Synthesis, anticancer evaluation and molecular docking studies of new benzimidazole-1,3,4-oxadiazole derivatives as human topoisomerase types I poison

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Figure 1. IR spectrum of compound 2a
Figure 2. 1H-NMR spectra of compound 2a.
Figure 3. $\textsuperscript{13}$C-NMR spectra of compound 2a
Figure 4. Mass spectrum of compound 2a
Figure 5. IR spectrum of compound 2b
Figure 6. $^1$H-NMR spectra of compound 2b
Figure 7. $^{13}$C-NMR spectra of compound 2b
Figure 8. Mass spectrum of compound 2b
Figure 9. IR spectrum of compound 2c
Figure 10. $^1$H-NMR spectra of compound 2c
Figure 11. 13C-NMR spectra of compound 2c
Figure 12. Mass spectrum of compound 2c
Figure 13. IR spectrum of compound 4a
Figure 14. H-NMR spectra of compound 4a
Figure 15. 13C-NMR spectra of compound 4a
Figure 16. Mass spectrum of compound 4a
Figure 17. IR spectrum of compound 4b
Figure 18. H-NMR spectra of compound 4b
Figure 19. $^{13}$C-NMR spectra of compound 4b
Figure 20. Mass spectrum of compound 4b
**Figure 21.** IR spectrum of compound 4c
Figure 22. $^1$H-NMR spectra of compound 4c
Figure 23. 13C-NMR spectra of compound 4c
Figure 24. Mass spectrum of compound 4c
Figure 25. IR spectrum of compound 5a
Figure 26. H-NMR spectra of compound 5a
Figure 27. $^{13}$C-NMR spectra of compound 5a
Figure 28. Mass spectrum of compound 5a
Figure 29. IR spectrum of compound 5b
Figure 30. $^1$H-NMR spectra of compound 5b
Figure 3L 13C-NMR spectra of compound 5b
Figure 32. Mass spectrum of compound 5b
Figure 33. IR spectrum of compound 5c
Figure 34. H-NMR spectra of compound 5c
Figure 35. 13C-NMR spectra of compound 5c
Figure 36. Mass spectrum of compound 5c
Figure 37. IR spectrum of compound 5d
Figure 38. 1H-NMR spectra of compound 5d
Figure 39. 13C-NMR spectra of compound 5d
Figure 40. Mass spectrum of compound 5d
Figure 41. IR spectrum of compound 5e
Figure 42. H-NMR spectra of compound 5e
Figure 43. 13C-NMR spectra of compound 5e.
Figure 44. Mass spectrum of compound 5e
**Figure 45.** IR spectrum of compound 5f
Figure 46. $^1$H-NMR spectra of compound 5f
Figure 47. 1JC-NMR spectra of compound 5f
Figure 48. Mass spectrum of compound 5f
Figure 49. IR spectrum of compound 5g
Figure 50. H-NMR spectra of compound 5g
Figure S1. 13C-NMR spectra of compound 5g.
Figure 52. Mass spectrum of compound 5g
Figure 53. IR spectrum of compound 5h
Figure S4. H-NMR spectra of compound 5h
Figure 55. 13C-NMR spectra of compound 5h.
Figure 56. Mass spectrum of compound 5h
Figure 57. IR spectrum of compound 51
Figure 58. H-NMR spectra of compound 51
Figure 5.9. 13C-NMR spectra of compound 51.
Figure 60. Mass spectrum of compound 5t
Figure 61. IR spectrum of compound $5j$
Figure 62. H-NMR spectra of compound 5j
Figure 63. 13C-NMR spectra of compound 5j
Figure 64. Mass spectrum of compound 5j
Figure 65. IR spectrum of compound 5k
Figure 66. \textit{H}-NMR spectra of compound 5k
Figure 67: 13C-NMR spectra of compound 5k
Figure 68. Mass spectrum of compound 5k
Figure 69. IR spectrum of compound 51
Figure 70. $^1$H-NMR spectra of compound 51
Figure 71. $^{13}$C-NMR spectra of compound 5I
Figure 72. Mass spectrum of compound 5l
Figure 73. IR spectrum of compound 5m
Figure 74. 1H-NMR spectra of compound 5n
Figure 75. $^{13}$C-NMR spectra of compound 5m
Figure 76. Mass spectrum of compound 5m
Figure 77. IR spectrum of compound 5n
Figure 78. H-NMR spectra of compound 5n
Figure 79. 13C-NMR spectra of compound 5n
Figure 80. Mass spectrum of compound 5n
Figure 81. IR spectrum of compound 5o
Figure 82. H-NMR spectra of compound 50
Figure 83. $^{13}$C-NMR spectra of compound 50.
Figure 84. Mass spectrum of compound 5o
Figure 85. 2D HSQC spectrum of the compound 5e
Figure 86. 2D HMBC spectrum of the compound 5e
Figure 87. 2D COSY spectrum of the compound 5e