SUPPLEMENTARY MATERIAL TO

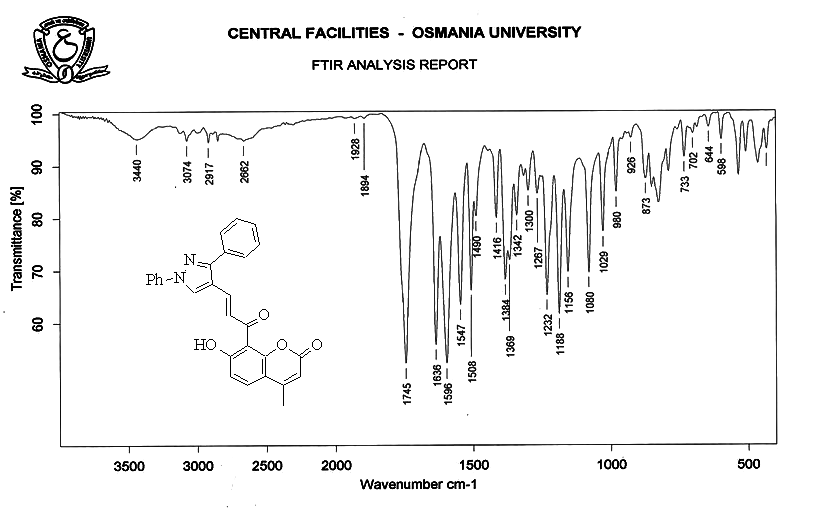
**Microwave Assisted Synthesis of Substituted 4-Chloro-8-methyl-2-(1,3-diphenyl-1*H*-pyrazol-4-yl)-1,5-dioxa-2*H*-phenanthren-6-ones and Their Antimicrobial Activity**

DONGAMANTI ASHOK1\*, BACHI REDDY VANAJA1, MDDERLA SARASIJA2 and B. VIJAYA LAKSHMI1

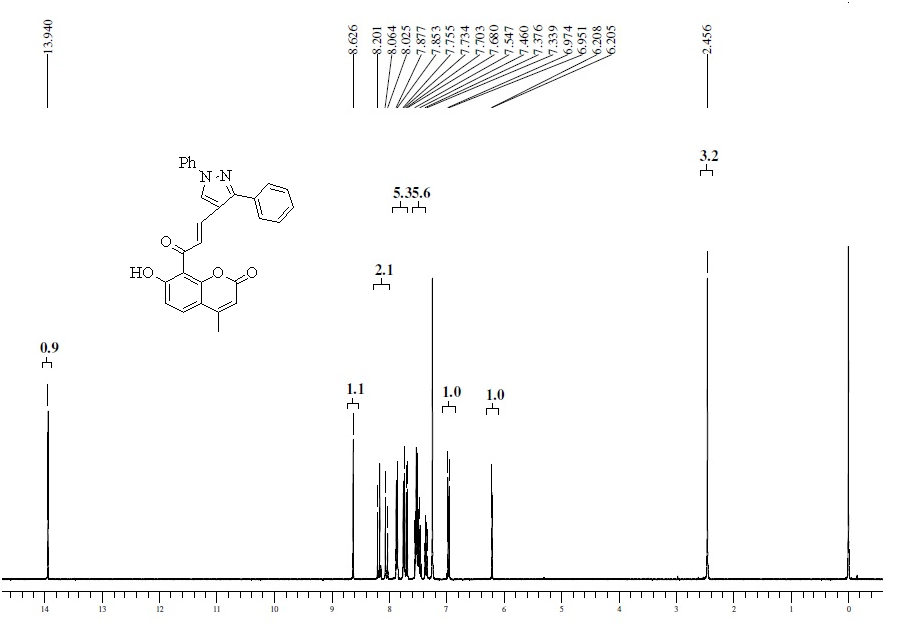
1*Green and Medicinal Chemistry Laboratory, Department of Chemistry, Osmania University, Hyderabad, India, 500007, 2Department of Chemistry, Satavahana University, Karimnagar, Telangana, India, 505001*

However, Vilsmeier reagent (DMF/POCl3) serves for formylation of electron-rich aromatic ring, it is highly efficient for intramolecular cyclization of 2'-hydroxychalcones to 4-chloro-2*H*-chromenes. The mechanism of reaction is shown below

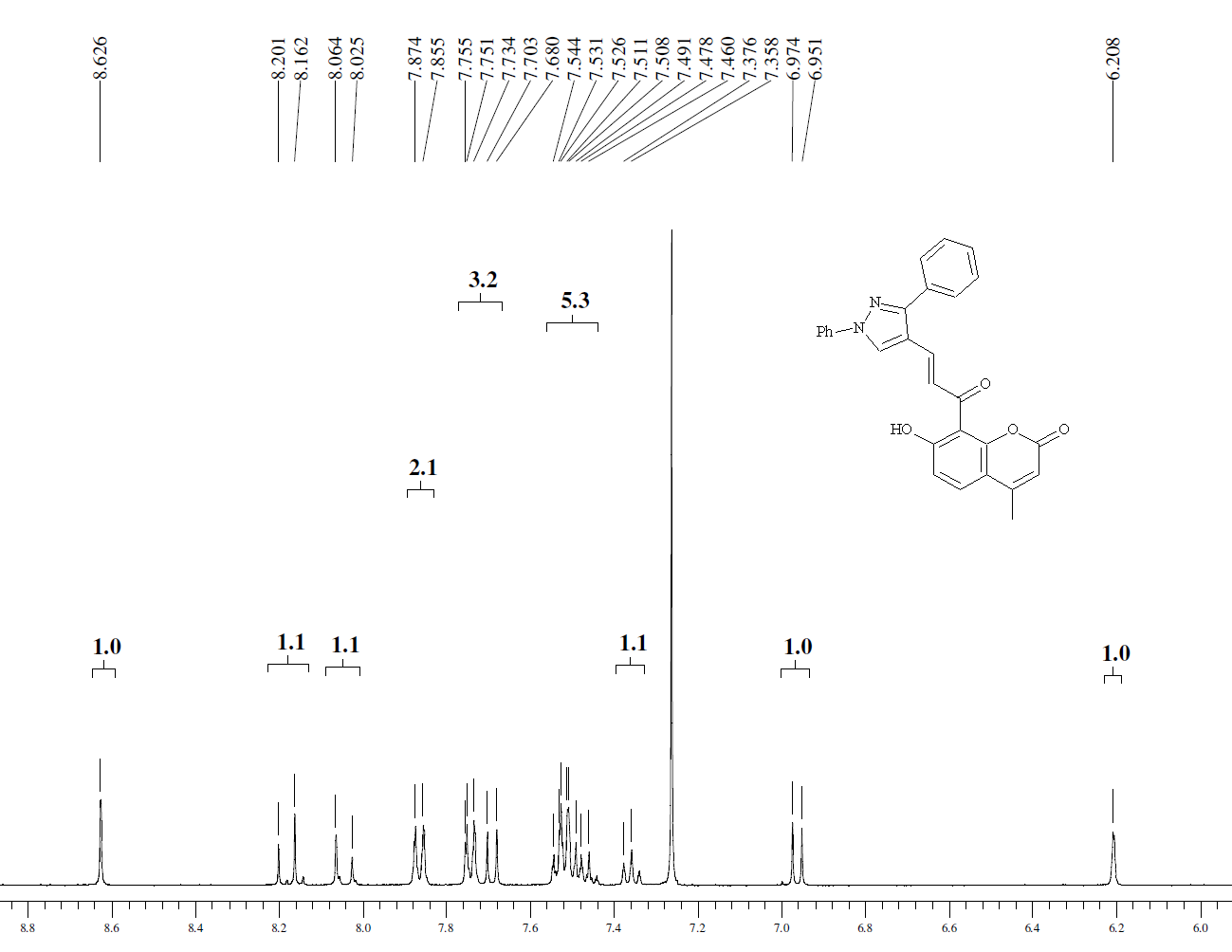


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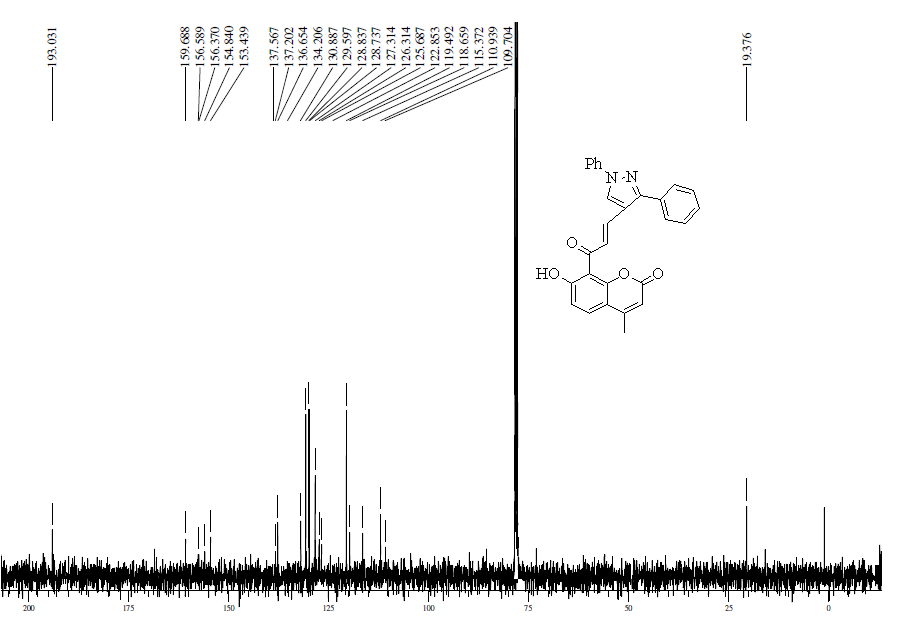
***IR spectrum of (E)-1-(7-Hydroxy-4-methyl-8-coumarinyl)-3-(3-aryl-1-phenyl-1H-pyrazol-4-yl)-2-propen-1-one (3a):***

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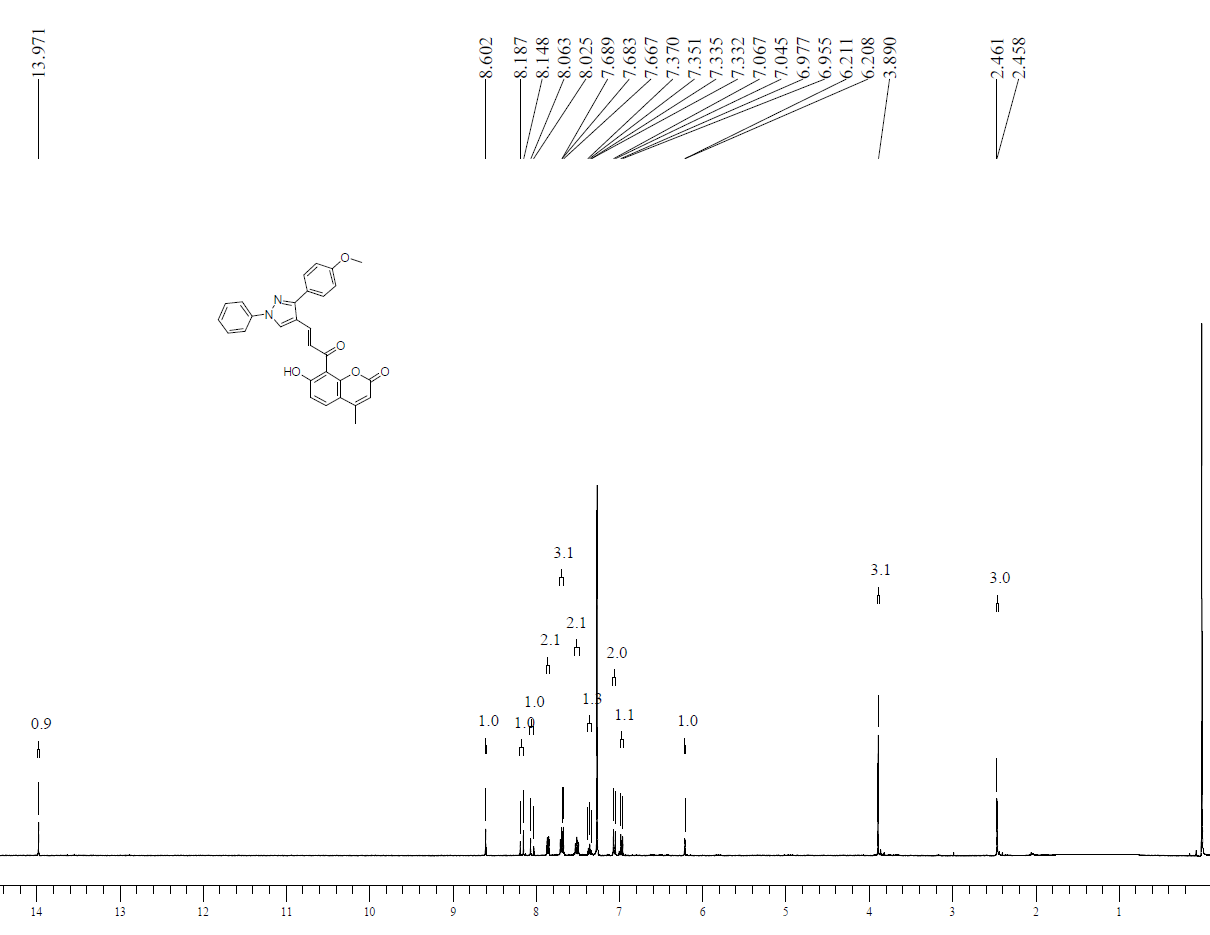
***1H NMR (400 MHz, CDCl3) spectrum of (E)-1-(7-Hydroxy-4-methyl-8-coumarinyl)-3-(3-aryl-1-phenyl-1H-pyrazol-4-yl)-2-propen-1-one (3a)***

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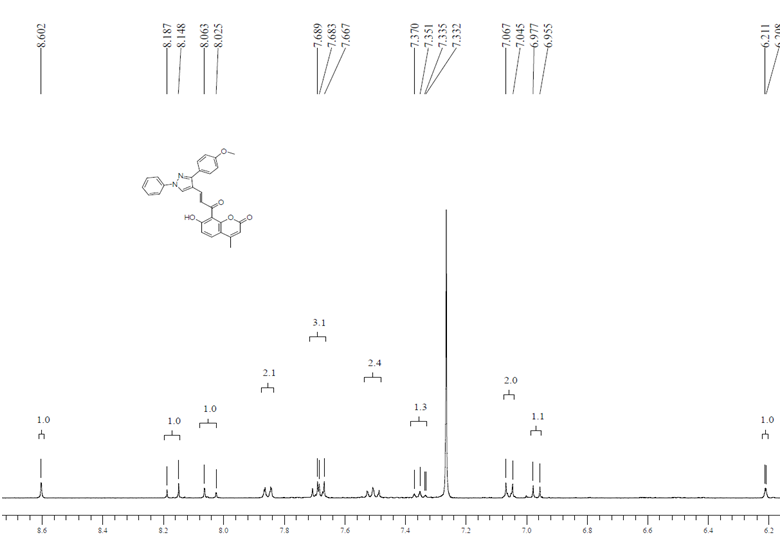
***1H NMR (400 MHz, CDCl3) (expansion) spectrum of (E)-1-(7-Hydroxy-4-methyl-8-coumarinyl)-3-(3-aryl-1-phenyl-1H-pyrazol-4-yl)-2-propen-1-one (3a)***

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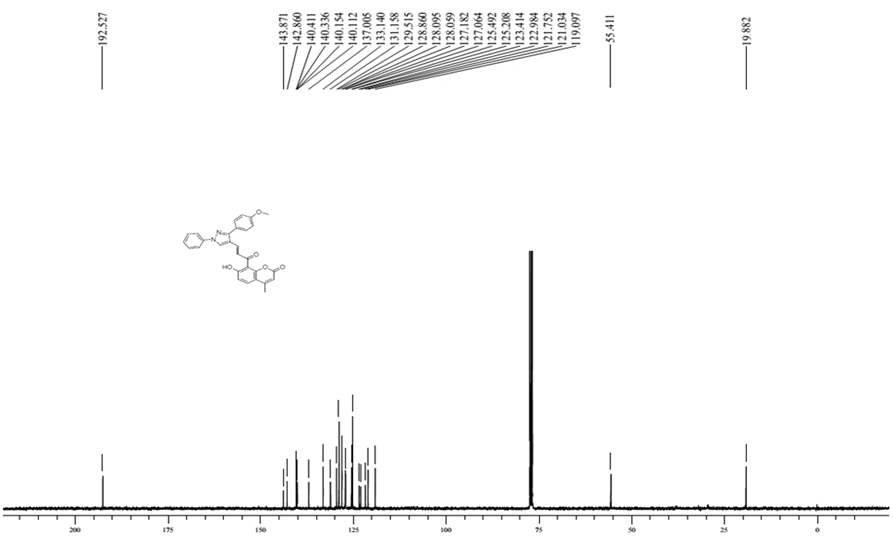
***13C NMR (100 MHz, CDCl3) spectrum of (E)-1-(7-Hydroxy-4-methyl-8-coumarinyl)-3-(3-aryl-1-phenyl-1H-pyrazol-4-yl)-2-propen-1-one (3a)***

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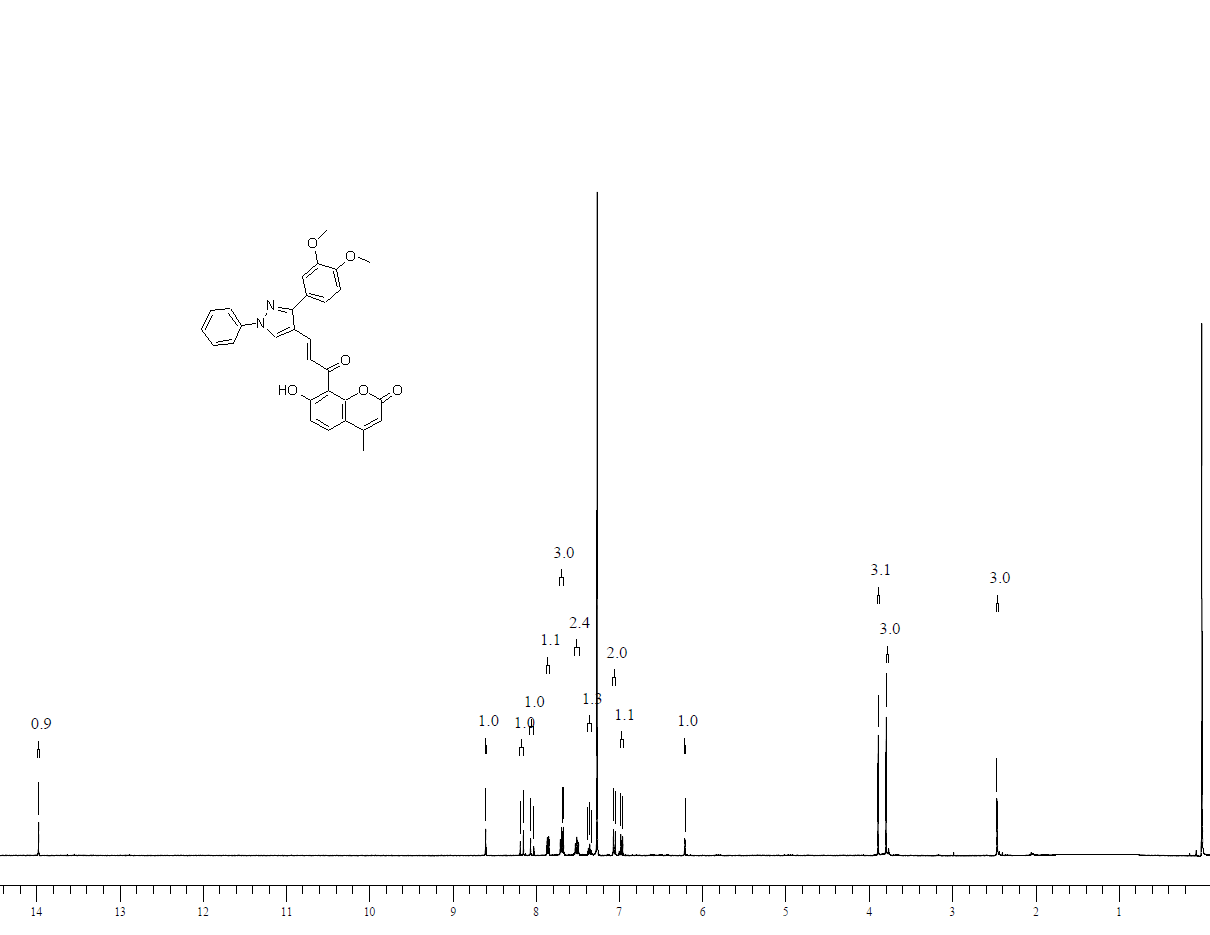
***1H NMR (400 MHz, CDCl3) spectrum of (E)-3-[3-(4-Methoxyphenyl)-1-phenyl-1H-pyrazol-4-yl]-1-(7-hydroxy-4-methyl-8-coumarinyl)-2-propen-1-one (3b)***

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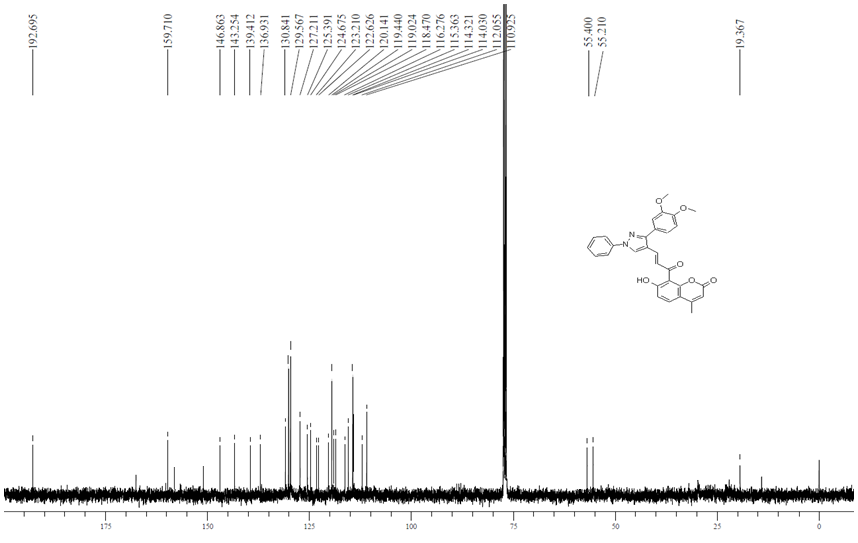
***1H NMR (400 MHz, CDCl3) spectrum (expansion) of (E)-3-[3-(4-Methoxyphenyl)-1-phenyl-1H-pyrazol-4-yl]-1-(7-hydroxy-4-methyl-8-coumarinyl)-2-propen-1-one (3b)***

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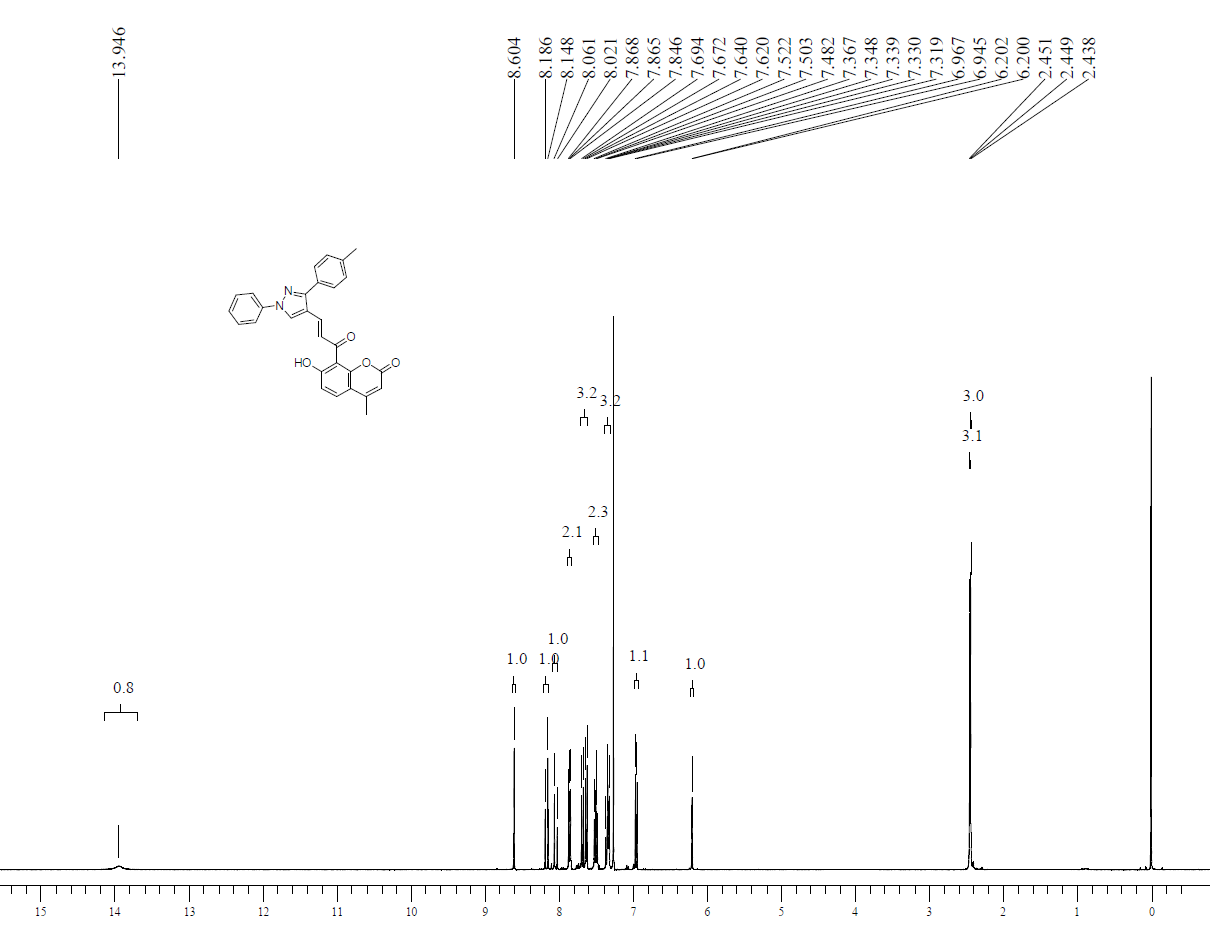
***13C NMR (100 MHz, CDCl3) spectrum (expansion) of (E)-3-[3-(4-Methoxyphenyl)-1-phenyl-1H-pyrazol-4-yl]-1-(7-hydroxy-4-methyl-8-coumarinyl)-2-propen-1-one (3b)***

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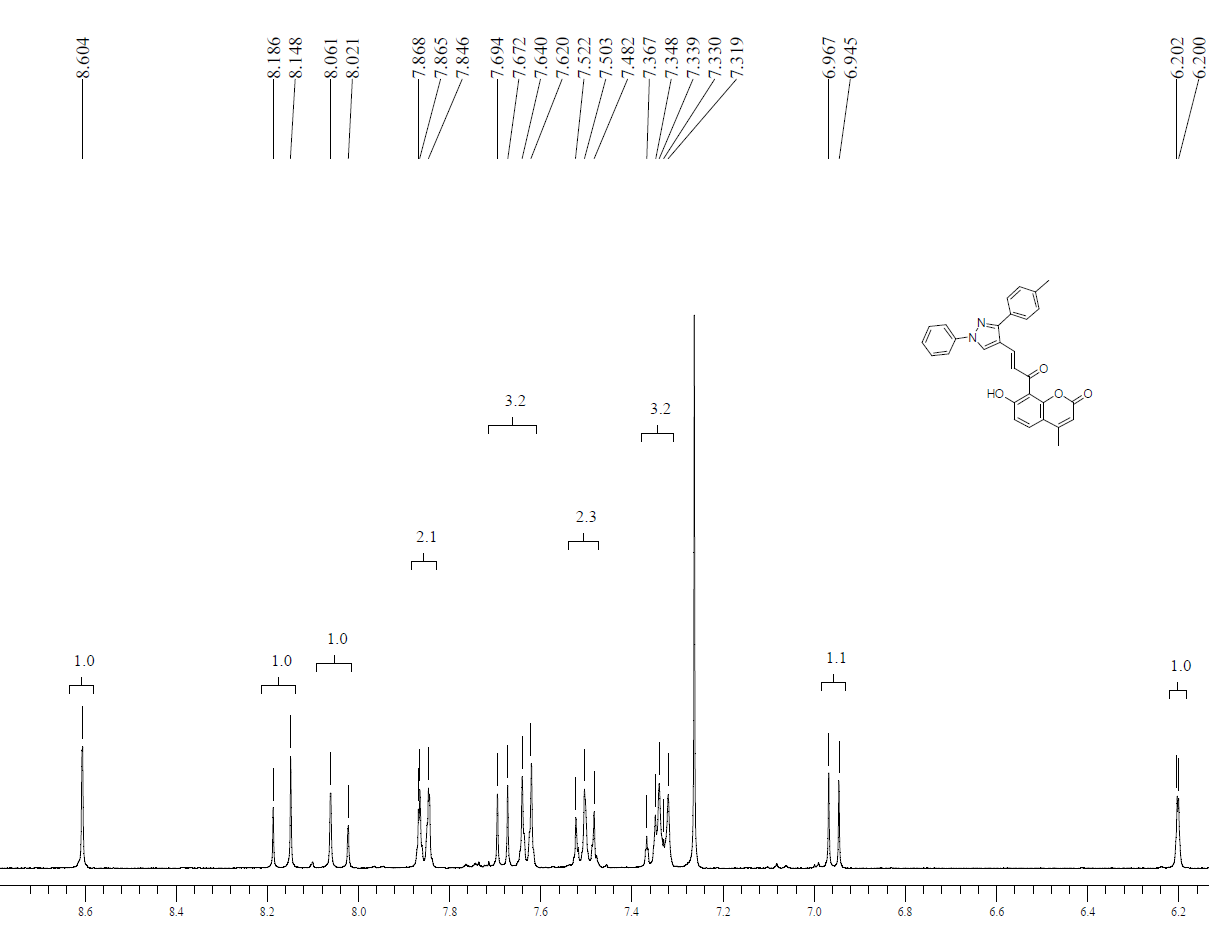
***1H NMR (400 MHz, CDCl3) spectrum of (E)-3-[3-(4-Dimethoxyphenyl)-1-phenyl-1H-pyrazol-4-yl]-1-(7-hydroxy-4-methyl-8-coumarinyl)-2-propen-1-one (3c)***

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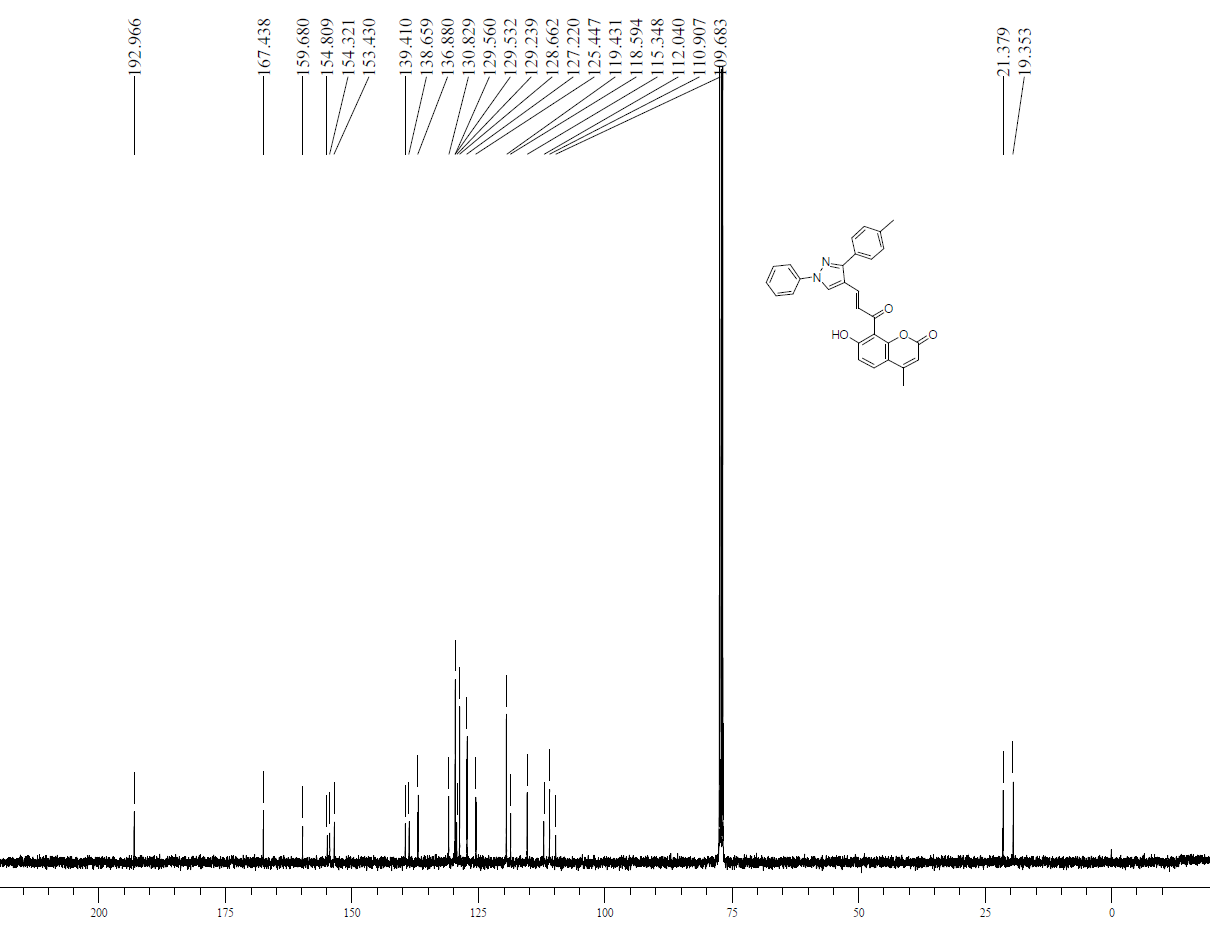
***13C NMR (100 MHz, CDCl3) spectrum of (E)-3-[3-(4-Dimethoxyphenyl)-1-phenyl-1H-pyrazol-4-yl]-1-(7-hydroxy-4-methyl-8-coumarinyl)-2-propen-1-one (3c)***

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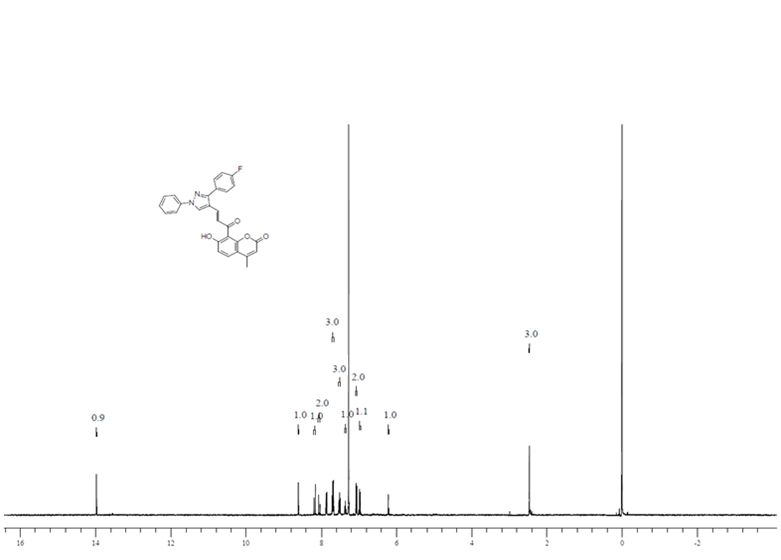
***1H NMR (400 MHz, CDCl3) spectrum of (E)-7-hydroxy-4-methyl-8-(3-(1-phenyl-3-(p-tolyl)-1H-pyrazol-4-yl)acryloyl)-2H-chromen-2-one (3d)***

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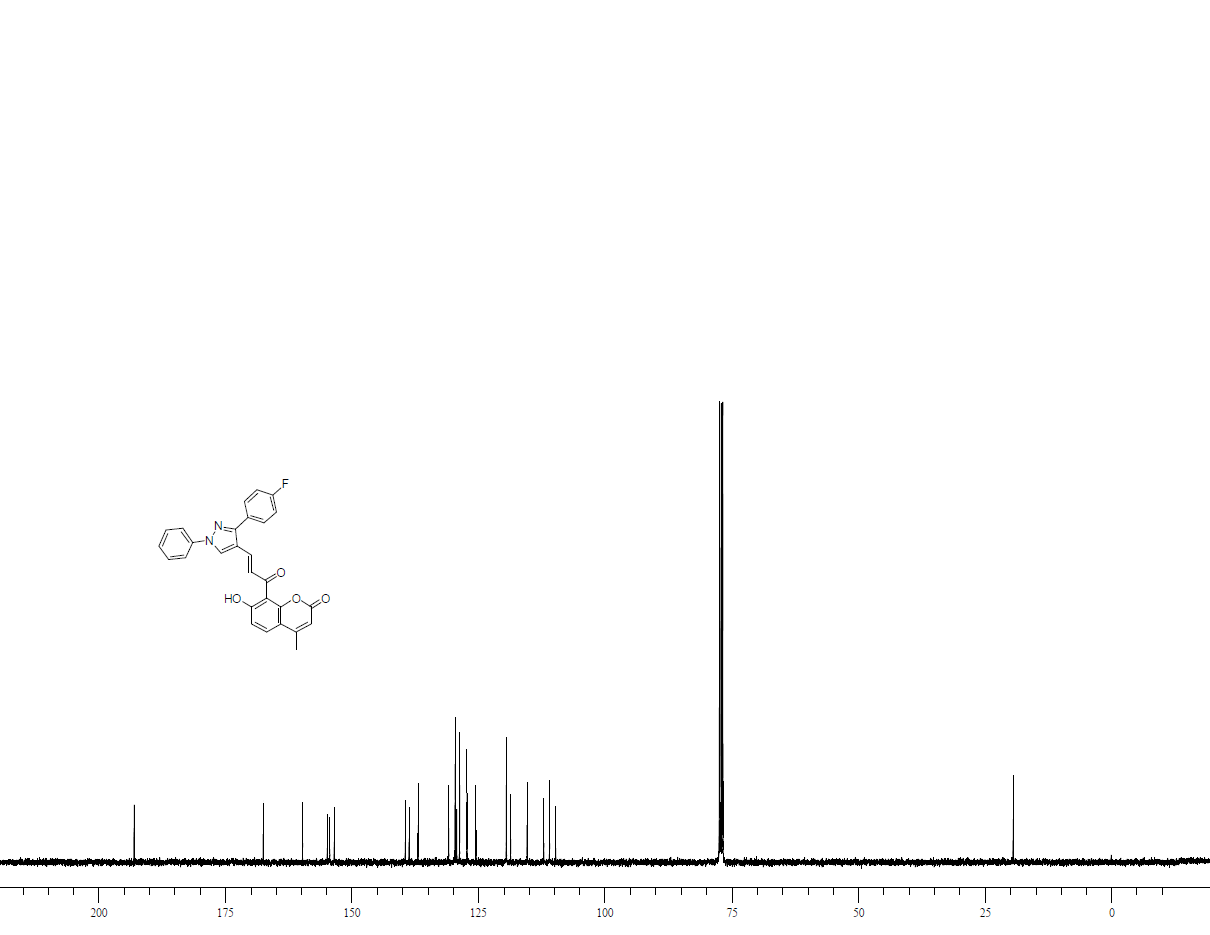
***1H NMR (400 MHz, CDCl3) spectrum (expansion) of (E)-7-hydroxy-4-methyl-8-(3-(1-phenyl-3-(p-tolyl)-1H-pyrazol-4-yl)acryloyl)-2H-chromen-2-one (3d)***

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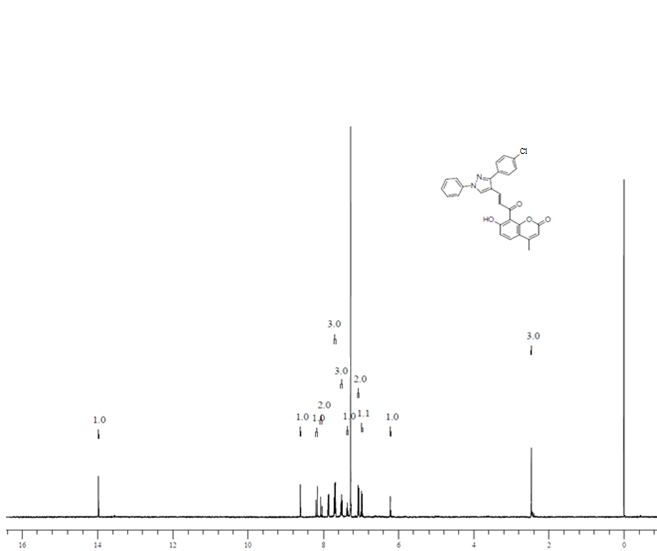
***13C NMR (100 MHz, CDCl3) spectrum of (E)-7-hydroxy-4-methyl-8-(3-(1-phenyl-3-(p-tolyl)-1H-pyrazol-4-yl)acryloyl)-2H-chromen-2-one (3d)***

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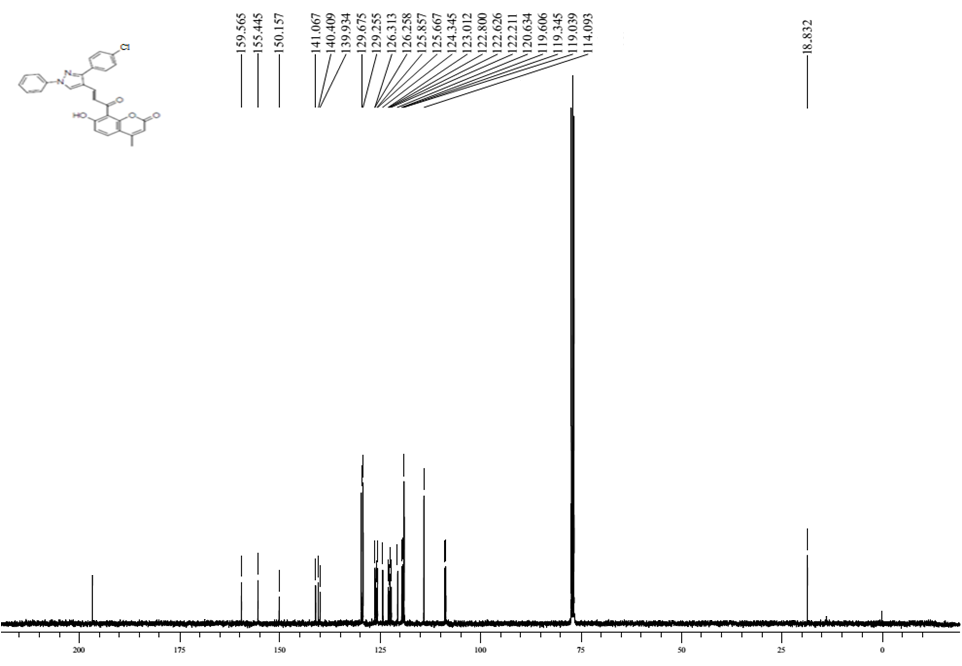
***1H NMR (400 MHz, CDCl3) spectrum of (E)-8-(3-(3-(4-fluorophenyl)-1-phenyl-1H-pyrazol-4-yl)acryloyl)-7-hydroxy-4-methyl-2H-chromen-2-one (3e)***

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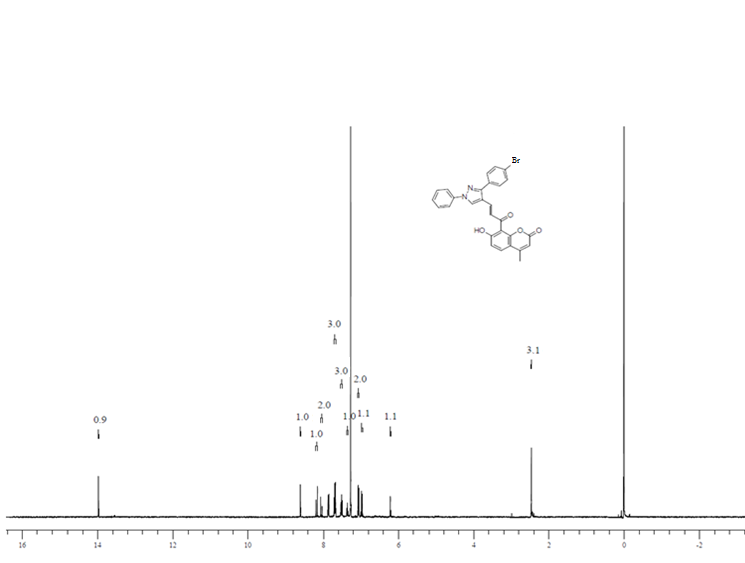
***13C NMR (100 MHz, CDCl3) spectrum of (E)-8-(3-(3-(4-fluorophenyl)-1-phenyl-1H-pyrazol-4-yl)acryloyl)-7-hydroxy-4-methyl-2H-chromen-2-one (3e)***

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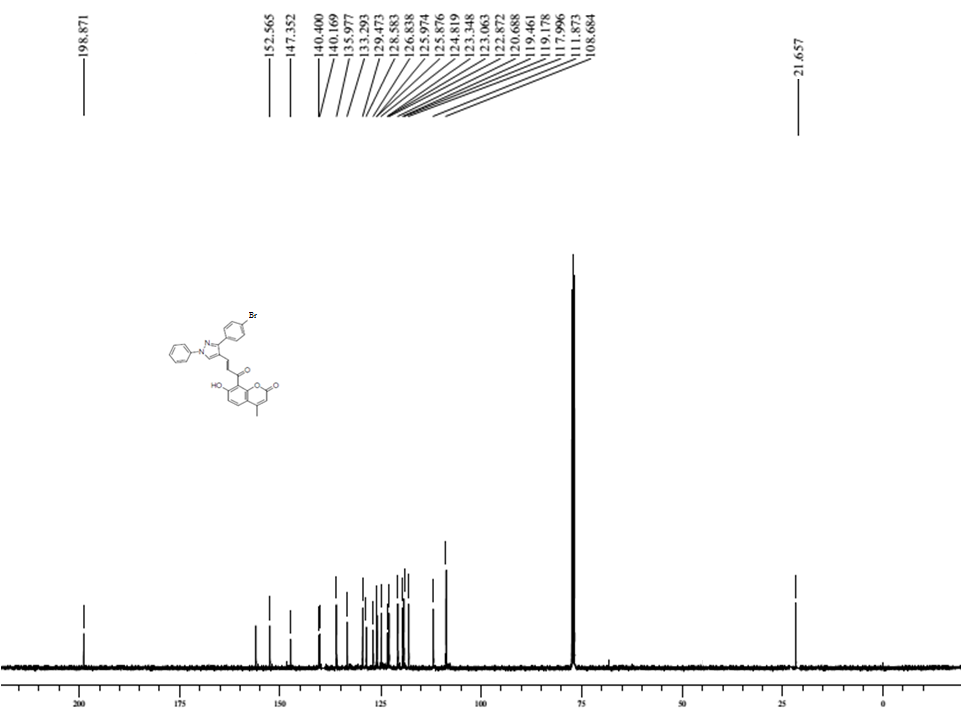
***1H NMR (400 MHz, CDCl3) spectrum of (E)-3-[3-(4-Chlorophenyl)-1-phenyl-1H-pyrazol-4-yl]-1-(7-hydroxy-4-methyl-8-coumarinyl)-2-propen-1-one* (3f):**

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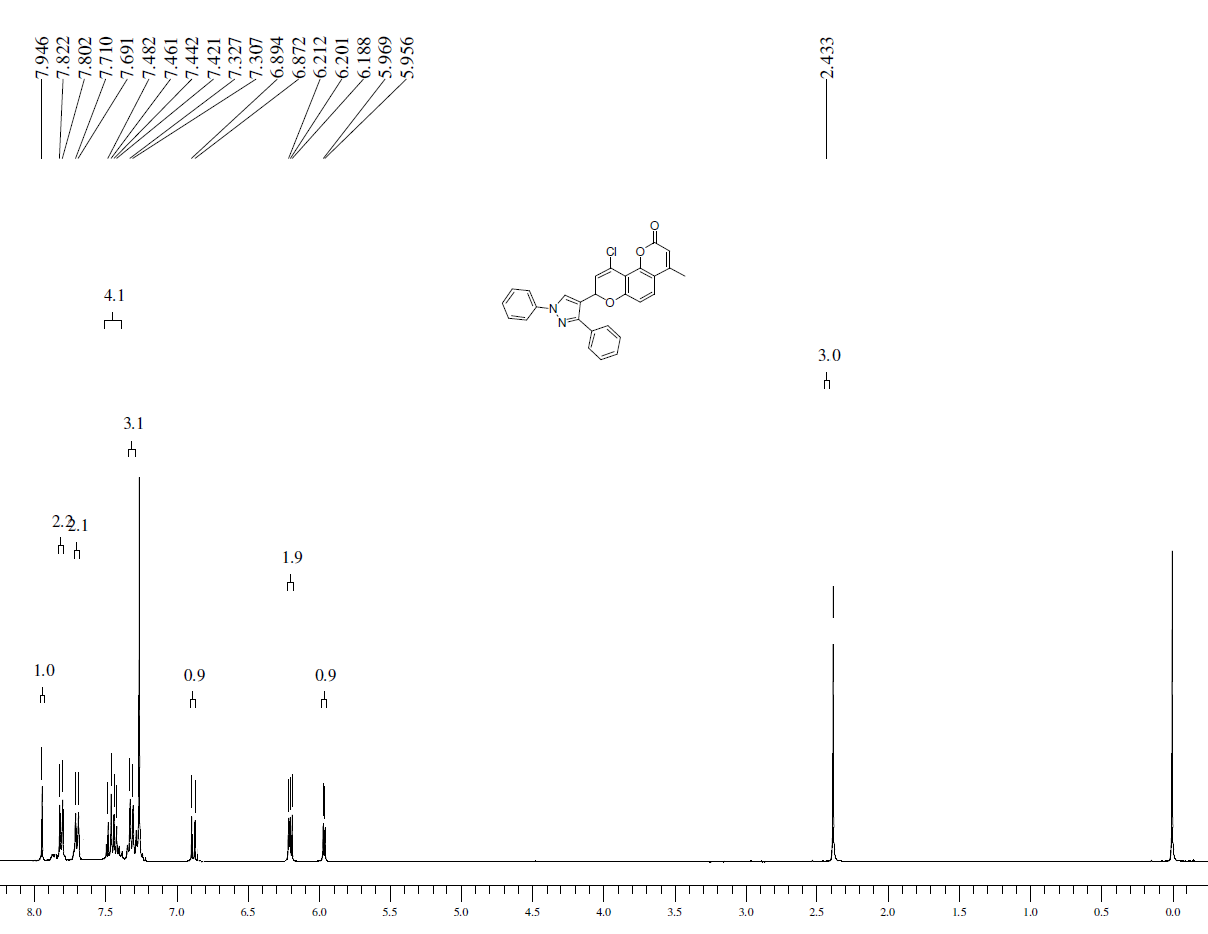
***13C NMR (100 MHz, CDCl3) spectrum of (E)-3-[3-(4-Chlorophenyl)-1-phenyl-1H-pyrazol-4-yl]-1-(7-hydroxy-4-methyl-8-coumarinyl)-2-propen-1-one* (3f):**

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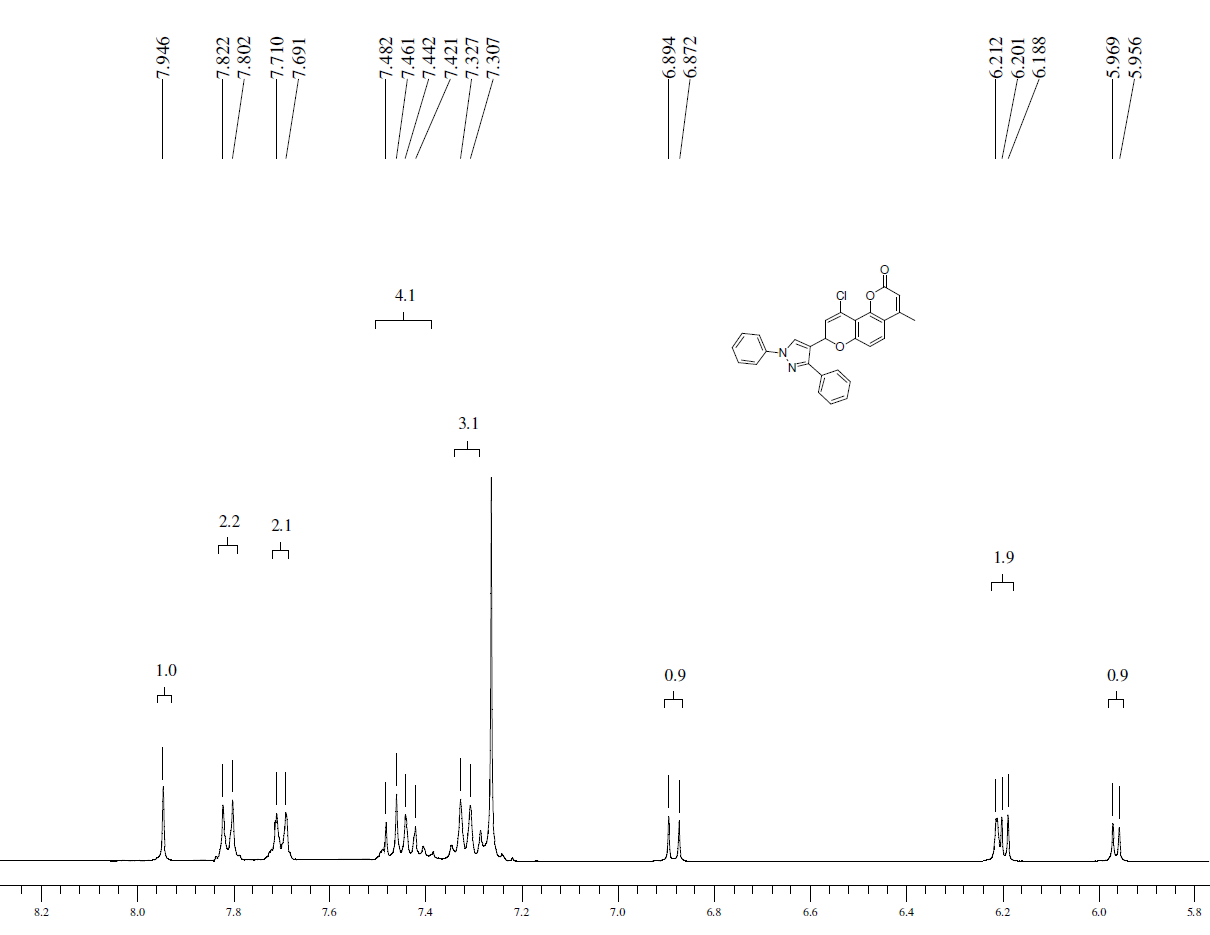
***1H NMR (400 MHz, CDCl3) spectrum of (E)-3-[3-(4-Bromophenyl)-1-phenyl-1H-pyrazol-4-yl]-1-(7-hydroxy-4-methyl-8-coumarinyl)-2-propen-1-one* (3g):**

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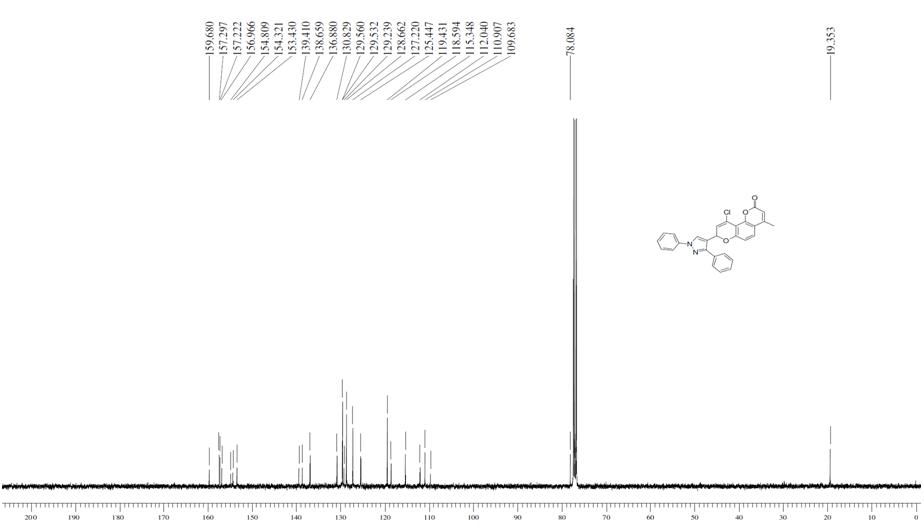
***1H NMR (400 MHz, CDCl3) spectrum of (E)-3-[3-(4-Bromophenyl)-1-phenyl-1H-pyrazol-4-yl]-1-(7-hydroxy-4-methyl-8-coumarinyl)-2-propen-1-one* (3g):**

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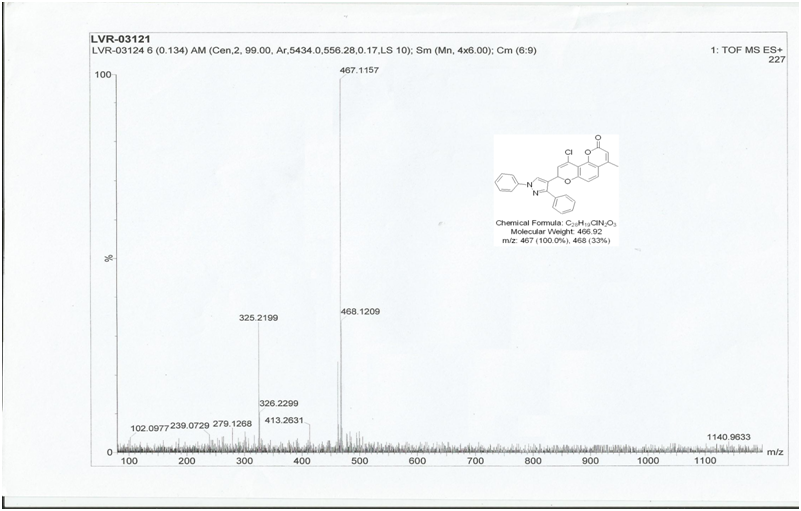
***1H NMR (400 MHz, CDCl3) spectrum of 4-Chloro-8-methyl-2-(1,3-diphenyl-1H-pyrazol-4-yl)-1,5-dioxa-2H-phenanthren-6-one (4a)***

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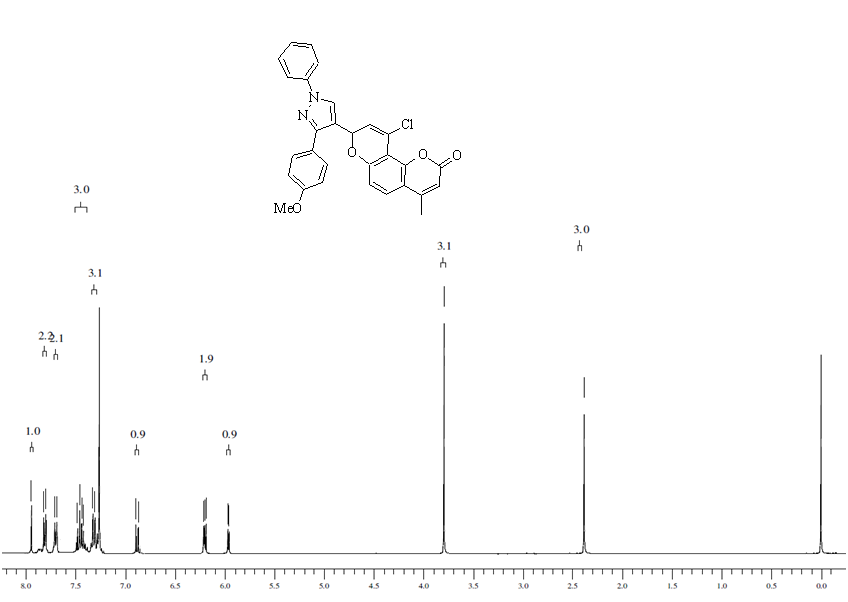
***1H NMR (400 MHz, CDCl3) spectrum (expansion) of 4-Chloro-8-methyl-2-(1,3-diphenyl-1H-pyrazol-4-yl)-1,5-dioxa-2H-phenanthren-6-one (4a)***

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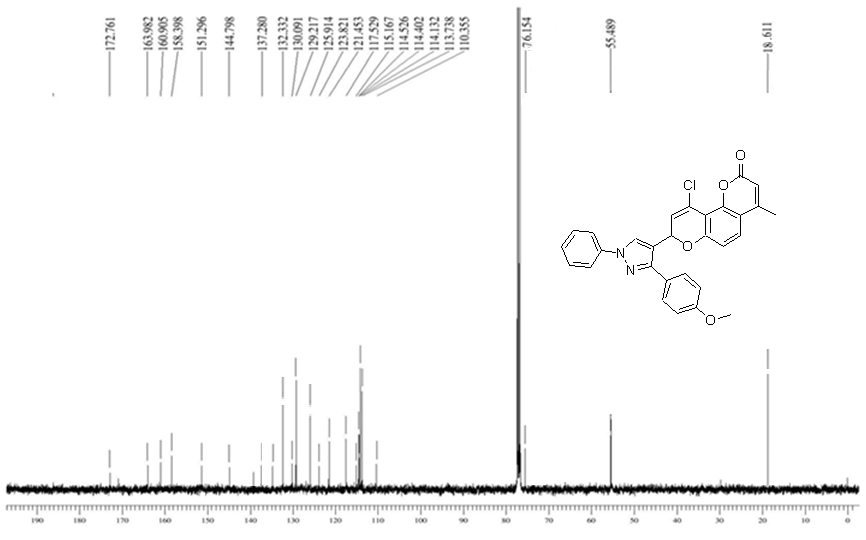
***13C NMR (100 MHz, CDCl3) spectrum of 4-Chloro-8-methyl-2-(1,3-diphenyl-1H-pyrazol-4-yl)-1,5-dioxa-2H-phenanthren-6-one (4a)***

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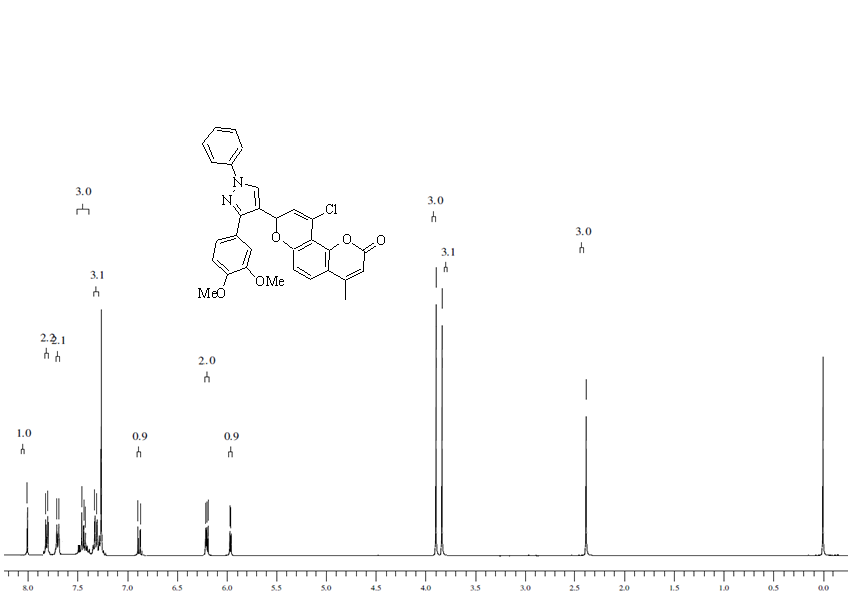
***Mass spectrum of 4-Chloro-8-methyl-2-(1,3-diphenyl-1H-pyrazol-4-yl)-1,5-dioxa-2H-phenanthren-6-one (4a)***

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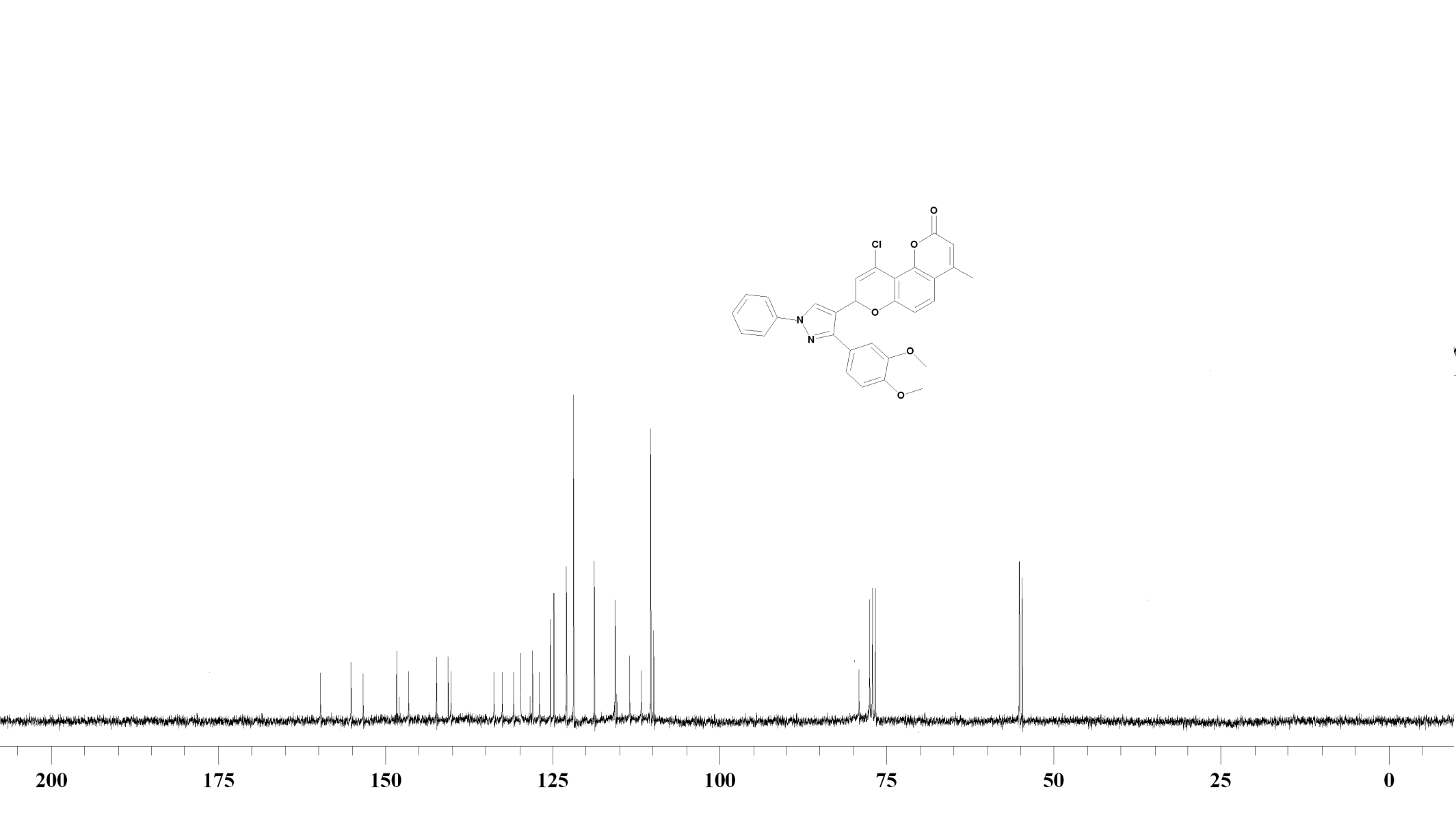
***1H NMR (400 MHz, CDCl3) spectrum 4-Chloro-2-[3-(p-methoxyphenyl)-1-phenyl-1H-pyrazol-4-yl]-8-methyl-1,5-dioxa-2H-phenanthren-6-one (4b)***

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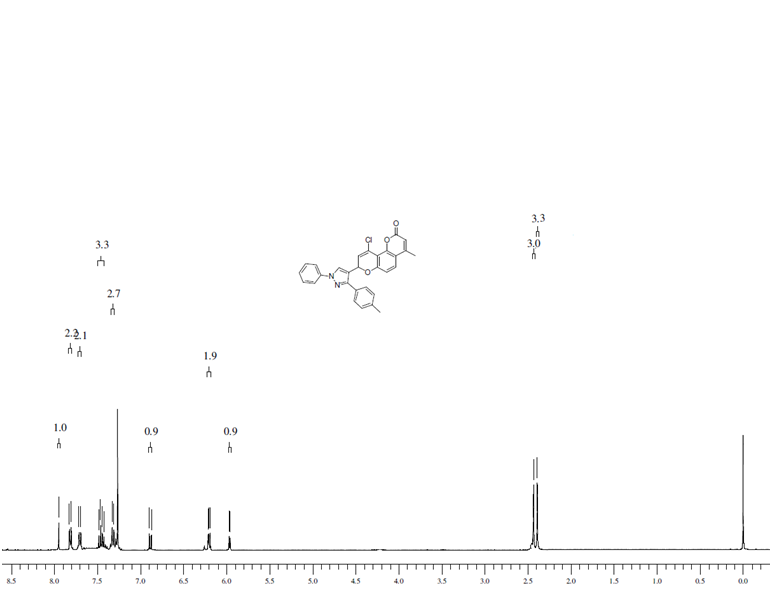
***13C NMR (100 MHz, CDCl3) spectrum of 4-Chloro-2-[3-(p-methoxyphenyl)-1-phenyl-1H-pyrazol-4-yl]-8-methyl-1,5-dioxa-2H-phenanthren-6-one (4b)***

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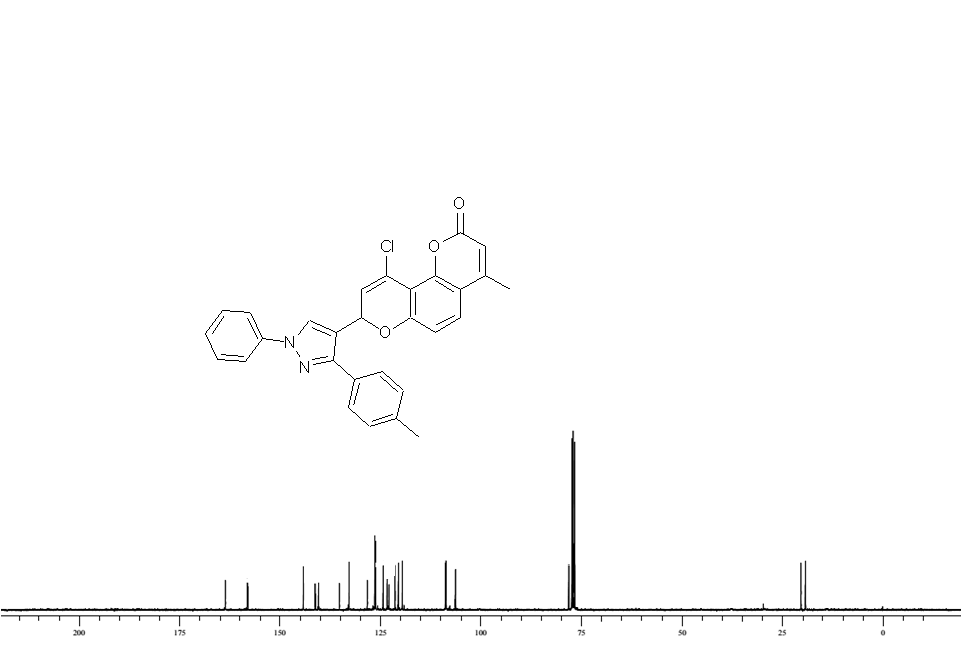
***1H NMR (400 MHz, CDCl3) spectrum of 4-Chloro-2-[3-(3,4-dimethoxyphenyl)-1-phenyl-1H-pyrazol-4-yl]-8-methyl-1,5-dioxa-2H-phenanthren-6-one (4c)***

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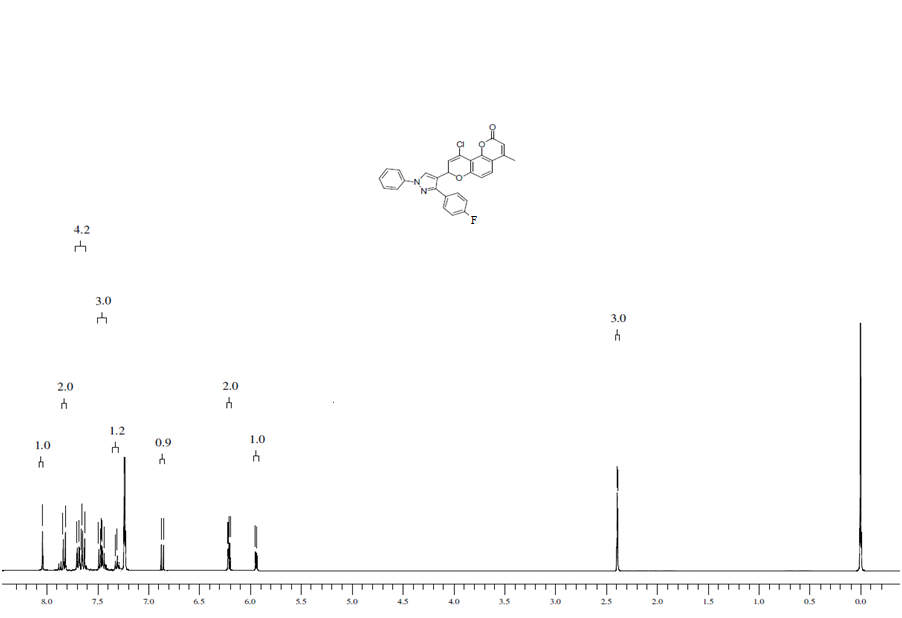
***13C NMR (100 MHz, CDCl3) spectrum of 4-Chloro-2-[3-(3,4-dimethoxyphenyl)-1-phenyl-1H-pyrazol-4-yl]-8-methyl-1,5-dioxa-2H-phenanthren-6-one (4c)***

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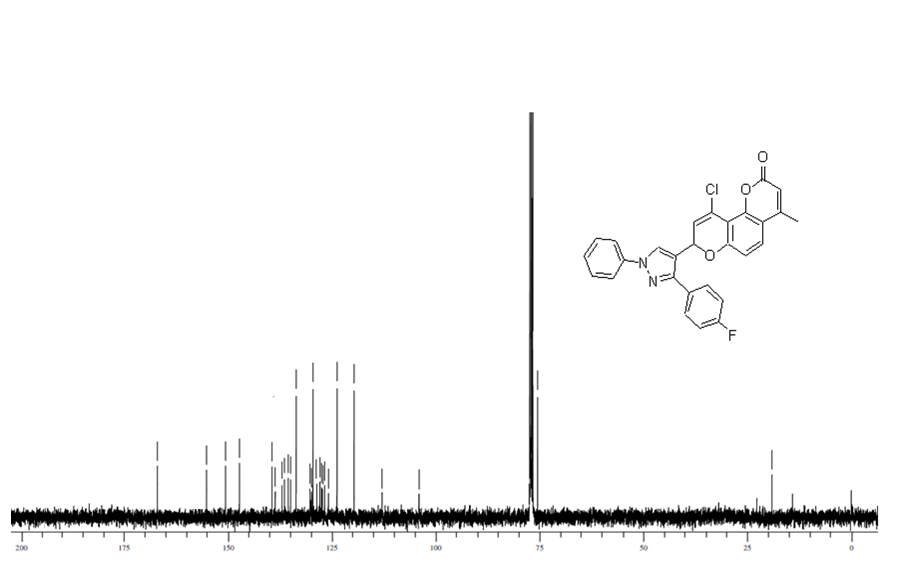
***1H NMR (400 MHz, CDCl3) spectrum of 4-Chloro-8-methyl-2-[3-(p-tolyl)-1-phenyl-1H-pyrazol-4-yl]-1,5-dioxa-2H-phenanthren-6-one (4d)***

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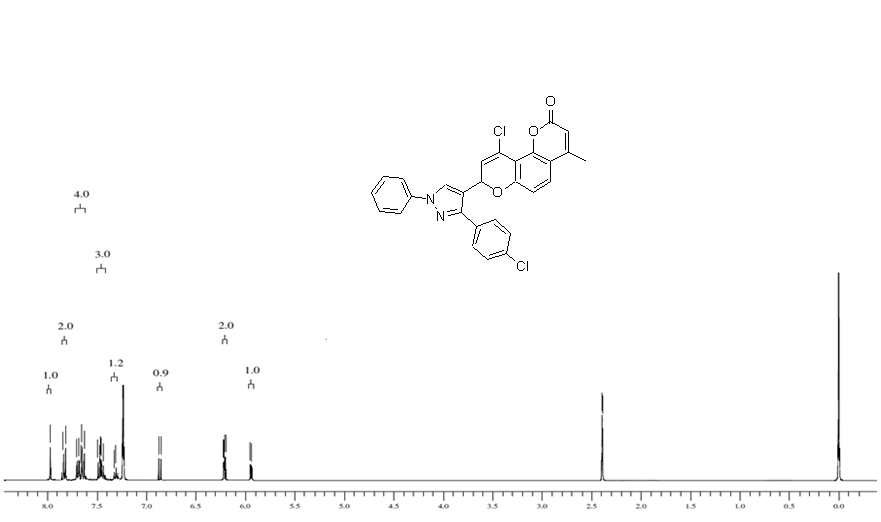
***13C NMR (100 MHz, CDCl3) spectrum of 4-Chloro-8-methyl-2-[3-(p-tolyl)-1-phenyl-1H-pyrazol-4-yl]-1,5-dioxa-2H-phenanthren-6-one (4d)***

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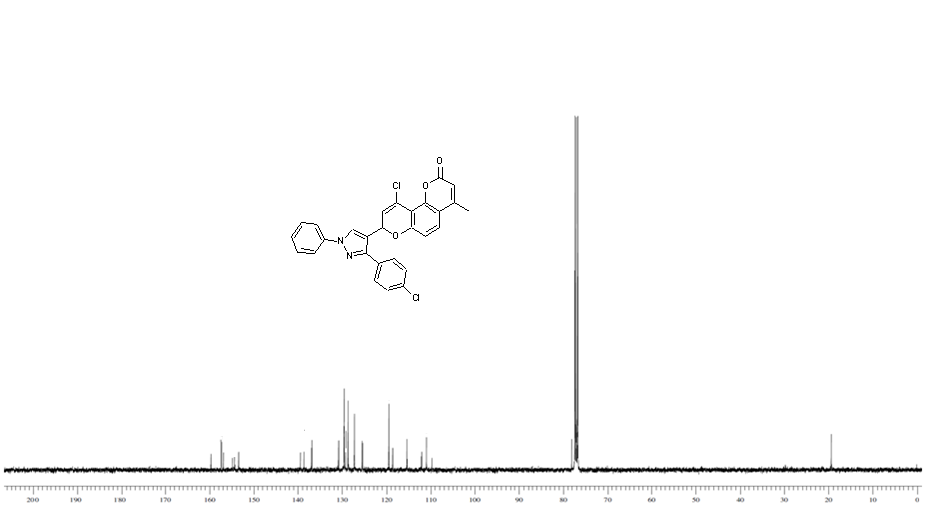
***1H NMR (400 MHz, CDCl3) spectrum of 4-Chloro-2-[3-(p-fluorophenyl)-1-phenyl-1H-pyrazol-4-yl]-8-methyl-1,5-dioxa-2H-phenanthren-6-one (4e)***

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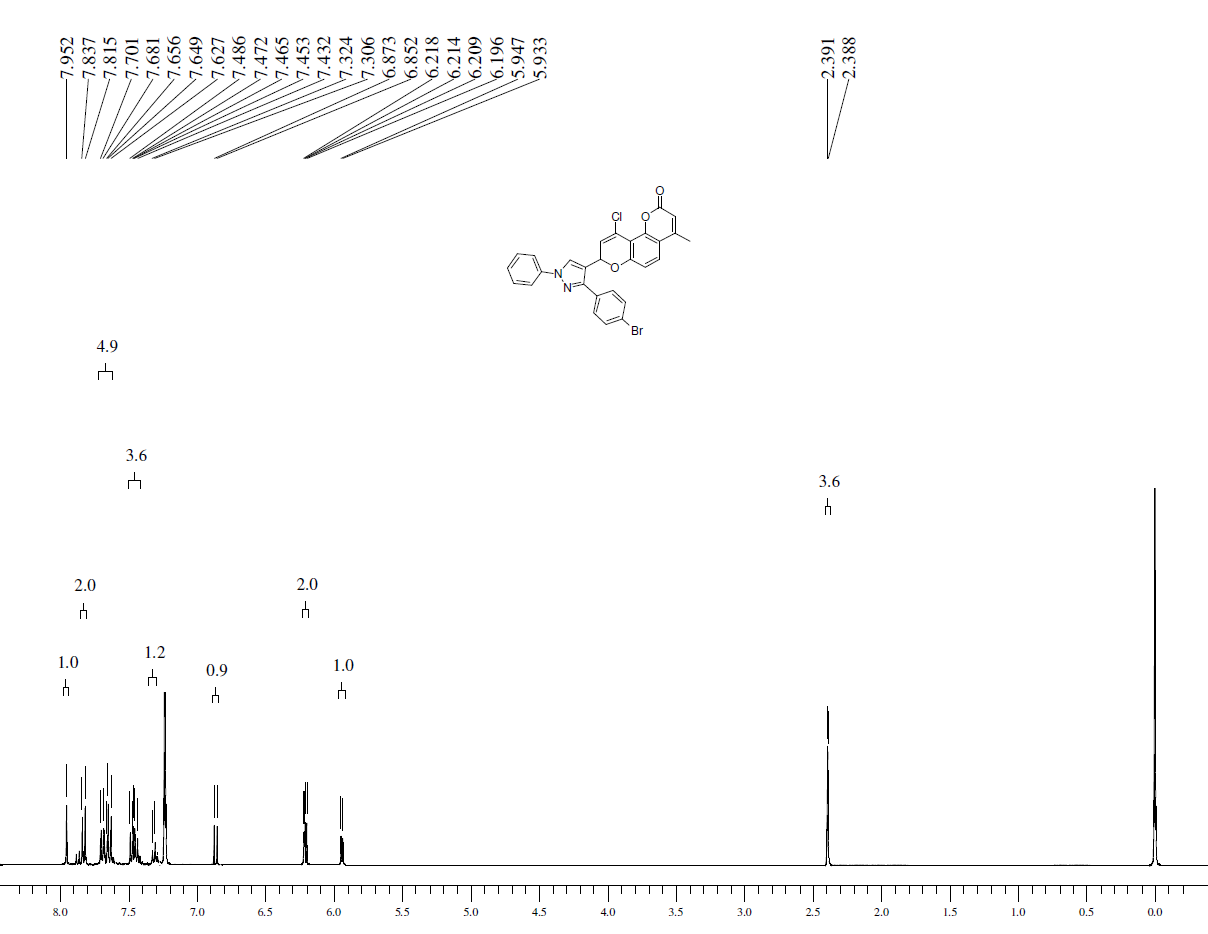
***13C NMR (100 MHz, CDCl3) of 4-Chloro-2-[3-(p-fluorophenyl)-1-phenyl-1H-pyrazol-4-yl]-8-methyl-1,5-dioxa-2H-phenanthren-6-one (4e)***

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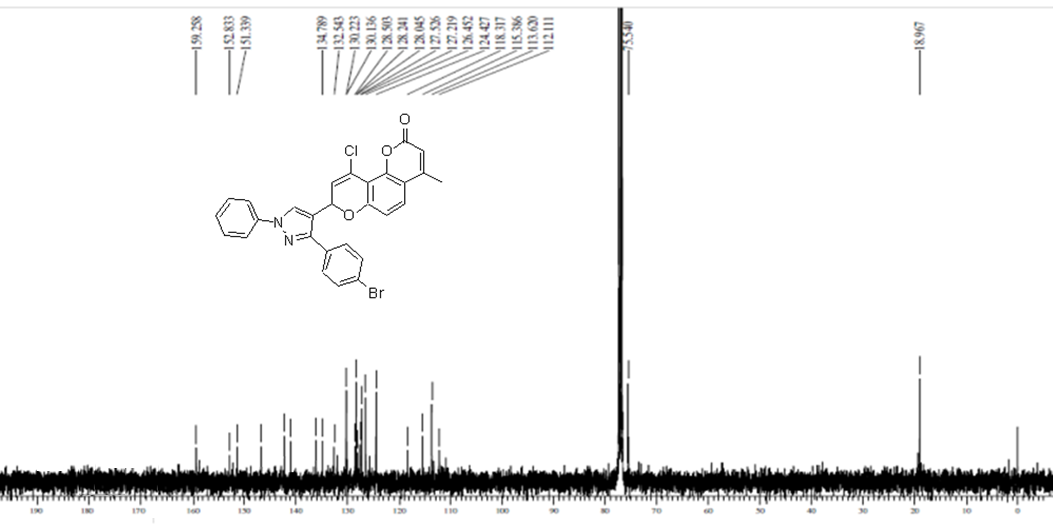
***1H NMR (400 MHz, CDCl3) spectrum of 4-Chloro-2-[3-(p-chlorophenyl)-1-phenyl-1H-pyrazol-4-yl]-8-methyl-1,5-dioxa-2H-phenanthren-6-one (4f)***

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***13C NMR (100 MHz, CDCl3) spectrum of 4-Chloro-2-[3-(p-chlorophenyl)-1-phenyl-1H-pyrazol-4-yl]-8-methyl-1,5-dioxa-2H-phenanthren-6-one (4f)***

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***1H NMR (400 MHz, CDCl3) spectrum of 4-Chloro-2-[3-(p-bromophenyl)-1-phenyl-1H-pyrazol-4-yl]-8-methyl-1,5-dioxa-2H-phenanthren-6-one (4g)***

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***13C NMR (100 MHz, CDCl3) of 4-Chloro-2-[3-(p-bromophenyl)-1-phenyl-1H-pyrazol-4-yl]-8-methyl-1,5-dioxa-2H-phenanthren-6-one (4g)***