## Nano $\gamma$ -Fe<sub>2</sub>O<sub>3</sub>-supported fluoroboric acid: a novel magnetically recyclable catalyst for the synthesis of 12-substituted-benzo[*h*] [1,3]dioxolo[4,5-*b*] acridine-10,11-diones as potent antitumor agents

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## Content

Copy of <sup>1</sup>H NMR <sup>13</sup>C NMR and IR------2-30

1H solvent:DMSO No:4a 2013.11.16



Figure 1. <sup>1</sup>H NMR of 4a



Figure 2. <sup>13</sup>C NMR of 4a







Figure 4. <sup>1</sup>H NMR of 4b



Figure 5. <sup>13</sup>C NMR of **4b** 



Figure 6. IR of 4b



Figure 8. <sup>13</sup>C NMR of 4c







Figure 10. <sup>1</sup>H NMR of 4d





Figure 12. IR of 4d







Figure 14. <sup>13</sup>C NMR of **4e** 

ppm (t1)







Figure 16. <sup>1</sup>H NMR of 4f



Figure 17.<sup>13</sup>C NMR of 4f



Figure 18. IR of 4f









Figure 20. <sup>13</sup>C NMR of **4g** 







Figure 22. <sup>1</sup>H NMR of 4h



Figure 24. IR of 4h







Figure 26. <sup>13</sup>C NMR of **4i** 













35 30 25 4000 Figure 30. IR of 4j

Wavenumbers (cm-1)

**Mransni**t



Figure 32. <sup>13</sup>C NMR of **4**k



Figure 33. IR of 4k



Figure 34. <sup>1</sup>H NMR of 41



Figure 35. <sup>13</sup>C NMR of **4** 



Figure 36. IR of 41





Figure 37. <sup>1</sup>H NMR of 4m



Figure 38. <sup>13</sup>C NMR of **4m** 



Figure 39. IR of 4m



Figure 40. <sup>1</sup>H NMR of 4n



Figure 42. IR of 4n



Figure 43. <sup>1</sup>H NMR of 40



Figure 44. <sup>13</sup>C NMR of **40** 







Figure 46. <sup>1</sup>H NMR of 4p



Wavenumbers (cm-1)

Figure 48. IR of 4p







Figure 50. <sup>13</sup>C NMR of **4q** 



Figure 51. IR of 4q







Figure 53. <sup>13</sup>C NMR of **4r** 



Figure 54. IR of 4r



Figure 55. <sup>1</sup>H NMR of 5



Figure 56. <sup>13</sup>C NMR of **5** 



Figure 57. IR of 5