

## Supplementary Material

### A simple route for synthesis of 5-(furan-3-yl)barbiturate/thiobarbiturate derivatives *via* a multi-component reaction between arylglyoxals, acetylacetone and barbituric/thiobarbituric acid

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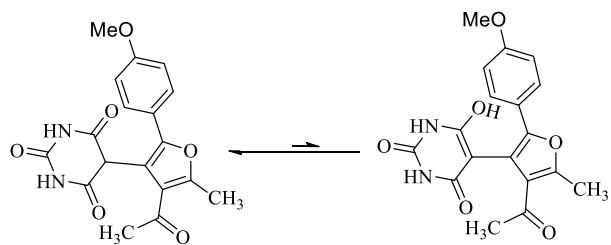
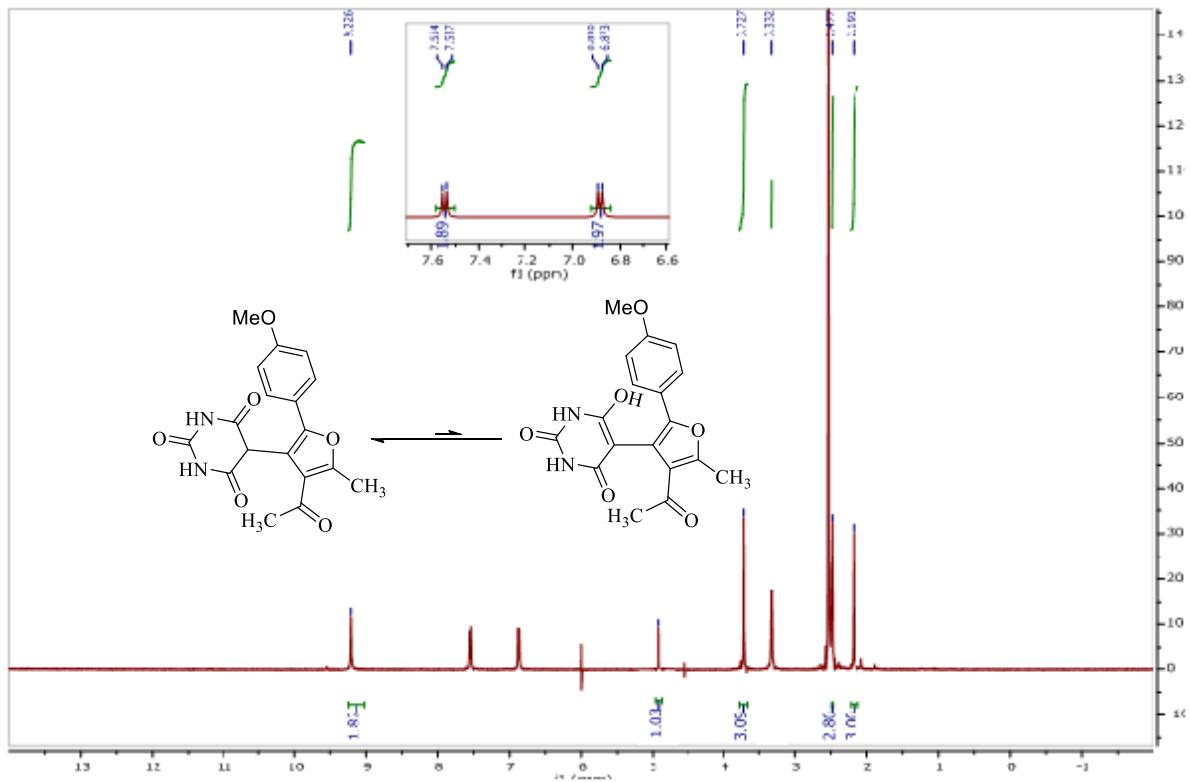
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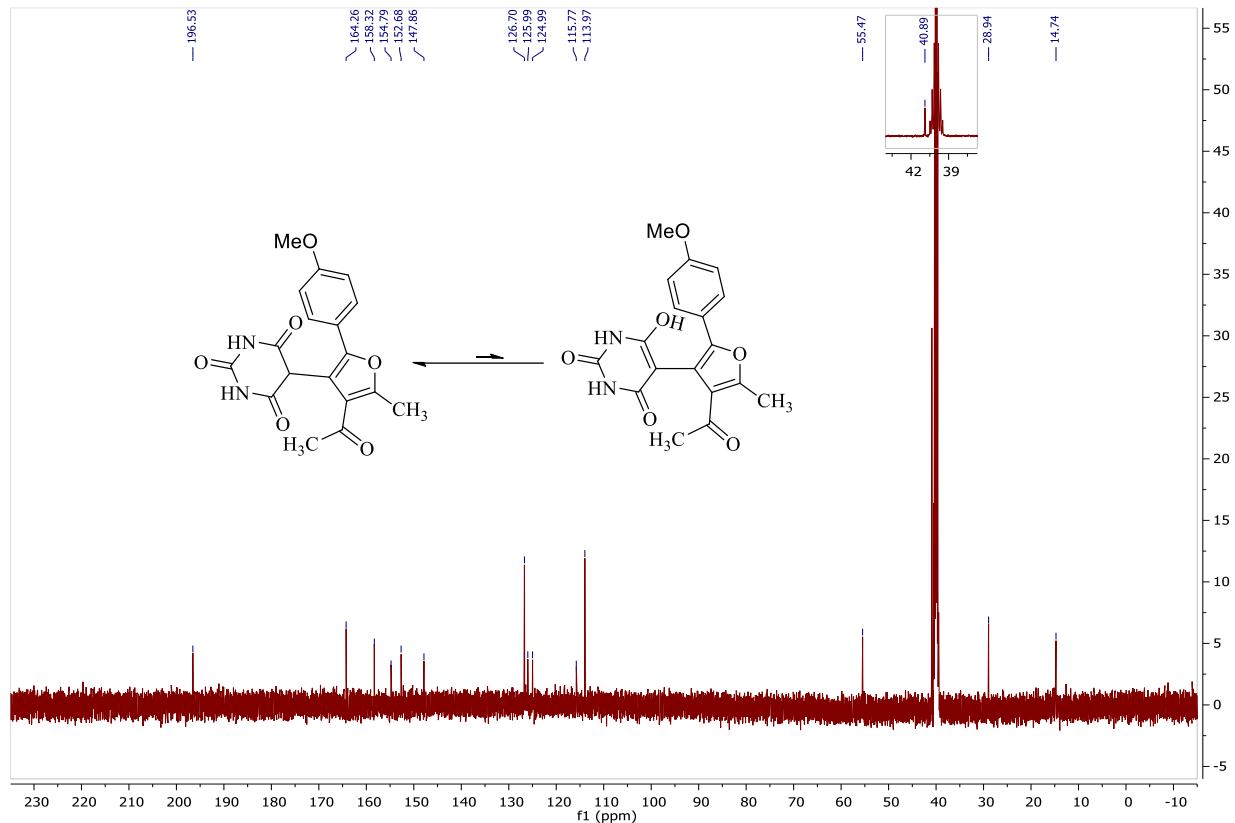
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### Table of Contents

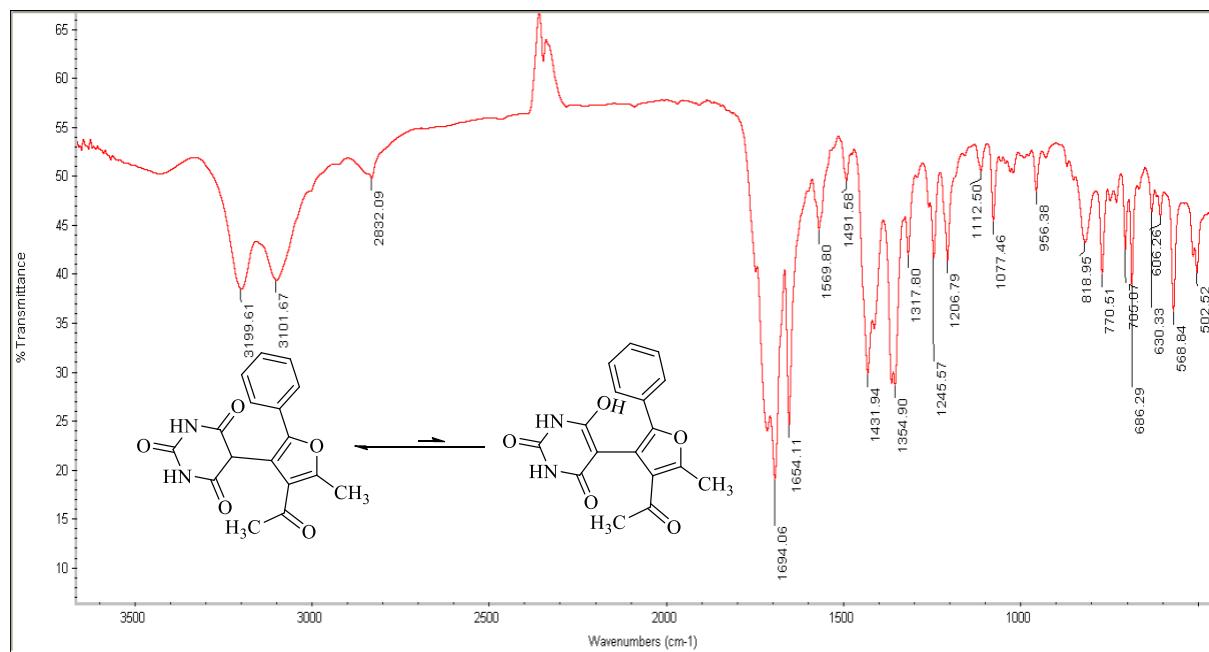
1. IR Spectrum (IR (KBr) $\nu_{\max}/\text{cm}^{-1}$ ) of compound <b>4a</b>	S3
2. $^1\text{H}$ NMR Spectrum (500 MHz, $d_6$ -DMSO) of compound <b>4a</b>	S3
3. $^{13}\text{C}$ NMR (125 MHz, $d_6$ -DMSO) spectrum of compound <b>4a</b>	S4
4. IR Spectrum (IR (KBr) $\nu_{\max}/\text{cm}^{-1}$ ) of compound <b>4b</b>	S4
5. $^1\text{H}$ NMR Spectrum (500 MHz, $d_6$ -DMSO) of compound <b>4b</b>	S5
6. $^{13}\text{C}$ NMR (125 MHz, $d_6$ -DMSO) spectrum of compound <b>4b</b>	S5
7. IR Spectrum (IR (KBr) $\nu_{\max}/\text{cm}^{-1}$ ) of compound <b>4c</b>	S6
8. $^1\text{H}$ NMR Spectrum (500 MHz, $d_6$ -DMSO) of compound <b>4c</b>	S6
9. $^{13}\text{C}$ NMR (125 MHz, $d_6$ -DMSO) spectrum of compound <b>4c</b>	S7
10. IR Spectrum (IR (KBr) $\nu_{\max}/\text{cm}^{-1}$ ) of compound <b>4d</b>	S7
11. $^1\text{H}$ NMR Spectrum (500 MHz, $d_6$ -DMSO) of compound <b>4d</b>	S8
12. $^{13}\text{C}$ NMR (125 MHz, $d_6$ -DMSO) spectrum of compound <b>4d</b>	S8
13. IR Spectrum (IR (KBr) $\nu_{\max}/\text{cm}^{-1}$ ) of compound <b>4e</b>	S9
14. $^1\text{H}$ NMR Spectrum (500 MHz, $d_6$ -DMSO) of compound <b>4e</b>	S9
15. $^{13}\text{C}$ NMR (125 MHz, $d_6$ -DMSO) spectrum of compound <b>4e</b>	S10
16. IR Spectrum (IR (KBr) $\nu_{\max}/\text{cm}^{-1}$ ) of compound <b>4f</b>	S10
17. $^1\text{H}$ NMR Spectrum (500 MHz, $d_6$ -DMSO) of compound <b>4f</b>	S11
18. $^{13}\text{C}$ NMR (125 MHz, $d_6$ -DMSO) spectrum of compound <b>4f</b>	S11
19. IR Spectrum (IR (KBr) $\nu_{\max}/\text{cm}^{-1}$ ) of compound <b>4g</b>	S12
20. $^1\text{H}$ NMR Spectrum (500 MHz, $d_6$ -DMSO) of compound <b>4g</b>	S12
21. $^{13}\text{C}$ NMR (125 MHz, $d_6$ -DMSO) spectrum of compound <b>4g</b>	S12
22. $^{13}\text{C}$ NMR (125 MHz, $d_6$ -DMSO) spectrum of compound <b>4i</b>	S13
23. IR Spectrum (IR (KBr) $\nu_{\max}/\text{cm}^{-1}$ ) of compound <b>4h</b>	S13
24. $^1\text{H}$ NMR Spectrum (500 MHz, $d_6$ -DMSO) of compound <b>4h</b>	S14
25. $^{13}\text{C}$ NMR (125 MHz, $d_6$ -DMSO) spectrum of compound <b>4h</b>	S14
26. IR Spectrum (IR (KBr) $\nu_{\max}/\text{cm}^{-1}$ ) of compound <b>4i</b>	S15
27. $^1\text{H}$ NMR Spectrum (500 MHz, $d_6$ -DMSO) of compound <b>4i</b>	S15
28. $^{13}\text{C}$ NMR (125 MHz, $d_6$ -DMSO) spectrum of compound <b>4i</b>	S16

29. IR Spectrum (IR (KBr) $\nu_{\text{max}}$ /cm $^{-1}$ ) of compound <b>4j</b>	S16
30. $^1\text{H}$ NMR Spectrum (500 MHz, d <sub>6</sub> -DMSO) of compound <b>4j</b>	S17
31. $^{13}\text{C}$ NMR (125 MHz, d <sub>6</sub> -DMSO) spectrum of compound <b>4j</b>	S17
32. IR Spectrum (IR (KBr) $\nu_{\text{max}}$ /cm $^{-1}$ ) of compound <b>4k</b>	S18
33. $^1\text{H}$ NMR Spectrum (500 MHz, d <sub>6</sub> -DMSO) of compound <b>4k</b>	S18
34. $^{13}\text{C}$ NMR (125 MHz, d <sub>6</sub> -DMSO) spectrum of compound <b>4k</b>	S19
35. IR Spectrum (IR (KBr) $\nu_{\text{max}}$ /cm $^{-1}$ ) of compound <b>4l</b>	S19
36. $^1\text{H}$ NMR Spectrum (500 MHz, d <sub>6</sub> -DMSO) of compound <b>4l</b>	S20
37. $^{13}\text{C}$ NMR (125 MHz, d <sub>6</sub> -DMSO) spectrum of compound <b>4l</b>	S20
38. IR Spectrum (IR (KBr) $\nu_{\text{max}}$ /cm $^{-1}$ ) of compound <b>4m</b>	S21
39. $^1\text{H}$ NMR Spectrum (500 MHz, d <sub>6</sub> -DMSO) of compound <b>4m</b>	S21
40. $^{13}\text{C}$ NMR (125 MHz, d <sub>6</sub> -DMSO) spectrum of compound <b>4m</b>	S22

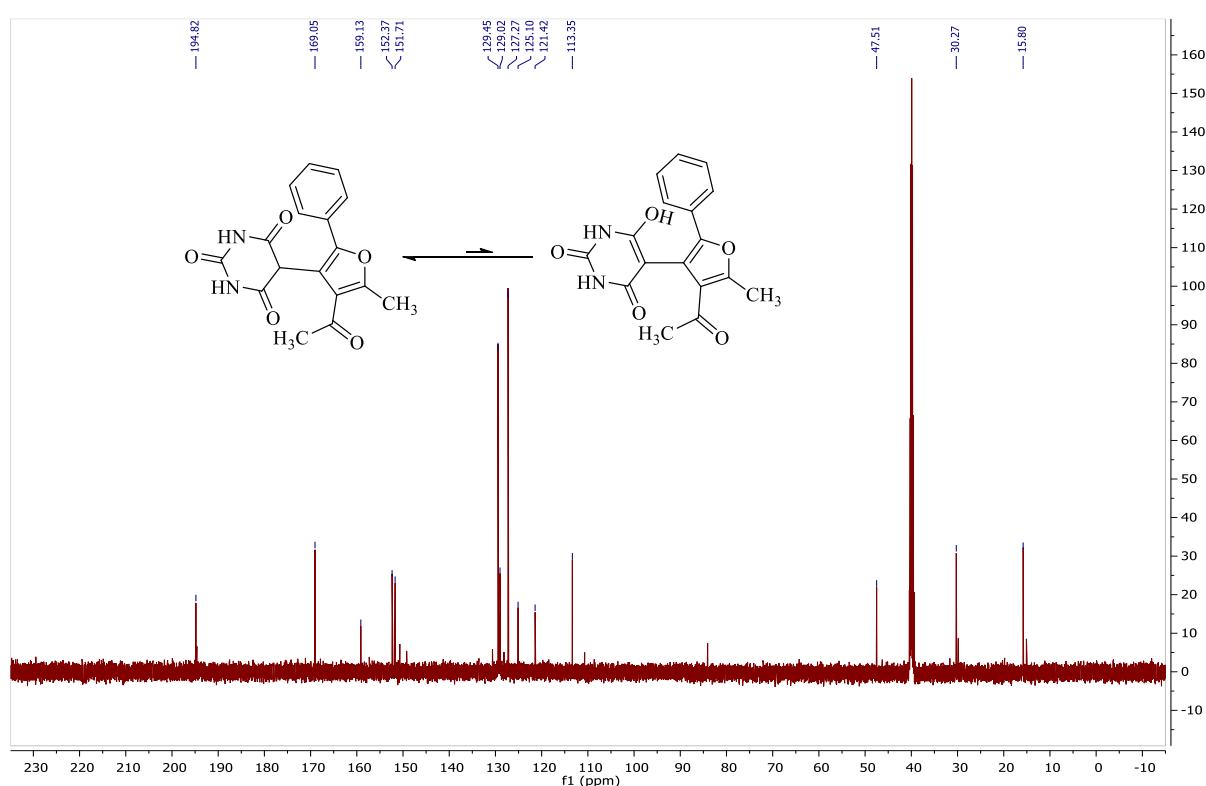
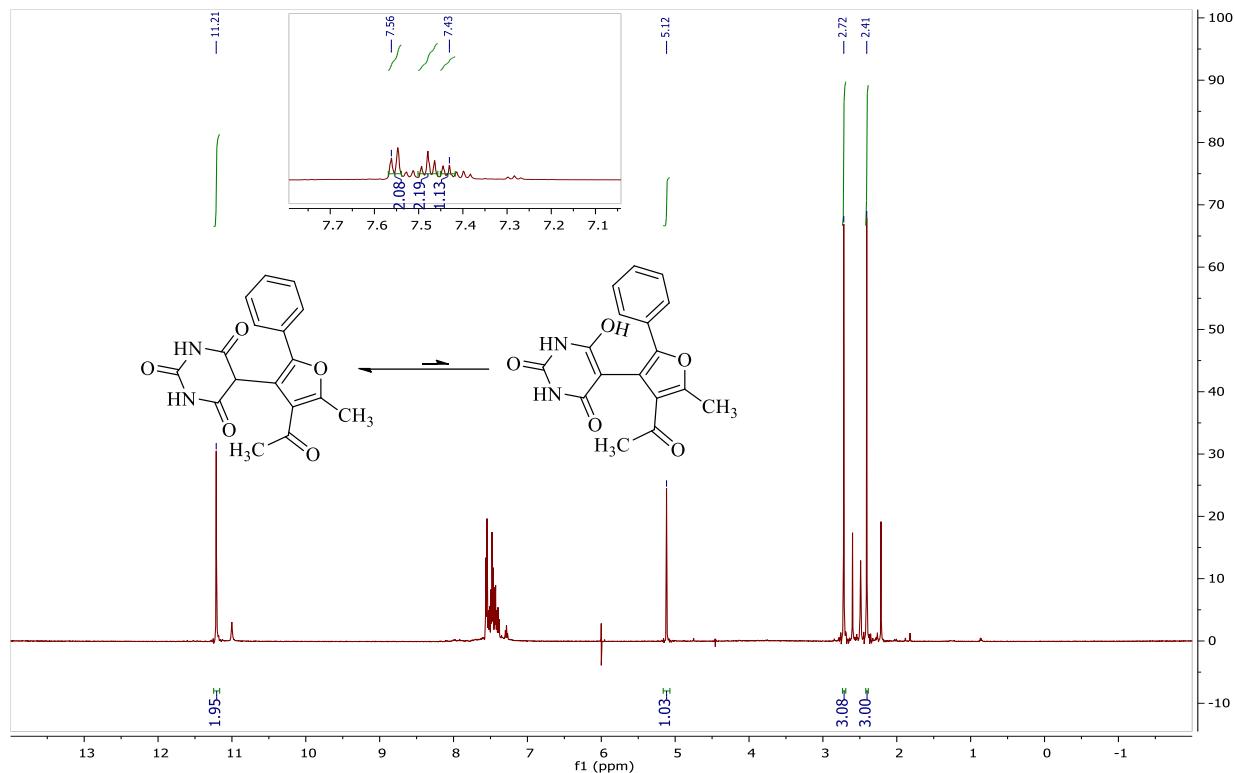
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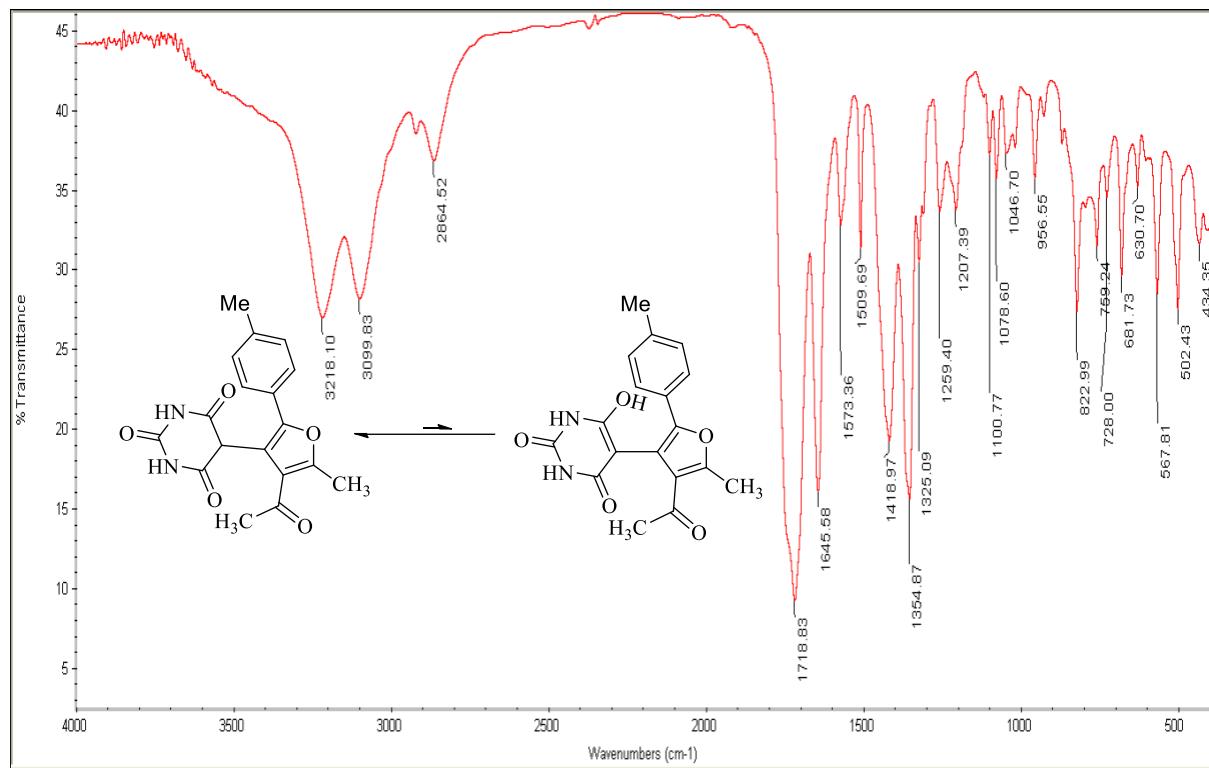
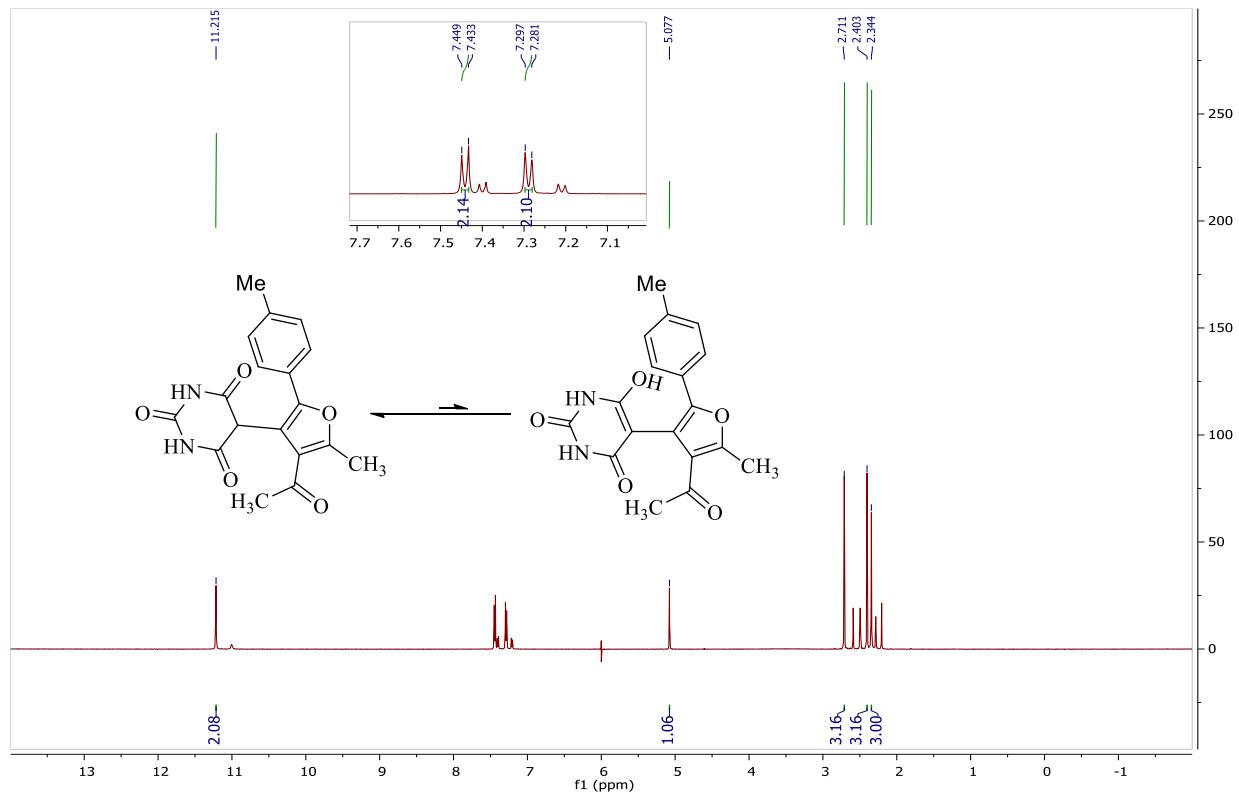


$^{13}\text{C}$  NMR (125 MHz,  $d_6\text{-DMSO}$ ) spectrum of compound **4a**

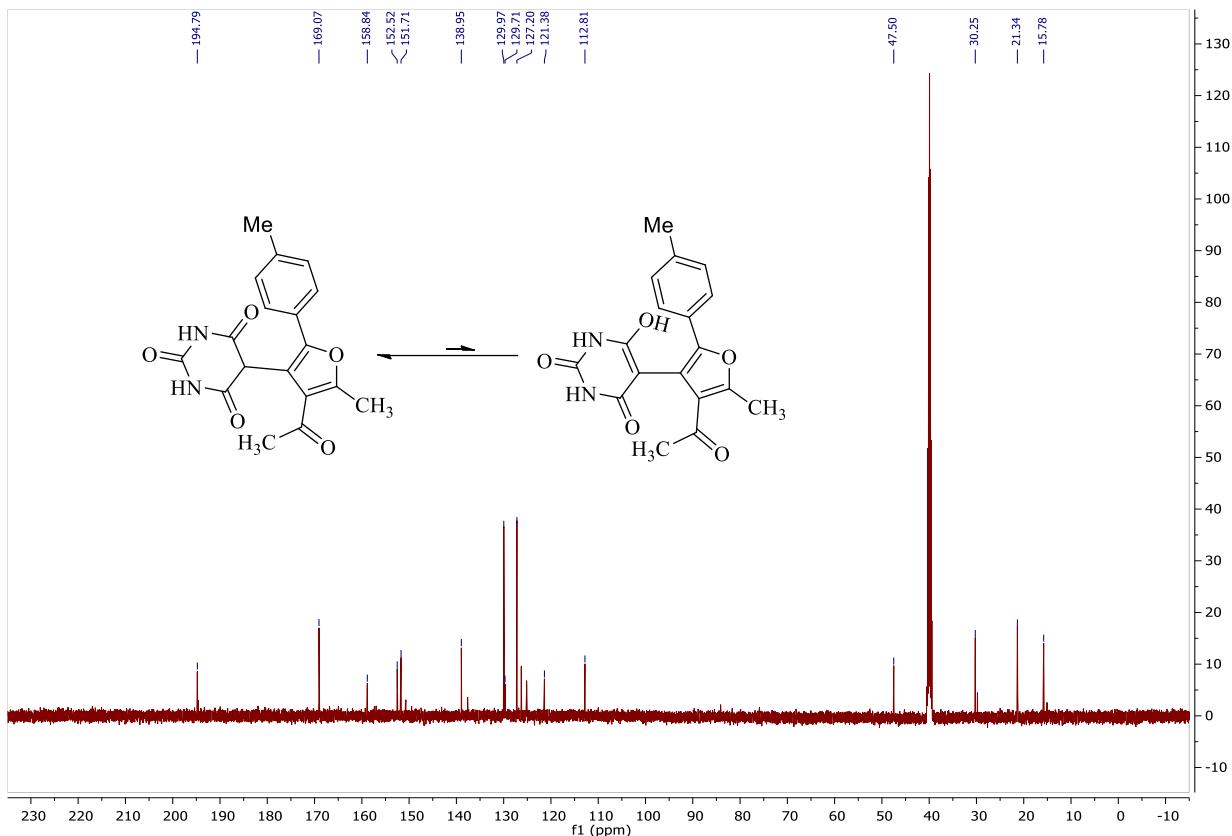


IR Spectrum (IR (KBr)  $\nu_{\text{max}}/\text{cm}^{-1}$ ) of compound **4b**

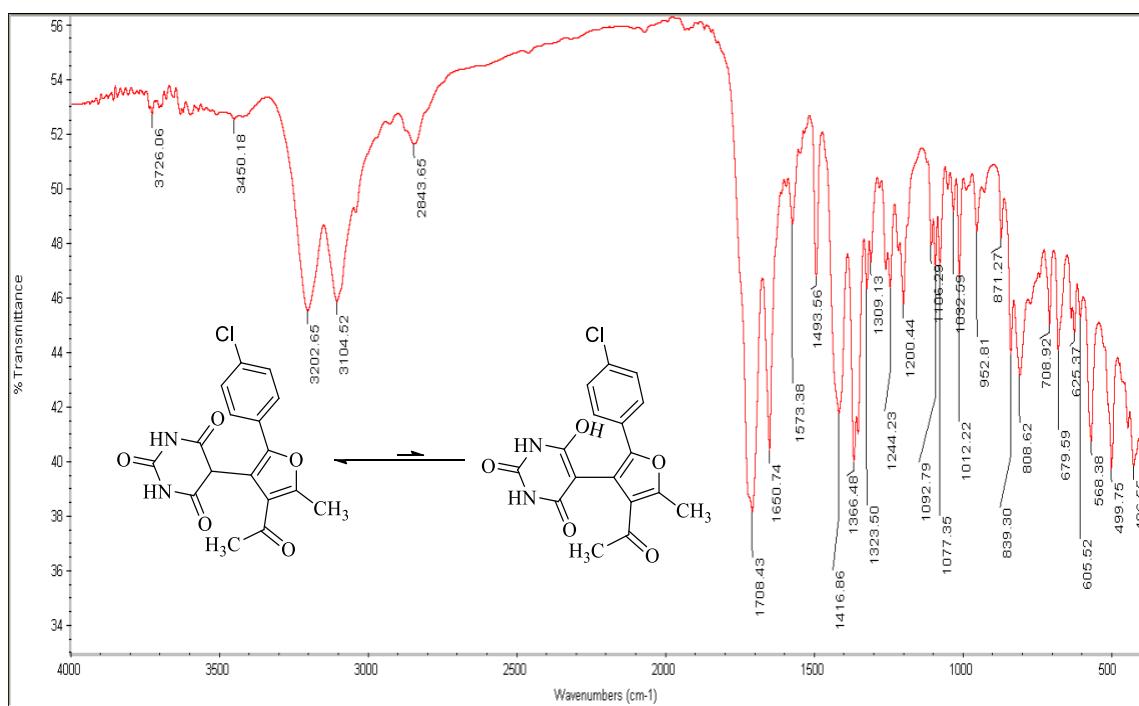


IR Spectrum (IR (KBr)  $\nu_{\text{max}}/\text{cm}^{-1}$ ) of compound 4c<sup>1</sup>H NMR Spectrum (500 MHz, d<sub>6</sub>-DMSO) of compound 4c

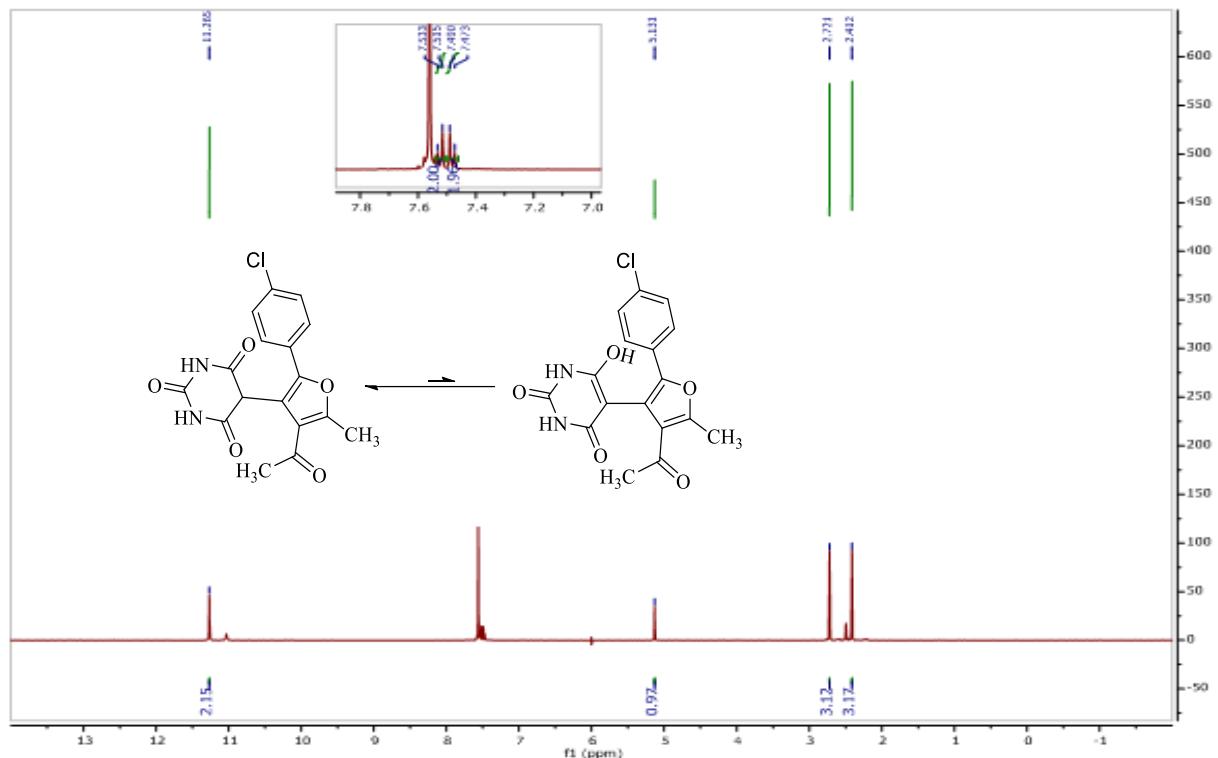
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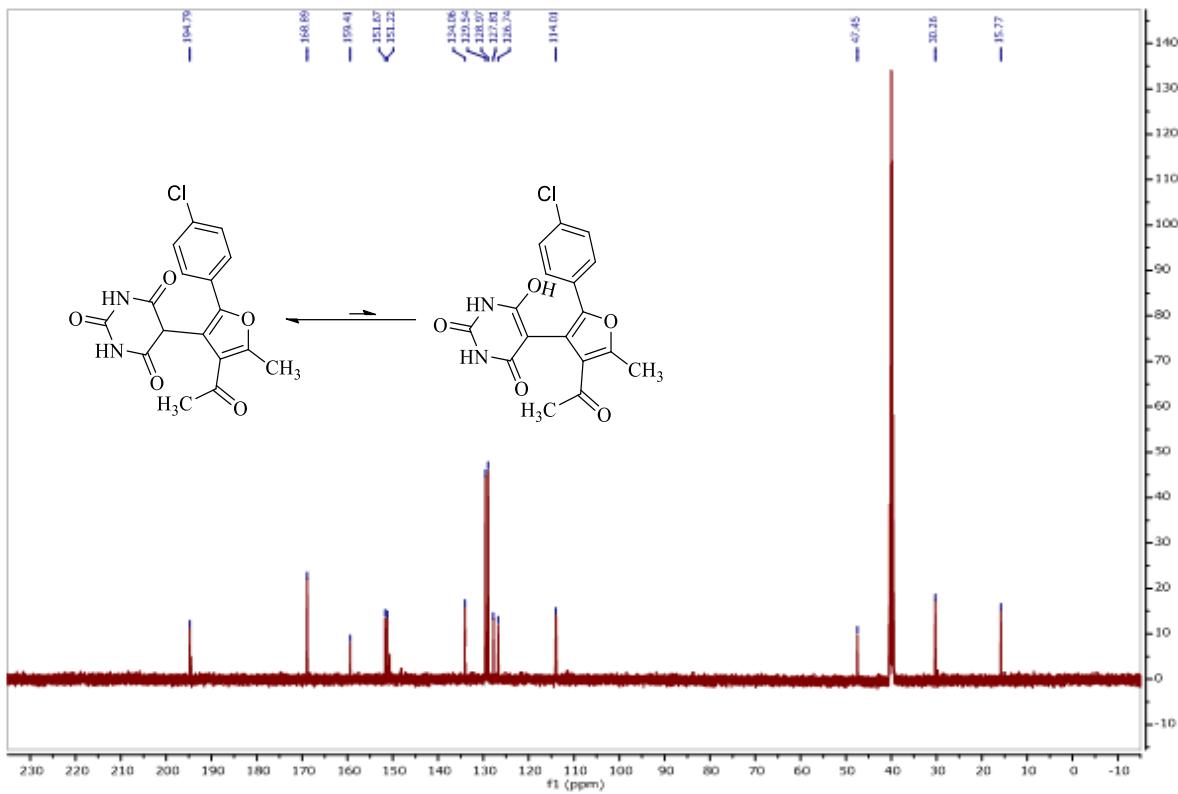
$^{13}\text{C}$  NMR (125 MHz, d<sub>6</sub>-DMSO) spectrum of compound **4c**



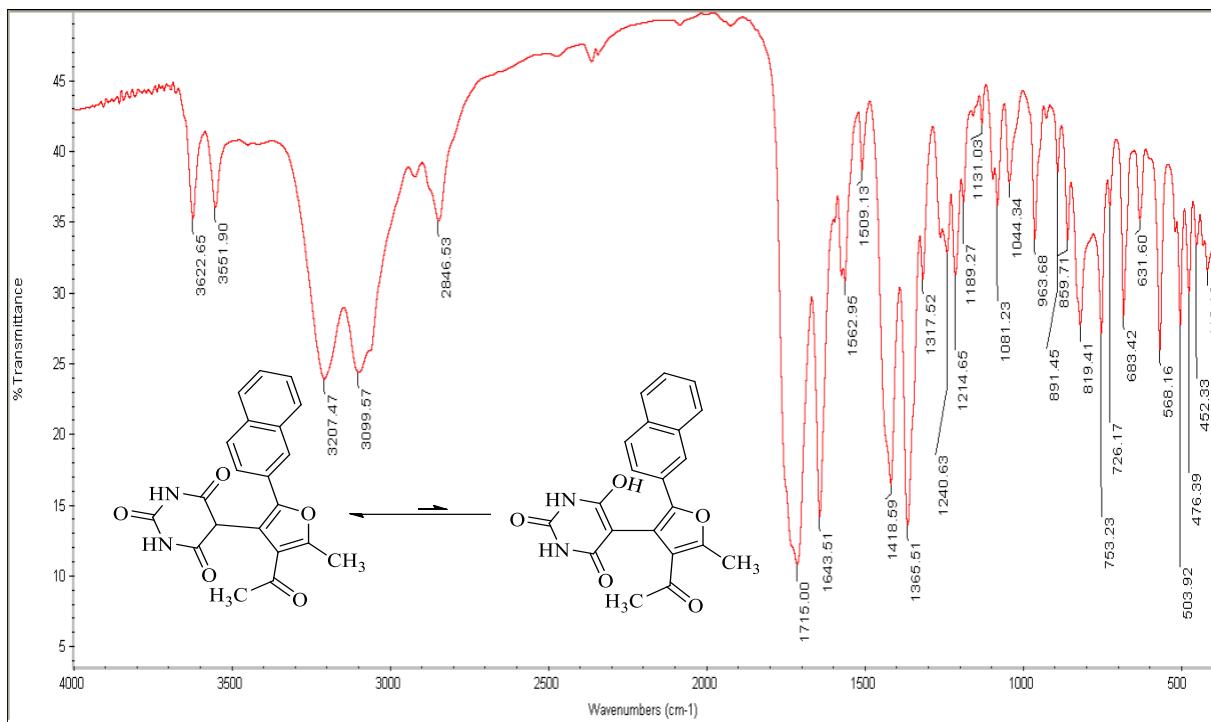
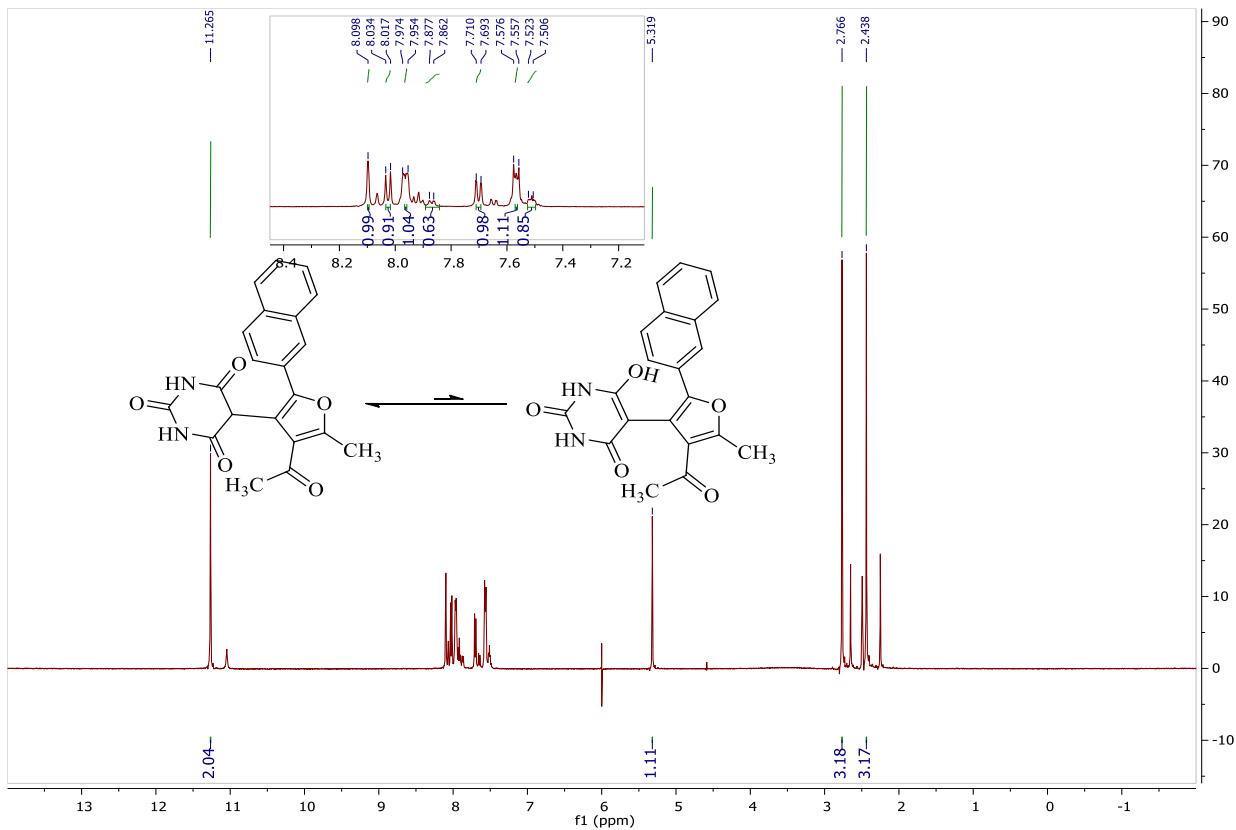
IR Spectrum (IR (KBr)  $\nu_{\text{max}}$ /cm<sup>-1</sup>) of compound **4d**

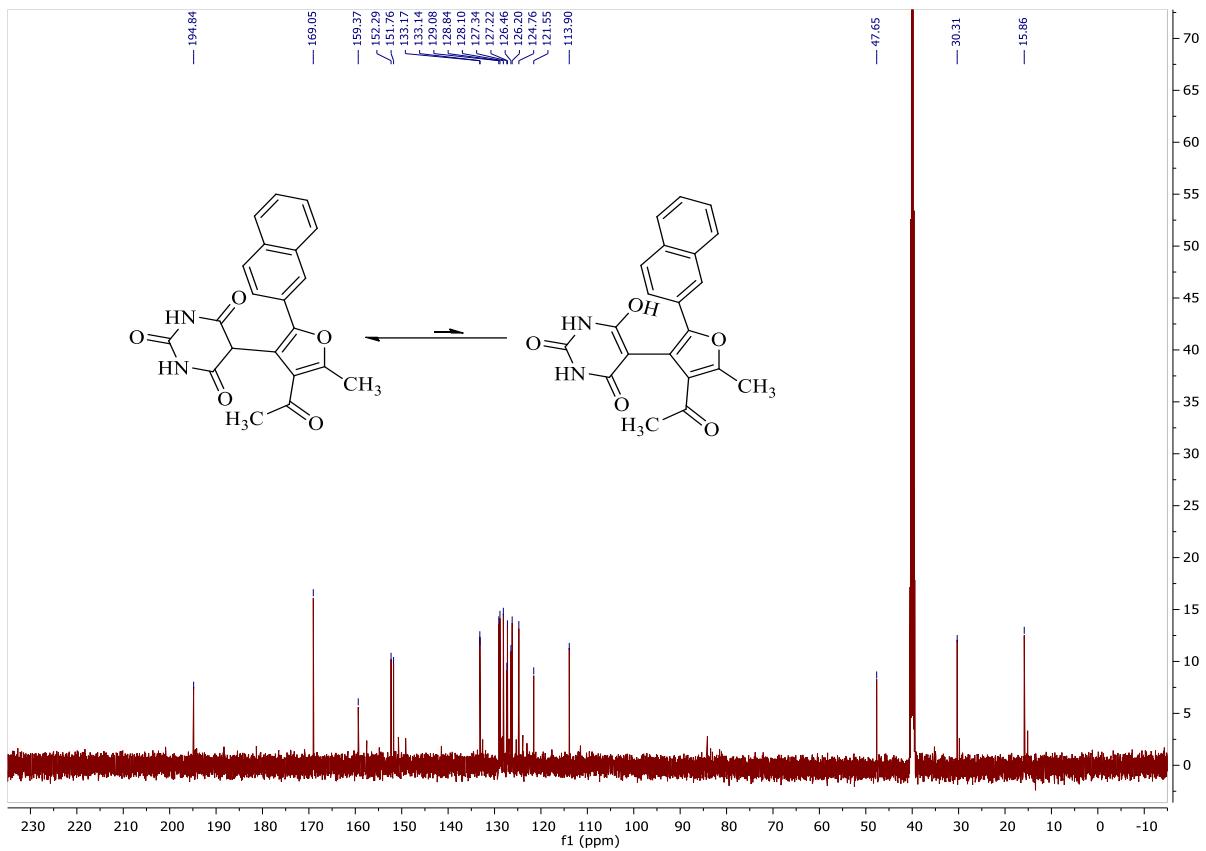


<sup>1</sup>H NMR Spectrum (500 MHz, d<sub>6</sub>-DMSO) of compound 4d

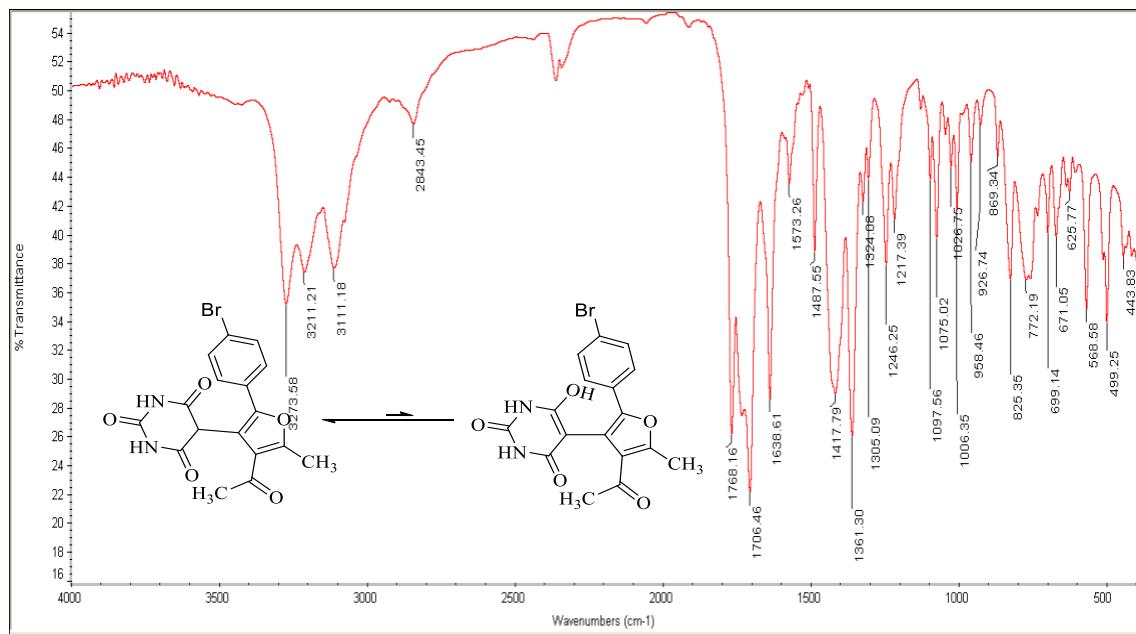


<sup>13</sup>C NMR (125 MHz, d<sub>6</sub>-DMSO) spectrum of compound 4d

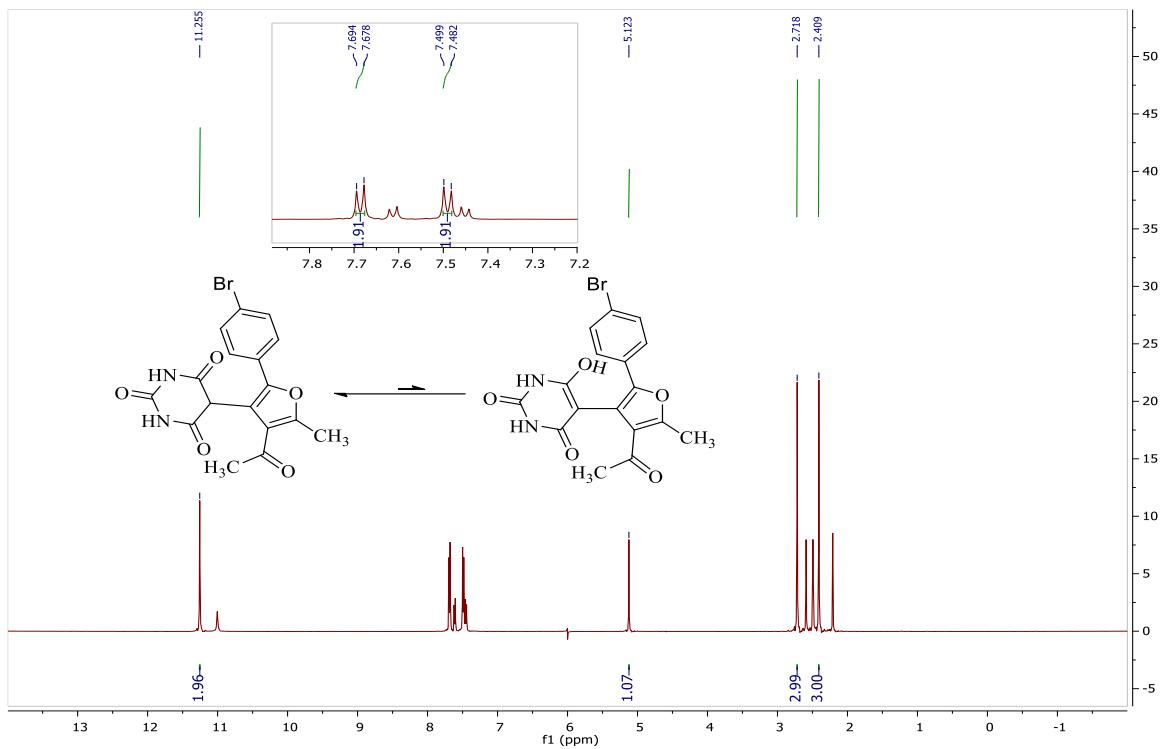
IR Spectrum (IR (KBr)  $\nu_{\text{max}}/\text{cm}^{-1}$ ) of compound 4e<sup>1</sup>H NMR Spectrum (500 MHz, d<sub>6</sub>-DMSO) of compound 4e



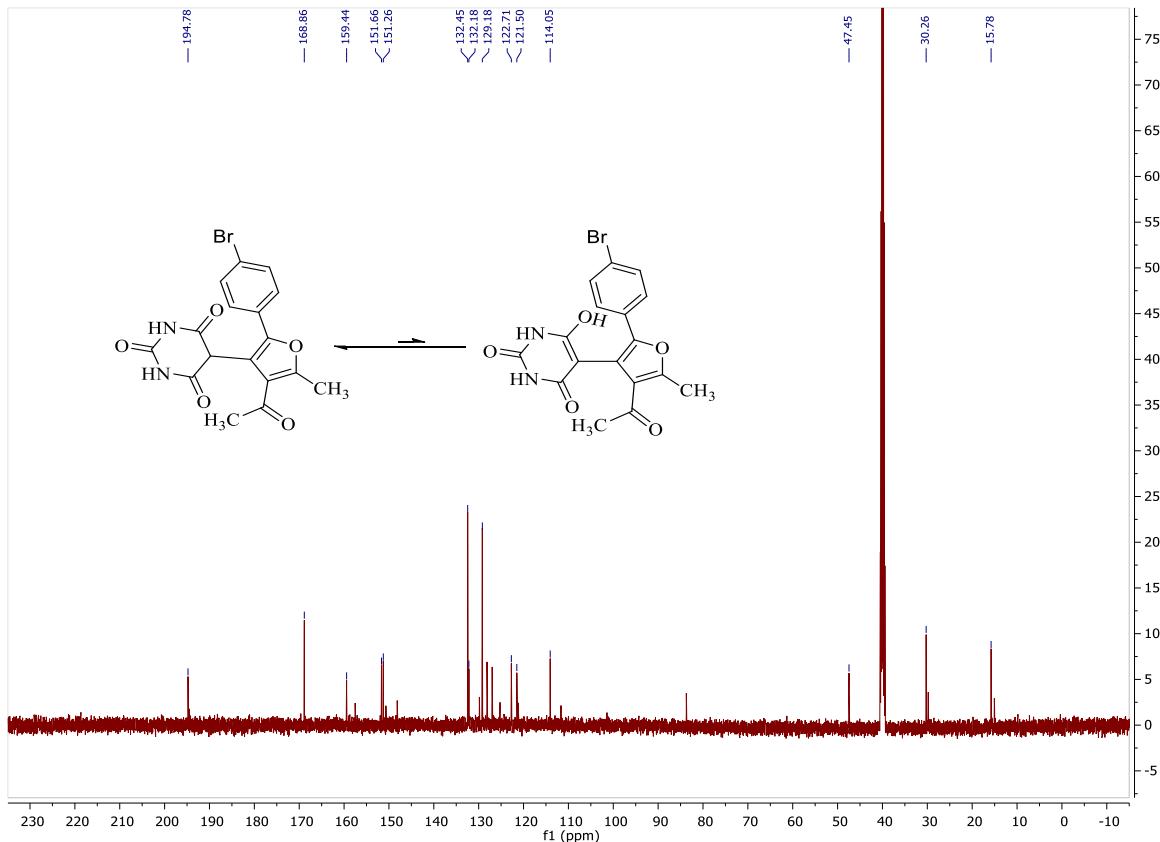
$^{13}\text{C}$  NMR (125 MHz, d<sub>6</sub>-DMSO) spectrum of compound **4e**



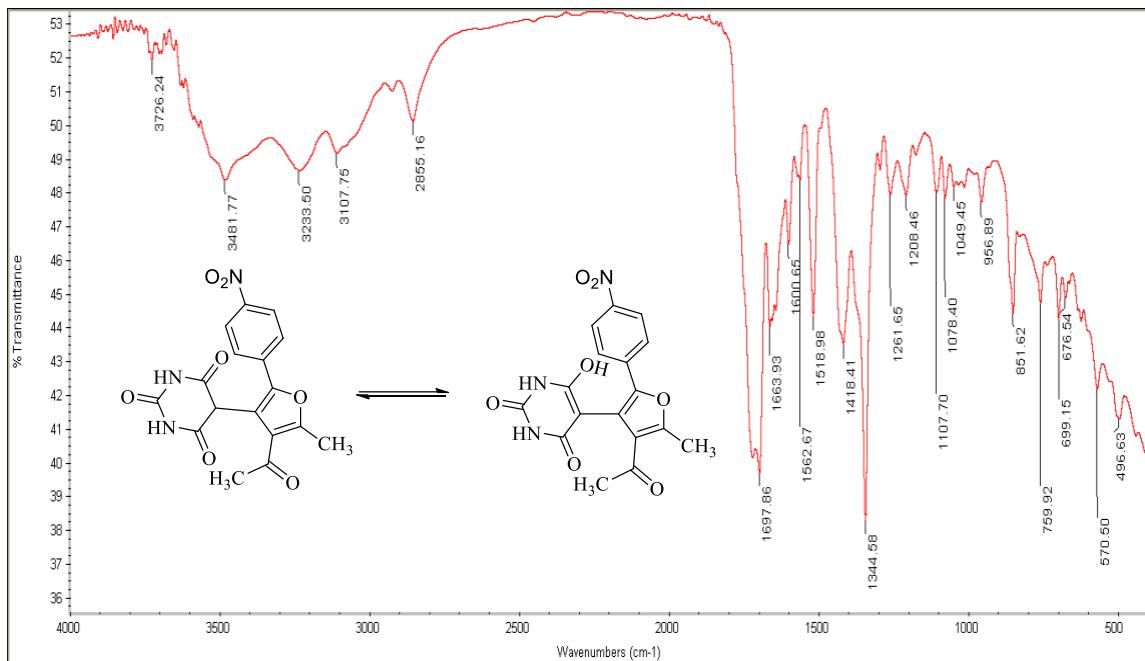
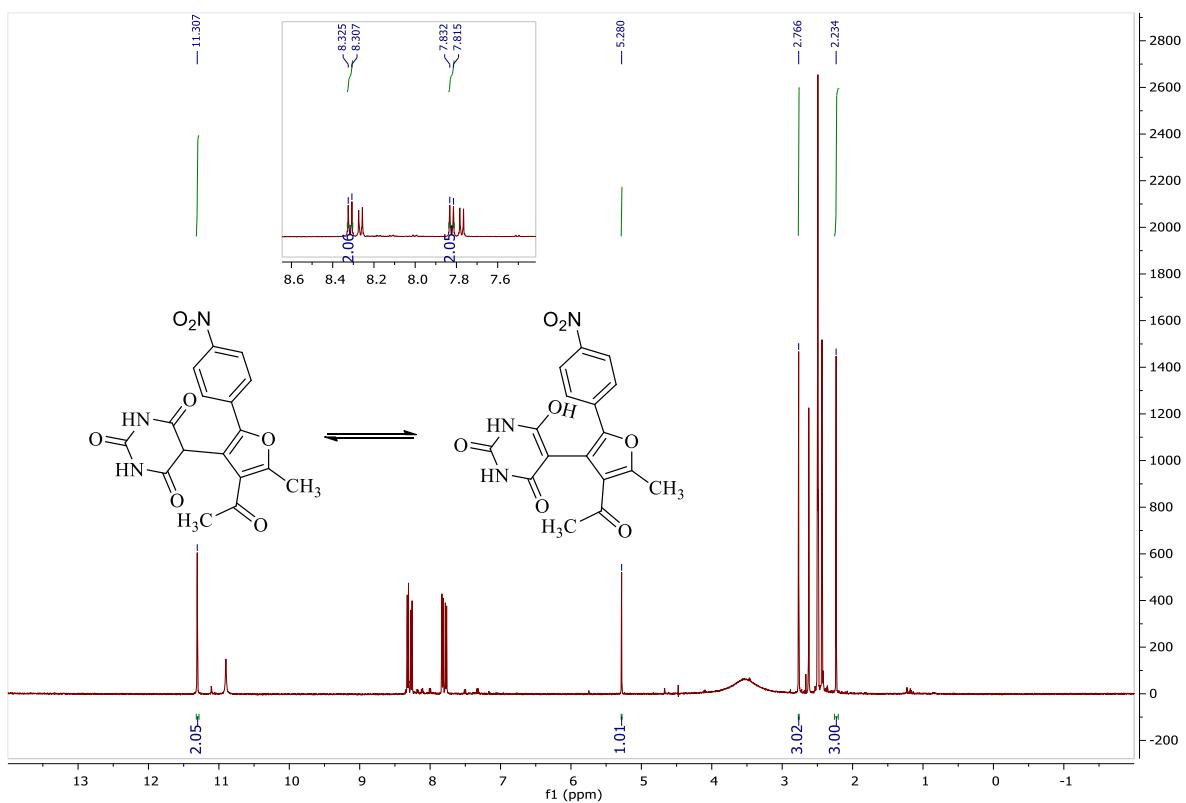
IR Spectrum (IR (KBr)  $\nu_{\text{max}}$ /cm<sup>-1</sup>) of compound **4f**

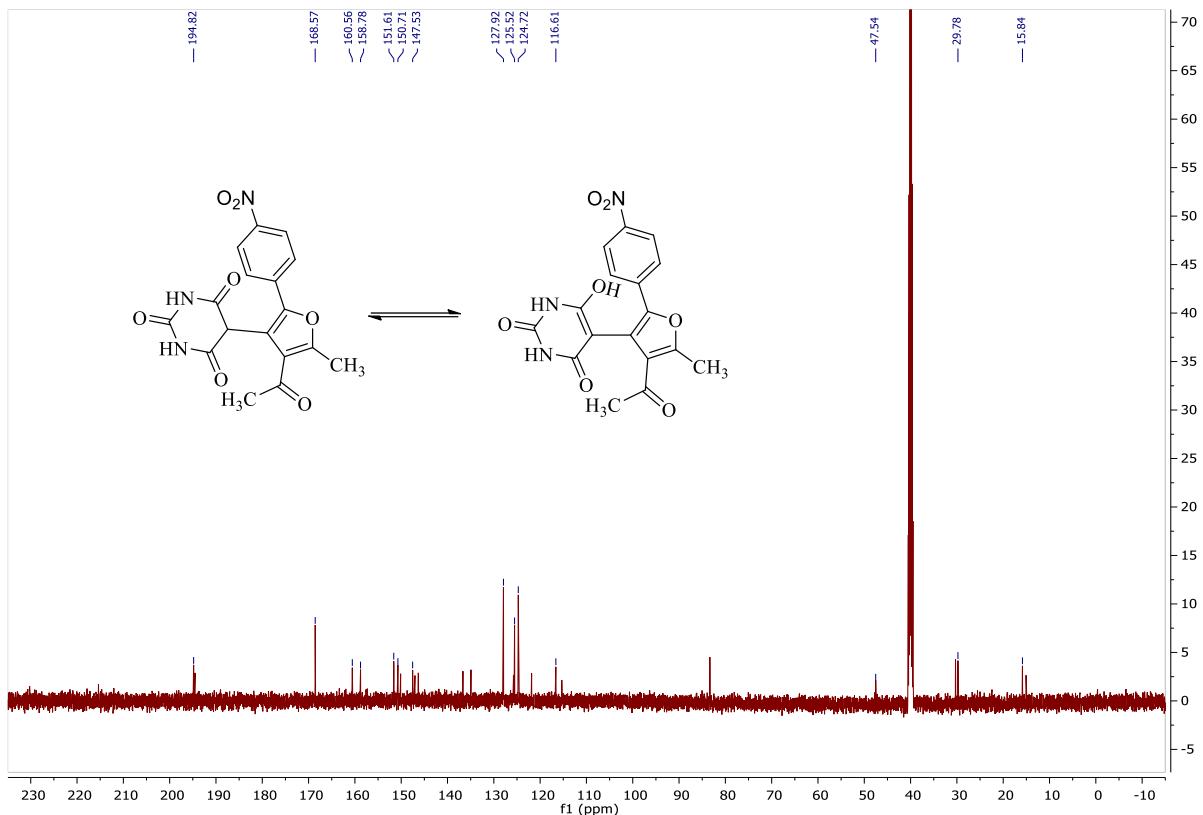


<sup>1</sup>H NMR Spectrum (500 MHz, d<sub>6</sub>-DMSO) of compound 4f

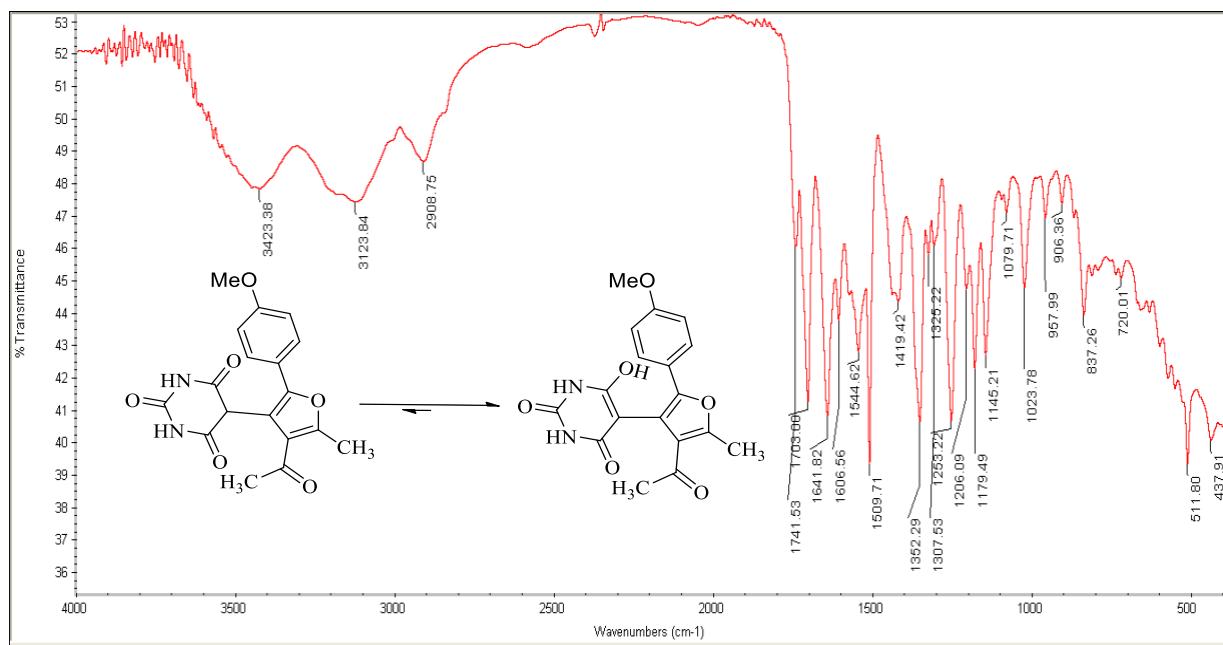


<sup>13</sup>C NMR (125 MHz, d<sub>6</sub>-DMSO) spectrum of compound 4f

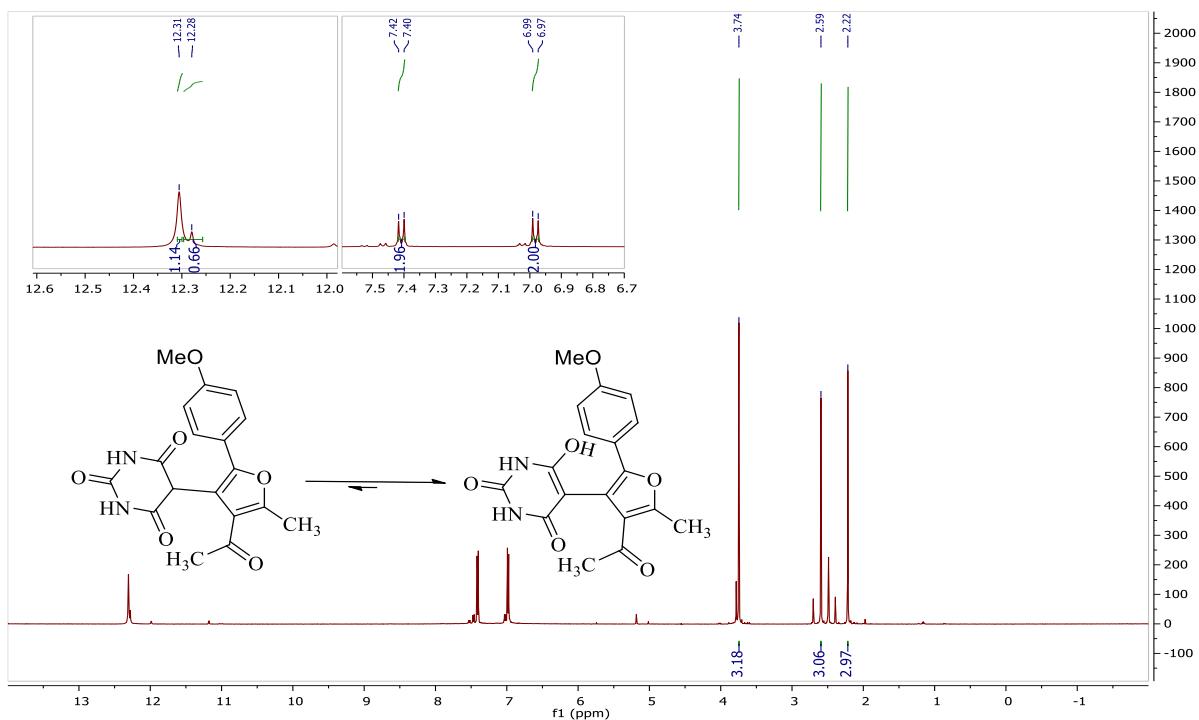
IR Spectrum (IR (KBr)  $\nu_{\text{max}}/\text{cm}^{-1}$ ) of compound 4g<sup>1</sup>H NMR Spectrum (500 MHz, d<sub>6</sub>-DMSO) of compound 4g



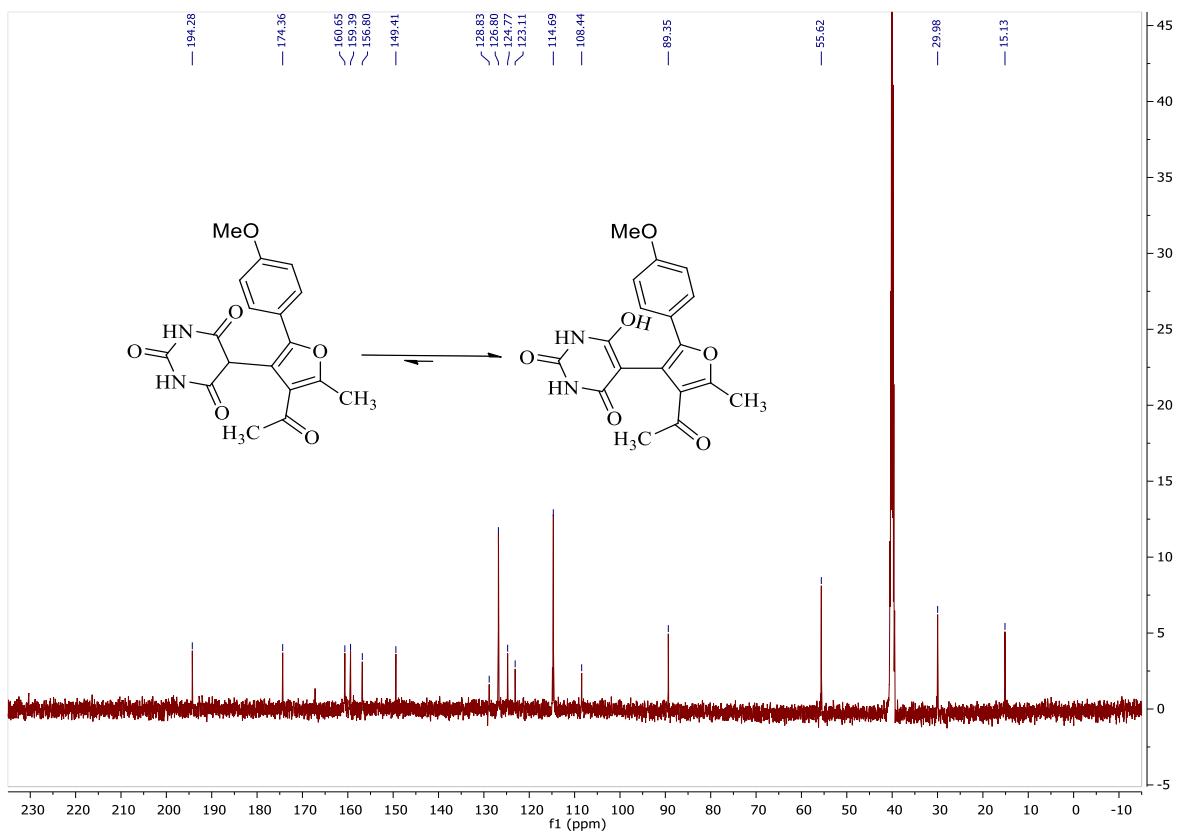
$^{13}\text{C}$  NMR (125 MHz, d<sub>6</sub>-DMSO) spectrum of compound **4g**

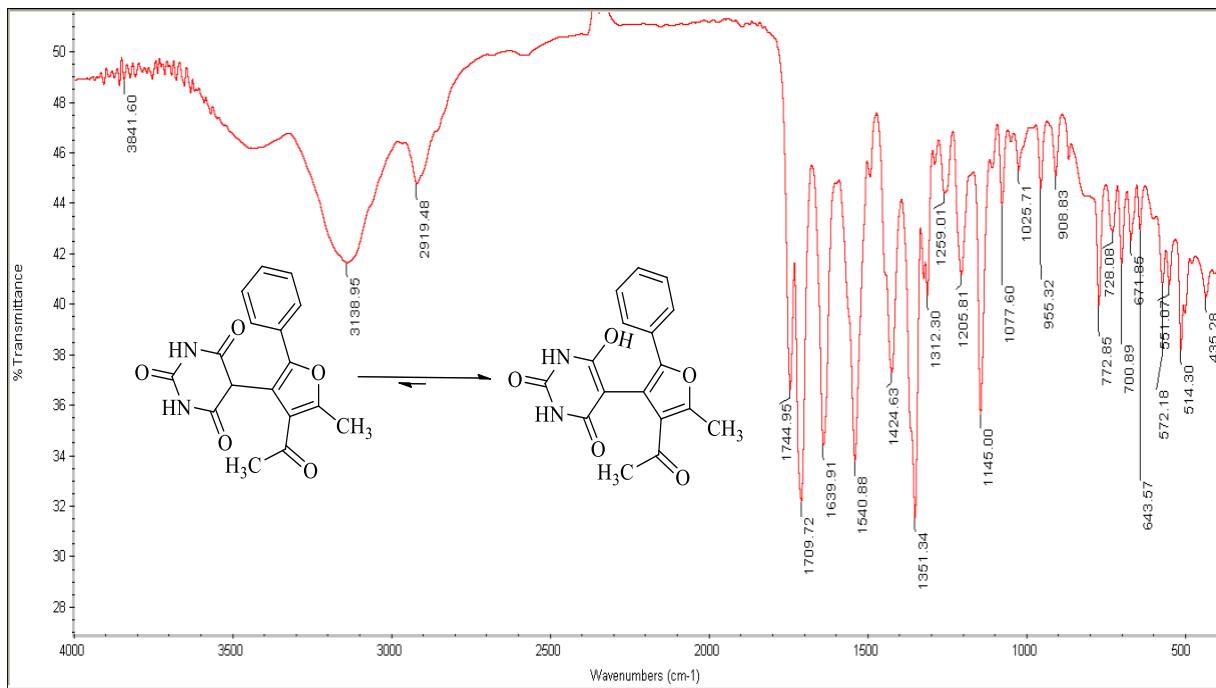
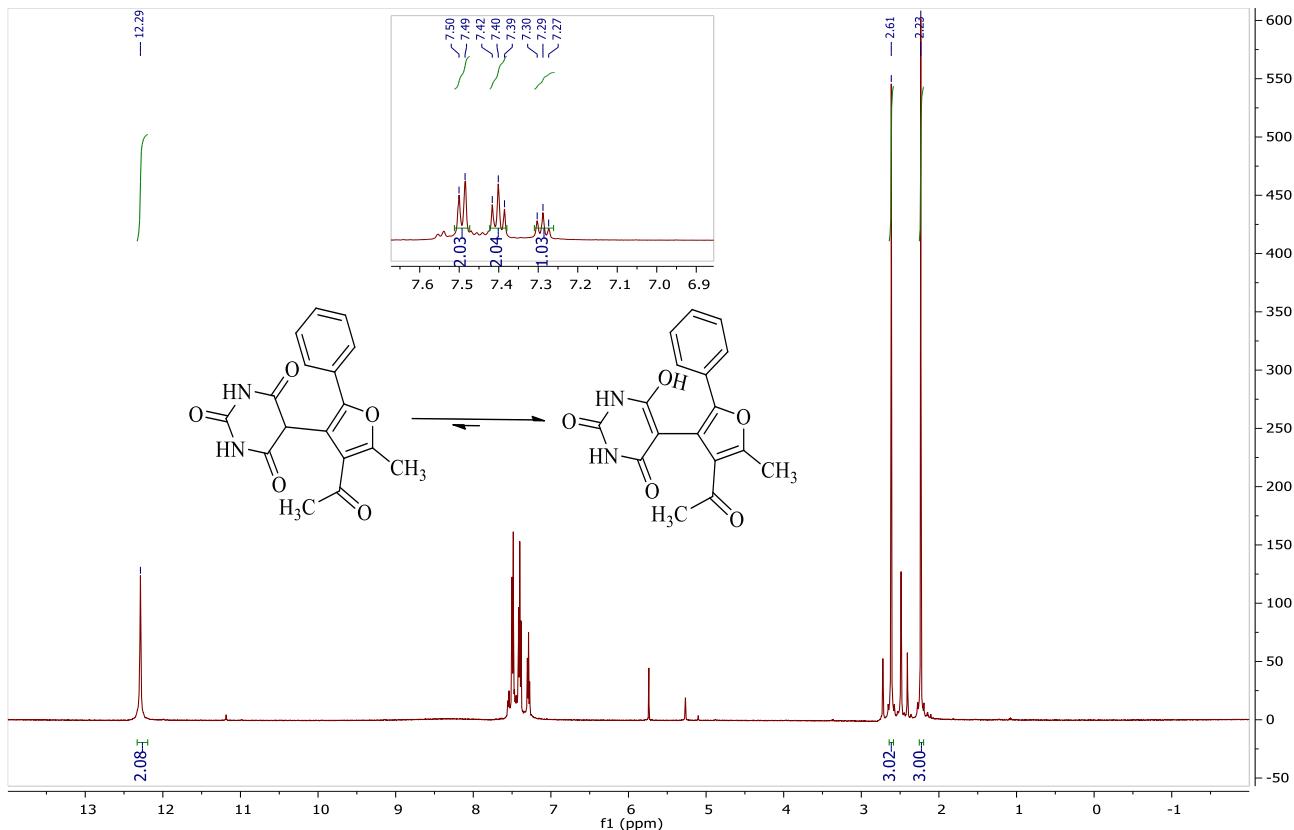


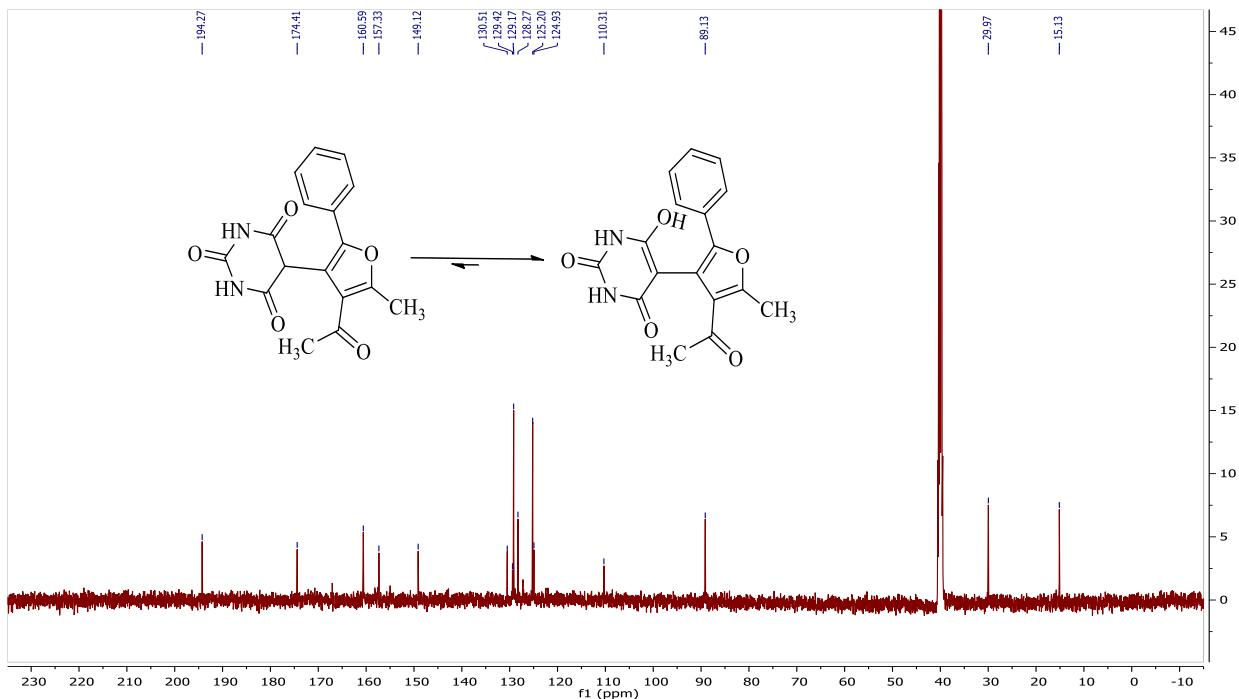
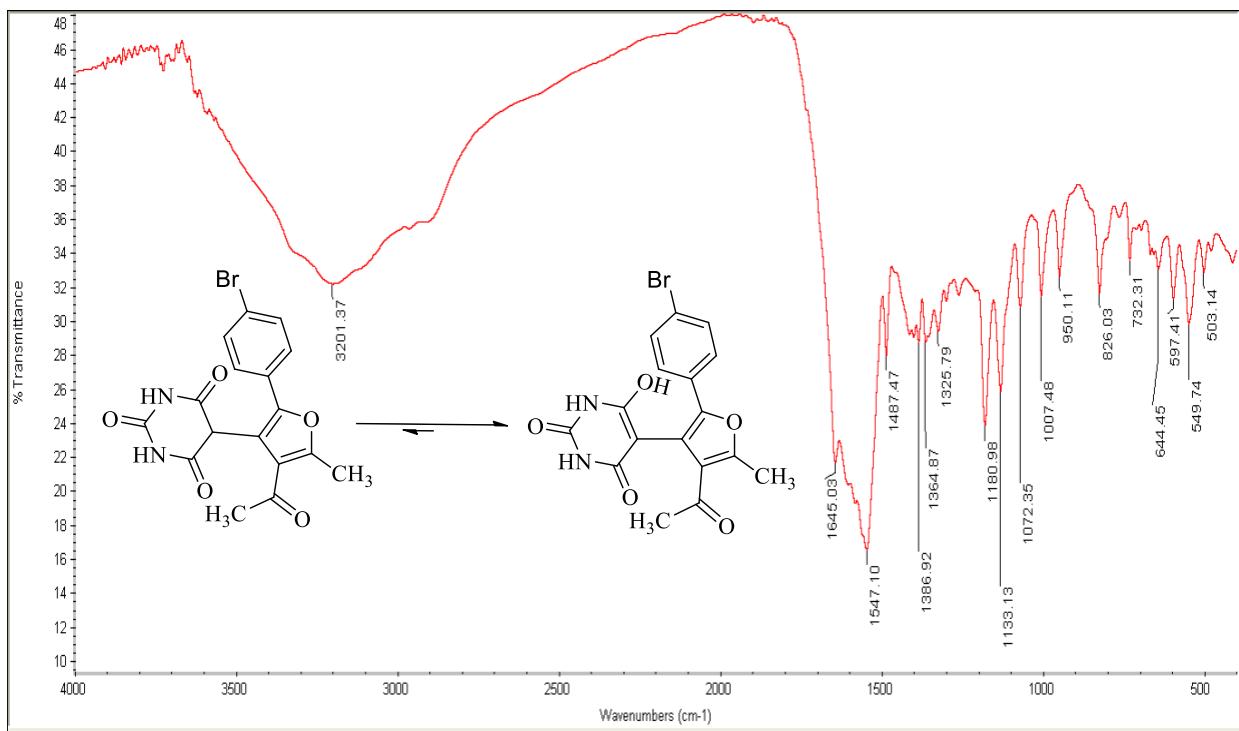
IR Spectrum (IR (KBr)  $\nu_{\text{max}}$ /cm<sup>-1</sup>) of compound **4h**

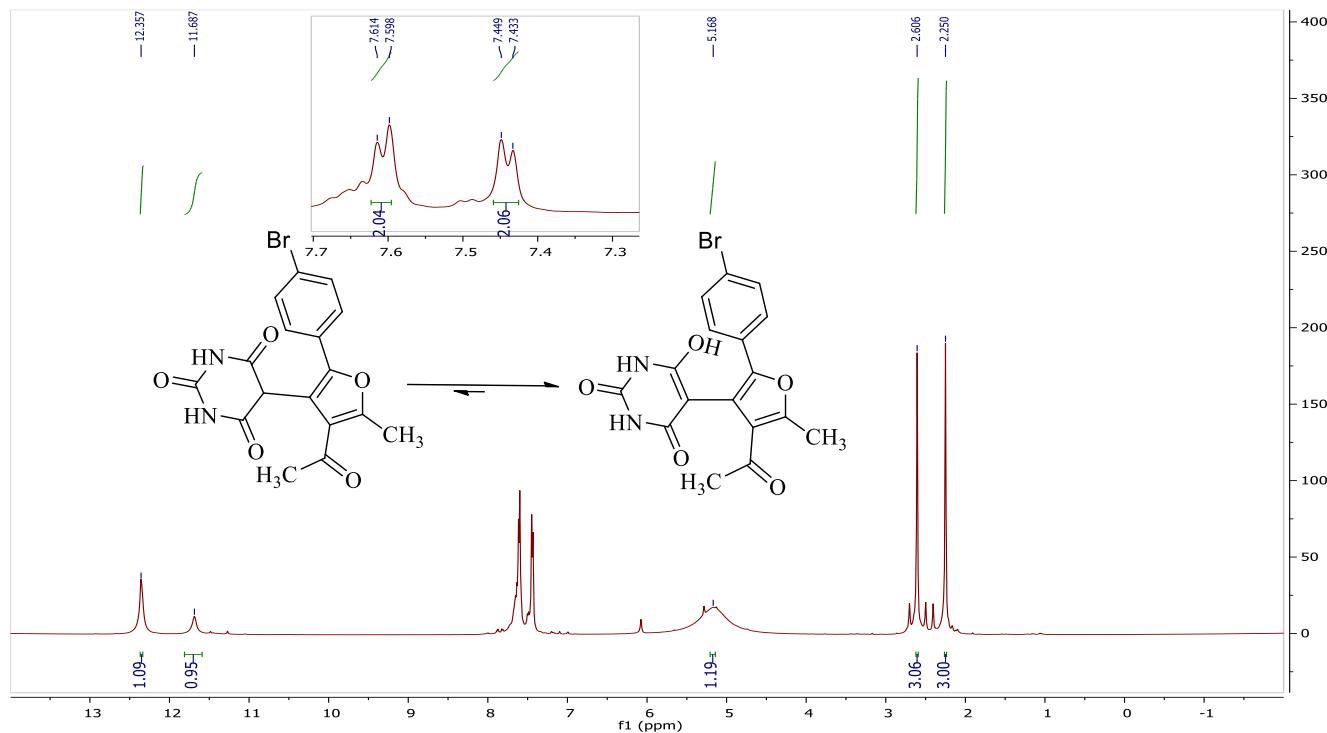


<sup>1</sup>H NMR Spectrum (500 MHz, d<sub>6</sub>-DMSO) of compound **4h**

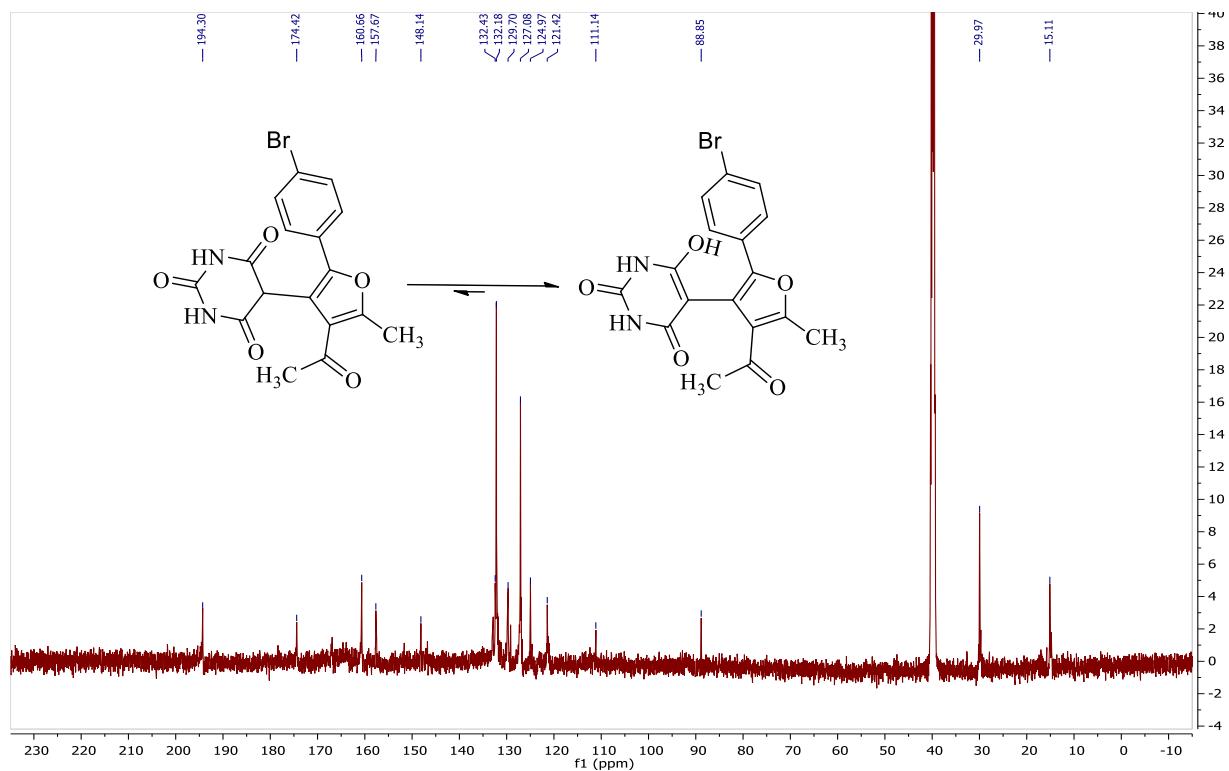


IR Spectrum (IR (KBr)  $\nu_{\text{max}}/\text{cm}^{-1}$ ) of compound **4i**<sup>1</sup>H NMR Spectrum (500 MHz, d<sub>6</sub>-DMSO) of compound **4i**

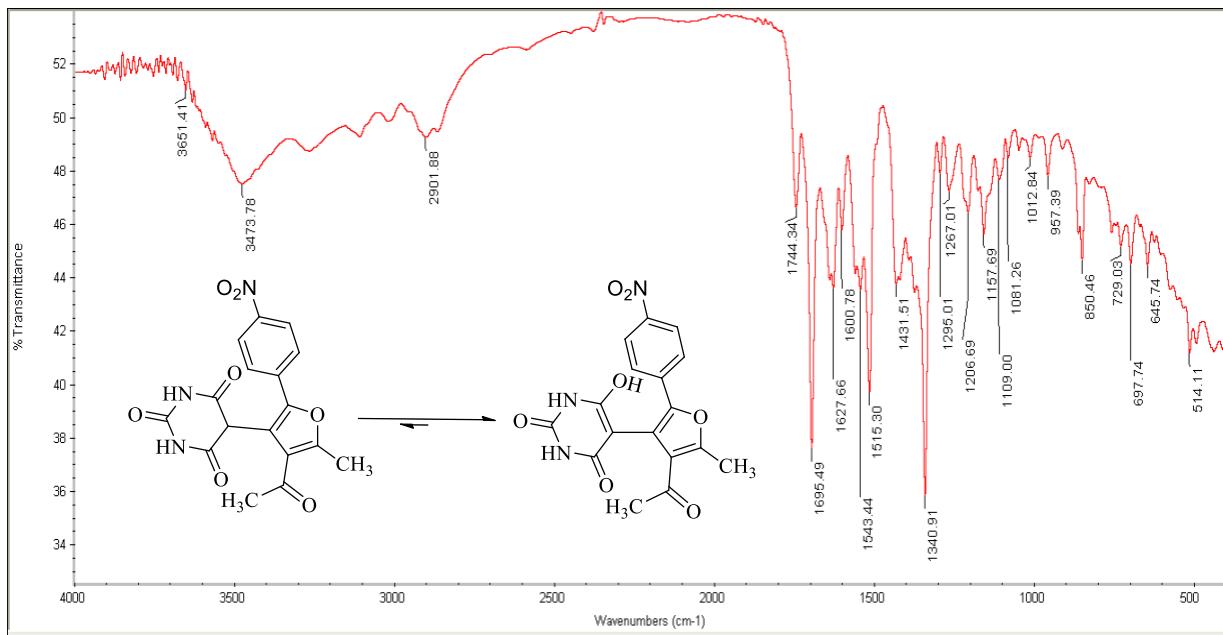
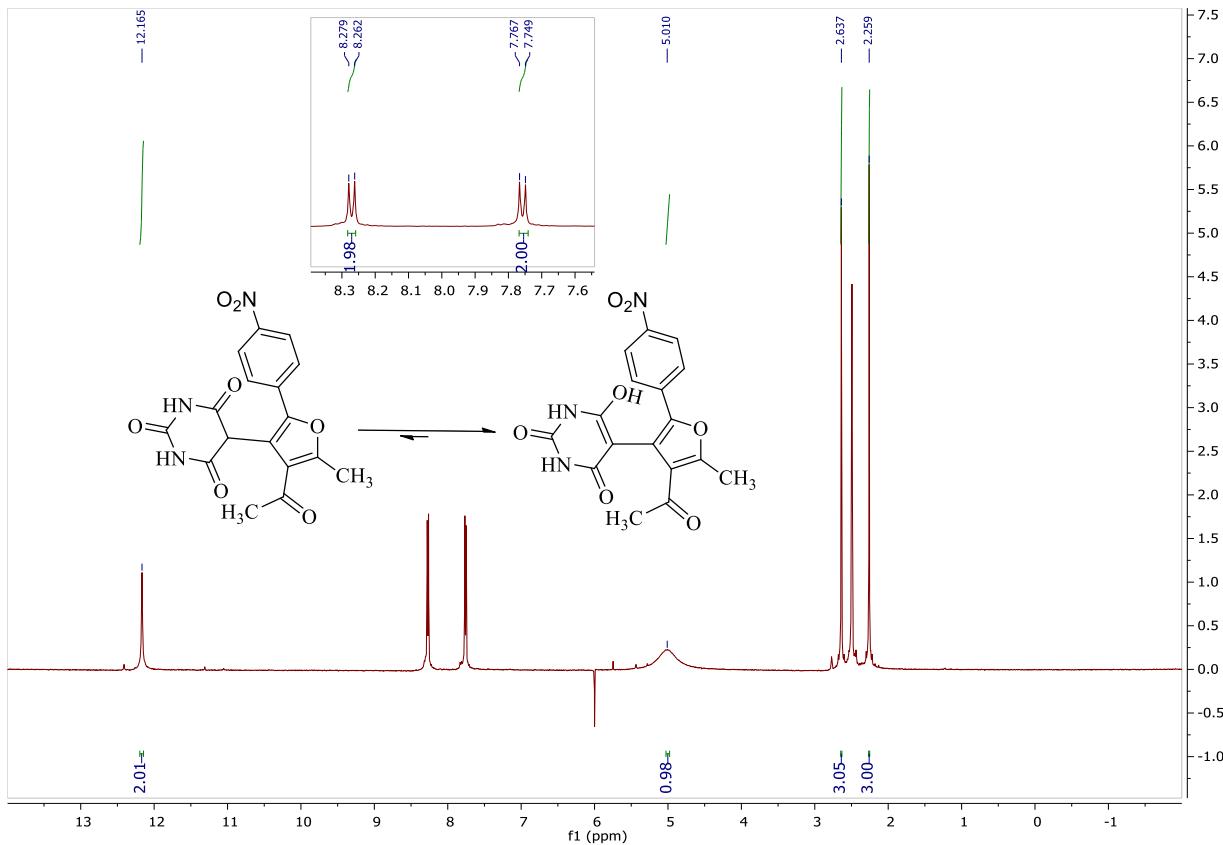
 $^{13}\text{C}$  NMR (125 MHz, d<sub>6</sub>-DMSO) spectrum of compound **4i**IR Spectrum (IR (KBr)  $\nu_{\text{max}}$ /cm<sup>-1</sup>) of compound **4j**

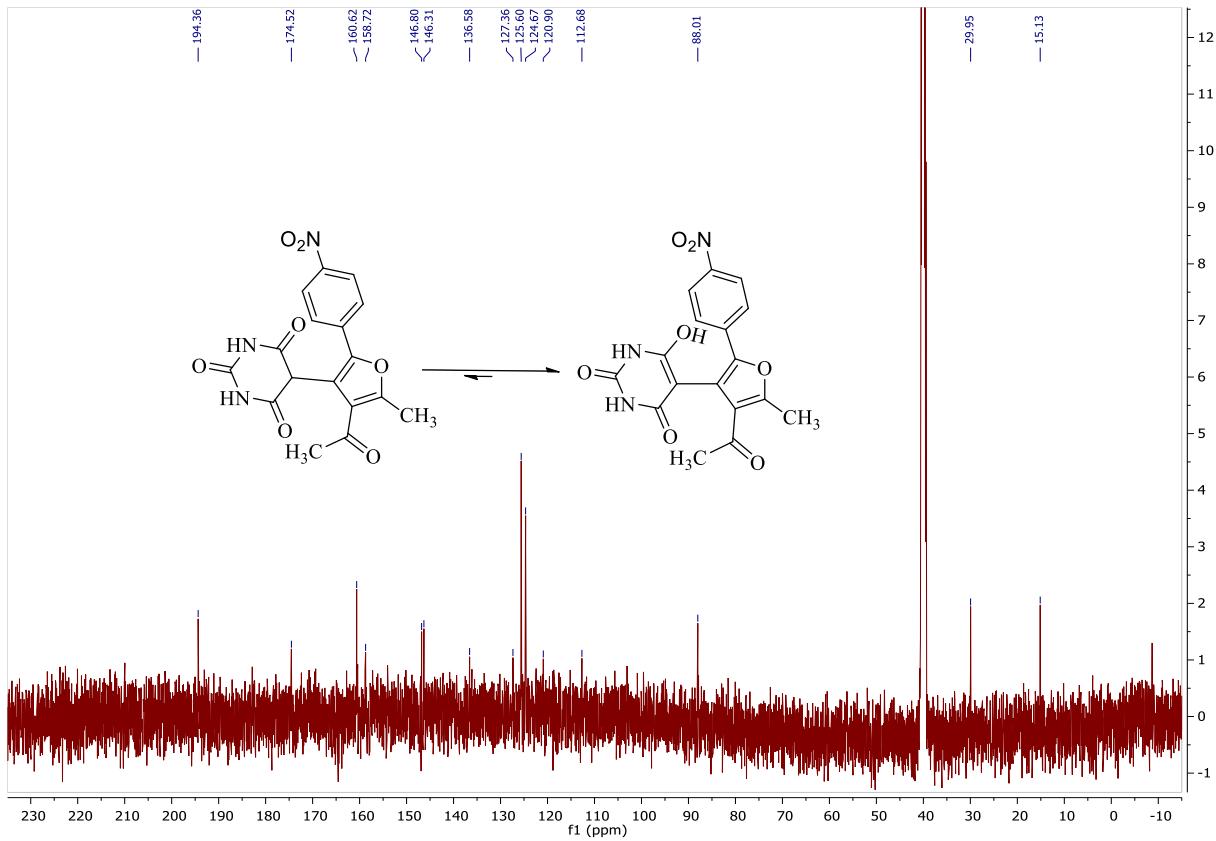


<sup>1</sup>H NMR Spectrum (500 MHz, d<sub>6</sub>-DMSO) of compound 4j

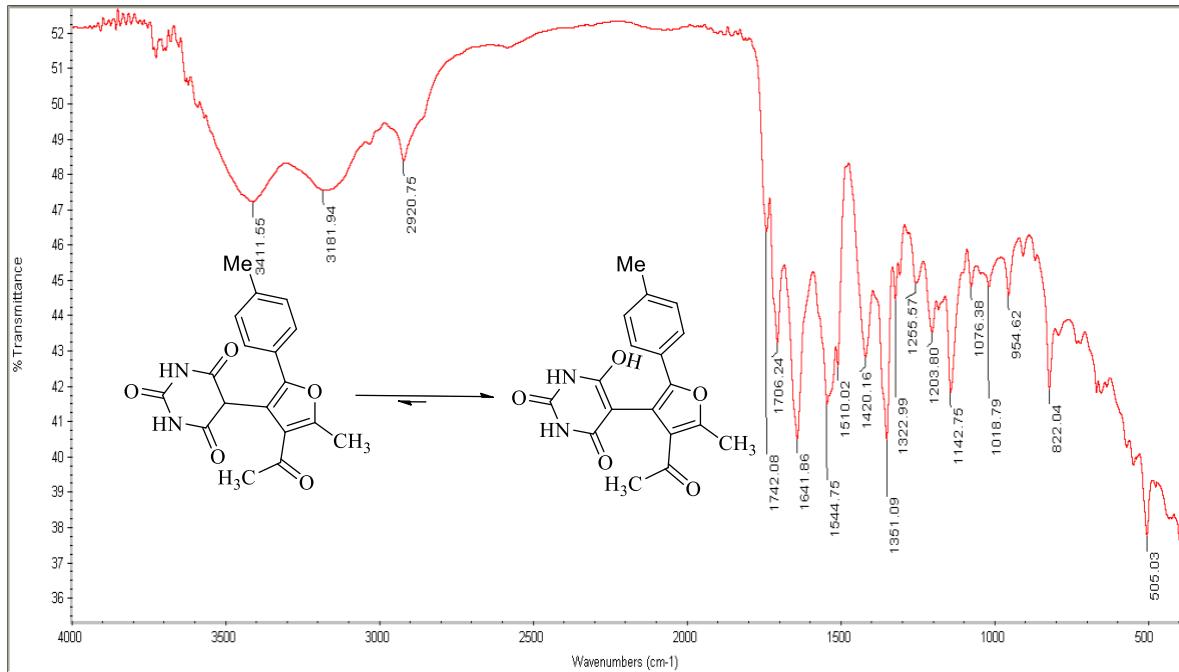


<sup>13</sup>C NMR (125 MHz, d<sub>6</sub>-DMSO) spectrum of compound 4j

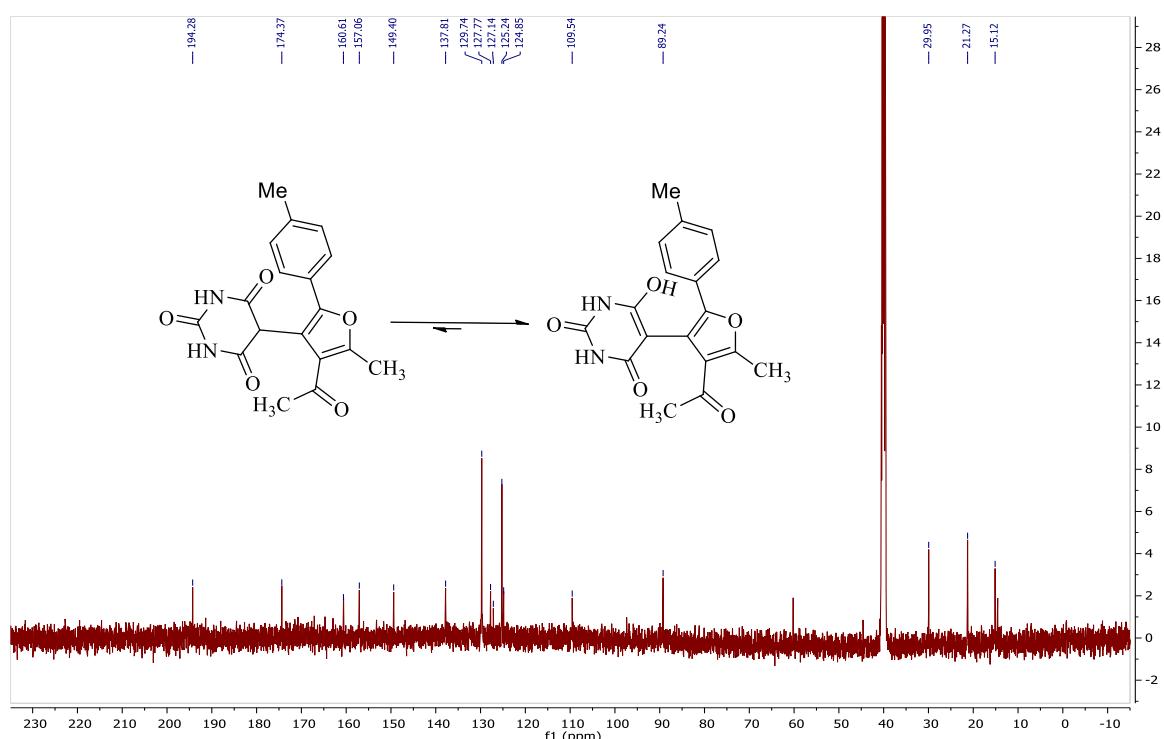
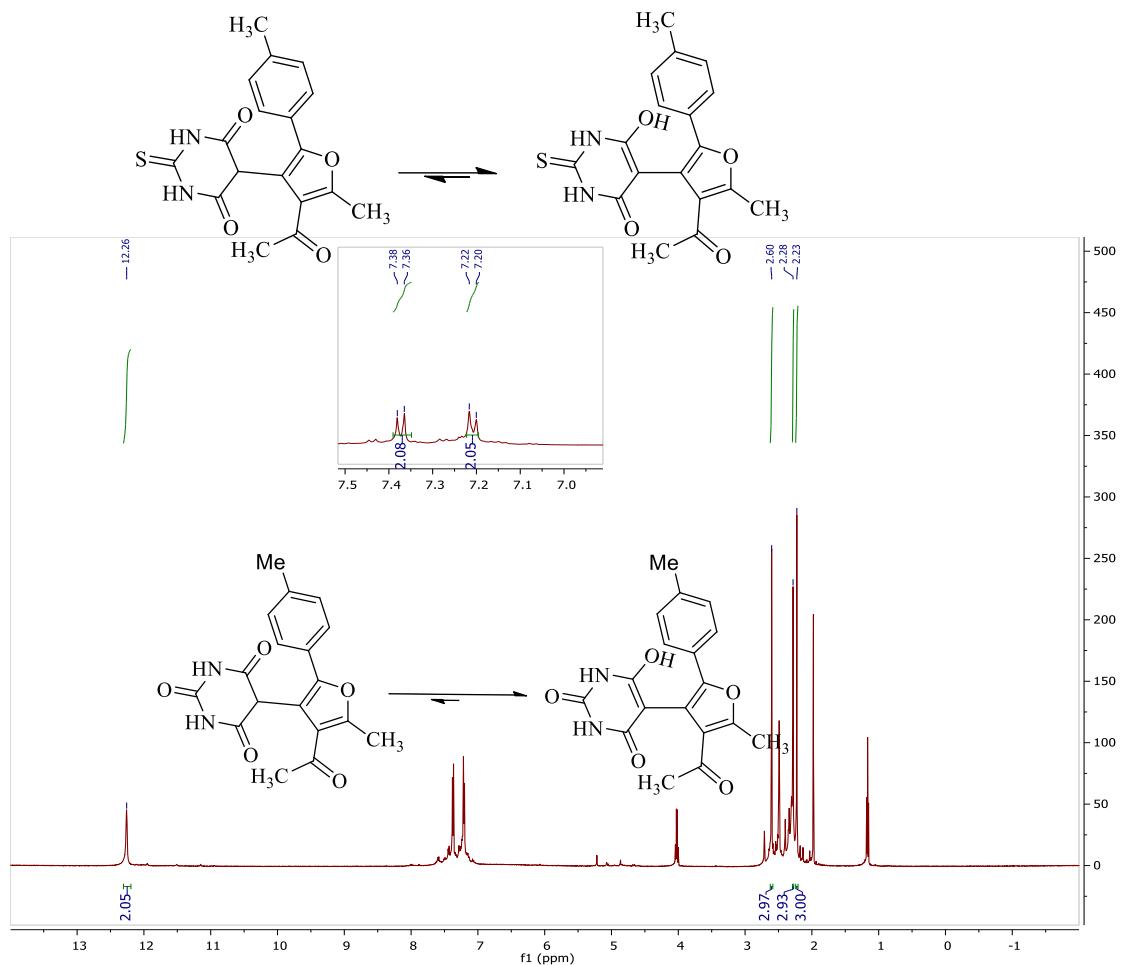
IR Spectrum (IR (KBr)  $\nu_{\text{max}}/\text{cm}^{-1}$ ) of compound **4k**<sup>1</sup>H NMR Spectrum (500 MHz, d<sub>6</sub>-DMSO) of compound **4k**



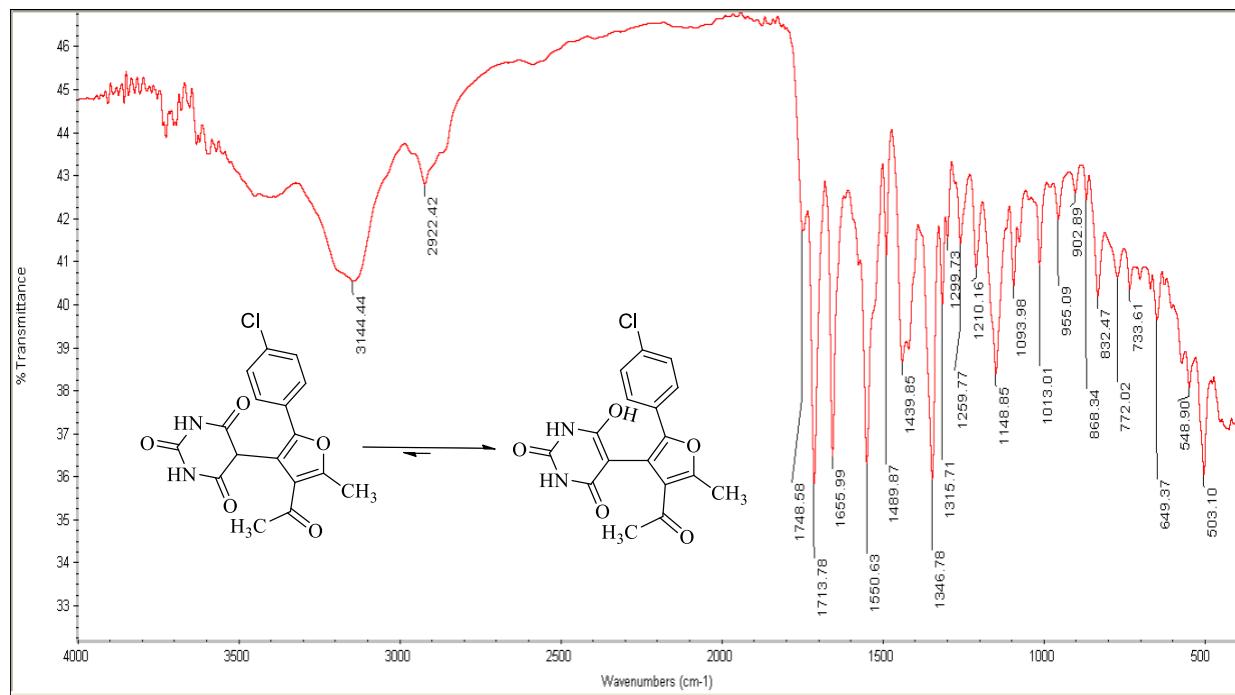
$^{13}\text{C}$  NMR (125 MHz, d<sub>6</sub>-DMSO) spectrum of compound **4k**



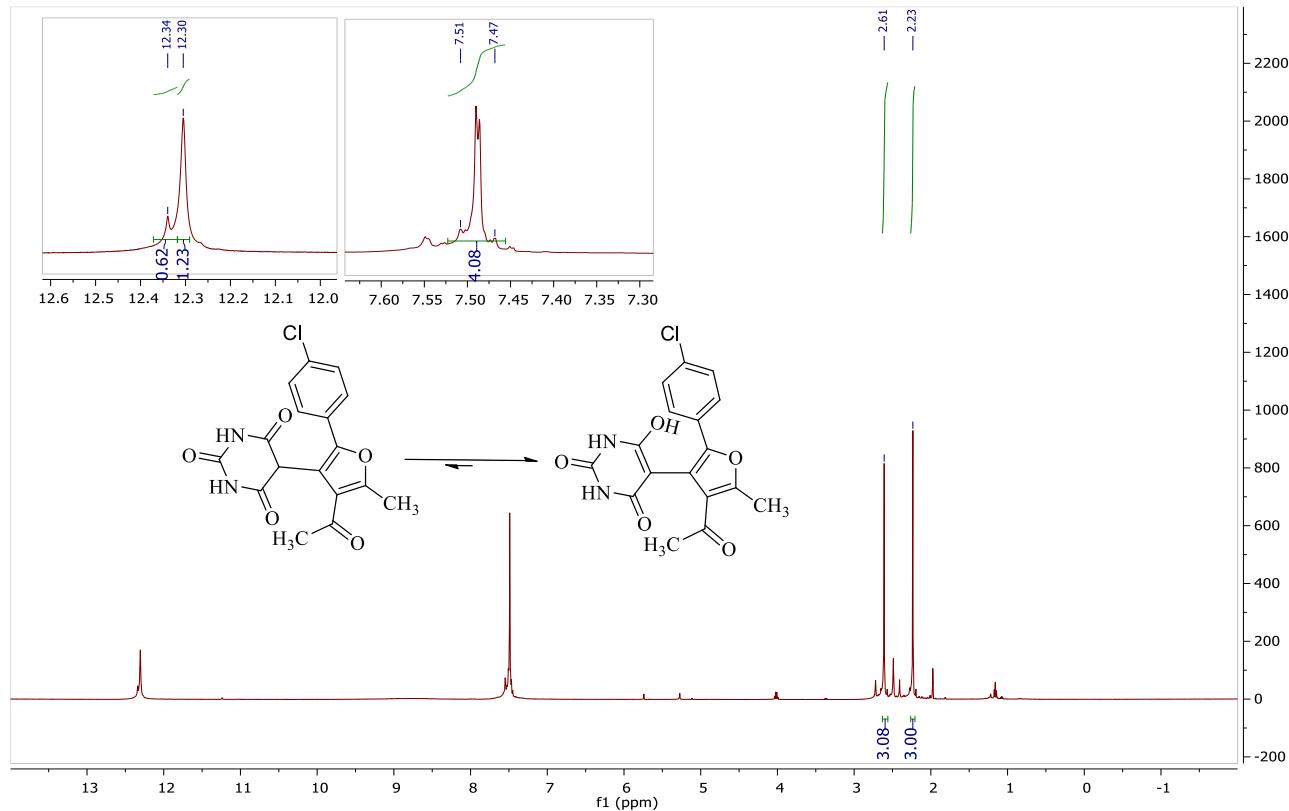
IR Spectrum (IR (KBr)  $\nu_{\text{max}}$ /cm<sup>-1</sup>) of compound **4l**

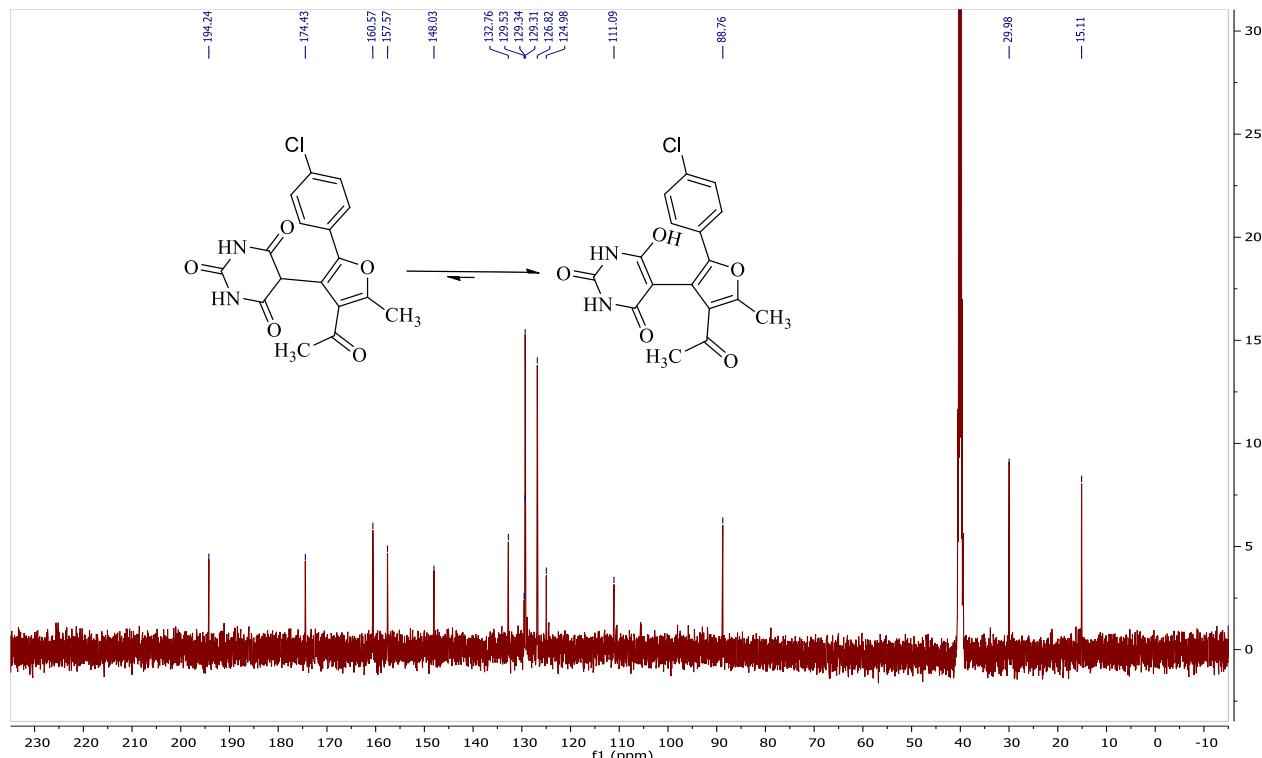


$^{13}\text{C}$  NMR (125 MHz, d6-DMSO) spectrum of compound **4l**



IR Spectrum (IR (KBr)  $\nu_{\text{max}}/\text{cm}^{-1}$ ) of compound **4m**



<sup>1</sup>H NMR Spectrum (500 MHz, d<sub>6</sub>-DMSO) of compound **4m**<sup>13</sup>C NMR (125 MHz, d<sub>6</sub>-DMSO) spectrum of compound **4m**