

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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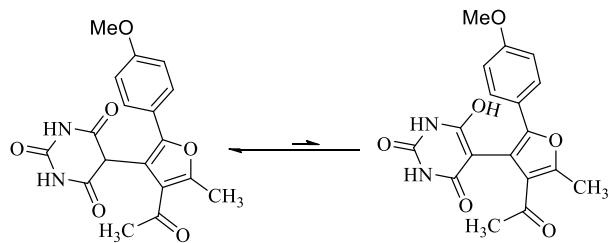
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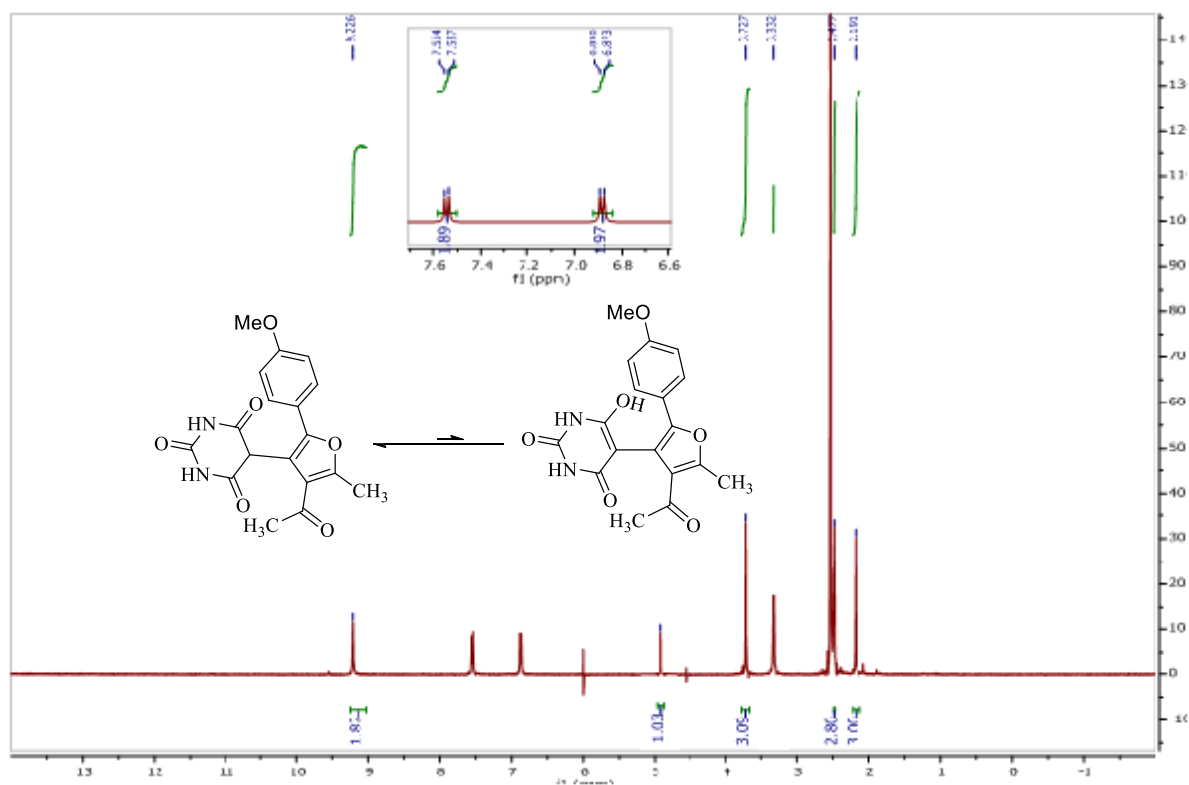
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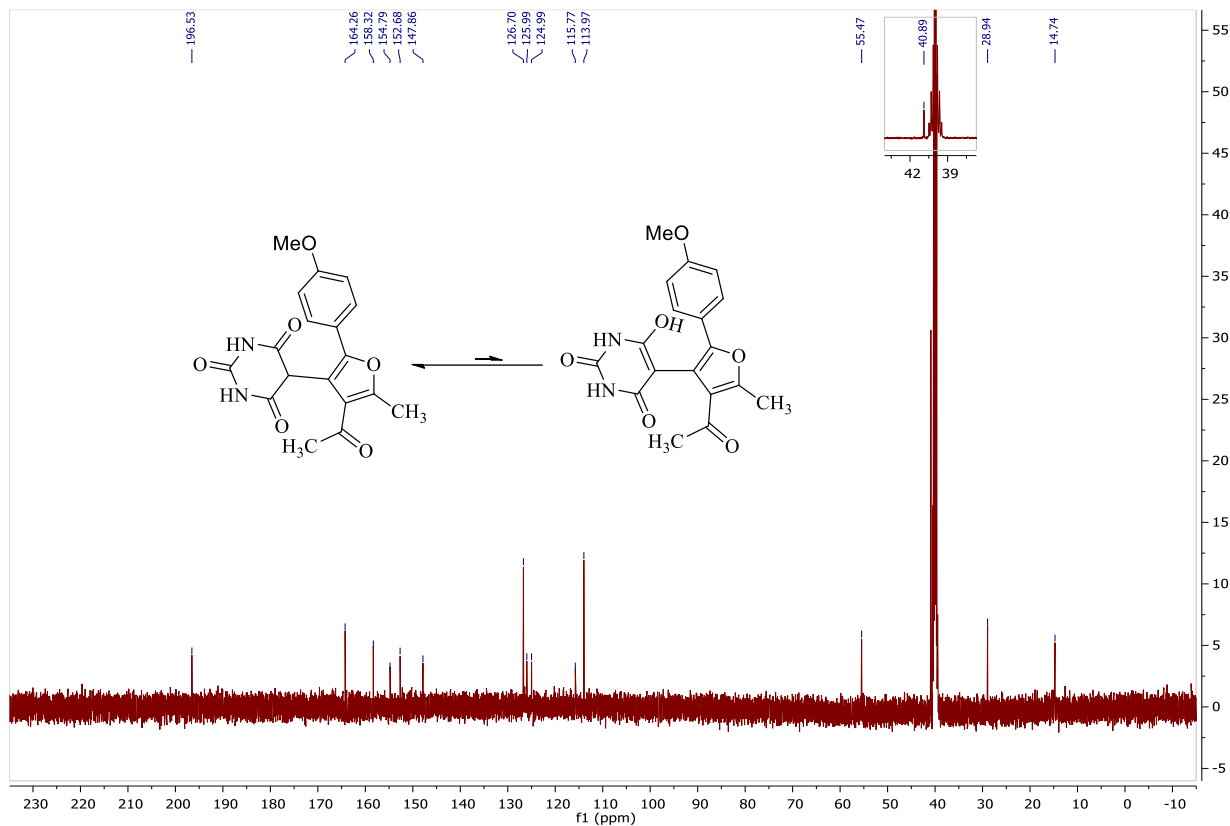
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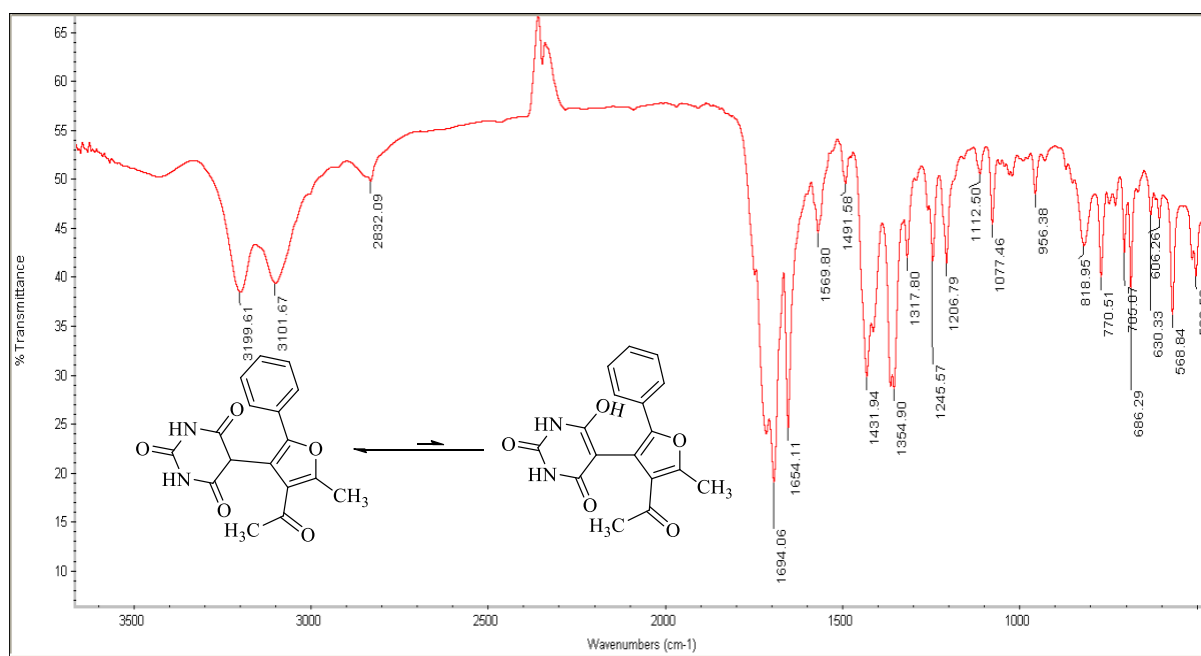
IR Spectrum (IR (KBr) $\bar{\nu}_{\text{max}}/\text{cm}^{-1}$) of compound **4a**



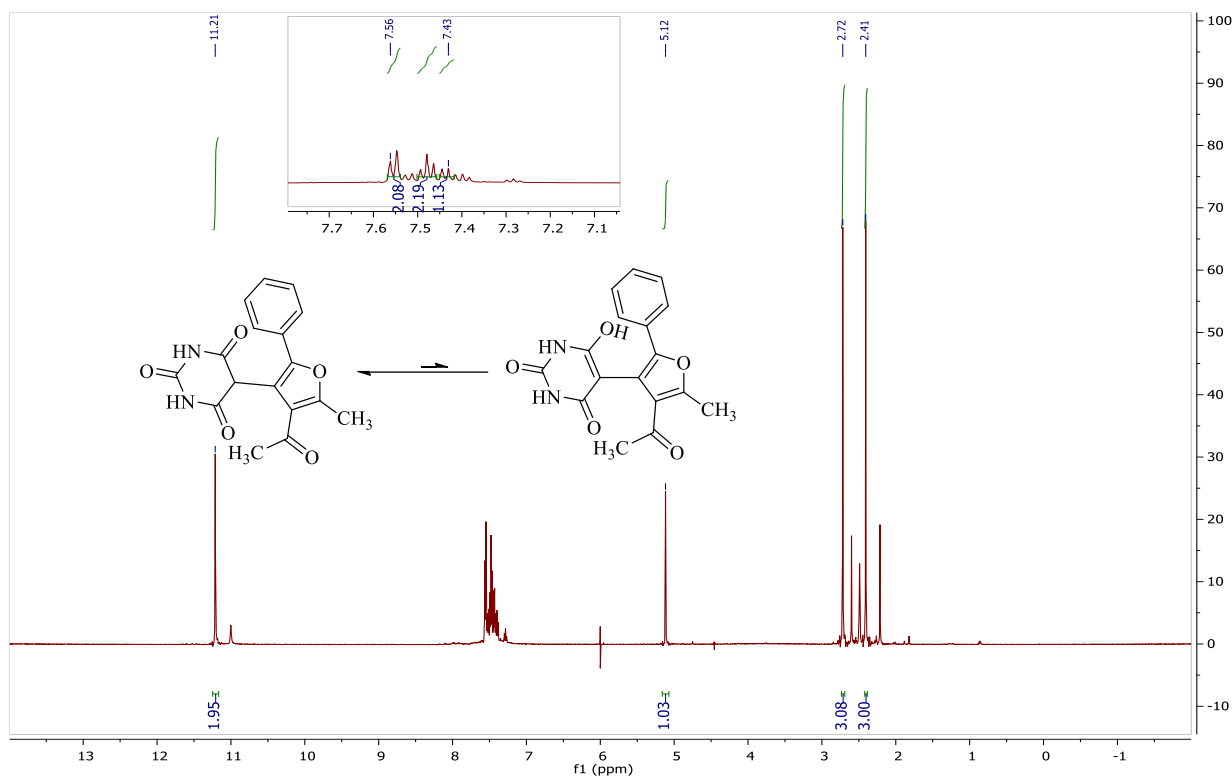
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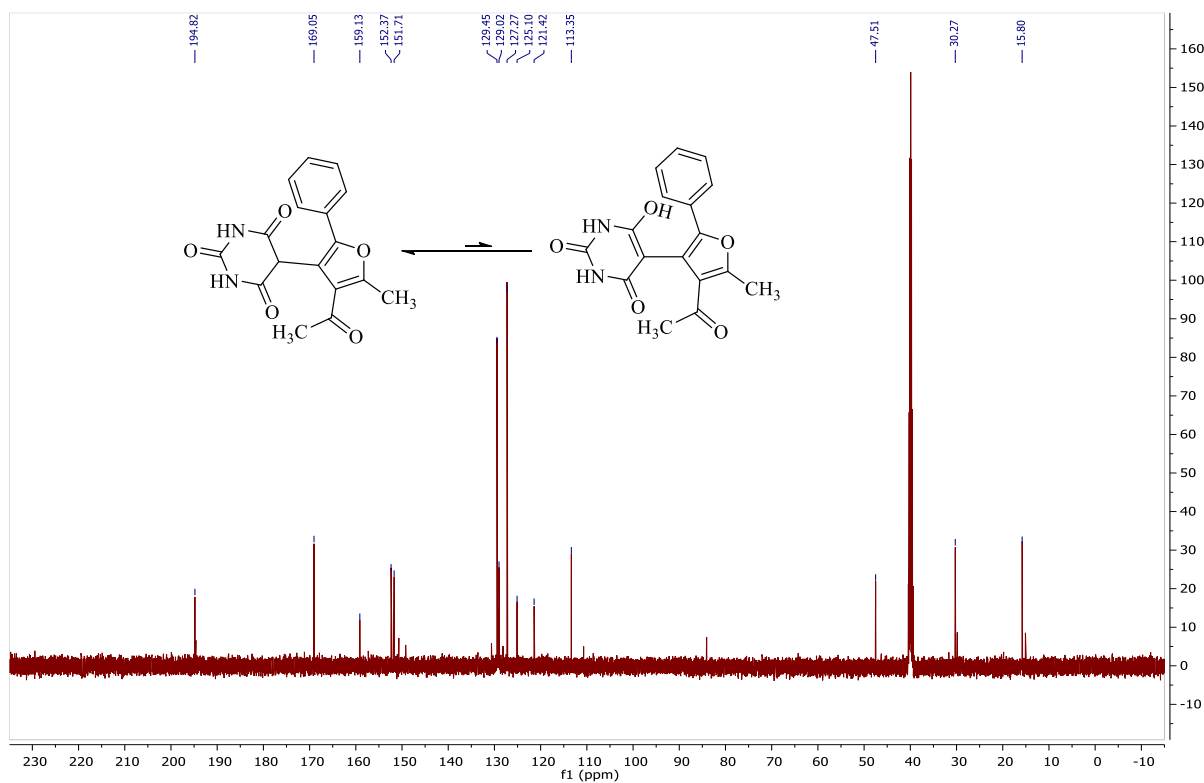
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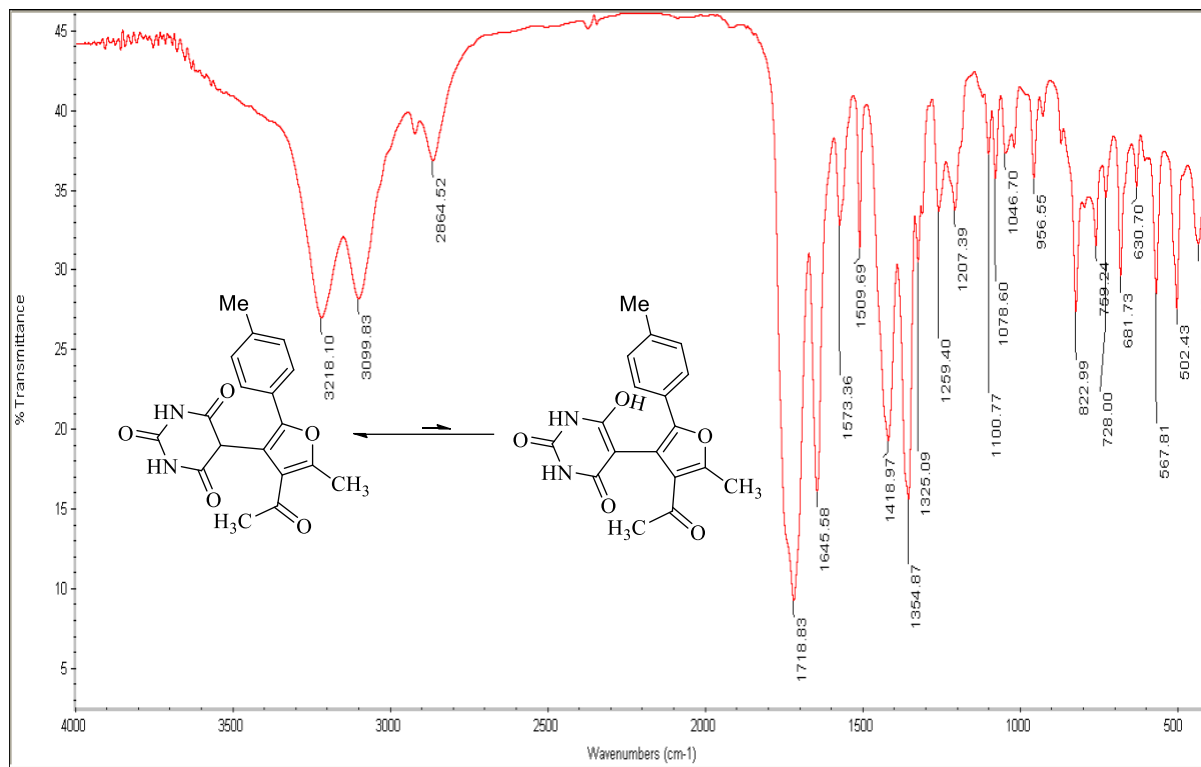
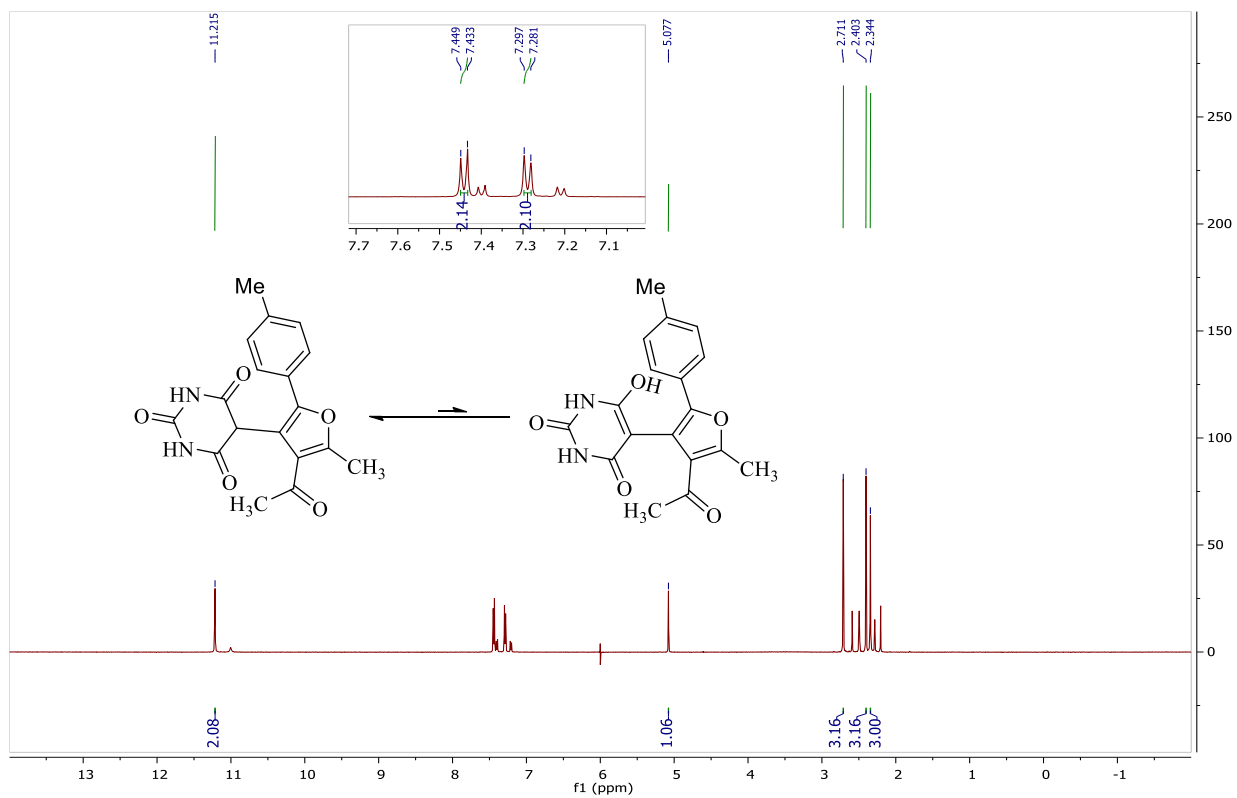
IR Spectrum (IR (KBr) $\nu_{\max}/\text{cm}^{-1}$) of compound **4b**



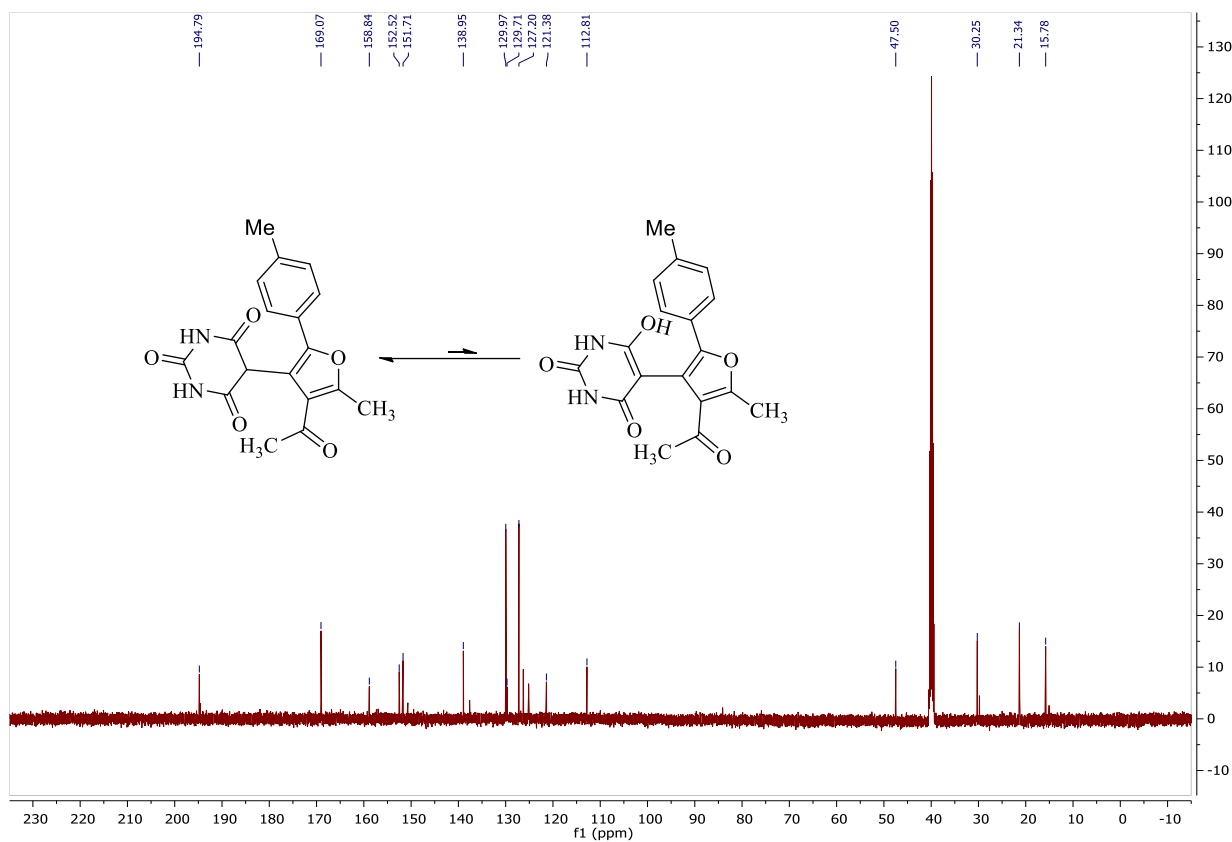
^1H NMR Spectrum (500 MHz, d_6 -DMSO) of compound **4b**



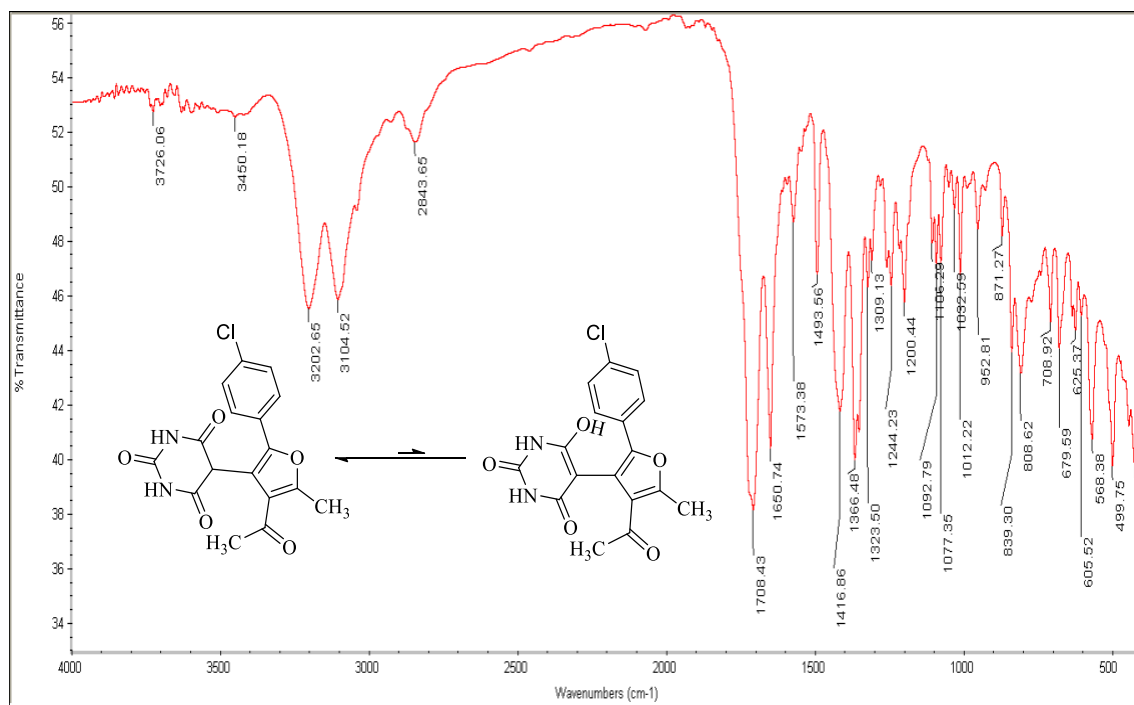
^{13}C NMR (125 MHz, d_6 -DMSO) spectrum of compound **4b**

IR Spectrum (IR (KBr) $\nu_{\max}/\text{cm}^{-1}$) of compound **4c**¹H NMR Spectrum (500 MHz, d₆-DMSO) of compound **4c**

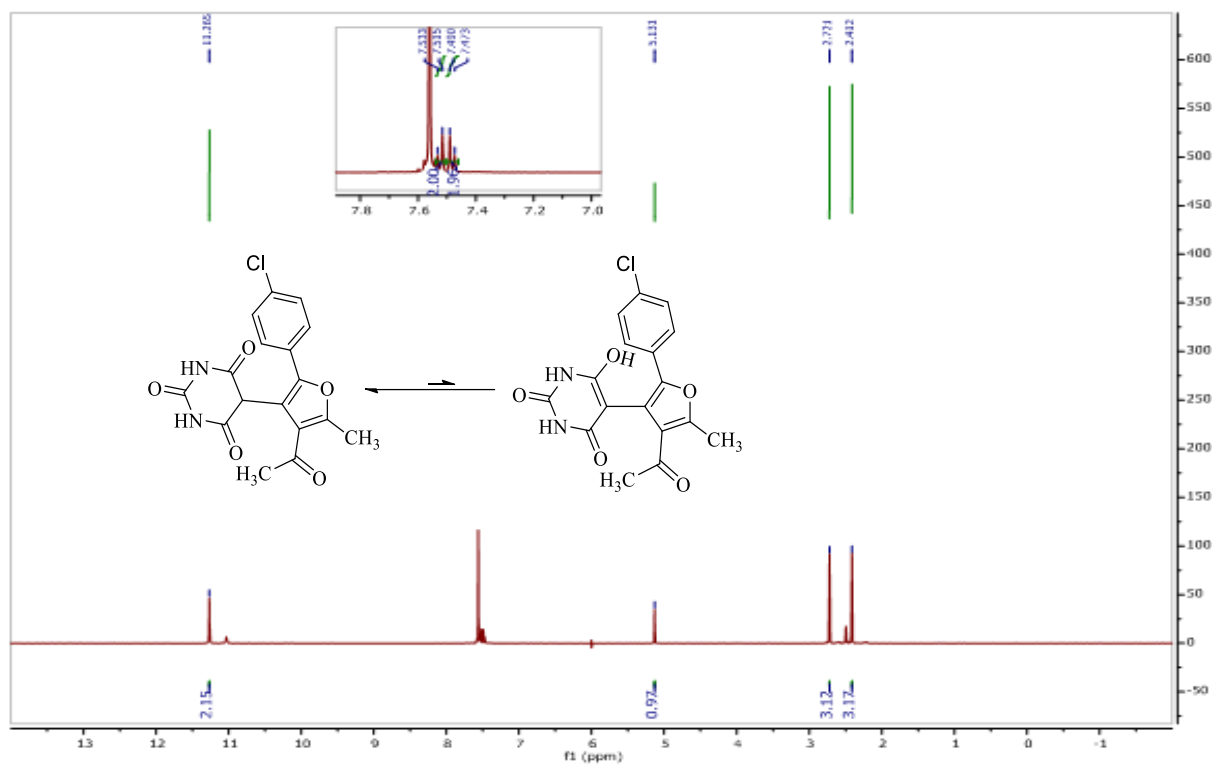
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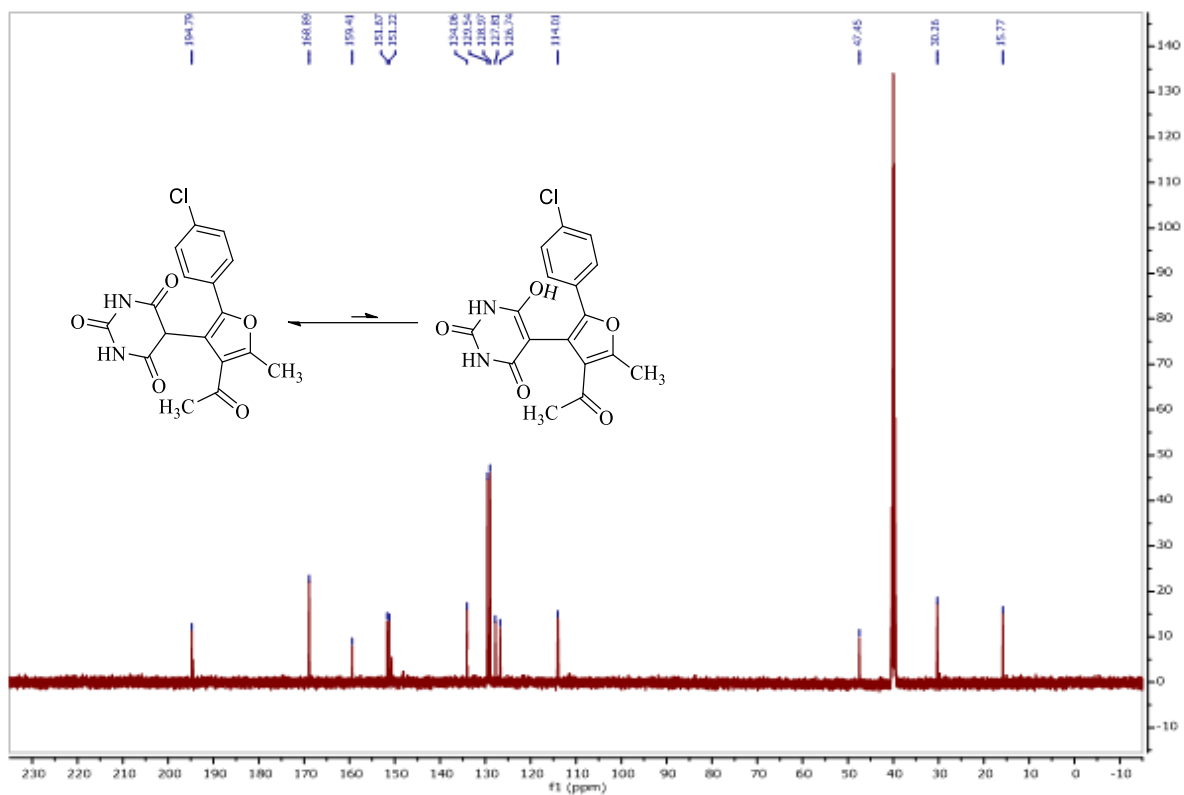
¹³C NMR (125 MHz, d₆-DMSO) spectrum of compound **4c**



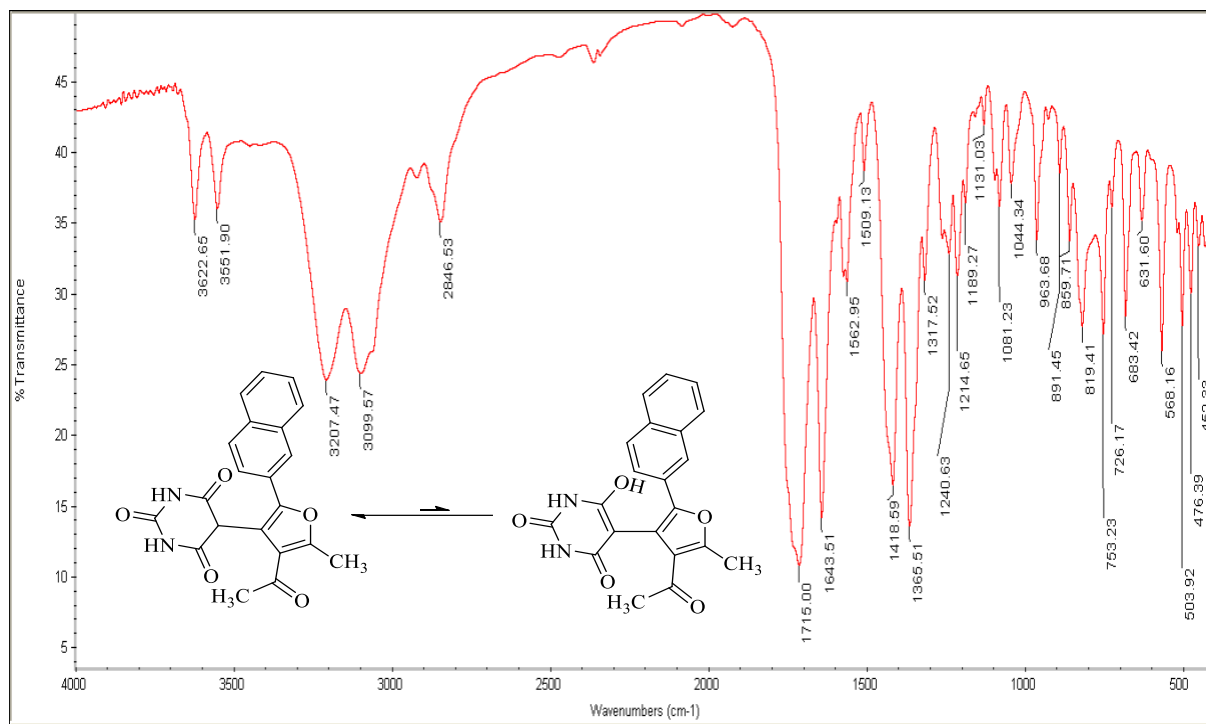
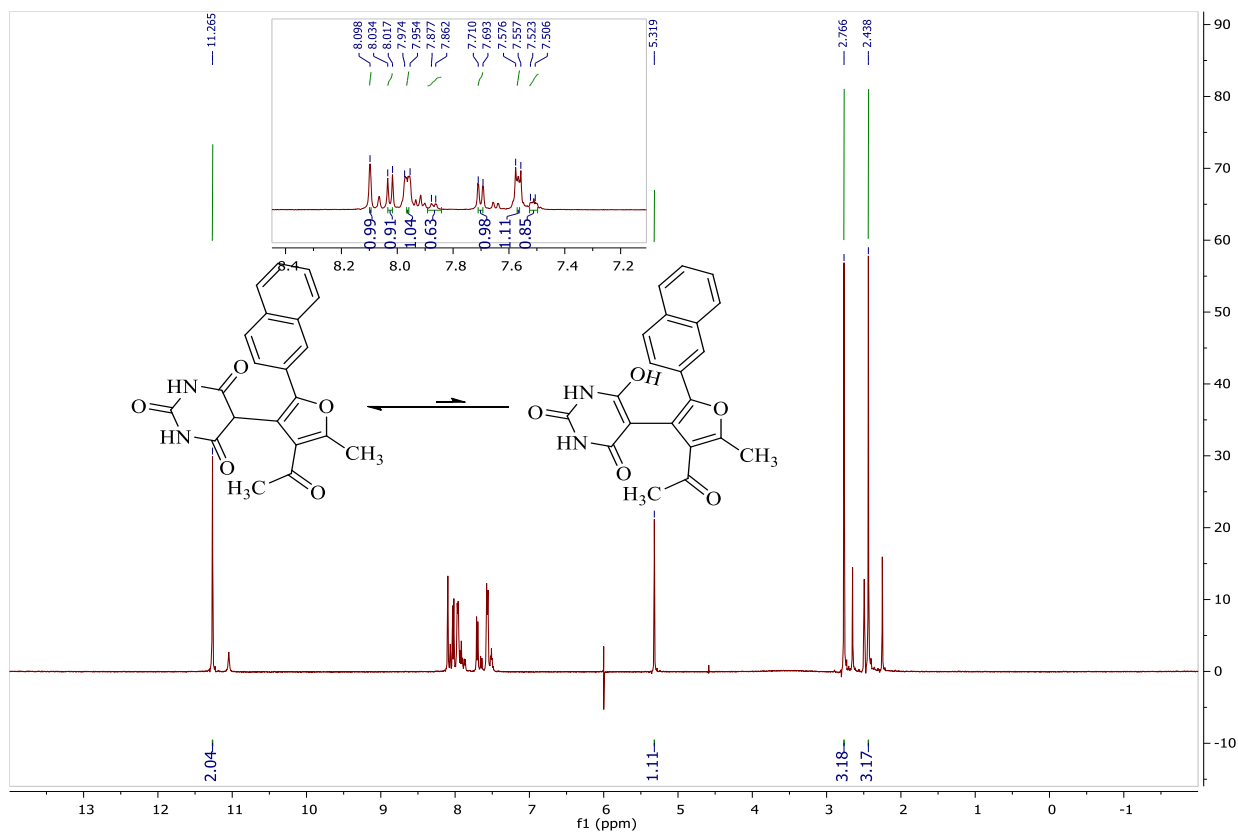
IR Spectrum (IR (KBr) $\nu_{\max}/\text{cm}^{-1}$) of compound **4d**

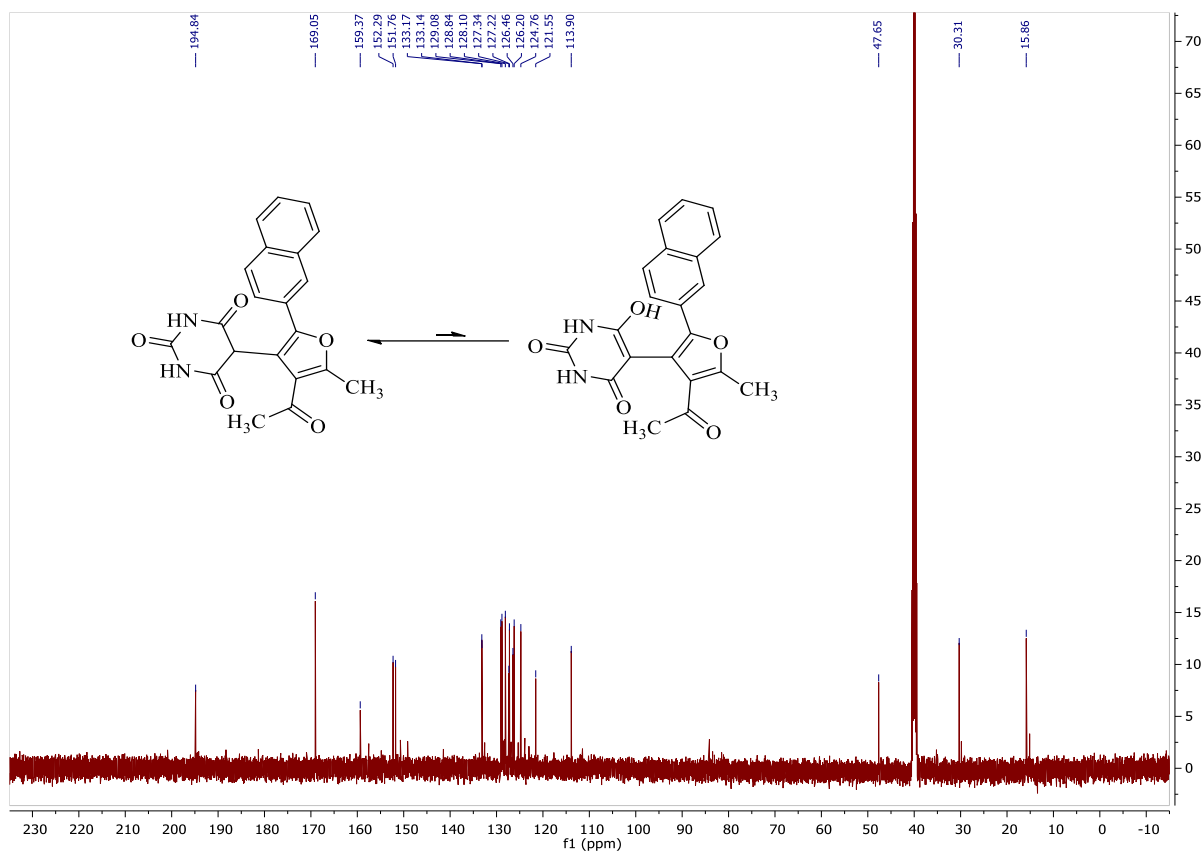


¹H NMR Spectrum (500 MHz, d₆-DMSO) of compound **4d**

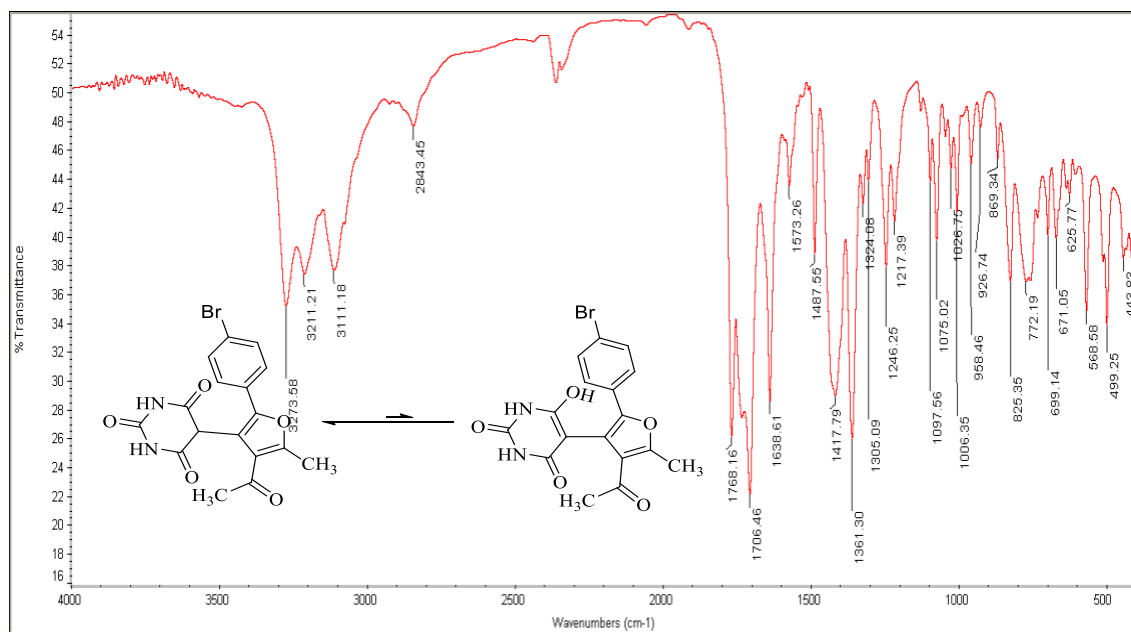


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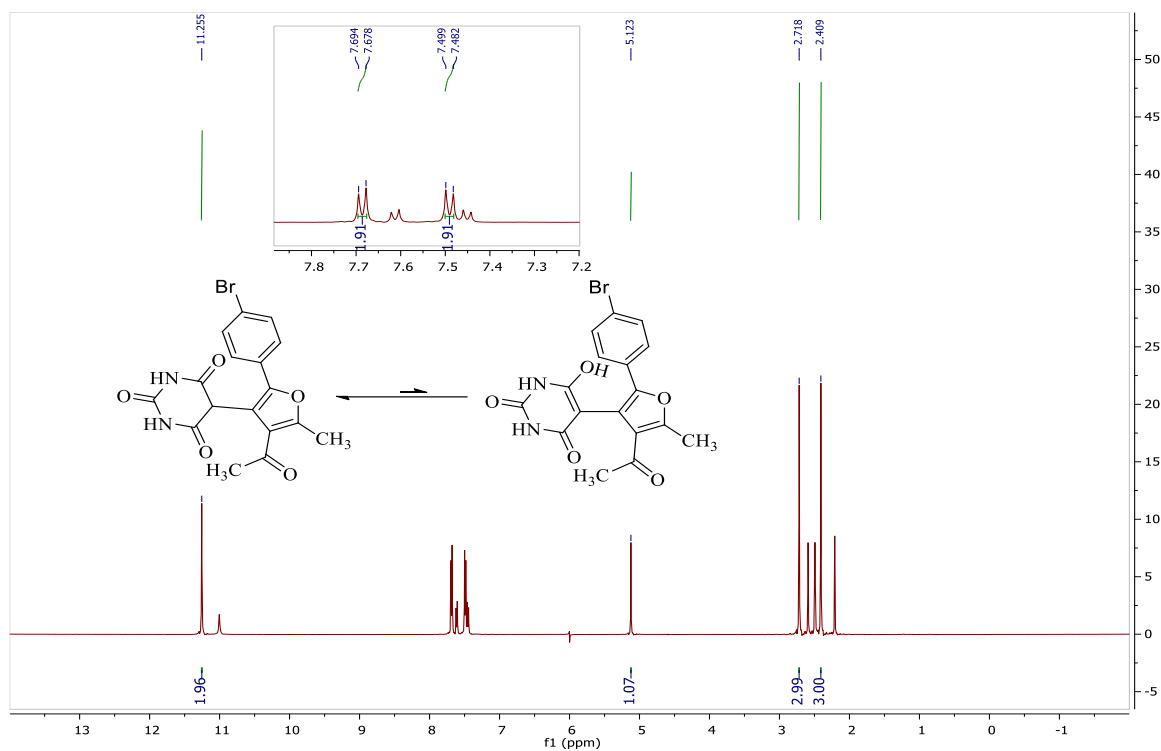
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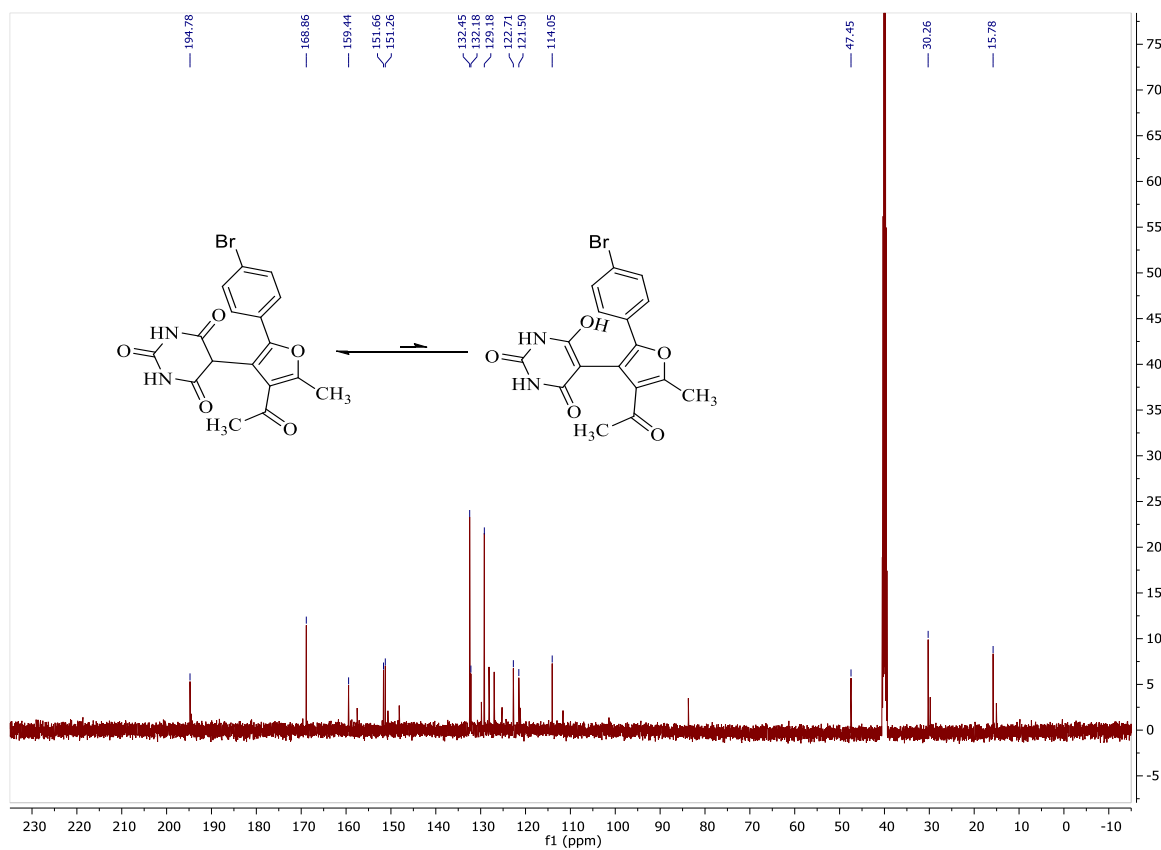
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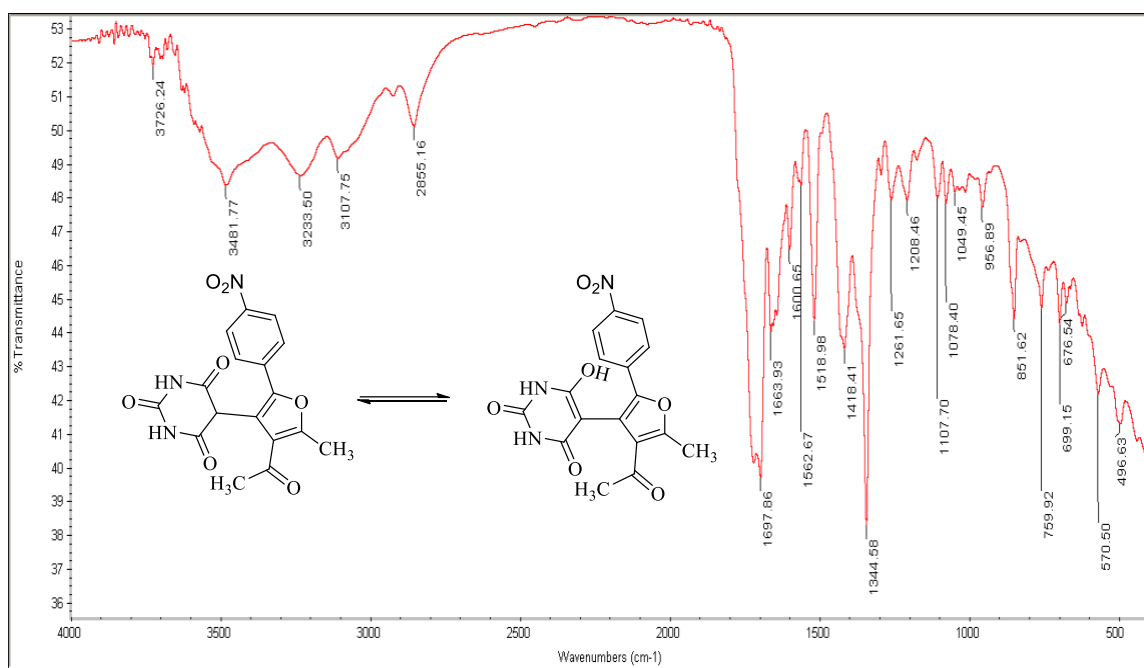
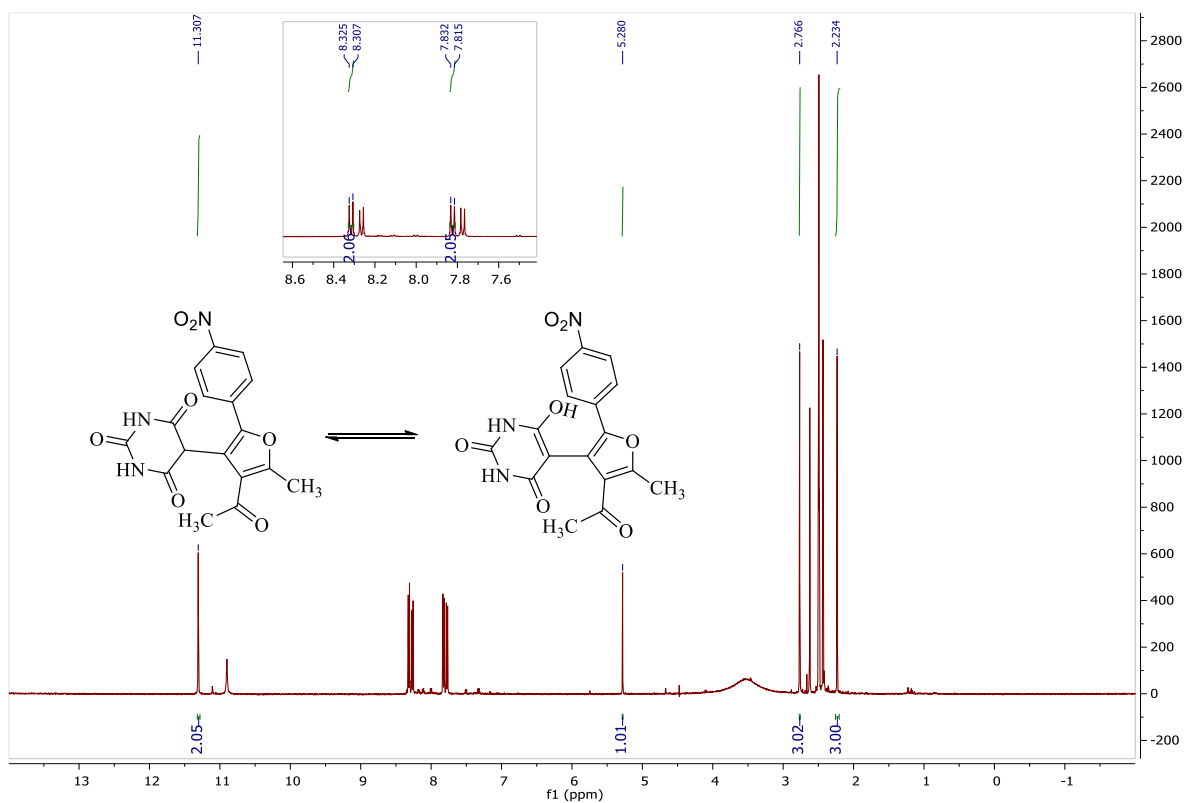
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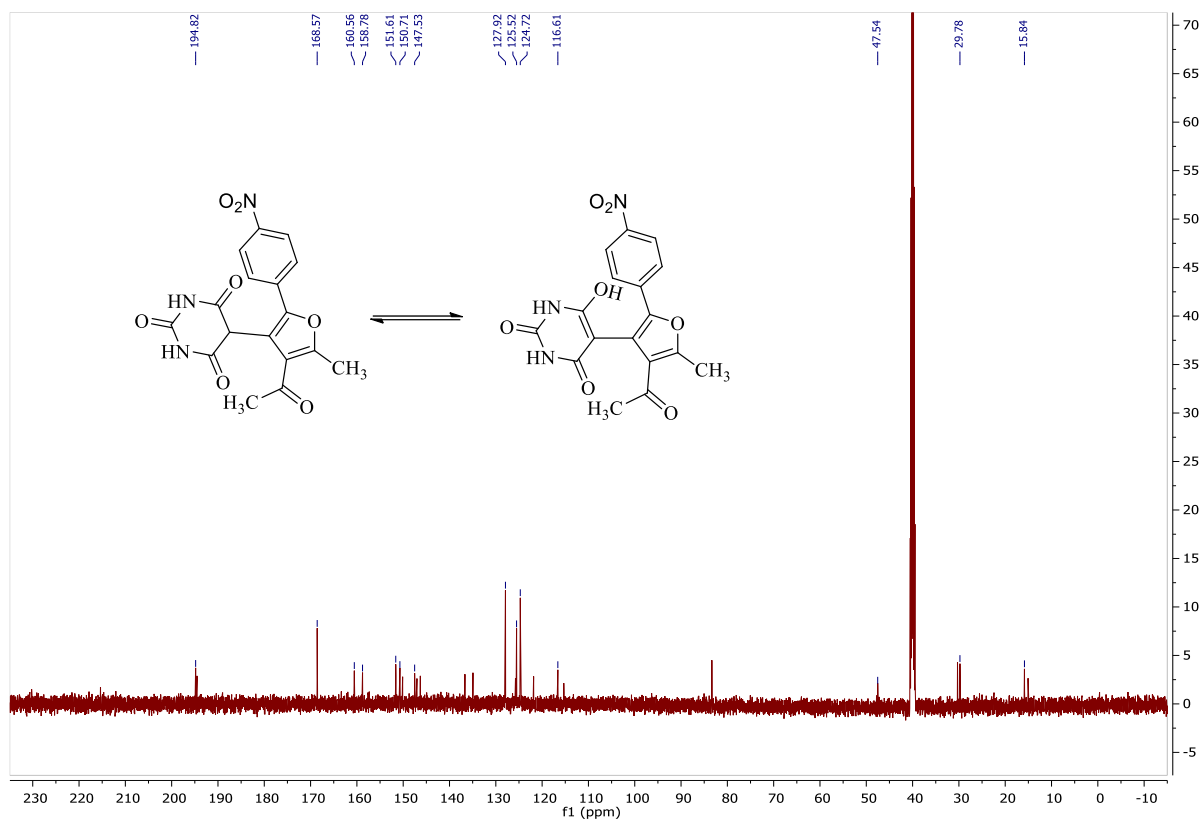


¹H NMR Spectrum (500 MHz, d₆-DMSO) of compound **4f**

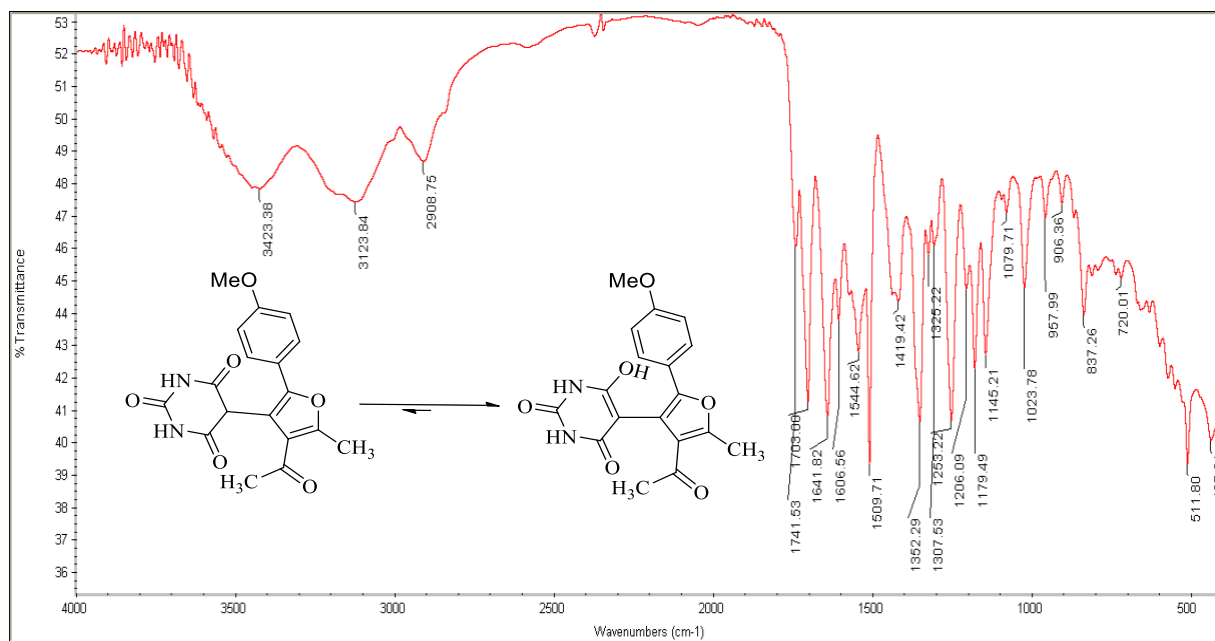


¹³C NMR (125 MHz, d₆-DMSO) spectrum of compound **4f**

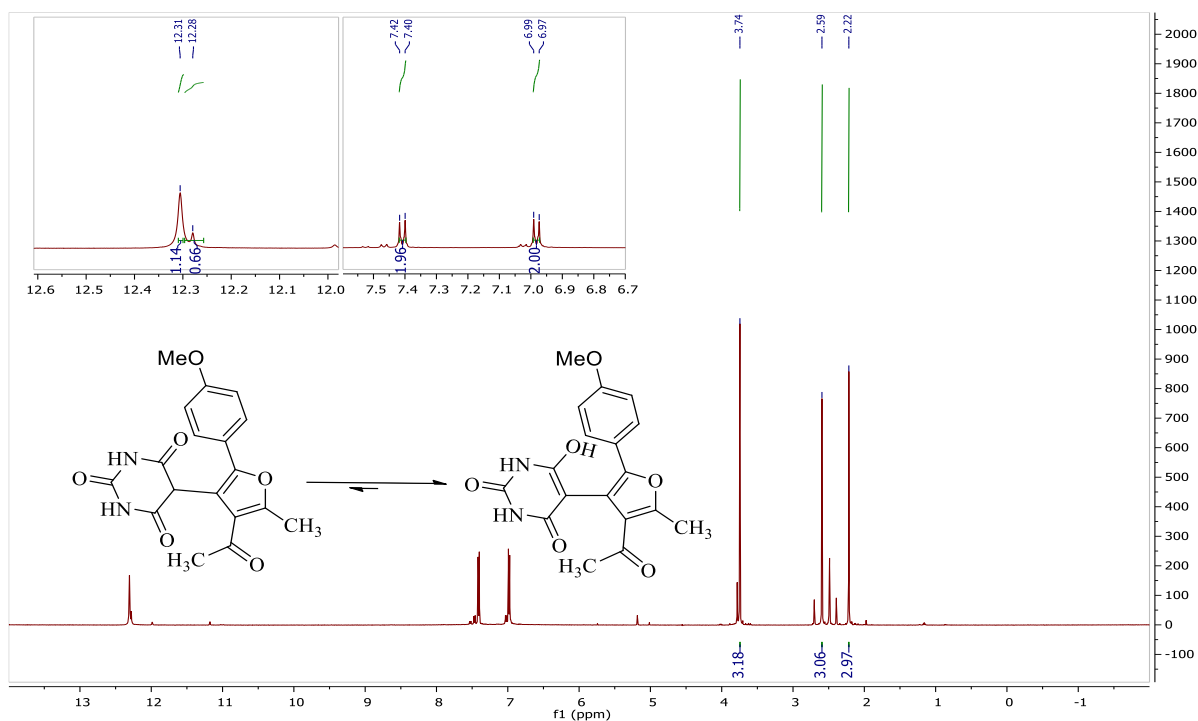
IR Spectrum (IR (KBr) $\nu_{\max}/\text{cm}^{-1}$) of compound **4g** ^1H NMR Spectrum (500 MHz, $\text{d}_6\text{-DMSO}$) of compound **4g**



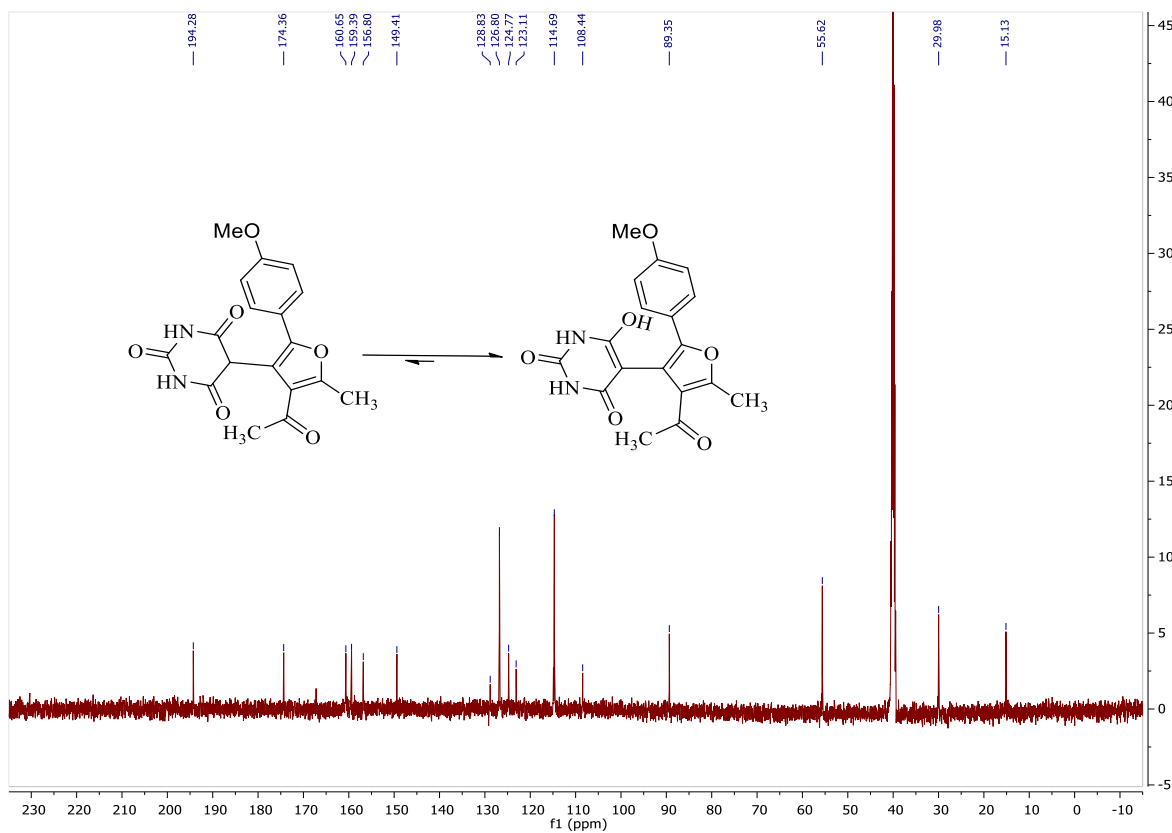
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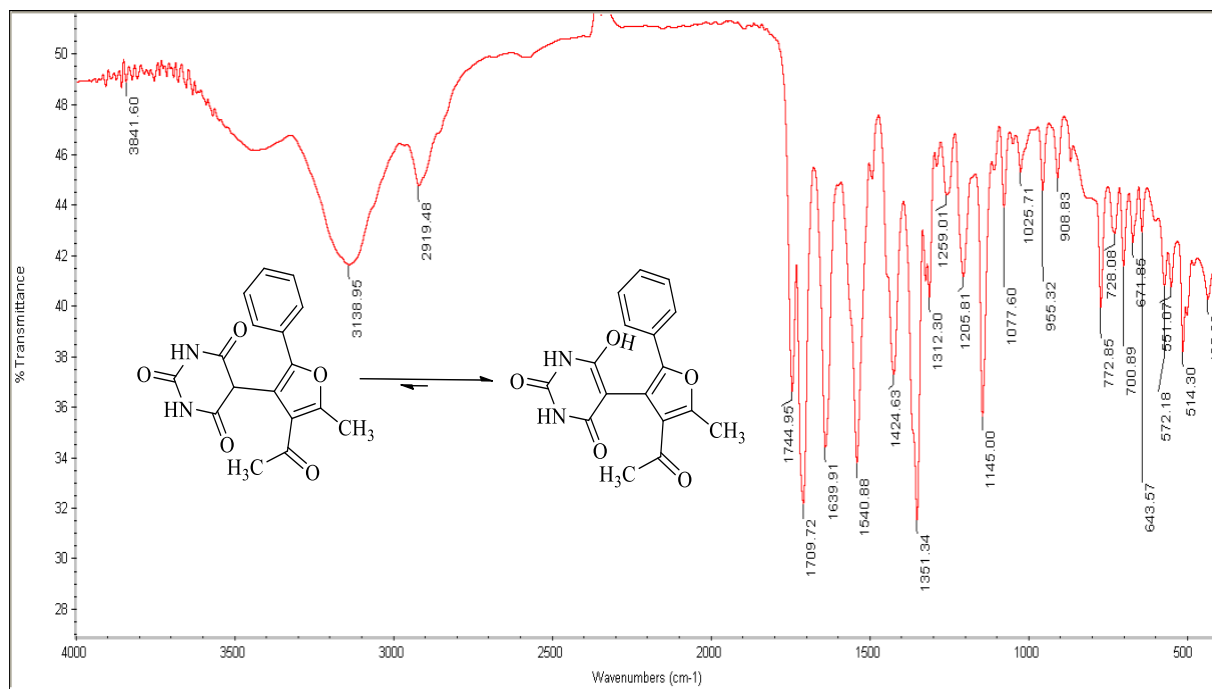
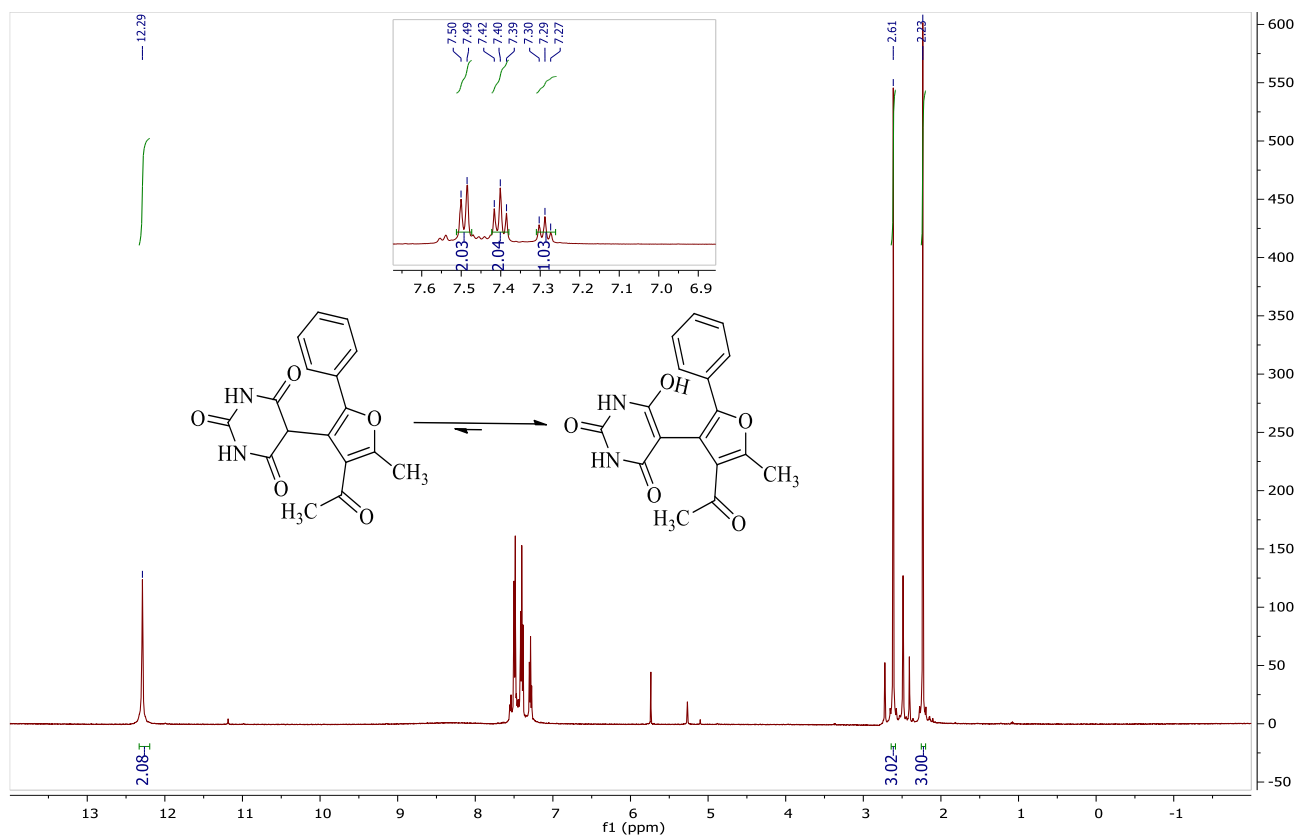
IR Spectrum (IR (KBr) $\nu_{\max}/\text{cm}^{-1}$) of compound **4h**

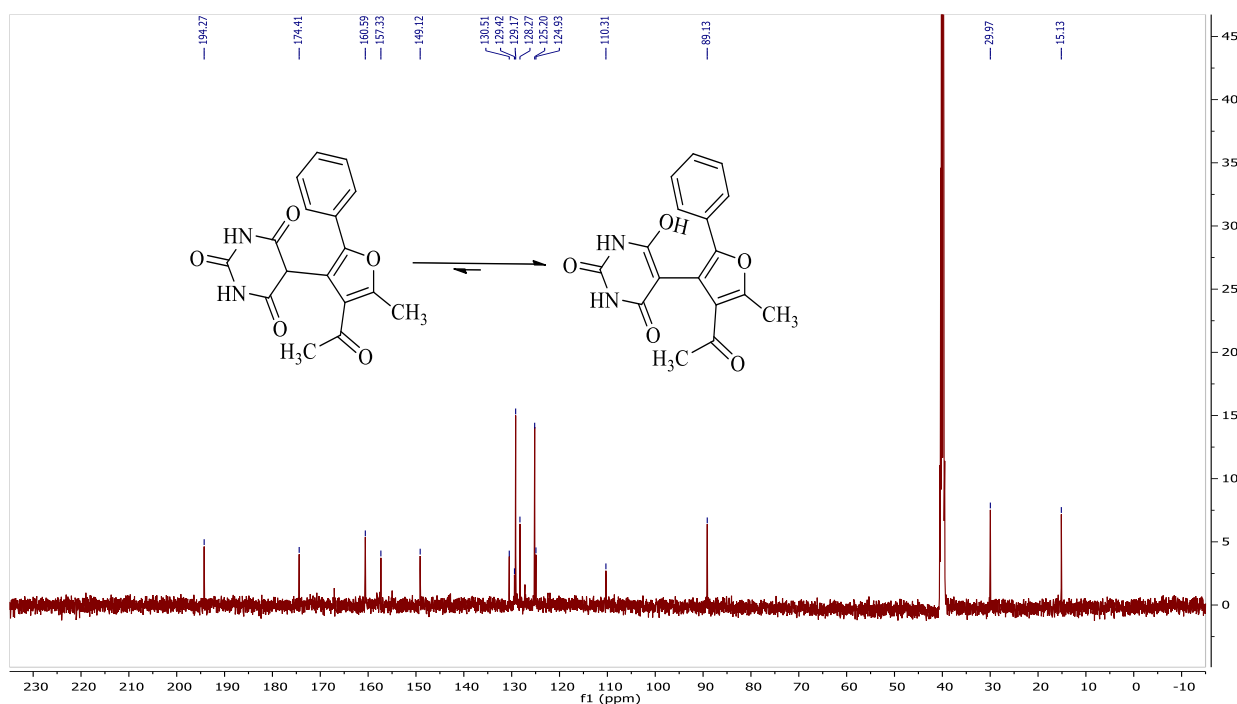


¹H NMR Spectrum (500 MHz, d₆-DMSO) of compound **4h**

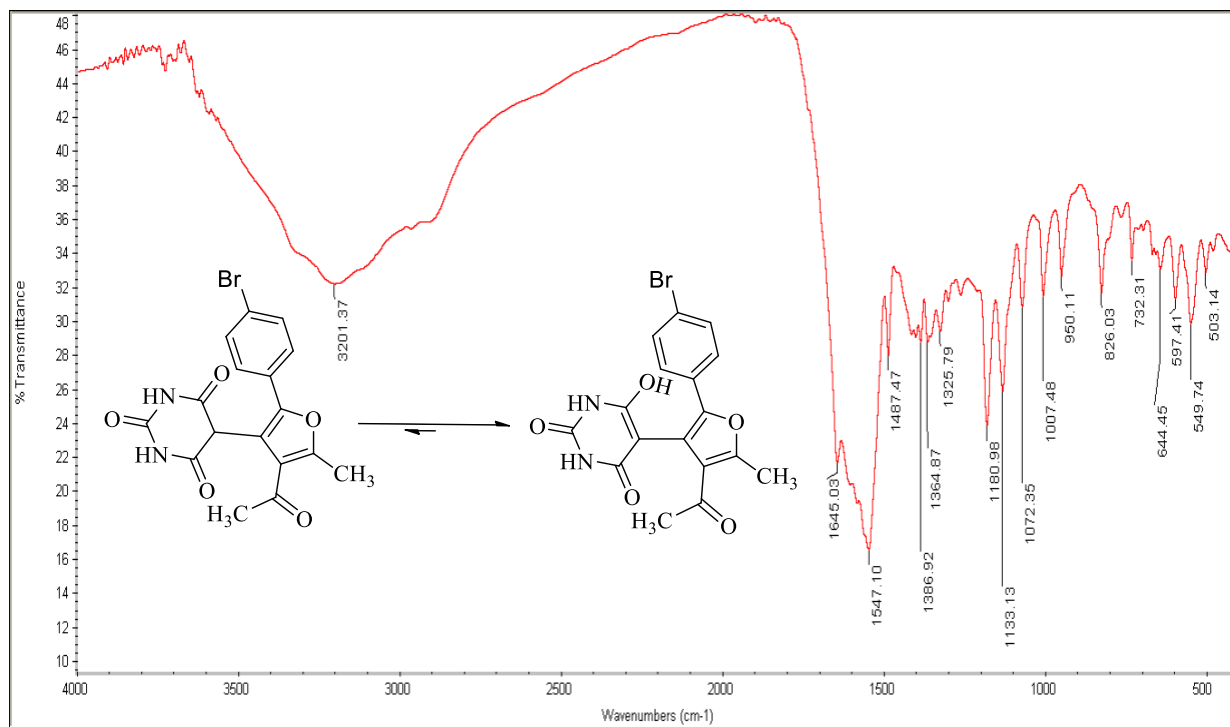


¹³C NMR (125 MHz, d₆-DMSO) spectrum of compound **4h**

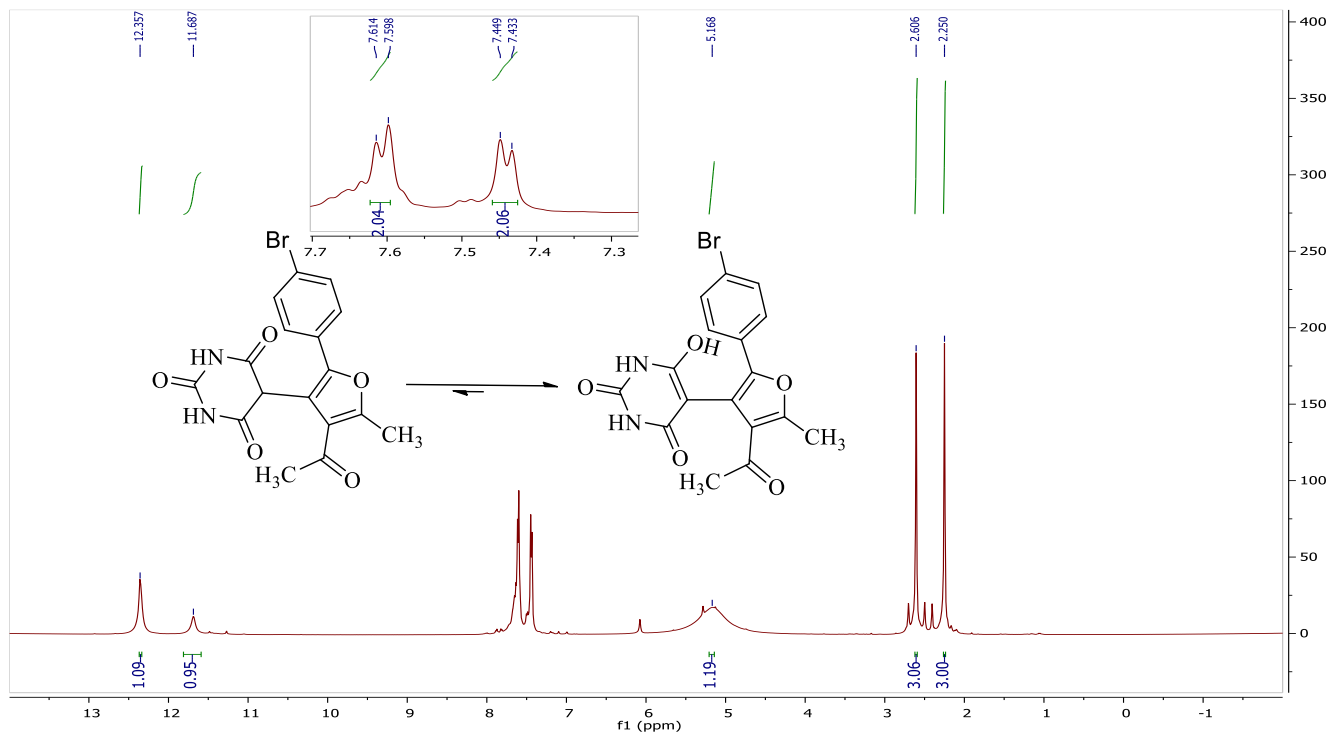
IR Spectrum (IR (KBr) $\nu_{\max}/\text{cm}^{-1}$) of compound **4i** ^1H NMR Spectrum (500 MHz, $\text{d}_6\text{-DMSO}$) of compound **4i**



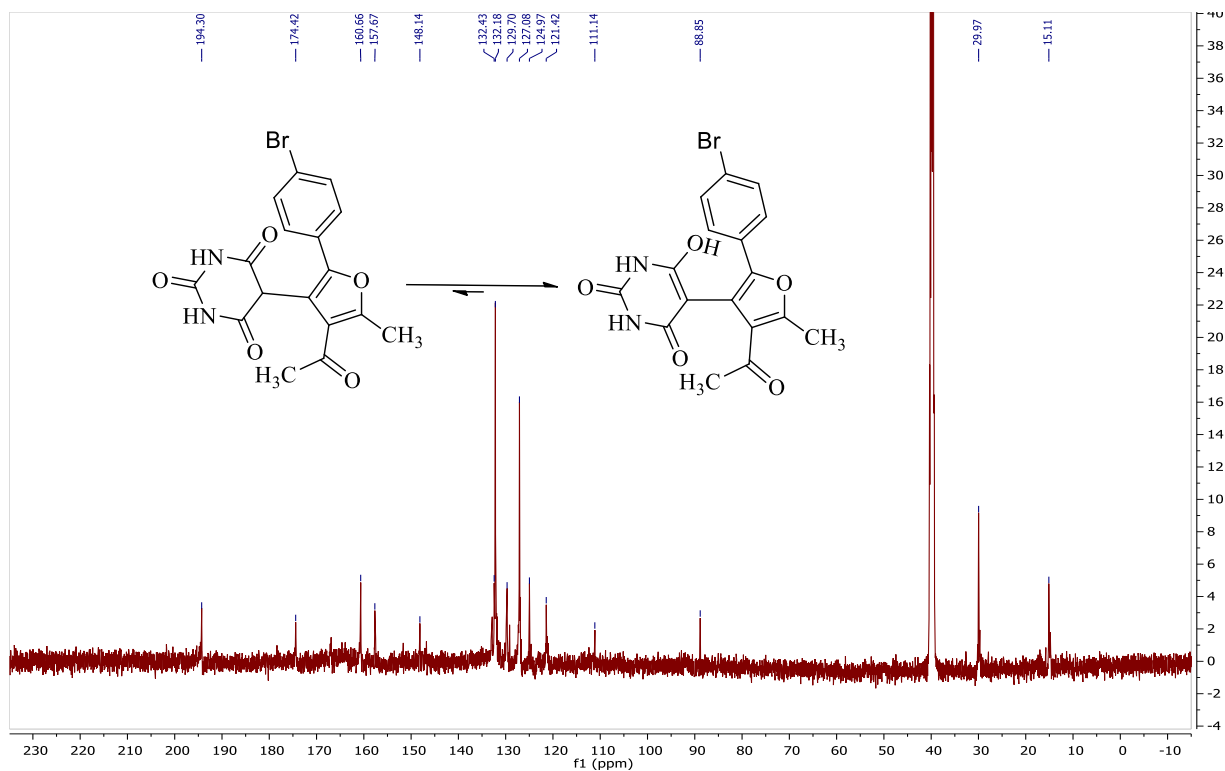
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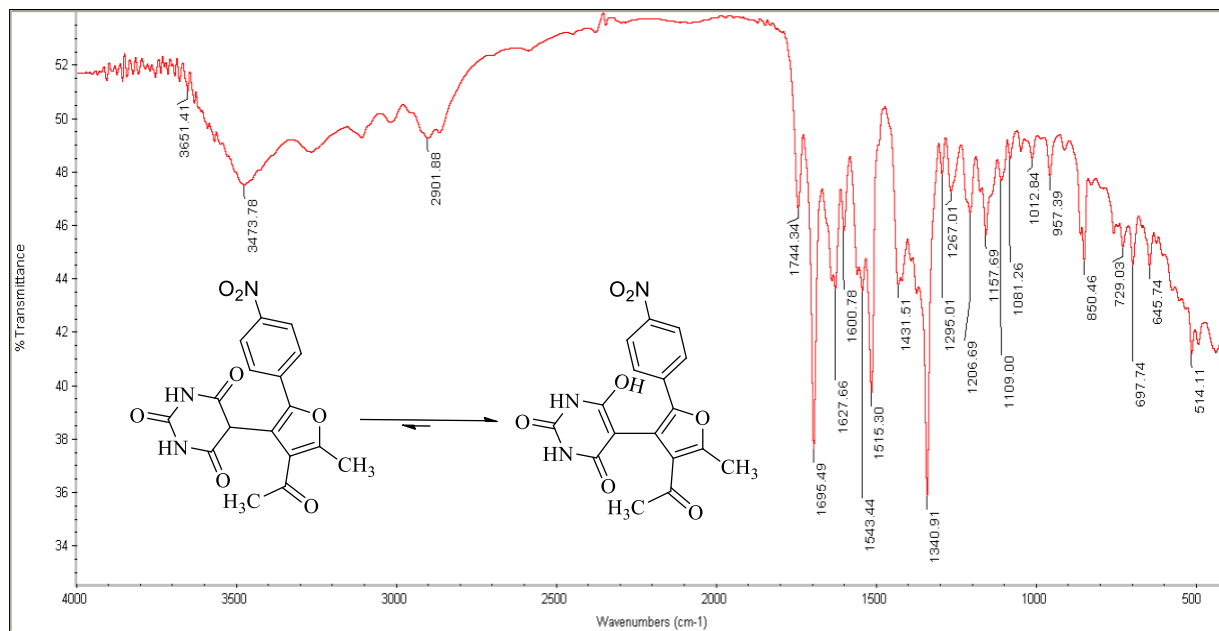
IR Spectrum (IR (KBr) $\nu_{\max}/\text{cm}^{-1}$) of compound **4j**



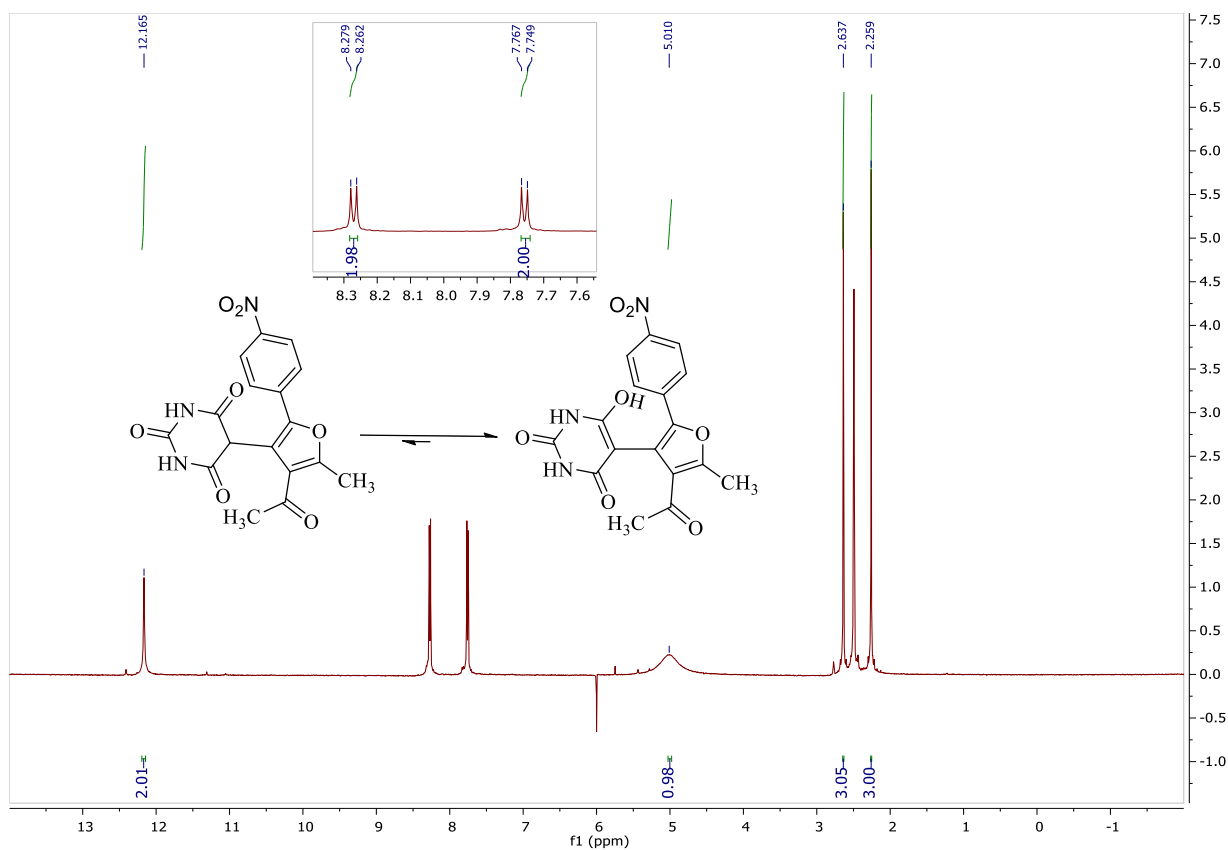
¹H NMR Spectrum (500 MHz, d₆-DMSO) of compound **4j**



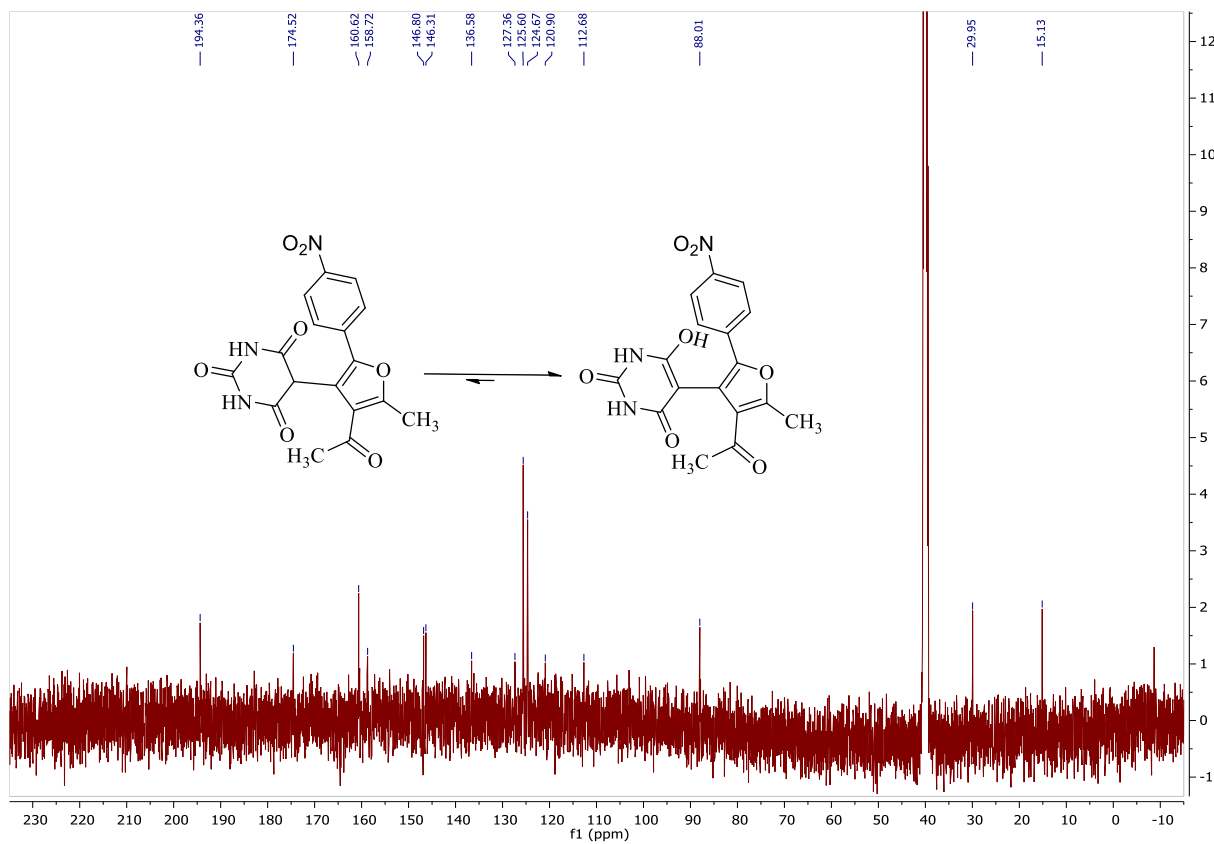
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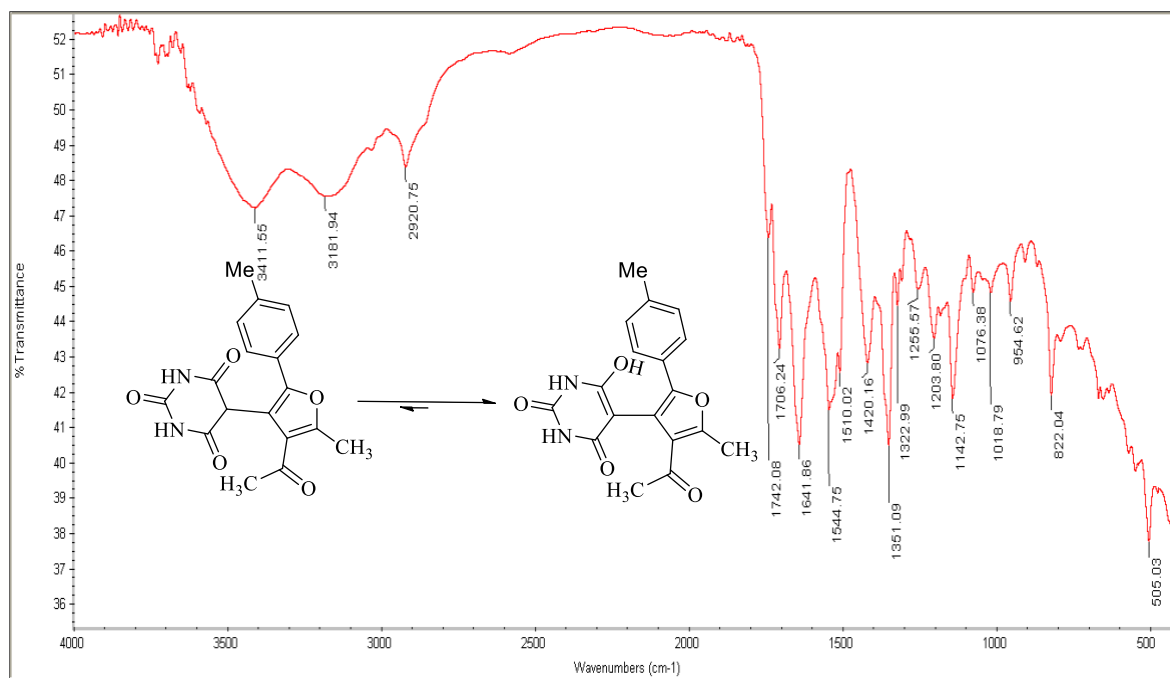
IR Spectrum (IR (KBr) $\nu_{\max}/\text{cm}^{-1}$) of compound **4k**



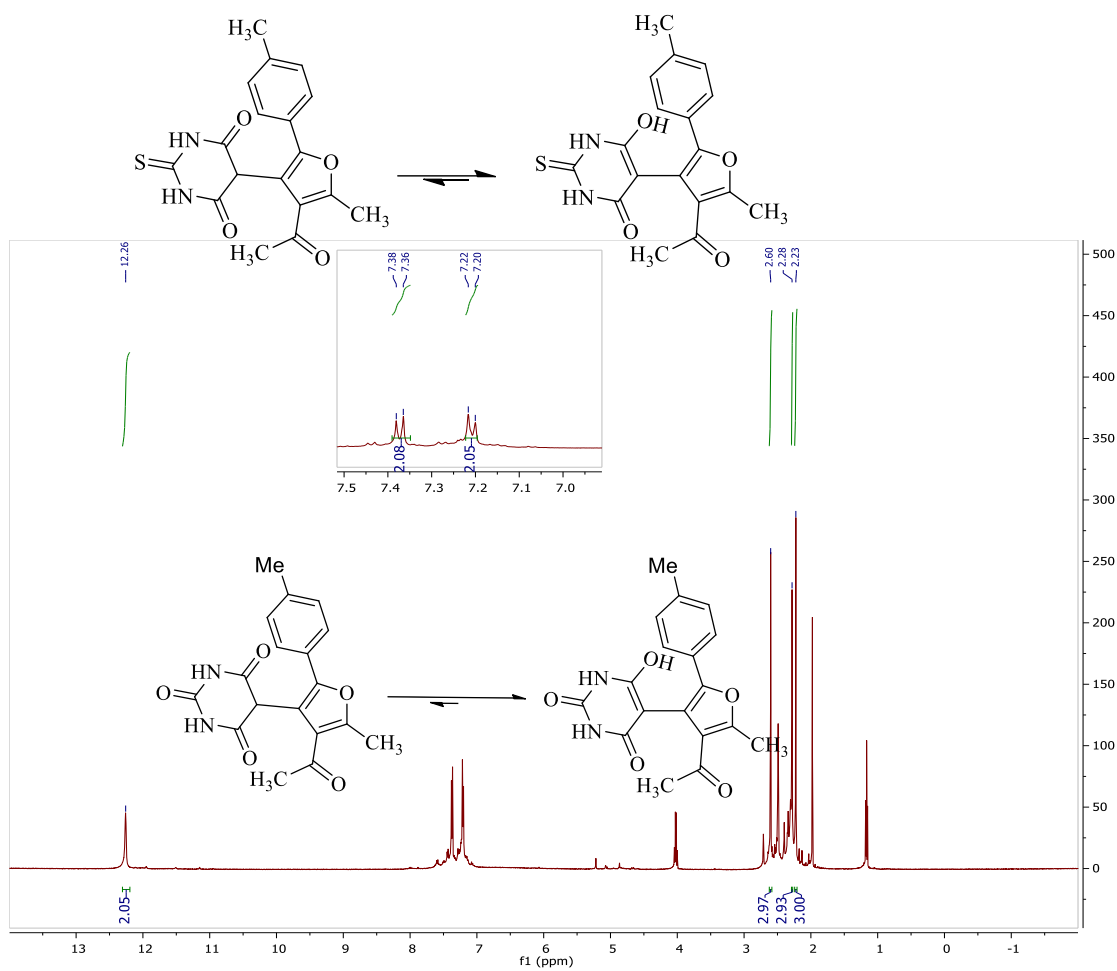
¹H NMR Spectrum (500 MHz, d₆-DMSO) of compound **4k**



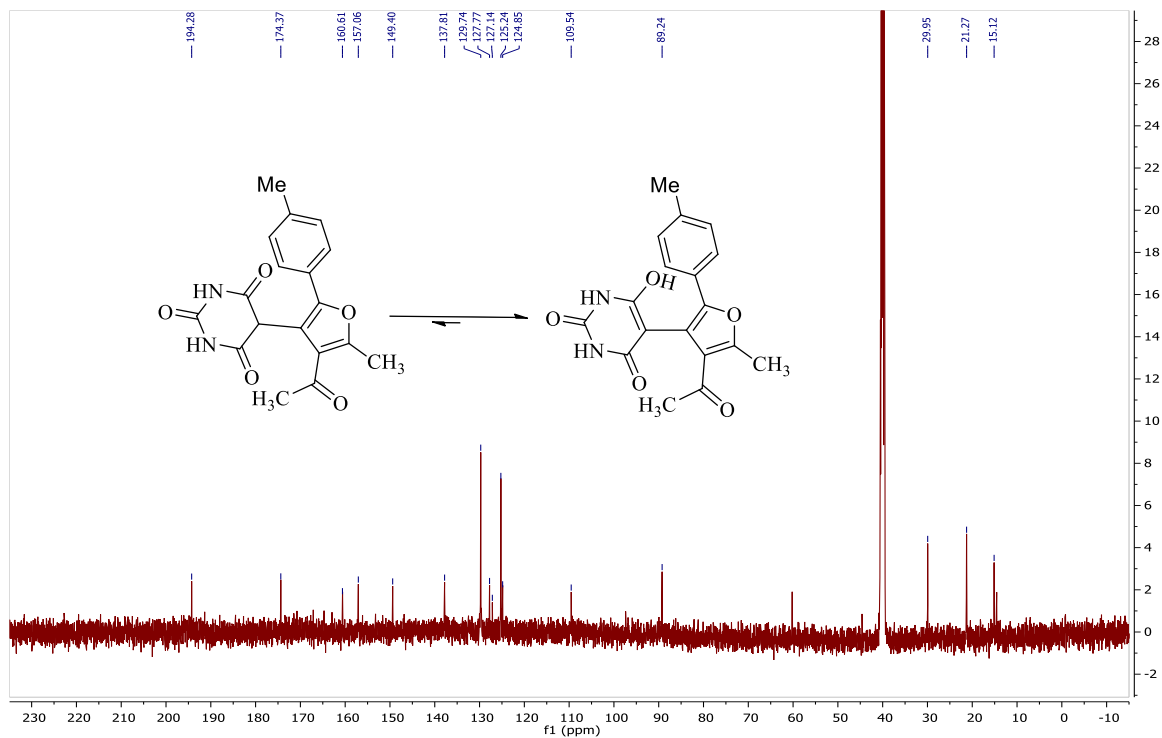
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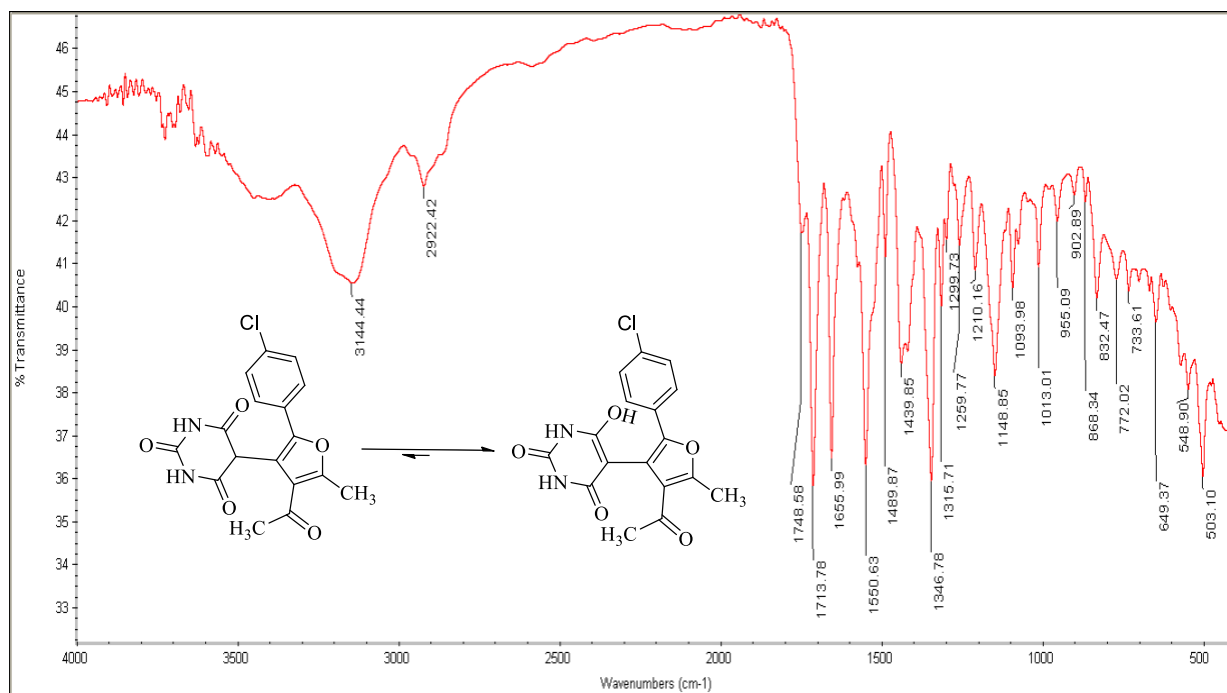
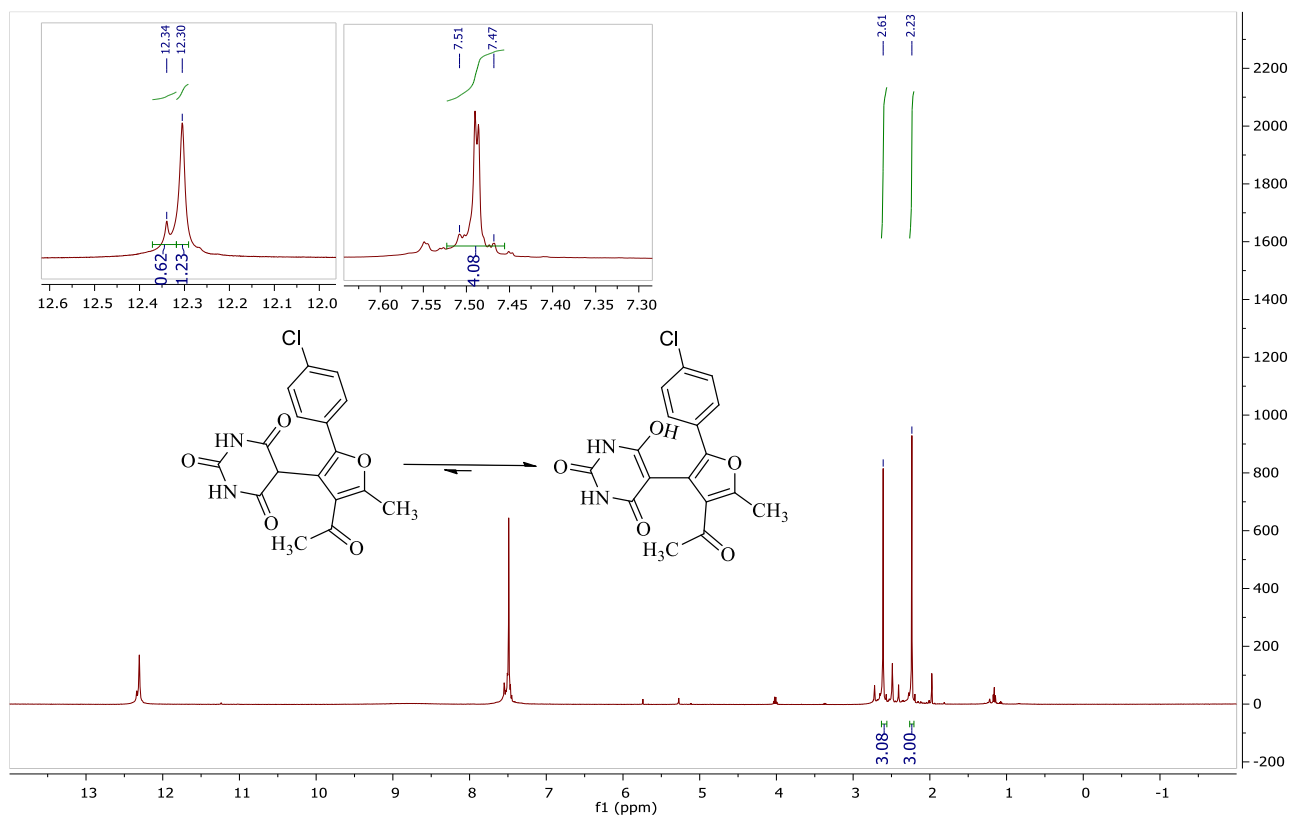


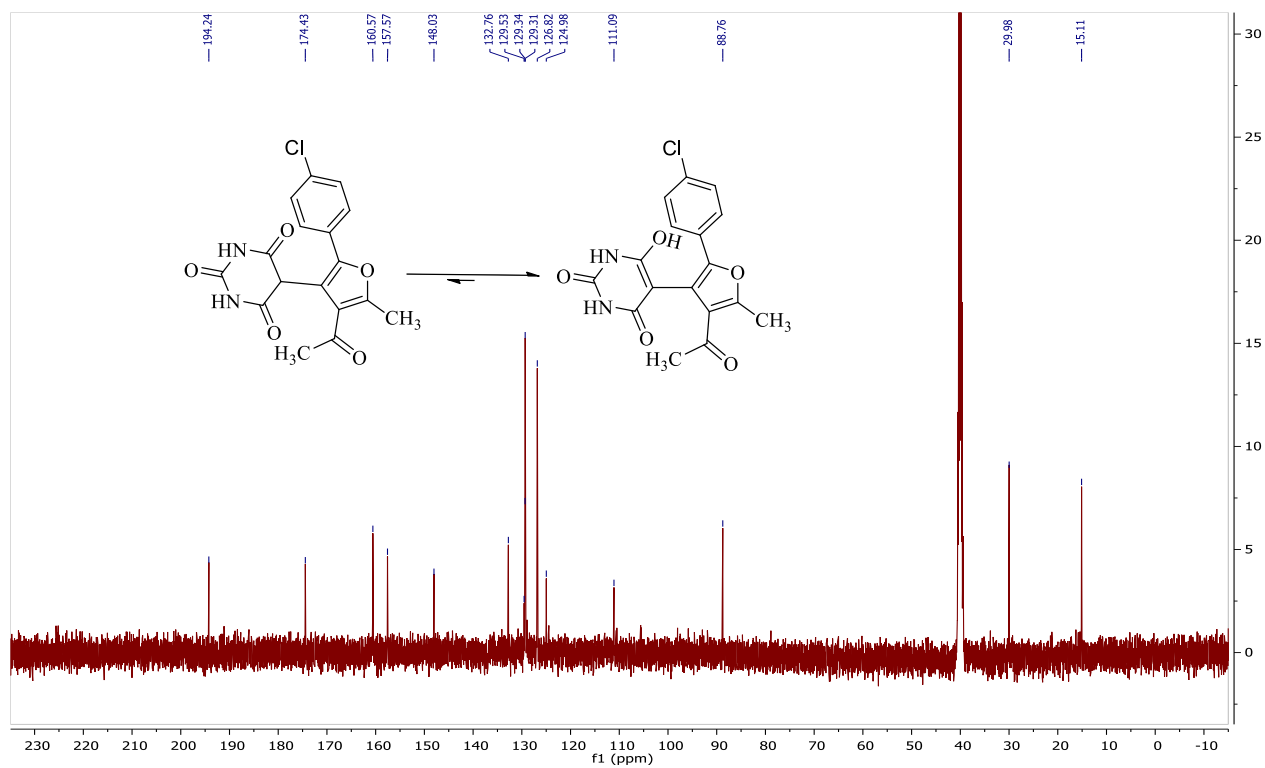
IR Spectrum (IR (KBr) $\nu_{\max}/\text{cm}^{-1}$) of compound **4l**



^1H NMR Spectrum (500 MHz, d_6 -DMSO) of compound **4I**



^{13}C NMR (125 MHz, d_6 -DMSO) spectrum of compound **4l**IR Spectrum (IR (KBr) $\nu_{\text{max}}/\text{cm}^{-1}$) of compound **4m**

^1H NMR Spectrum (500 MHz, d_6 -DMSO) of compound **4m** ^{13}C NMR (125 MHz, d_6 -DMSO) spectrum of compound **4m**