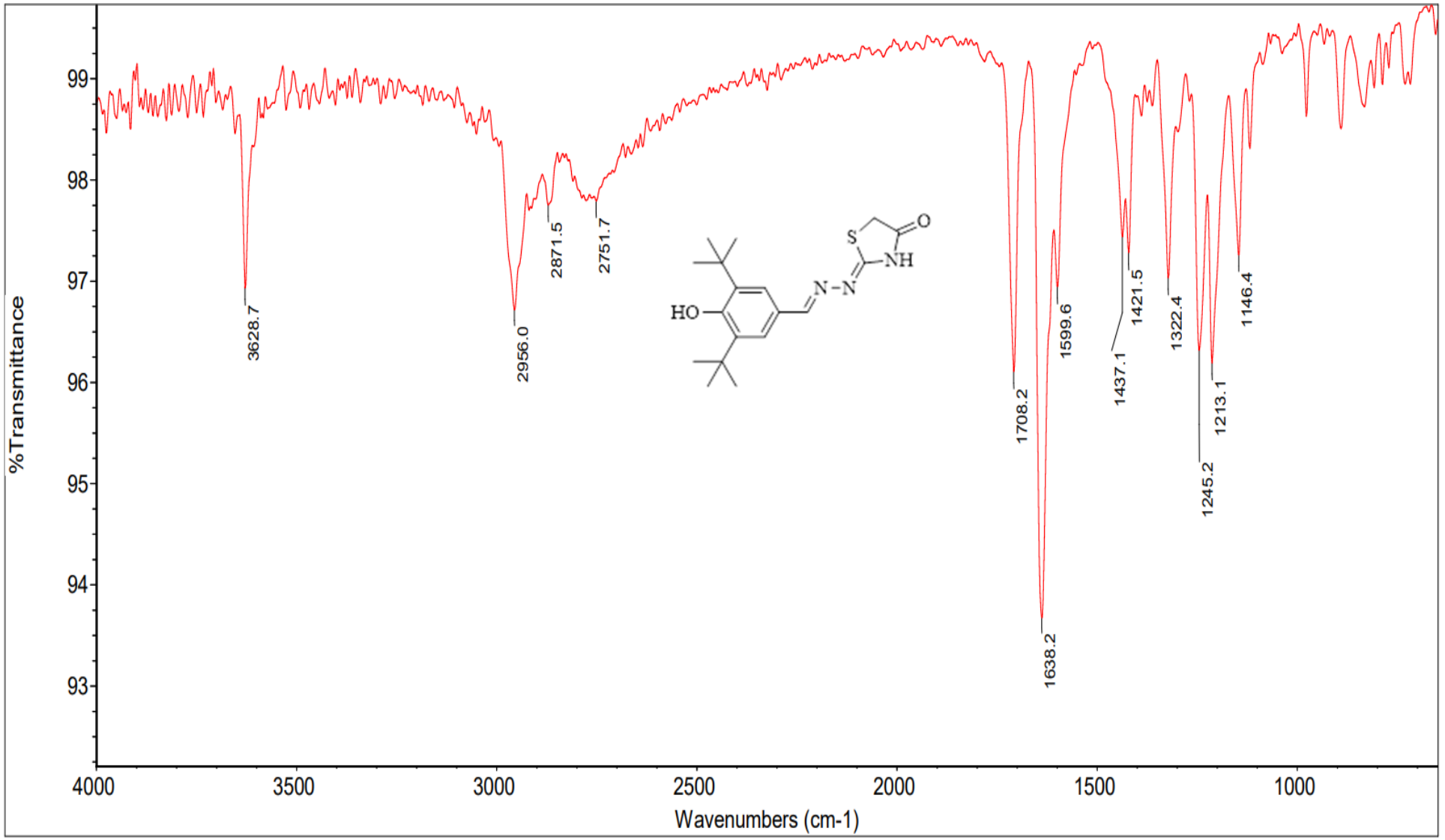


Figure S47: IR spectra of **4c** 2-((3,5-di-*tert*-butyl-4-hydroxybenzylidene)hydrazineylidene)thiazolidin-4-one

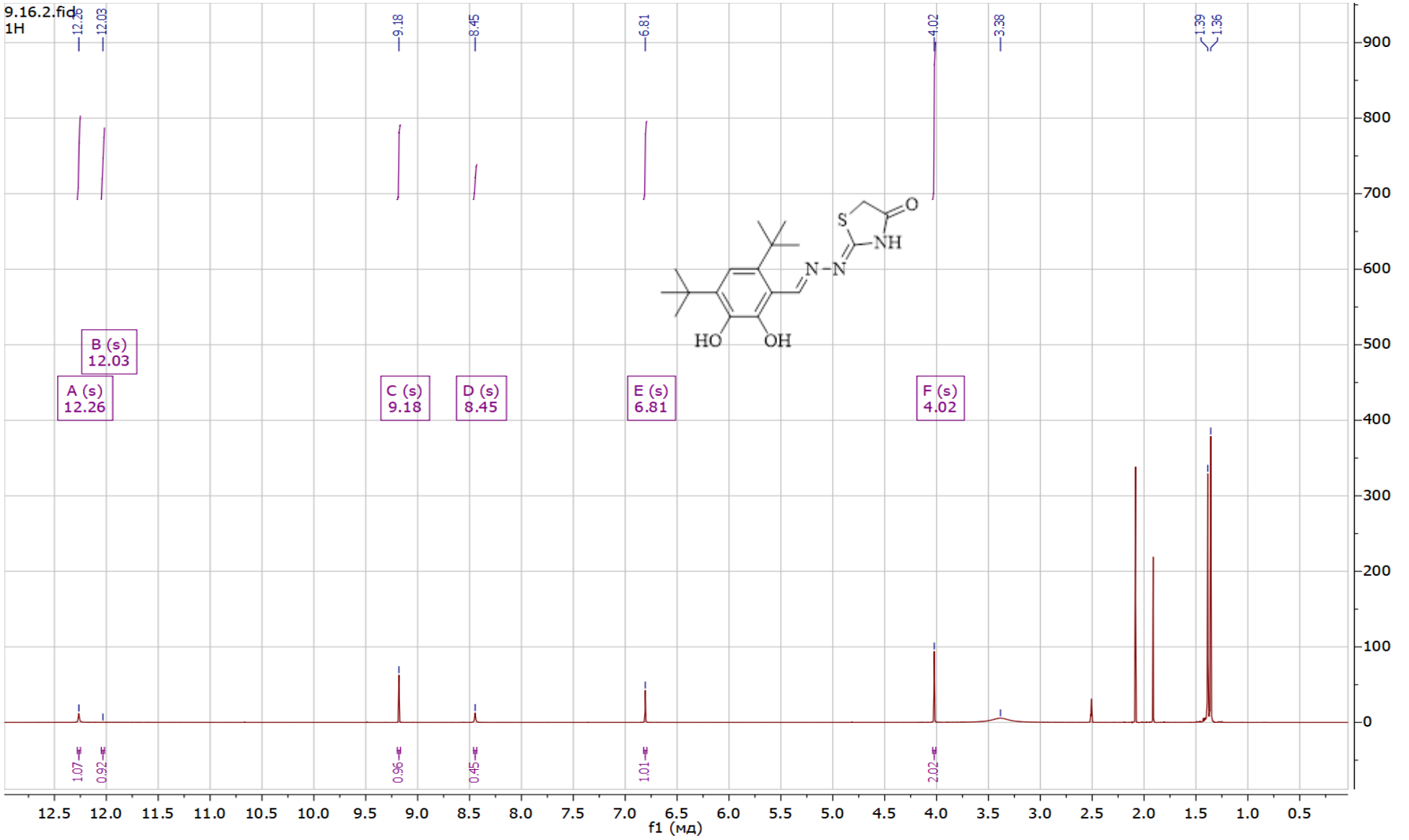


Figure S48: ^{1}H NMR spectra of **4d** 2-((4,6-di-*tert*-butyl-2,3-dihydroxybenzylidene)hydrazineylidene)thiazolidin-4-one

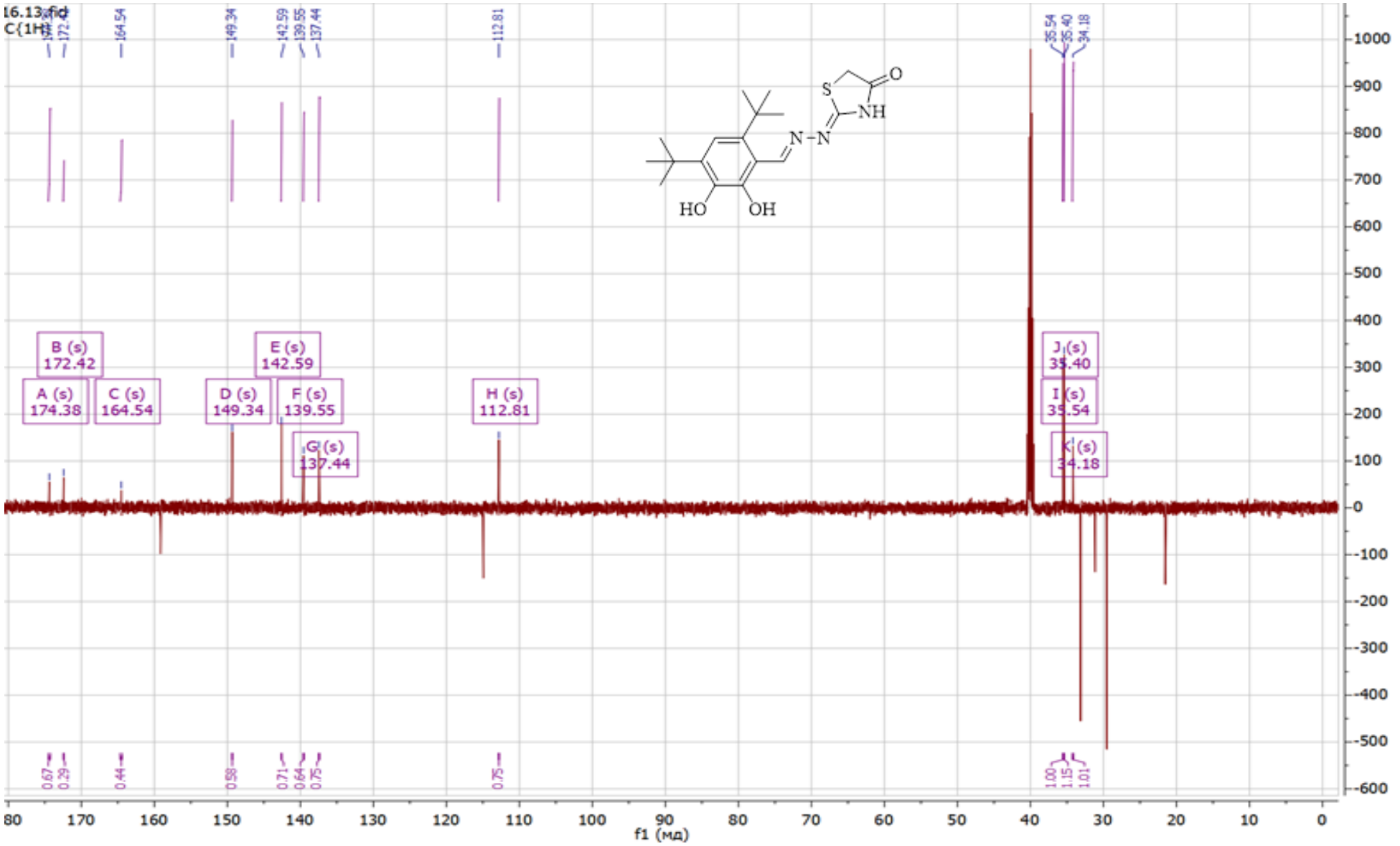


Figure S49: ^{13}C NMR spectra of **4d** 2-((4,6-di-*tert*-butyl-2,3-dihydroxybenzylidene)hydrazineylidene)thiazolidin-4-one

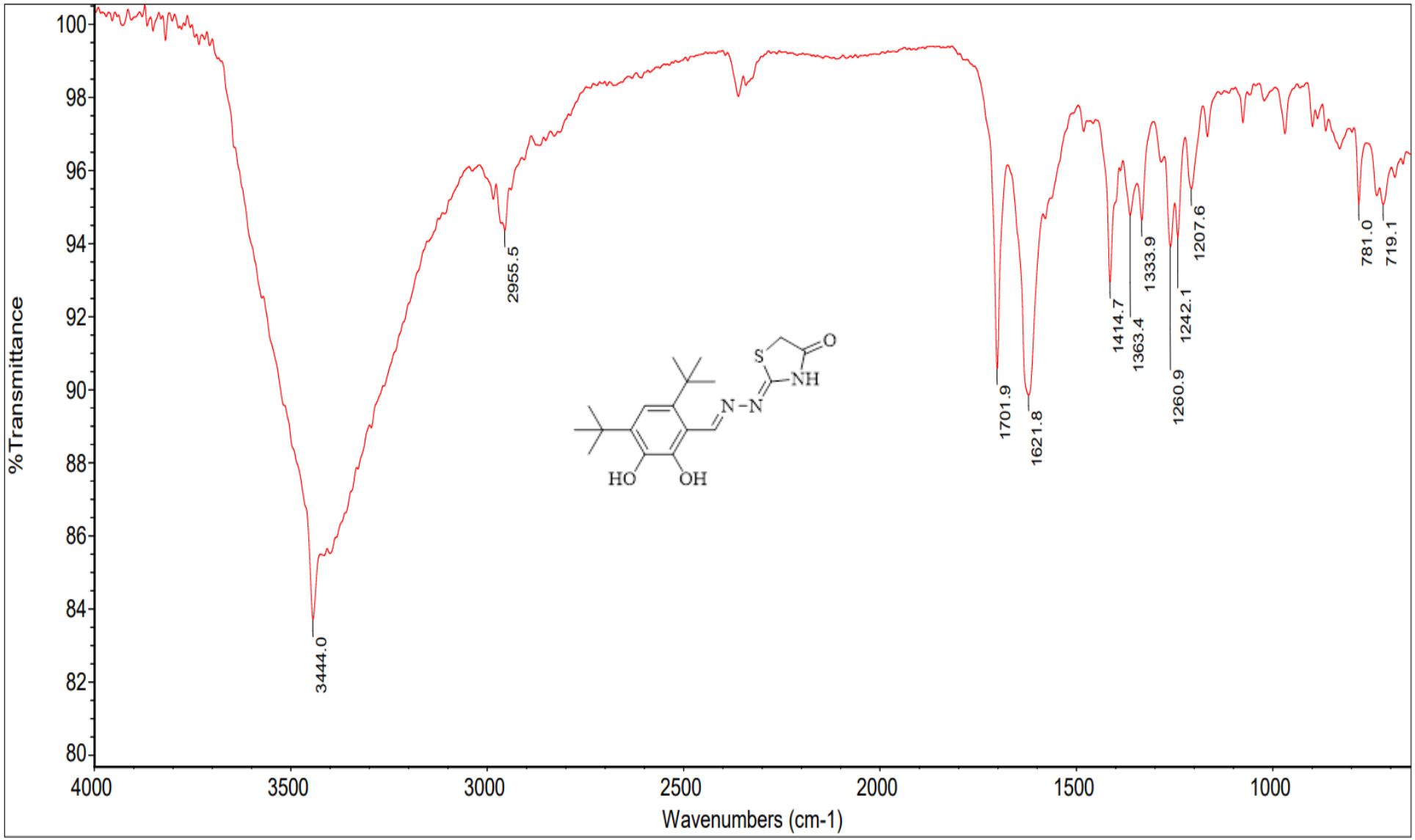


Figure S50: IR spectra of **4d** 2-((4,6-di-*tert*-butyl-2,3-dihydroxybenzylidene)hydrazineylidene)thiazolidin-4-one

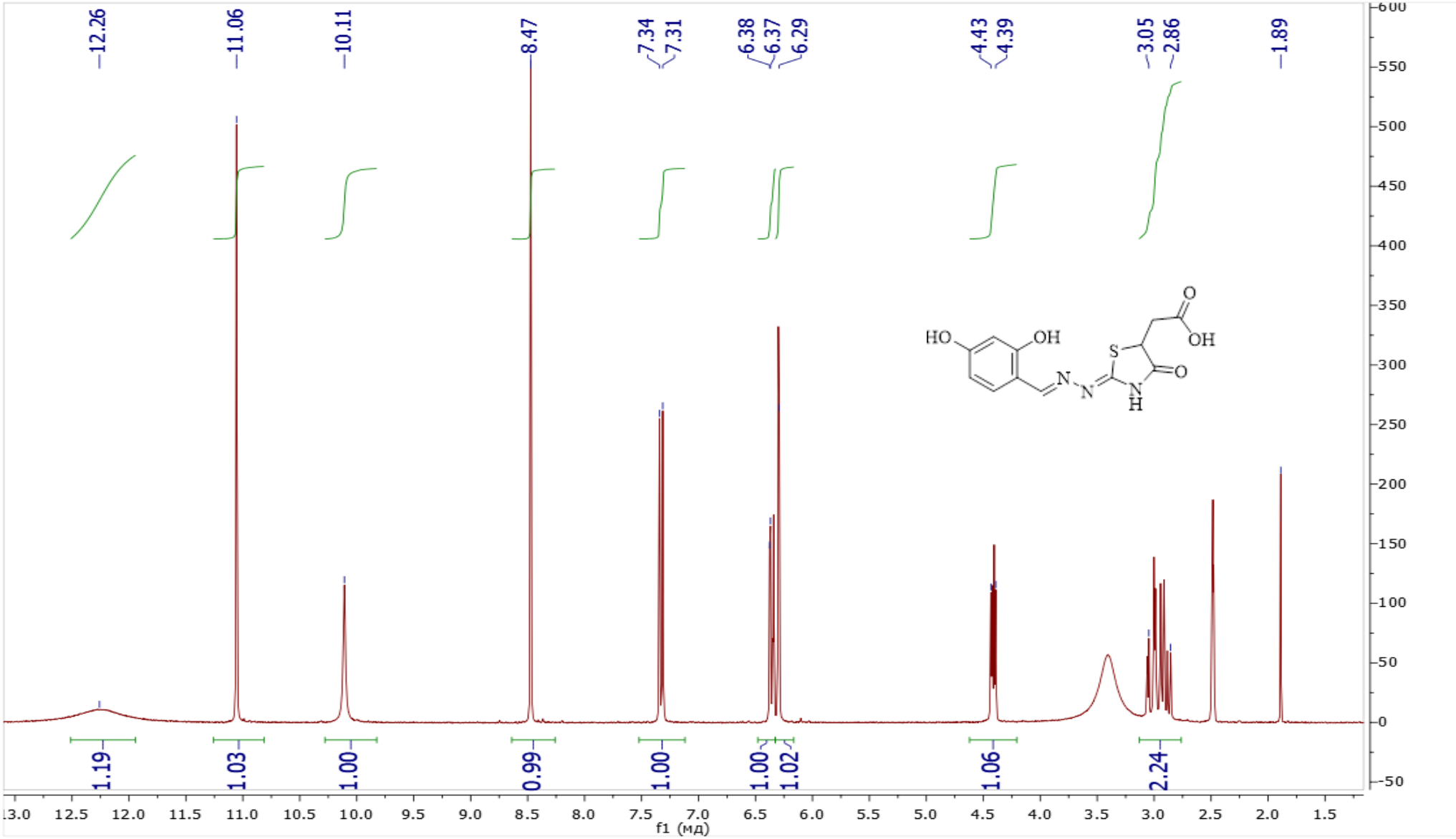


Figure S51: ^{1}H NMR spectra of **5a** 2-(2-(-2,4-dihydroxybenzylidene)hydrazineylidene)-4-oxothiazolidin-5-yl)acetic acid

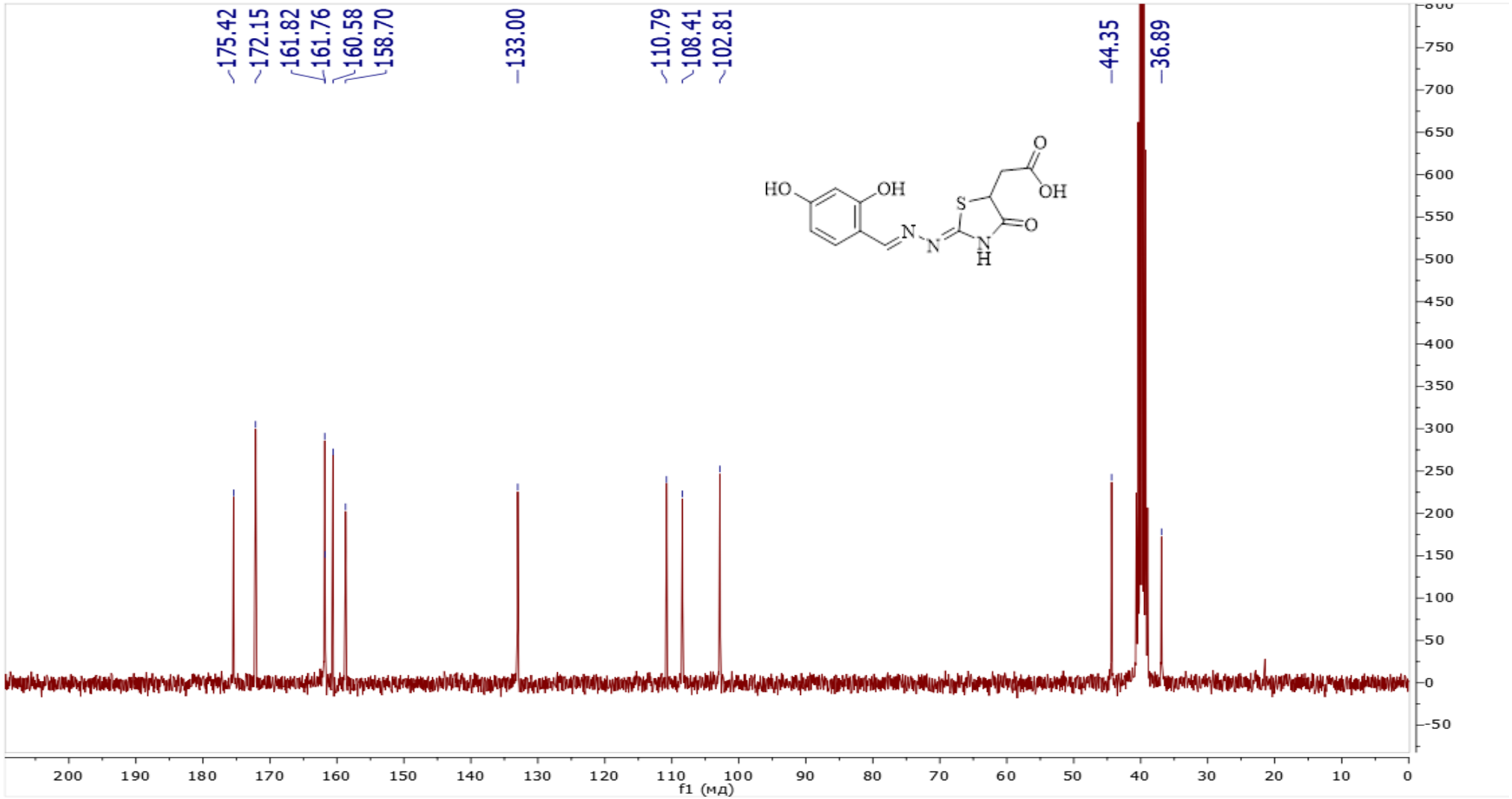


Figure S52: ^{13}C NMR spectra of **5a** 2-(2-(-2,4-dihydroxybenzylidene)hydrazineylidene)-4-oxothiazolidin-5-yl)acetic acid

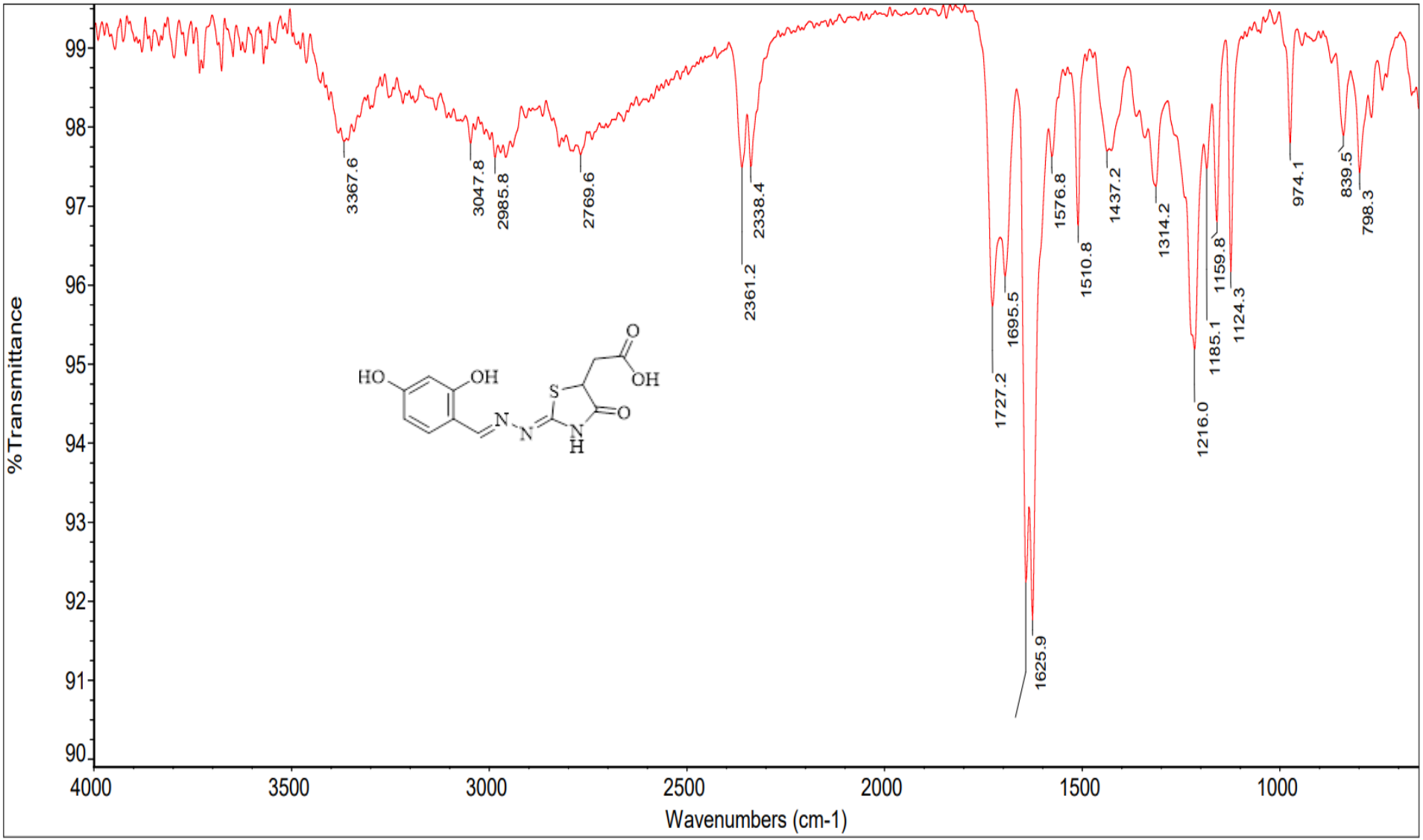


Figure S53: IR spectra of **5a** 2-(2-(-2,4-dihydroxybenzylidene)hydrazineylidene)-4-oxothiazolidin-5-yl)acetic acid

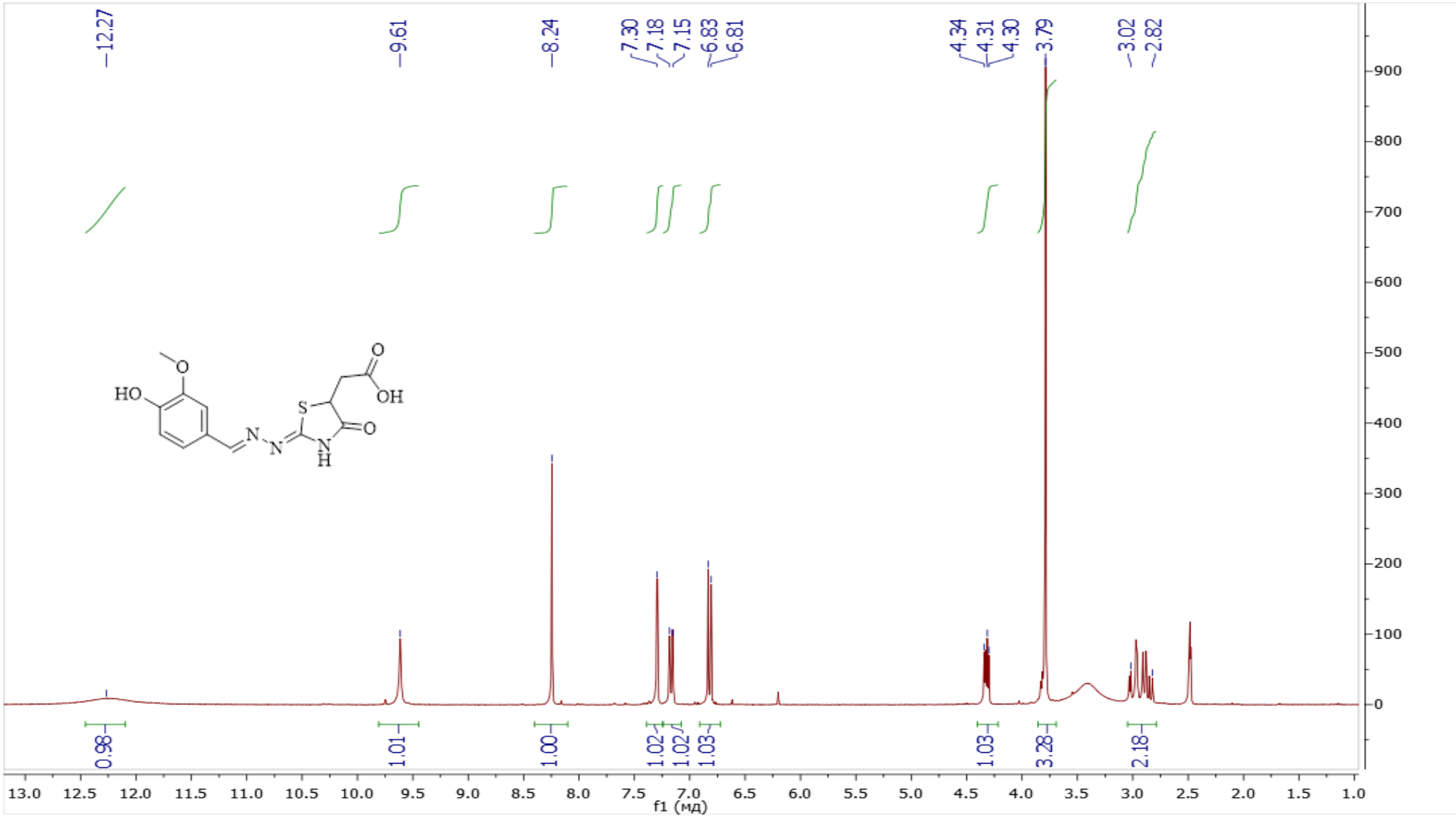


Figure S54: ^{1}H NMR spectra of **5b** 2-(2-(4-hydroxy-3-methoxybenzylidene)hydrazineylidene)-4-oxothiazolidin-5-yl)acetic acid

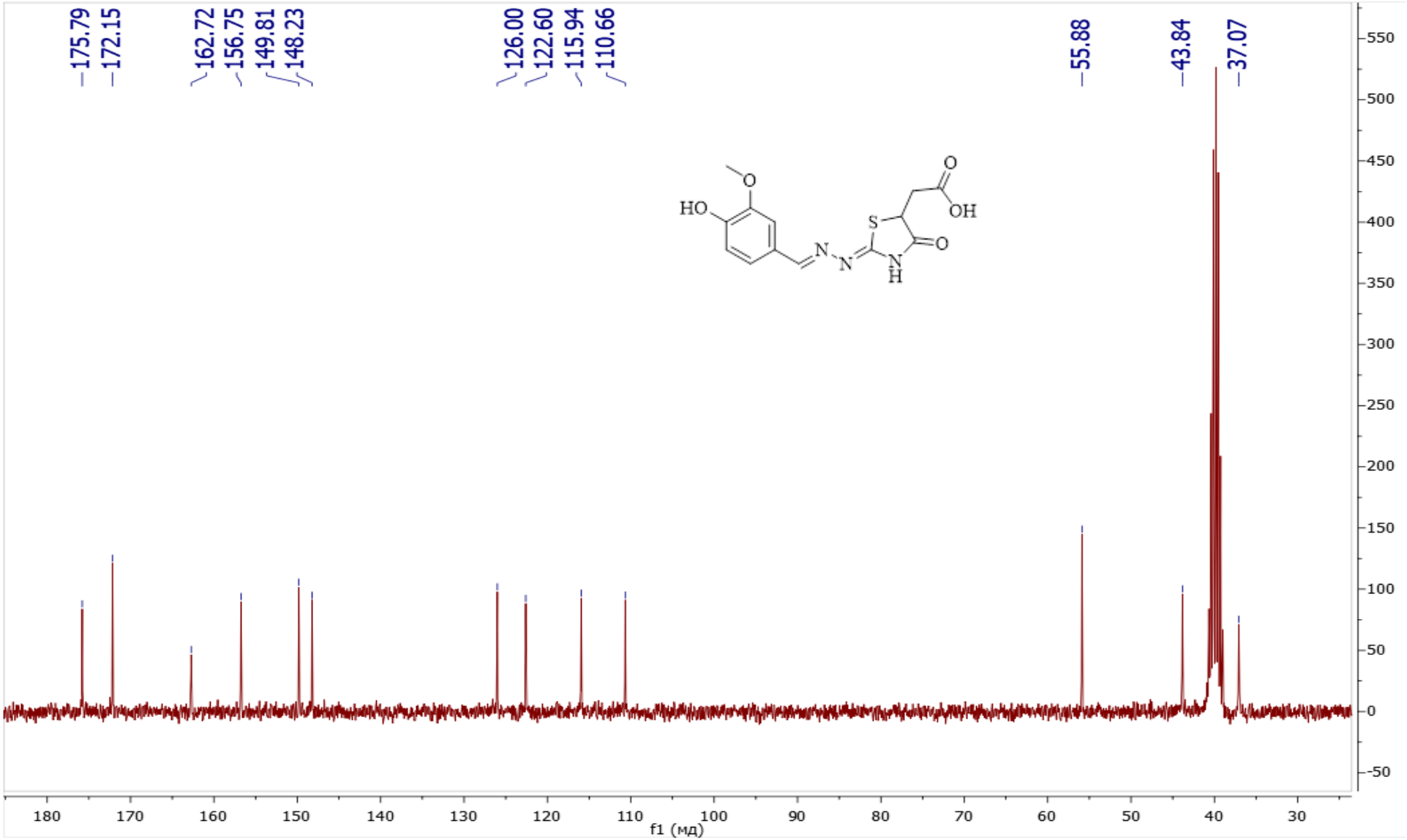


Figure S55: ^{13}C NMR spectra of **5b** 2-(2-(4-hydroxy-3-methoxybenzylidene)hydrazineylidene)-4-oxothiazolidin-5-yl)acetic acid

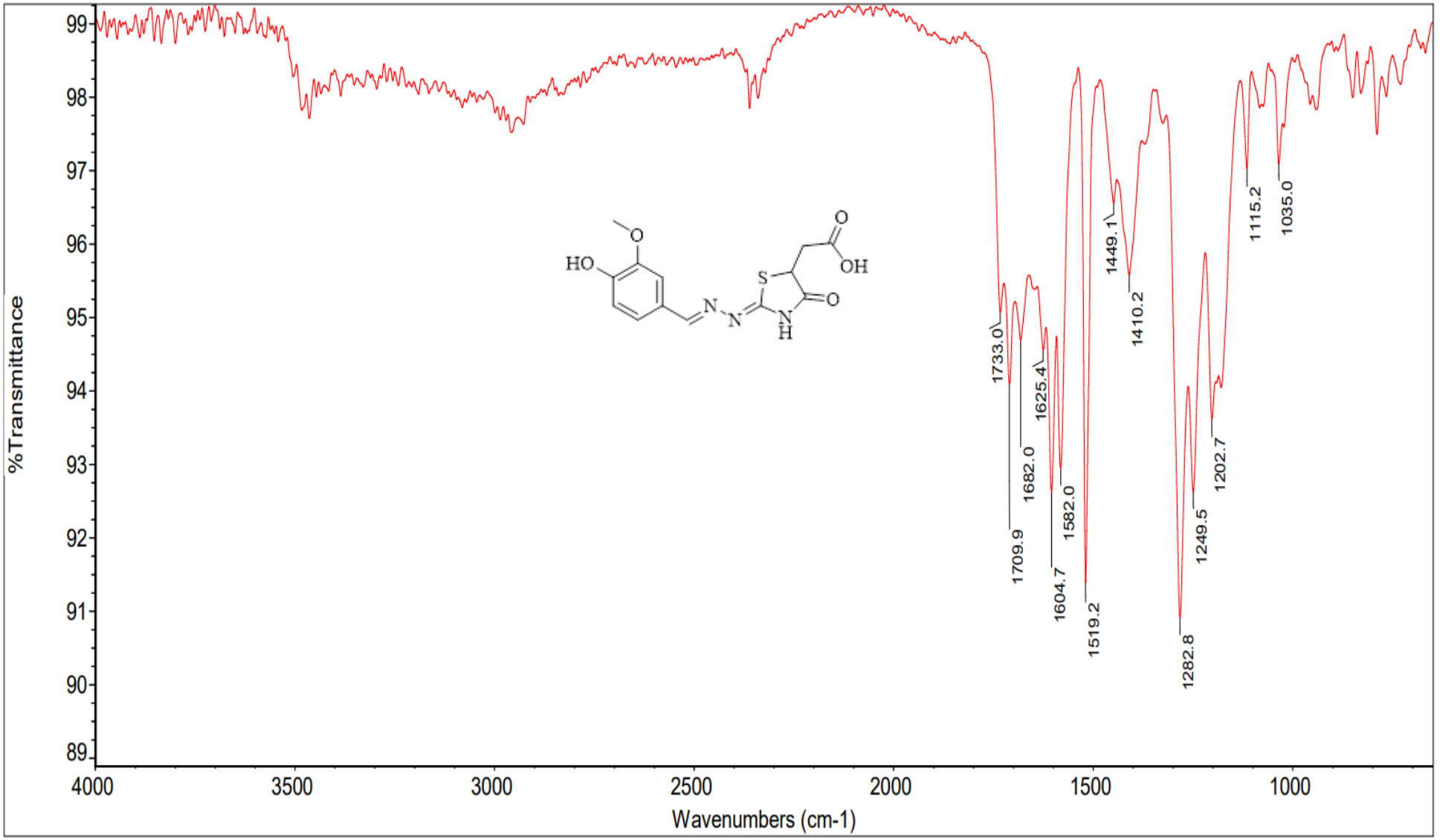


Figure S56: IR spectra of **5b** 2-(2-(4-hydroxy-3-methoxybenzylidene)hydrazineylidene)-4-oxothiazolidin-5-yl)acetic acid

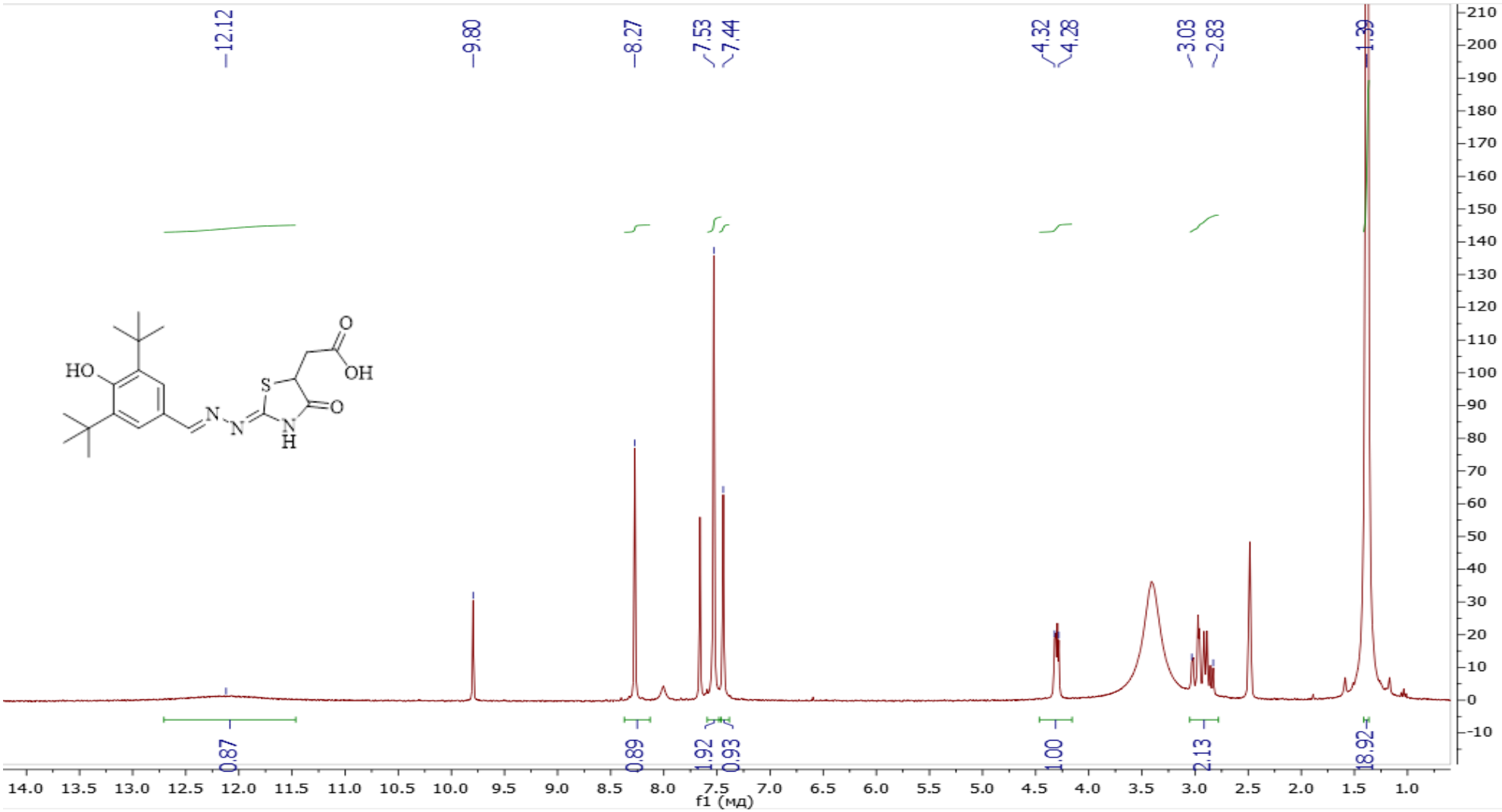


Figure S57: ^{1}H NMR spectra of **5c** 2-(2-(3,5-di-*tert*-butyl-4-hydroxybenzylidene)hydrazineylidene)-4-oxothiazolidin-5-yl)acetic acid

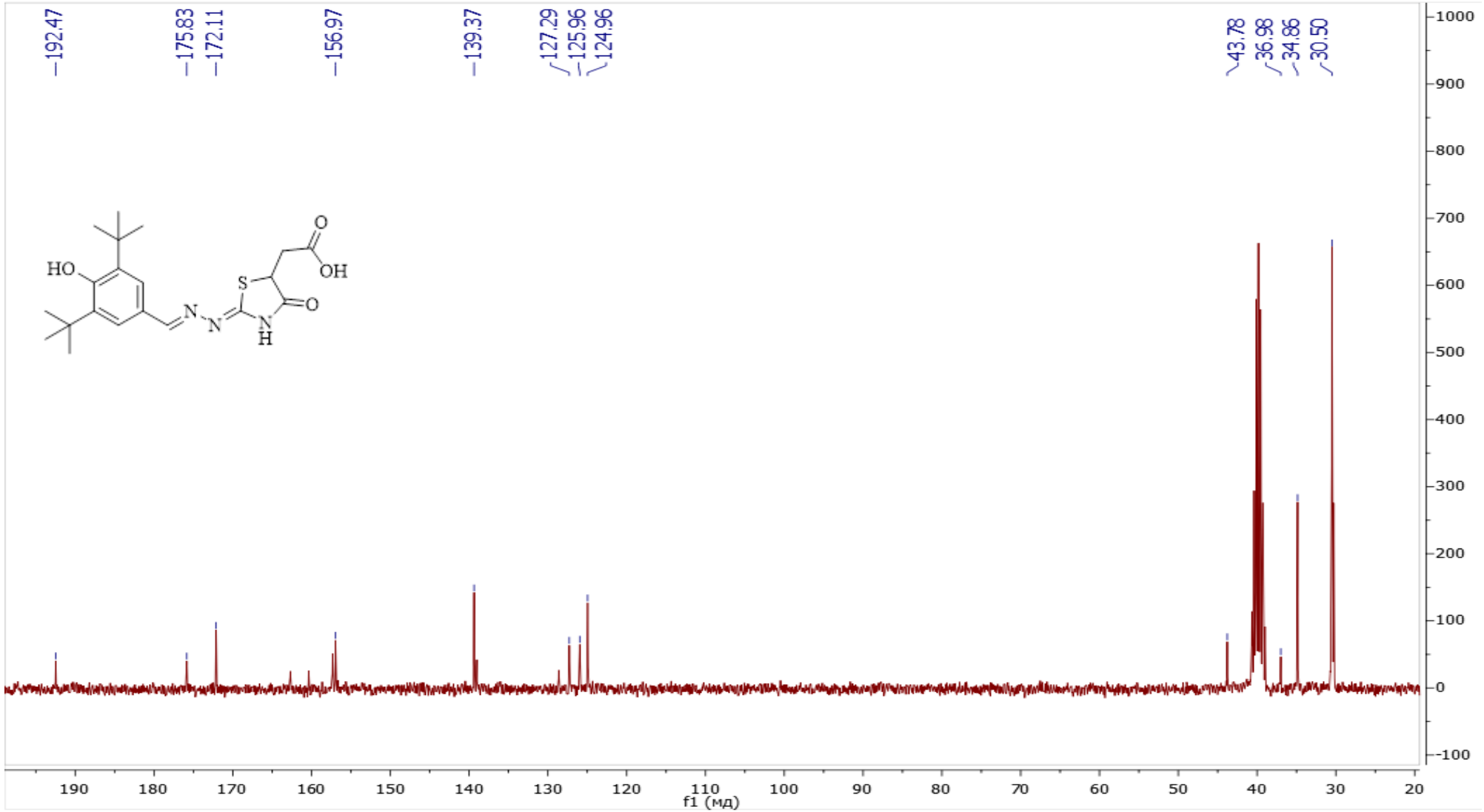


Figure S58: ^{13}C NMR spectra of **5c** 2-(2-(3,5-di-*tert*-butyl-4-hydroxybenzylidene)hydrazineylidene)-4-oxothiazolidin-5-yl)acetic acid

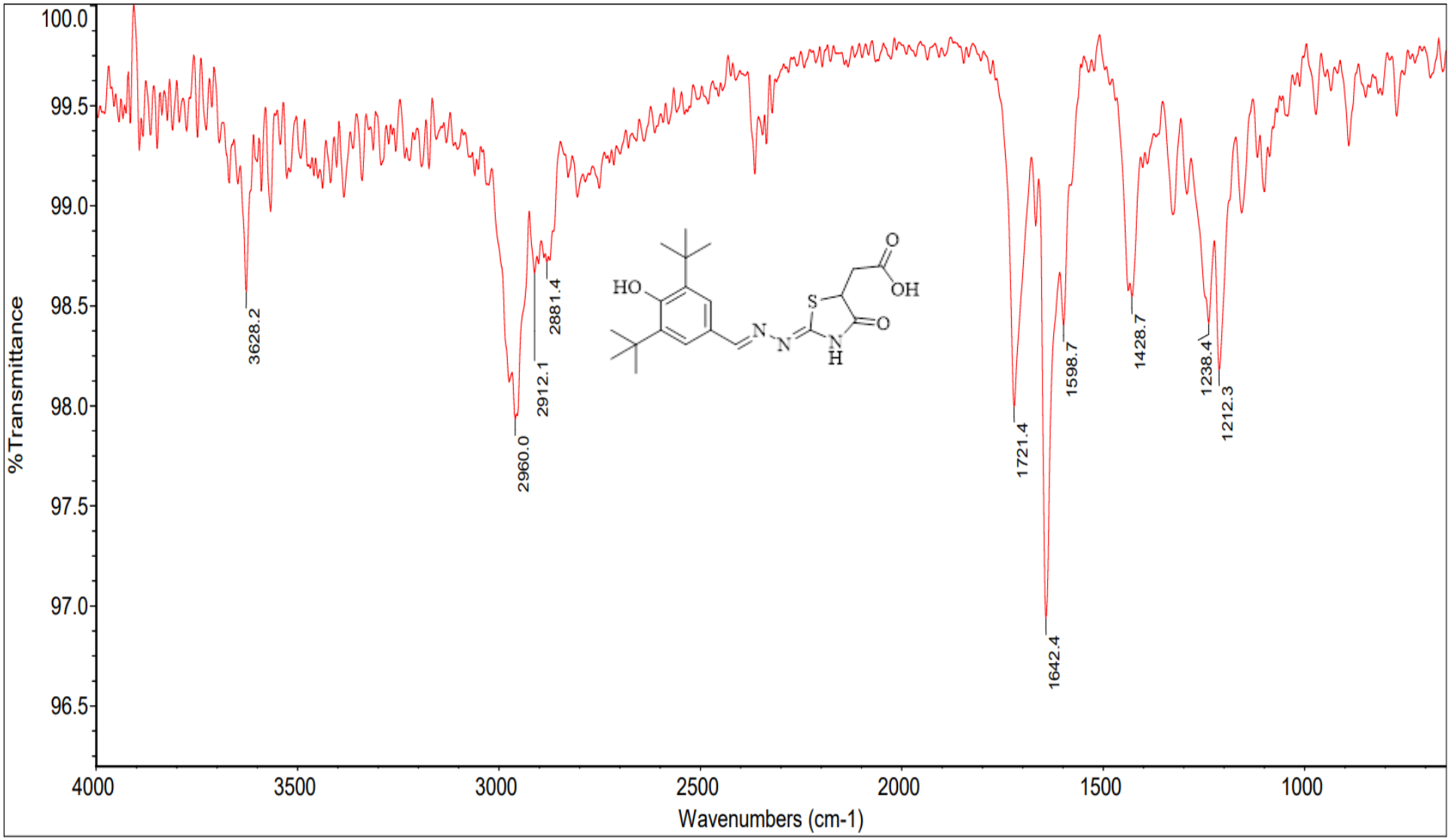


Figure S59: IR spectra of **5c** 2-(2-(3,5-di-*tert*-butyl-4-hydroxybenzylidene)hydrazineylidene)-4-oxothiazolidin-5-yl)acetic acid

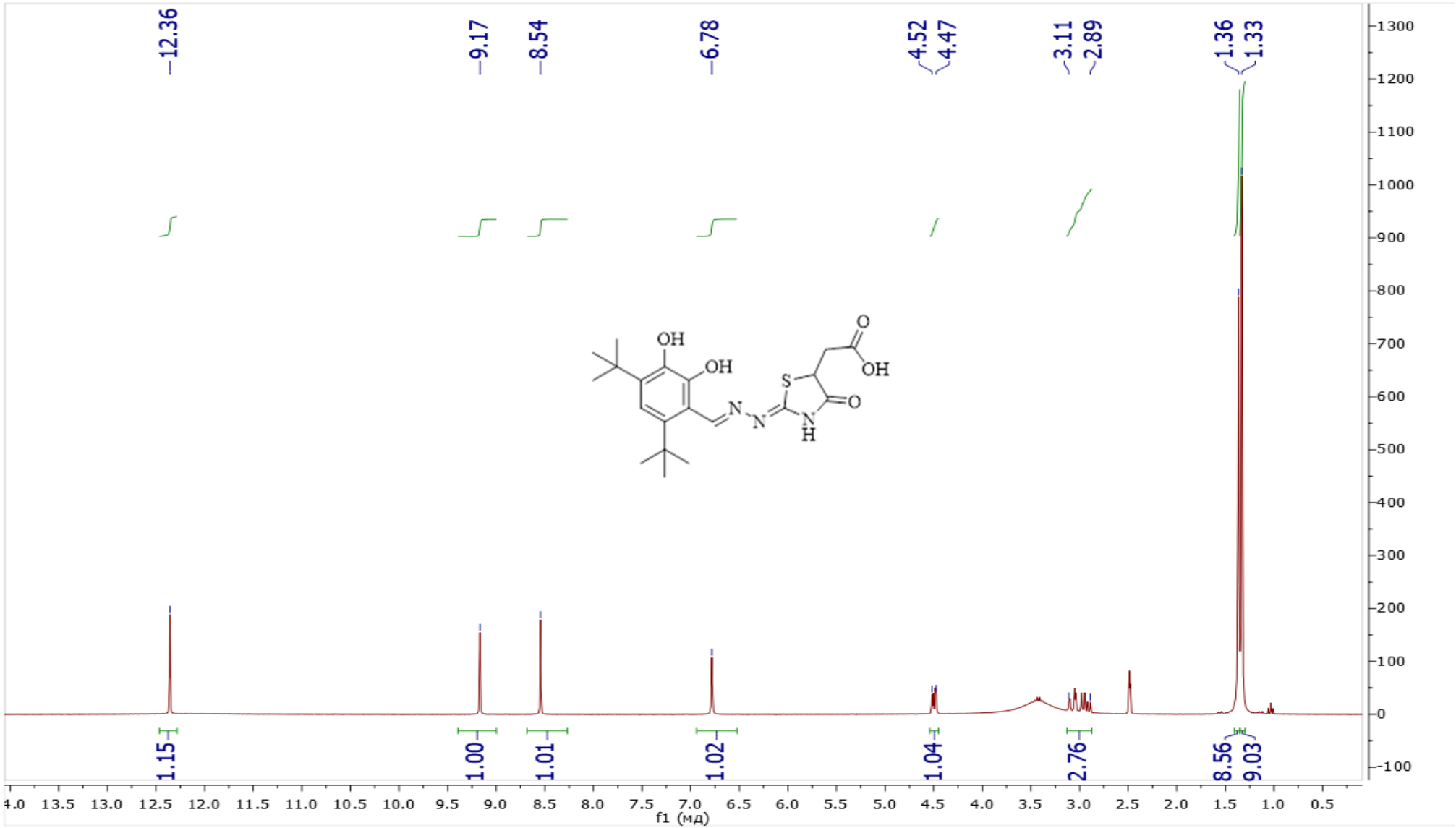


Figure S60: [1]H NMR spectra of **5d** 2-(2-(4,6-di-*tert*-butyl-2,3-dihydroxybenzylidene)hydrazineylidene)-4-oxothiazolidin-5-yl)acetic acid

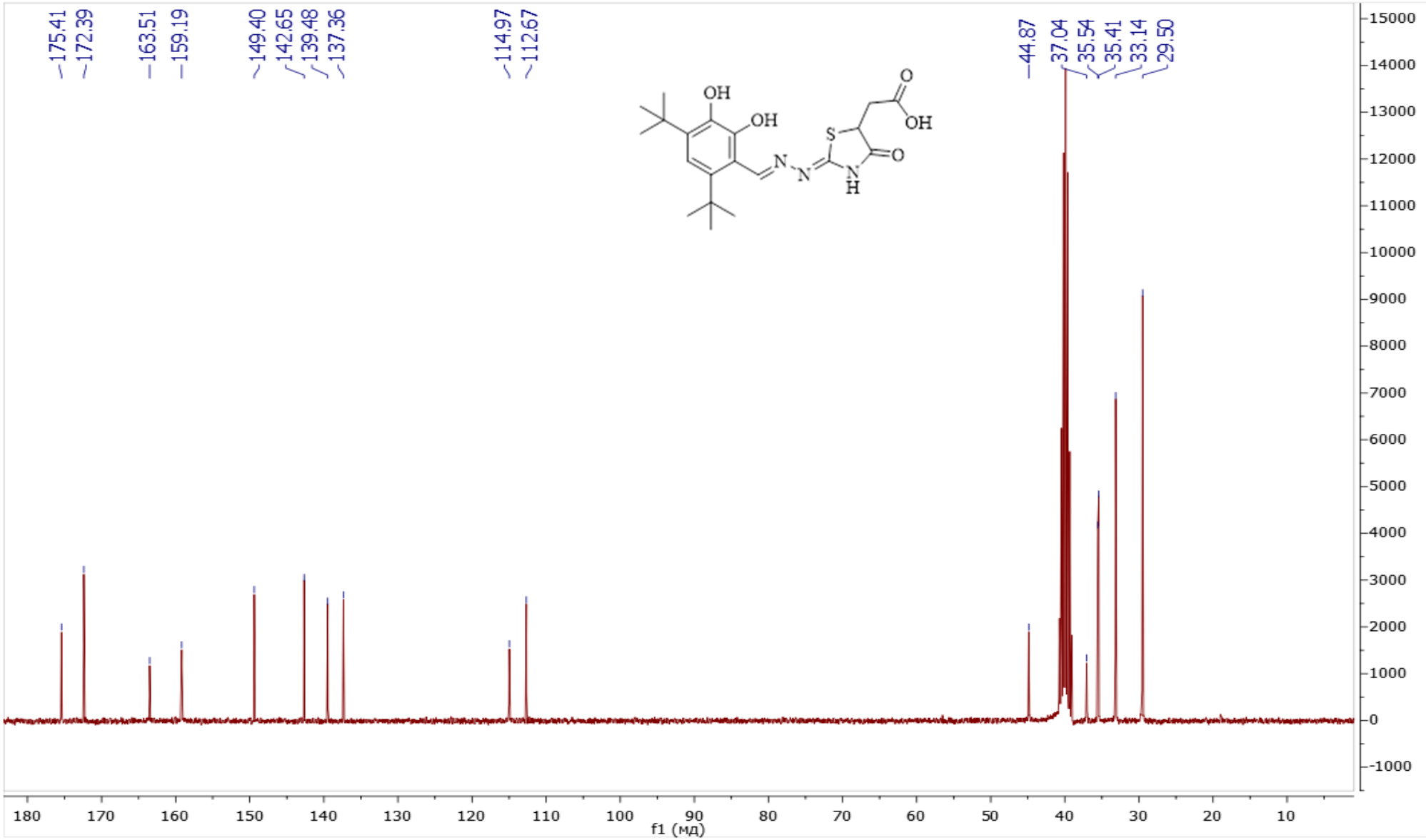


Figure S61: ^{13}C NMR spectra of **5d** 2-(2-(4,6-di-*tert*-butyl-2,3-dihydroxybenzylidene)hydrazineylidene)-4-oxothiazolidin-5-yl)acetic acid

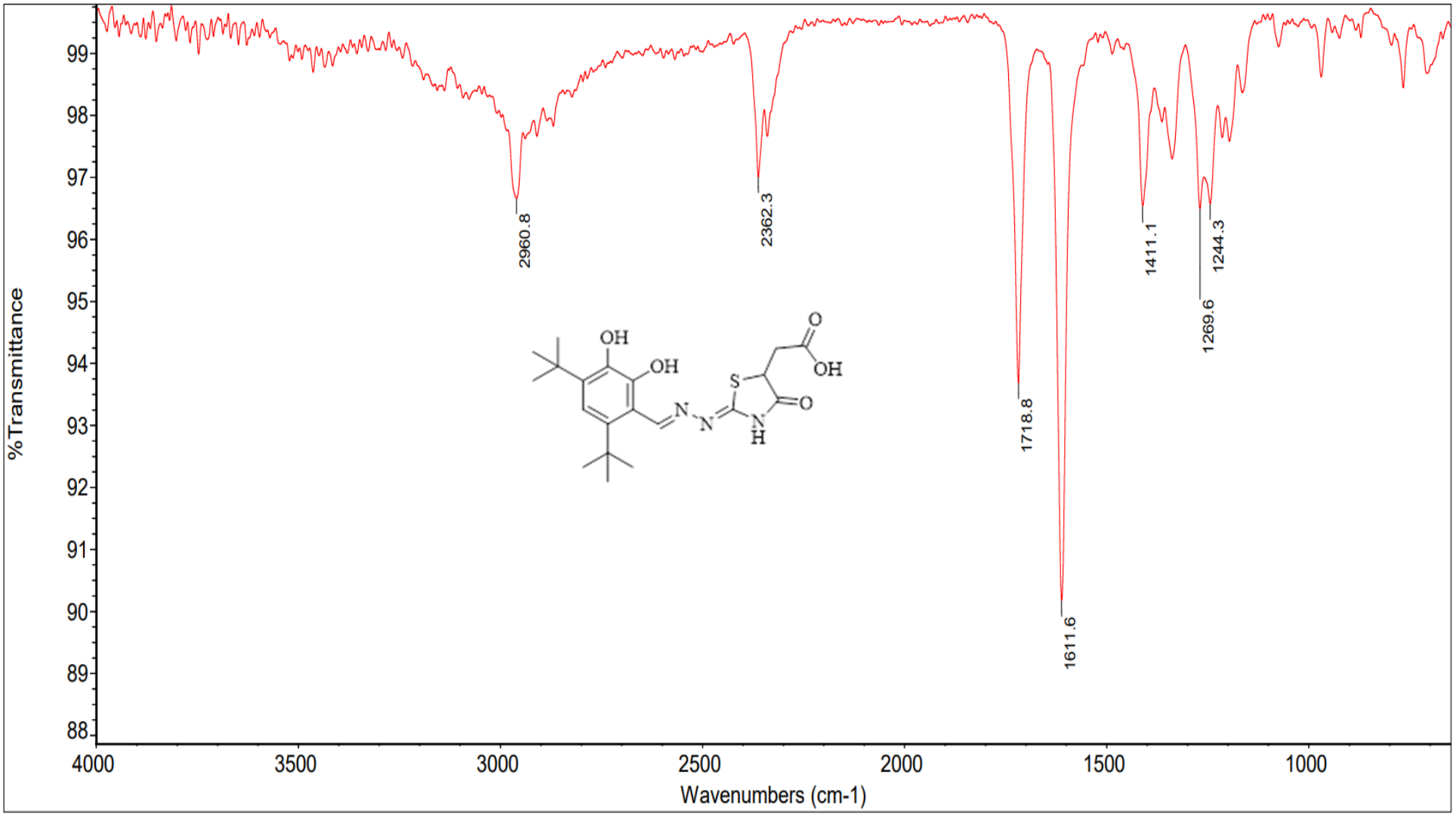


Figure S62: IR spectra of **5d** 2-(2-(4,6-di-*tert*-butyl-2,3-dihydroxybenzylidene)hydrazineylidene)-4-oxothiazolidin-5-yl)acetic acid

Table S1. Results of IR-Spectra calculation

	NH_2		OH		C=N		C=O		C=O COOH	
	Exp	Calc	Exp	Calc	Exp	Calc	Exp	Calc	Exp	Calc
1a	3259 3131	3514 3392	3477 3345	3674 3514	1625	1590				
1b	3436 3276	3514 3393	3527	3623	1586	1606				
1c	3439 3289	3516 3393	3624	3715	1604	1600				
1d	3159 3122	3519 3395	3467 3360	3695 3616	1610	1606				
2a			3289 3281	3679 3665	1631	1605				
2b			3367	3717	1577	1598				
2c			3418 3375	3696 3610	1621	1603				
3a			3674 3628	3681 3677	1587	1555	1621	1672		

3b										
3c			3715	3674	1580	1597	1620	1672		
3d			3380 3215	3599 3224	1598	1552	1639	1676		
5a			3673 3139	3367	1594	1625	1719	1695	1724	1727
5b			3483	3675	1596	1605	1728	1724	1717	1710
5c			3713	3628	1602	1642	1715	1667	1724	1721
5d			3595	3500	1589	1599	1720	1677	1723	1677

Antioxidant activity

Table S2. ABTS+· (2,2'-azino-bis(3-ethylbenzothiazoline-6-sulfonic acid cation radical) scavenging activity of the compounds prepared.

	ABTS activity, rel. un.
1a	0,48
1b	0,41
1c	0,69
1d	0,45
2a	0,36
2b	0,39
2c	0,26
2d	0,50
2e	0,32
3a	0,49
3b	0,31
3c	0,30
3d	0,37
4a	0,33
4b	0,46
4c	0,58
4d	0,34

5a	0,49
5b	0,50
5c	0.53
5d	0,32
BHT	0,36

Table S3. Ferric ion-reducing capacity of the compounds prepared.

	D, rel.un.		
1a	0,175	0,152	0,177
1b	0,652	0,625	0,613
1c	0,244	0,263	0,249
1d	0,321	0,325	0,362
2a	0,486	0,455	0,481
2b	0,268	0,271	0,241
2c	0,189	0,216	0,207
2d	0,487	0,498	0,527
2e	0,514	0,479	0,486
3a	0,315	0,286	0,299
3b	0,220	0,226	0,232

3c	0,454	0,478	0,463
3d	0,110	0,126	0,106
4a	0,330	0,302	0,316
4b	0,446	0,440	0,449
4c	0,445	0,436	0,466
4d	0,506	0,448	0,546
5a	0,445	0,420	0,455
5b	0,440	0,456	0,448
5c	0,515	0,533	0,548
5d	0,546	0,528	0,546
BHT	0,410	0,388	0,402