

SUPPLEMENTARY DATA

Synthesis of *N'*-(4-/3-/2-/non-substituted benzylidene)-4-[(4-methylphenyl)sulfonyloxy] Benzohydrazides and Evaluation of their Inhibitory Activities against Monoamine Oxidases and β -Secretase

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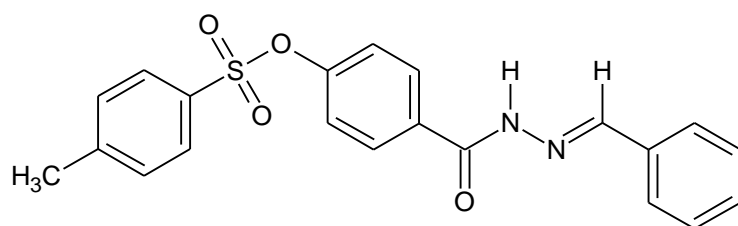
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(*E*)-*N'*-(Phenylmethylidene)-4-[(4-methylphenyl)sulfonyloxy]benzohydrazide (**3a**)



Lab Code: EP-T-H

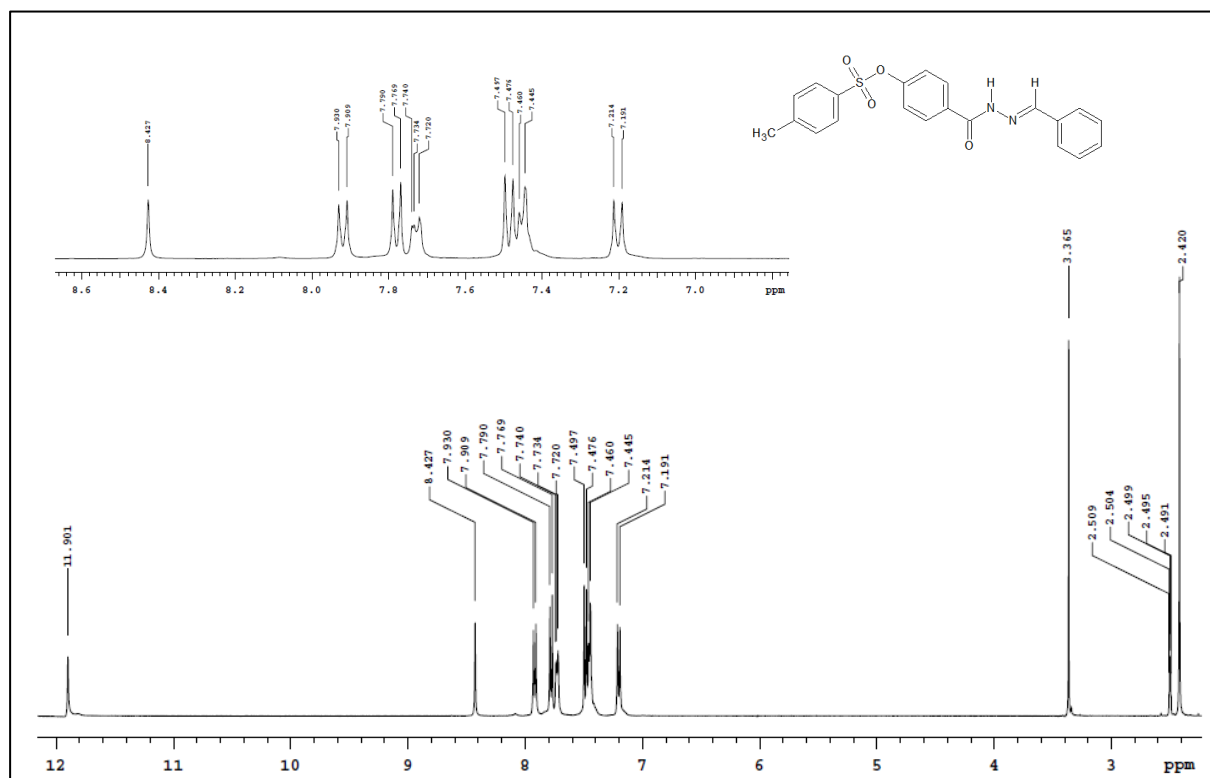


Figure S1. Compound **3a** ¹H-NMR spectrum (DMSO-d₆, 400 MHz).

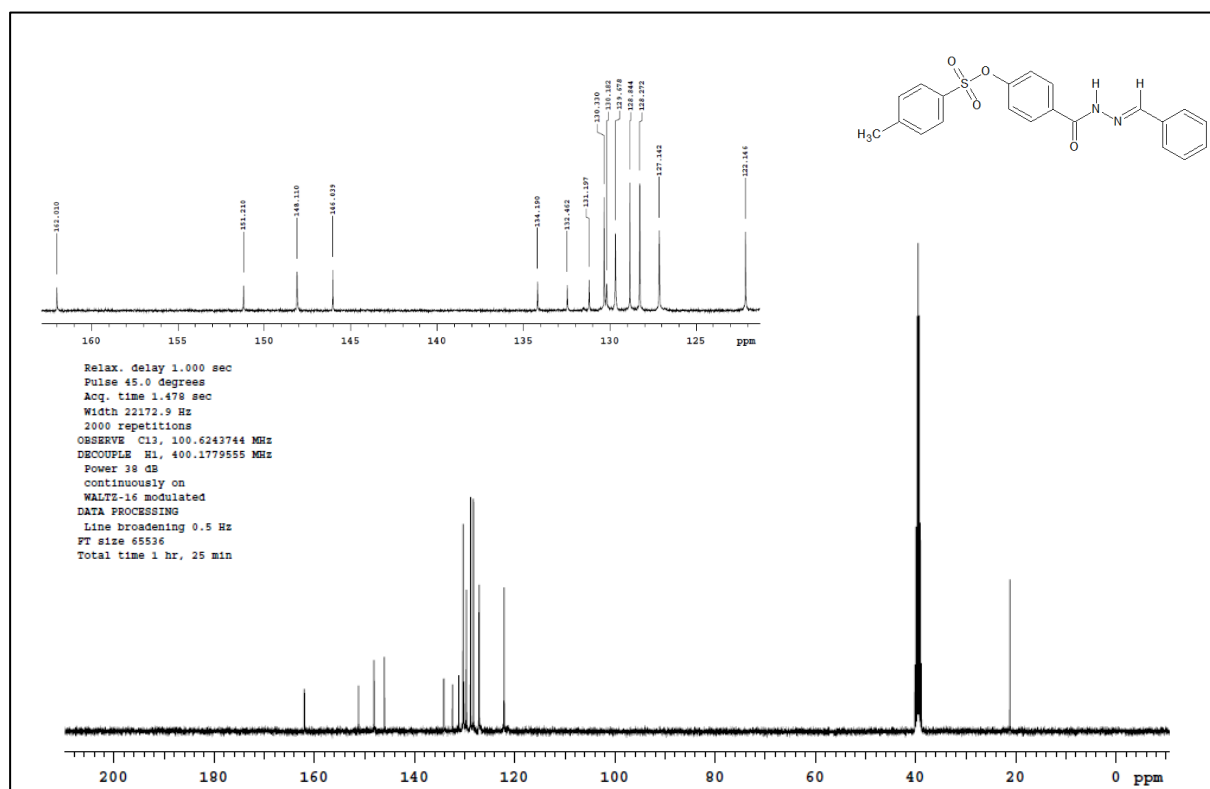


Figure S2. Compound **3a** ¹³C-NMR spectrum (DMSO-d₆, 100 MHz).

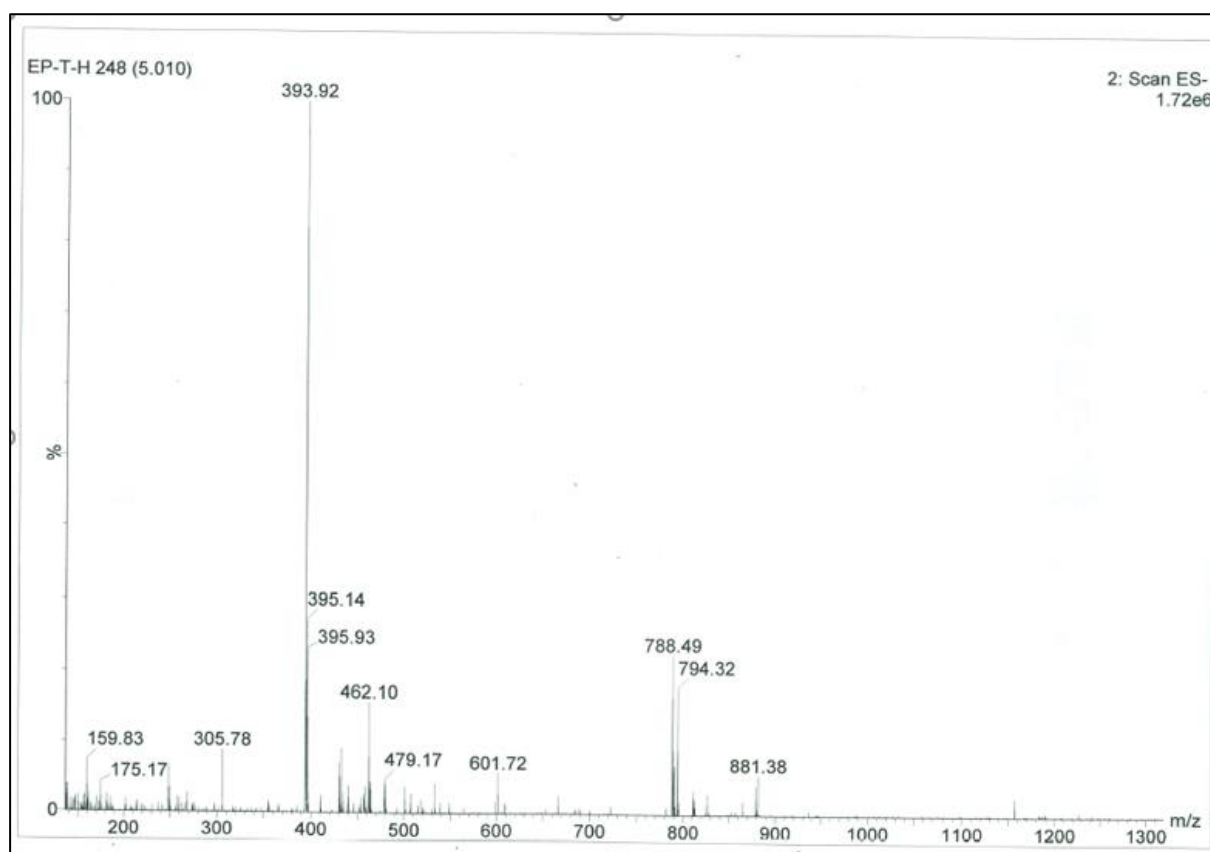


Figure S3. Compound **3a** ESI MS spectrum.

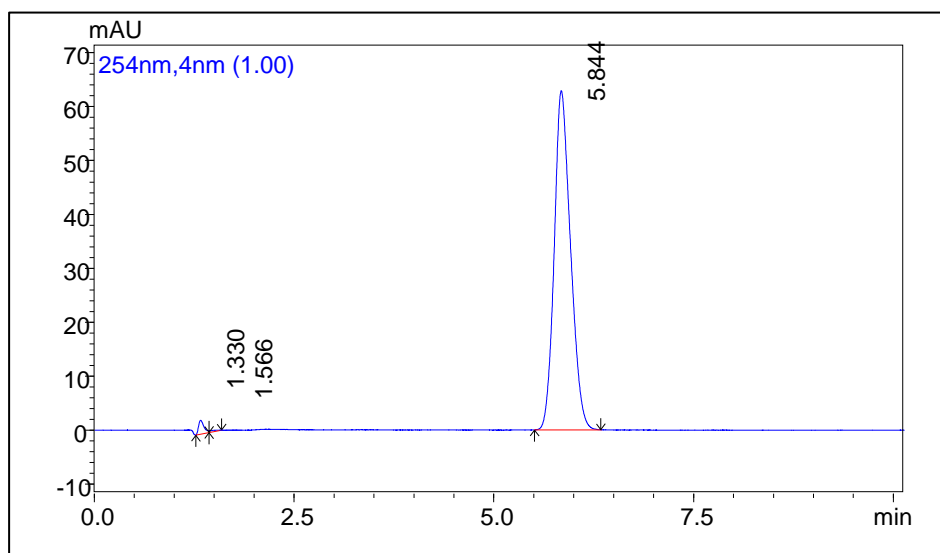
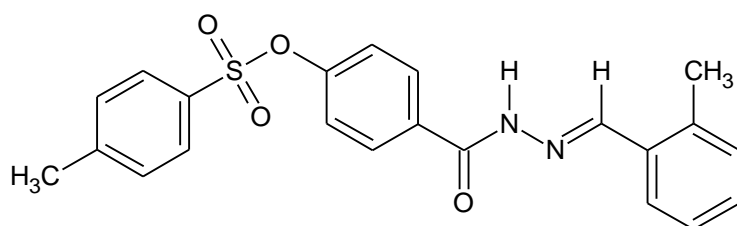


Figure S4. Chromatogram of compound **3a** (28 $\mu\text{g/mL}$) recorded under optimized conditions.

(*E*)-*N'*-[(2-Methylphenyl)methylidene]-4-[(4-methylphenyl)sulfonyloxy]benzohydrazide (**3b**)



Lab Code: EP-T-2M

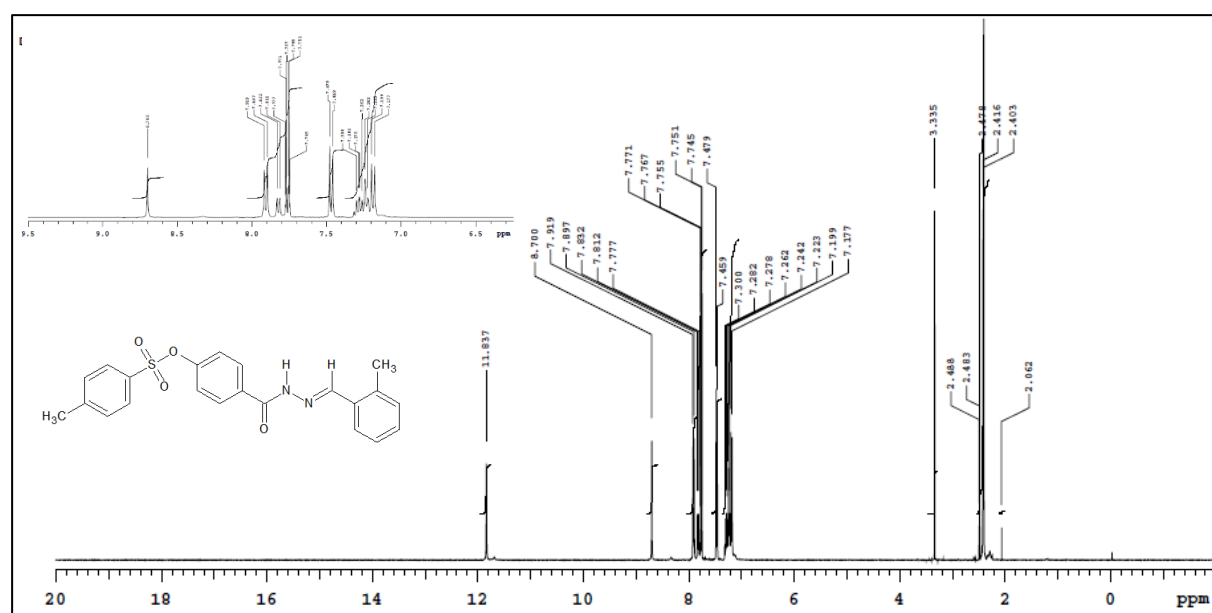


Figure S5. Compound **3b** ^1H -NMR spectrum (DMSO- d_6 , 400 MHz).

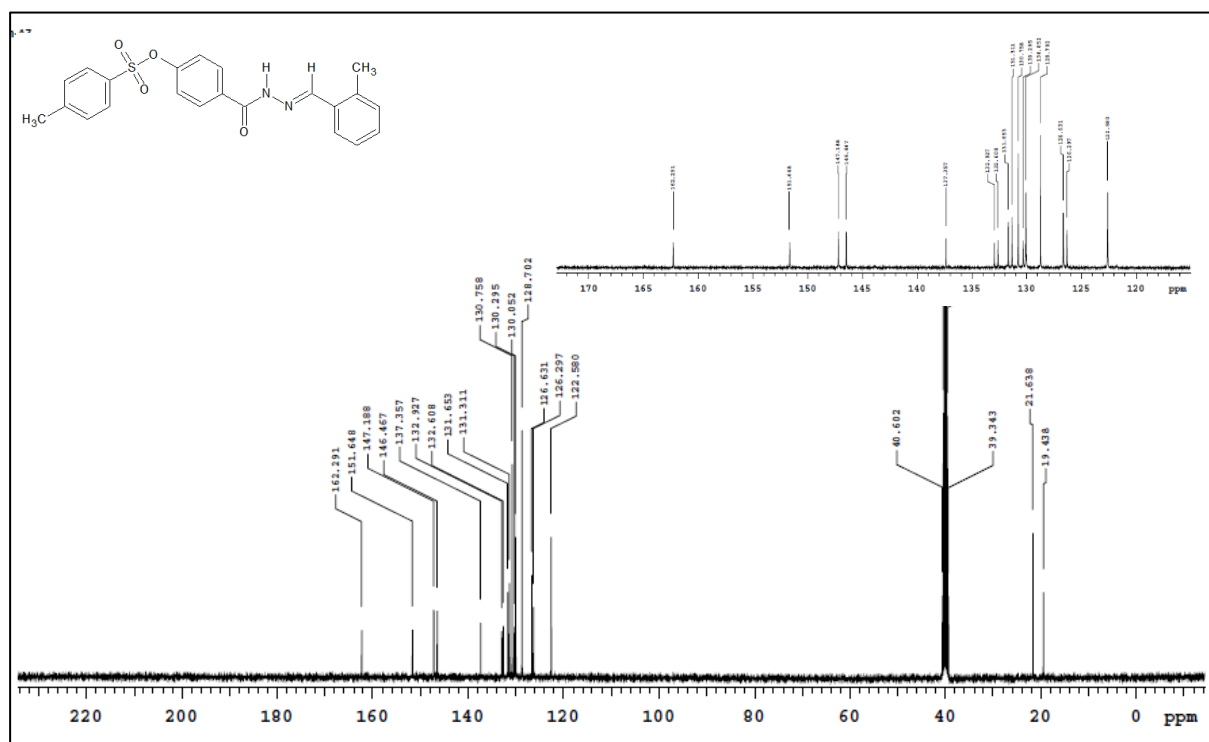


Figure S6. Compound **3b** ¹³C-NMR spectrum (DMSO-d₆, 100 MHz).

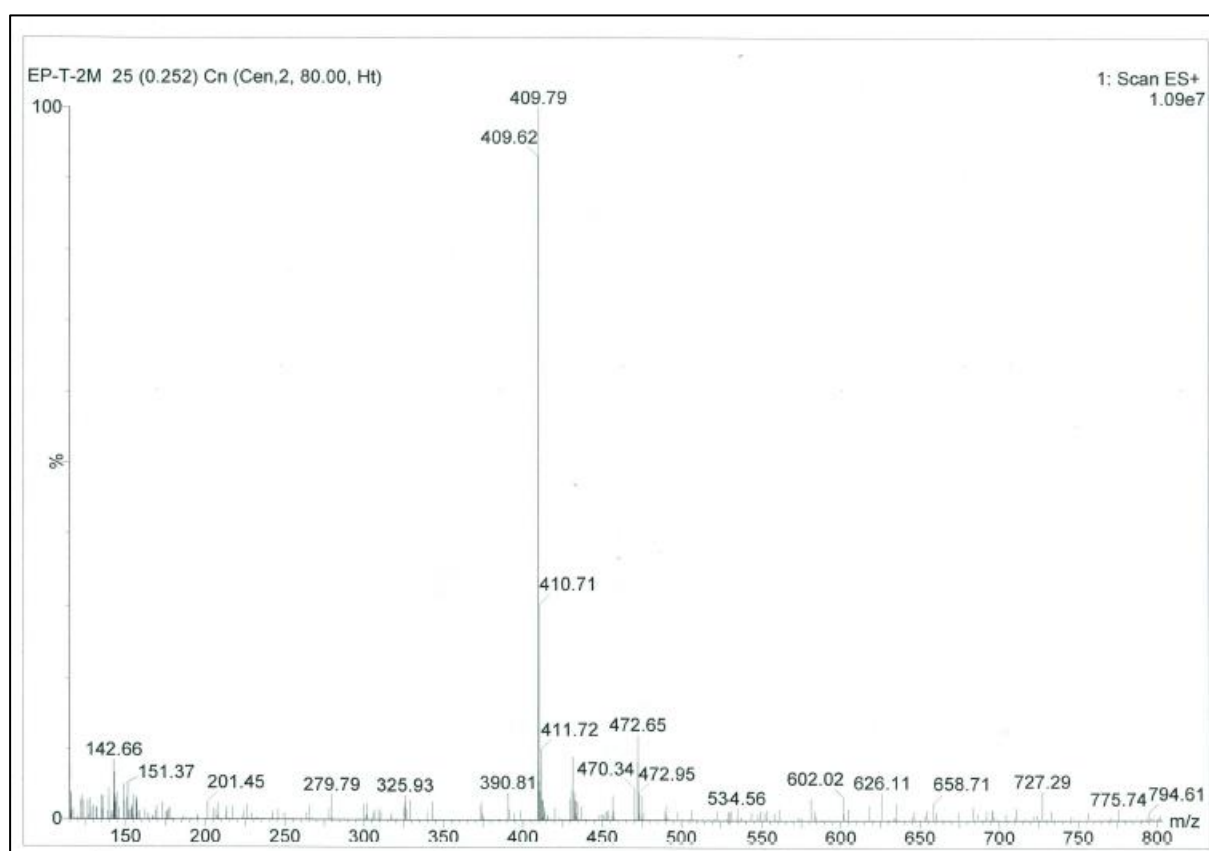


Figure S7. Compound **3b** ESI MS spectrum.

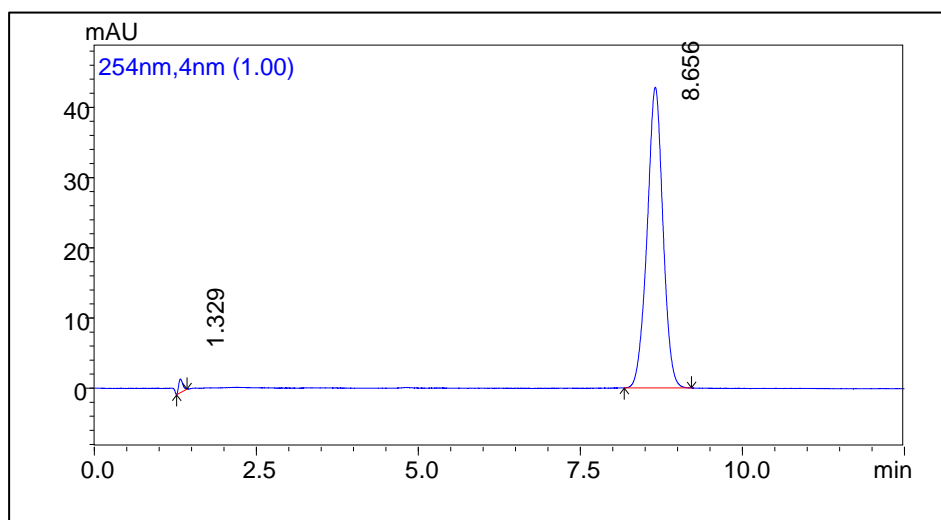
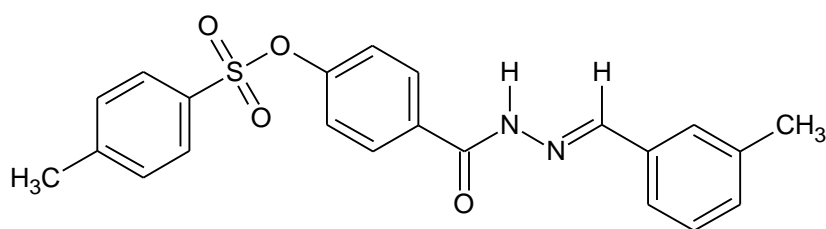


Figure S8. Chromatogram of compound **3b** (52 $\mu\text{g/mL}$) recorded under optimized conditions.

(*E*)-*N'*-[(3-Methylphenyl)methylidene]-4-[(4-methylphenyl)sulfonyloxy]benzohydrazide (**3c**)



Lab Code: EP-T-3M

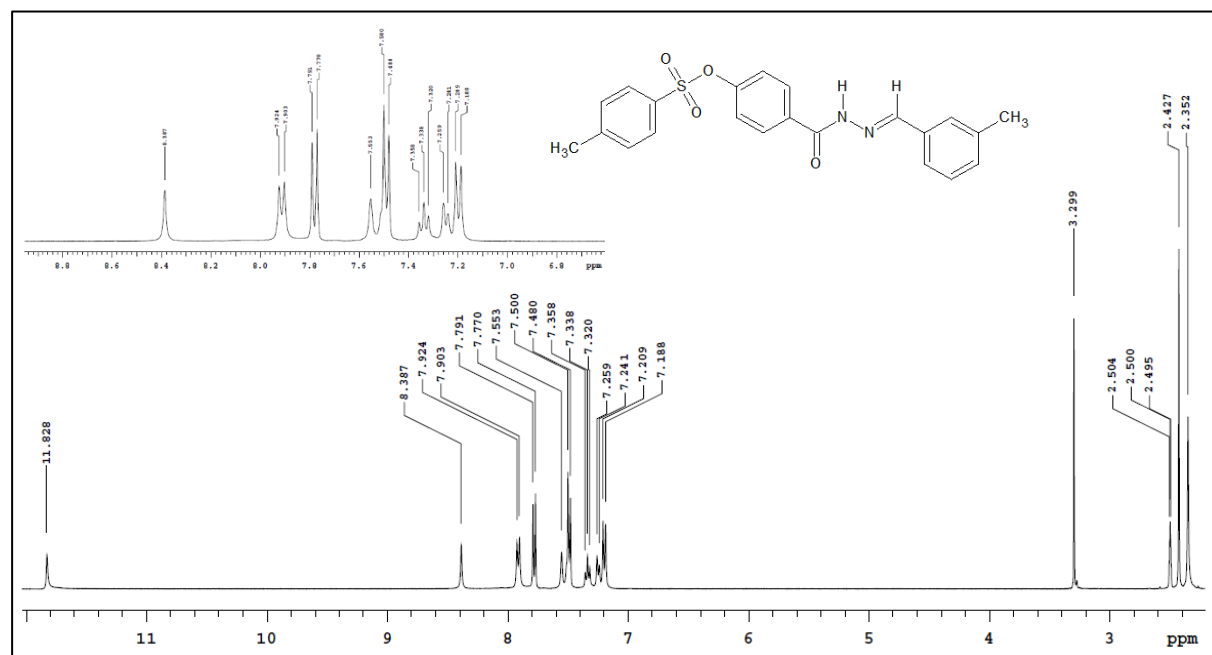


Figure S9. Compound **3c** ^1H -NMR spectrum (DMSO- d_6 , 400 MHz).

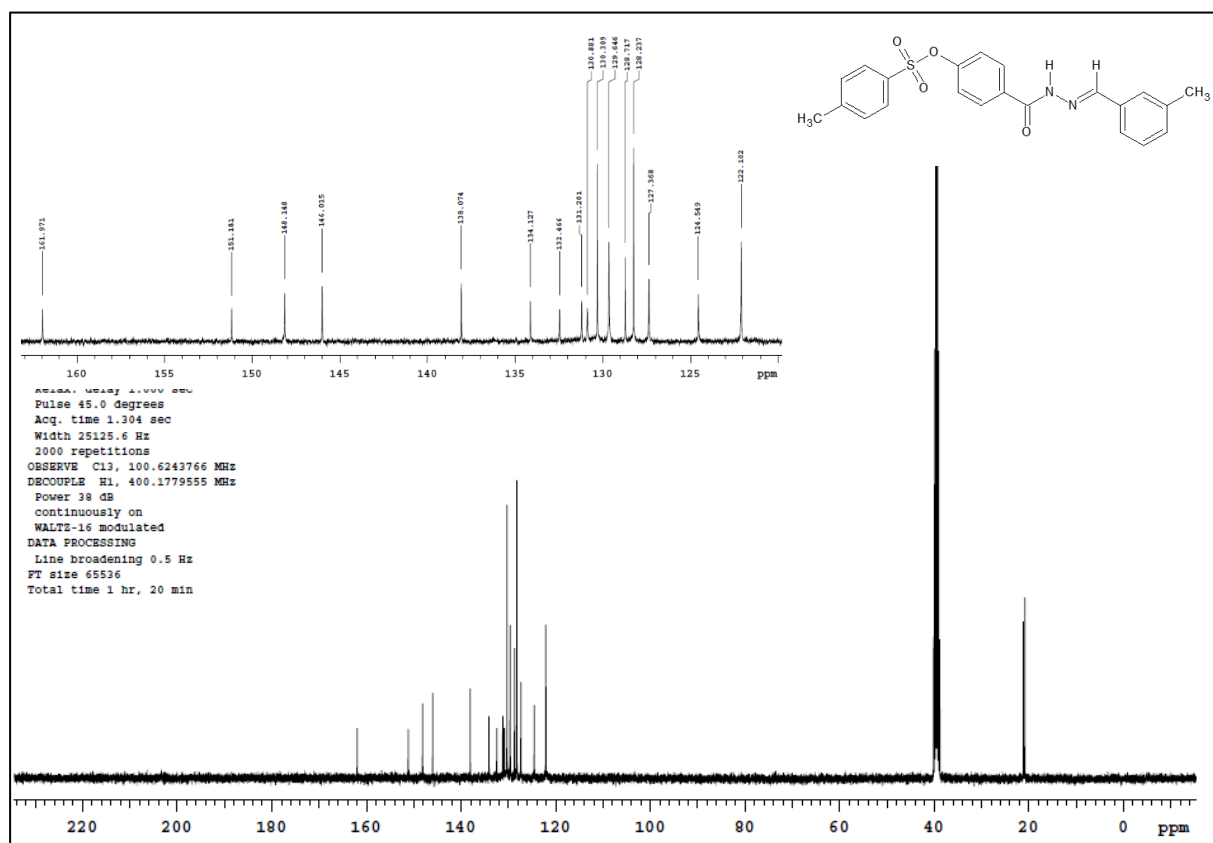


Figure S10. Compound **3c** ¹³C-NMR spectrum (DMSO-d₆, 100 MHz).

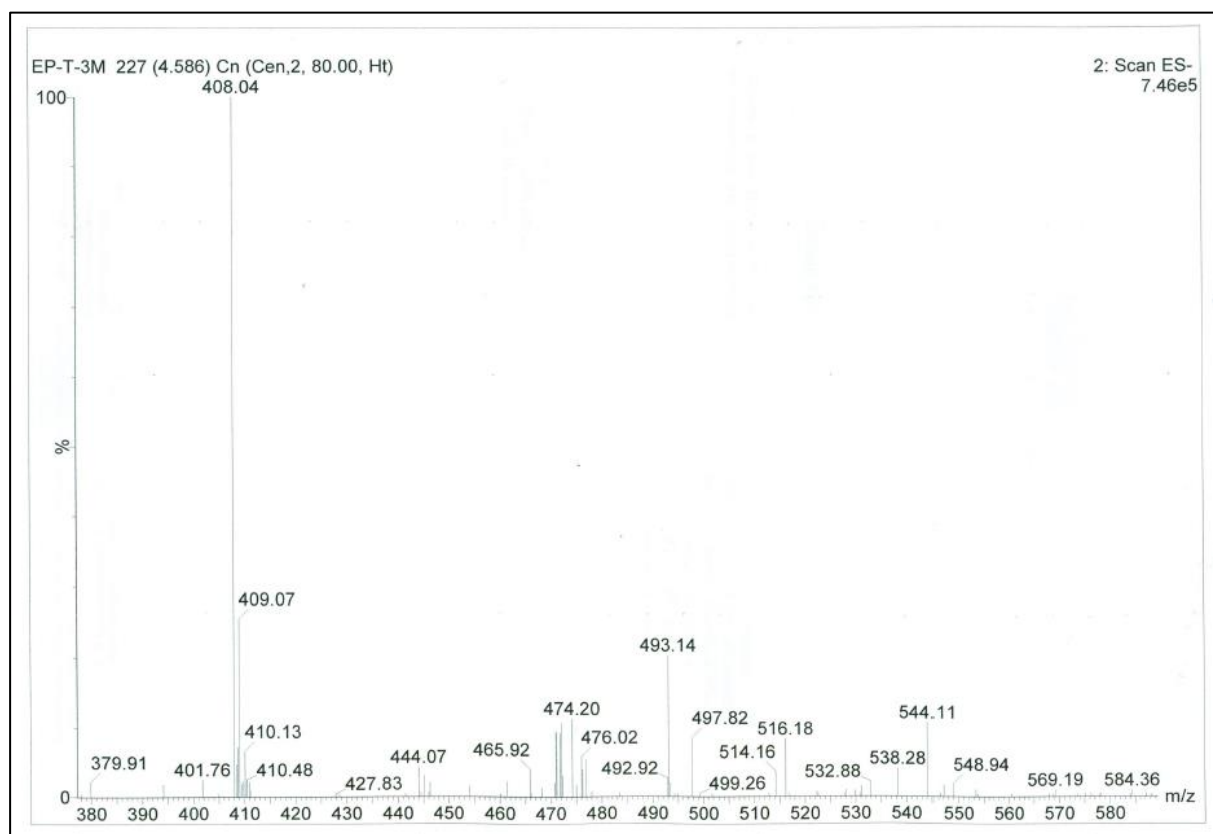


Figure S11. Compound **3c** ESI MS spectrum.

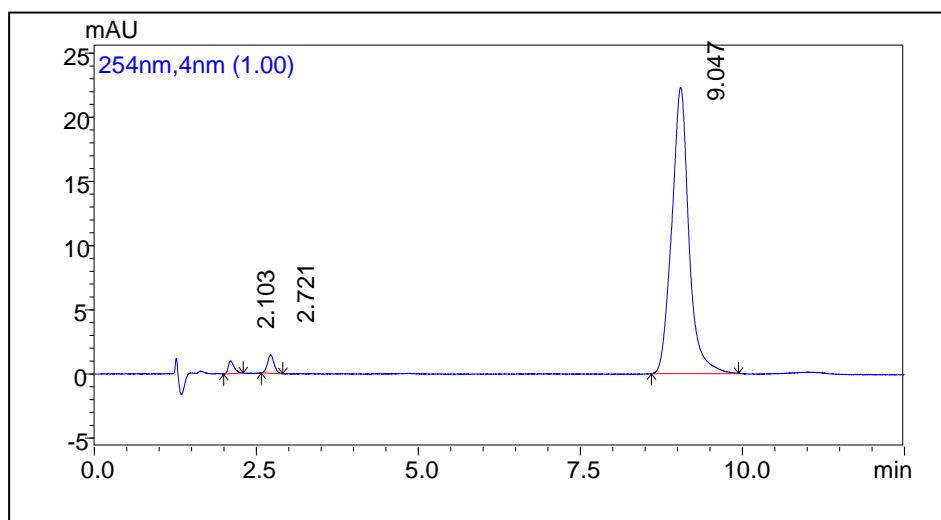
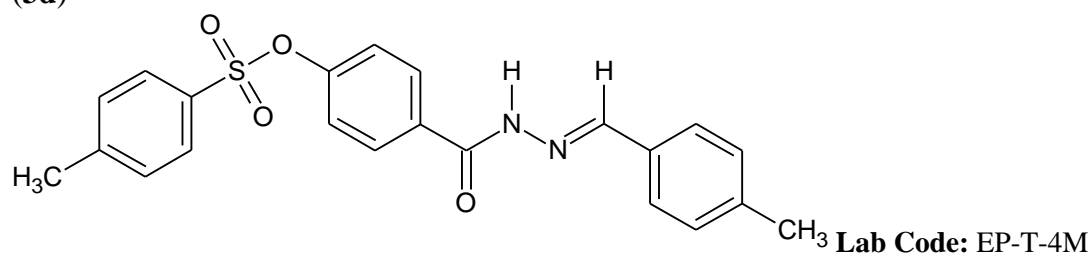


Figure S12. Chromatogram of compound 3c (24 µg/mL) recorded under optimized conditions.

(*E*)-*N*'-[(4-Methylphenyl)methylidene]-4-[(4-methylphenyl)sulfonyloxy]benzohydrazide (**3d**)



Lab Code: EP-T-4M

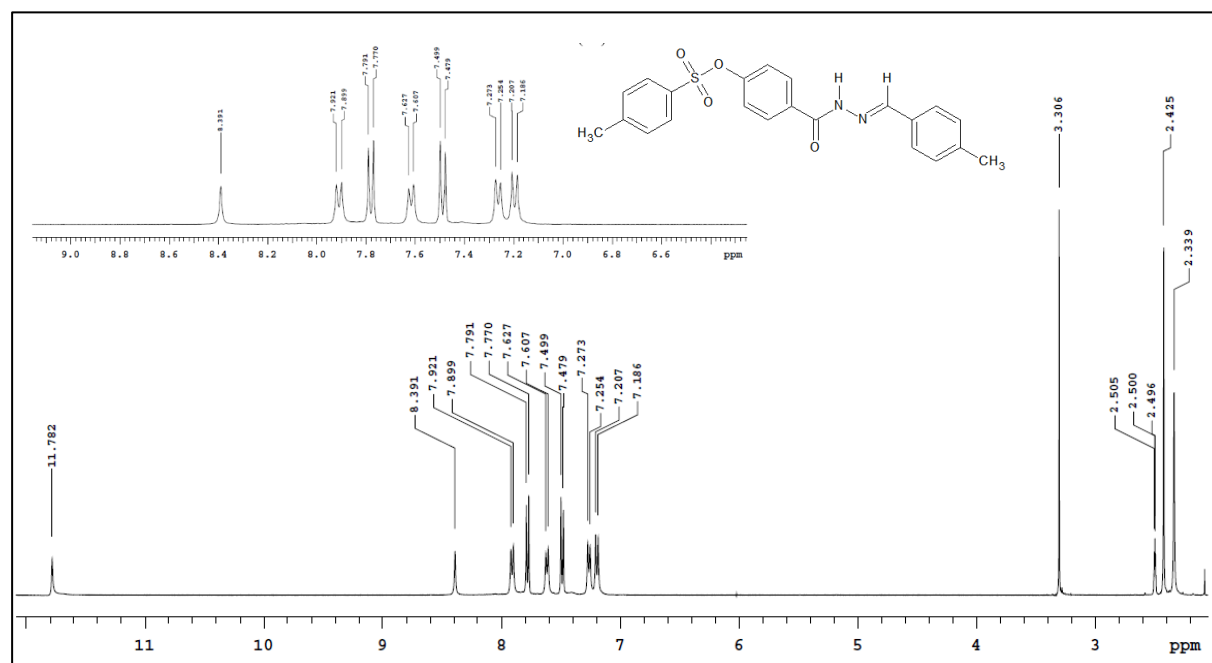


Figure S13. Compound 3d ¹H-NMR spectrum (DMSO-*d*₆, 400 MHz).

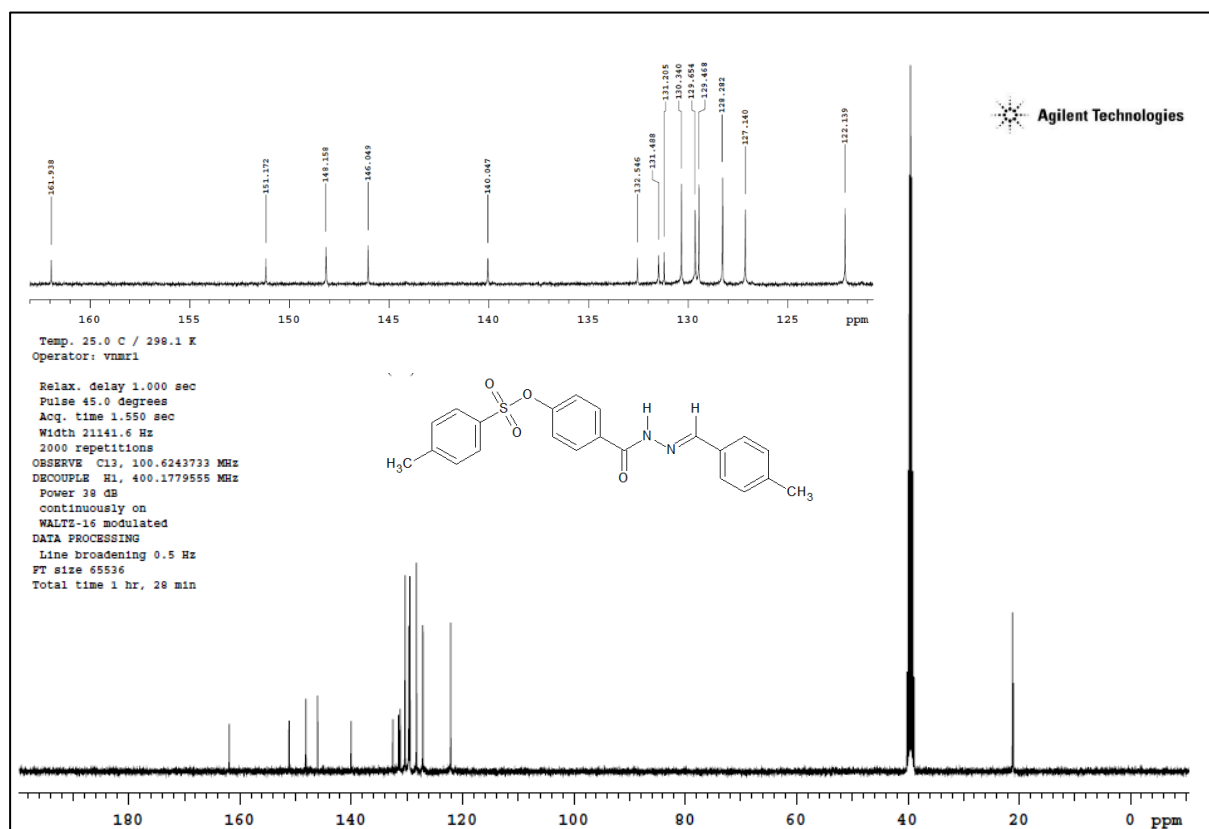


Figure S14. Compound **3d** ^{13}C -NMR spectrum (DMSO- d_6 , 100 MHz).

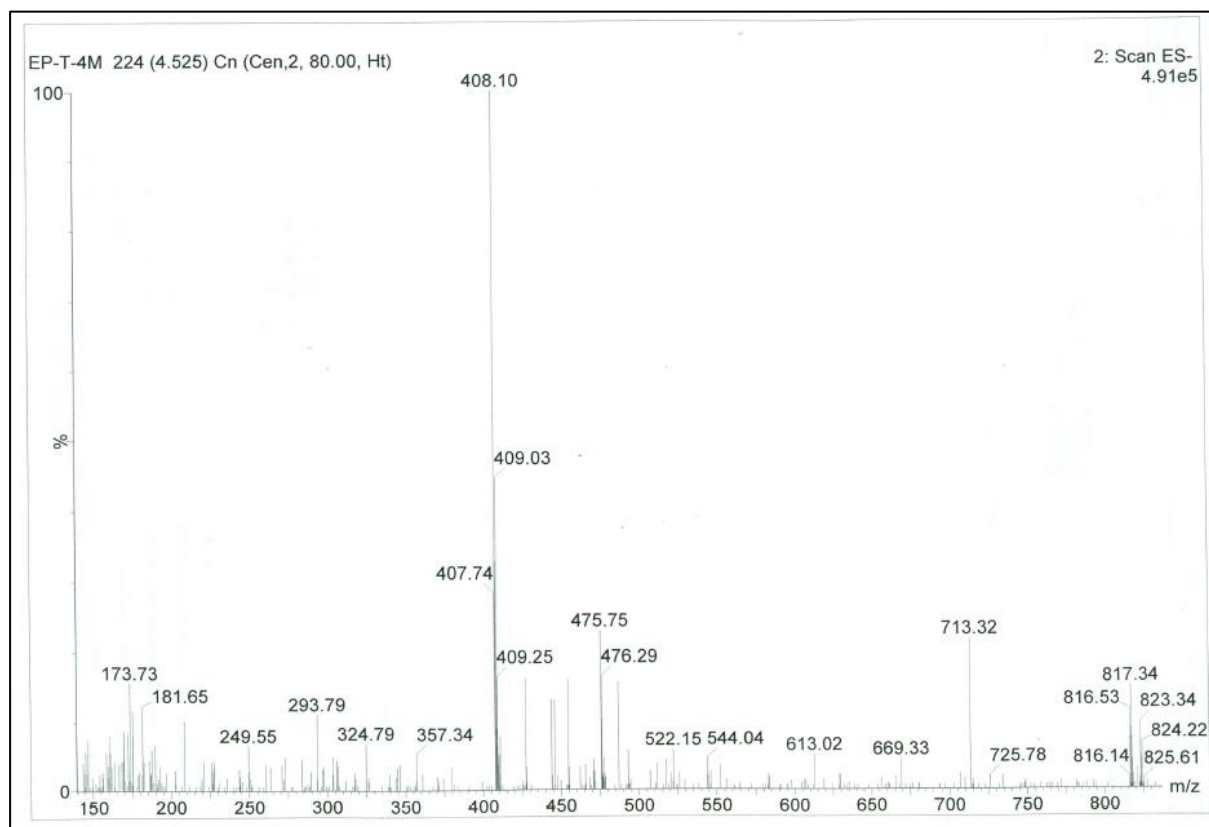


Figure S15. Compound **3d** ESI MS spectrum.

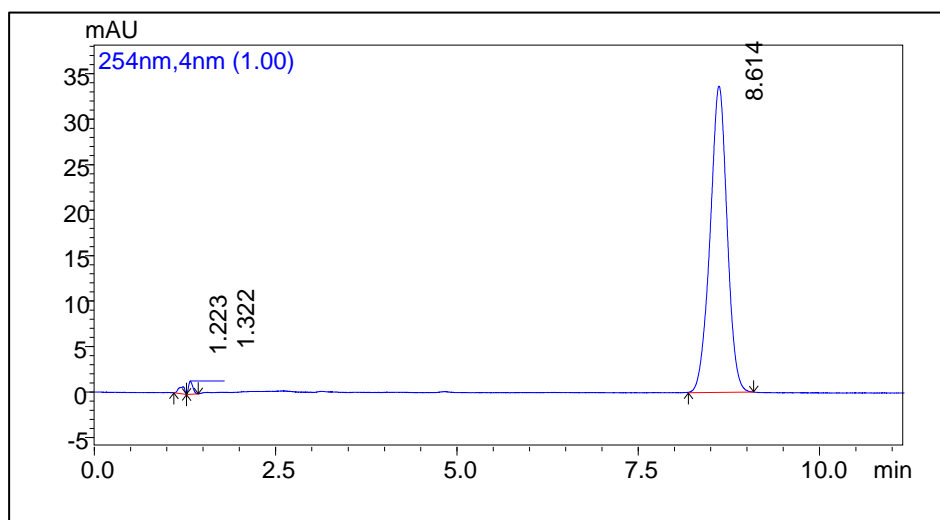
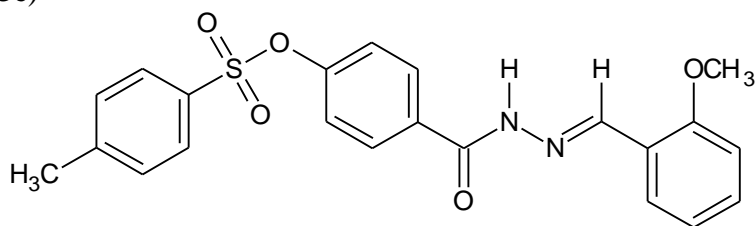


Figure S16. Chromatogram of compound **3d** (56 µg/mL) recorded under optimized conditions.

(*E*)-*N*'-[(2-Methoxyphenyl)methylidene]-4-[(4-methylphenyl)sulfonyloxy]benzohydrazide (**3e**)



Lab Code: EP-T-20

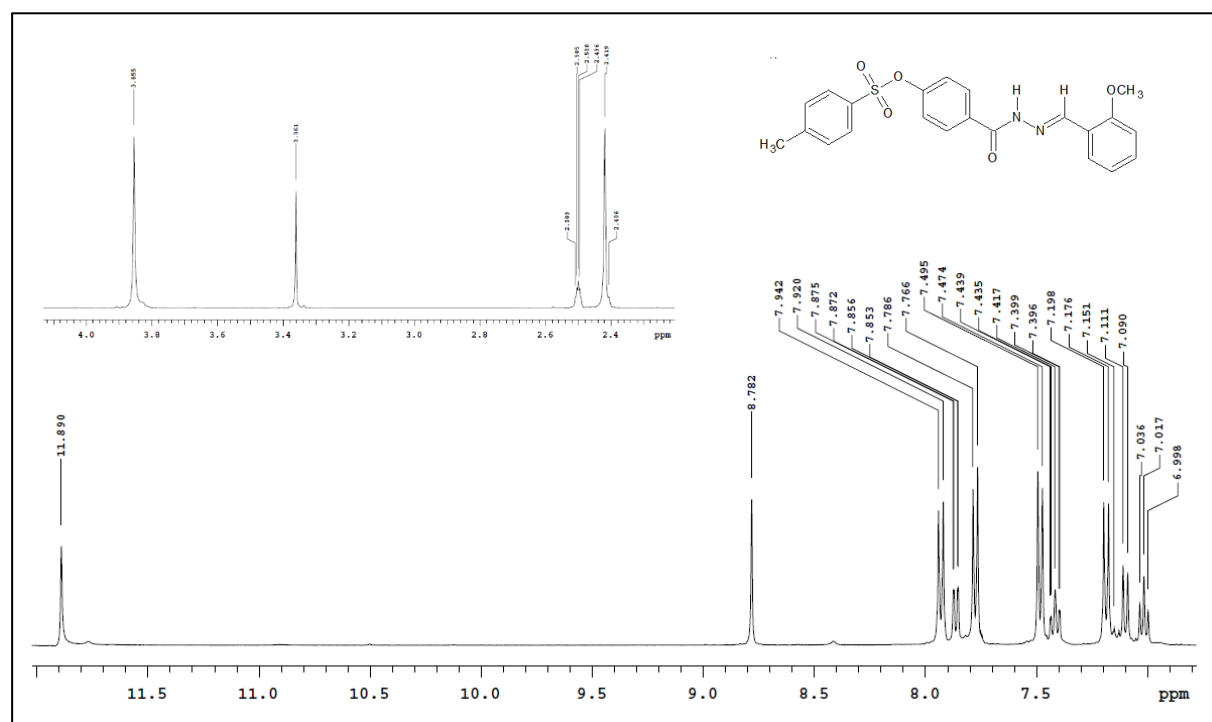


Figure S17. Compound **3e** ¹H-NMR spectrum (DMSO-*d*₆, 400 MHz).

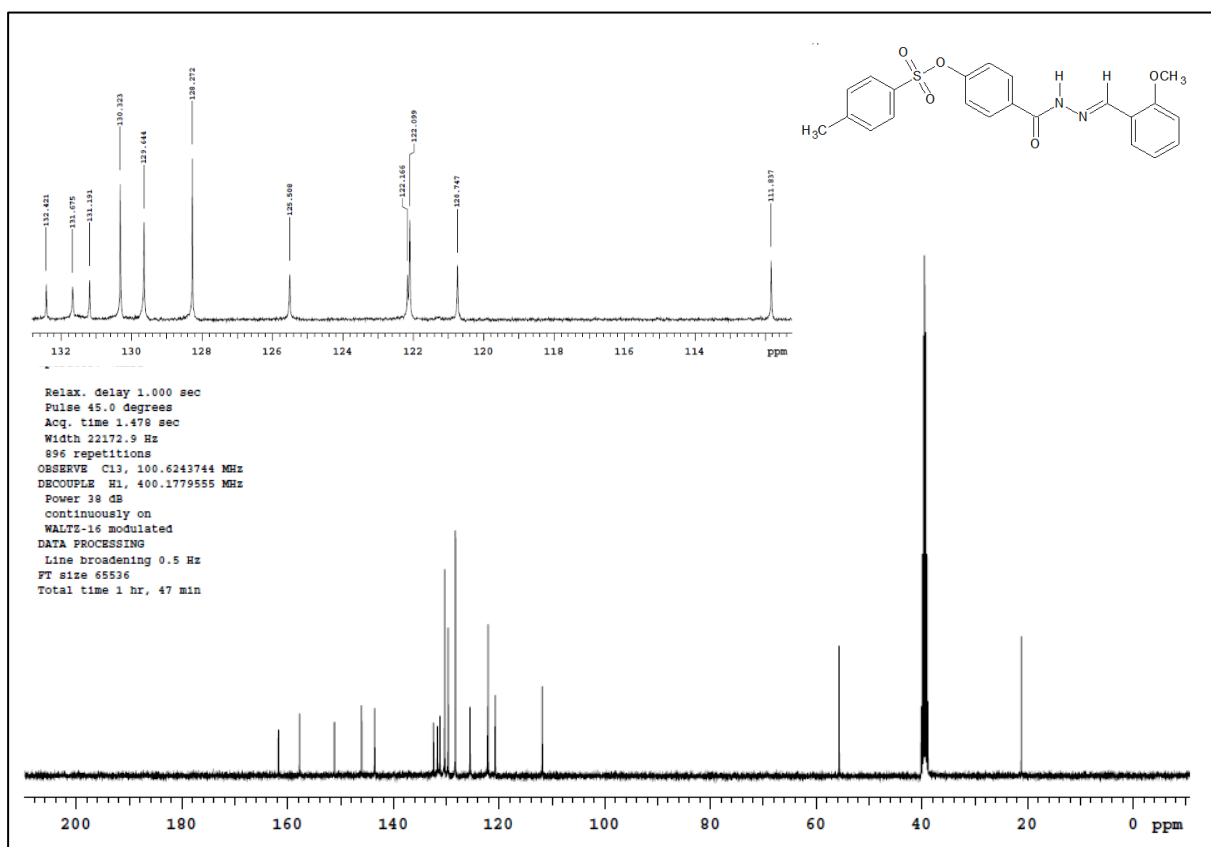


Figure S18. Compound **3e** ¹³C-NMR spectrum (DMSO-d₆, 100 MHz).

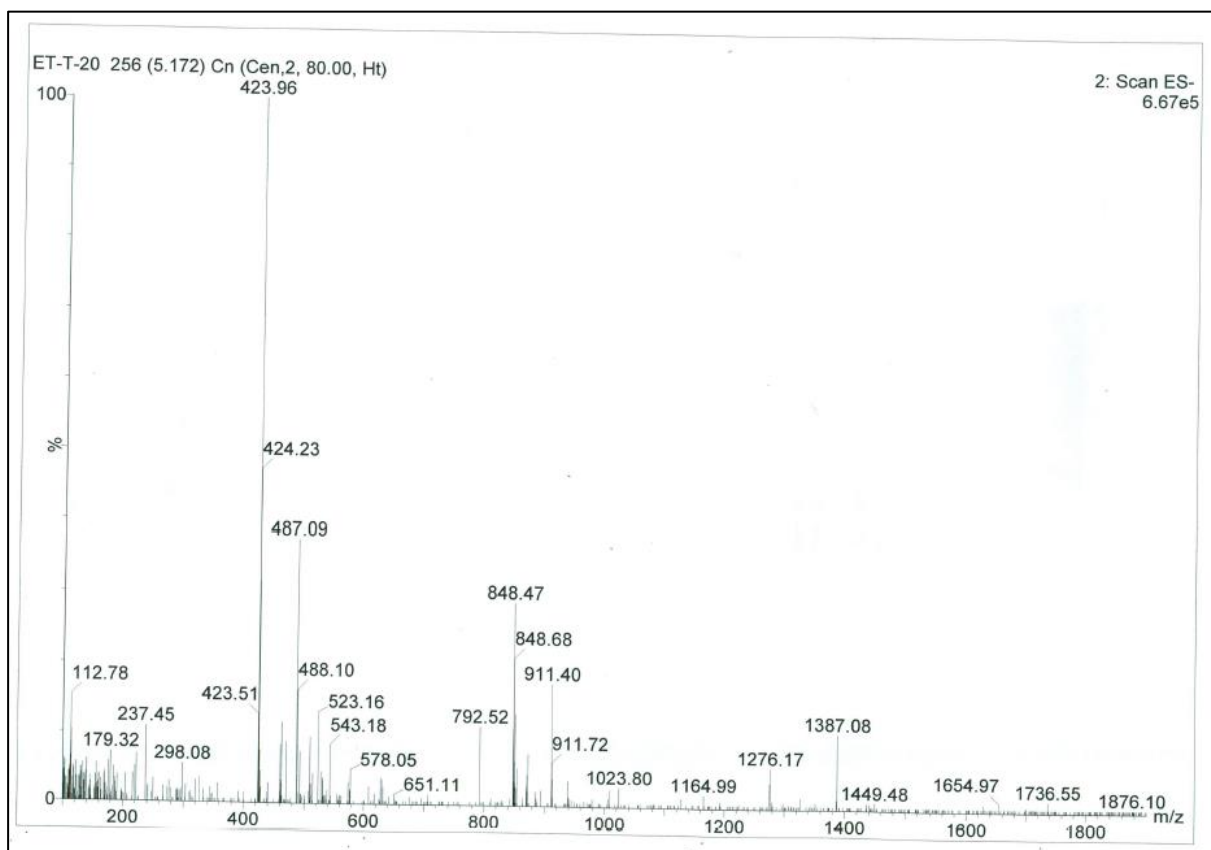


Figure S19. Compound **3e** ESI MS spectrum.

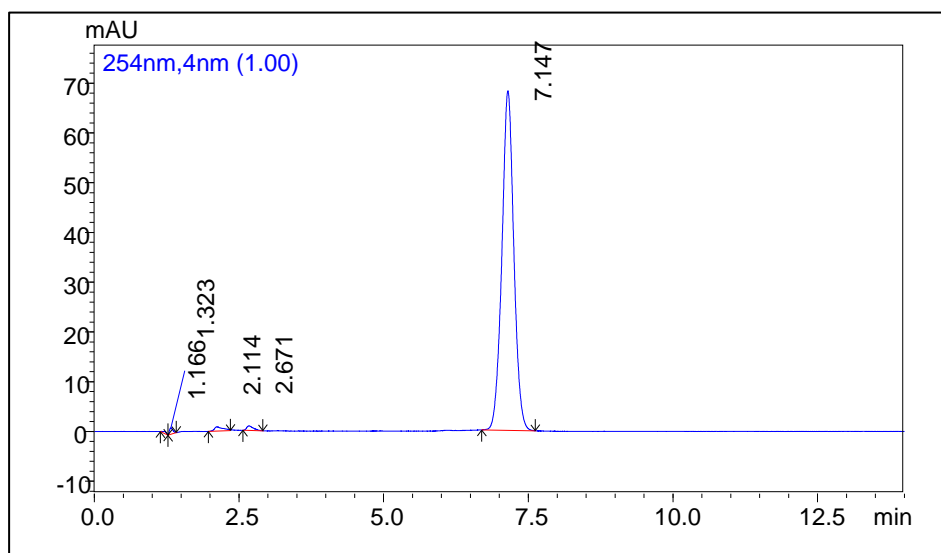
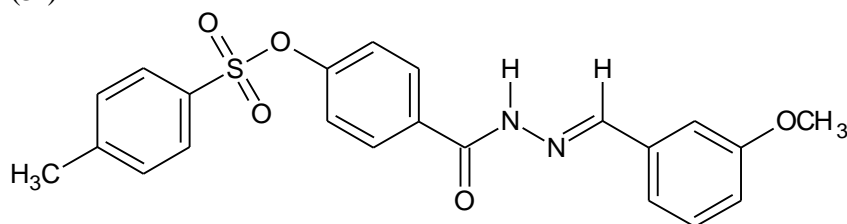


Figure S20. Chromatogram of compound **3e** (28 µg/mL) recorded under optimized conditions.

(*E*)-*N'*-[(3-Methoxyphenyl)methylidene]-4-[(4-methylphenyl)sulfonyloxy]benzohydrazide (**3f**)



Lab Code: EP-T-30

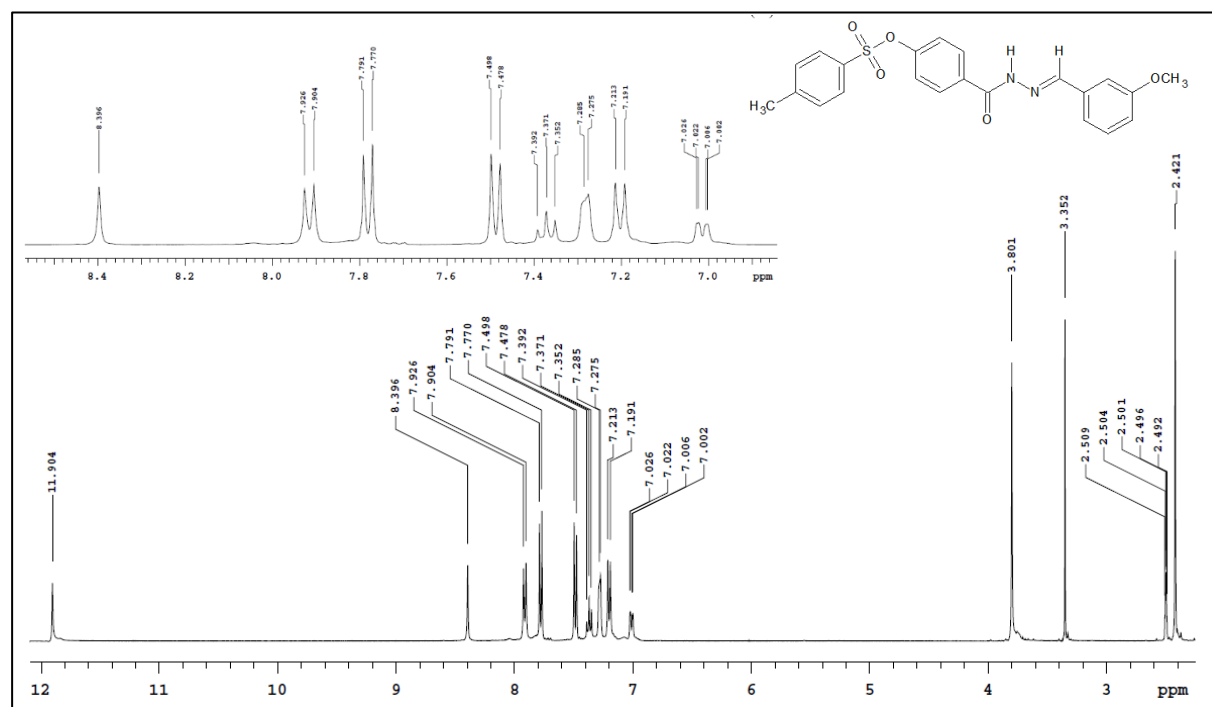


Figure S21. Compound **3f** ¹H-NMR spectrum (DMSO-*d*₆, 400 MHz).

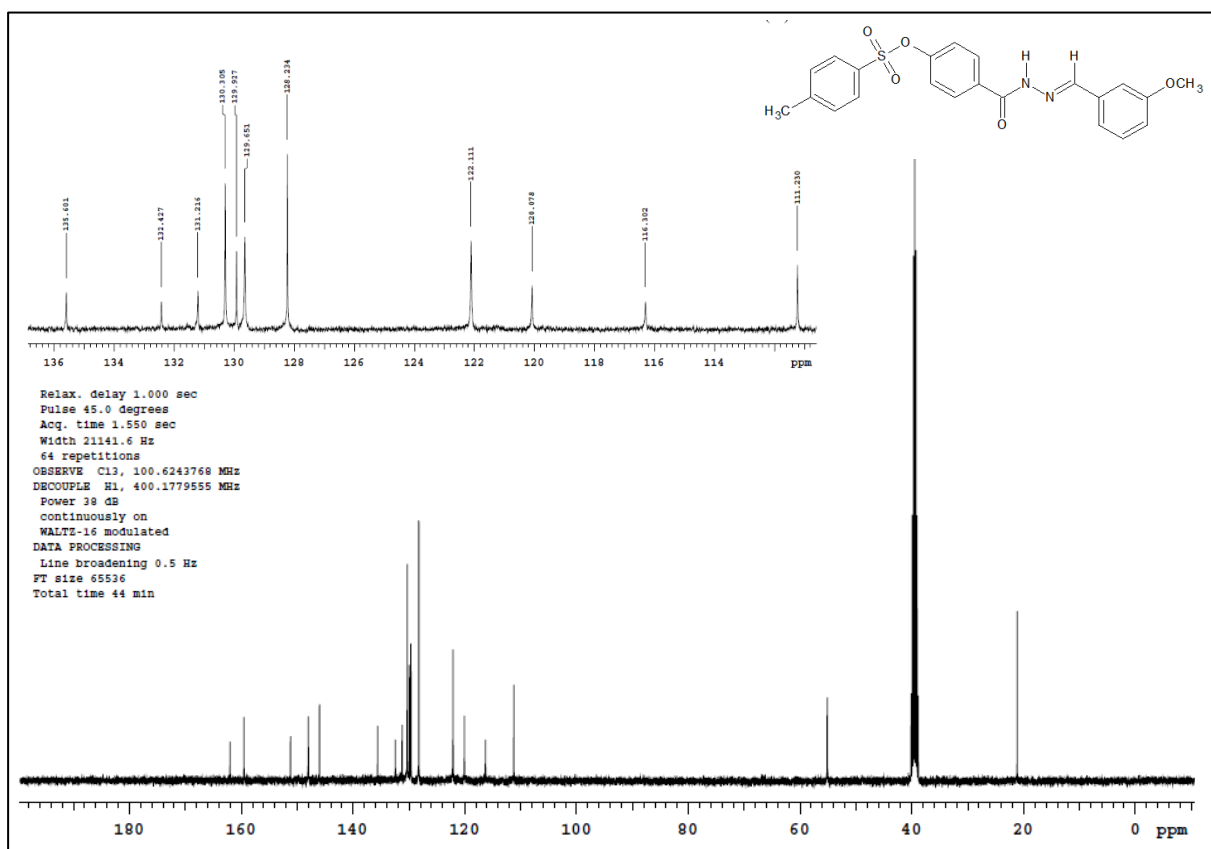


Figure S22. Compound **3f** ¹³C-NMR spectrum (DMSO-d₆, 100 MHz).

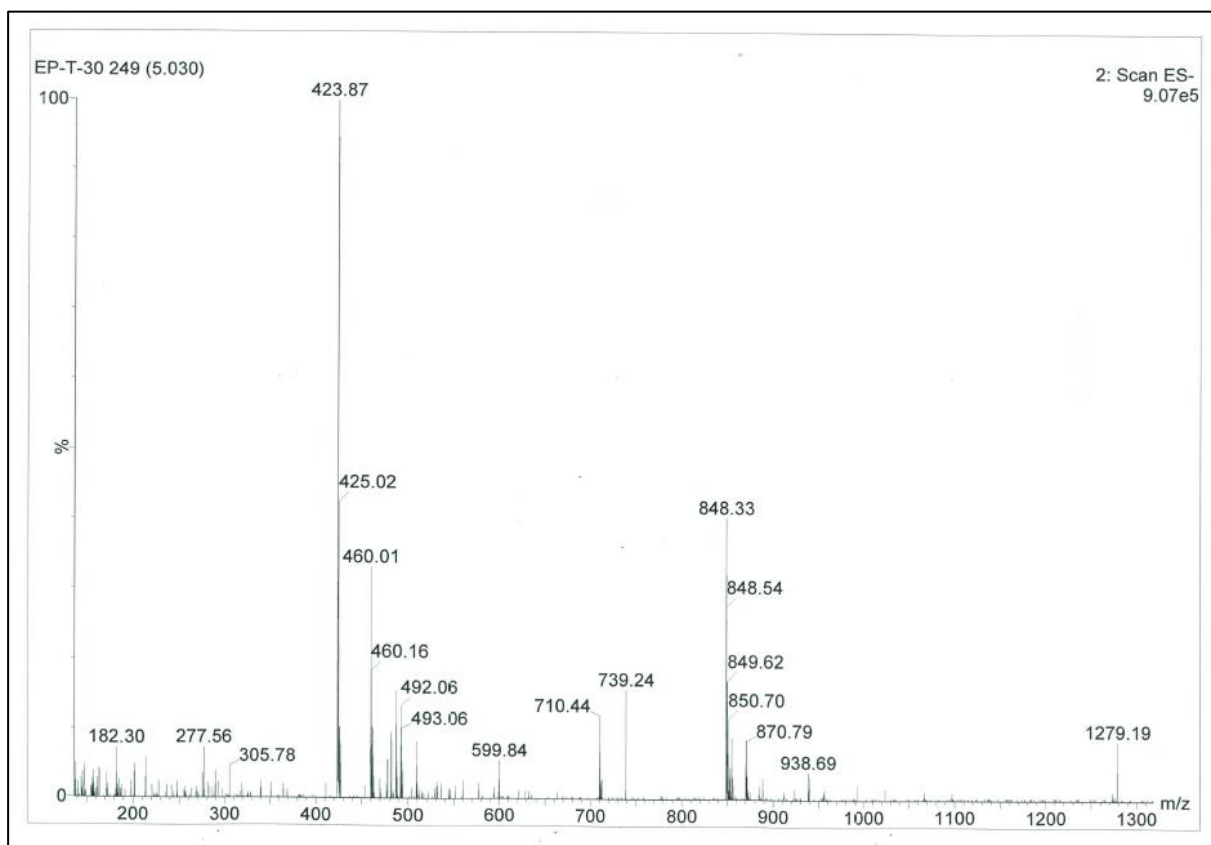


Figure S23. Compound **3f** ESI MS spectrum.

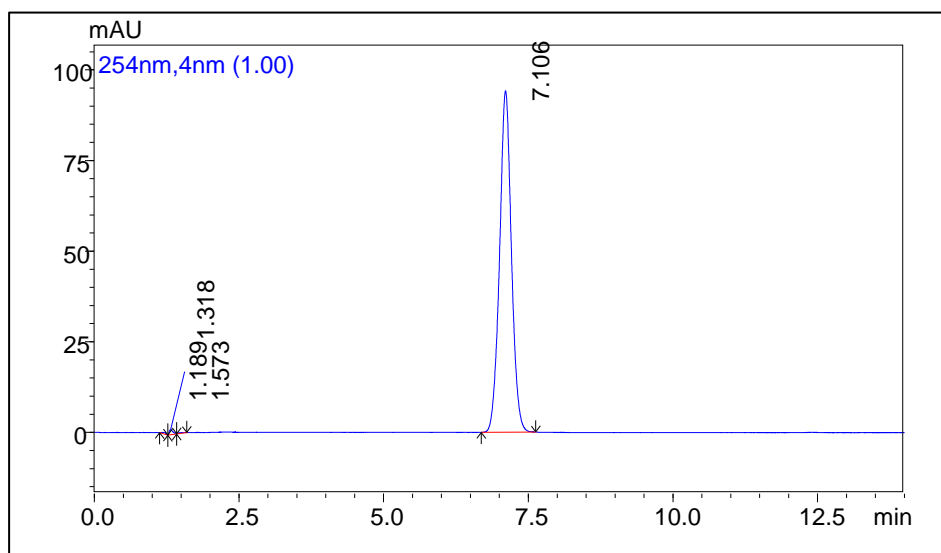


Figure S24. Chromatogram of compound **3f** (48 µg/mL) recorded under optimized conditions.

(*E*)-*N'*-[(4-Methoxyphenyl)methylidene]-4-[(4-methylphenyl)sulfonyloxy]benzohydrazide (**3g**)

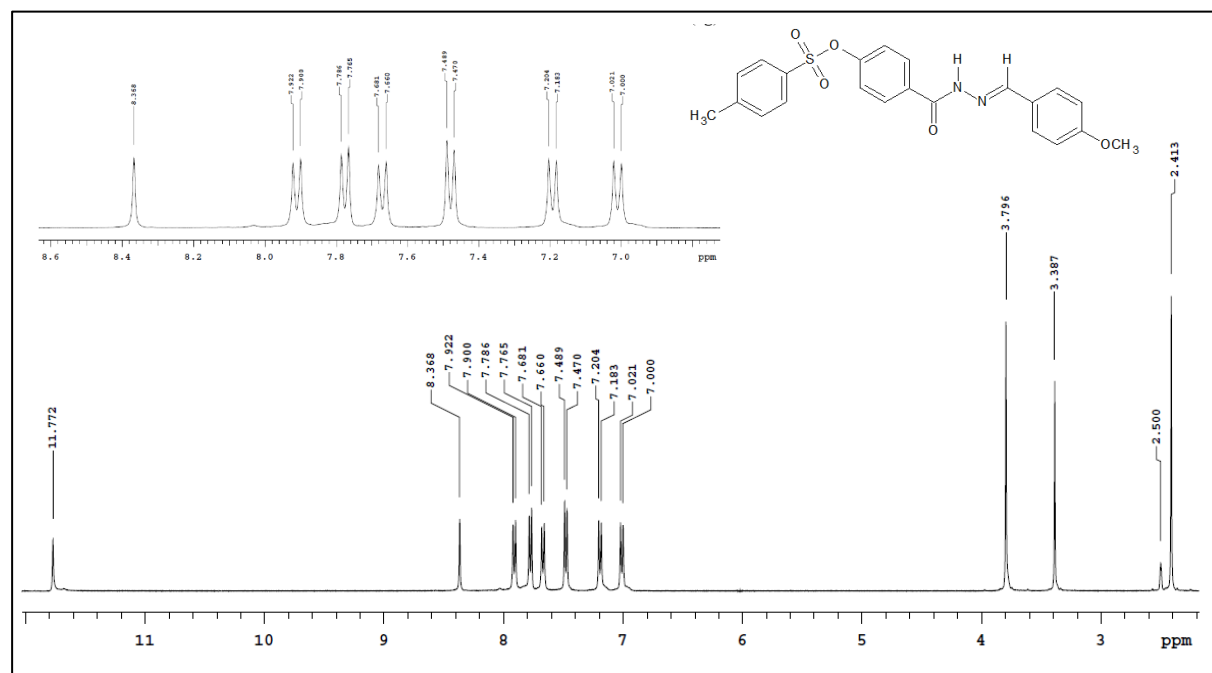
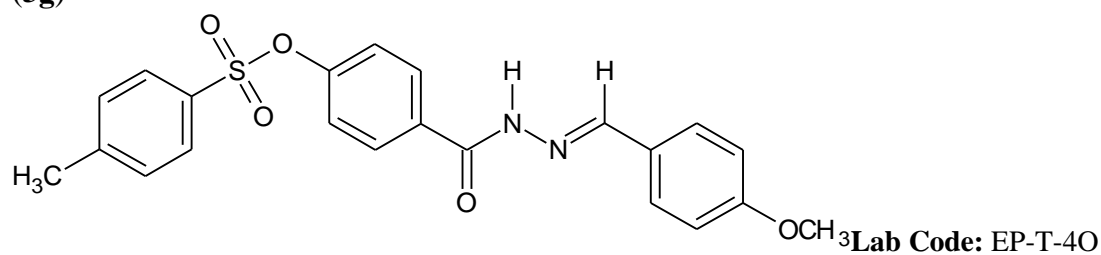


Figure S25. Compound **3g** ¹H-NMR spectrum (DMSO-*d*₆, 400 MHz).

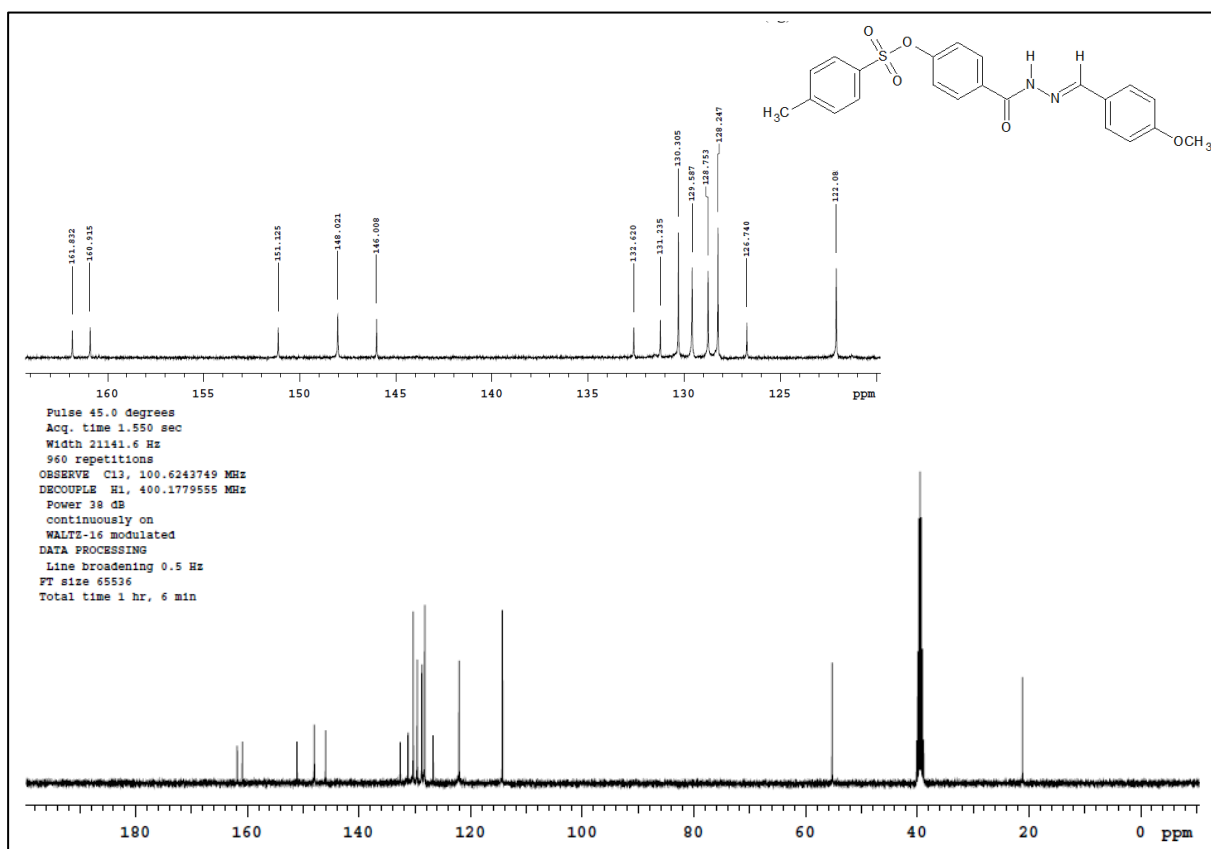


Figure S26. Compound **3g** ¹³C-NMR spectrum (DMSO-d₆, 100 MHz).

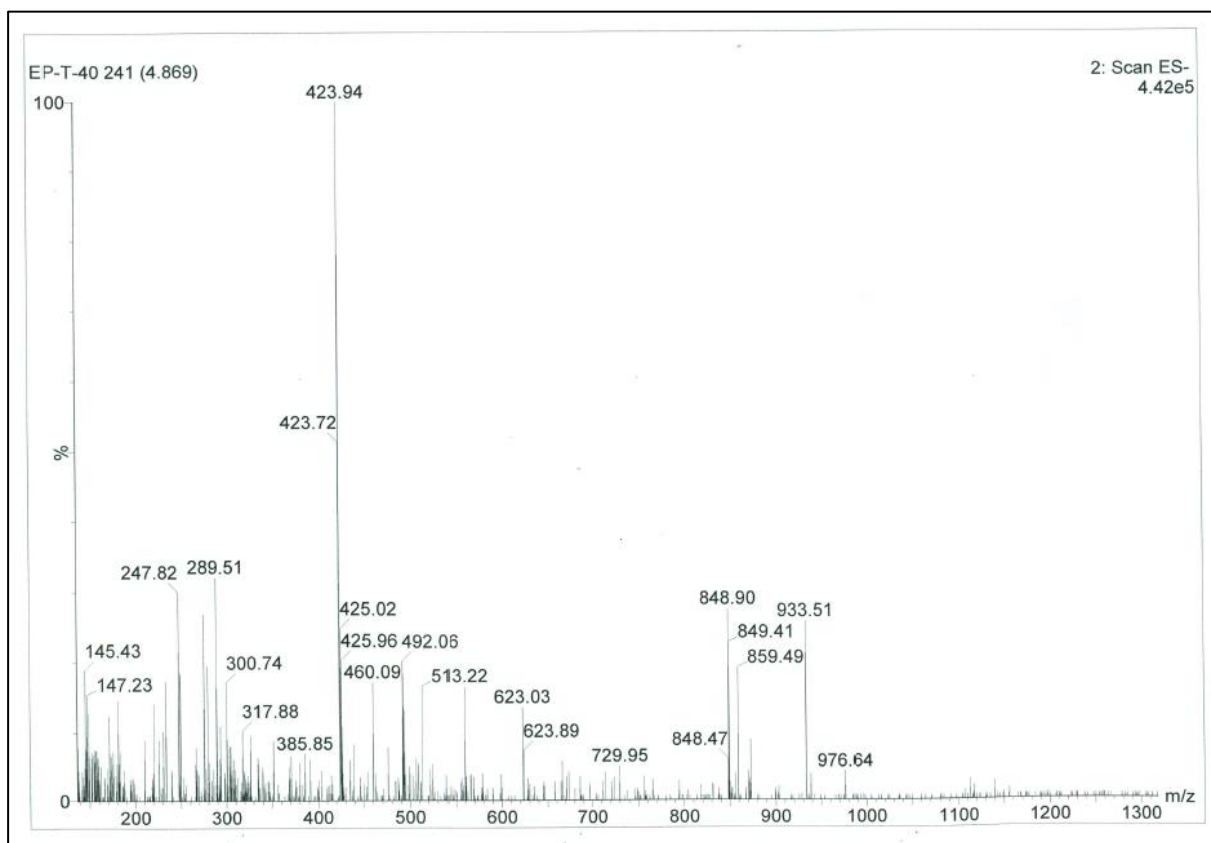


Figure S27. Compound **3g** ESI MS spectrum.

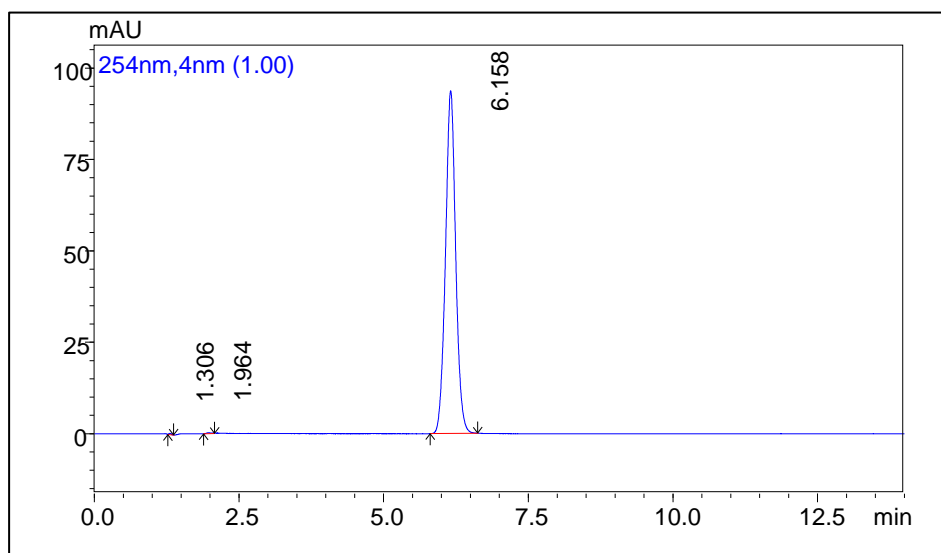
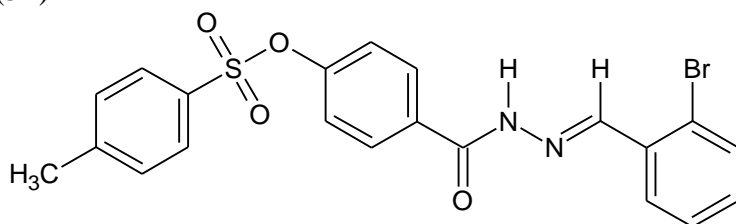


Figure S28. Chromatogram of compound **3g** (40 $\mu\text{g/mL}$) recorded under optimized conditions.

(*E*)-*N'*-[(2-Bromophenyl)methylidene]-4-[(4-methylphenyl)sulfonyloxy]benzohydrazide (**3h**)



Lab Code: EP-T-2B

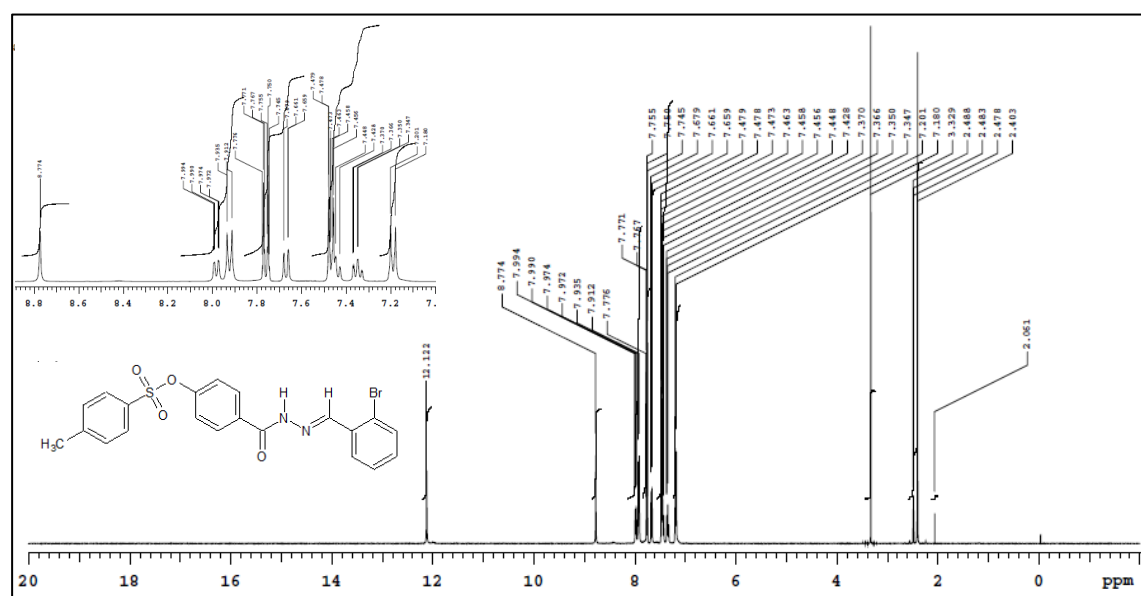


Figure S29. Compound **3h** ^1H -NMR spectrum (DMSO- d_6 , 400 MHz).

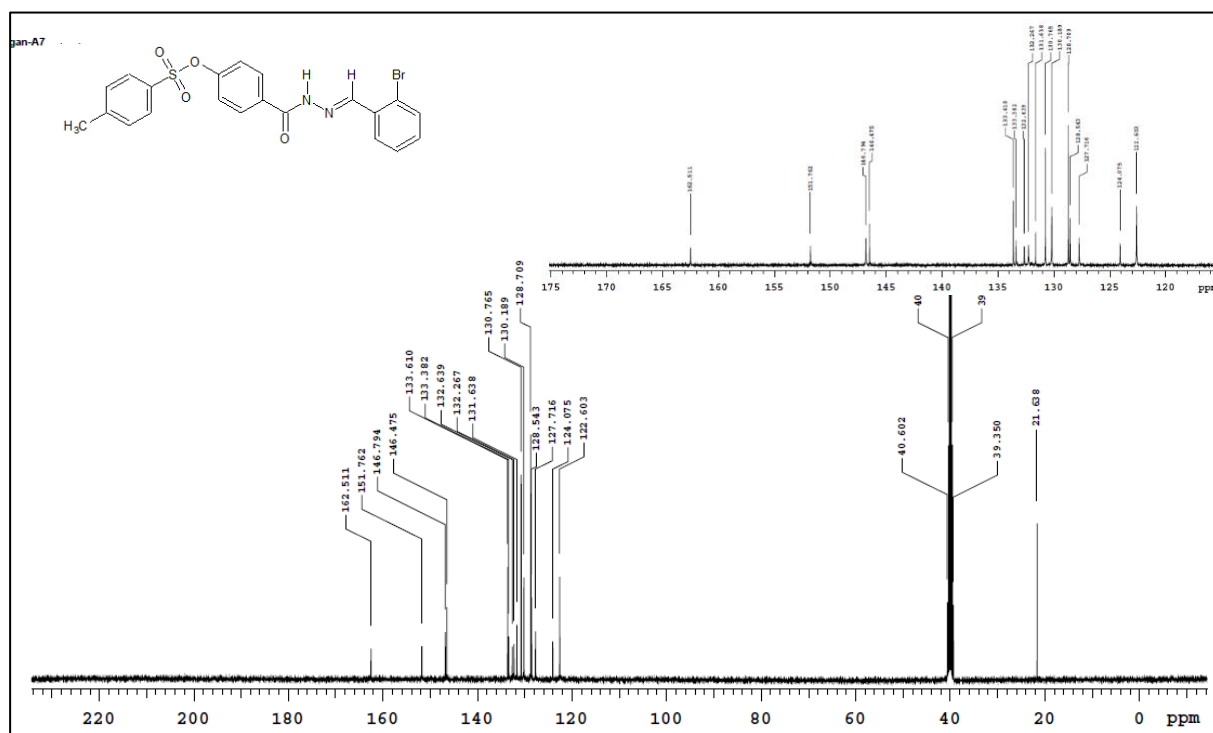


Figure S30. Compound **3h** ¹³C-NMR spectrum (DMSO-d₆, 100 MHz).

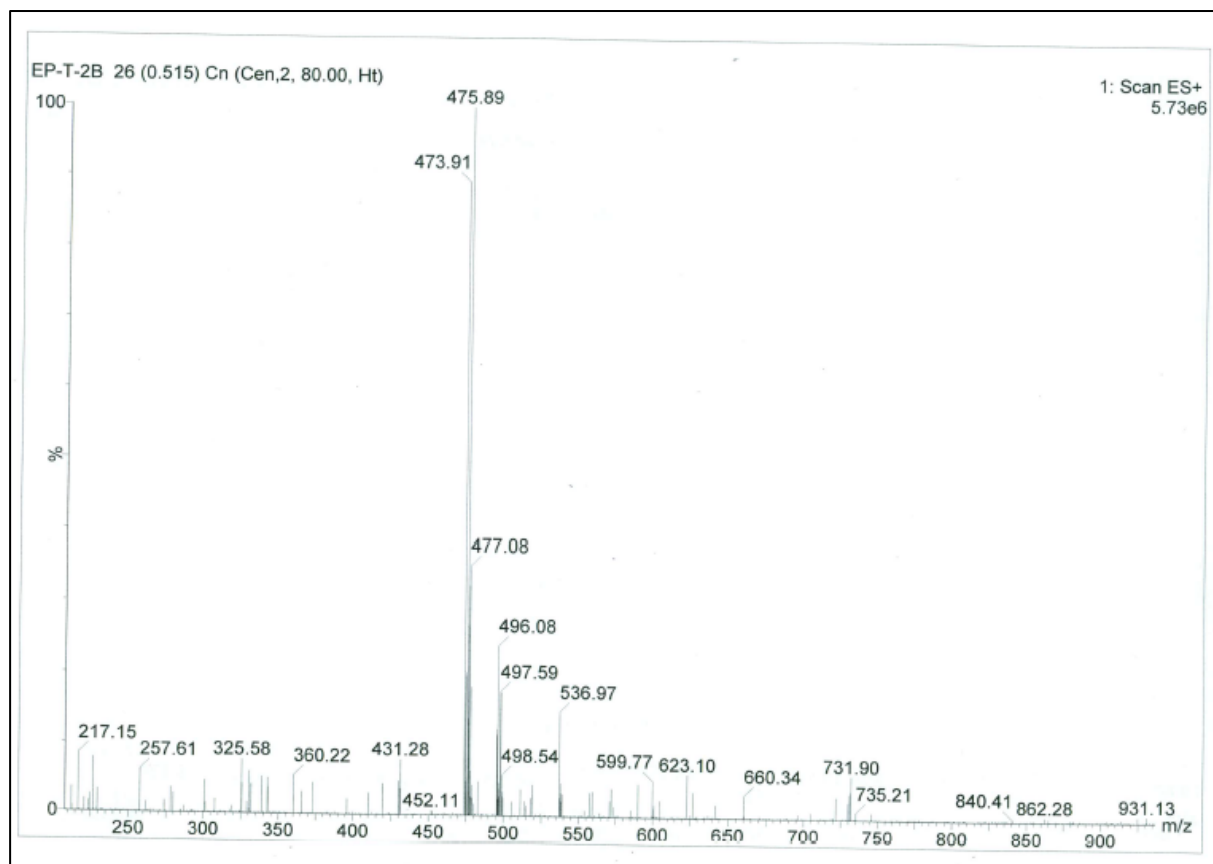


Figure S31. Compound **3h** ESI MS spectrum.

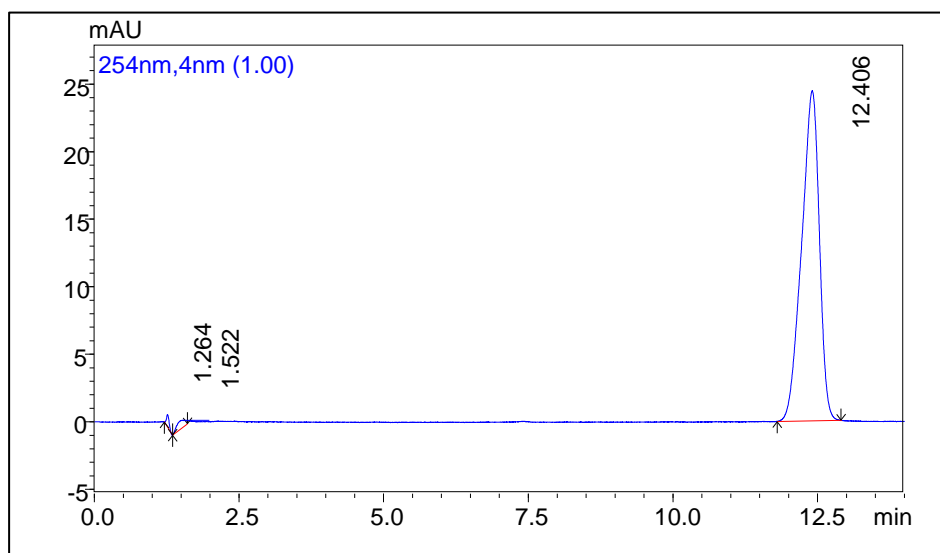
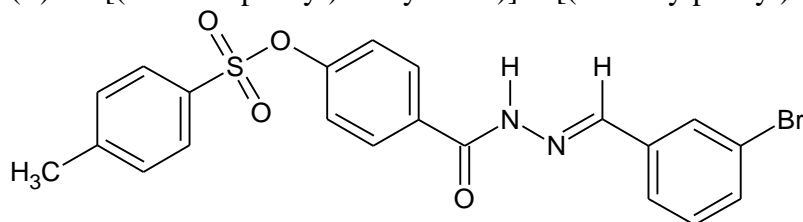


Figure S32. Chromatogram of compound **3h** (28 µg/mL) recorded under optimized conditions.

(*E*)-*N'*-[(3-Bromophenyl)methylidene]-4-[(4-methylphenyl)sulfonyloxy]benzohydrazide (**3i**)



Lab Code: EP-T-3B

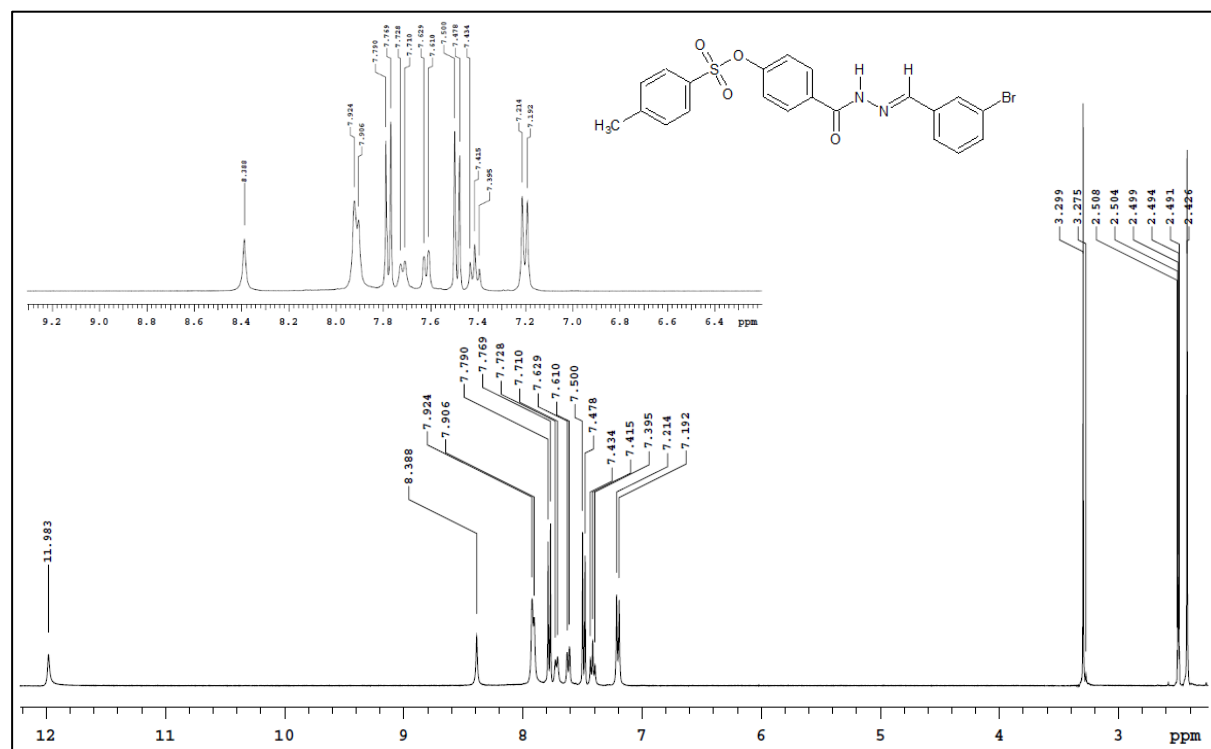


Figure S33. Compound **3i** ¹H-NMR spectrum (DMSO-d₆, 400 MHz).

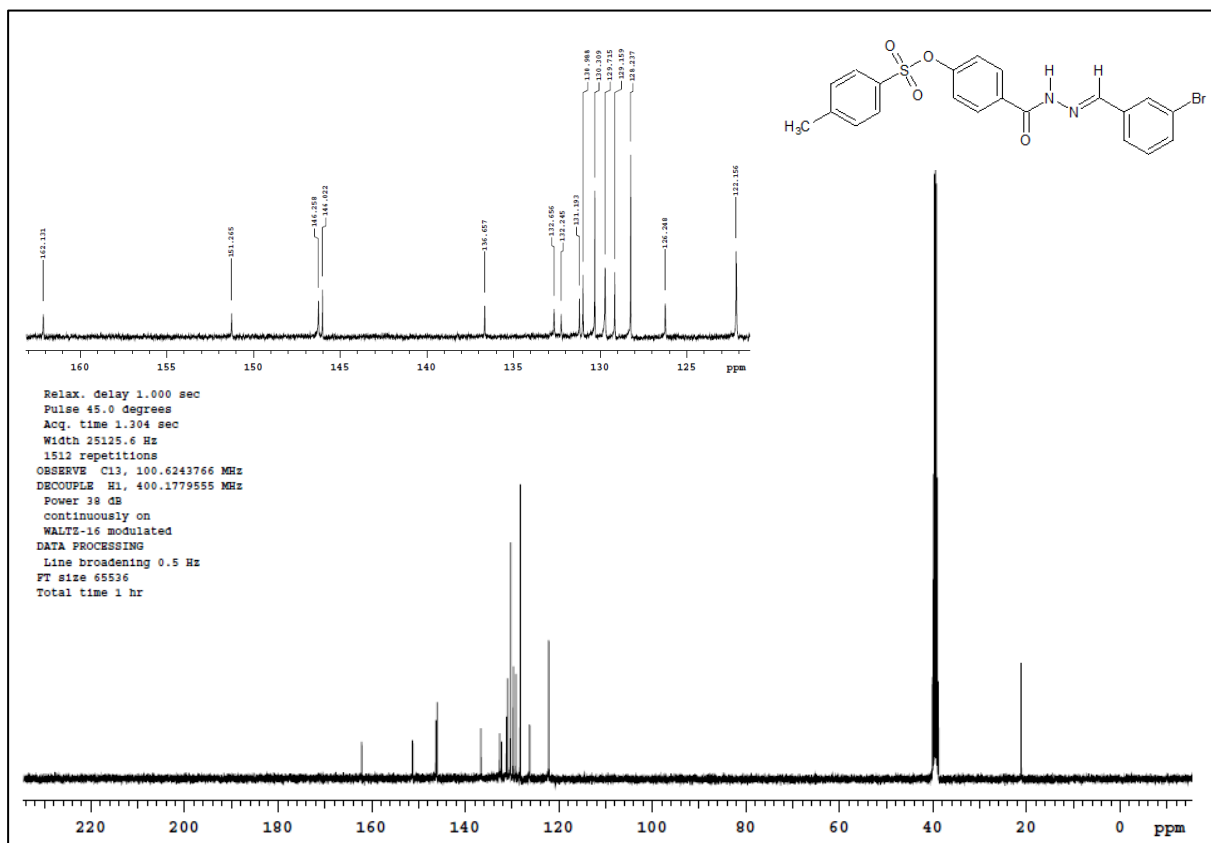


Figure S34. Compound **3i** ¹³C-NMR spectrum (DMSO-d₆, 100 MHz).

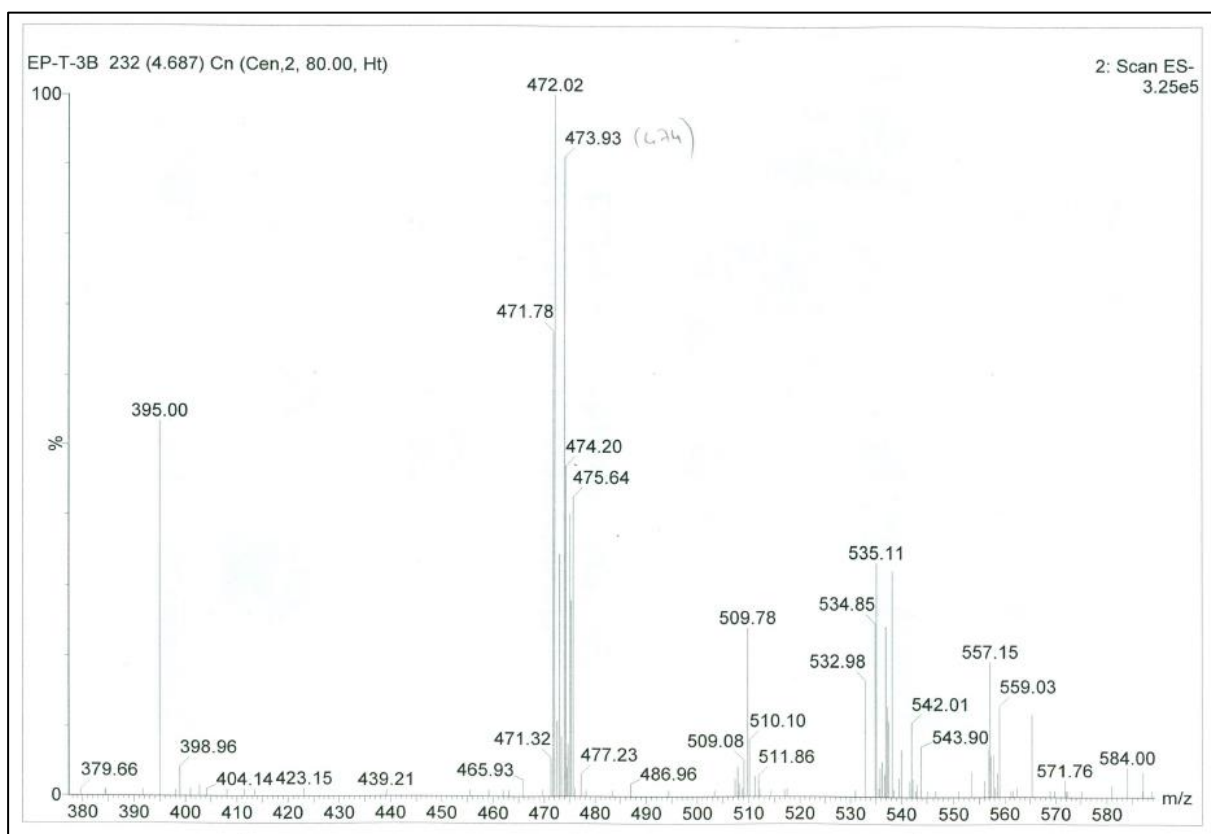


Figure S35. Compound **3i** ESI MS spectrum.



Chemical Structure:

Lab Code: EP-T-4B



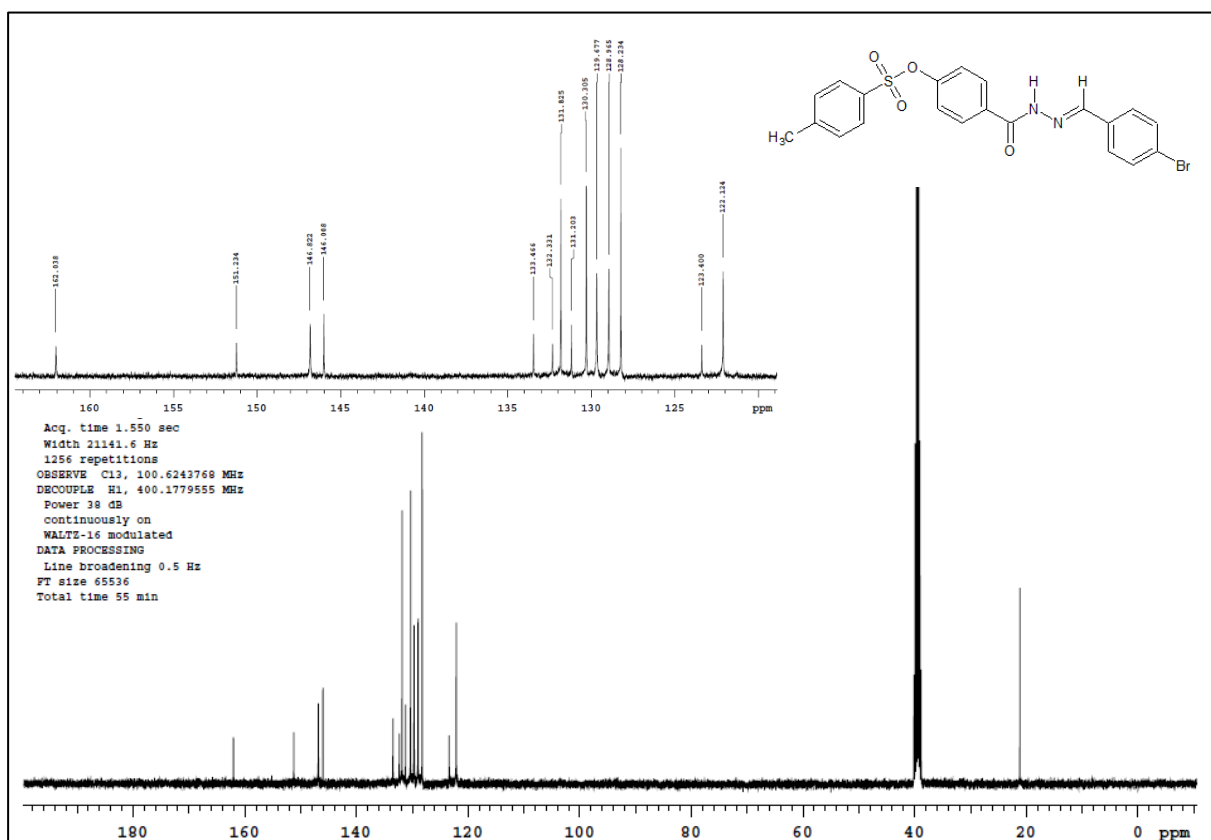


Figure S38. Compound **3j** ¹³C-NMR spectrum (DMSO-d₆, 100 MHz).

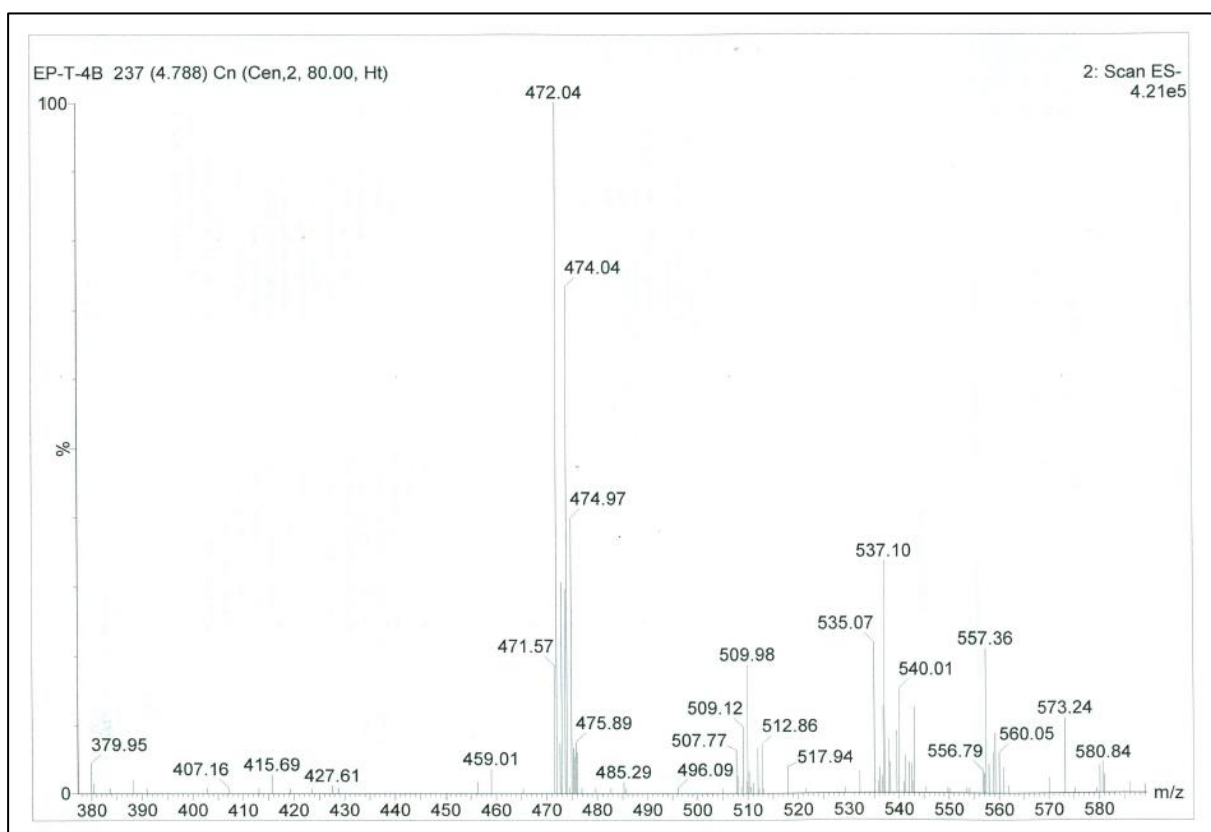


Figure S39. Compound **3j** ESI MS spectrum.

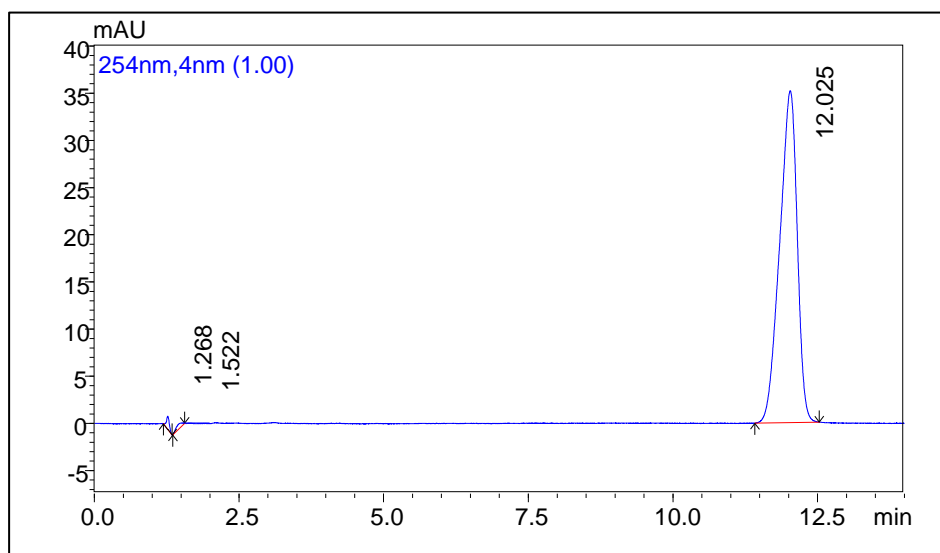
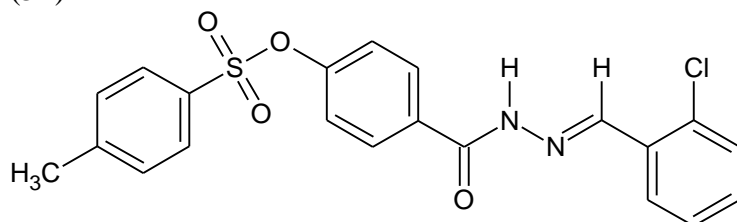


Figure S40. Chromatogram of compound **3j** (44 $\mu\text{g/mL}$) recorded under optimized conditions.

(*E*)-*N'*-(2-Chlorophenyl)methylidene]-4-[(4-methylphenyl)sulfonyloxy]benzohydrazide (**3k**)



Lab Code: EP-T-2K

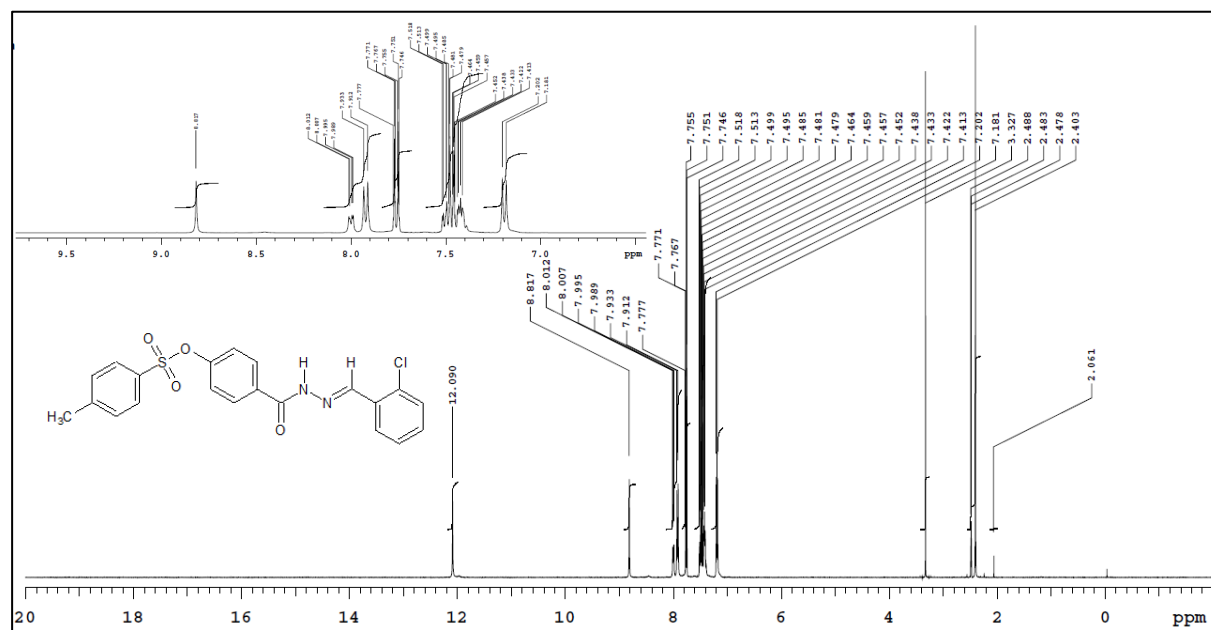


Figure S41. Compound **3k** ^1H -NMR spectrum (DMSO-d_6 , 400 MHz).

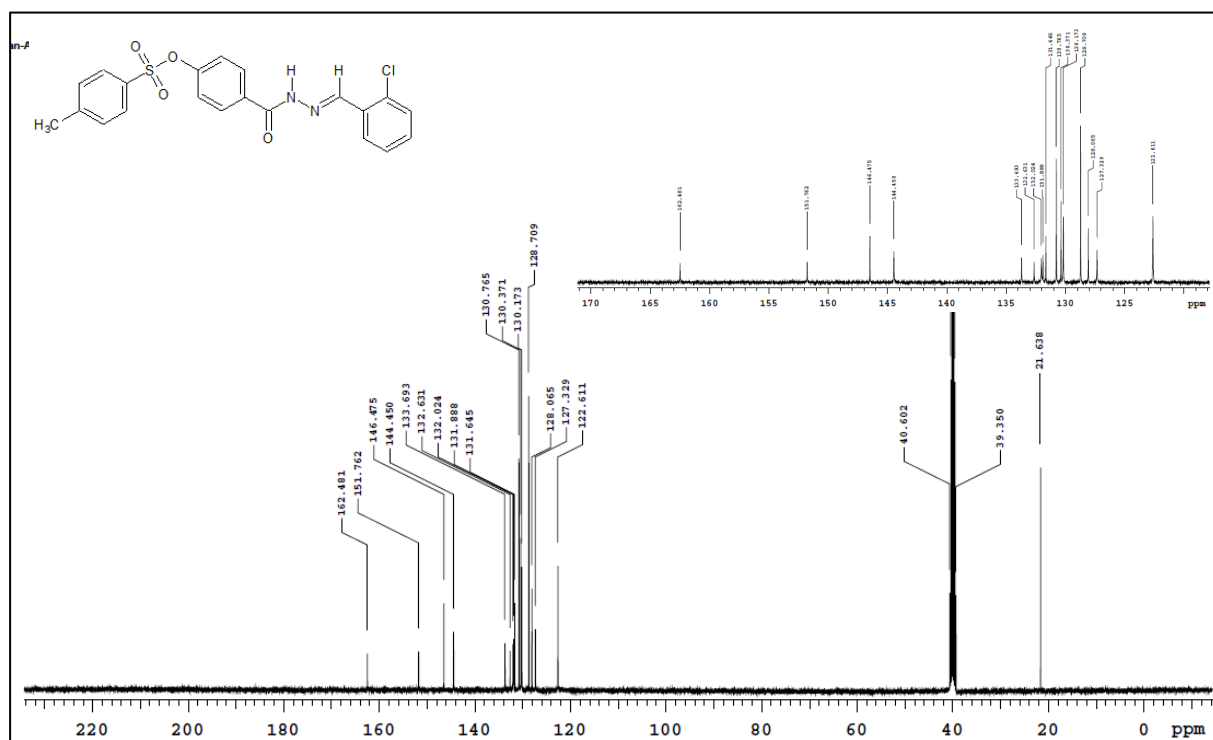


Figure S42. Compound **3k** ¹³C-NMR spectrum (DMSO-d₆, 100 MHz).

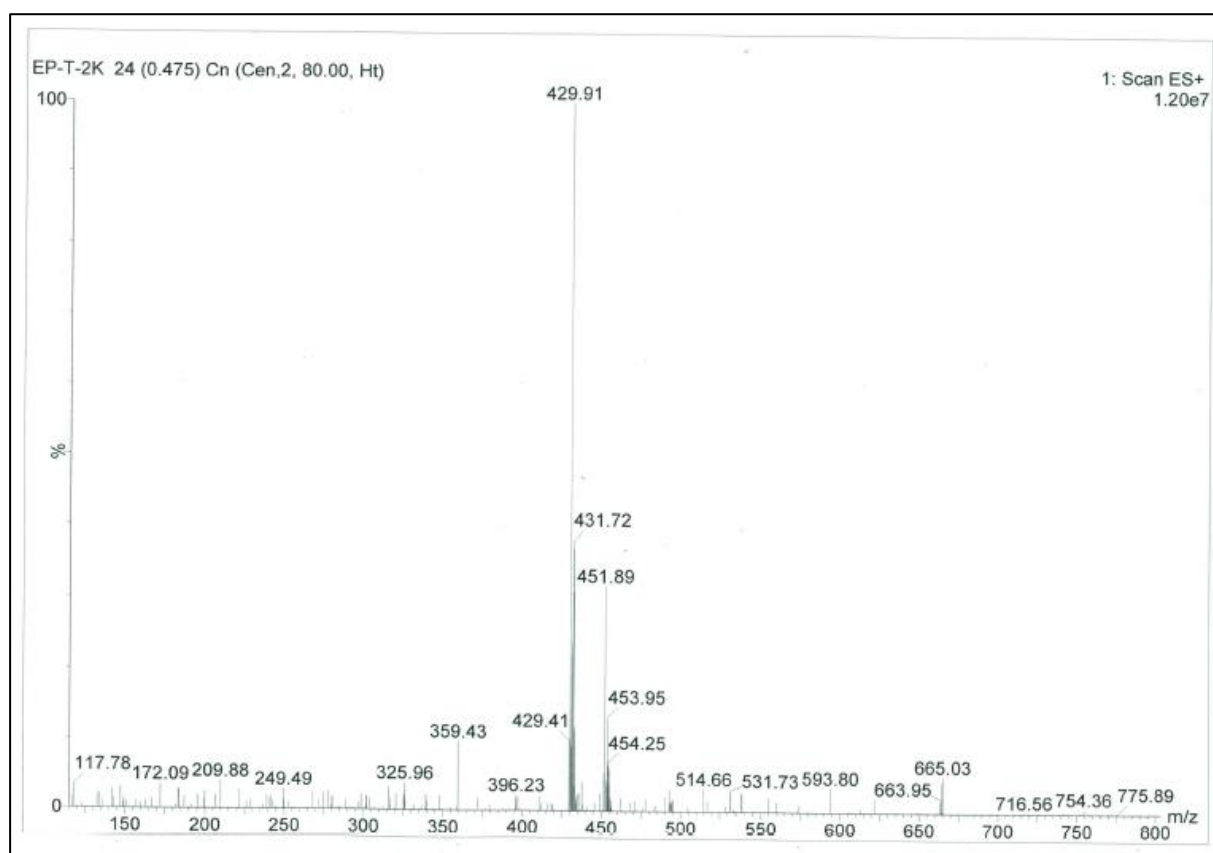


Figure S43. Compound **3k** ESI MS spectrum.

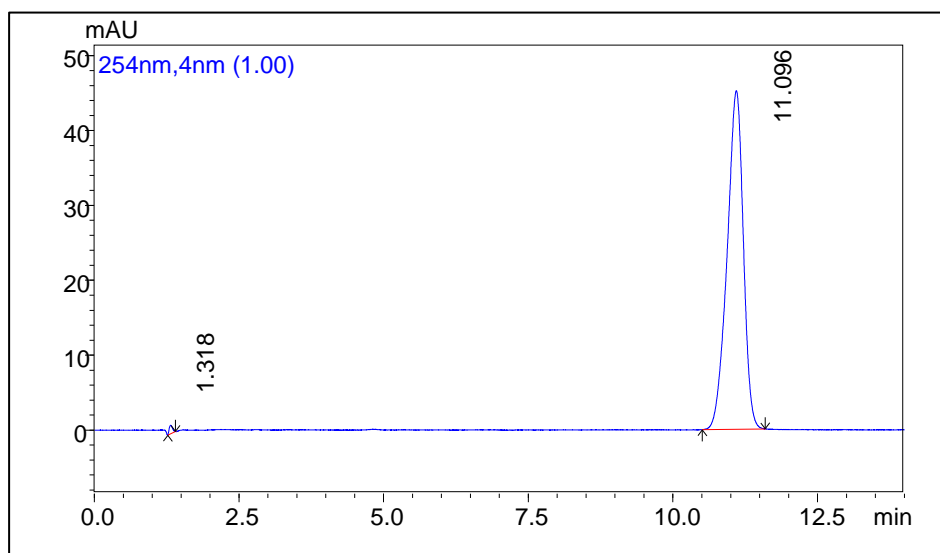
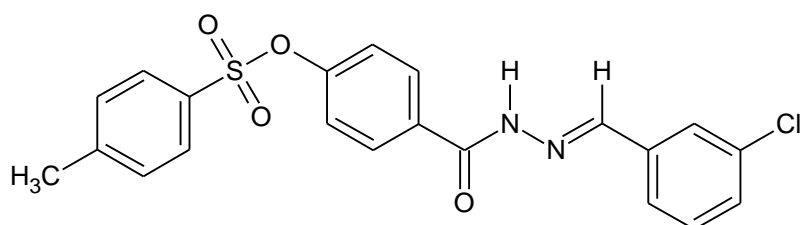


Figure S44. Chromatogram of compound **3k** (56 µg/mL) recorded under optimized conditions.

(*E*)-*N'*-[(3-Chlorophenyl)methylidene]-4-[(4-methylphenyl)sulfonyloxy]benzohydrazide (**3l**)



Lab Code: EP-T-3K

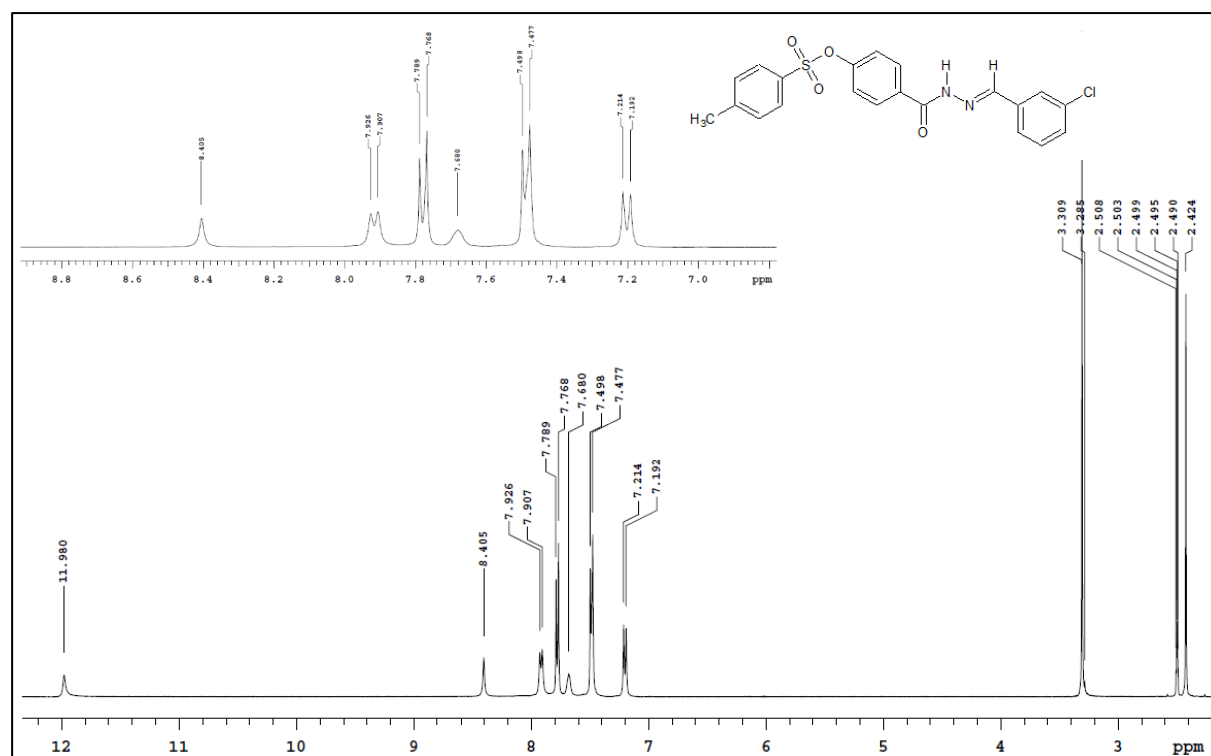


Figure S45. Compound **3l** ^1H -NMR spectrum (DMSO- d_6 , 400 MHz).

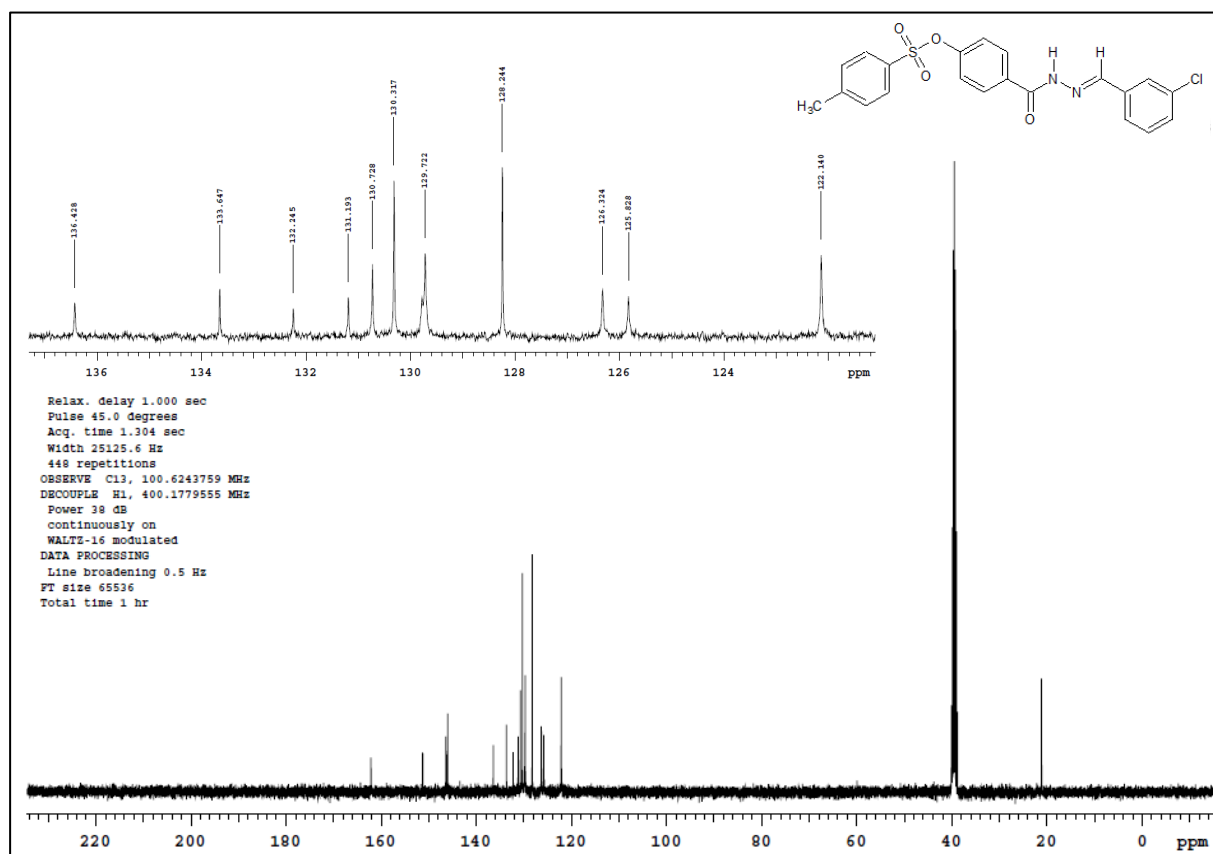


Figure S46. Compound **3l** ¹³C-NMR spectrum (DMSO-d₆, 100 MHz).

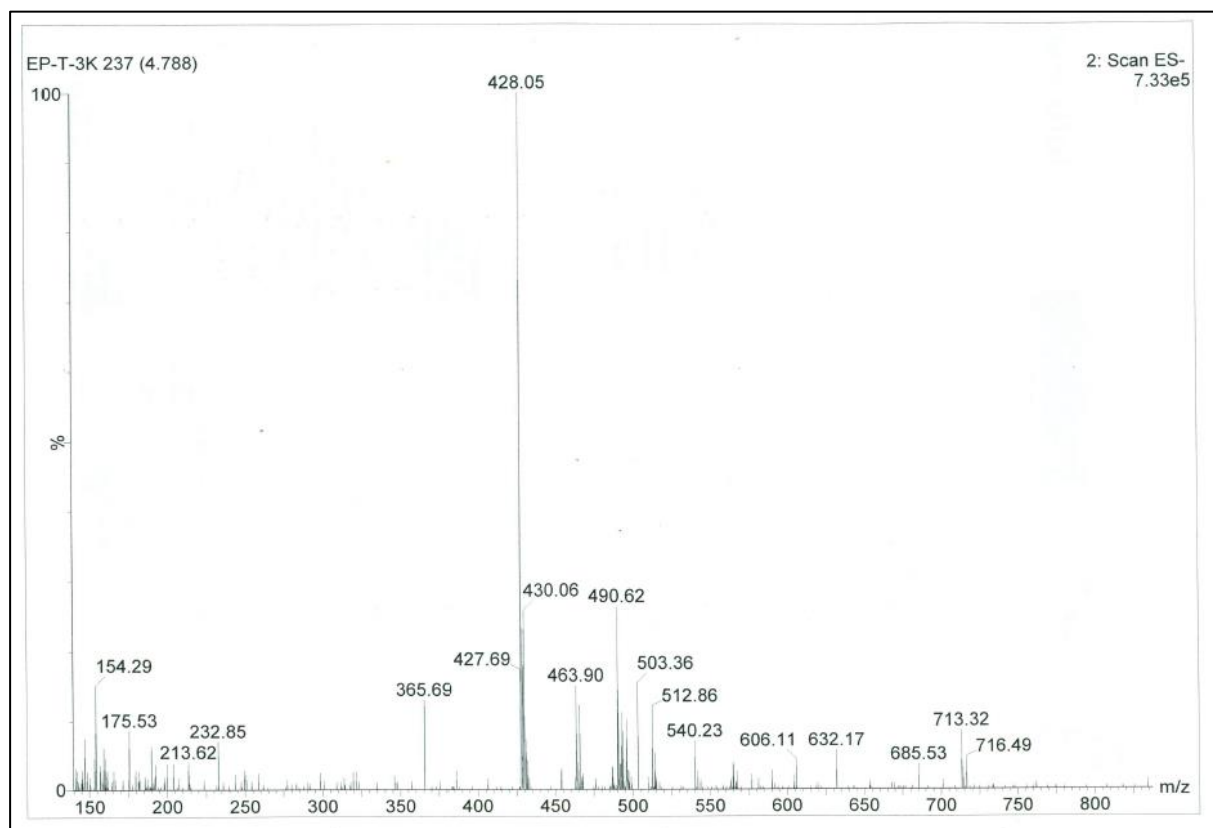


Figure S47. Compound **3l** ESI MS spectrum.

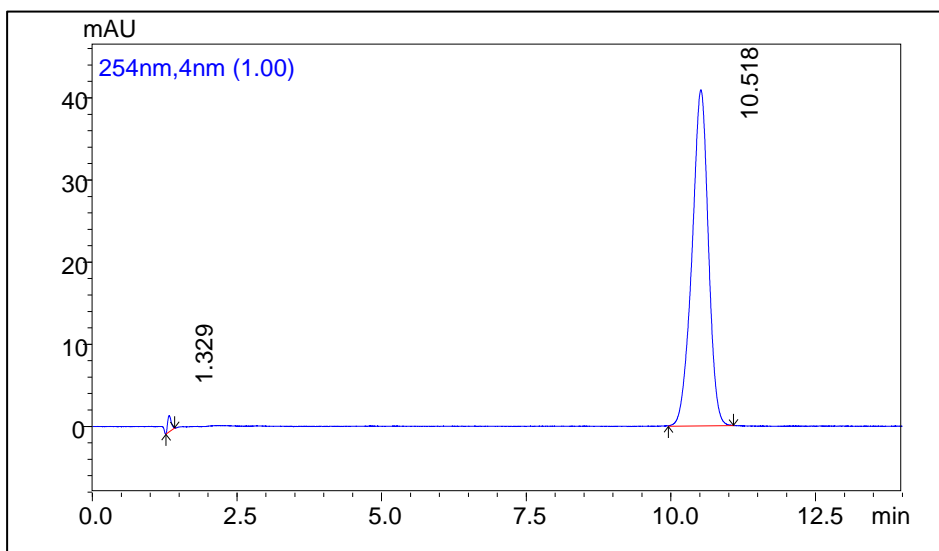
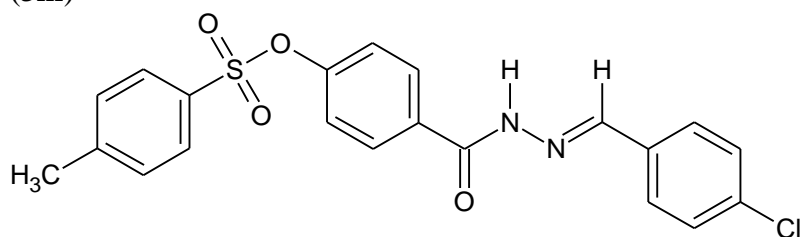


Figure S48. Chromatogram of compound **3l** (64 $\mu\text{g/mL}$) recorded under optimized conditions.

(*E*)-*N'*-[(4-Chlorophenyl)methylidene]-4-[(4-methylphenyl)sulfonyloxy]benzohydrazide (**3m**)



Lab Code: EP-T-4K

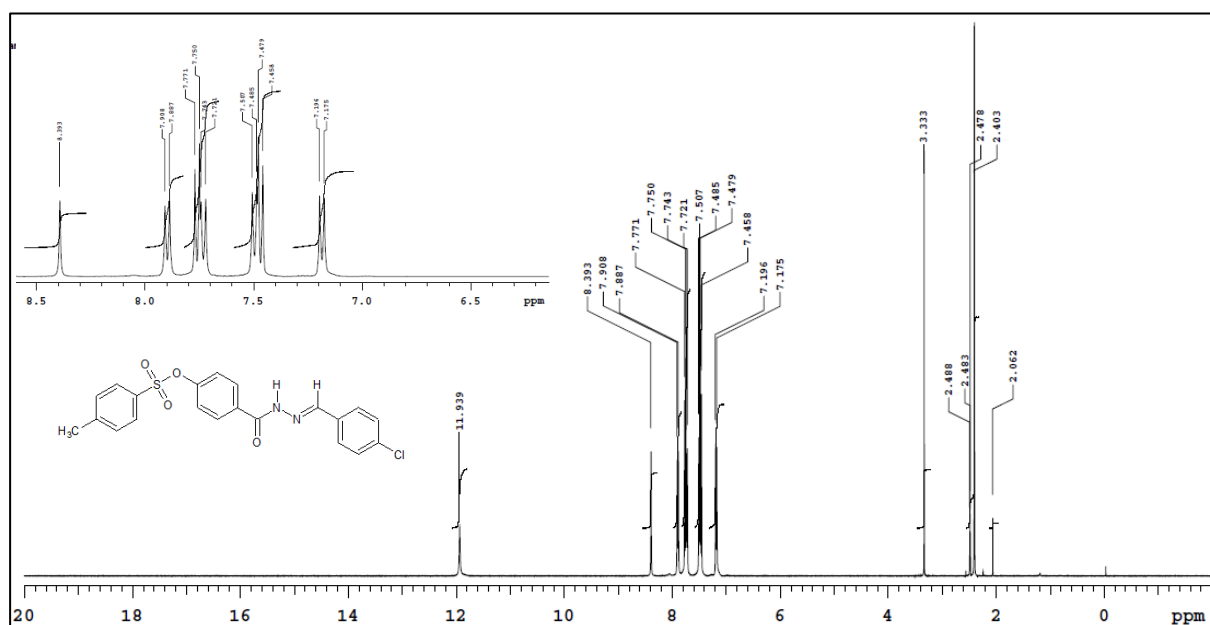


Figure S49. Compound **3m** ^1H -NMR spectrum (DMSO-d_6 , 400 MHz).

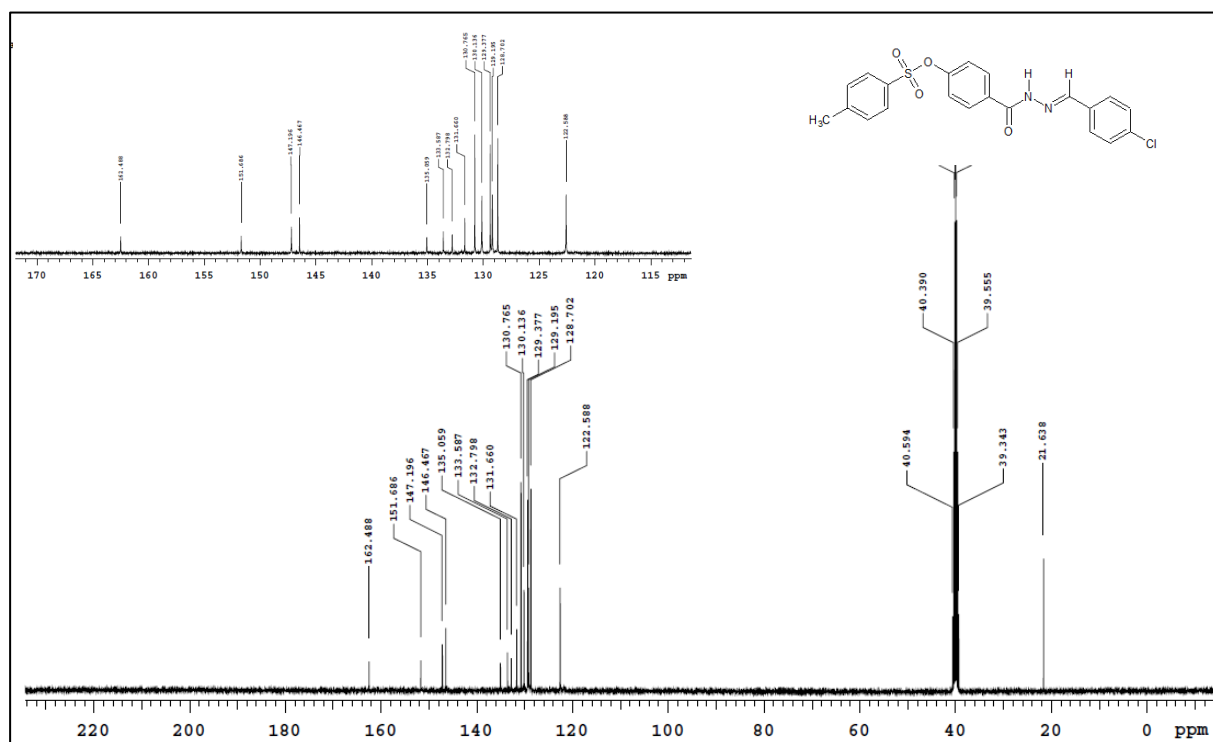


Figure S50. Compound **3m** ¹³C-NMR spectrum (DMSO-d₆, 100 MHz).

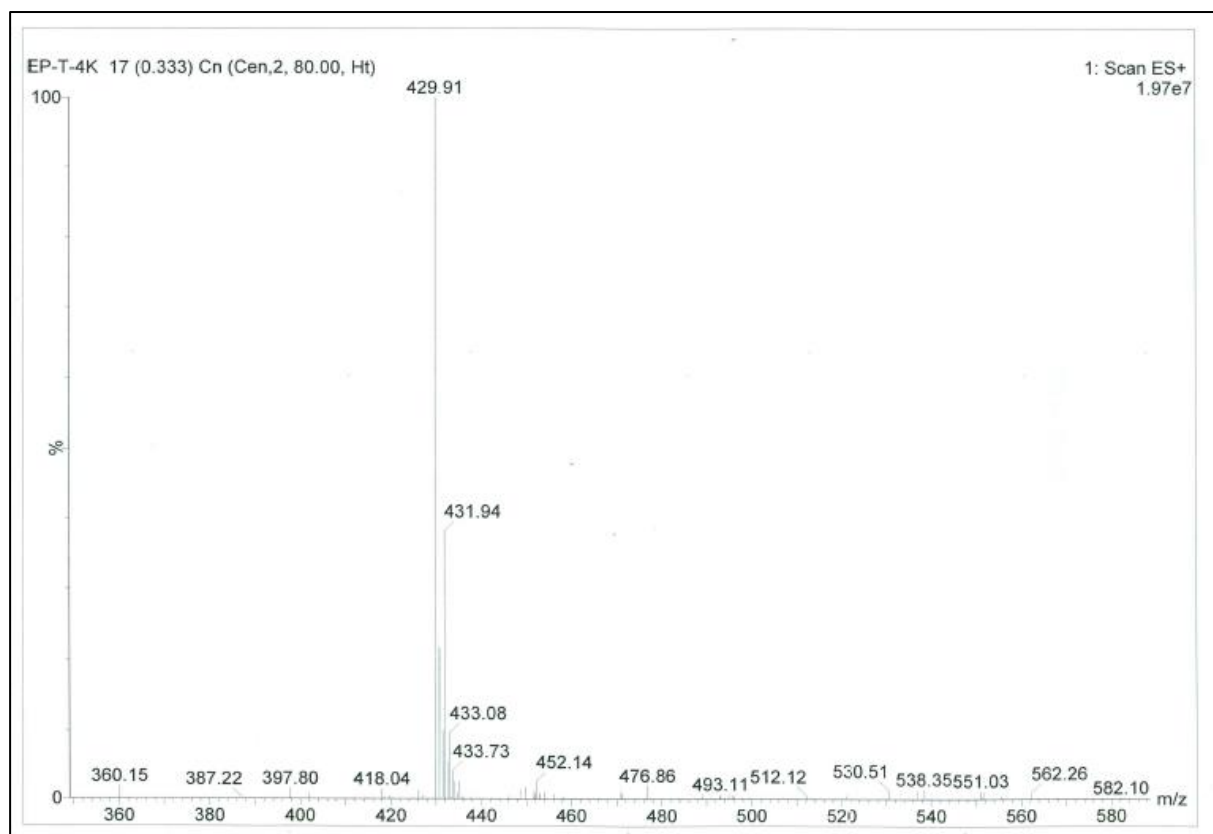


Figure S51. Compound **3m** ESI MS spectrum.

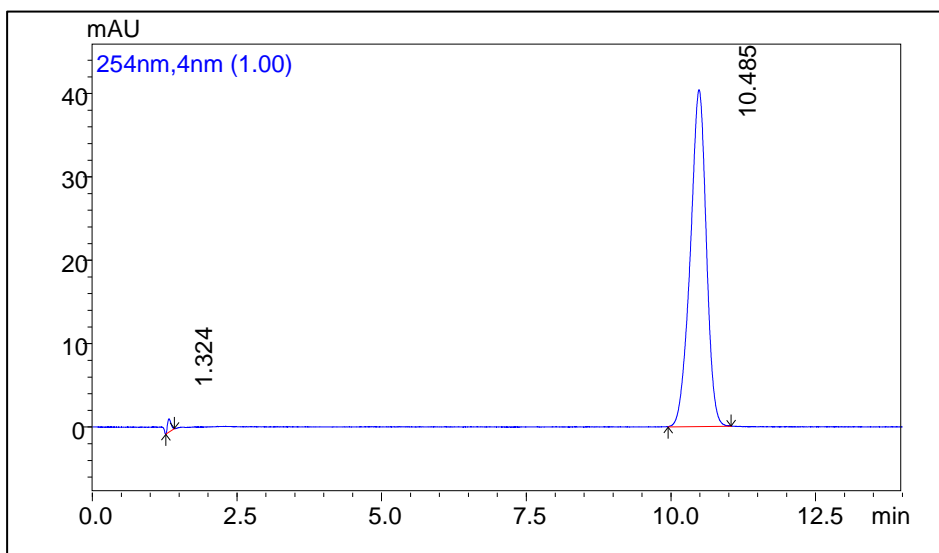
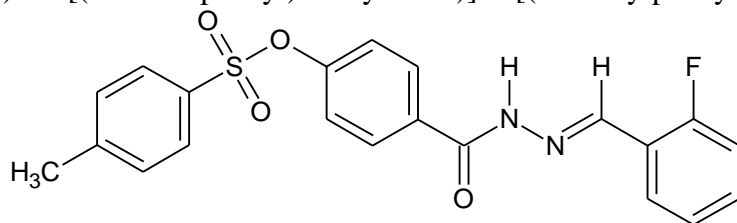


Figure S52. Chromatogram of compound **3m** (40 $\mu\text{g/mL}$) recorded under optimized conditions.

(*E*)-*N'* -[(2-Fluorophenyl)methylidene]-4-[(4-methylphenyl)sulfonyloxy]benzohydrazide (**3n**)



Lab Code: EP-T-2F

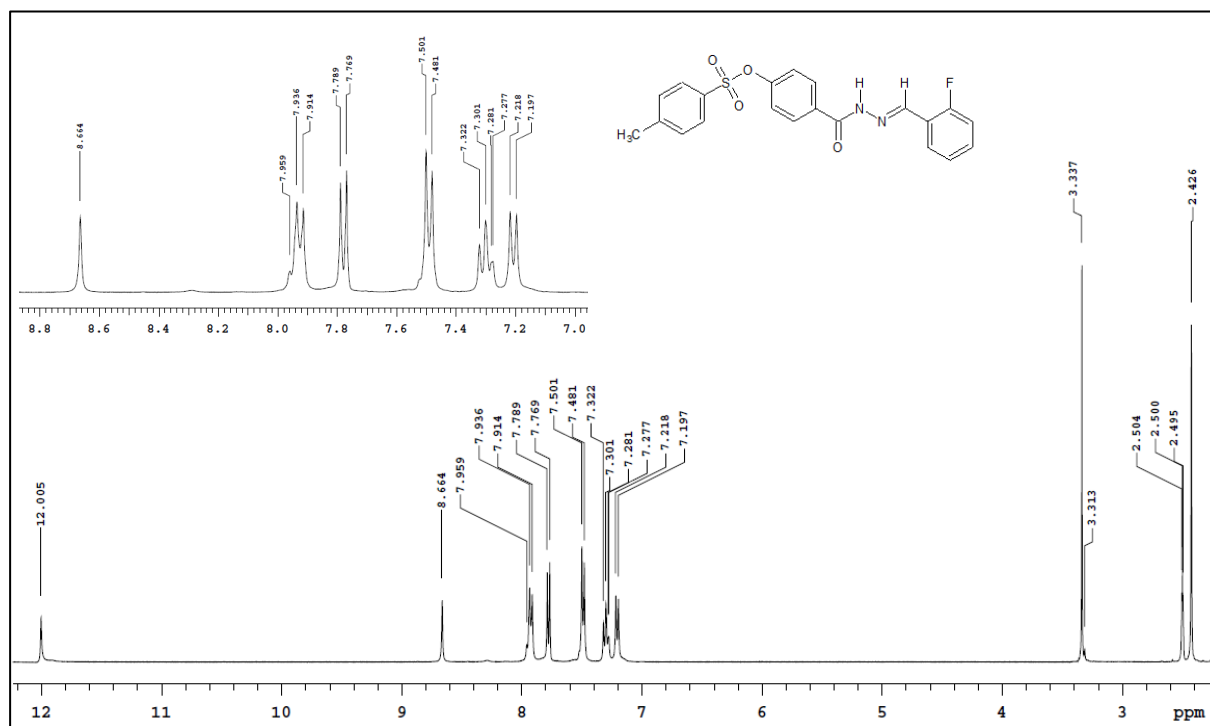


Figure S53. Compound **3n** ^1H -NMR spectrum (DMSO- d_6 , 400 MHz).

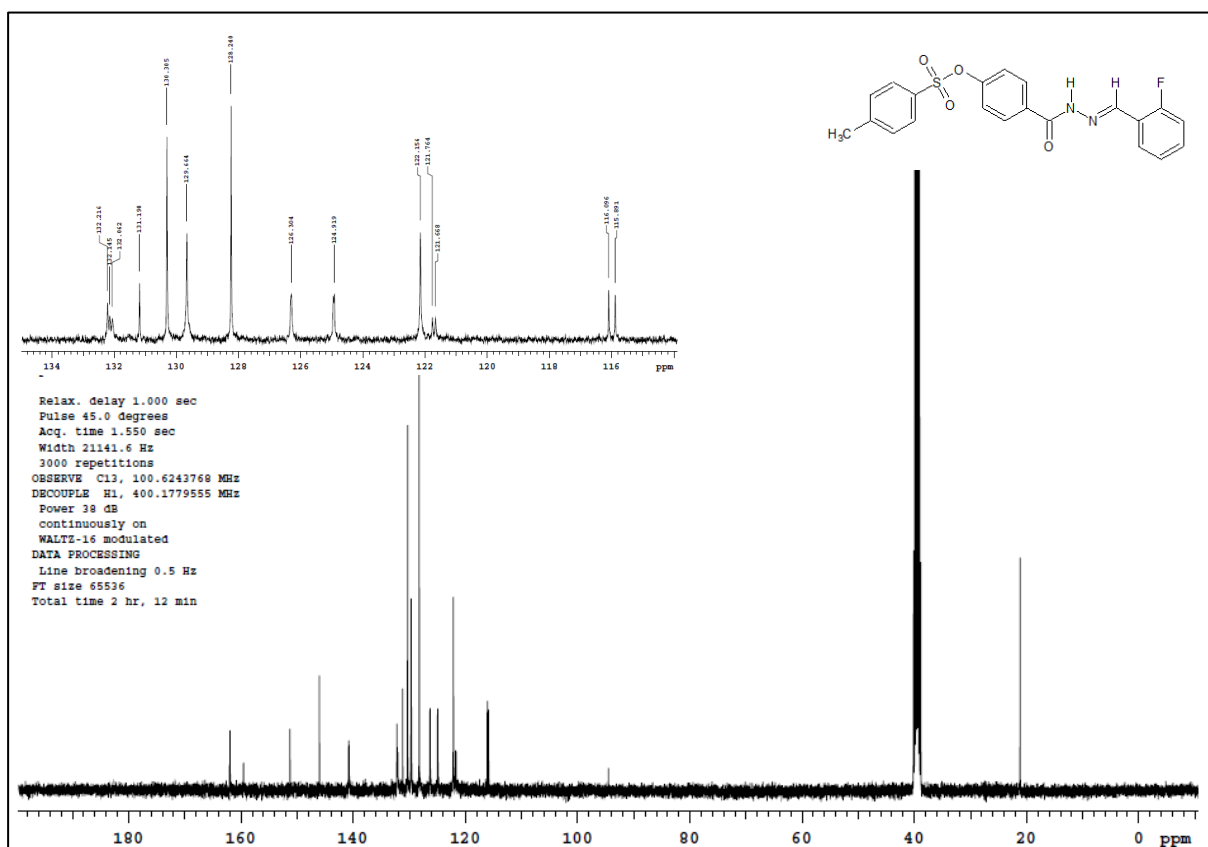


Figure S54. Compound **3n** ¹³C-NMR spectrum (DMSO-d₆, 100 MHz).

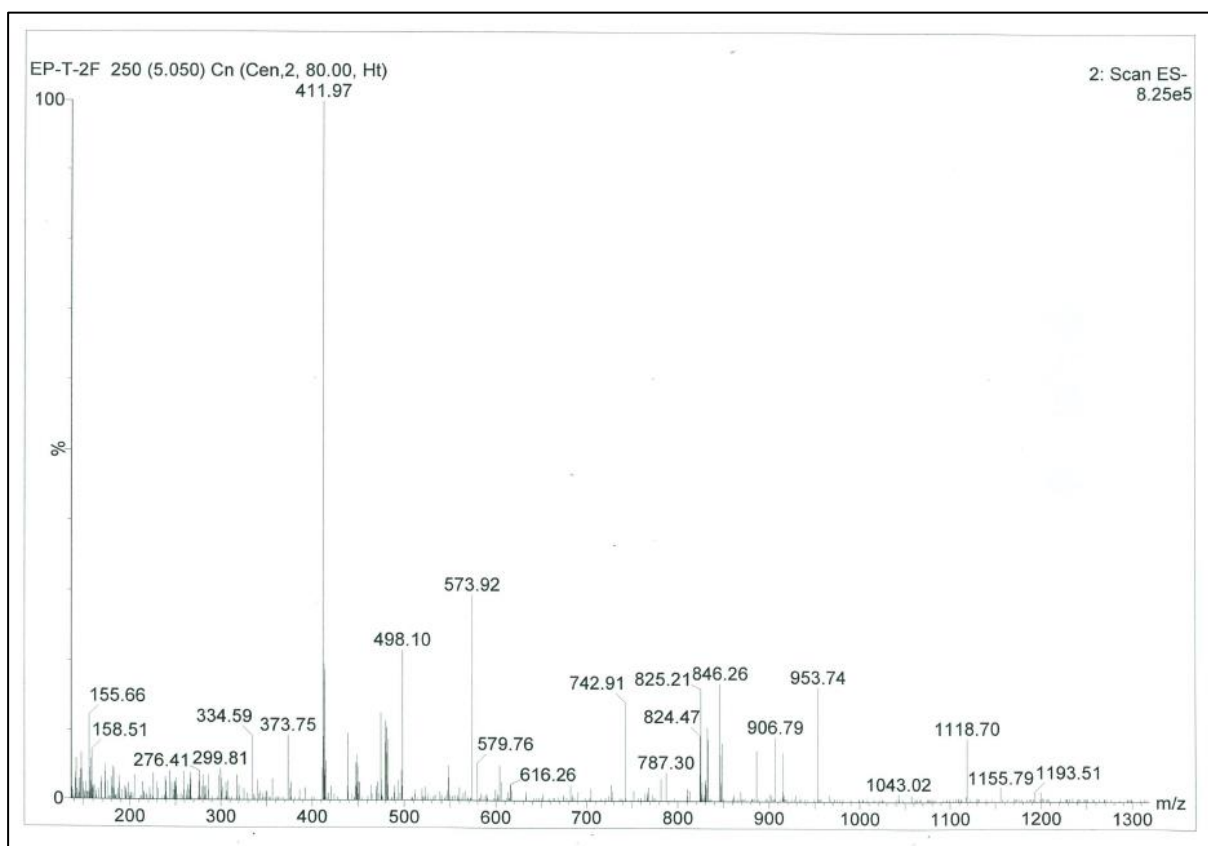


Figure S55. Compound **3n** ESI MS spectrum.

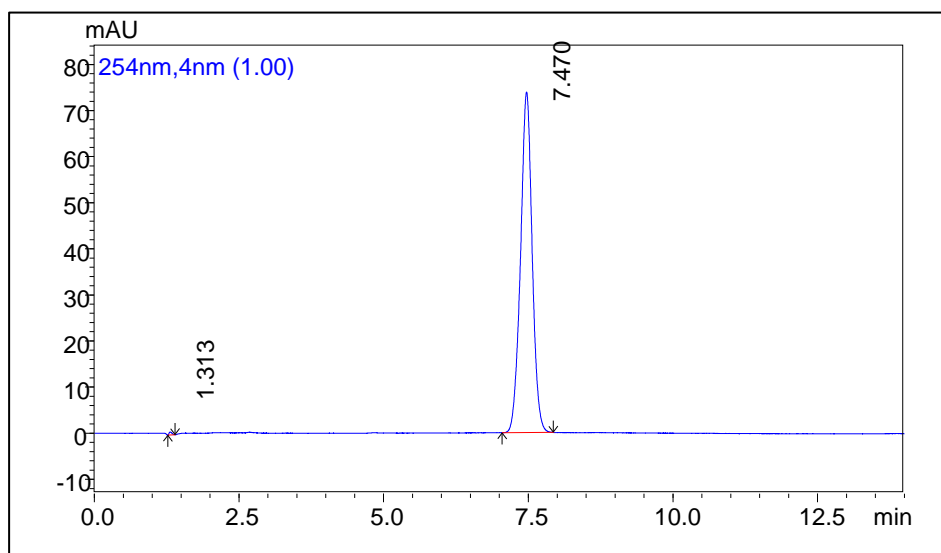
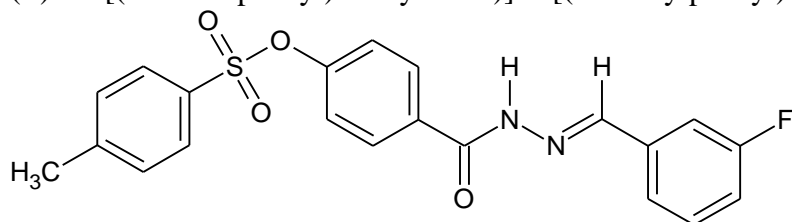


Figure S56. Chromatogram of compound **3n** (36 µg/mL) recorded under optimized conditions.

(*E*)-*N'*-[3-Fluorophenyl)methylidene]-4-[(4-methylphenyl)sulfonyloxy]benzohydrazide (**3o**)



Lab Code: EP-T-3F

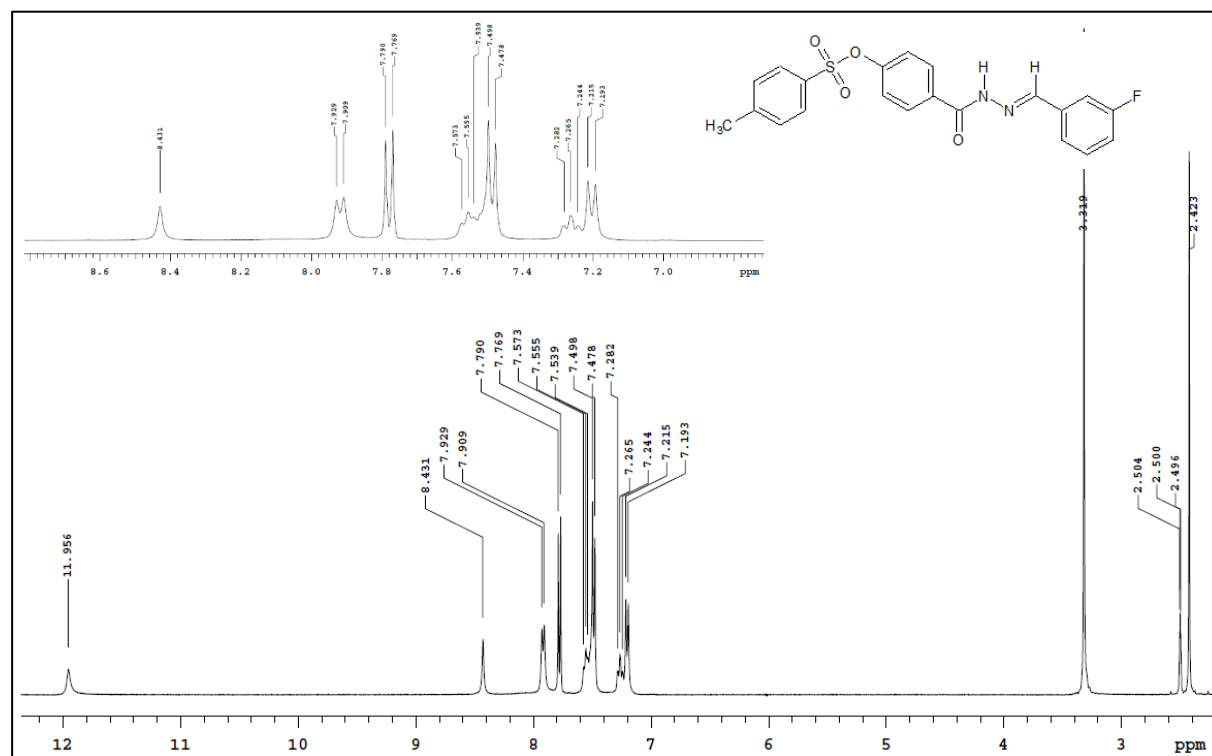


Figure S57. Compound **3o** ¹H-NMR spectrum (DMSO-d₆, 400 MHz).

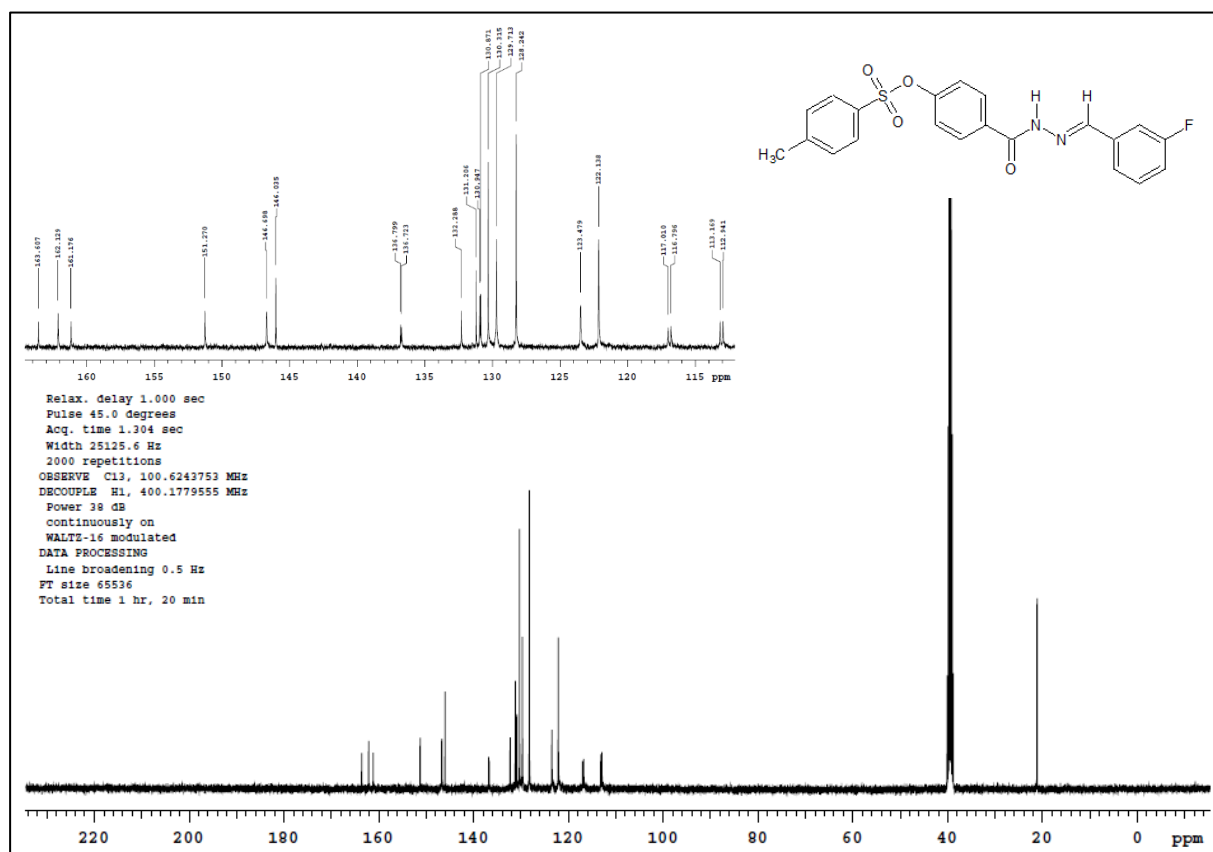


Figure S58. Compound **3o** ¹³C-NMR spectrum (DMSO-d₆, 100 MHz).

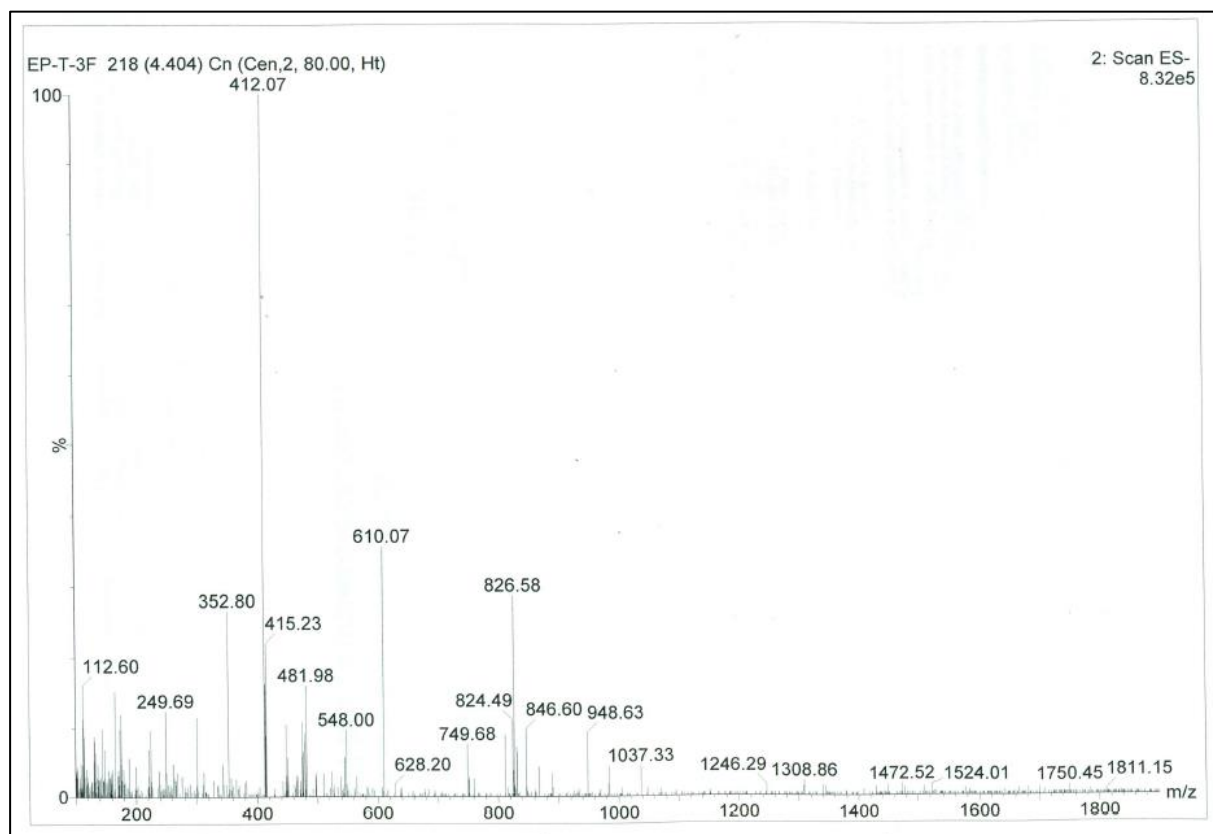


Figure S59. Compound **3o** ESI MS spectrum.

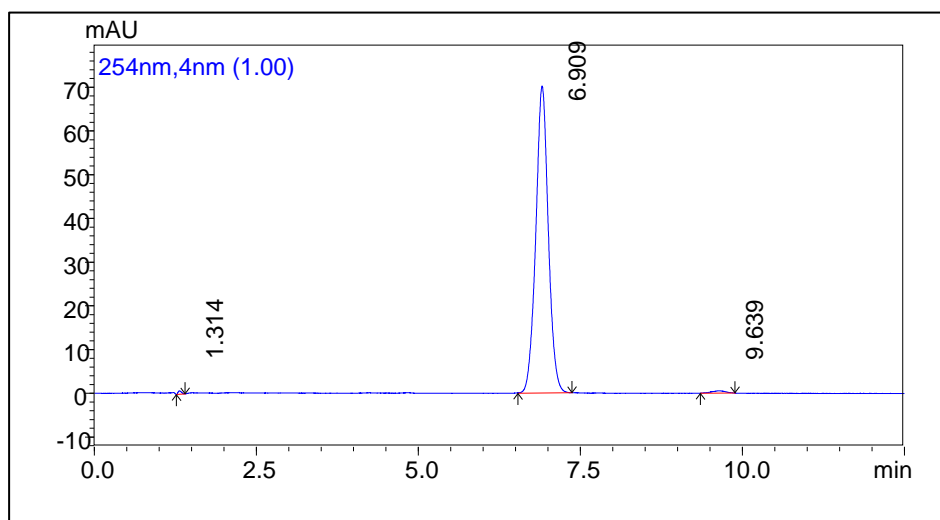
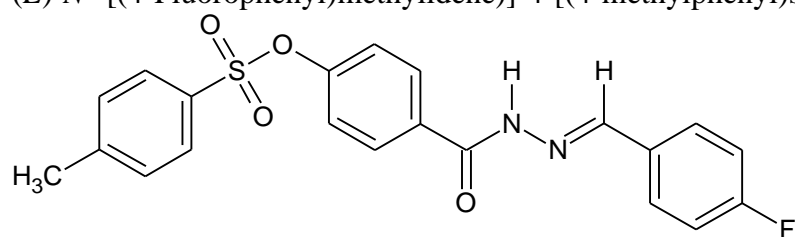


Figure S60. Chromatogram of compound **3o** (52 µg/mL) recorded under optimized conditions.

(*E*)-*N'*-[(4-Fluorophenyl)methylidene]-4-[(4-methylphenyl)sulfonyloxy]benzohydrazide (**3p**)



Lab Code: EP-T-4F

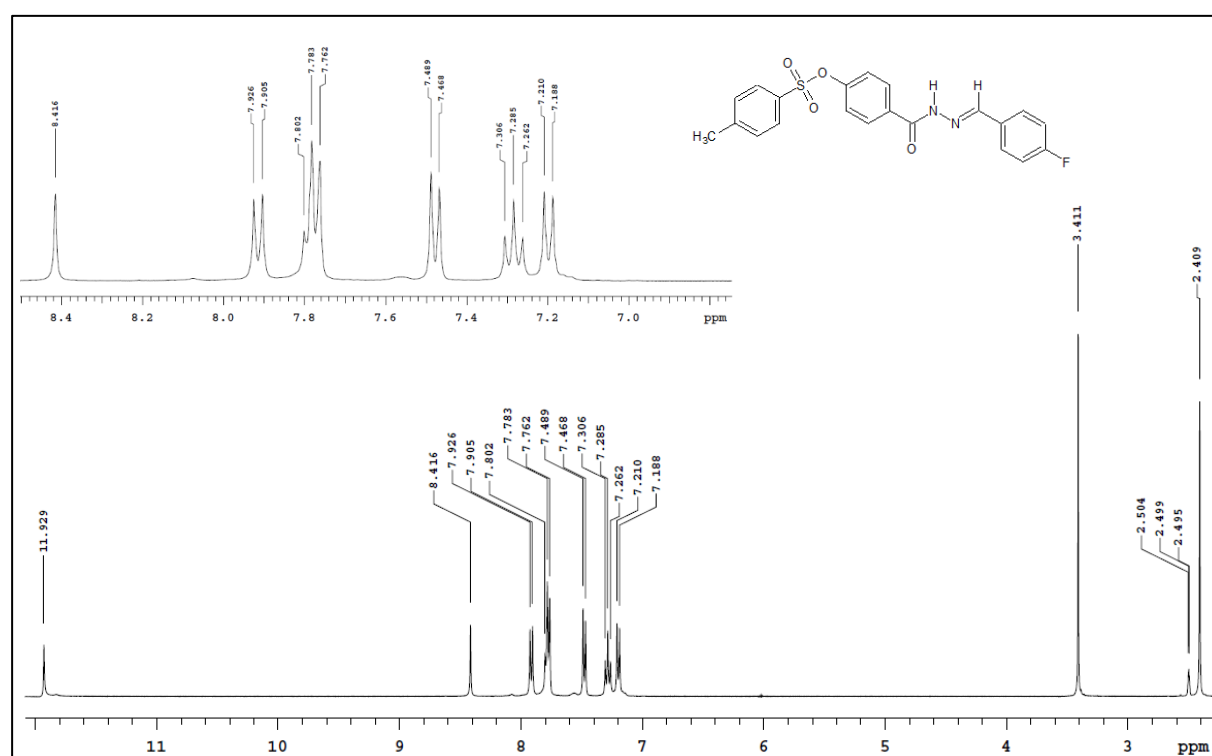


Figure S61. Compound **3p** ¹H-NMR spectrum (DMSO-d₆, 400 MHz).

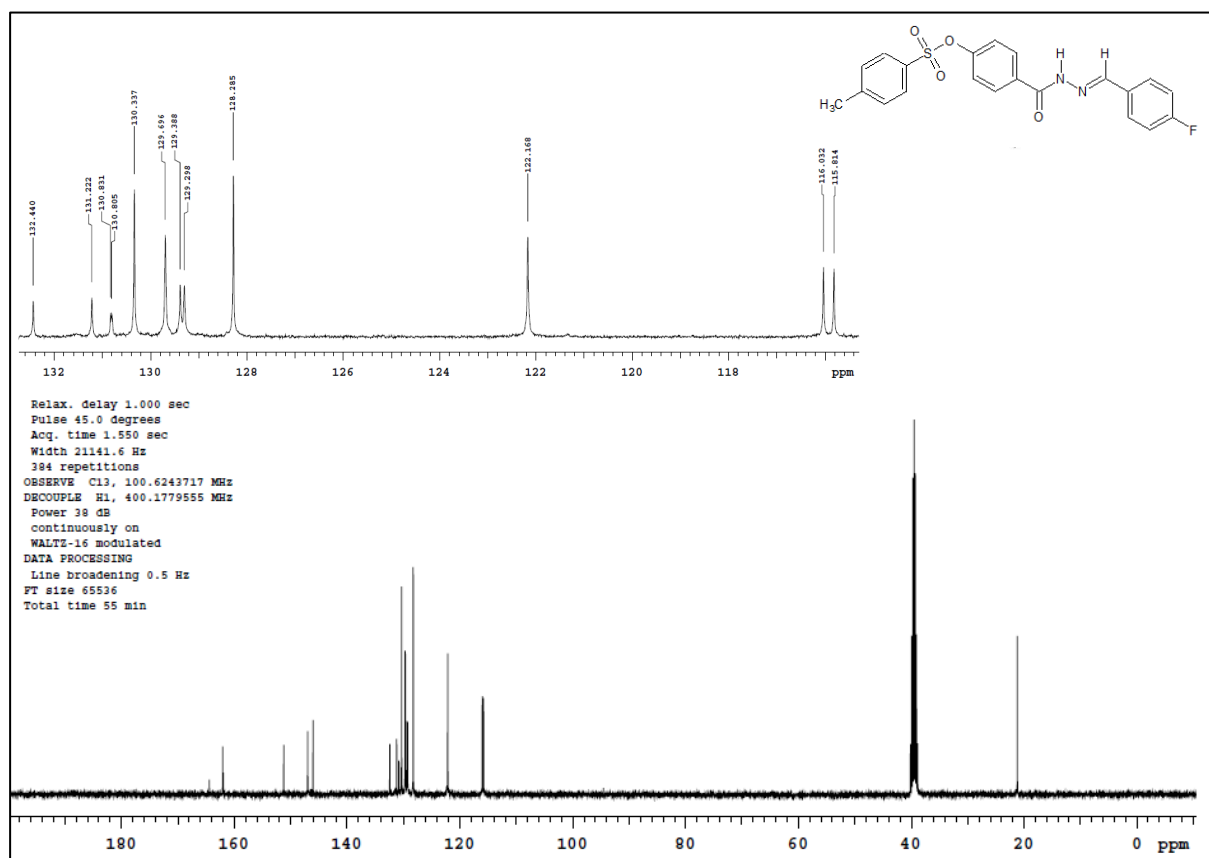


Figure S62. Compound **3p** ¹³C-NMR spectrum (DMSO-d₆, 100 MHz).

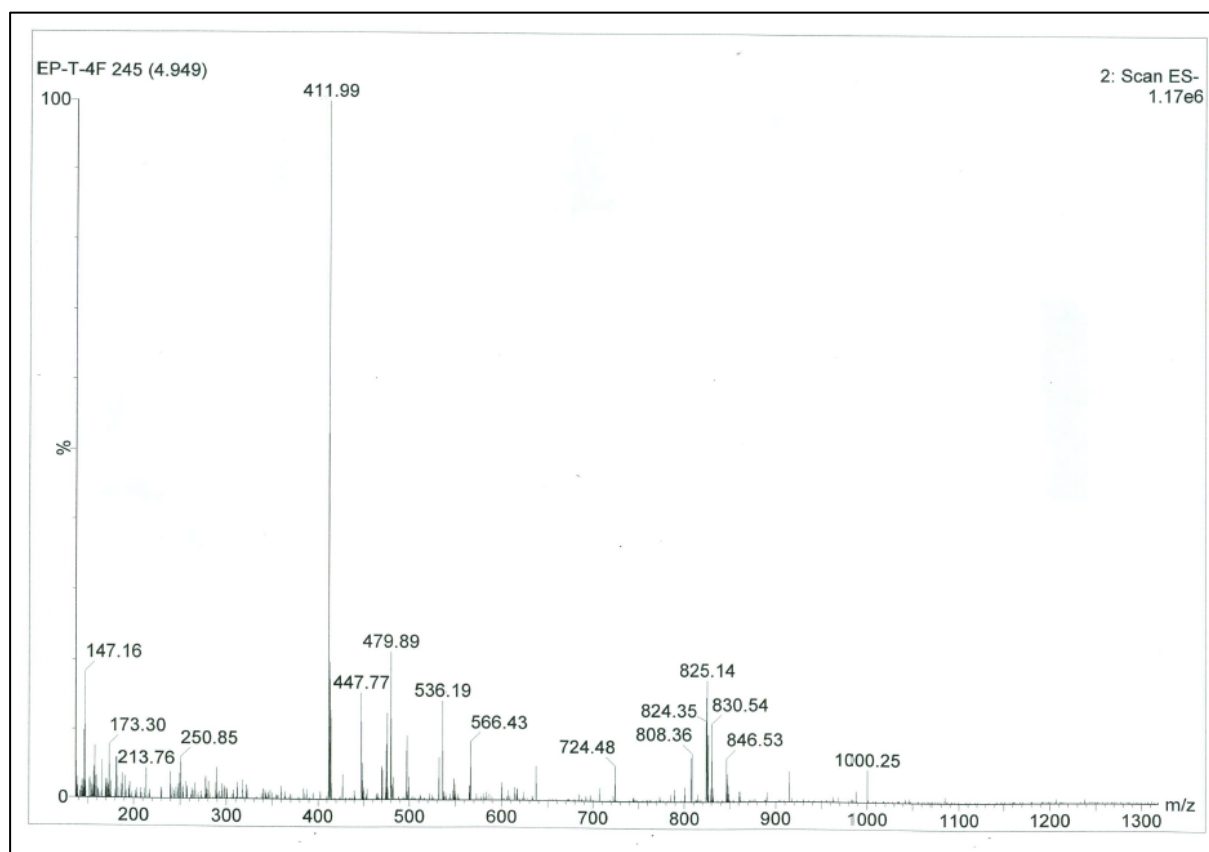


Figure S63. Compound **3p** ESI MS spectrum.

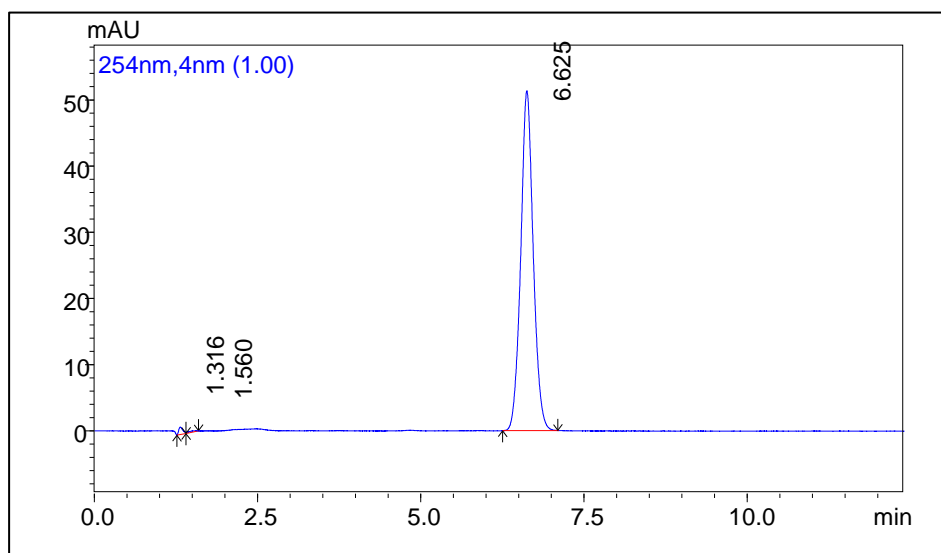
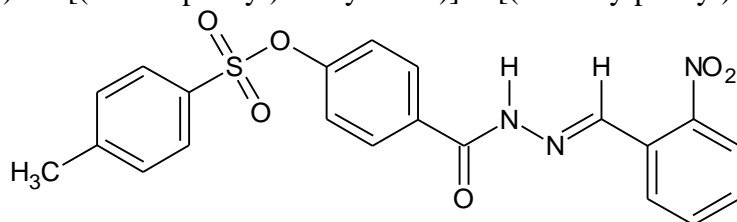


Figure S64. Chromatogram of compound **3p** (36 µg/mL) recorded under optimized conditions.

(*E*)-*N'*-[(2-Nitrophenyl)methylidene]-4-[(4-methylphenyl)sulfonyloxy]benzohydrazide (**3r**)



Lab Code: EP-T-2N

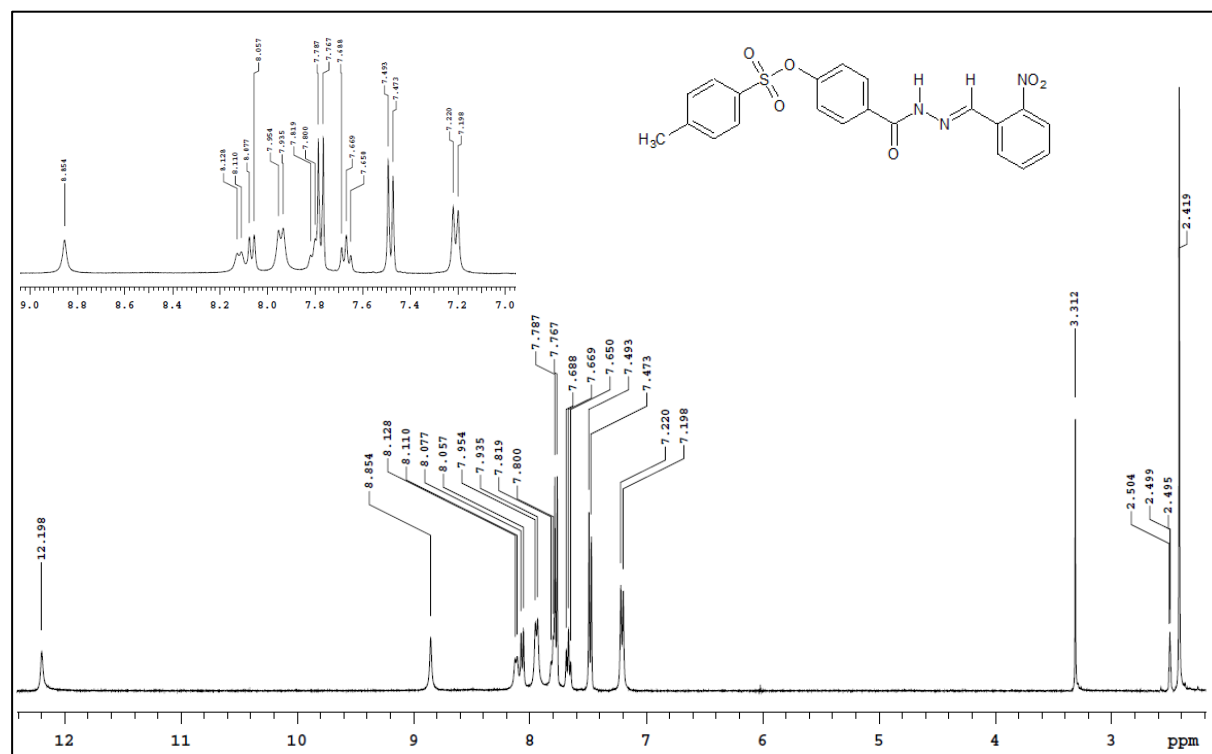


Figure S65. Compound **3r** ¹H-NMR spectrum (DMSO-*d*₆, 400 MHz).

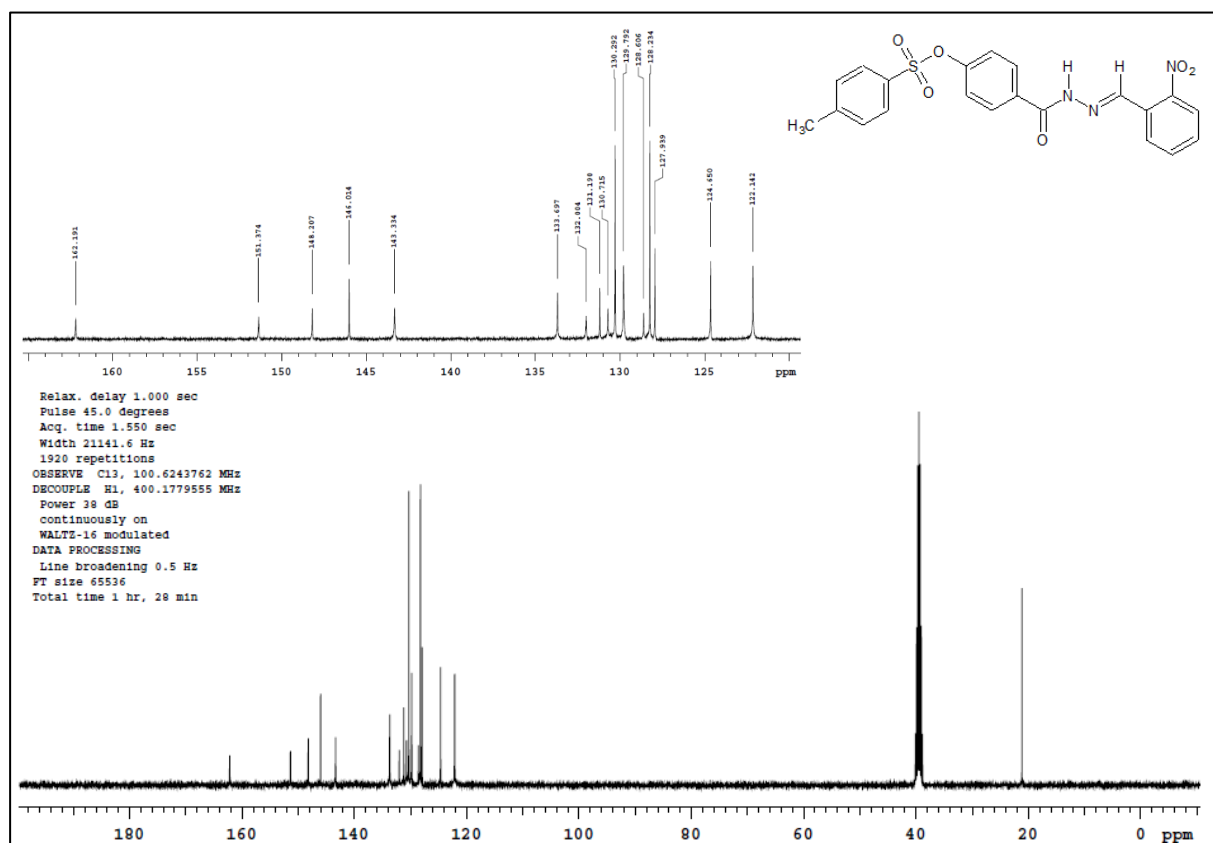


Figure S66. Compound **3r** ¹³C-NMR spectrum (DMSO-d₆, 100 MHz).

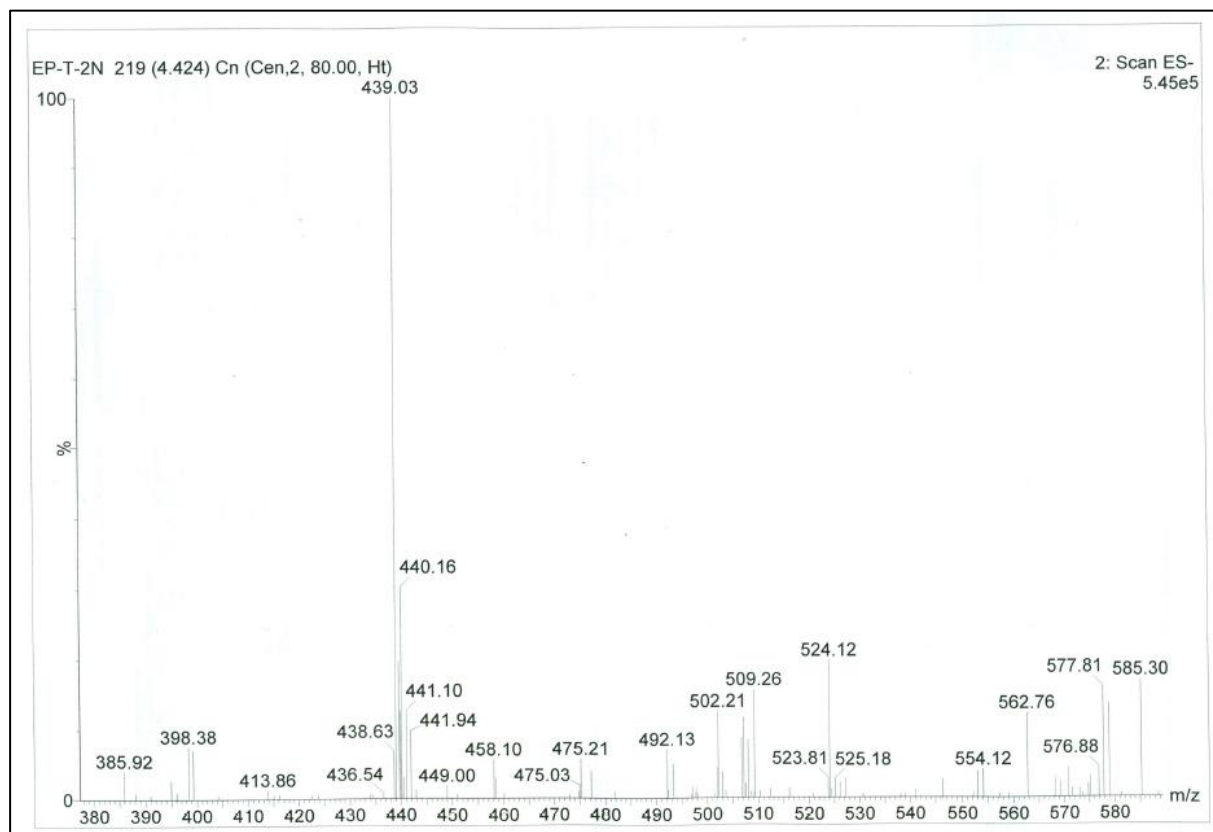


Figure S67. Compound **3r** ESI MS spectrum.

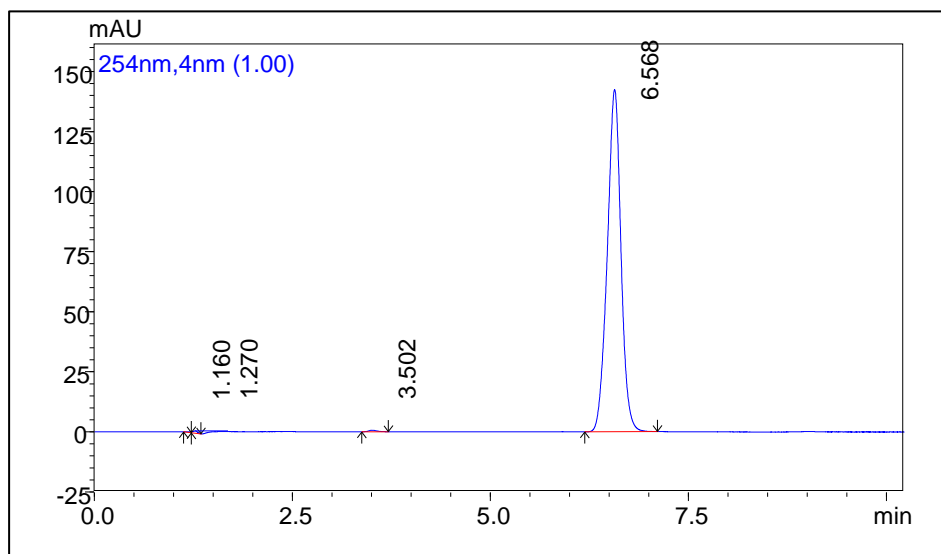
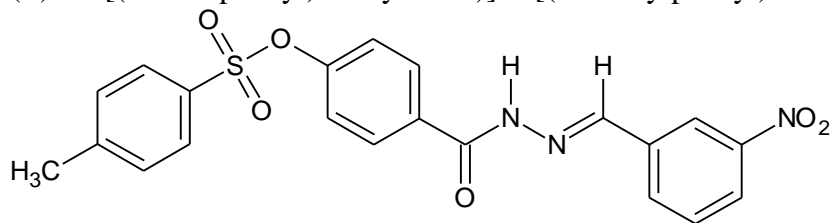


Figure S68. Chromatogram of compound **3r** (44 µg/mL) recorded under optimized conditions.

(*E*)-*N'*-[(3-Nitrophenyl)methylidene]-4-[(4-methylphenyl)sulfonyloxy]benzohydrazide (**3s**)



Lab Code: EP-T-3N

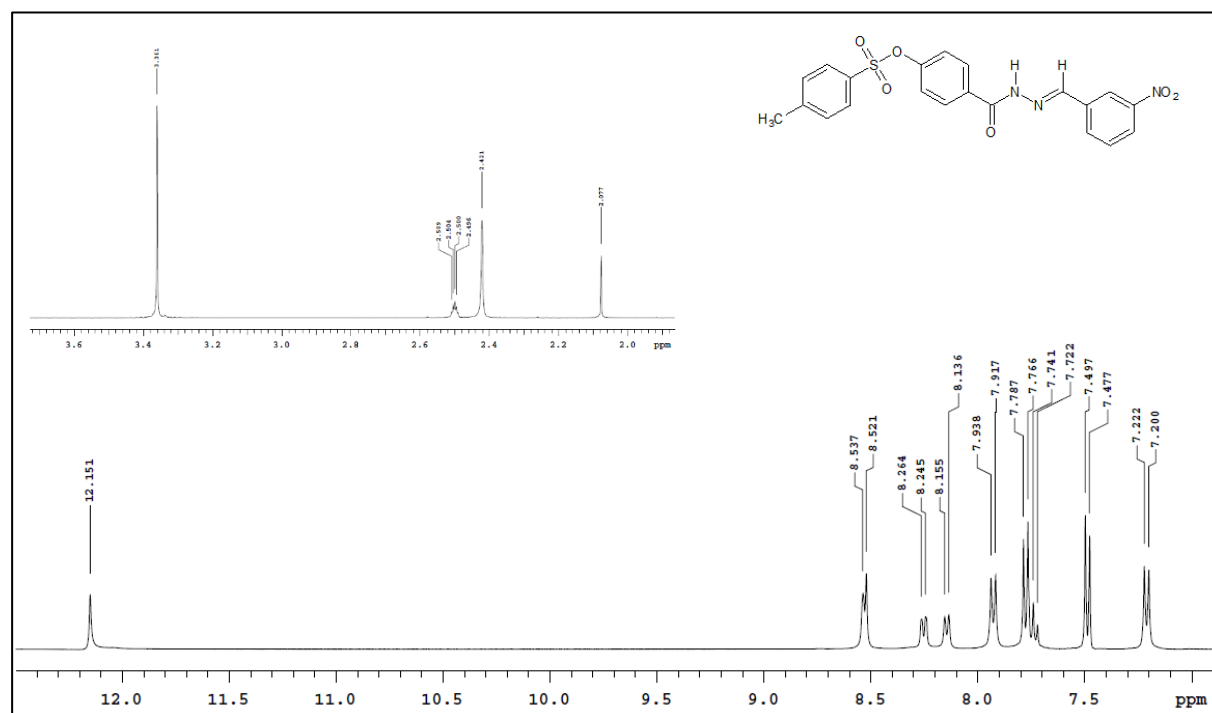


Figure S69. Compound **3s** ¹H-NMR spectrum (DMSO-d₆, 400 MHz).

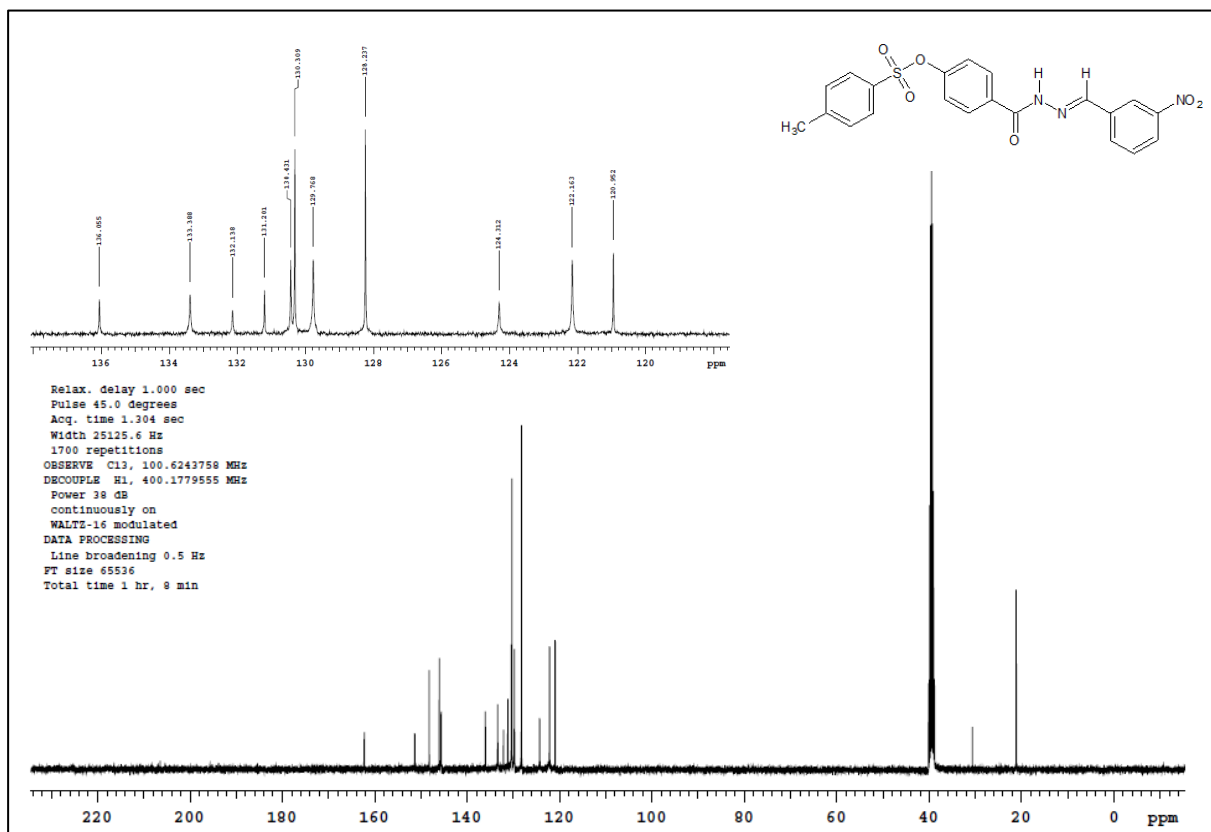


Figure S70. Compound 3s ¹³C-NMR spectrum (DMSO-d₆, 100 MHz).

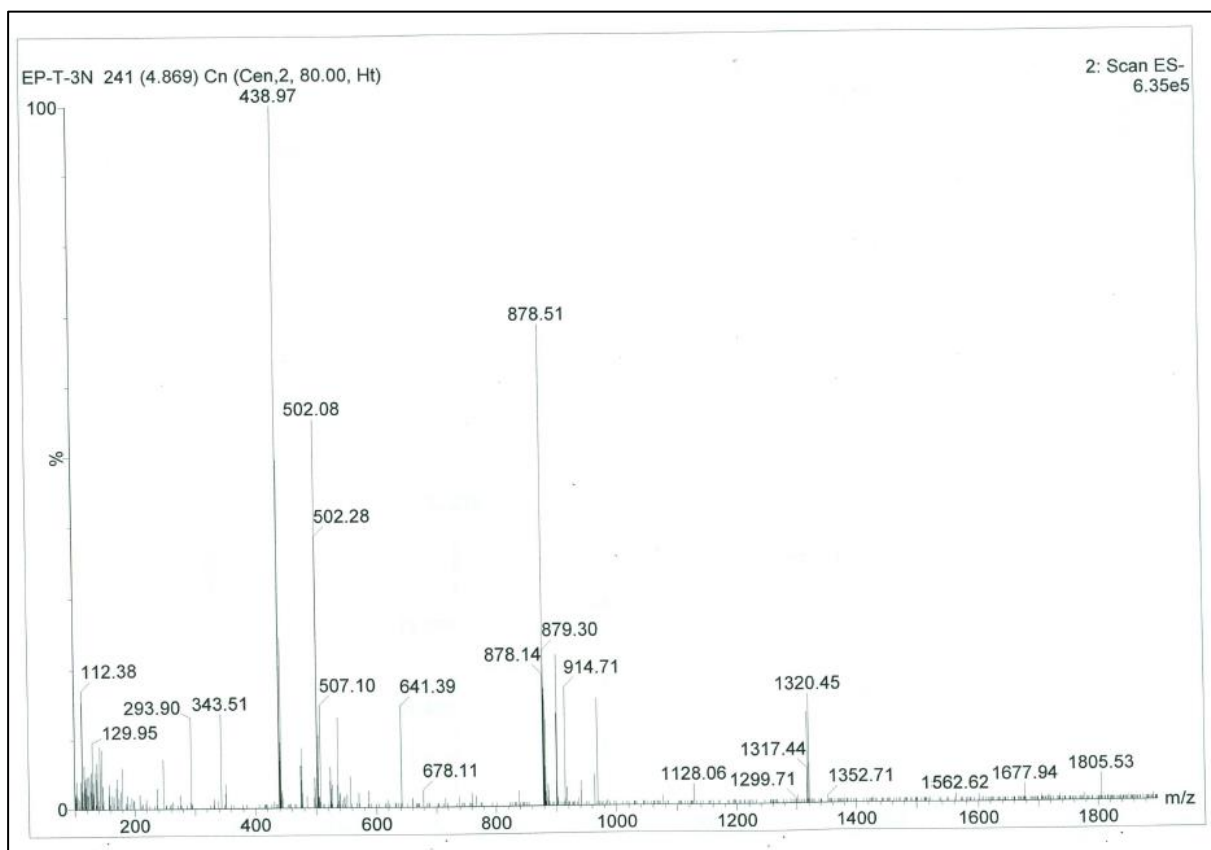


Figure S71. Compound 3s ESI MS spectrum.

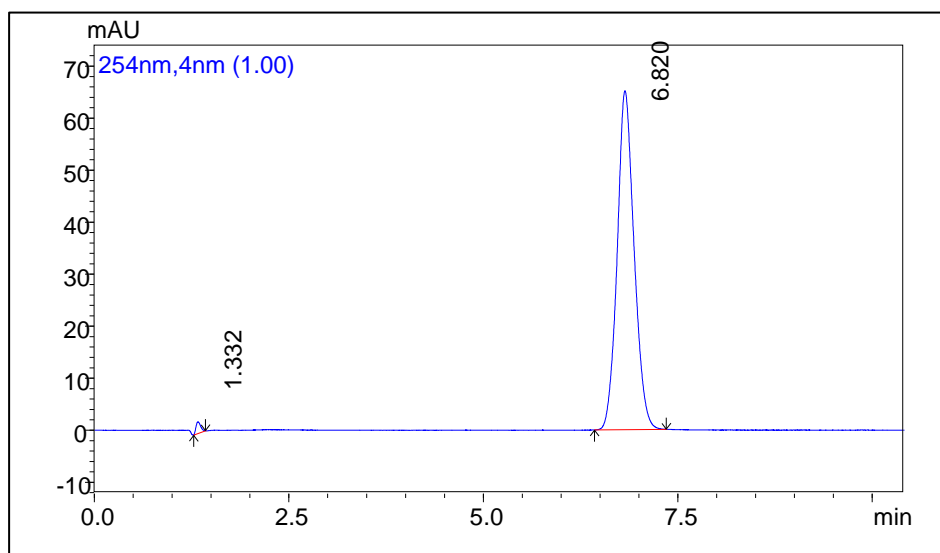


Figure S72. Chromatogram of compound **3s** (32 $\mu\text{g/mL}$) recorded under optimized conditions.

(*E*)-*N'*-[(4-Nitrophenyl)methylidene]-4-[(4-methylphenyl)sulfonyloxy]benzohydrazide (**3t**)

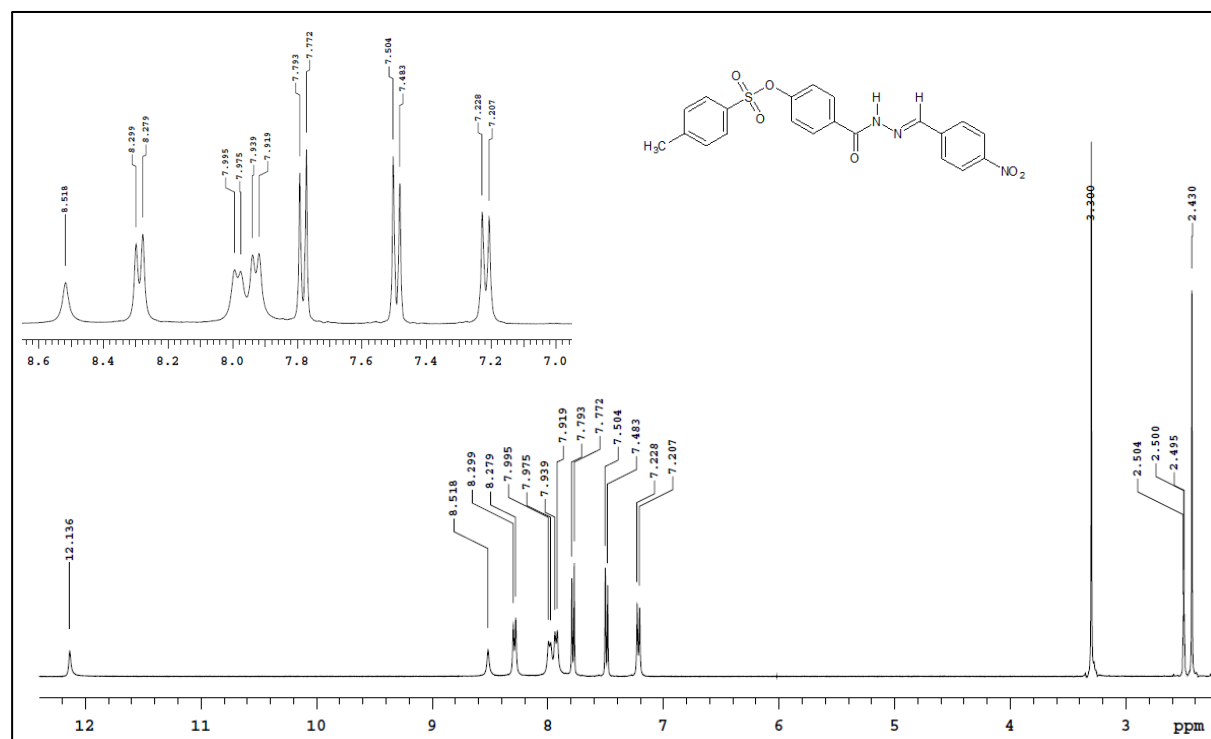
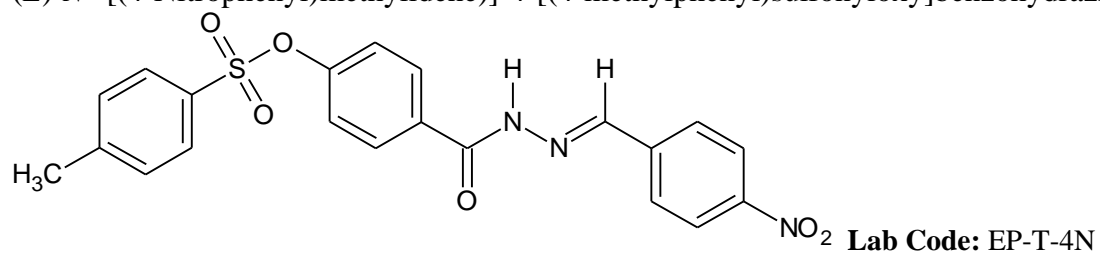


Figure S73. Compound **3t** ^1H -NMR spectrum (DMSO- d_6 , 400 MHz).

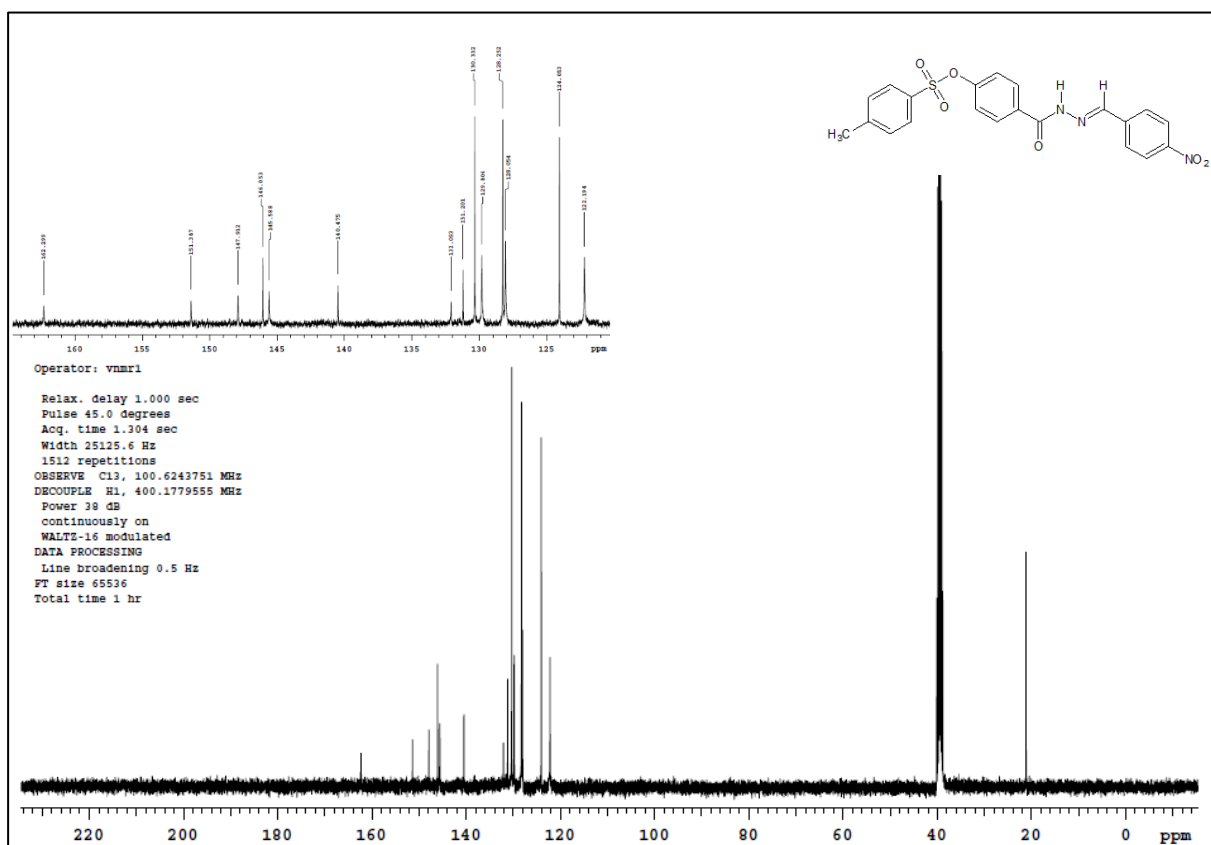


Figure S74. Compound **3t** ¹³C-NMR spectrum (DMSO-d₆, 100 MHz).

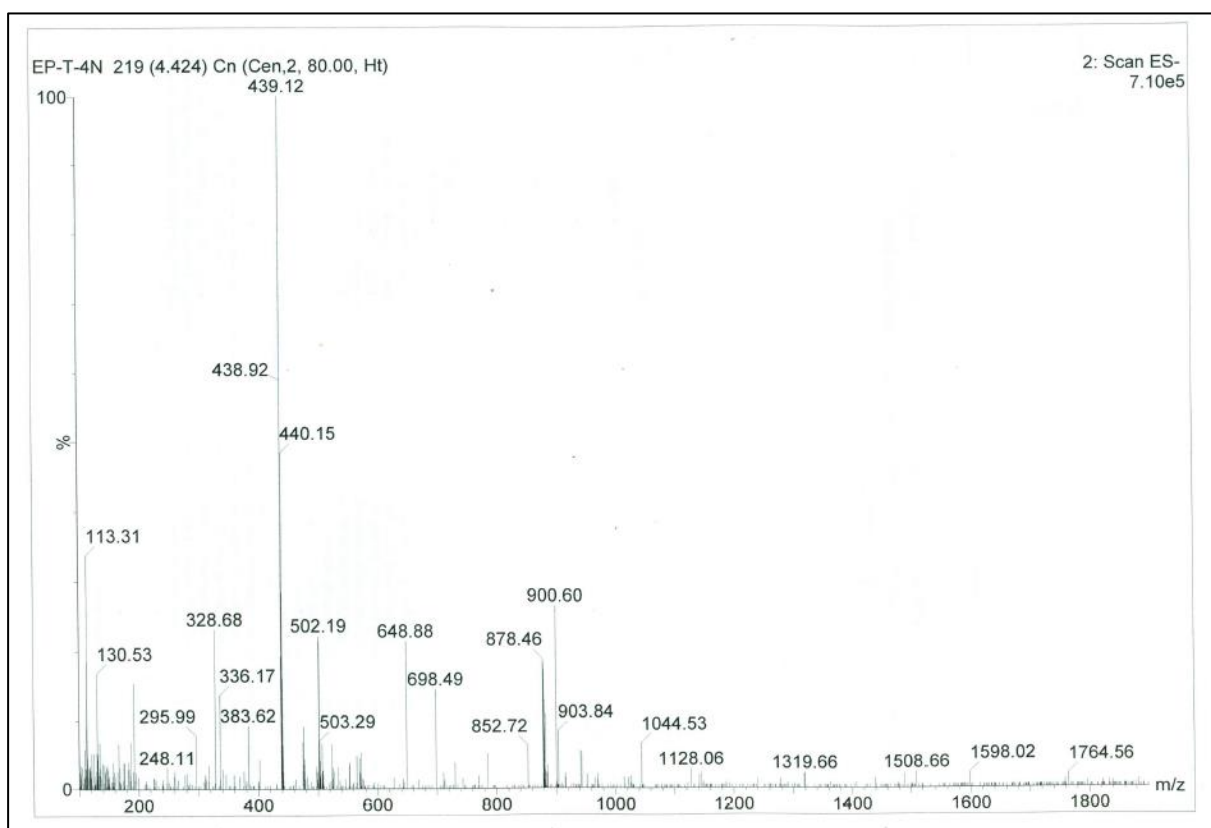


Figure S75. Compound **3t** ESI MS spectrum.

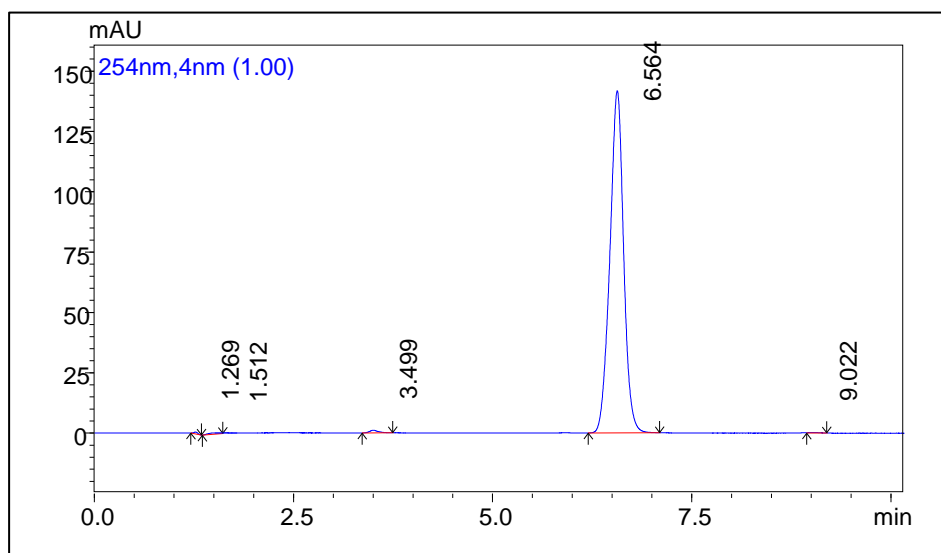


Figure S76. Chromatogram of compound **3t** (36 $\mu\text{g/mL}$) recorded under optimized conditions.