**A convenient synthesis and crystal structure of disubstituted 1,2,3-triazoles having ether functionality**

**Raj Luxmia , C. P. Kaushika, \*, Devinder Kumara, Krishan Kumara, Ashima Pahwaa, Jyoti Sangwana, Manisha Chahala**

*aDepartment of Chemistry, Guru Jambheshwar University of Science & Technology, Hisar, Haryana-125001, India*

\* Corresponding author. Tel.: +91 1662 263152; fax: +91 1662 276240.

E-mail address: kaushikcp@gmail.com (C.P. Kaushik).

**Experimental**

The chemicals were purchased from Alfa-Aesar, Sigma-Aldrich and used without further puriﬁcation. Thin layer chromatography was used to monitor the progress of the reactions and visualized by UV light. Melting points were determined by capillary method and are uncorrected. IR spectra were recorded on a SHIMAZDU AFFINITY-I FT-IR spectrophotometer using KBr powder and the values are expressed in cm-1. The 1H NMR and 13C NMR spectra of the synthesized compounds were recorded at 400 MHz and 100 MHz, respectively, using Bruker Avance II 400 MHz NMR spectrometer in DMSO-*d6* solvent, and the chemical shifts were expressed in *δ* and coupling constants (*J*) in Hz. Splitting patterns were indicated as s: singlet, d: doublet, t: triplet, m: multiplet. HRMS were obtained using Waters Micromass Q-Tof Micro (ESI) spectrophotometer and values were quoted in *m/z*.

**Procedure for synthesis of ether linked 1,4-disubstituted 1,2,3-triazoles**

**General procedure for synthesis of 1-substituted-4-(prop-2-yn-1-yloxy)benzene (3a-3c)**[34]**:** To the solution of 4-substituted phenols **(1a-1c)** (1.0 mmol) in dimethylformamide, propargyl bromide **(2)** (1.5 mmol) was added in the presence of potassium carbonate (2.0 mmol) at 25-35 °C with continuous stirring for 5-7 h. After the completion of reaction, dilute hydrochloric acid was added to reaction mixture and the product was extracted with the ethyl acetate. The organic layer was washed with brine solution and dried by using anhydrous sodium sulphate and evaporated the solvent under reduced pressure to get desired terminal alkynes **(3a-3c).**

**General procedure for synthesis of aromatic azides**[35] **(5a-5c):** To the stirredcool solution of aminophenol **(4a-4c)** (1.0 mmol) in dichloromethane in a round bottomed flask, 6N hydrochloric acid was added. Further, a saturated solution of sodium nitrite (3.0 mmol) in water was added in small portions to the reaction contents. After half an hour, aqueous solution of sodium azide (3.0 mmol) was added in a drop wise manner to the reaction mixture at 0 °C. After the complete addition the reaction mixture was stirred for 2 h. The progress of the reaction was monitored by TLC. The product was extracted by using dichloromethane and organic layer was washed with sodium carbonate, dried with anhydrous sodium sulphate and evaporated the solvent to get the aromatic azides **(5a-5c)**.

**General procedure for synthesis of substituted azides (7a-7f):** To the solution of azidophenol **(5a-5c)** (1.0 mmol) in dimethylformamide, (bromomethyl)benzene **(6a)/** (2-bromoethyl)benzene **(6b)** (1.0 mmol) was added in the presence of potassium carbonate ((2.0 mmol) as base at room temperature with continuous stirring for 5-6 h. Thereafter ice cold water poured into the reaction mixture to precipitate solid. The solid product **(7a-7f)** was ﬁltered, washed with cool water.

**General procedure for the synthesis of ether linked 1,4-disubstituted 1,2,3-triazoles (8a-8z1):** Ether linked 1,4-disubstituted 1,2,3-triazoles were synthesized by one pot click reaction of azide **(5a-5c, 7a-7f)** and terminal alkynes **(3a-3c)**.To get the desired product, to a stirred solution of azide **(5a-5c, 7a-7f)** (1.0 mmol) and alkyne **(3a-3c)** (1.0 mmol) in dimethylformamide, copper sulphate pentahydrate (0.2 mmol) and sodium ascorbate (0.5 mmol) were added. The reaction mixture was stirred at room temperature for 4-7 h at 30-40 °C. After completion of reaction, ice cold water was added to reaction mixture. Product was precipitated, filtered and washed with ammonia solution. Crude product was dissolved in ethyl acetate and precipitated out by hexane, which was filtered and dried to get pure product in good yield.

**Characterization of 1,4-disubstituted 1,2,3-triazoles (8a-8z1)**

**2-(4-(Phenoxymethyl)-1*H*-1,2,3-triazol-1-yl)phenol (8a)** Appearance: White solid; Yield: 86% ; m.p.: **152‒154** ºC; FTIR (KBr): 3362 (OH, str.), 3128 (C-H str., triazole ring), 3075 (C-H str., aromatic ring), 2937 (C-H str., aliphatic), 1580, 1477 (C=C str., aromatic ring), 1244, 1017 (C-O str., ether); 1H NMR (400 MHz, DMSO-*d6*): *δ* 5.23 (s, 2H, OCH2), 6.95-7.14 (m, 5H, ArH), 7.31-7.36 (m, 3H, ArH), 7.61 (d, 1H, ArH, *J* = 8.0 Hz), 8.60 (s, 1H, CH-triazole), 10.59 (s, 1H, OH); 13C NMR (100 MHz, DMSO-*d6*): *δ* 61.3 **(OCH2)**, 115.2, 117.5, 120.0 (C5 triazole), 121.3, 124.9, 125.74, 126.71, 130.0, 130.7, 142.9 (C4 triazole), 150.2, 158.6; HRMS (m/z) calculated for C15H13N3O2 [M+H]+: 268.1008, found: 268.1082.

**3-(4-(Phenoxymethyl)-1*H*-1,2,3-triazol-1-yl)phenol (8b)** Appearance: White solid; Yield: 90%; m.p.: **118‒120** ºC; FTIR (KBr): 3369 (OH, str.), 3125 (C-H str., triazole ring), 3070 (C-H str., aromatic ring), 2931 (C-H str., aliphatic), 1582, 1477 (C=C str., aromatic ring), 1232, 1015 (C-O str., ether); 1H NMR (400 MHz, DMSO-*d6*): *δ* 5.22 (s, 2H, OCH2), 6.90 (d, 1H, ArH, *J* = 8.0 Hz), 6.97 (t, 1H, ArH, *J* = 8.0 Hz), 7.06 (d, 2H,ArH, *J* = 8.0 Hz), 7.30-7.41 (m, 5H, ArH), 8.89 (s, 1H, CH-triazole), 10.06 (s, 1H, OH); 13C NMR (100 MHz, DMSO-*d6*): *δ* 60.7 **(OCH2),** 106.9, 110.4, 114.6, 115.6, 120.9 (C5 triazole), 122.7, 129.5, 130.7, 137.4, 143.7 (C4 triazole), 157.9, 158.4; HRMS (m/z) calculated for C15H13N3O2 [M+H]+: 268.1008, found: 268.1081.

**4-(4-(Phenoxymethyl)-1*H*-1,2,3-triazol-1-yl)phenol (8c)** Appearance: White solid; Yield: 86%; m.p.: **94‒96** ºC; FTIR (KBr): 3374 (OH, str.), 3128 (C-H str., triazole ring), 3062 (C-H str., aromatic ring), 2937 (C-H str., aliphatic), 1600, 1475 (C=C str., aromatic ring), 1244, 1060 (C-O str., ether); 1H NMR (400 MHz, DMSO-*d6*): *δ* 5.21 (s, 2H, OCH2), 6.99-6.93 (m, 3H, ArH), 7.07 (d, 2H,ArH, *J* = 8.0 Hz,), 7.32 (t, 2H, ArH, *J* = 8.0 Hz), 7.68 (d, 2H, ArH, *J* = 8.0 Hz), 8.76 (s, 1H, CH-triazole), 9.96 (s, 1H, OH); 13C NMR (100 MHz, DMSO-*d6*): *δ* 61.4 **(OCH2)**, 115.2, 116.5, 121.4, 122.5 (C5 triazole), 123.2, 129.2, 130.0, 144.0 (C4 triazole), 158.3, 158.5; HRMS (m/z) calculated for C15H13N3O2 [M+H]+: 268.1008, found: 268.1081.

**1-(2-(Benzyloxy)phenyl)-4-(phenoxymethyl)-1*H*-1,2,3-triazole (8d)**: Appearance: White solid; Yield: 93%: ; m.p.: **140‒142** ºC; FTIR (KBr): 3172 (C-H str., triazole ring), 3061 (C-H str., aromatic ring), 2941 (C-H str., aliphatic), 1589, 1465 (C=C str., aromatic ring), 1240, 1012 (C-O str., ether); 1H NMR (400 MHz, DMSO-*d6*): *δ* 5.22 (s, 2H, OCH2), 5.25 (s, 2H, OCH2), 6.97 (t, 1H, ArH, *J* = 8.0 Hz), 7.06 (d, 1H, ArH, *J* = 8.0 Hz), 7.17 (t, 1H, ArH, *J* = 8.0 Hz), 7.29-7.41 (m, 9H, ArH), 7.52 (d, 1H, ArH, *J* = 8.0 Hz), 7.66 (d, 1H, ArH, *J* = 8.0 Hz), 8.63 (s, 1H, CH-triazole); 13C NMR (100 MHz, DMSO-*d6*): *δ* 60.8, 69.9 **(OCH2)**, 114.3, 114.6, 120.8 (C5 triazole), 121.1, 125.9, 126.5, 127.2, 127.8, 128.3, 129.4, 130.6, 142.5 (C4 triazole), 150.6, 157.9; HRMS (m/z) calculated for C22H19N3O2 [M+H]+: 358.1477, found: 358.1549.

**1-(3-(Benzyloxy)phenyl)-4-(phenoxymethyl)-1*H*-1,2,3-triazole (8e)**: Appearance: White solid; Yield: 84%; m.p.: **146‒148** ºC; FTIR (KBr): 3156 (C-H str., triazole ring), 3068 (C-H str., aromatic ring), 2939 (C-H str., aliphatic), 1576, 1465 (C=C str., aromatic ring), 1234, 1018 (C-O str., ether); 1H NMR (400 MHz, DMSO-*d6*): *δ* 5.23-5.24 (m, 4H), 6.96-7.10 (m, 4H, ArH), 7.31-7.53 (m, 9H, ArH), 7.61 (s, 1H, ArH), 8.99 (s, 1H, CH-triazole). 13C NMR (100 MHz, DMSO-*d6*): *δ* 61.4, 70.2 **(OCH2)**, 107.1, 114.4, 115.7, 121.2 (C5 triazole), 121.4, 123.4, 128.2, 128.3, 128.6, 128.8, 128.9, 130.0, 131.4, 137.1, 138.1, 144.4 (C4 triazole), 158.5, 159.8; HRMS (m/z) calculated for C22H19N3O2 [M+H]+: 358.1477, found: 358.1548.

**1-(4-(Benzyloxy)phenyl)-4-(phenoxymethyl)-1*H*-1,2,3-triazole (8f)**: Appearance: White solid; Yield: 79% ; m.p.: **162‒165** ºC; FTIR (KBr): 3172 (C-H str., triazole ring), 3061 (C-H str., aromatic ring), 2941 (C-H str., aliphatic), 1558, 1465 (C=C str., aromatic ring), 1240, 1012 (C-O str., ether); 1H NMR (400 MHz, DMSO-*d6*): *δ* 5.20-5.22 (4H), 6.97 (t, 1H,ArH, *J* = 8.0 Hz), 7.08 (d, 2H, ArH, *J* = 8.0 Hz), 7.22-7.37 (m, 5H, ArH), 7.42 (t, 2H, ArH, *J* = 8.0 Hz), 7.49 (d, 2H, ArH, *J* = 8.0 Hz), 7.82 (d, 2H,ArH, *J* = 8 Hz), 8.85 (s, 1H, CH-triazole); 13C NMR (100 MHz, DMSO-*d6*): *δ* 61.4, 70.1 **(OCH2)**, 115.2, 116.3, 121.4 (C5 triazole), 122.3, 123.3, 128.2, 128.4, 129.0, 130.0, 130.6, 137.2, 144.2 (C4 triazole), 158.5, 158.9; HRMS (m/z) calculated for C22H19N3O2 [M+H]+: 358.1477, found: 358.1549.

**1-(2-Phenethoxyphenyl)-4-(phenoxymethyl)-1*H*-1,2,3-triazole (8g):** Appearance: White solid; Yield: 93%; m.p.: **112‒114** ºC; FTIR (KBr): 3167 (C-H str., triazole ring), 3045 (C-H str., aromatic ring), 2932 (C-H str., aliphatic), 1575, 1444 (C=C str., aromatic ring), 1247, 1021 (C-O str., ether); 1H NMR (400 MHz, DMSO-*d6*): *δ* 3.20 (t, 2H, *J* = 8.0 Hz), 4.26 (t, 2H, *J* = 8.0 Hz, OCH2), 5.22 (s, 2H, OCH2), 6.97-7.00 (m, 1H, ArH), 7.06 (d, 1H, ArH, *J* = 8.0 Hz), 7.17 (t, 1H, ArH, *J* = 8.0 Hz), 7.28-7.40 (m, 9H, ArH), 7.52 (d, 1H, ArH, *J* = 8.0 Hz), 7.66 (d, 1H, ArH, *J* = 8.0 Hz), 8.63 (s, 1H, CH-triazole); 13C NMR (100 MHz, DMSO-*d6*): *δ* 36.7 **(CH2)**, 60.8, 67.9 **(OCH2)**, 114.3, 114.6, 121.1, 120.8 (C5 triazole), 125.9, 126.5, 127.2, 127.8, 128.3, 129.4, 130.6, 142.5 (C4 triazole), 150.6, 157.9; HRMS (m/z) calculated for C23H21N3O2 [M+H]+: 372.1634, found: 372.2008.

**1-(3-Phenethoxyphenyl)-4-(phenoxymethyl)-1*H*-1,2,3-triazole (8h):** Appearance: White solid; Yield: 84%; m.p.: **154‒157** ºC; FTIR (KBr): 3172 (C-H str., triazole ring), 3061 (C-H str., aromatic ring), 2941 (C-H str., aliphatic), 1558, 1465 (C=C str., aromatic ring), 1243, 1018 (C-O str., ether); 1H NMR (400 MHz, DMSO-*d6*): *δ* 3.22 (t, *J* = 8.0 Hz, 2H) 4.24 (t, *J* = 8.0 Hz, 2H, OCH2), 5.23 (s, 2H, OCH2), 6.96-7.10 (m, 4H, ArH), 7.31-7.53 (m, 9H, ArH), 7.61 (s, 1H, ArH), 8.99 (s, 1H, CH-triazole); 13C NMR (100 MHz, DMSO-*d6*): *δ* 36.5 **(CH2)**, 61.4, 67.7 **(OCH2)**, 107.1, 114.4, 115.7, 121.2 (C5 triazole), 121.4, 123.3, 128.2, 128.3, 128.7, 128.9, 129.0, 130.0, 131.4, 137.1, 138.1, 144.4 (C4 triazole), 158.5, 159.8; HRMS (m/z) calculated for C23H21N3O2 [M+H]+: 372. 1634, found: 372.2004.

**1-(4-Phenethoxyphenyl)-4-(phenoxymethyl)-1*H*-1,2,3-triazole (8i):** Appearance: White solid; Yield: 79%; m.p.: **120‒122** ºC; FTIR (KBr): 3184 (C-H str., triazole ring), 3053 (C-H str., aromatic ring), 2949 (C-H str., aliphatic), 1598, 1477 (C=C str., aromatic ring), 1228, 1015 (C-O str., ether); 1H NMR (400 MHz, DMSO-*d6*): *δ* 3.22 (t, 2H, *J* = 8.0 Hz), 4.24 (t, 2H, *J* = 8.0 Hz, OCH2), 5.22 (s, 2H, OCH2), 6.97 (t, 1H,ArH, *J* = 8.0 Hz), 7.08 (d, 2H, ArH, *J* = 8.0 Hz), 7.22-7.37 (m, 5H, ArH), 7.42 (t, 2H, ArH, *J* = 8.0 Hz), 7.51 (d, 2H, ArH, *J* = 8.0 Hz), 7.82 (d, 2H, *J* = 8.0 Hz), 8.85 (s, 1H, CH-triazole); 13C NMR (100 MHz, DMSO-*d6*): *δ* 36.5 **(CH2)**, 61.4, 67.7 **(OCH2)**, 115.2, 116.3, 121.4 (C5 triazole), 122.3, 123.3, 128.2, 128.4, 128.9, 130.0, 130.6, 137.2, 144.2 (C4 triazole), 158.5, 158.9; HRMS (m/z) calculated for C23H21N3O2 [M+H]+: 372.1634, found: 372.2008.

**2-(4-((p-Tolyloxy)methyl)-1*H*-1,2,3-triazol-1-yl)phenol (8j):** Appearance: White solid; Yield: 92% ; m.p.: **160‒162** ºC; FTIR (KBr): 3365 (OH, str.), 3165 (C-H str., triazole ring), 3066 (C-H str., aromatic ring), 2972 (C-H str., aliphatic), 1600, 1471 (C=C str., aromatic ring), 1238, 1033 (C-O str., ether); 1H NMR (400 MHz, DMSO-*d6*): *δ* 2.25 (s, 3H, CH3), 5.18 (s, 2H, OCH2), 6.96-6.98 (m, 3H, ArH), 7.10-7.13 (m, 3H, ArH), 7.35 (d, 1H, ArH, *J* = 8.0 Hz), 7.61 (d, 1H, ArH, *J* = 8.0 Hz,), 8.58 (s, 1H, CH-triazole), 10.62 (s, 1H, OH); 13C NMR (100 MHz, DMSO-*d6*): *δ* 20.5 **(CH3)**, 61.4 **(OCH2)**, 115.0, 117.6, 120.0 (C5 triazole), 124.9, 125.7, 126.6, 129.9, 130.3, 143.2 (C4 triazole), 150.2, 156.6; HRMS (m/z) calculated for C16H15N3O2 [M+H]+: 282.1164, found: 282.1192.

**3-(4-((p-Tolyloxy)methyl)-1*H*-1,2,3-triazol-1-yl)phenol (8k):** Appearance: White solid; Yield: 84%; m.p.: **136‒138** ºC; FTIR (KBr): 3372 (OH, str.), 3149 (C-H str., triazole ring), 3078 (C-H str., aromatic ring), 2932 (C-H str., aliphatic), 1597, 1456 (C=C str., aromatic ring), 1234, 1062 (C-O str., ether); 1H NMR (400 MHz, DMSO-*d6*): *δ* 2.24 (s, 3H, CH3) 5.17 (s, 2H, OCH2), 6.89 (d, 1H, ArH, *J* = 8.0 Hz), 6.96 (d, 2H, ArH, *J* = 8.0 Hz), 7.12 (d, 2H, ArH, *J* = 8.0 Hz), 7.32 (d, 2H, ArH, *J* = 8.0 Hz), 7.38 (t, 1H, ArH, *J* = 8.0 Hz), 8.88 (s, 1H, CH-triazole), 10.05 (s, 1H, OH); 13C NMR (100 MHz, DMSO-*d6*): *δ* 20.6 **(CH3)**, 61.4 **(OCH2)**, 107.5, 111.0, 115.0, 116.2, 123.2 (C5 triazole), 130.1, 130.3, 131.2, 138.0, 144.3 (C4 triazole), 156.3, 158.9; HRMS (m/z) calculated for C16H15N3O2 [M+H]+: 282.1164, found: 282.1237

**4-(4-((p-Tolyloxy)methyl)-1*H*-1,2,3-triazol-1-yl)phenol (8l):** Appearance: White solid; Yield: 88%; m.p.: **150‒152** ºC; FTIR (KBr): 3375 (OH, str.), 3140 (C-H str., triazole ring), 3078 (C-H str., aromatic ring), 2939 (C-H str., aliphatic), 1602, 1483 (C=C str., aromatic ring), 1246, 1016 (C-O str., ether); 1H NMR (400 MHz, DMSO-*d6*): *δ* 2.24 (s, 3H, CH3), 5.16 (s, 2H, OCH2), 6.95-7.11 (m, 6H, ArH), 7.68 (s, 2H, ArH), 8.76 (s, 1H, CH-triazole), 9.95 (s, 1H, OH); 13C NMR (100 MHz, DMSO-*d6*): *δ* 20.5 **(CH3)**, 61.5 **(OCH2)**, 115.0, 116.5, 122.5 (C5 triazole), 123.1, 129.2, 130.1, 130.3, 144.3 (C4 triazole), 156.4, 158.3; HRMS (m/z) calculated for C16H15N3O2 [M+H]+: 282.1164, found: 282.1230.

**1-(2-(Benzyloxy)phenyl)-4-((p-tolyloxy)methyl)-1*H*-1,2,3-triazole (8m):** Appearance: White solid; Yield: 89% ; m.p.: **168‒170** ºC; FTIR (KBr): 3172 (C-H str., triazole ring), 3059 (C-H str., aromatic ring), 2945 (C-H str., aliphatic), 1587, 1471 (C=C str., aromatic ring), 1242, 1014 (C-O str., ether); 1H NMR (400 MHz, DMSO-*d6*): *δ* 2.24 (s, 3H, CH3), 5.18 (s, 2H, OCH2), 5.25 (s, 2H, OCH2), 6.94 (d, 2H, *J* = 8.0 Hz, ArH), 7.09-7.19 (m, 3H, ArH), 7.31-7.41 (m, 6H, ArH), 7.52 (t, 1H, ArH, *J* = 8.0 Hz), 7.66 (d, 1H, ArH, *J* = 8.0 Hz), 8.60 (s, 1H, CH-triazole); 13C NMR (100 MHz, DMSO-*d6*): *δ* 20.6 **(CH3)**, 61.4, 70.5 **(OCH2)**, 114.9, 115.1, 121.7 (C5 triazole), 127.0, 127.8, 128.4, 128.9, 130.3, 136.8, 143.2 (C4 triazole), 151.2, 156.4. HRMS (m/z) calculated for C23H21N3O2 [M+H]+: 372.1634, found: 372.1706.

**1-(3-(Benzyloxy)phenyl)-4-((p-tolyloxy)methyl)-1*H*-1,2,3-triazole(8n):** Appearance: White solid; Yield: 84% ; m.p.: **154‒156** ºC; FTIR (KBr): 3159 (C-H str., triazole ring), 3061 (C-H str., aromatic ring), 2941 (C-H str., aliphatic), 1579, 1465 (C=C str., aromatic ring), 1235, 1017 (C-O str., ether); 1H NMR (400 MHz, DMSO-*d6*): *δ* 2.24 (s, 3H, CH3) 5.19 (s, 2H, OCH2), 5.22 (s, 2H, OCH2), 6.96 (d, 2H, ArH, *J* = 8.0 Hz), 7.12 (m, 3H, ArH), 7.33-7.37 (m, 3H, ArH), 7.40-7.52 (m, 4H, ArH), 7.60 (s, 1H, ArH), 8.96 (s, 1H, CH-triazole); 13C NMR (100 MHz, DMSO-*d6*): *δ* 20.6 **(CH3)**, 61.6, 70.2 **(OCH2)**, 107.1, 115.1, 115.6, 123.3 (C5 triazole), 128.3, 128.5, 128.9, 130.3, 137.0, 138.0, 144.5 (C4 triazole), 156.3, 159.7; HRMS (m/z) calculated for C23H21N3O2 [M+H]+: 372.1634, found: 372.1706.

**1-(4-(Benzyloxy)phenyl)-4-((p-tolyloxy)methyl)-1*H*-1,2,3-triazole (8o):** Appearance: white solid; Yield: 90%; m.p.: **118‒121** ºC; FTIR (KBr): 3126 (C-H str., triazole ring), 3082 (C-H str., aromatic ring), 2935 (C-H str., aliphatic), 1589, 1452 (C=C str., aromatic ring), 1242, 1010 (C-O str., ether); 1H NMR (400 MHz, DMSO-*d6*): *δ* 2.24 (s, 3H, CH3) 5.17 (s, 2H), 5.20 (s, 2H), 6.96 (d, 2H, *J* = 8.0 Hz, ArH), 7.11 (d, 2H, *J* = 8.0 Hz, ArH), 7.23 (d, 2H, ArH, *J* = 12 Hz), 7.35-7.42 (m, 3H, ArH), 7.49 (d, 2H, ArH, *J* = 8.0 Hz), 7.82 (d, 2H, ArH, *J* = 12 Hz), 8.83 (s, 1H, CH-triazole); 13C NMR (100 MHz, DMSO-*d6*): *δ* 20.6 **(CH3)**, 61.5, 70.1 **(OCH2)**, 115.0, 116.3, 122.3 (C5 triazole), 123.2, 128.2, 128.4, 128.9, 130.1, 130.3, 137.2, 144.3 (C4 triazole), 156.4, 158.8; HRMS (m/z) calculated for C23H21N3O2 [M+H]+: 372.1634, found: 372.1702.

**1-(2-Phenethoxyphenyl)-4-((p-tolyloxy)methyl)-1*H*-1,2,3-triazole(8p):** Appearance: White solid; Yield: 89% ; m.p.: 146‒148 ºC; FTIR (KBr): 3152 (C-H str., triazole ring), 3059 (C-H str., aromatic ring), 2936 (C-H str., aliphatic), 1586, 1456 (C=C str., aromatic ring), 1238, 1016 (C-O str., ether); 1H NMR (400 MHz, DMSO-*d6*): *δ* 2.24 (s, 3H, CH3), 3.26 (t, 2H, *J* = 8.0 Hz), 4.67 (t, 2H, *J* = 8.0 Hz, OCH2), 5.18 (s, 2H, OCH2), 6.94 (d, 2H,ArH, *J* = 8.0 Hz), 7.09-7.16 (m, 3H, ArH), 7.33-7.41 (m, 6H, ArH), 7.52 (d, 1H, ArH, *J* = 8.0 Hz), 7.66 (d, 1H, ArH, *J* = 8.0 Hz), 8.60 (s, 1H, CH-triazole); 13C NMR (100 MHz, DMSO-*d6*): *δ* 20.6 **(CH3)**, 36.7 **(CH2)**, 61.4, 67.7 **(OCH2)**, 114.9, 115.1, 121.7 (C5 triazole), 127.0, 127.8, 128.4, 128.9, 130.3, 136.8, 143.2 (C4 triazole), 151.2, 156.4; HRMS (m/z) calculated for C24H23N3O2 [M+H]+: 386.1790, found: 386.1876.

**1-(3-Phenethoxyphenyl)-4-((p-tolyloxy)methyl)-1*H*-1,2,3-triazole (8q):** Appearance: White solid; Yield: 84%; m.p.: **182‒184** ºC; FTIR (KBr): 3172 (C-H str., triazole ring), 3045 (C-H str., aromatic ring), 2939 (C-H str., aliphatic), 1577, 1463 (C=C str., aromatic ring), 1236, 1011 (C-O str., ether); 1H NMR (400 MHz, DMSO-*d6*): *δ* 2.24 (s, 3H, CH3), 3.26 (t, 2H, *J* = 8.0 Hz), 4.67 (t, 2H, *J* = 8.0 Hz, OCH2), 5.19 (s, 2H, OCH2), 6.89 (d, 1H, ArH, *J* = 8.0 Hz), 6.96 (d, 2H, ArH, *J* = 8.0 Hz), 7.12 (m, 3H, ArH), 7.33-7.37 (m, 3H, ArH), 7.40-7.52 (m, 4H, ArH), 7.61 (s, 1H, ArH), 8.98 (s, 1H, CH-triazole); 13C NMR (100 MHz, DMSO-*d6*): *δ* 20.6 **(CH3)**, 36.7 **(CH2)**, 61.6, 67.7 **(OCH2)**, 107.1, 115.1, 115.7, 123.3 (C5 triazole), 128.3, 128.5, 128.9, 130.3, 137.0, 138.0, 144.5 (C5 triazole), 156.3, 159.7. HRMS (m/z) calculated for C24H23N3O2 [M+H]+: 386.1790, found: 386.1876.

**1-(4-Phenethoxyphenyl)-4-((p-tolyloxy)methyl)-1*H*-1,2,3-triazole (8r):** Appearance: white solid; Yield: 90%; m.p.: **168‒170** ºC; FTIR (KBr): 3172 (C-H str., triazole ring), 3061 (C-H str., aromatic ring), 2941 (C-H str., aliphatic), 1558, 1465 (C=C str., aromatic ring), 1240, 1012 (C-O str., ether); 1H NMR (400 MHz, DMSO): *δ* 2.24 (s, 3H, CH3), 3.26 (t, 2H, *J* = 8.0 Hz), 4.67 (t, 2H, *J* = 8.0 Hz, OCH2), 5.17 (s, 2H, OCH2), 6.96 (d, 2H, ArH, *J* = 8.0 Hz), 7.11 (d, 2H, ArH), 7.22 (d, 2H, ArH), 7.35-7.45 (m, 5H, ArH), 7.82 (d, 2H, ArH, *J* = 12 Hz), 8.83 (s, 1H, CH-triazole); 13C NMR (100 MHz, DMSO): *δ* 20.6 **(CH3)**, 36.7 **(CH2)**, 61.6, 67.7 **(OCH2)**, 115.0, 116.3, 122.3 (C5 triazole), 123.2, 128.2, 128.4, 128.9, 130.1, 130.3, 137.2, 144.3 (C4 triazole), 156.4, 158.9; HRMS (m/z) calculated for C24H23N3O2 [M+H]+: 386.1790, found: 386.1870.

**2-(4-((4-Nitrophenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)phenol (8s)**: Appearance: white solid; Yield: 94%; m.p.: **184‒186** ºC; FTIR (KBr): 3362 (OH, str.), 3176 (C-H str., triazole ring), 3082 (C-H str., aromatic ring), 2974 (C-H str., aliphatic), 1595, 1475 (C=C str., aromatic ring), 1508 (N-O asym. str., NO2), 1350 (N-O sym. str., NO2), 1240, 1001 (C-O str., ether); 1H NMR (400 MHz, DMSO-*d6*): *δ* 5.42 (s, 2H, OCH2) 7.00 (t, 1H, ArH, *J* = 8.0 Hz), 7.12 (d, 1H, ArH, *J* = 8.0 Hz), 7.32-7.38 (m, 3H, ArH), 7.61 (d, 1H, ArH, *J* = 8.0 Hz), 8.25 (d, 2H, ArH, *J* = 8.0 Hz), 8.67 (s, 1H, CH-triazole), 10.59 (s, 1H, OH); 13C NMR (100 MHz, DMSO-*d6*): *δ* 62.3 **(OCH2)**, 115.8, 117.5, 120.0 (C5 triazole), 124.9, 125.7, 126.3, 127.2, 130.8, 141.5, 141.9 (C4 triazole), 150.2, 163.8. HRMS (m/z) calculated for C15H12N4O4 [M+H]+: 313.0859, found: 313.0930.

**3-(4-((4-Nitrophenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)phenol (8t)**: Appearance: white solid; Yield: 89%; m.p.: **148‒150** ºC; FTIR (KBr): 3365 (OH, str.), 3172 (C-H str., triazole ring), 3081 (C-H str., aromatic ring), 2941 (C-H str., aliphatic), 1589, 1465 (C=C str., aromatic ring), 1513 (N-O asym. str., NO2), 1348 (N-O sym. str., NO2), 1240, 1012 (C-O str., ether); 1H NMR (400 MHz, DMSO-*d6*): *δ* 5.41 (s, 2H, OCH2), 6.90 (d, 1H, ArH, *J* = 8.0 Hz), 7.30-7.41 (m, 5H, ArH), 8.25 (d, 2H, ArH, *J* = 12 Hz), 8.94 (s, 1H, CH-triazole), 10.07 (s, 1H, OH); 13C NMR (100 MHz, DMSO-*d6*): *δ* 62.3 **(OCH2)**, 107.6, 111.0, 115.9, 116.3, 123.7 (C5 triazole), 126.4, 131.3, 137.9, 141.6, 143.3 (C4 triazole), 159.0, 163.6; HRMS (m/z) calculated for C15H12N4O4 [M+H]+: 313.0859, found: 313.0930.

**4-(4-((4-Nitrophenoxy)methyl)-1*H*-1,2,3-triazol-1-yl)phenol (8u):** Appearance: yellow solid; Yield: 84%; m.p.: **150‒152** ºC; FTIR (KBr): 3380 (OH, str.), 3159 (C-H str., triazole ring), 3088 (C-H str., aromatic ring), 2947 (C-H str., aliphatic), 1597, 1475 (C=C str., aromatic ring), 1519 (N-O asym. str., NO2), 1342 (N-O sym. str., NO2), 1251, 1015 (C-O str., ether); 1H NMR (400 MHz, DMSO): *δ* 5.40 (s, 2H, OCH2), 6.95 (d, 2H, ArH, *J* = 8.0 Hz), 7.31 (d, 2H, ArH, *J* = 8.0 Hz), 7.67 (d, 2H, ArH, *J* = 8.0 Hz), 8.24 (d, 2H, ArH, *J* = 8.0 Hz), 8.81 (s, 1H, CH-triazole), 9.97 (s, 1H, OH); 13C NMR (100 MHz, DMSO): *δ* 62.4 **(OCH2)**, 115.9, 116.5, 122.6 (C5 triazole), 123.6, 126.4, 129.1, 141.6, 143.0 (C4 triazole), 158.4, 163.7; HRMS (m/z) calculated for C15H12N4O4 [M+H]+: 313.0859, found: 313.0931.

**1-(2-(Benzyloxy)phenyl)-4-((4-nitrophenoxy)methyl)-1*H*-1,2,3-triazole (8v):** Appearance: white solid; Yield: 87%; m.p.: **104‒106** ºC; FTIR (KBr): 3186 (C-H str., triazole ring), 3086 (C-H str., aromatic ring), 2939 (C-H str., aliphatic), 1597, 1456 (C=C str., aromatic ring), 1514 (N-O asymm. str., NO2), 1348 (N-O symm. str., NO2), 1267, 1014 (C-O str., ether); 1H NMR (400 MHz, DMSO-*d6*): *δ* 5.24 (s, 2H, OCH2), 5.42 (s, 2H, OCH2), 7.15 (t, 1H, *J* = 8.0 Hz, ArH), 7.38-7.42 (m, 8H, ArH), 7.53 (t, 1H, ArH, *J* = 8.0 Hz), 7.66 (d, 1H, ArH, *J* = 8.0 Hz), 8.22 (d, 2H, ArH, *J* = 8.0 Hz), 8.69 (s, 1H, CH-triazole); 13C NMR (100 MHz, DMSO-*d6*): *δ* 62.3, 70.6 **(OCH2)**, 114.9, 115.8, 121.7 (C5 triazole), 126.3, 126.5, 127.5, 127.8, 128.4, 128.9, 136.8, 141.6, 142.1 (C4 triazole), 151.2, 163.7; HRMS (m/z) calculated for C22H18N4O4 [M+H]+: 403.1328, found: 403.1411.

**1-(3-(Benzyloxy)phenyl)-4-((4-nitrophenoxy)methyl)-1*H*-1,2,3-triazole (8w):** Appearance: white solid; Yield: 90%; m.p.: **162‒164** ºC; FTIR (KBr): 3183 (C-H str., triazole ring), 3076 (C-H str., aromatic ring), 2941 (C-H str., aliphatic), 1558, 1465 (C=C str., aromatic ring), 1514 (N-O asym. str., NO2), 1350 (N-O sym. str., NO2), 1240, 1012 (C-O str., ether); 1H NMR (400 MHz, DMSO-*d6*): *δ* 5.22 (s, 2H, OCH2), 5.43 (s, 2H, OCH2), 7.13-7.19 (m, 1H, ArH), 7.30-7.38 (m, 3H, ArH), 7.42 (t, 2H, ArH, *J* = 8.0 Hz), 7.48-7.54 (m, 4H, ArH), 7.60 (s, 1H, ArH), 8.24 (d, 2H, ArH, *J* = 8.0 Hz), 9.02 (s, 1H, C-H triazole). 13C NMR (100 MHz, DMSO-*d6*): *δ* 62.4, 70.2 **(OCH2)**, 107.3, 112.9, 115.8, 115.9, 123.8 (C5 triazole), 126.4, 128.3, 128.5, 129.0, 131.4, 137.1, 138.0, 141.7, 143.4 (C4 triazole), 159.8, 163.7; HRMS (m/z) calculated for C22H18N4O4 [M+H]+: 403.1328, found: 403.1409

**1-(4-(Benzyloxy)phenyl)-4-((4-nitrophenoxy)methyl)-1*H*-1,2,3-triazole (8x):** Appearance: white solid; Yield: 92%; m.p.: **150‒152** ºC; FTIR (KBr): 3170 (C-H str., triazole ring), 3082 (C-H str., aromatic ring), 2980 (C-H str., aliphatic), 1591, 1454 (C=C str., aromatic ring), 1512 (N-O asym. str., NO2), 1338 (N-O sym. str., NO2), 1253, 1033 (C-O str., ether); 1H NMR (400 MHz, DMSO-*d6*): *δ* 5.20 (s, 2H, OCH2), 5.41 (s, 2H, OCH2), 7.23 (d, 2H, ArH, *J* = 8.0 Hz), 7.30-7.44 (m, 5H,ArH), 7.49 (d, 2H, ArH *J* = 8.0 Hz), 7.82 (d, 2H, ArH, *J* = 8.0 Hz), 8.24 (d, 2H, ArH, *J* = 8.0 Hz), 8.89 (s, 1H, CH-triazole); 13C NMR (100 MHz, DMSO-*d6*): *δ* 62.4, 70.1 **(OCH2)**, 115.9, 116.3, 122.4 (C5 triazole), 123.7, 126.4, 128.2, 128.4, 128.9, 130.5, 137.1, 141.6, 143.2 (C4 triazole), 158.9, 163.7; HRMS (m/z) calculated for C22H18N4O4 [M+H]+: 403.1328, found: 403.1409.

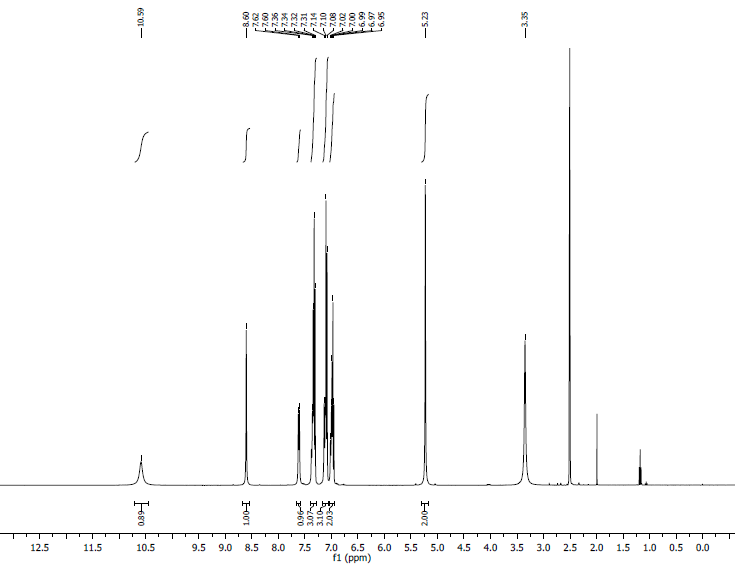
**4-((4-Nitrophenoxy)methyl)-1-(2-phenethoxyphenyl)-1*H*-1,2,3-triazole (8y):** Appearance: white solid; Yield: 87%; m.p.: **162‒164** ºC; FTIR (KBr): 3178 (C-H str., triazole ring), 3065 (C-H str., aromatic ring), 2939 (C-H str., aliphatic), 1576, 1455 (C=C str., aromatic ring), 1512 (N-O asym. str., NO2), 1348 (N-O sym. str., NO2), 1238, 1017 (C-O str., ether); 1H NMR (400 MHz, DMSO-*d6*): *δ* 3.20 (t, 2H, *J* = 8.0 Hz) 4.60 (t, 2H, *J* = 8.0 Hz, OCH2), 5.42 (s, 2H, OCH2), 7.17 (t, 1H, ArH, *J* = 8.0 Hz), 7.28-7.44 (m, 8H, ArH), 7.53 (t, 1H, ArH, *J* = 8.0 Hz), 7.66 (d, 1H, ArH, *J* = 8.0 Hz), 8.22 (d, 2H, ArH, *J* = 8.0 Hz), 8.69 (s, 1H, CH-triazole); 13C NMR (100 MHz, DMSO-*d6*): *δ* 36.7 **(CH2)**, 62.3, 67.7 **(OCH2)**, 114.9, 115.8, 121.7 (C5 triazole), 126.3, 126.5, 127.5, 127.8, 128.4, 128.9, 136.8, 141.6, 142.1 (C4 triazole), 151.2, 163.7; HRMS (m/z) calculated for C23H20N4O4 [M+H]+: 417.1485, found: 417.1566.

**4-((4-Nitrophenoxy)methyl)-1-(3-phenethoxyphenyl)-1*H*-1,2,3-triazole (8z)**: Appearance: white solid; Yield: 90%; m.p.: **149‒152** ºC; FTIR (KBr): 3186 (C-H str., triazole ring), 3056 (C-H str., aromatic ring), 2938 (C-H str., aliphatic), 1576, 1454 (C=C str., aromatic ring), 1508 (N-O asym. str., NO2), 1350 (N-O sym. str., NO2), 1237, 1018 (C-O str., ether); 1H NMR (400 MHz, DMSO-*d6*): *δ* 3.20 (t, 2H, *J* = 8.0 Hz), 4.60 (t, 2H *J* = 8.0 Hz, OCH2), 5.43 (s, 2H, OCH2), 7.13-7.19 (m, 1H, ArH), 7.30-7.38 (m, 3H, ArH), 7.42 (t, 2H, ArH, *J* = 8.0 Hz), 7.48-7.54 (m, 4H, ArH), 7.60 (s, 1H, ArH), 8.24 (d, 2H,ArH, *J* = 8.0 Hz), 9.02 (s, 1H, C-H triazole); 13C NMR (100 MHz, DMSO-*d6*): *δ* 36.7 **(CH2)**, 62.3, 67.7 **(OCH2)**, 107.3, 112.9, 115.8, 115.9, 123.8 (C5 triazole), 126.4, 128.3, 128.5, 128.9, 131.4, 137.1, 138.0, 141.6, 143.4 (C4 triazole), 159.8, 163.7; HRMS (m/z) calculated for C23H20N4O4 [M+H]+: 417.1485, found: 417.1566.

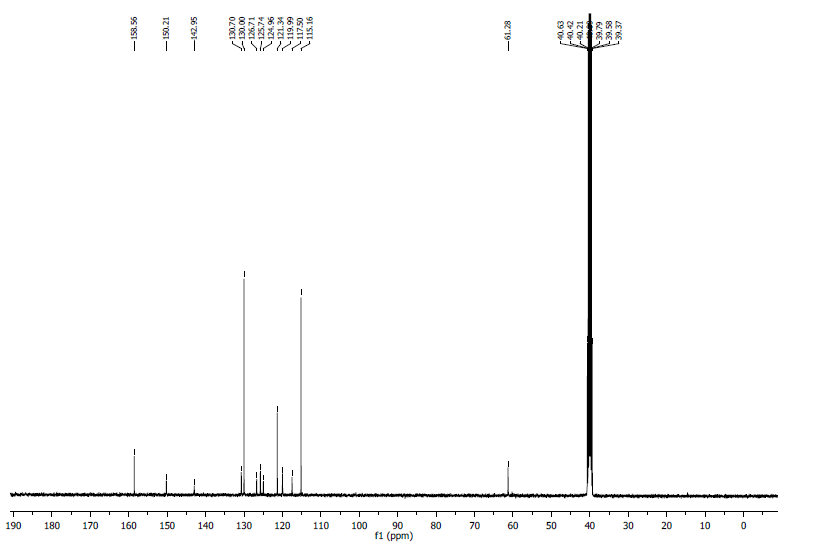
**4-((4-Nitrophenoxy)methyl)-1-(4-phenethoxyphenyl)-1*H*-1,2,3-triazole (8z1):** Appearance: white solid; Yield: 92%; m.p.: **184‒186** ºC; FTIR (KBr): 3174 (C-H str., triazole ring), 3070 (C-H str., aromatic ring), 2969 (C-H str., aliphatic), 1538, 1475 (C=C str., aromatic ring), 1512 (N-O asym. str., NO2), 1345 (N-O sym. str., NO2), 1244, 1016 (C-O str., ether); 1H NMR (400 MHz, DMSO-*d6*) *δ* 3.20 (t, 2H, *J* = 8.0 Hz), 4.60 (t, 2H, *J* = 8.0 Hz, OCH2), 5.41 (s, 2H, OCH2), 7.23 (d, 2H, ArH, *J* = 8.0 Hz), 7.31-7.44 (m, 5H, ArH), 7.49 (d, 2H,ArH, *J* = 8.0 Hz), 7.82 (d, 2H, ArH, *J* = 8.0 Hz), 8.25 (d, 2H, ArH, *J* = 8.0 Hz), 8.89 (s, 1H, CH-triazole); 13C NMR (100 MHz, DMSO-*d6*): *δ* 36.7 **(CH2)**, 62.4, 68.1 **(OCH2)**, 115.9, 116.3, 122.4 (C5 triazole), 123.7, 126.4, 128.2, 128.4, 128.9, 130.5, 137.1, 141.6, 143.2 (C4 triazole), 158.9, 163.7; HRMS (m/z) calculated for C23H20N4O4 [M+H]+: 417.1485, found: 417.1560.

**Single X-ray Crystallography**

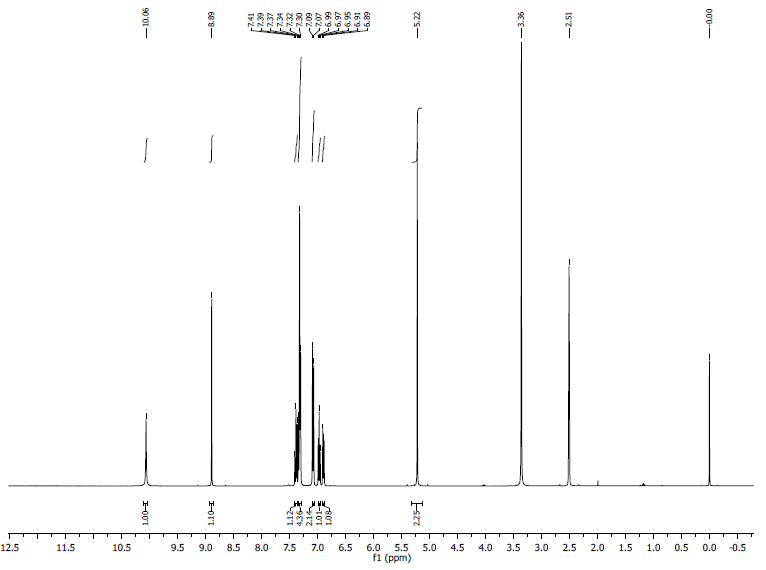
Single crystals of compounds **8c** and **8f** were selected and determined on a SuperNova, Single source at offset, Titan diffractometer. The crystal was kept at 293 K during data collection. Using Olex2, the structure was solved with the ShelXT[36] structure solution program using Direct Methods and refined with the ShelXL[37] refinement package using Least Squares minimization.



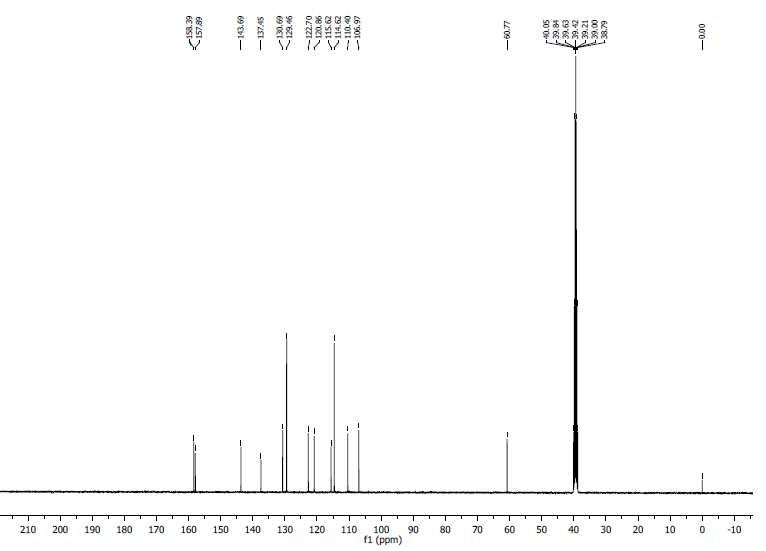
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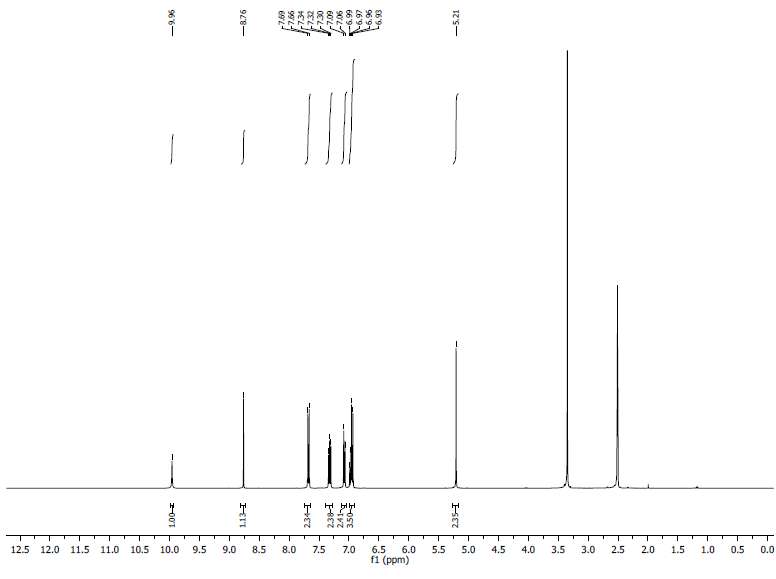
13C NMR spectra: 8a



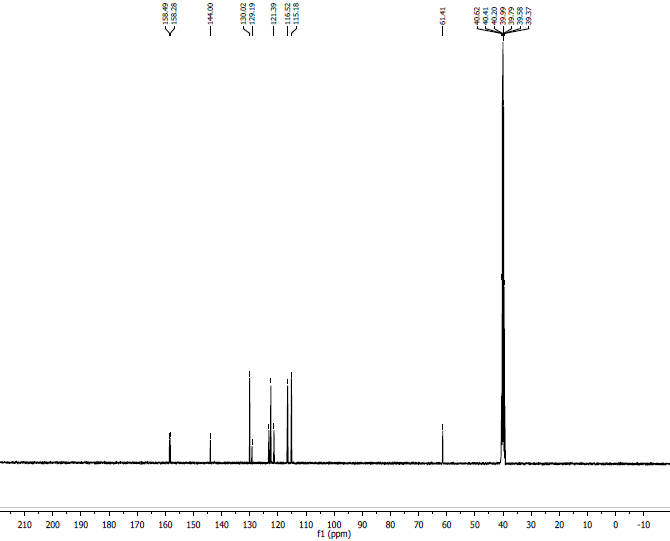
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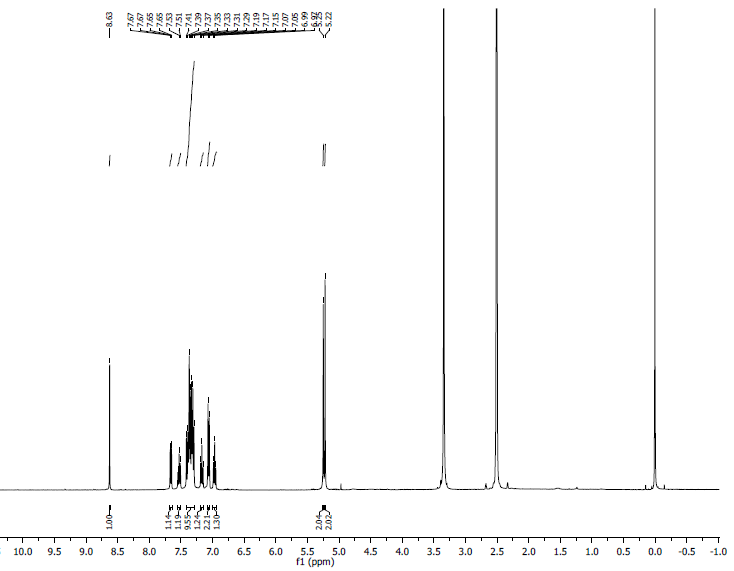
13C NMR Spectra: 8b



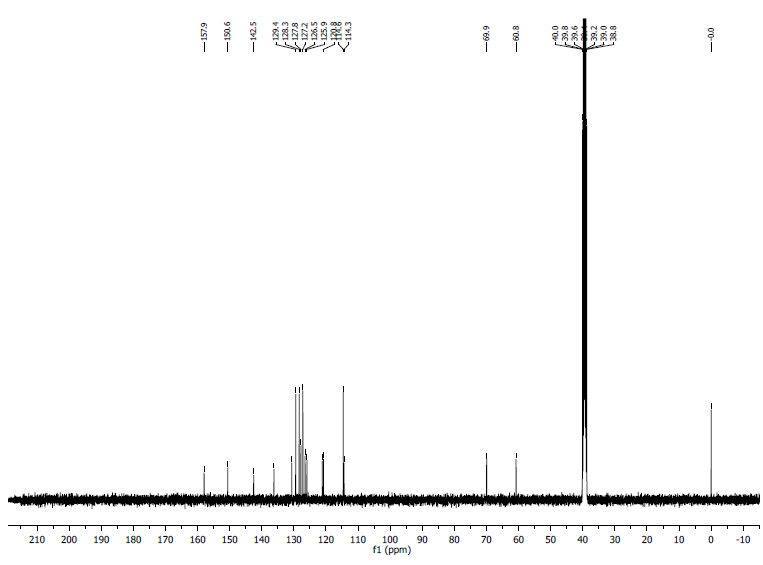
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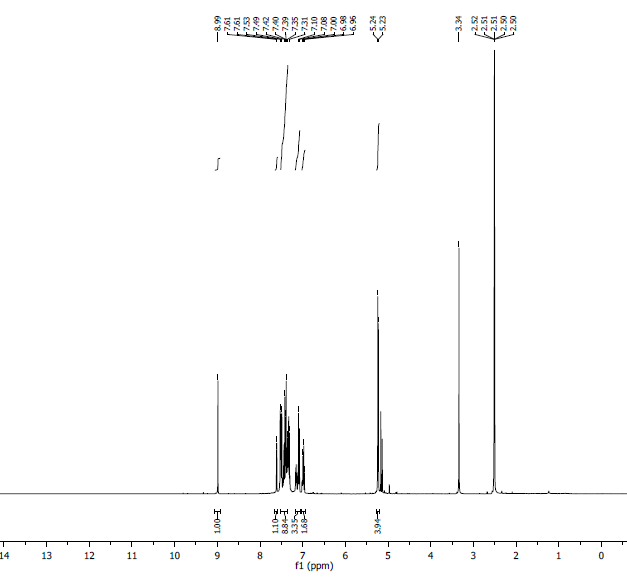
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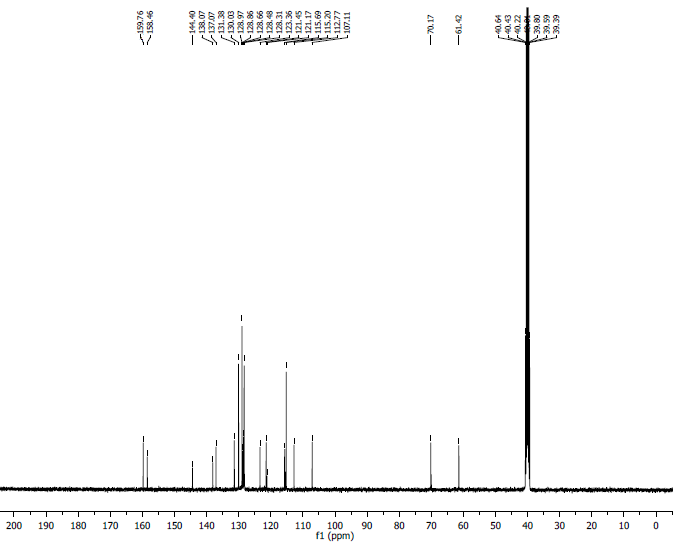
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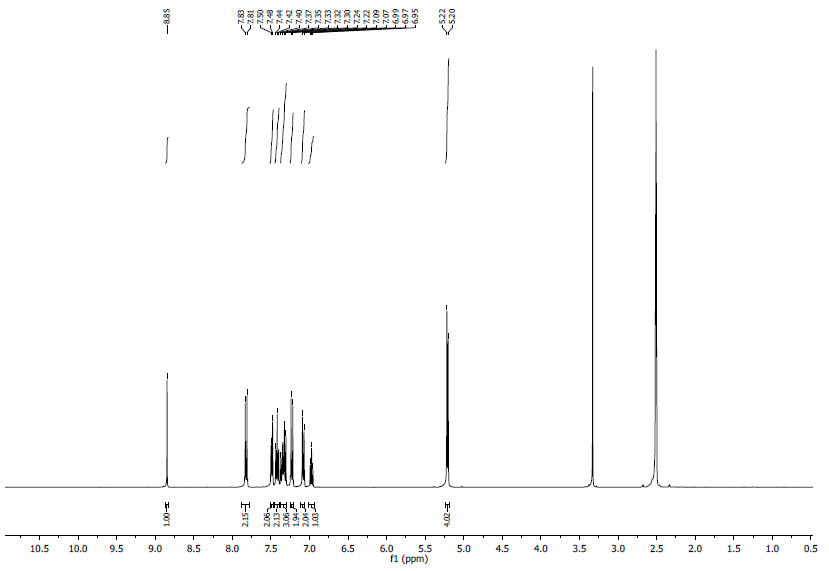
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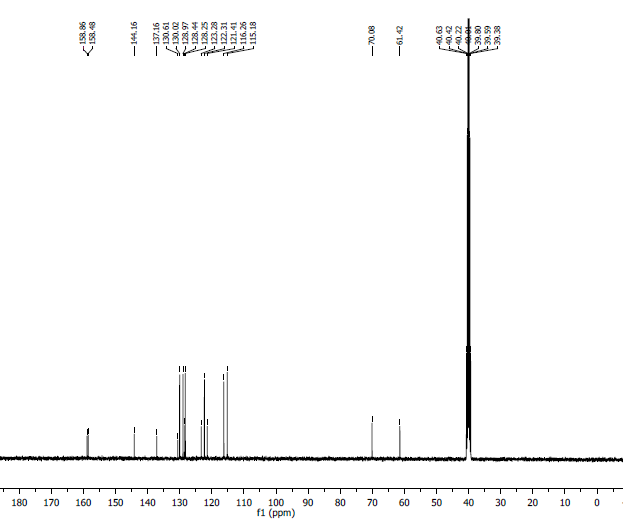
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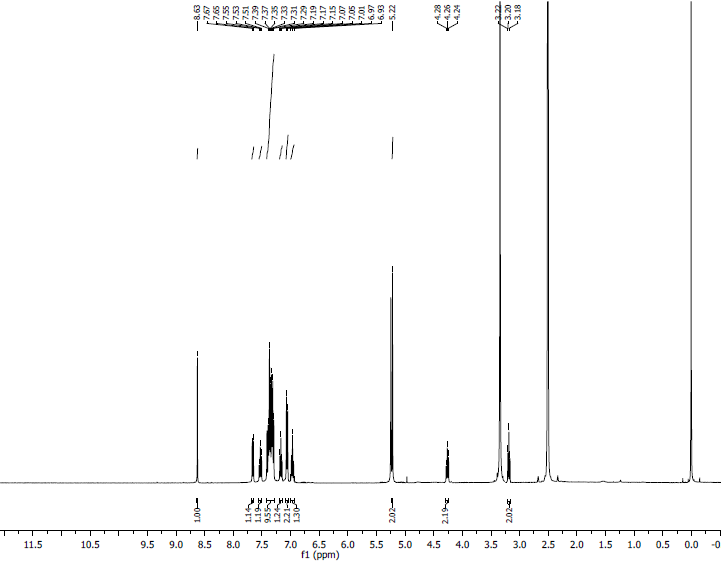
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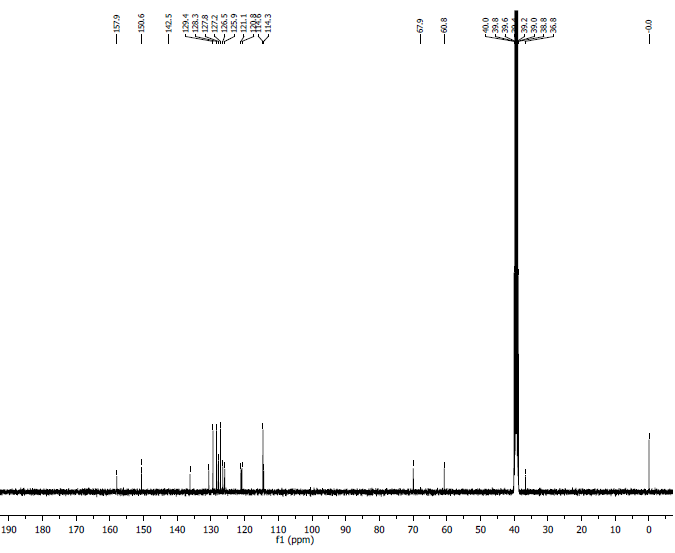
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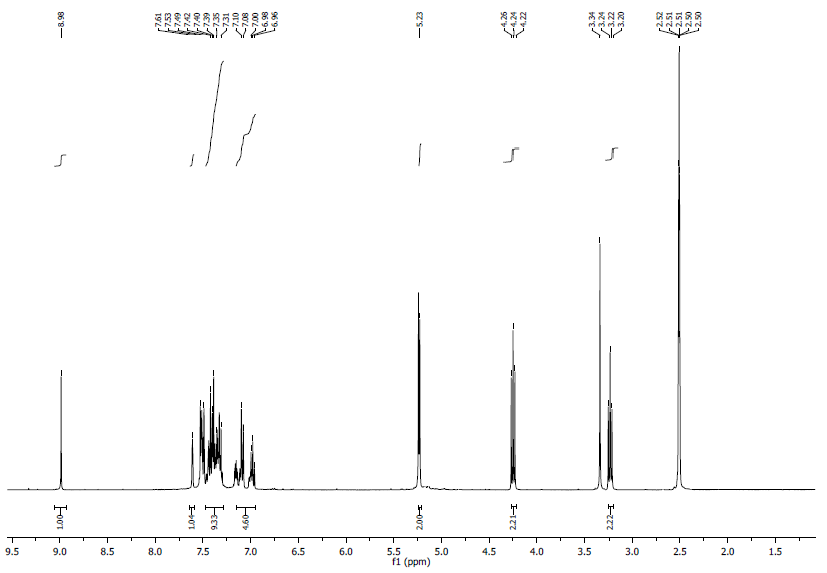
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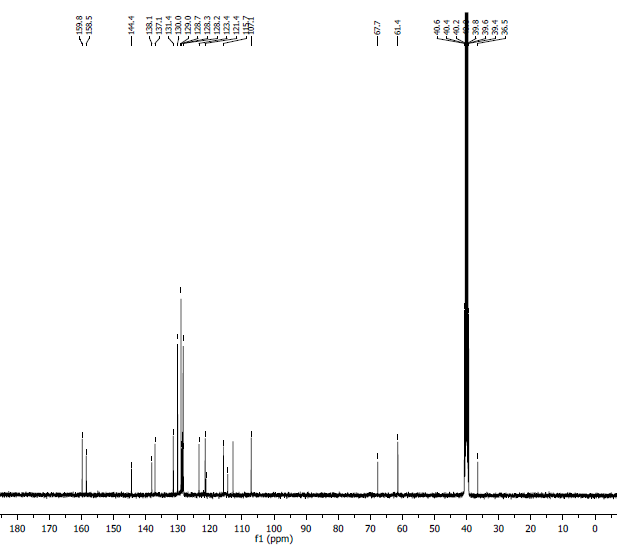
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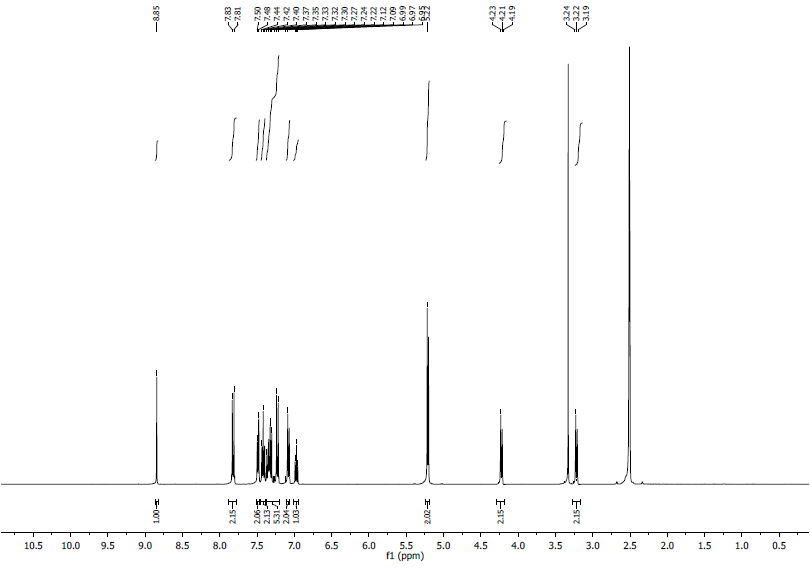
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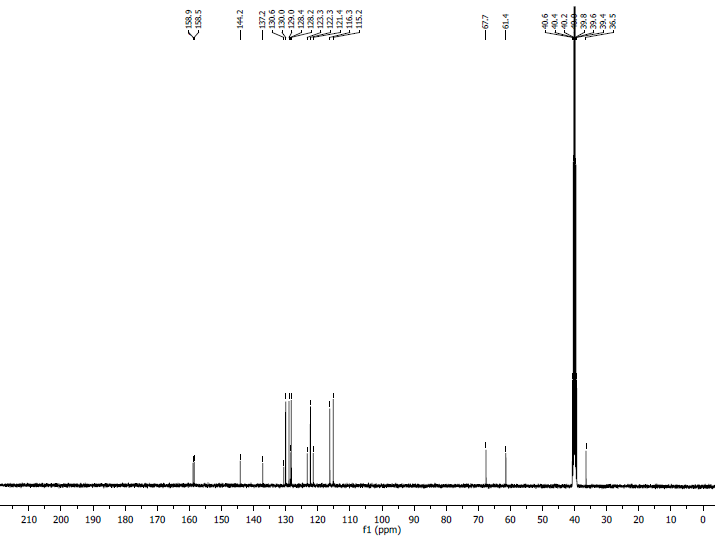
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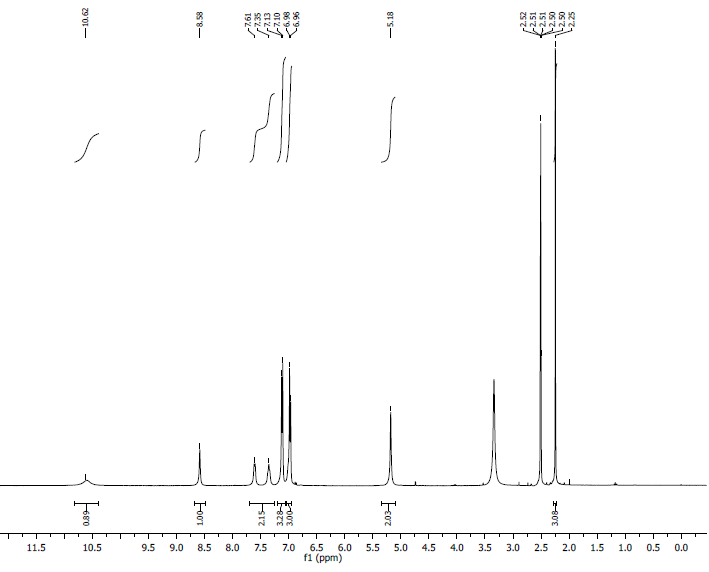
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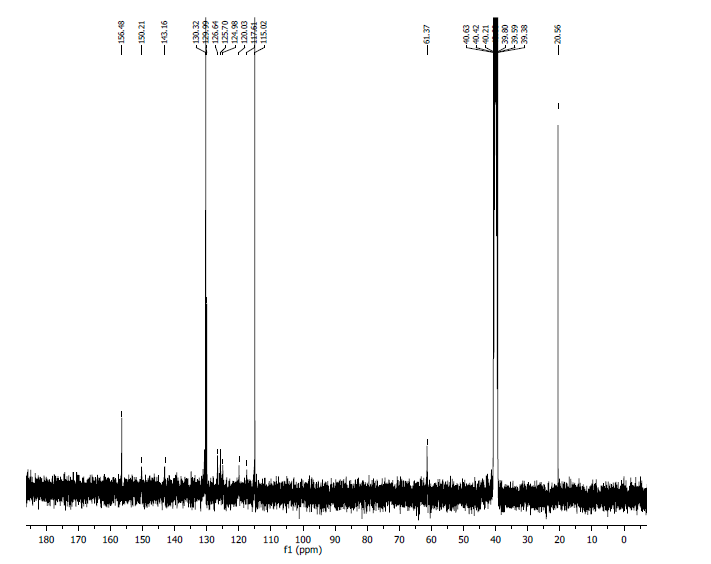
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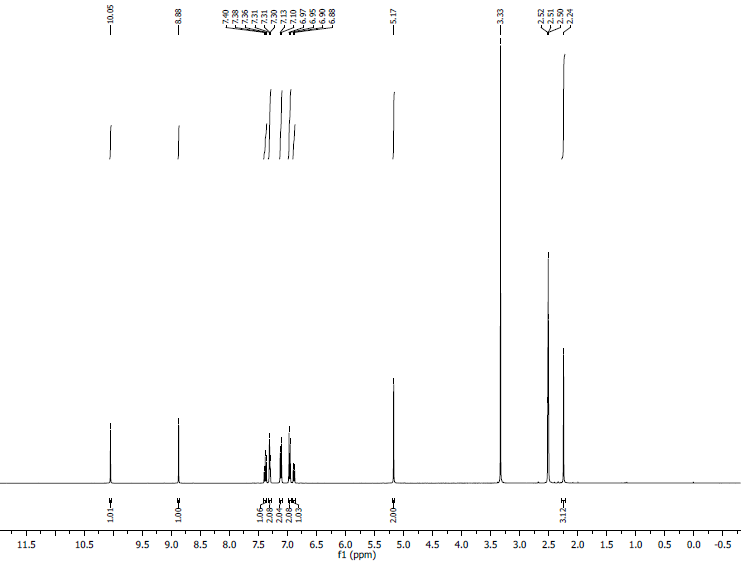
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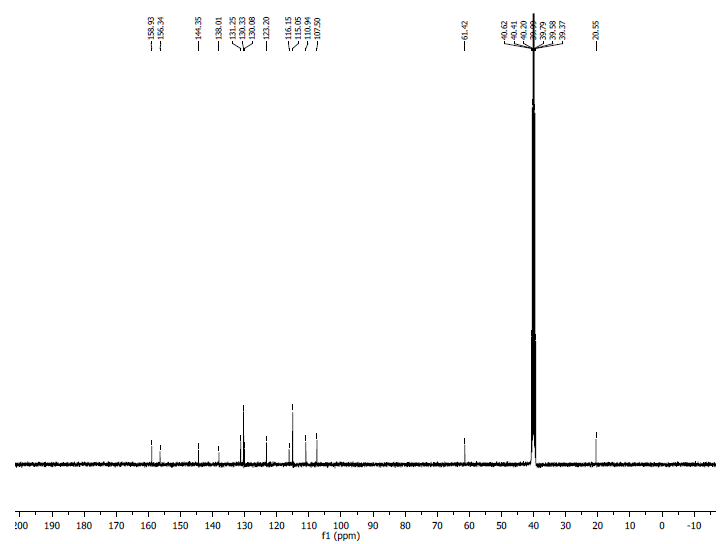
1H NMR Spectra: 8j



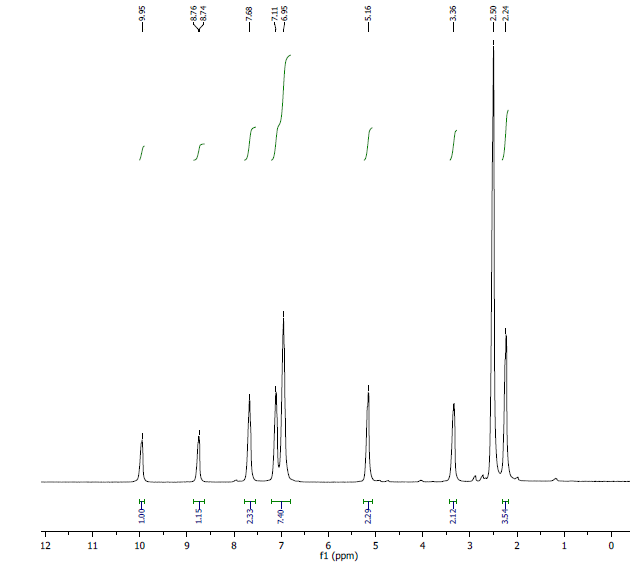
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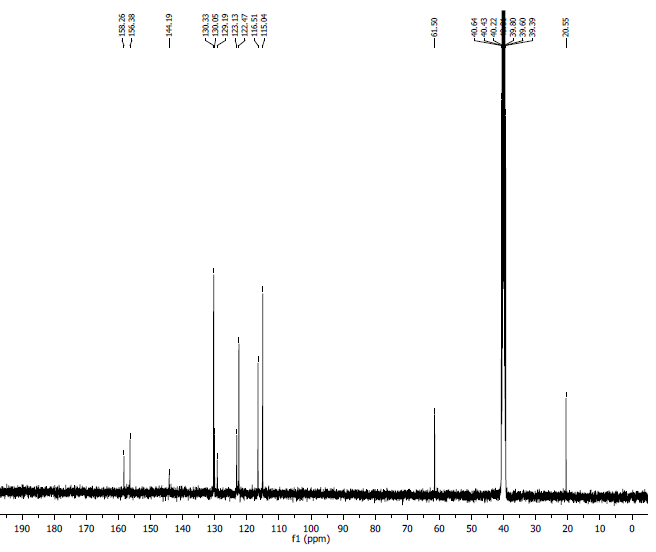
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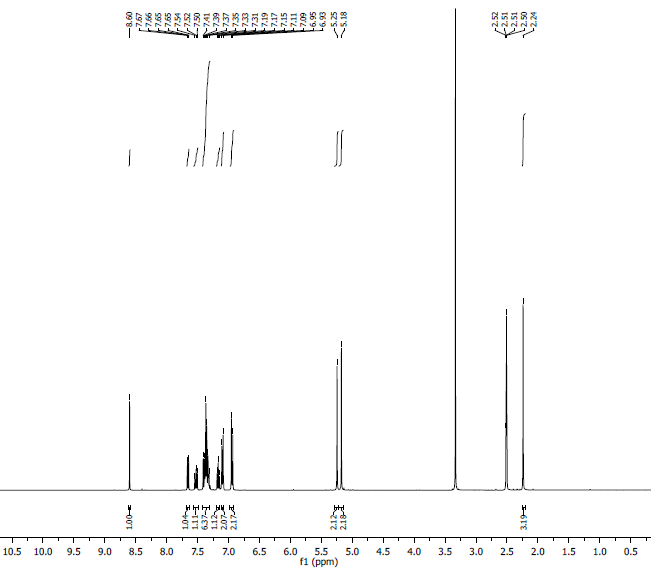
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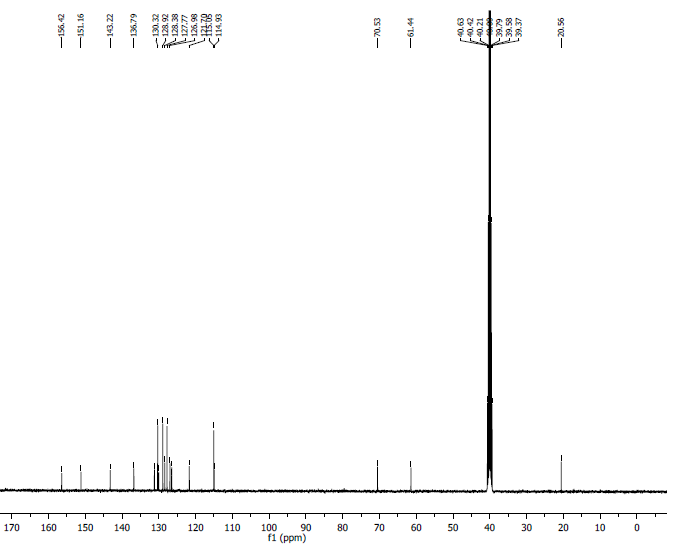
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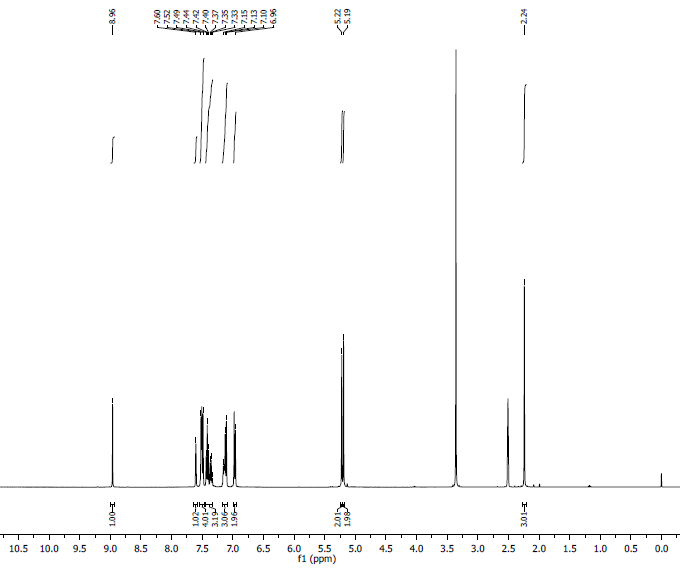
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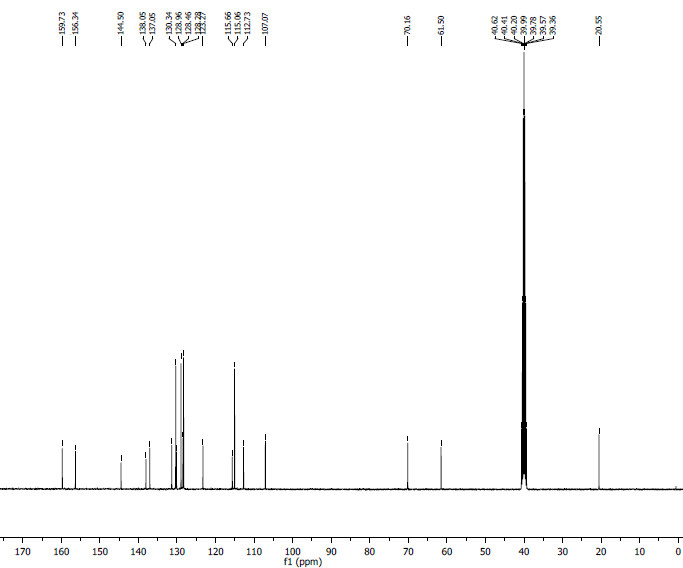
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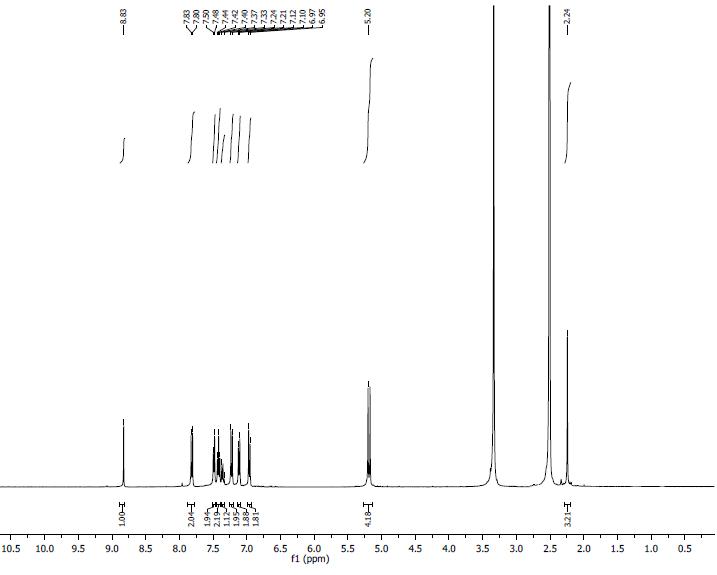
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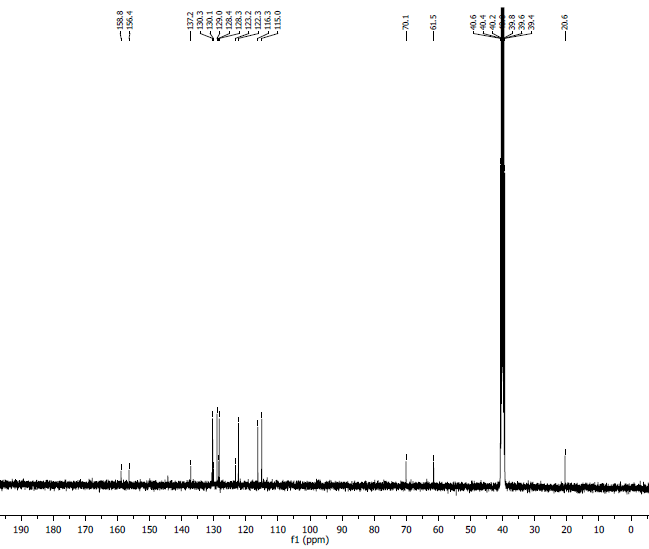
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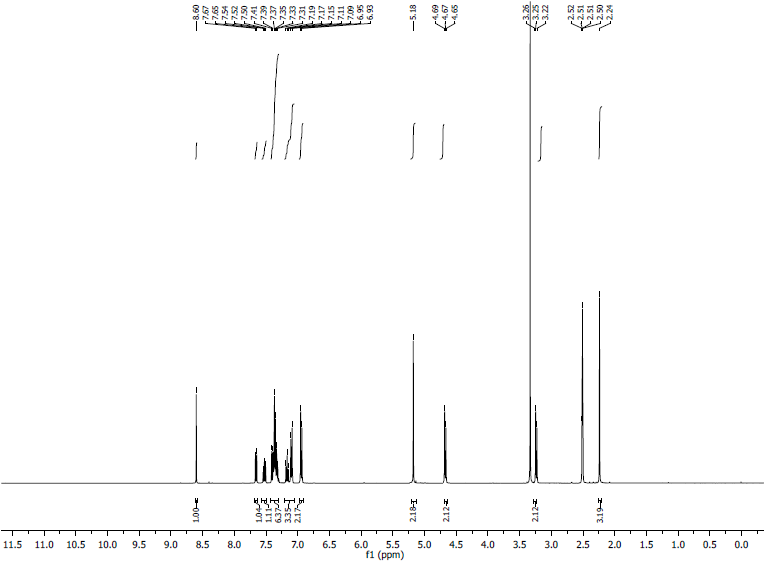
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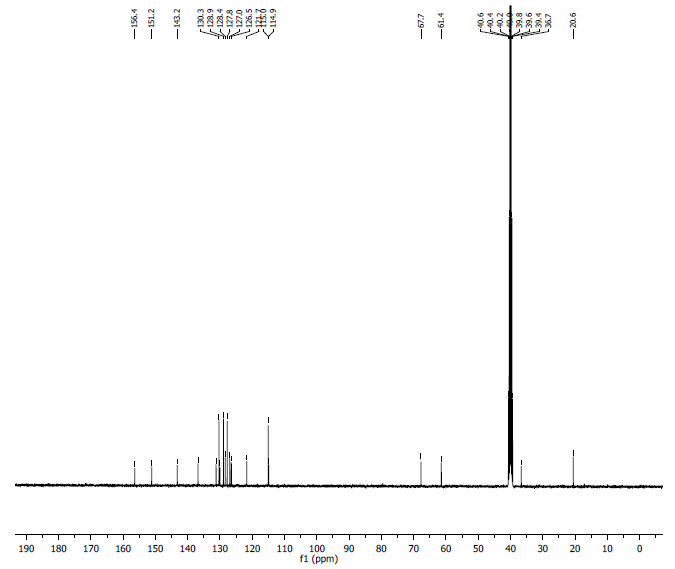
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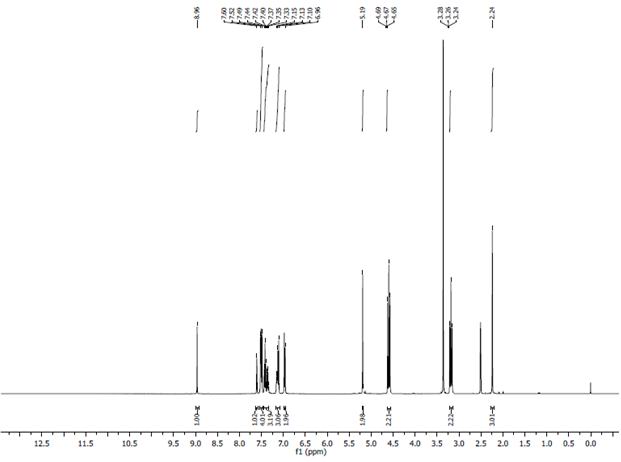
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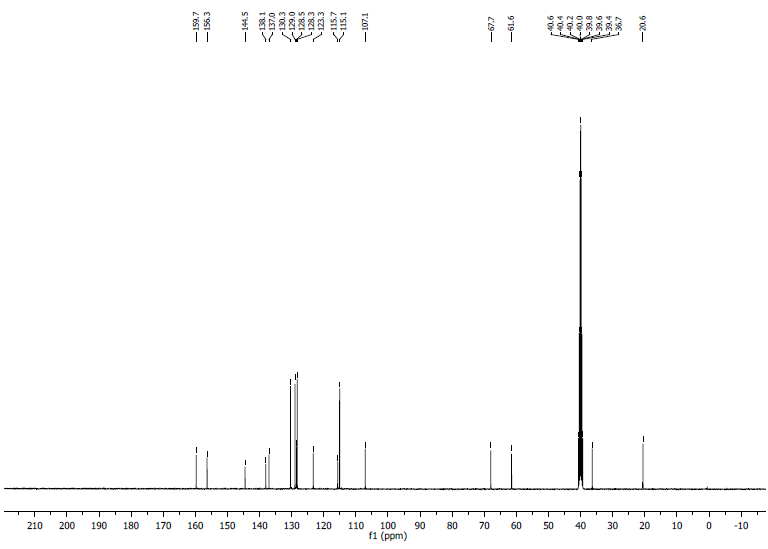
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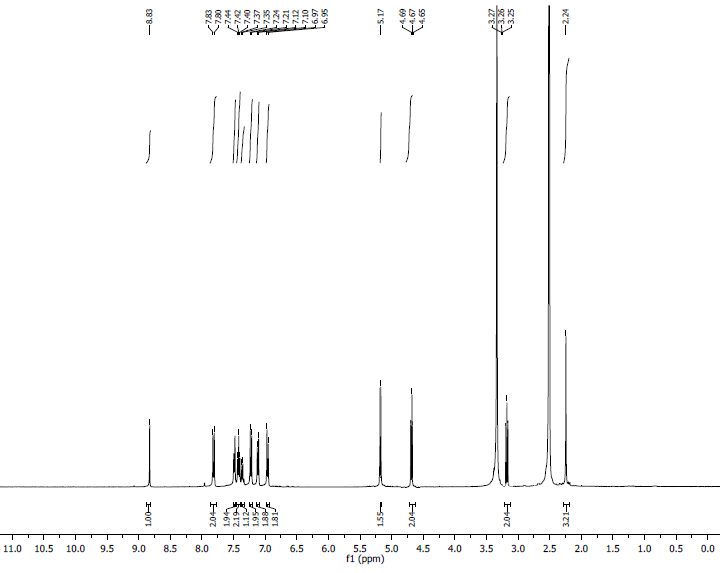
13C NMR Spectra: 8p



1H NMR Spectra: 8q



13C NMR Spectra: 8q



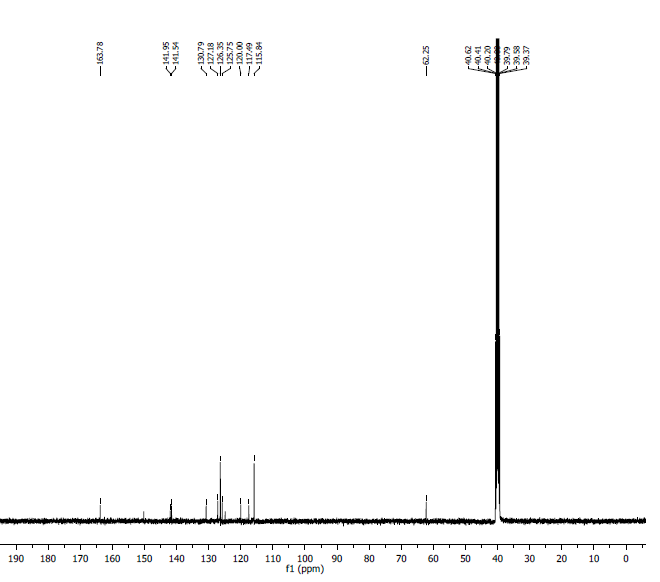
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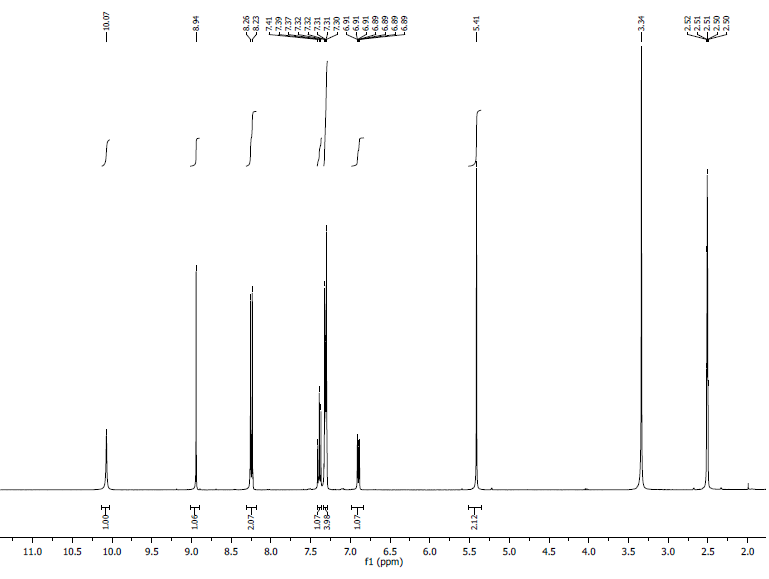
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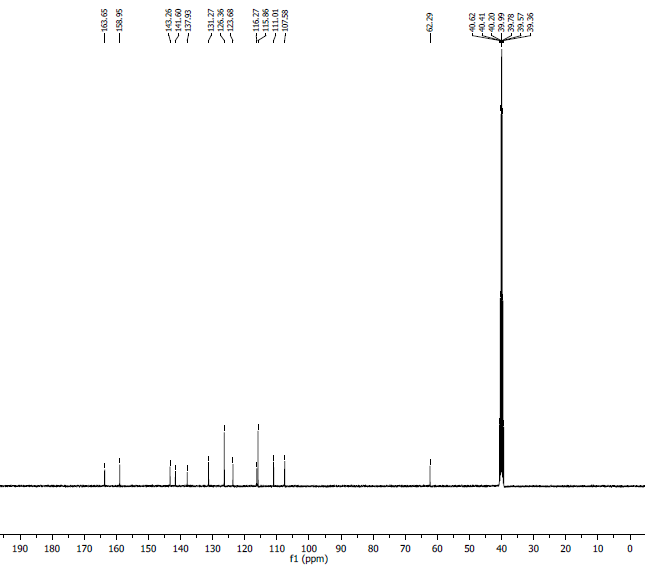
1H NMR Spectra: 8s



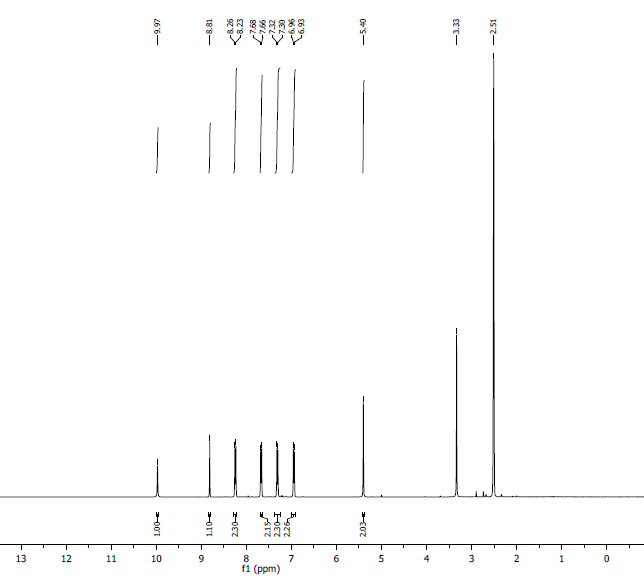
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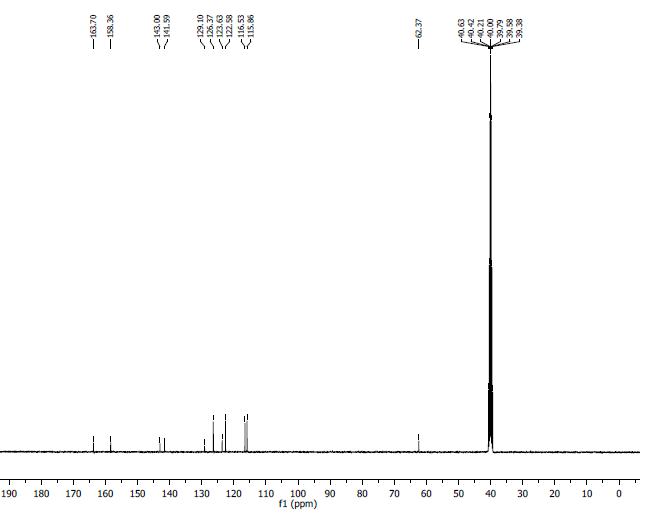
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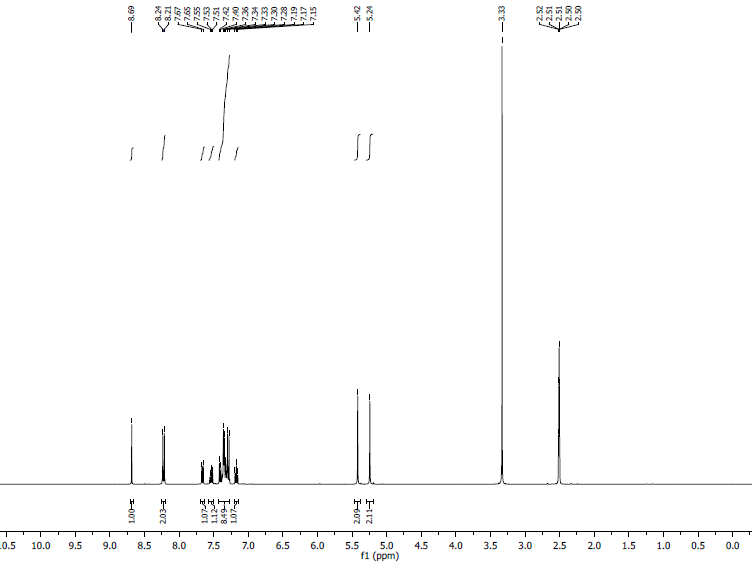
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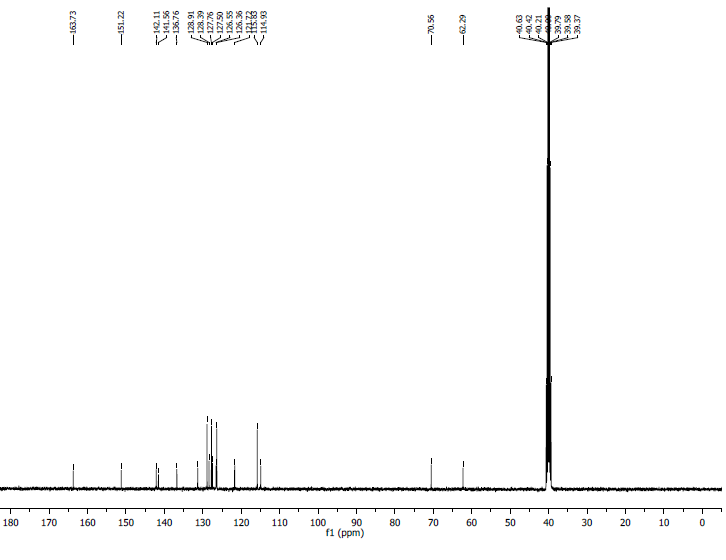
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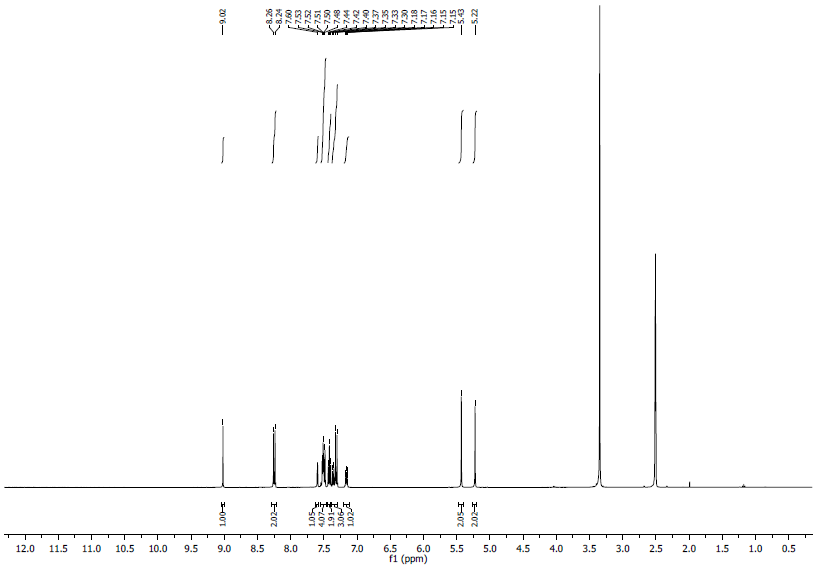
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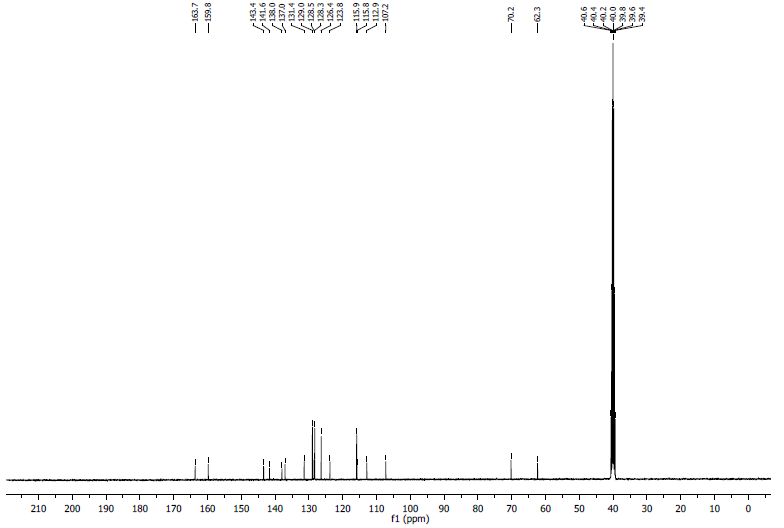
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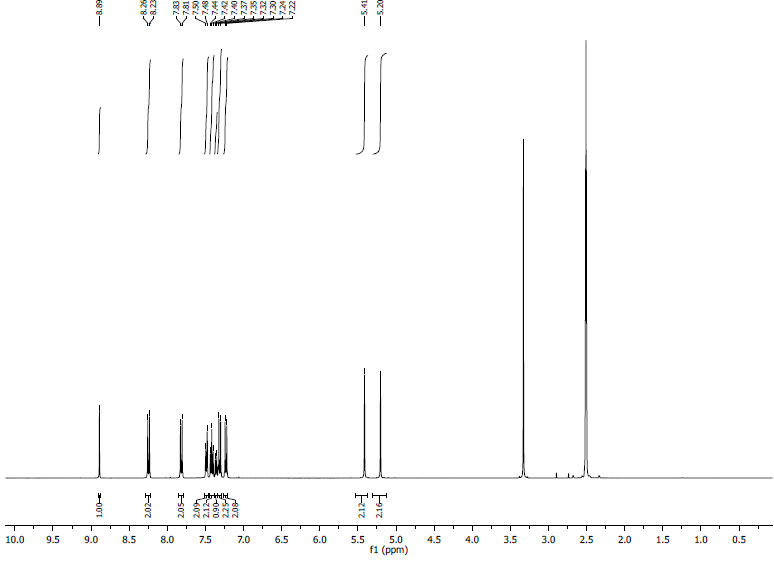
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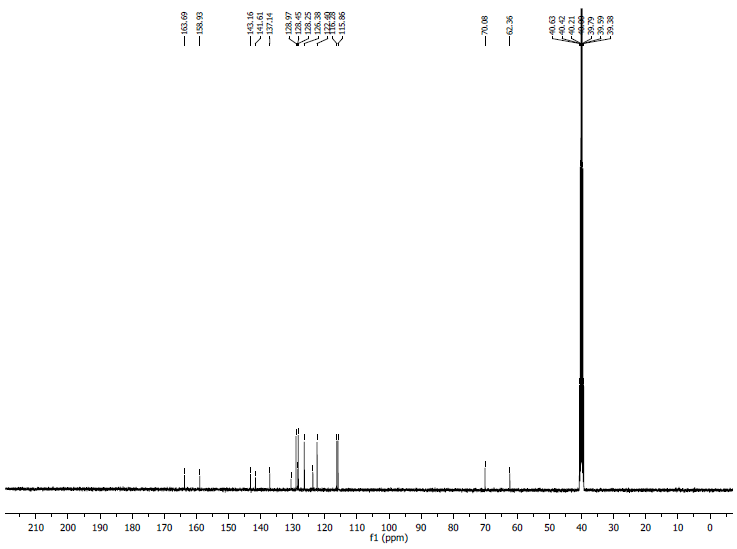
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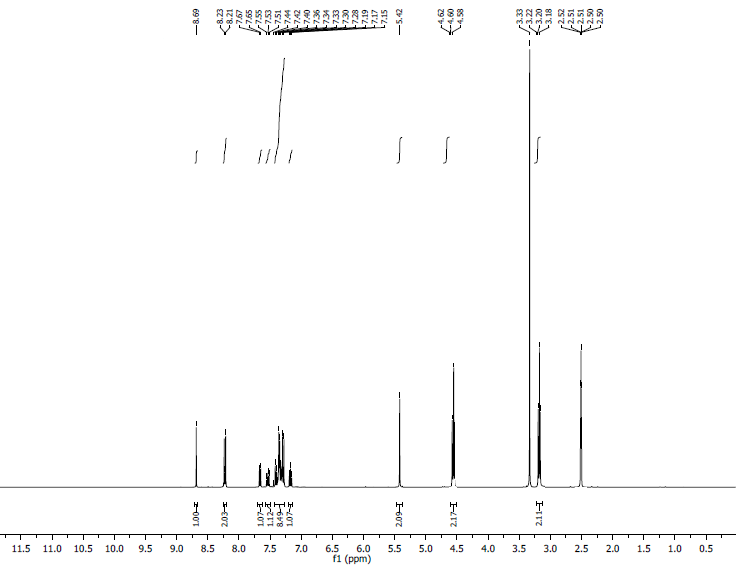
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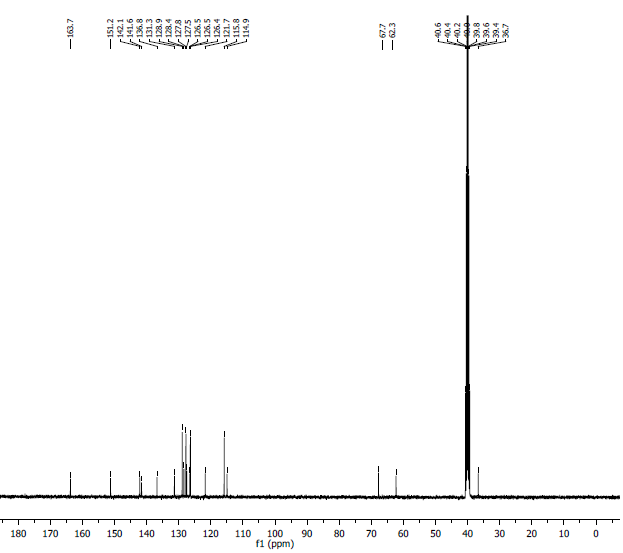
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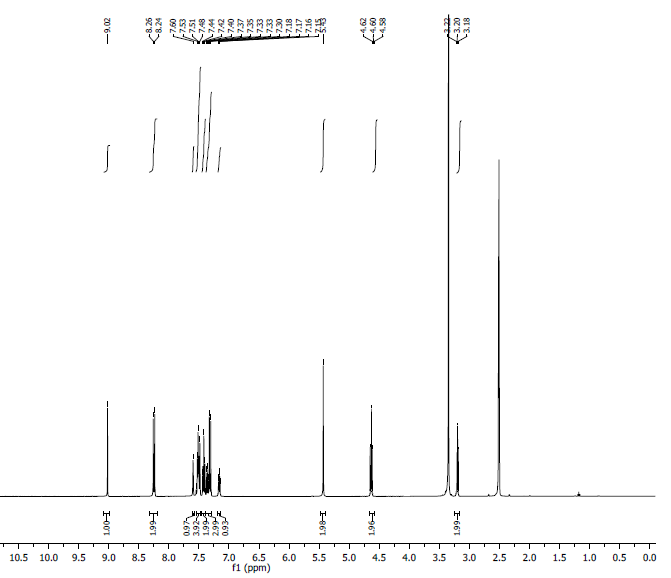
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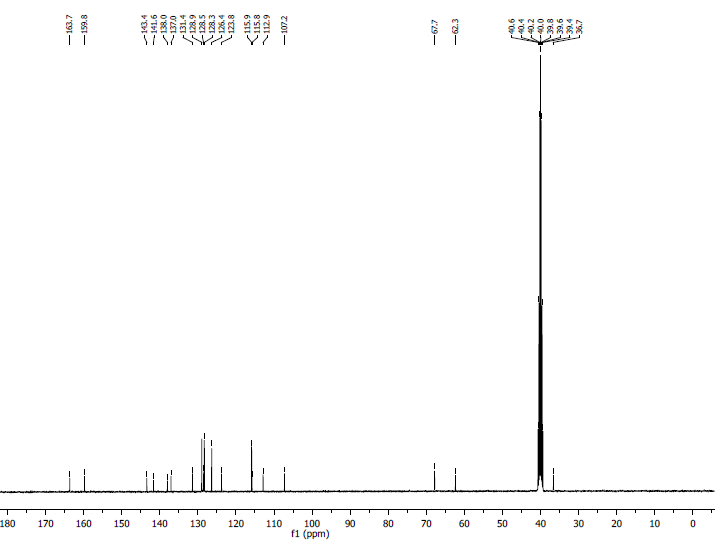
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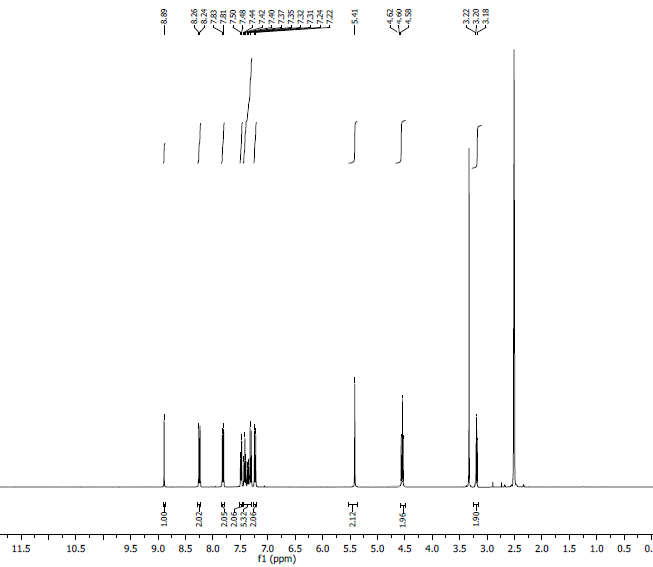
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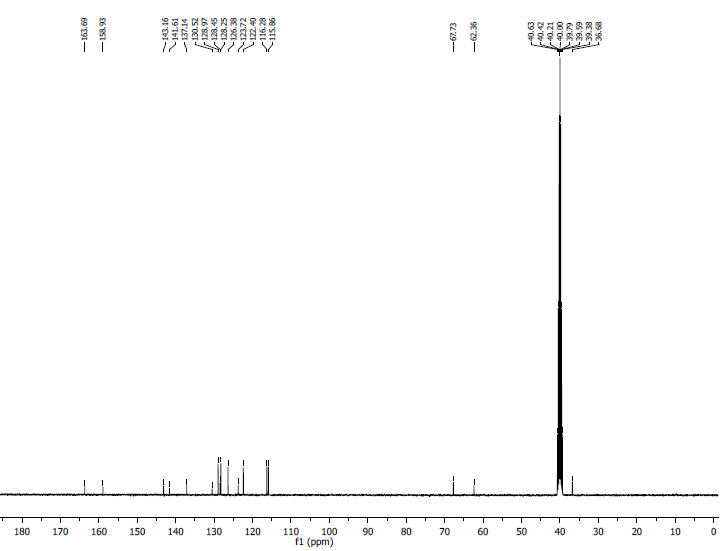
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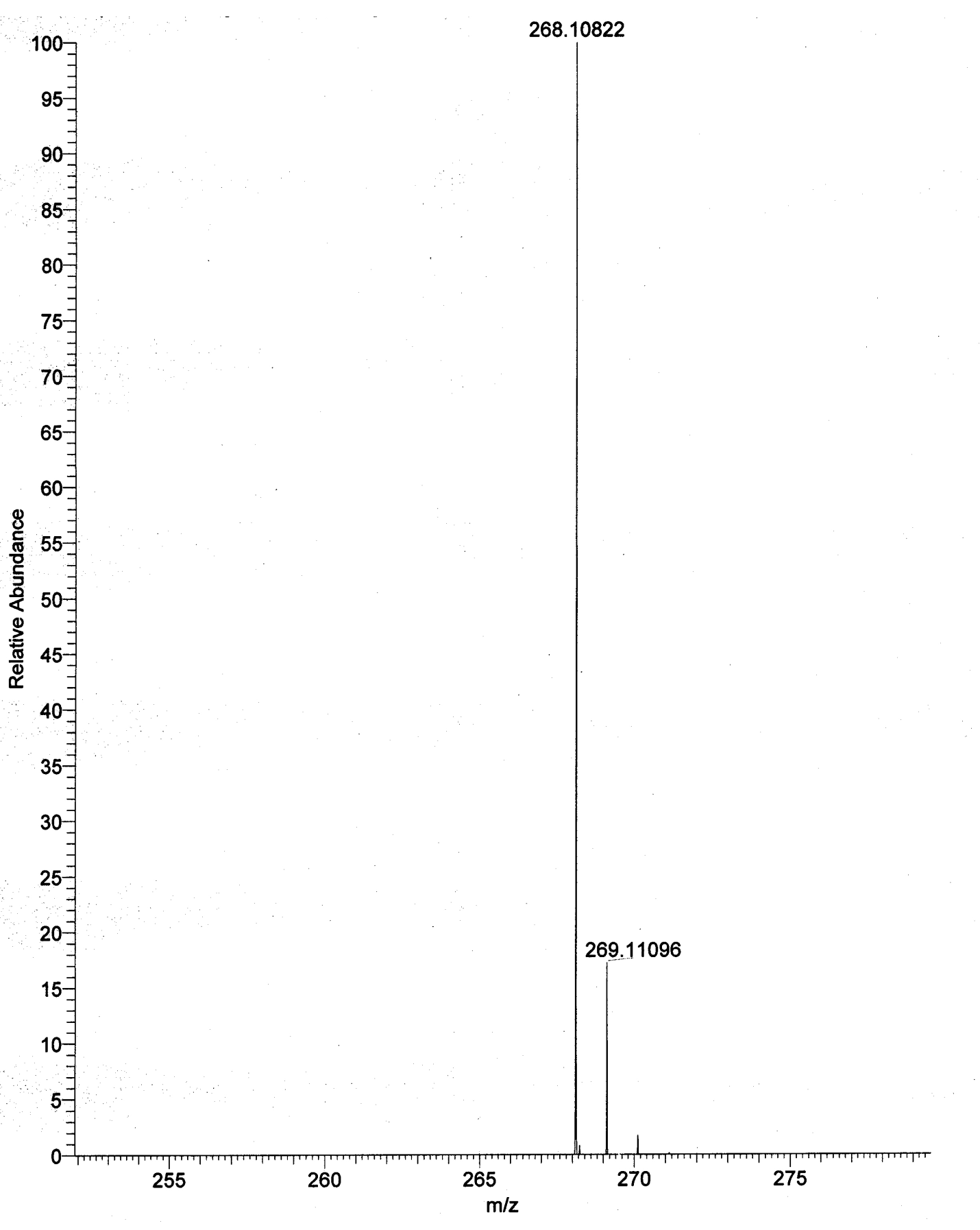
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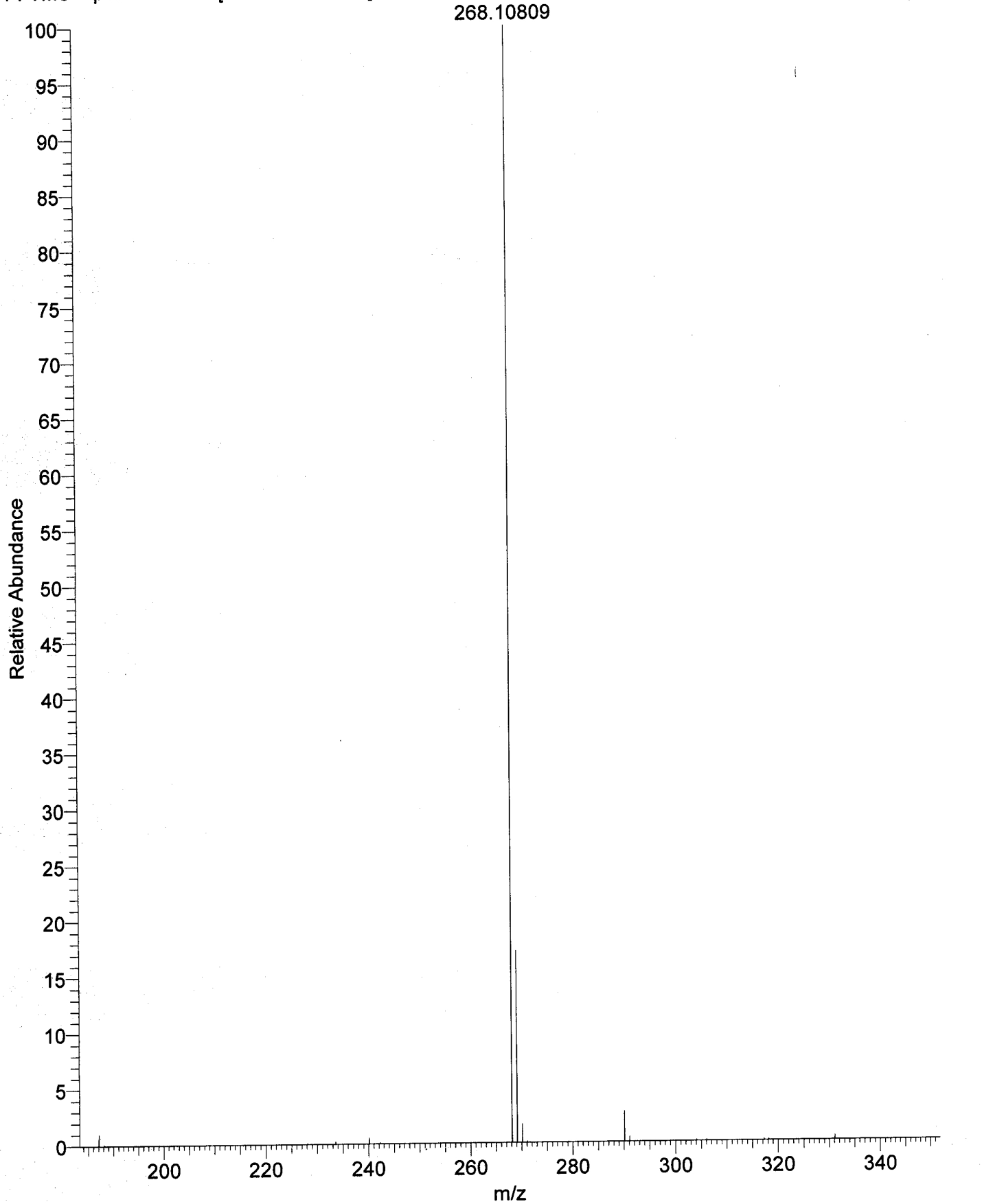
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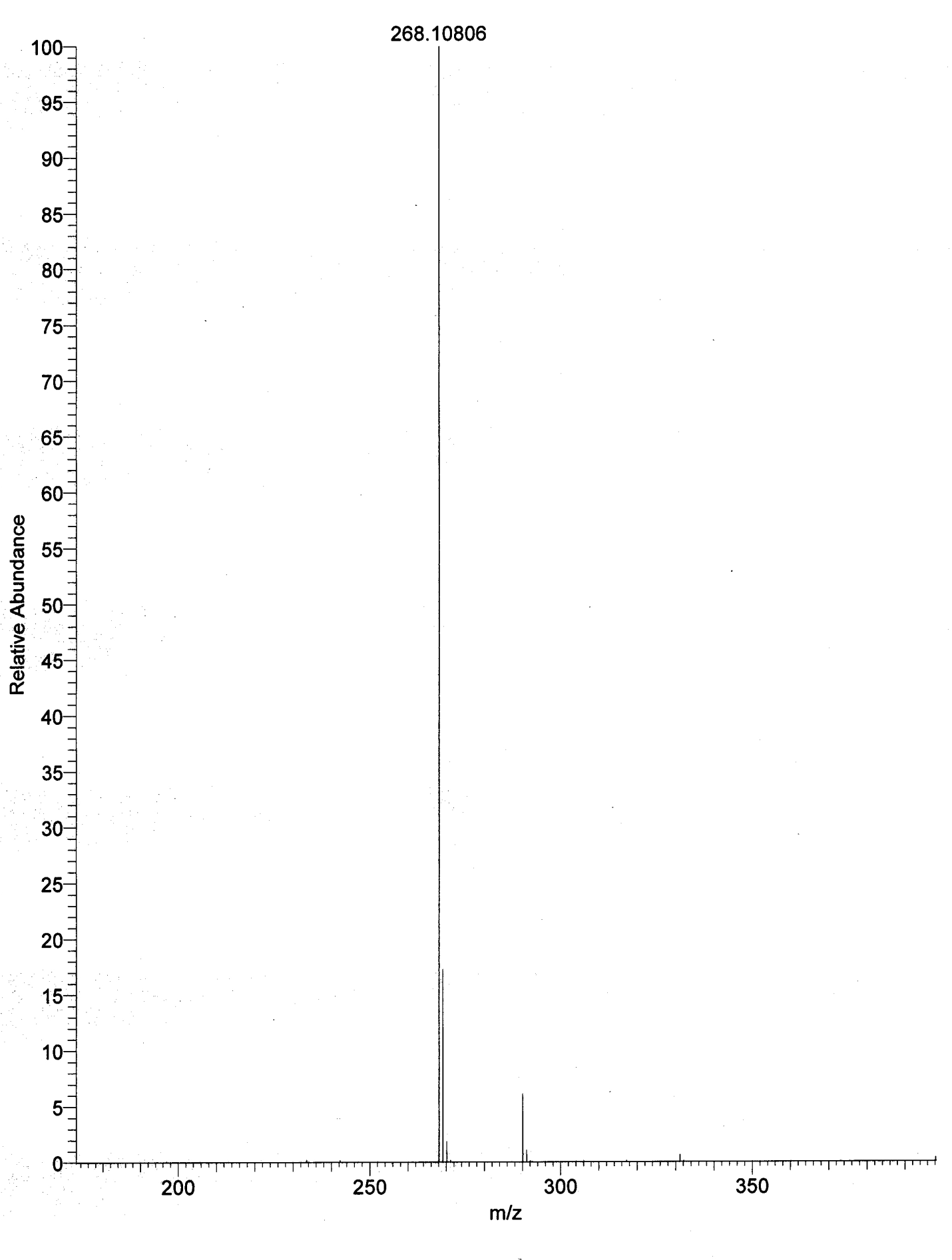
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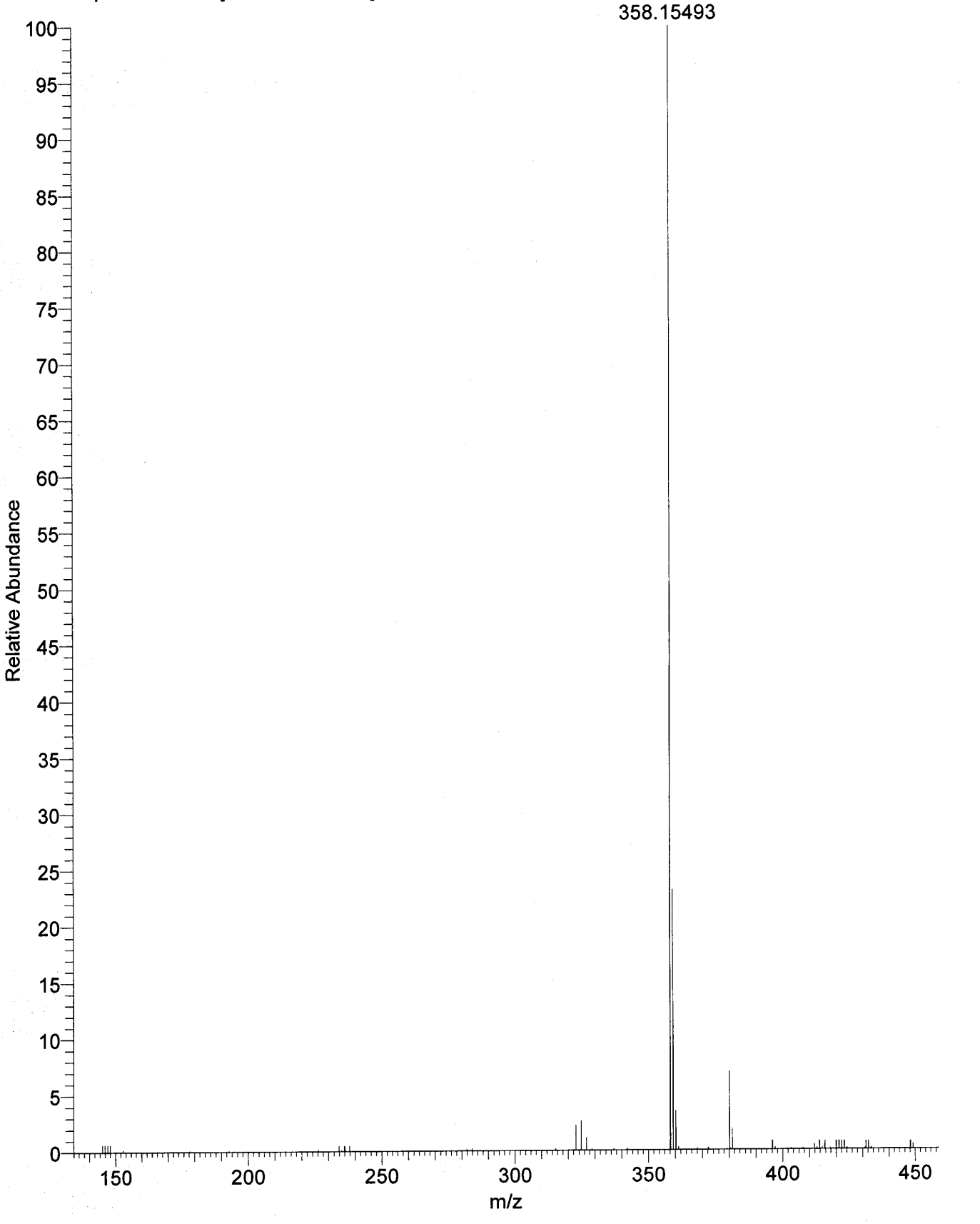
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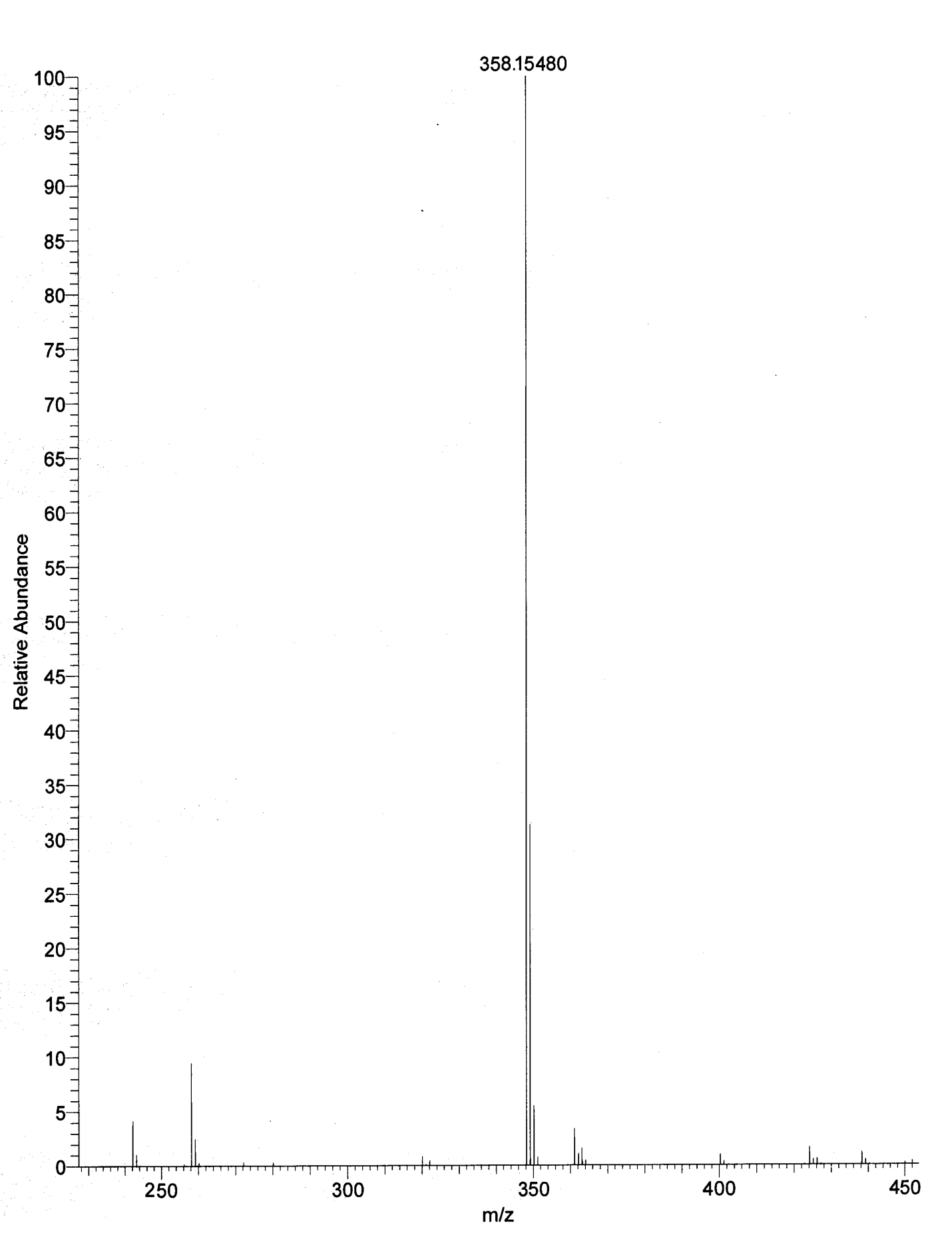
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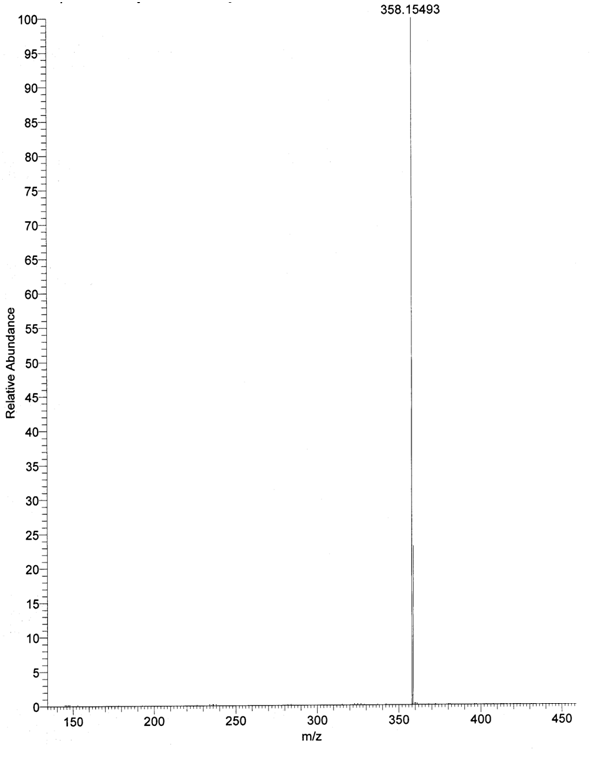
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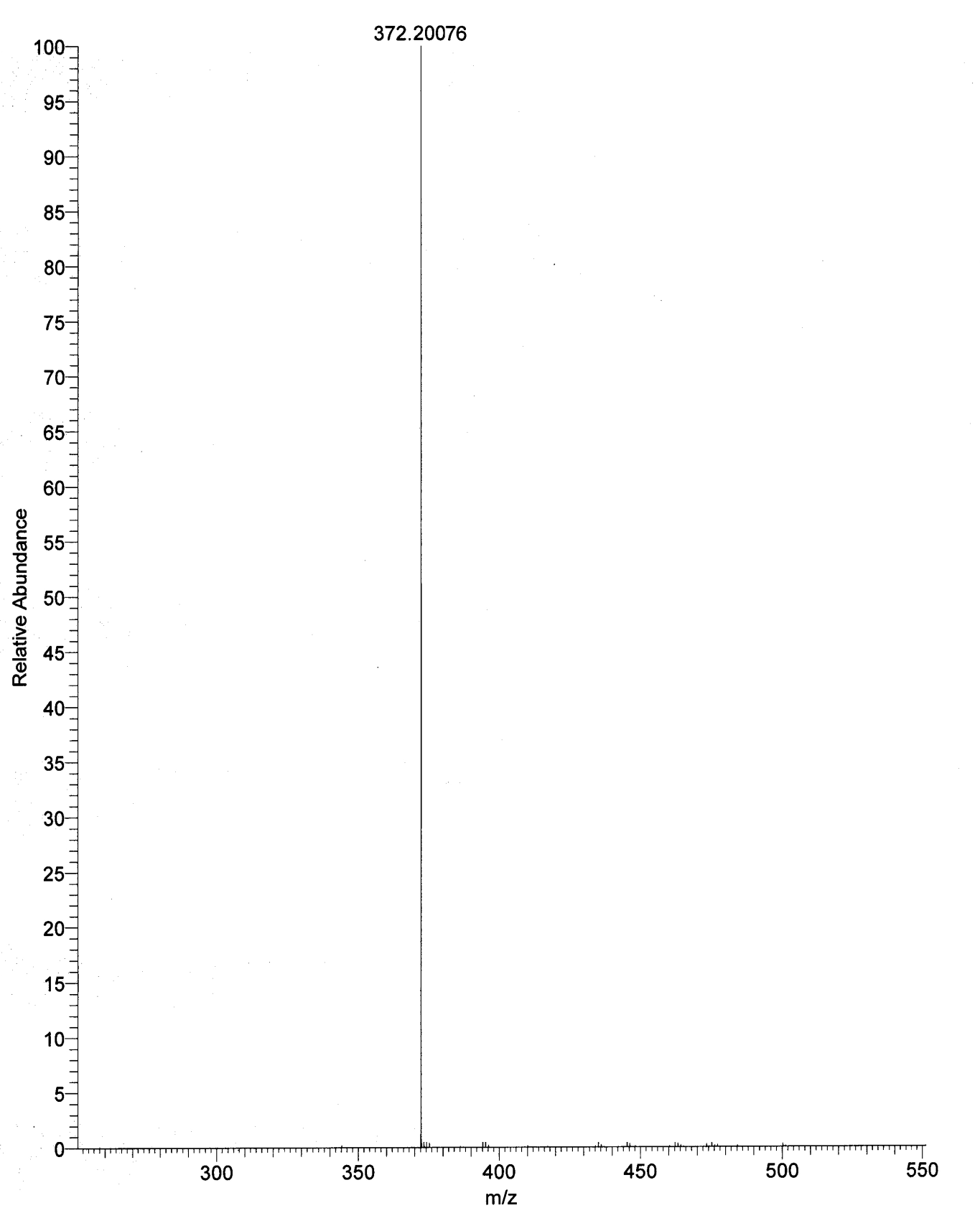
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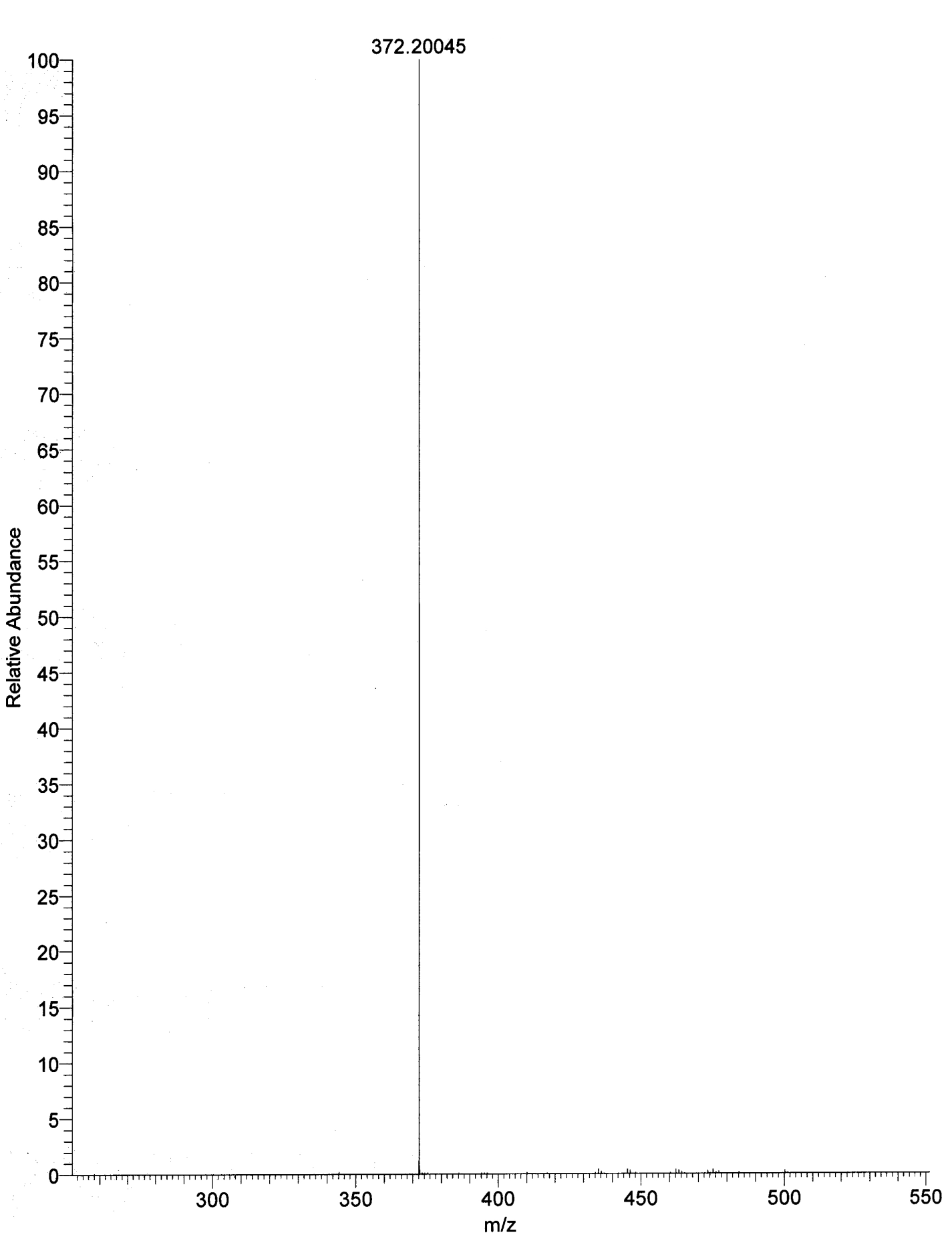
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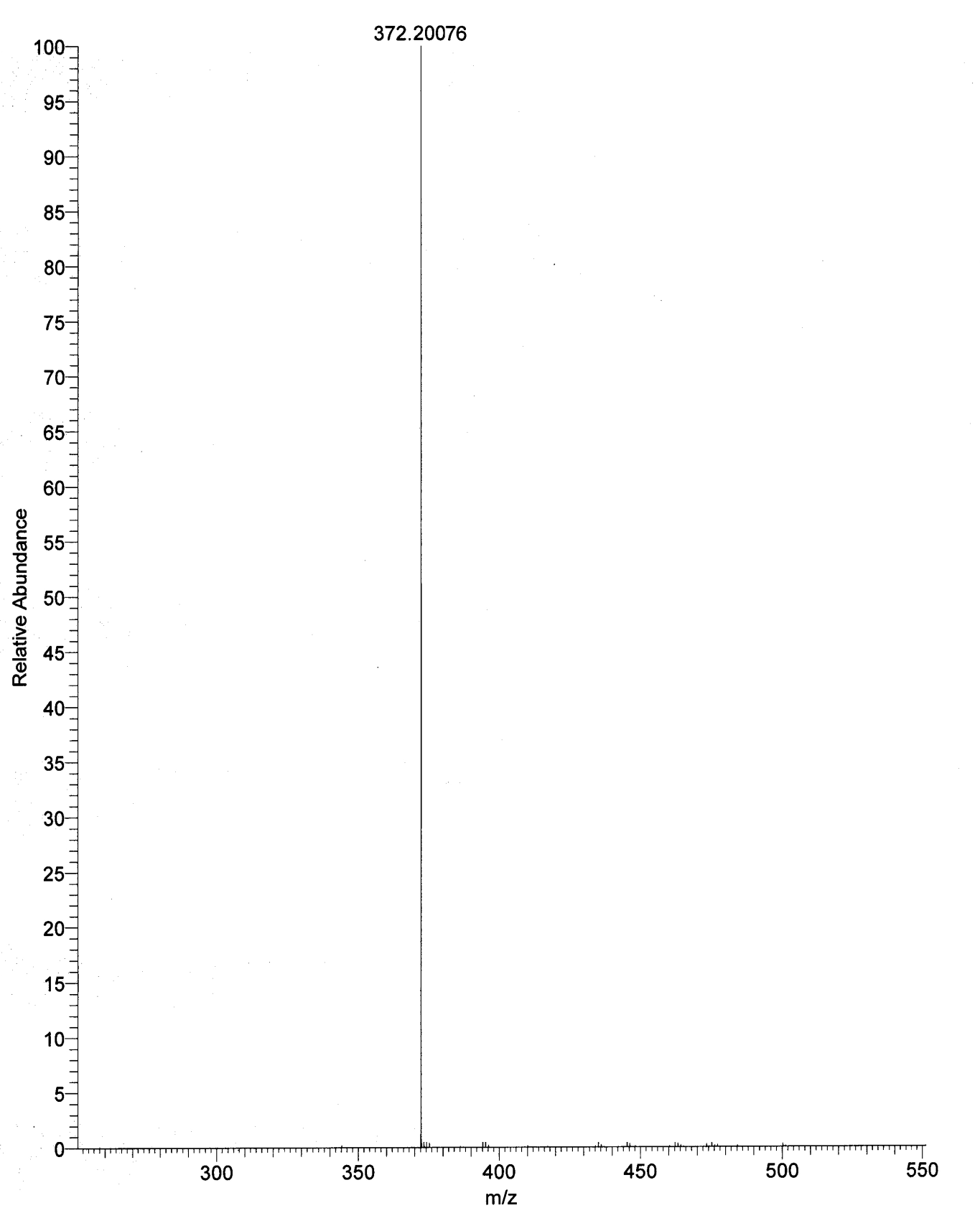
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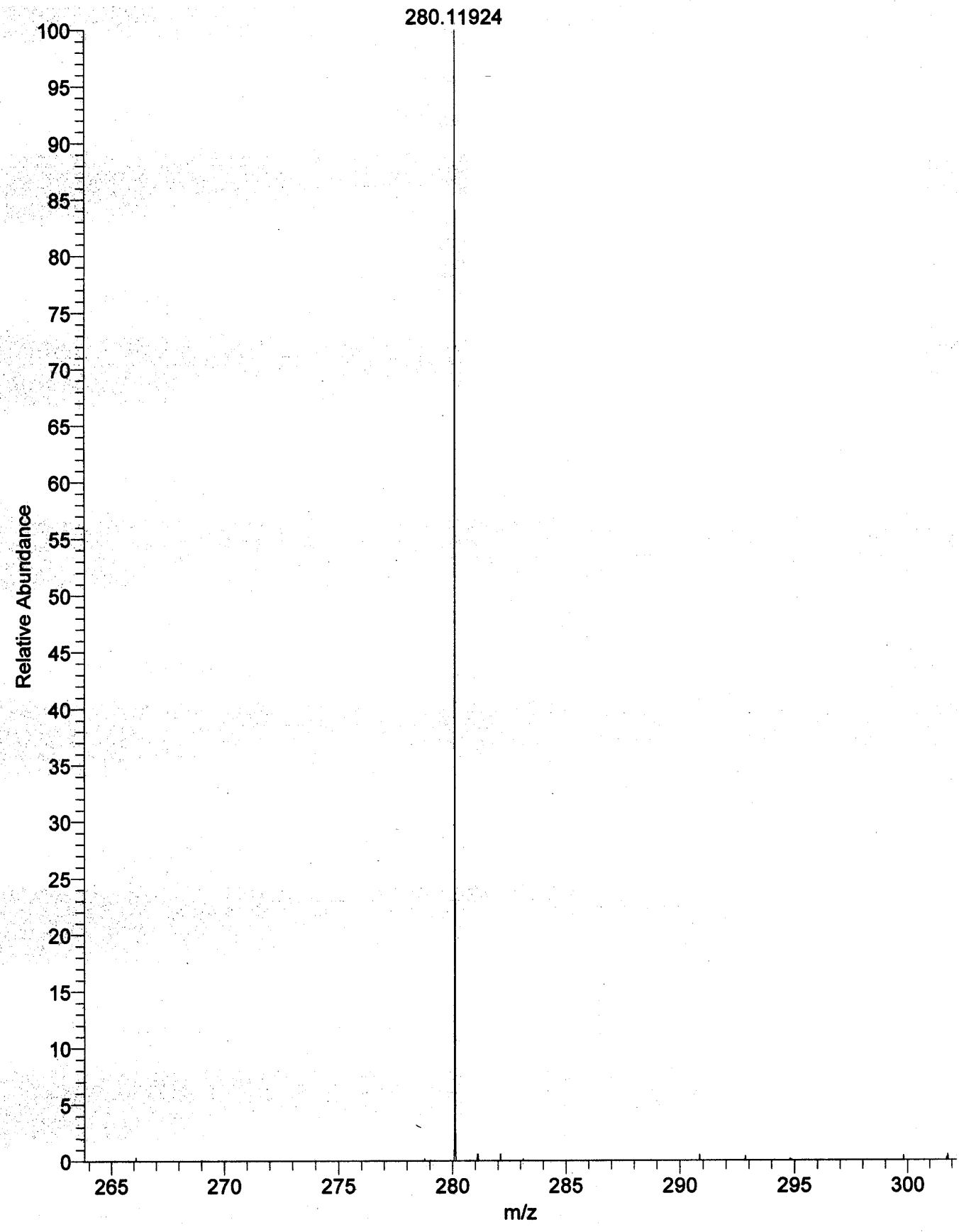
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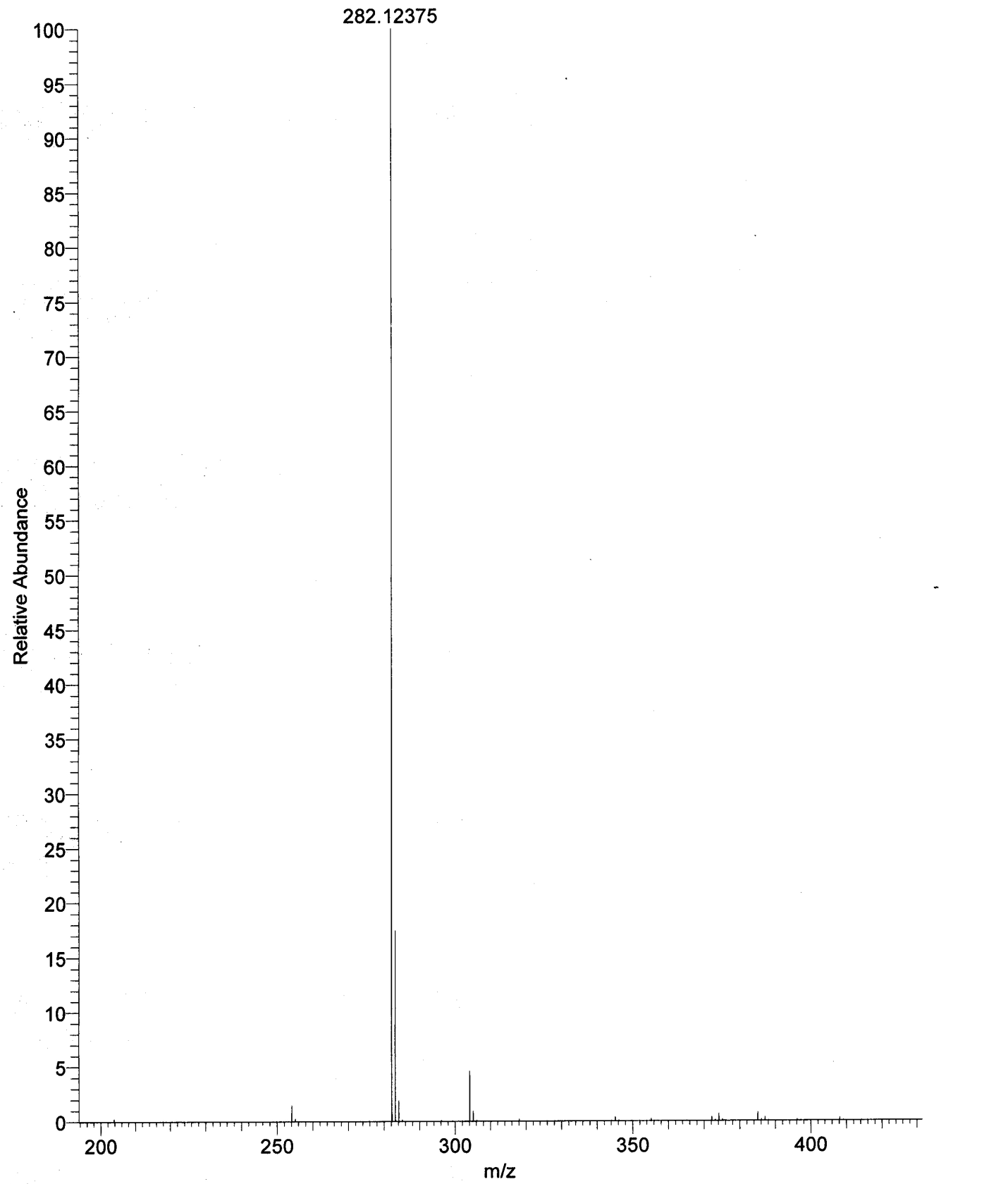
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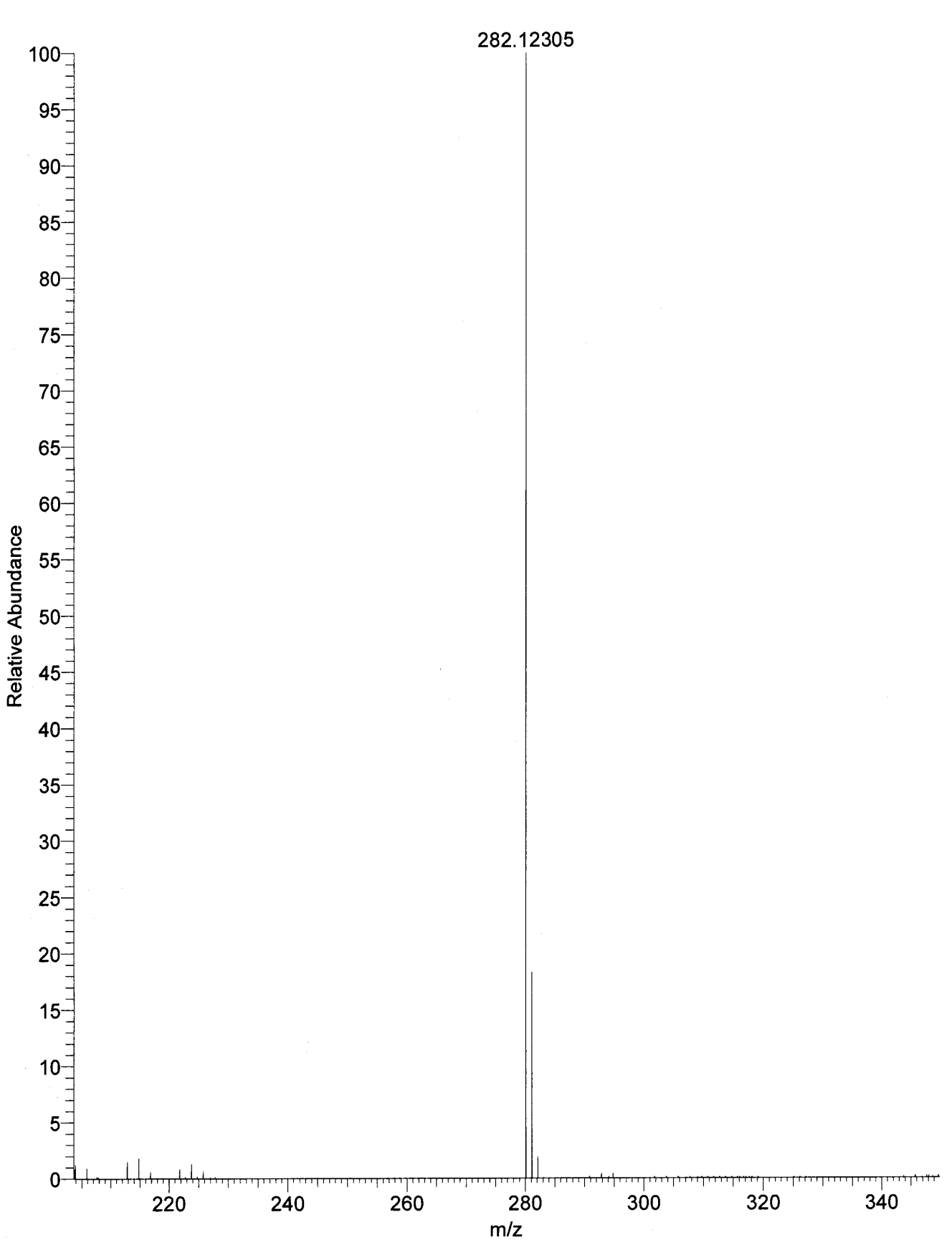
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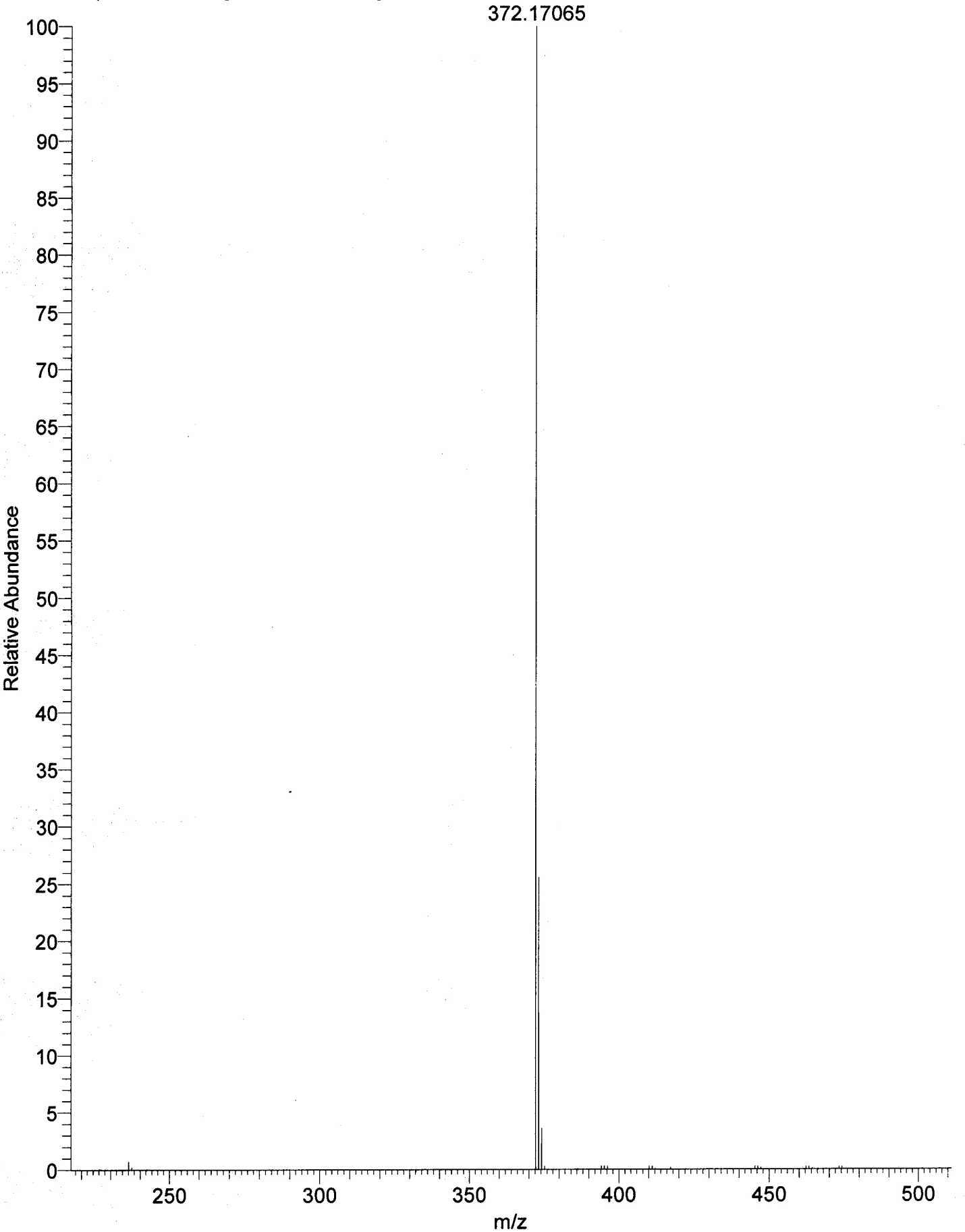
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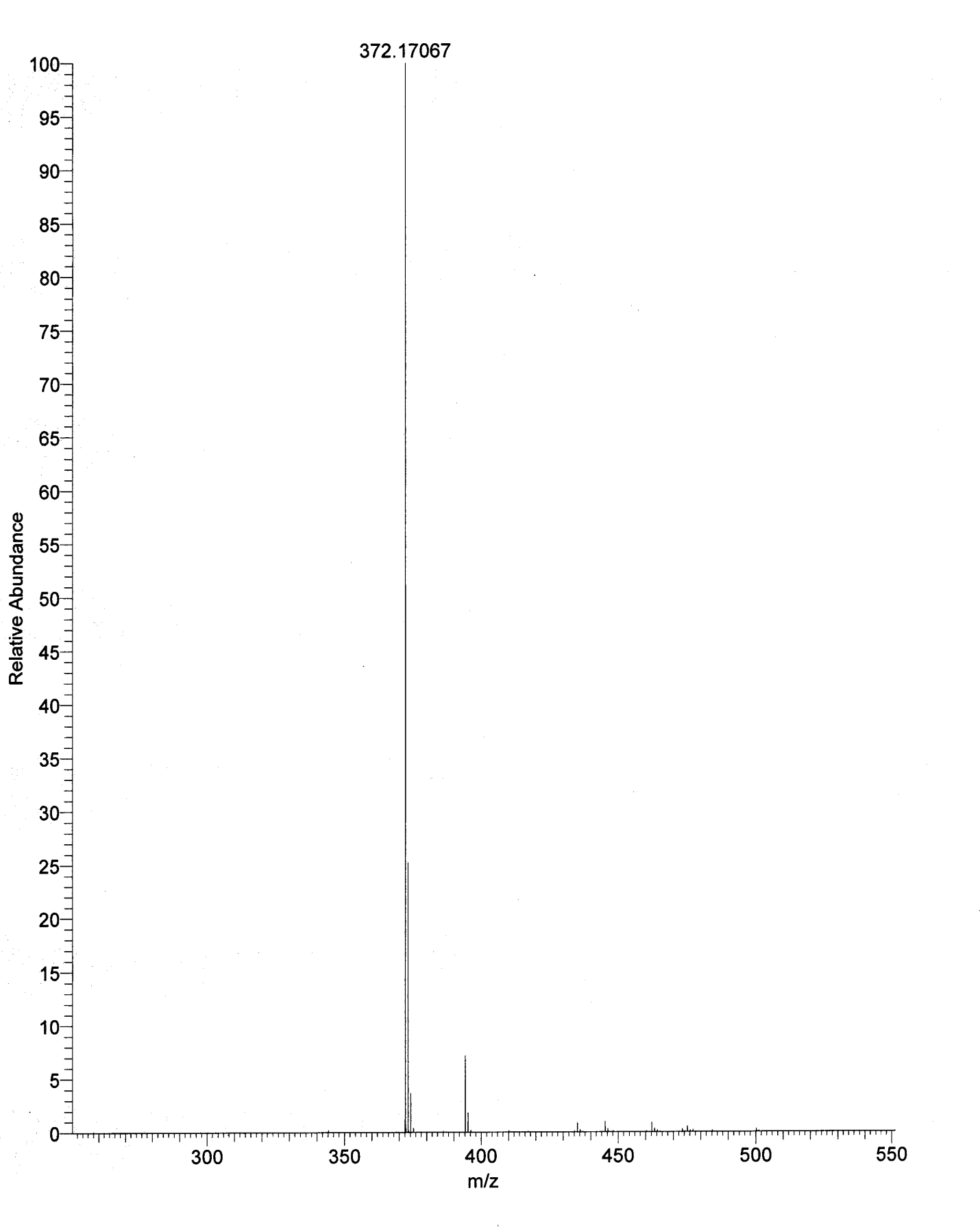
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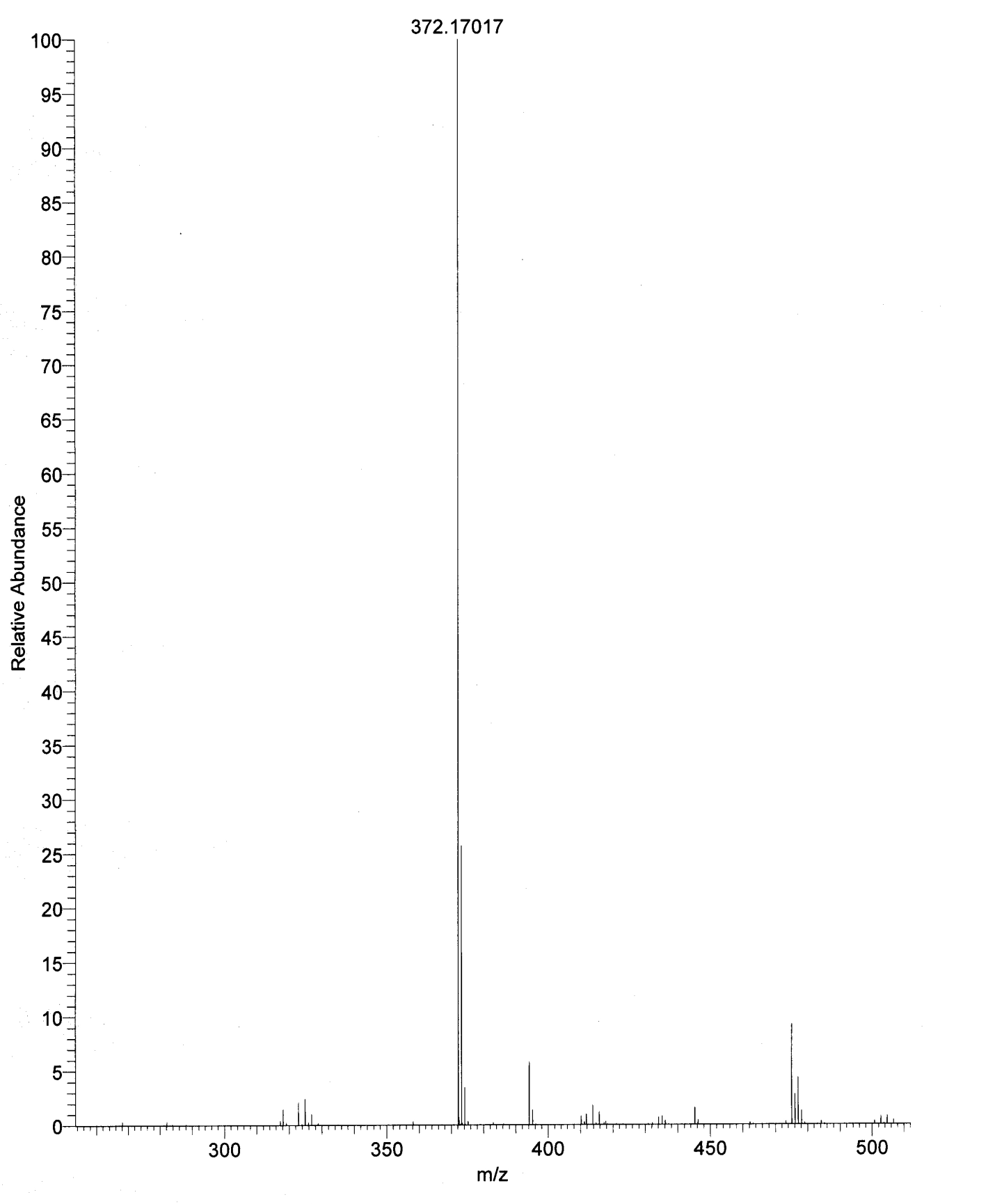
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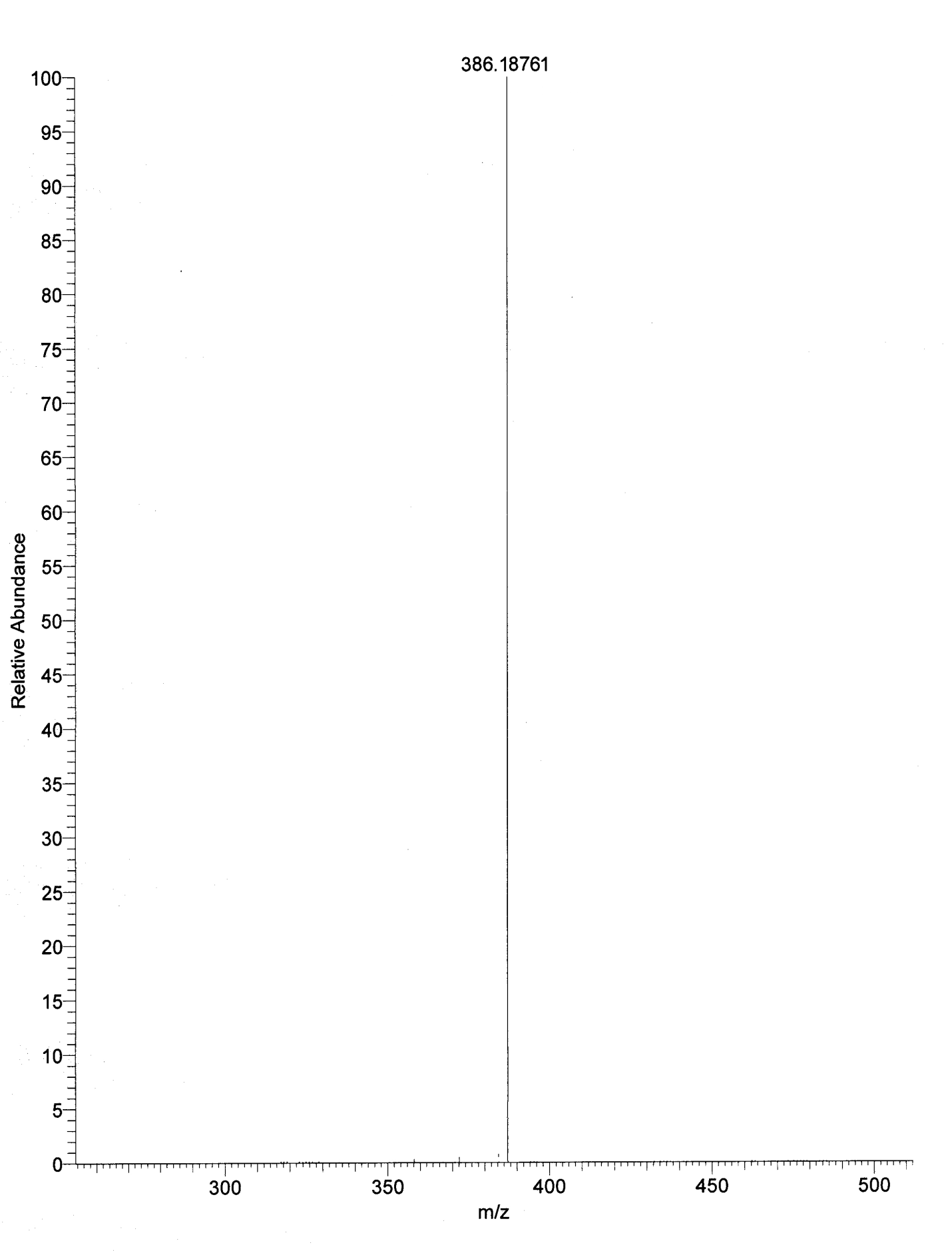
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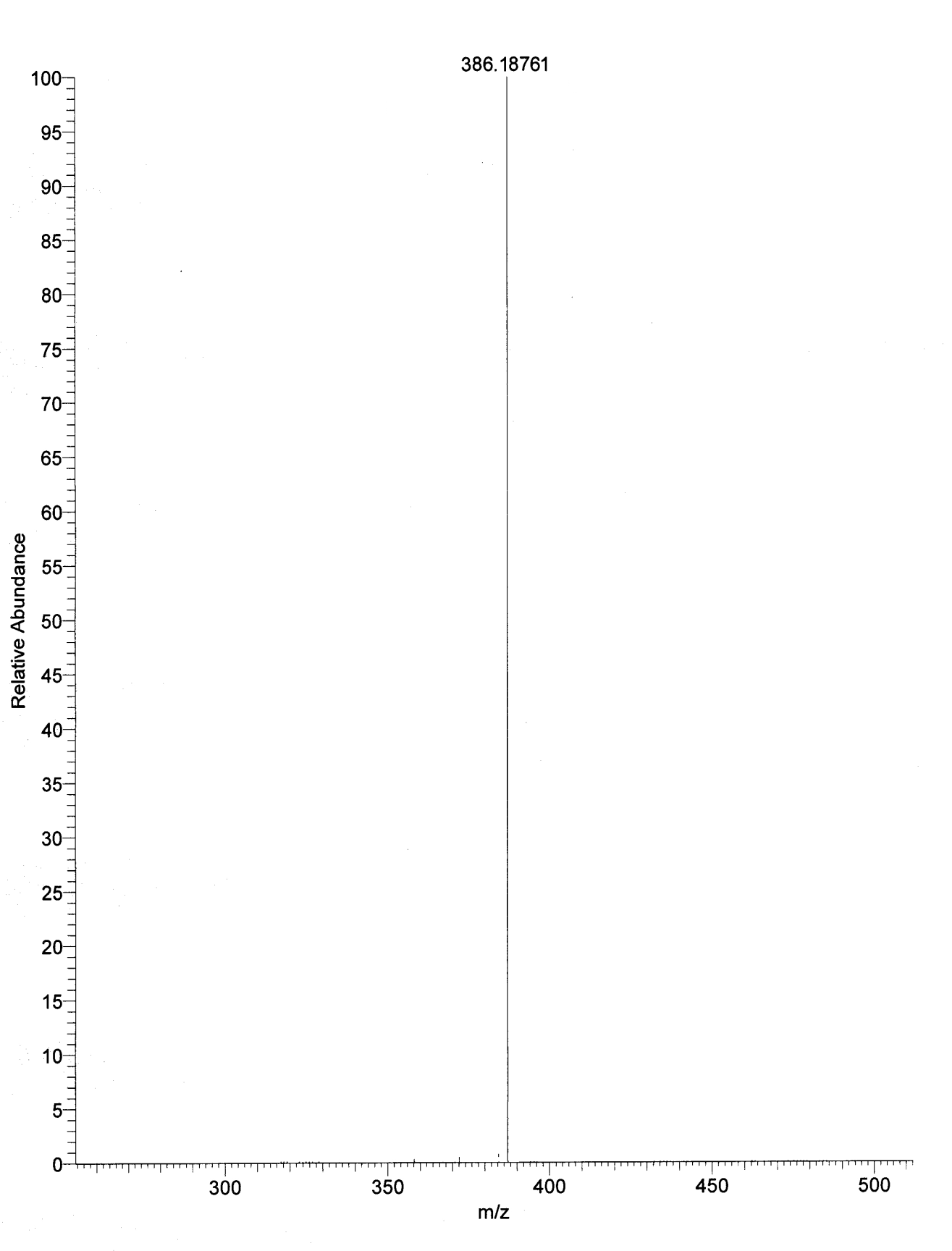
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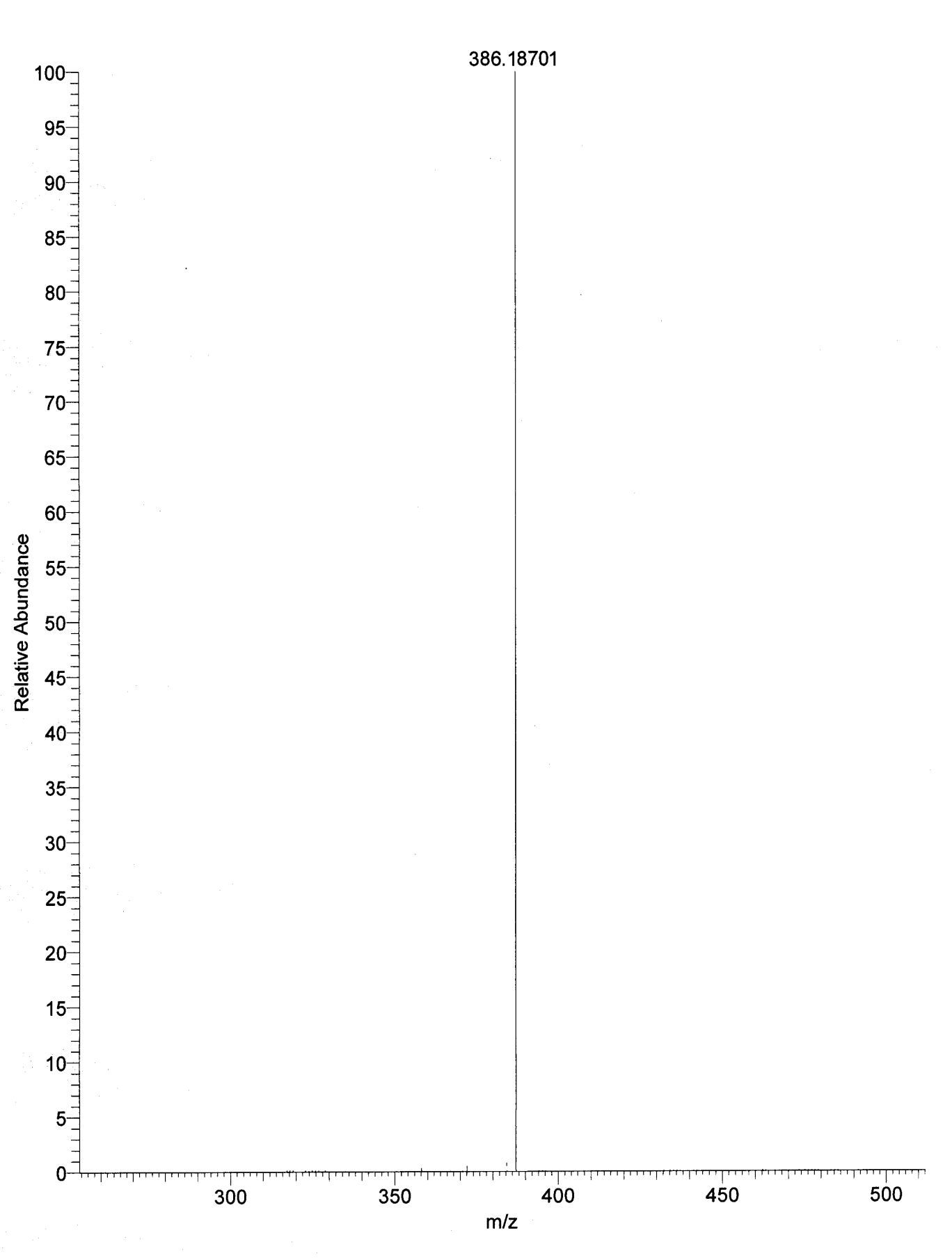
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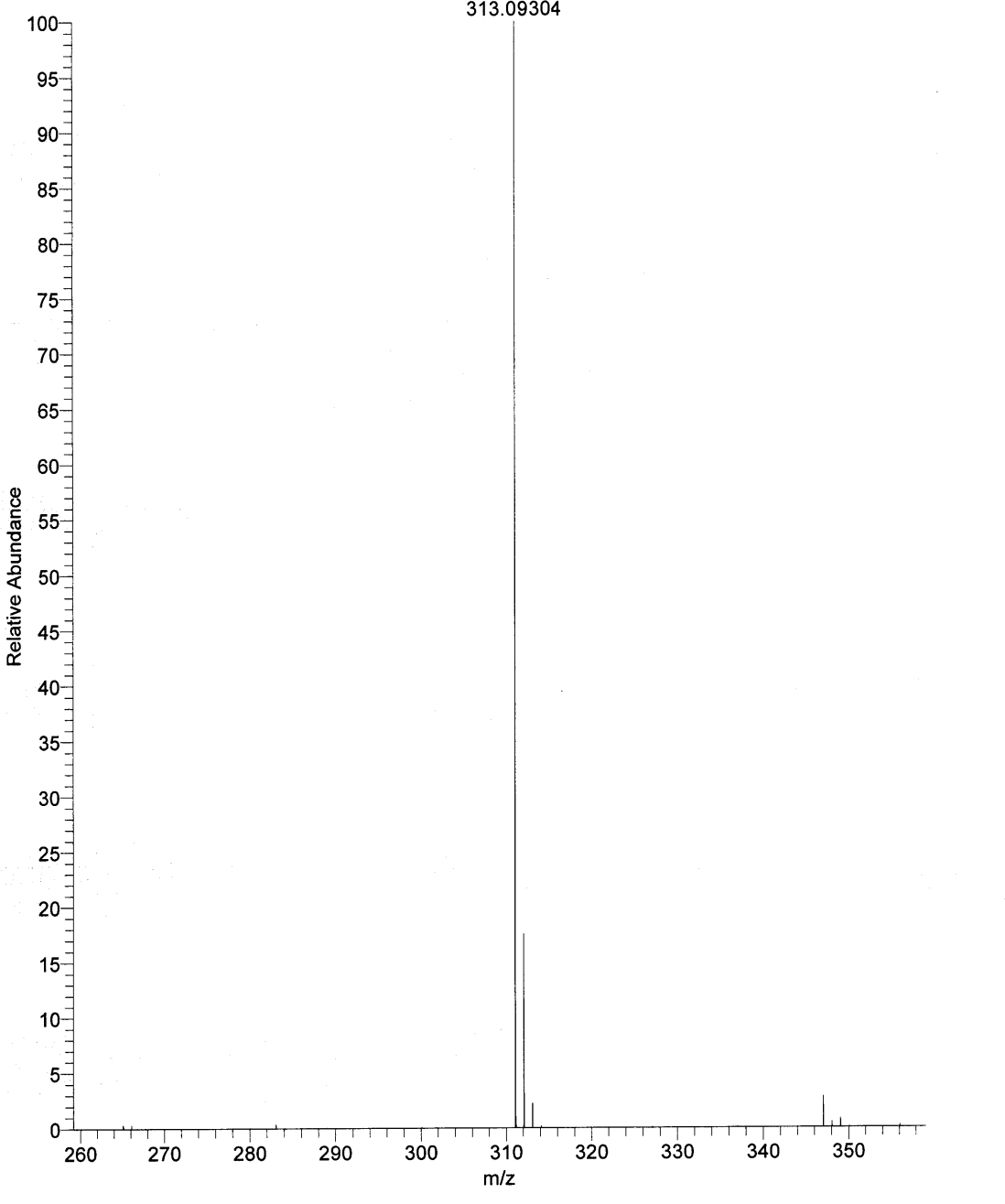
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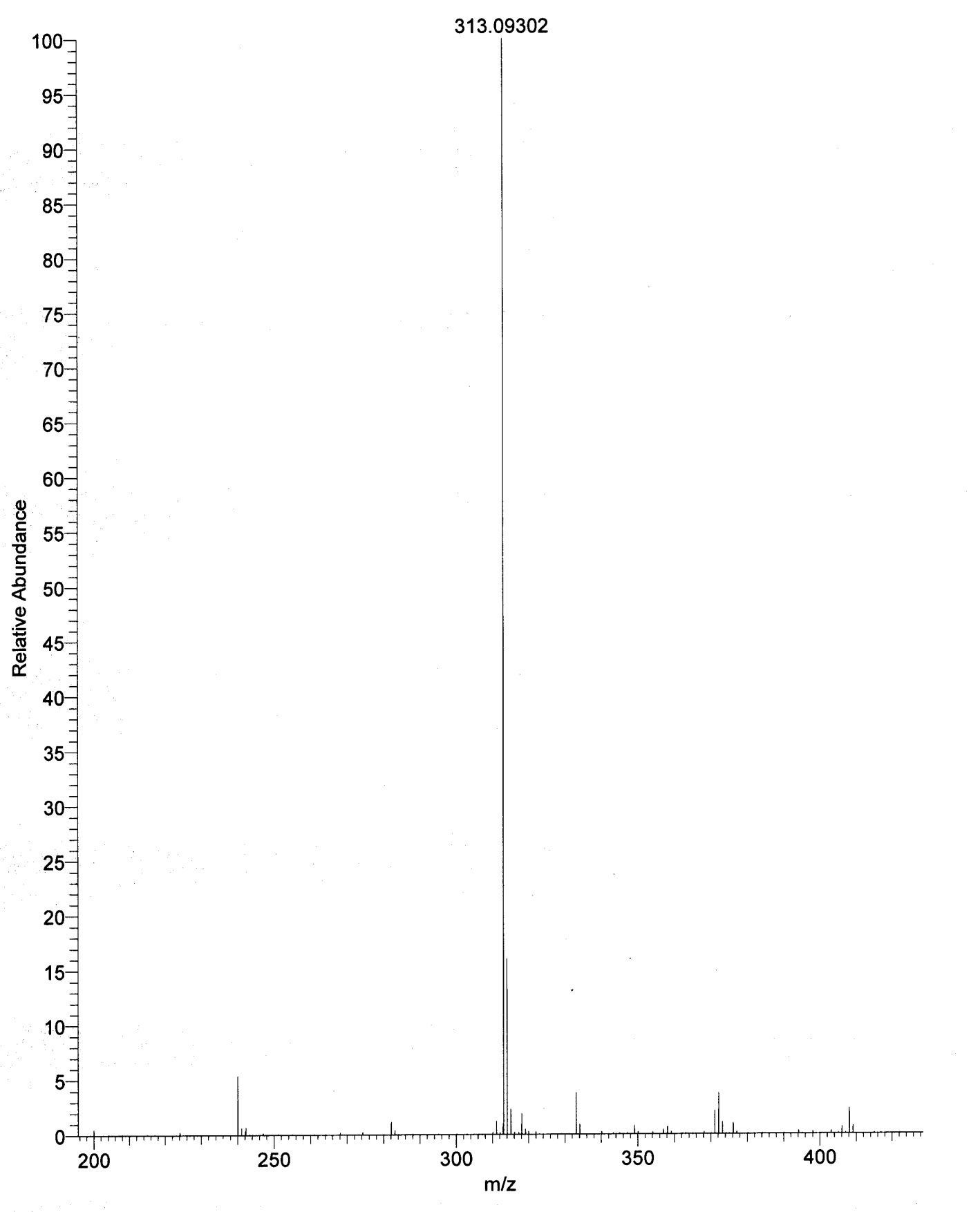
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HRMS: 8r



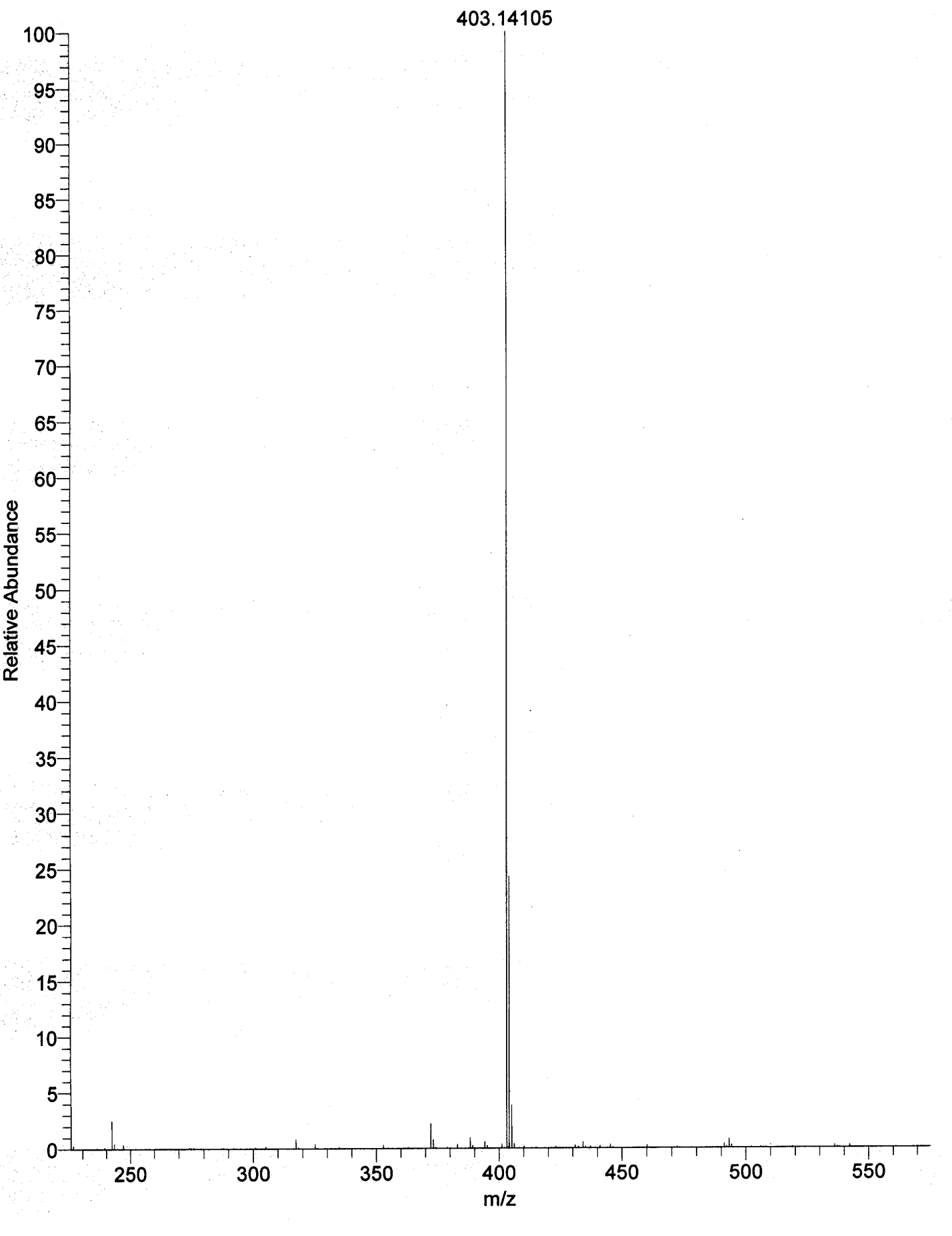
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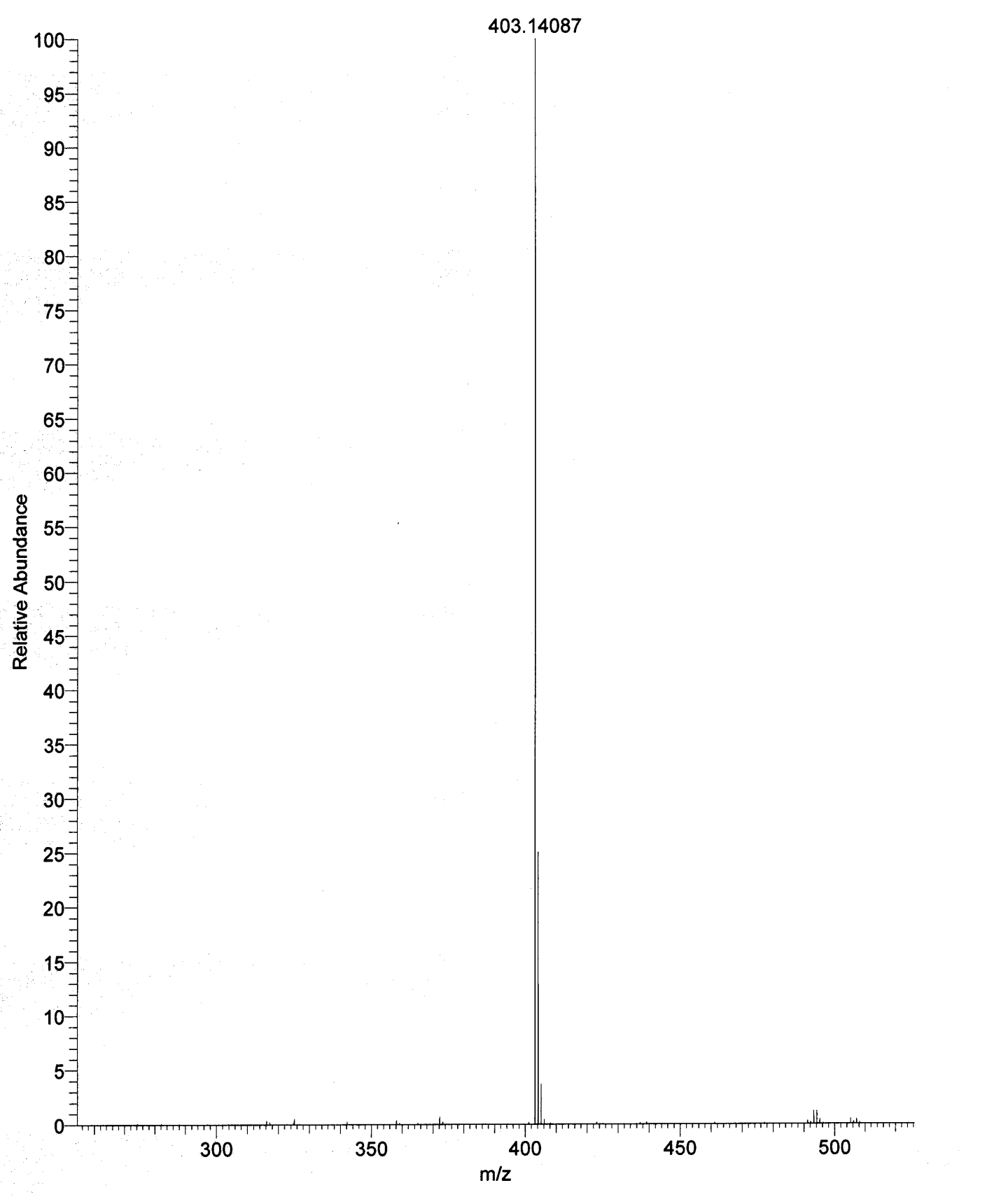
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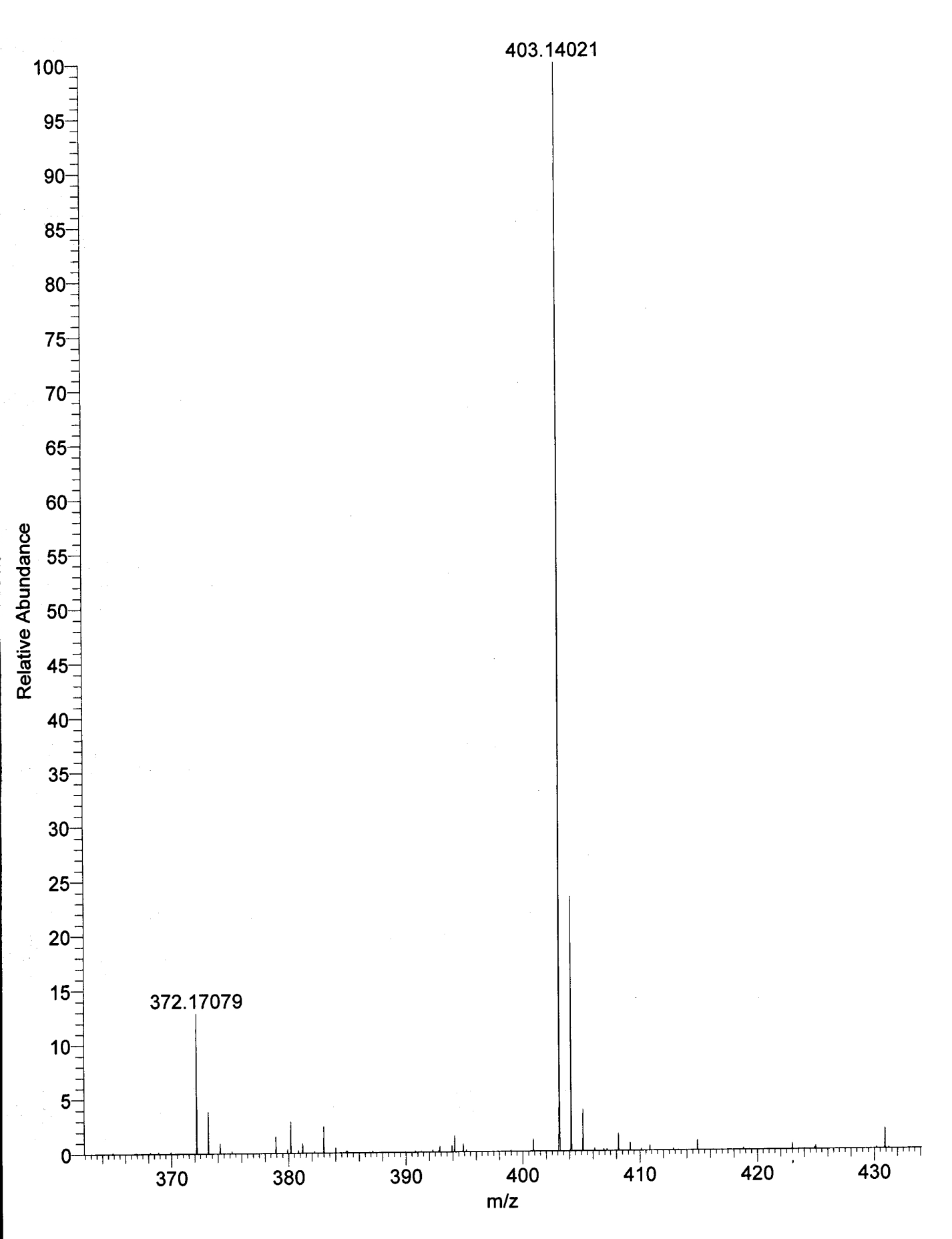
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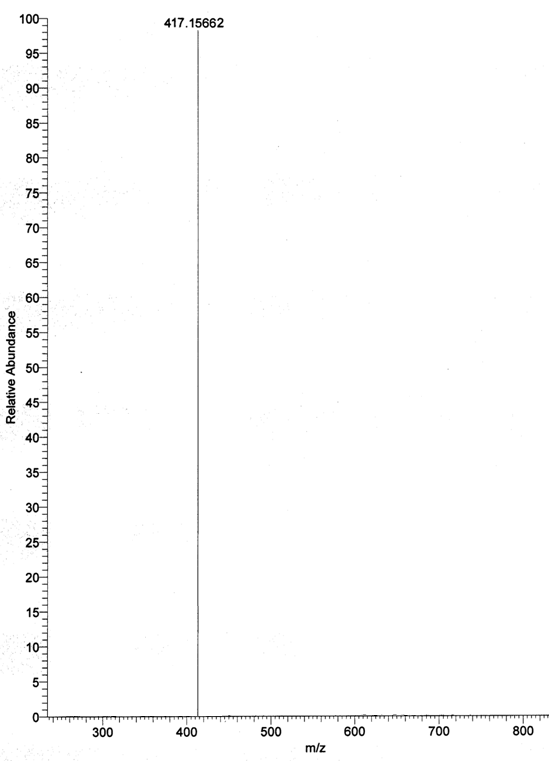
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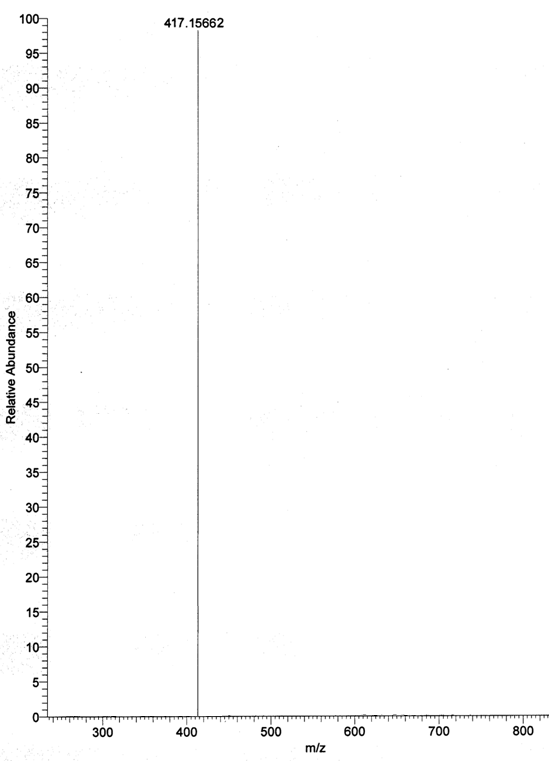
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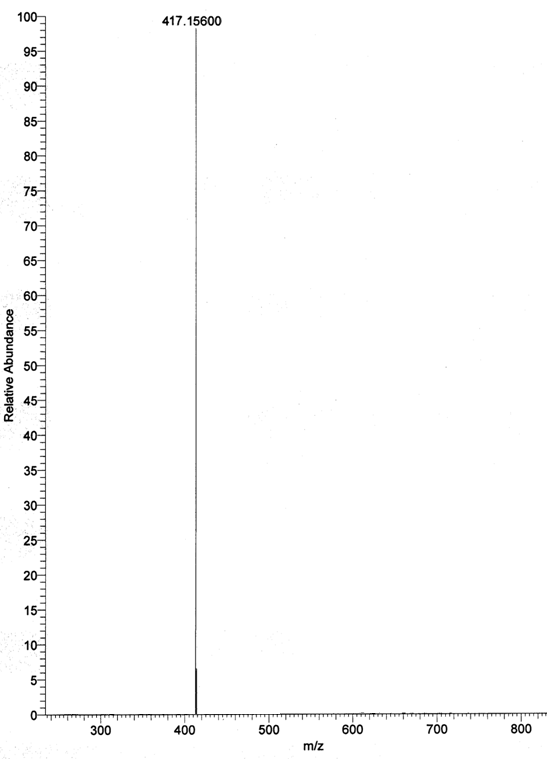
HRMS: 8x



HRMS: 8y



HRMS: 8z



HRMS: 8z1