

Supporting Information

**Rh-Catalyzed Aldehydic C-H Alkynylation and Annulation**

**Maddali L. N. Rao\* and Boddu S. Ramakrishna**

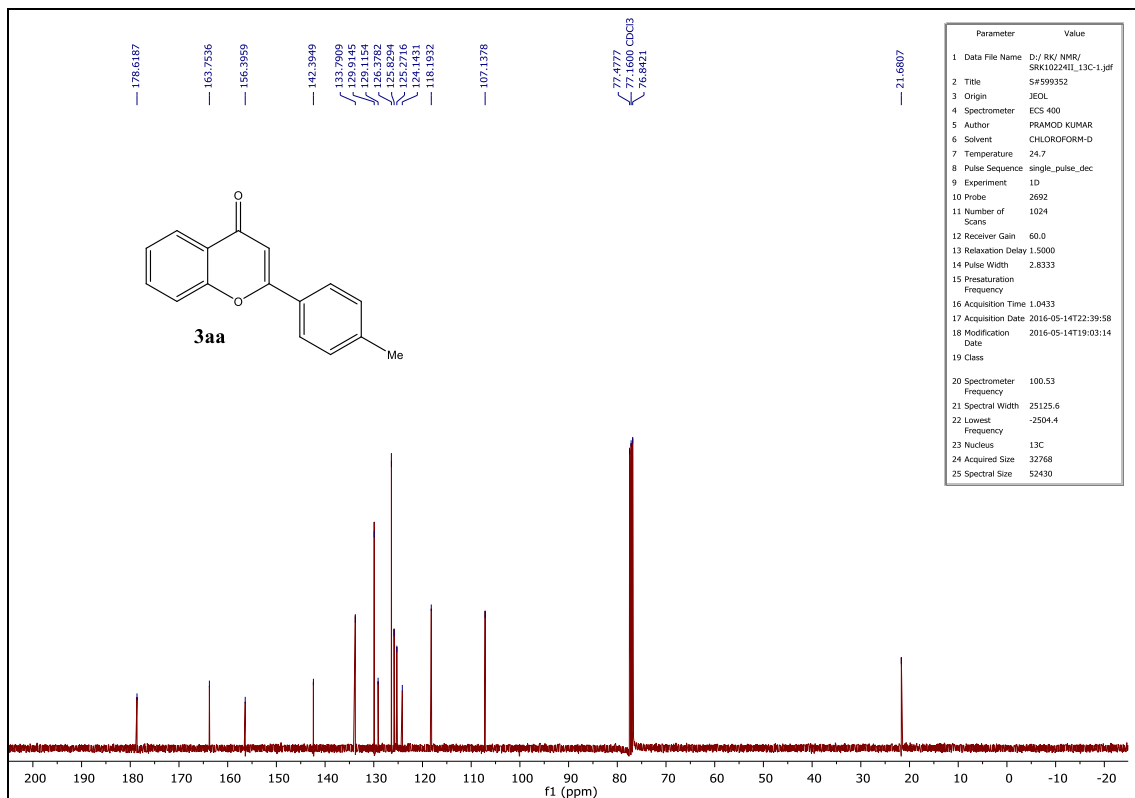
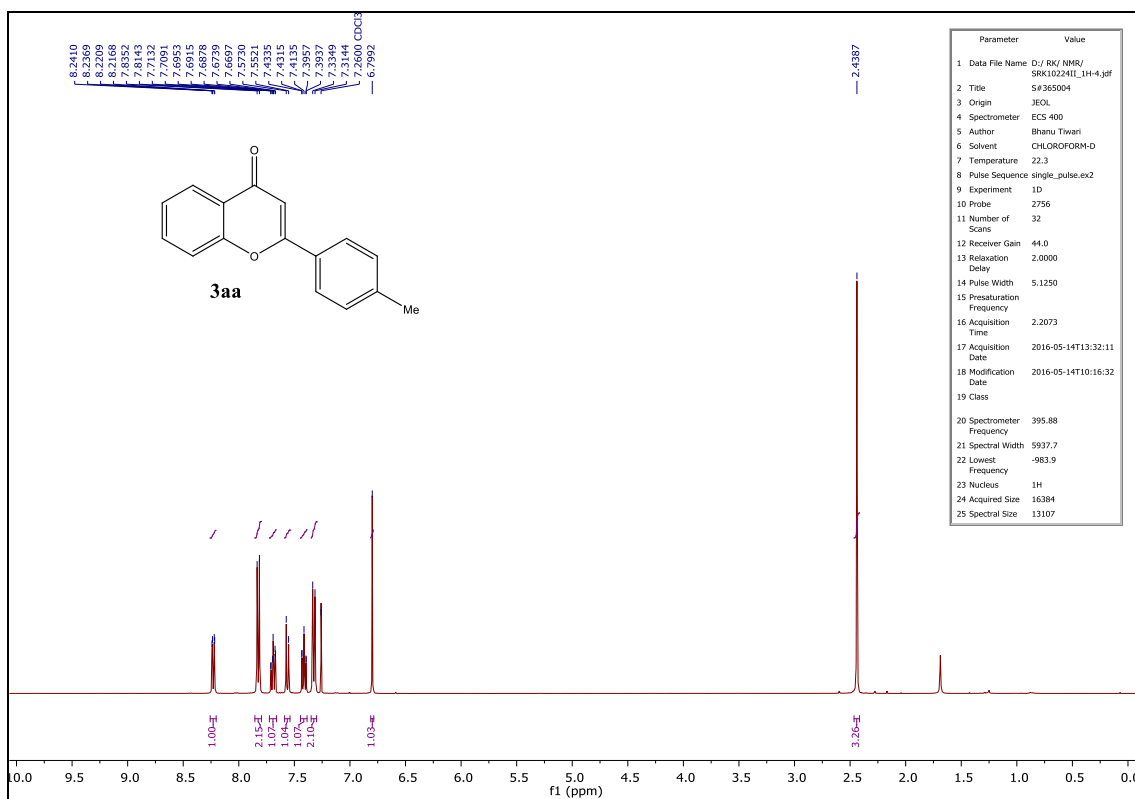
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[maddali@iitk.ac.in](mailto:maddali@iitk.ac.in)

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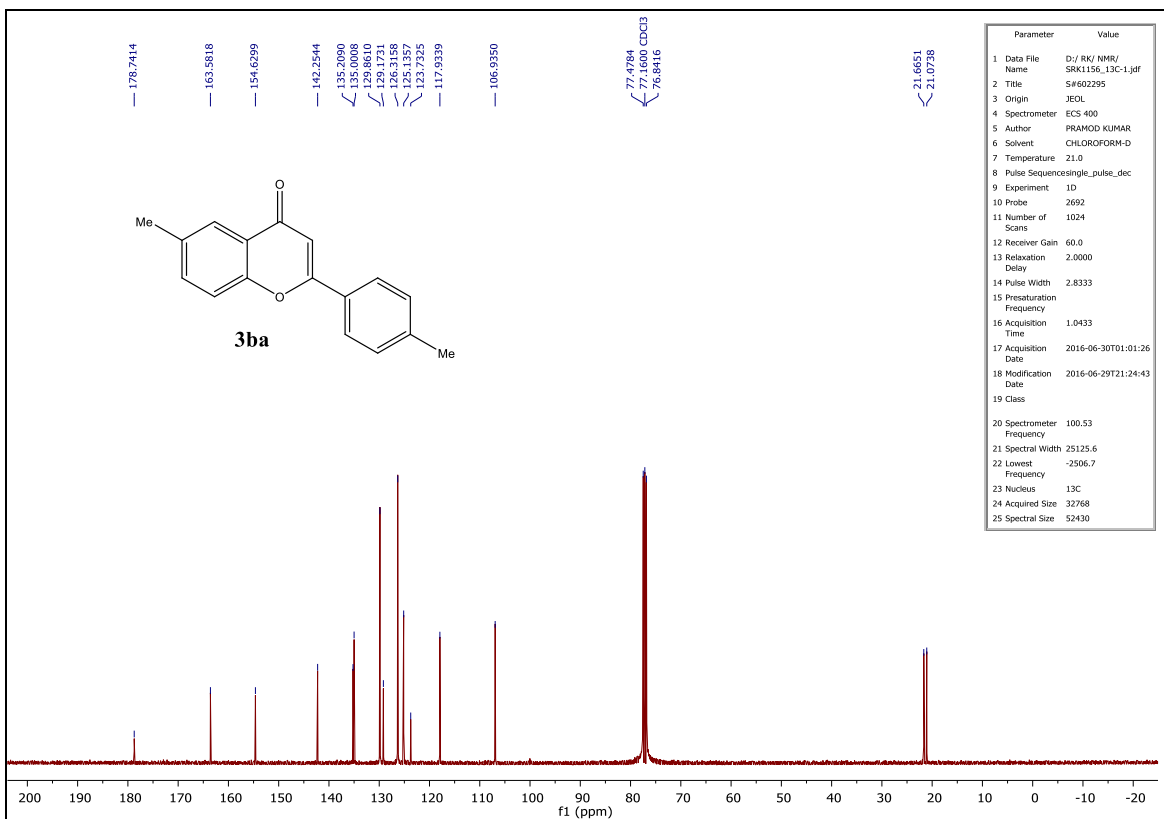
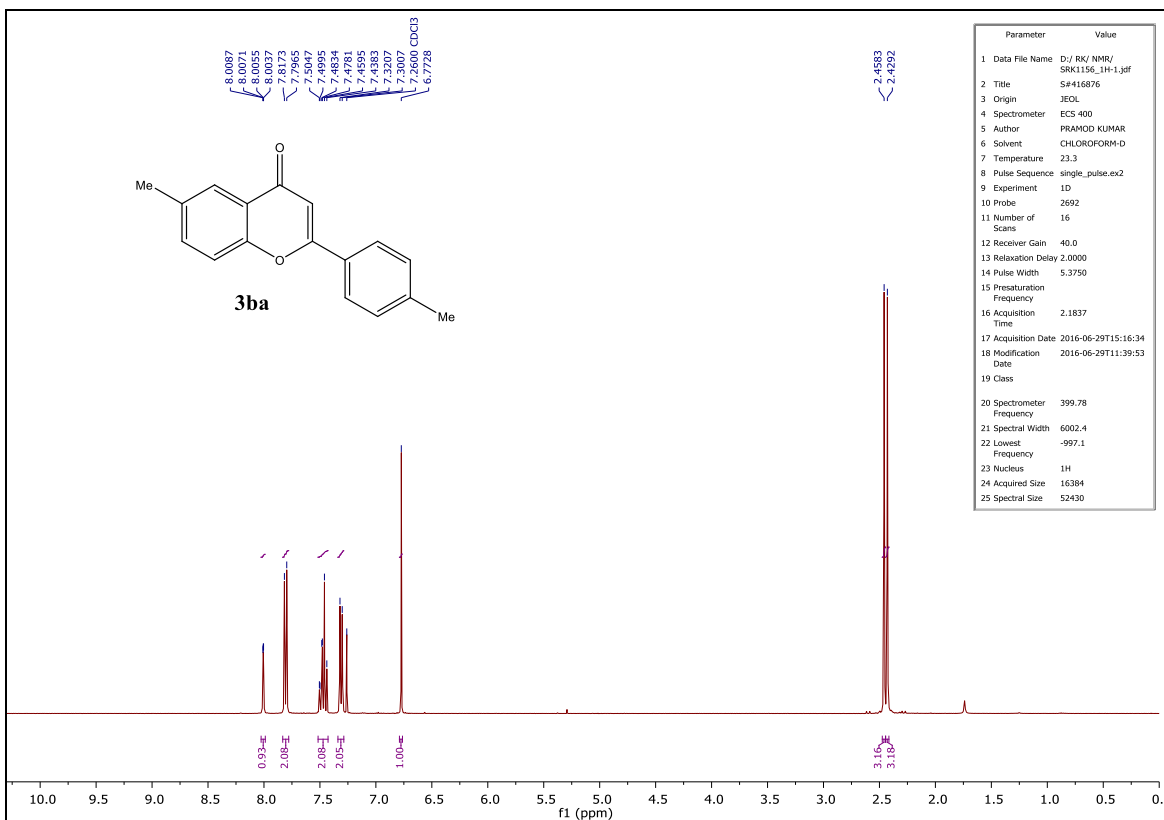
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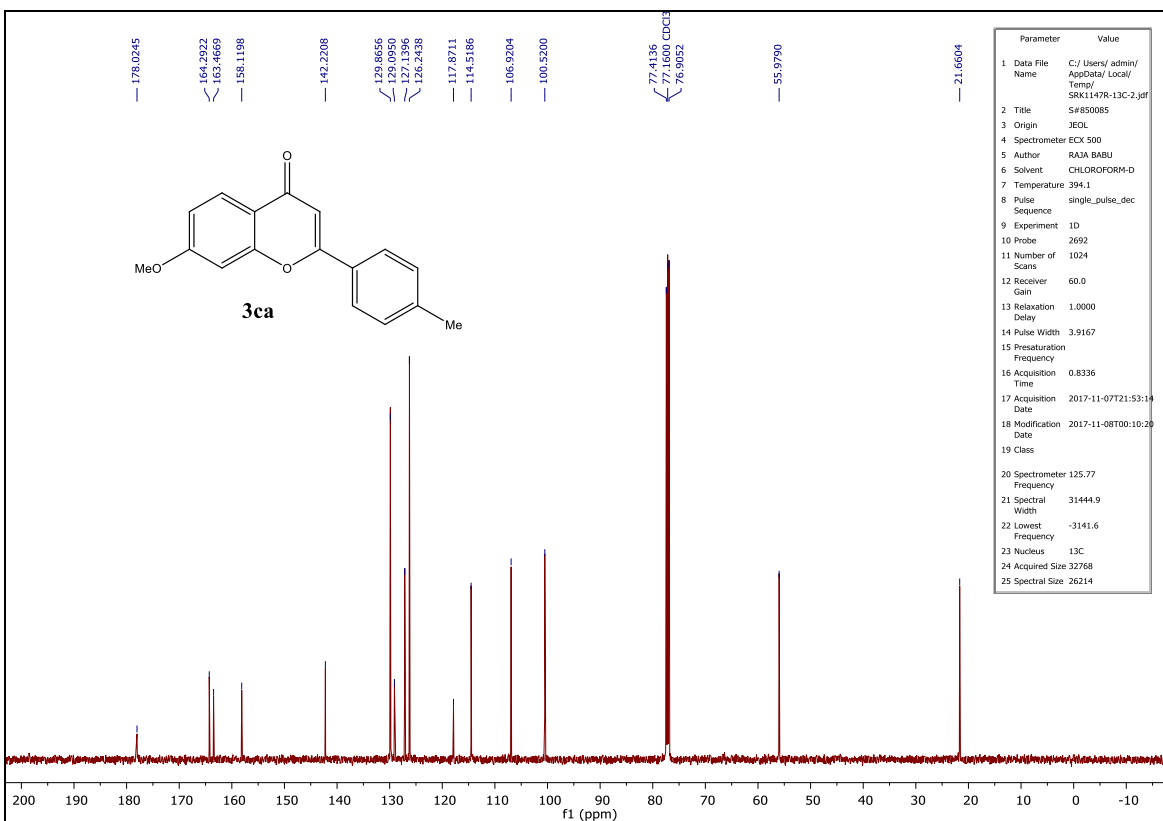
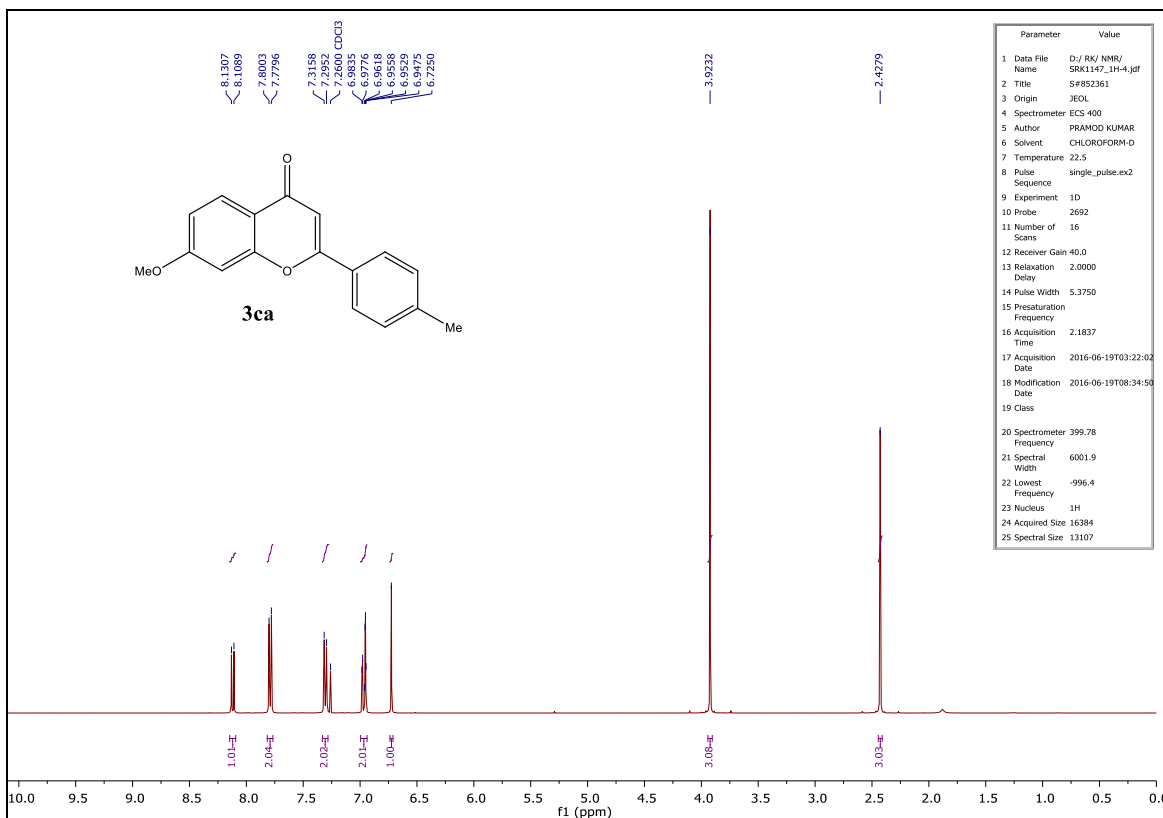
# 1. Copies of $^1\text{H}$ and $^{13}\text{C}$ NMR spectra of all compounds (3-6)



$^1\text{H}$  and  $^{13}\text{C}$  NMR spectra of 2-*p*-tolyl-4*H*-chromen-4-one (**3aa**)

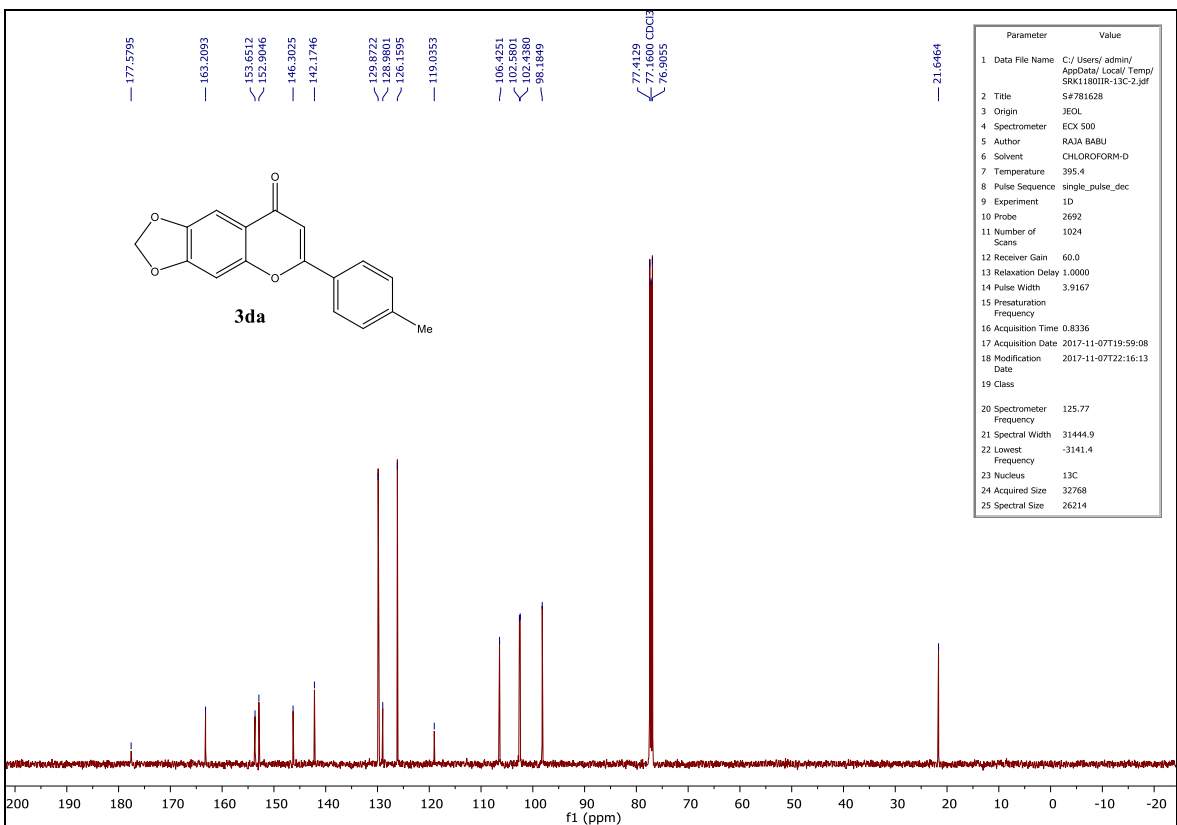
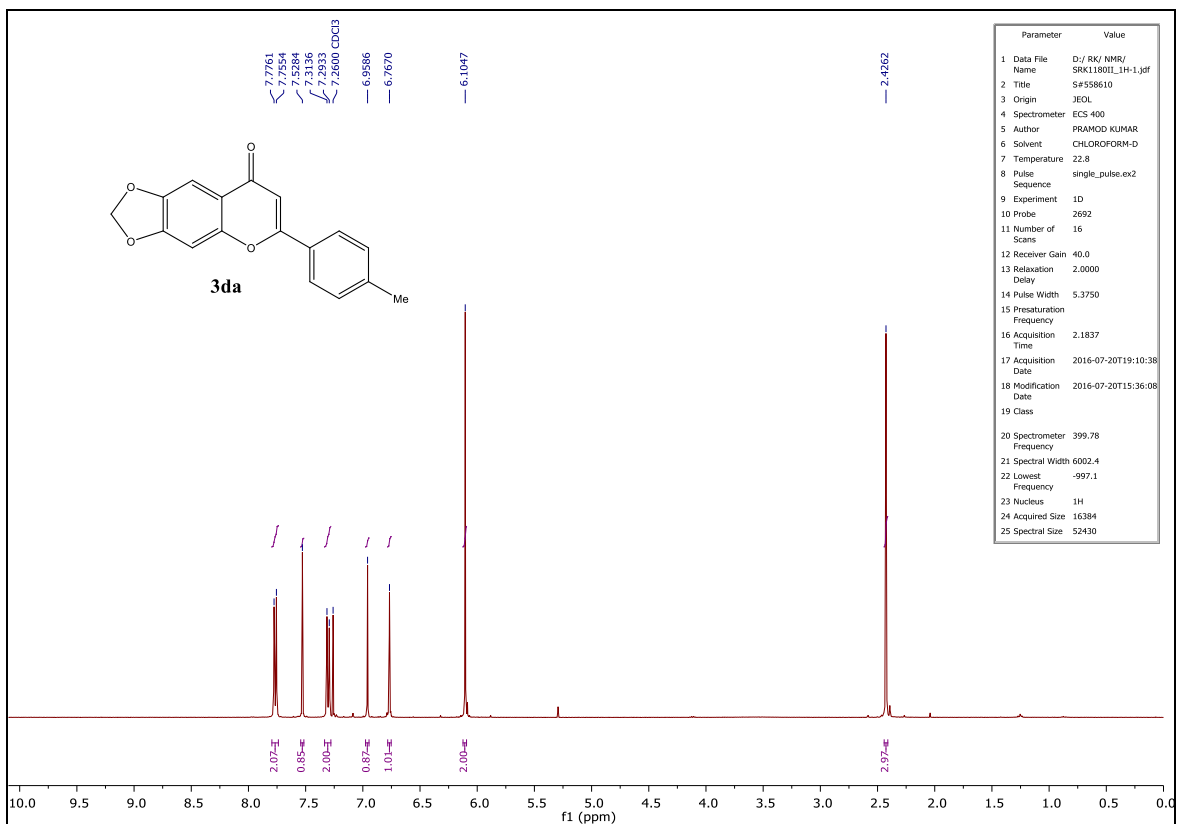


<sup>1</sup>H and <sup>13</sup>C NMR spectra of 6-methyl-2-p-tolyl-4H-chromen-4-one (**3ba**)

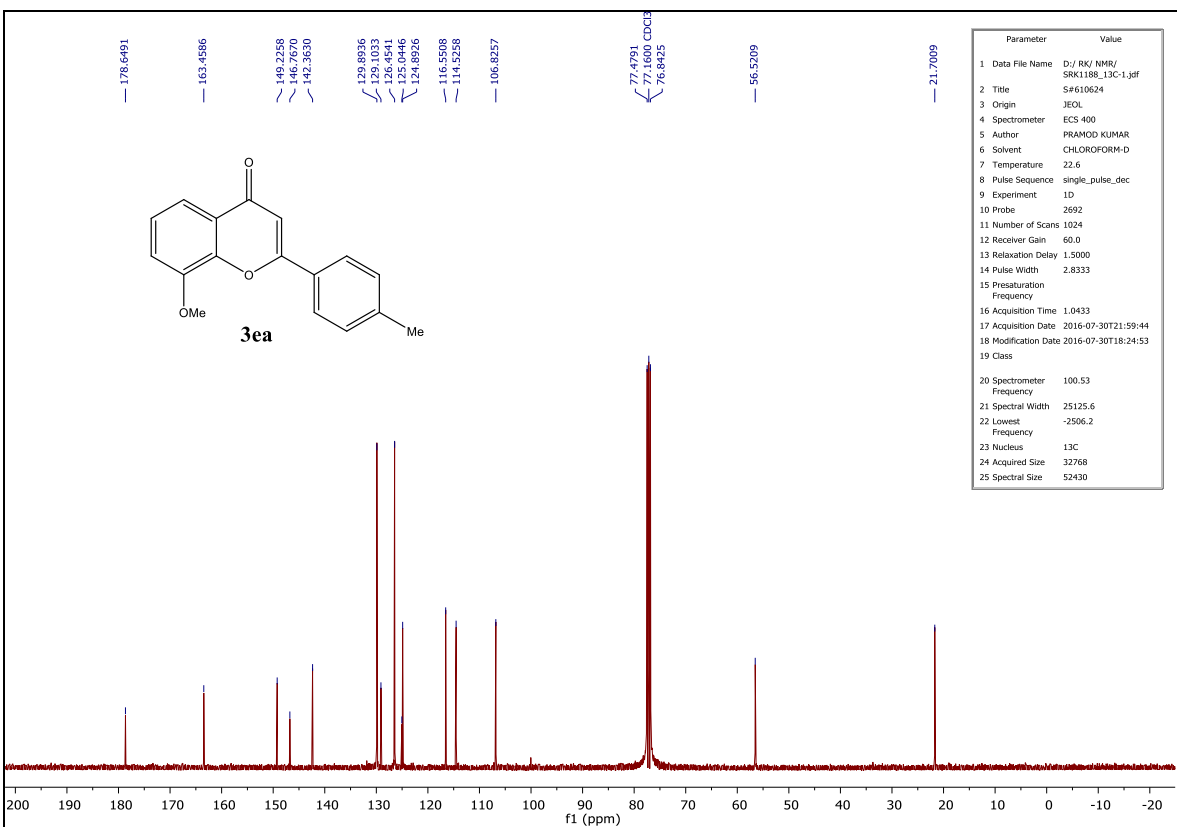
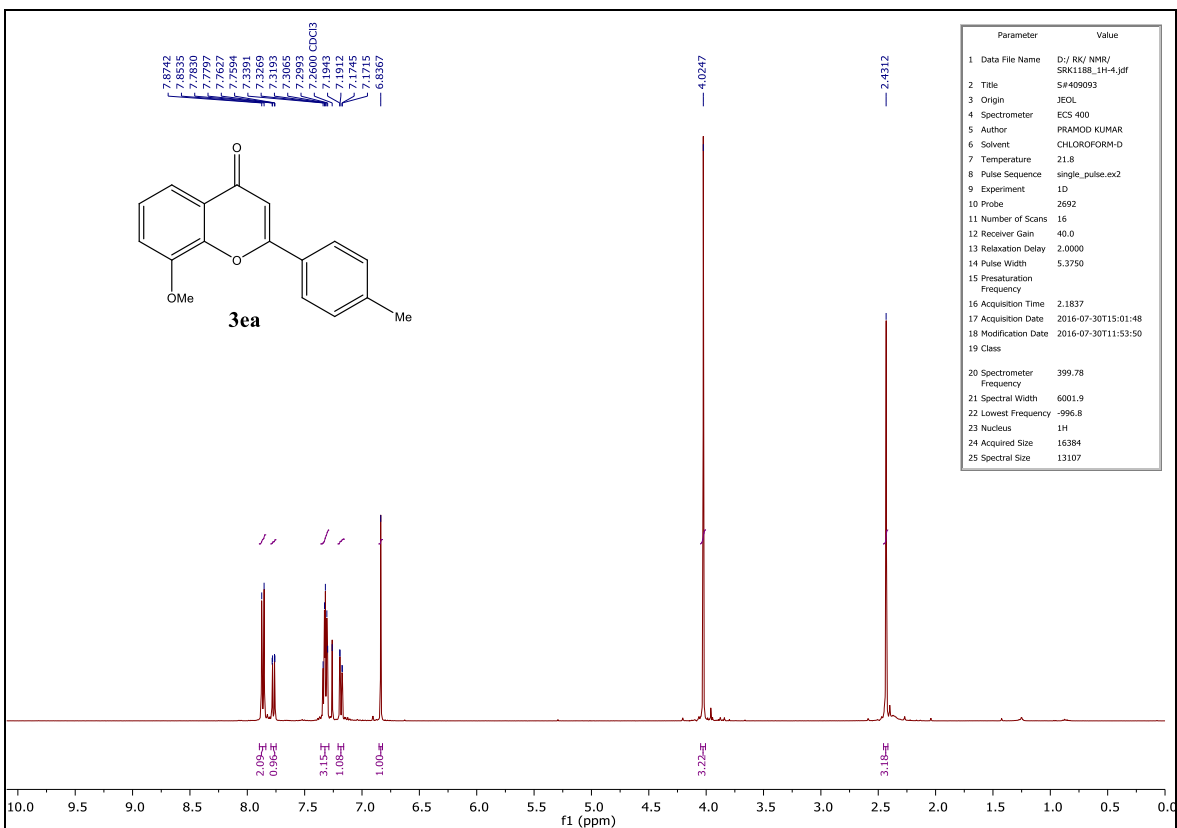


<sup>1</sup>H and <sup>13</sup>C NMR spectra of 7-methoxy-2-p-tolyl-4H-chromen-4-one (**3ca**)

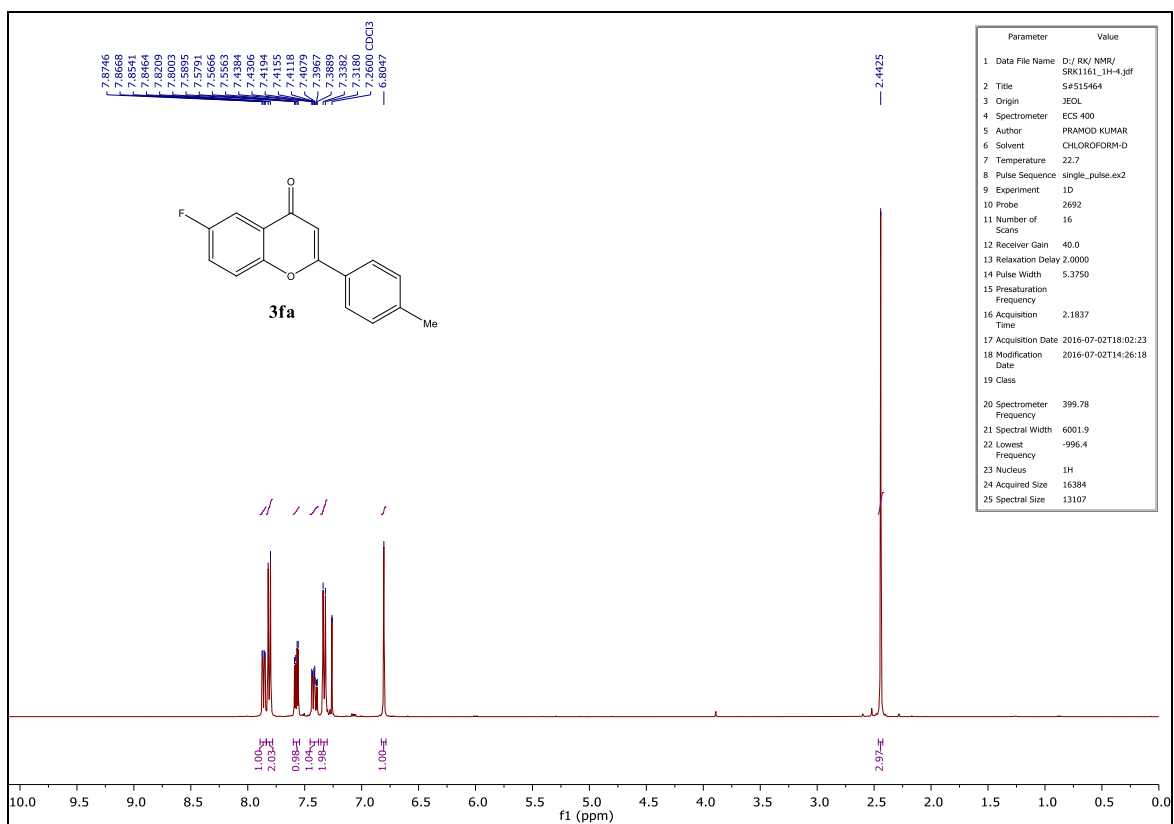


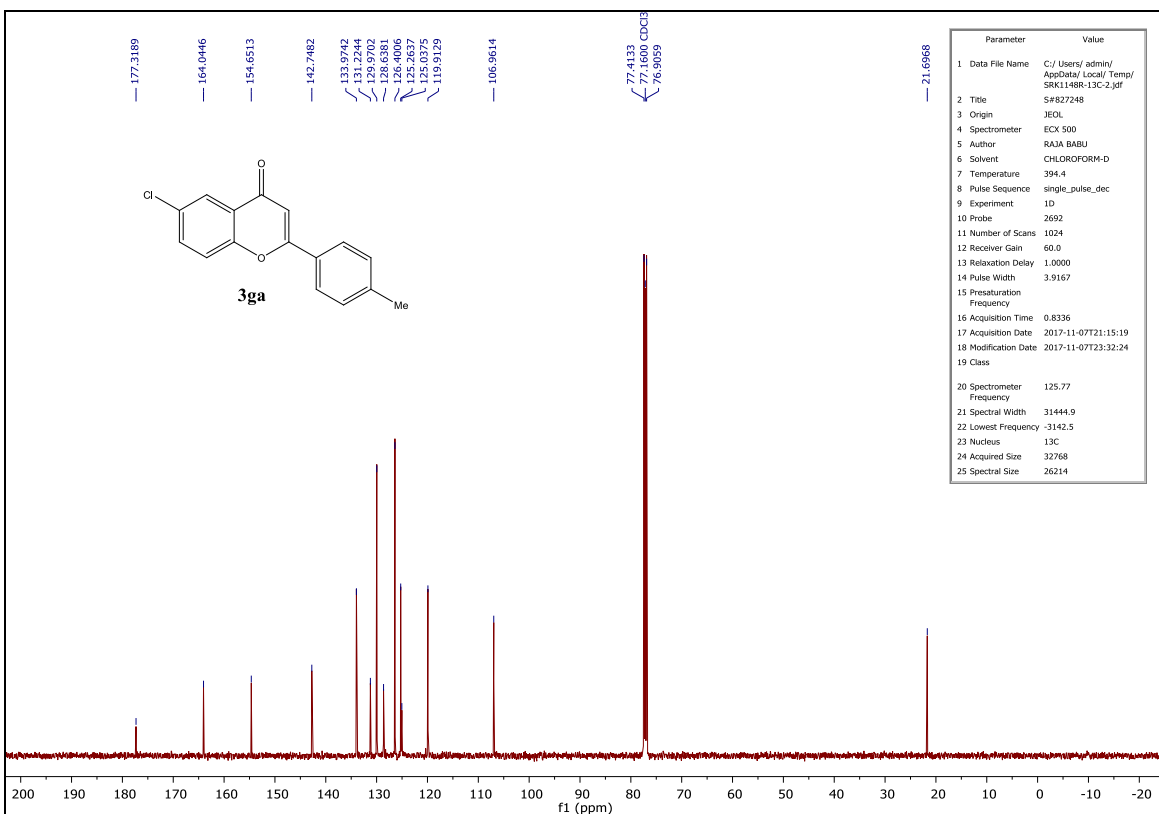
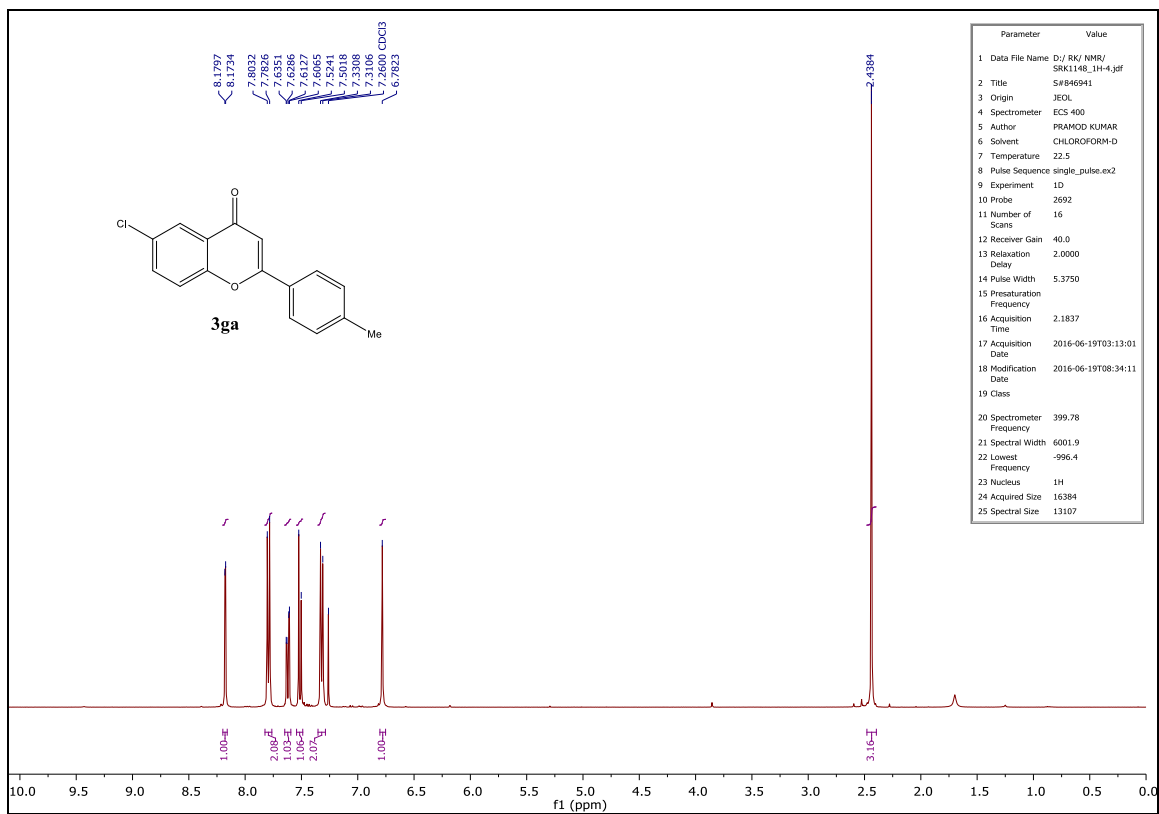


<sup>1</sup>H and <sup>13</sup>C NMR spectra of 6-p-tolyl-8H-[1,3]dioxolo[4,5-g]chromen-8-one (**3da**)

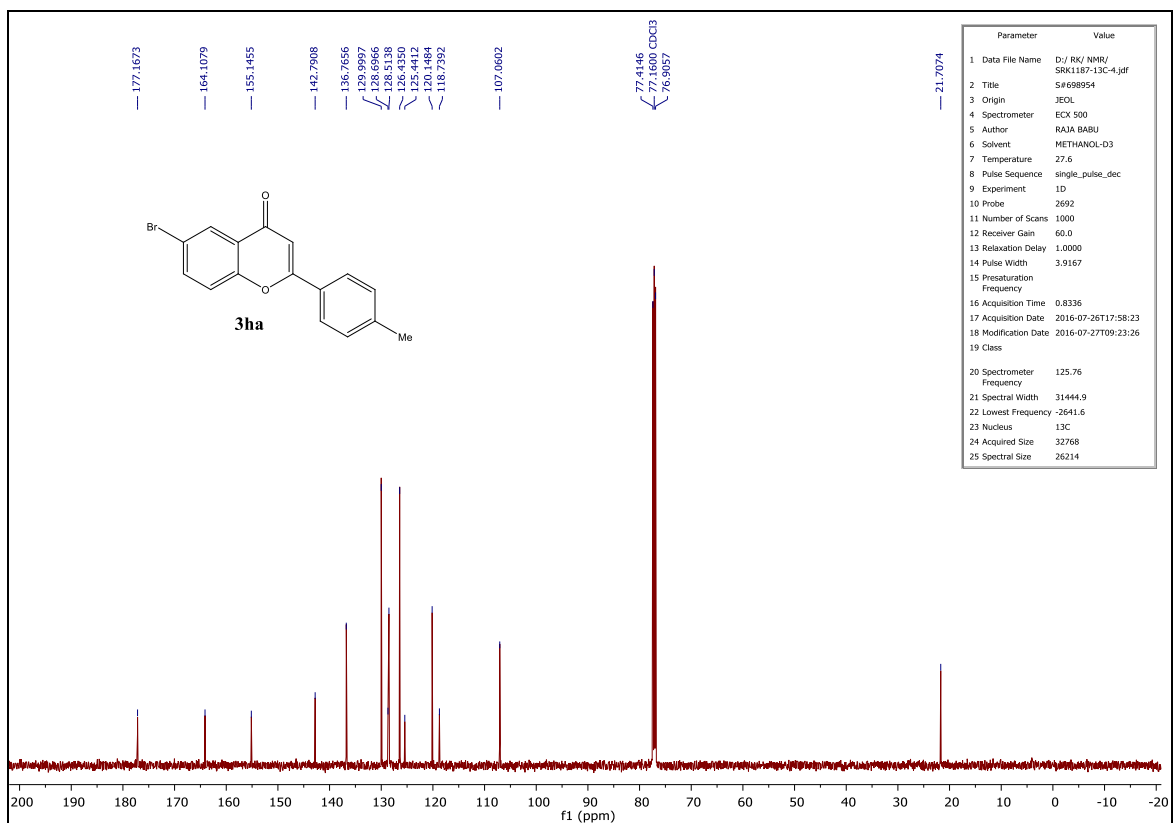
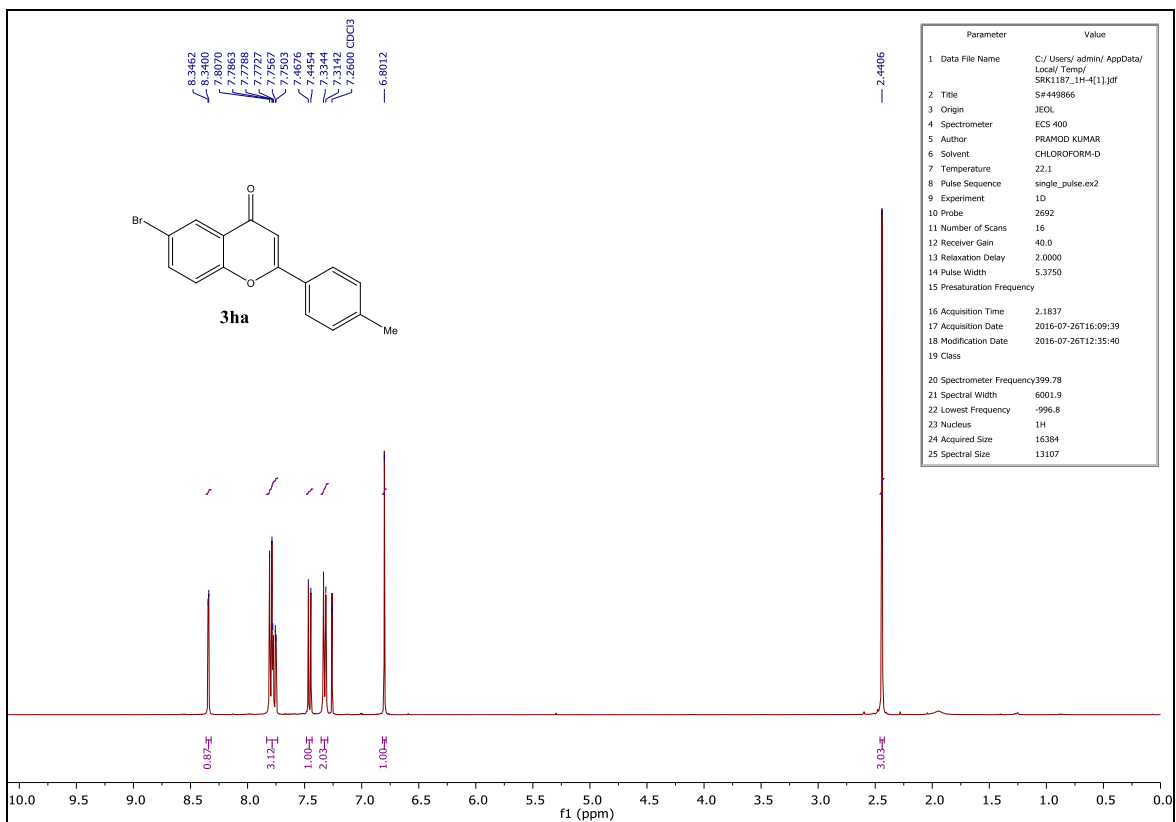


<sup>1</sup>H and <sup>13</sup>C NMR spectra of 8-methoxy-2-*p*-tolyl-4*H*-chromen-4-one (**3ea**)

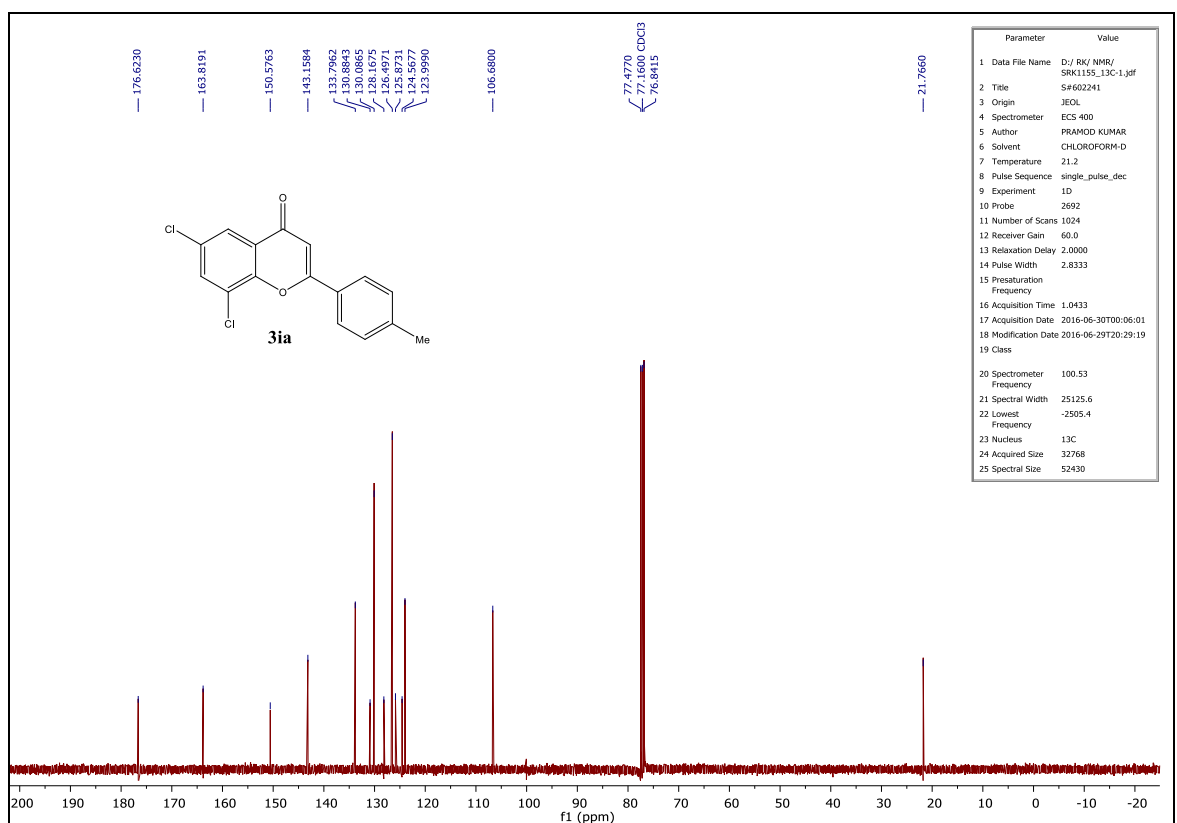
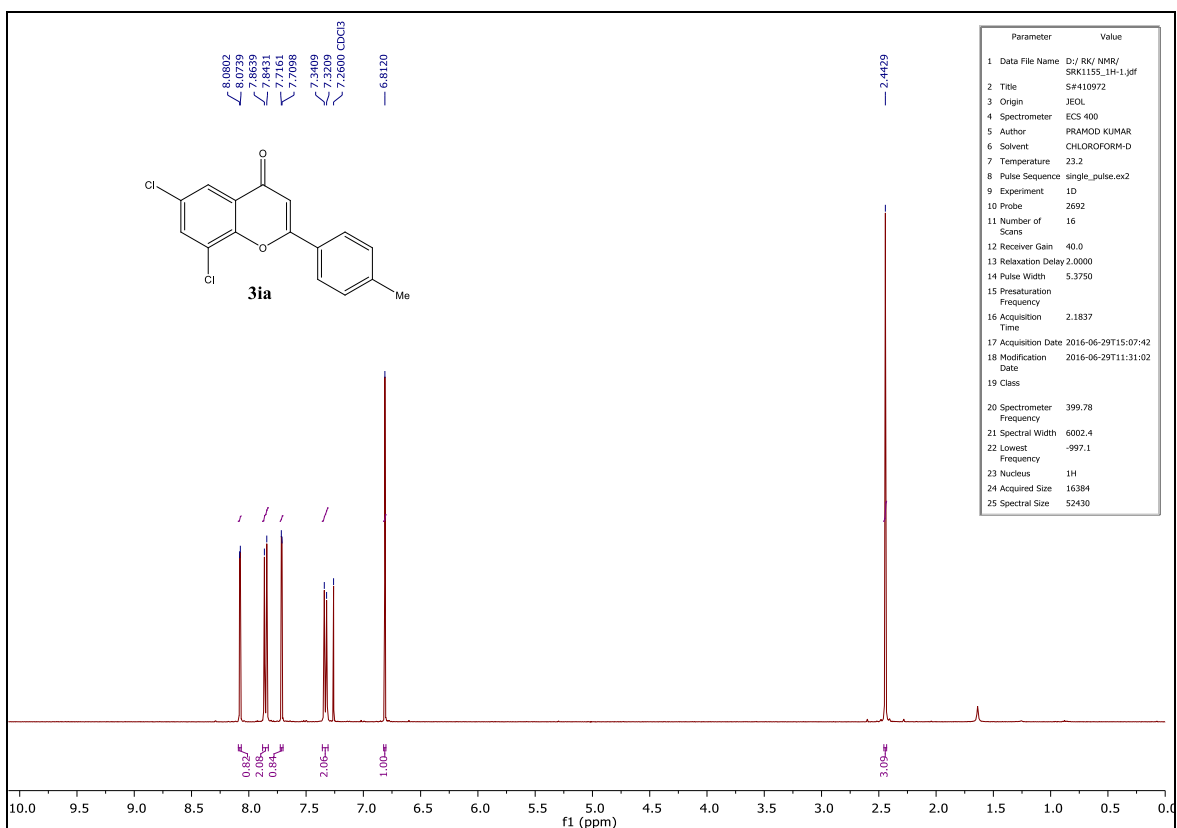




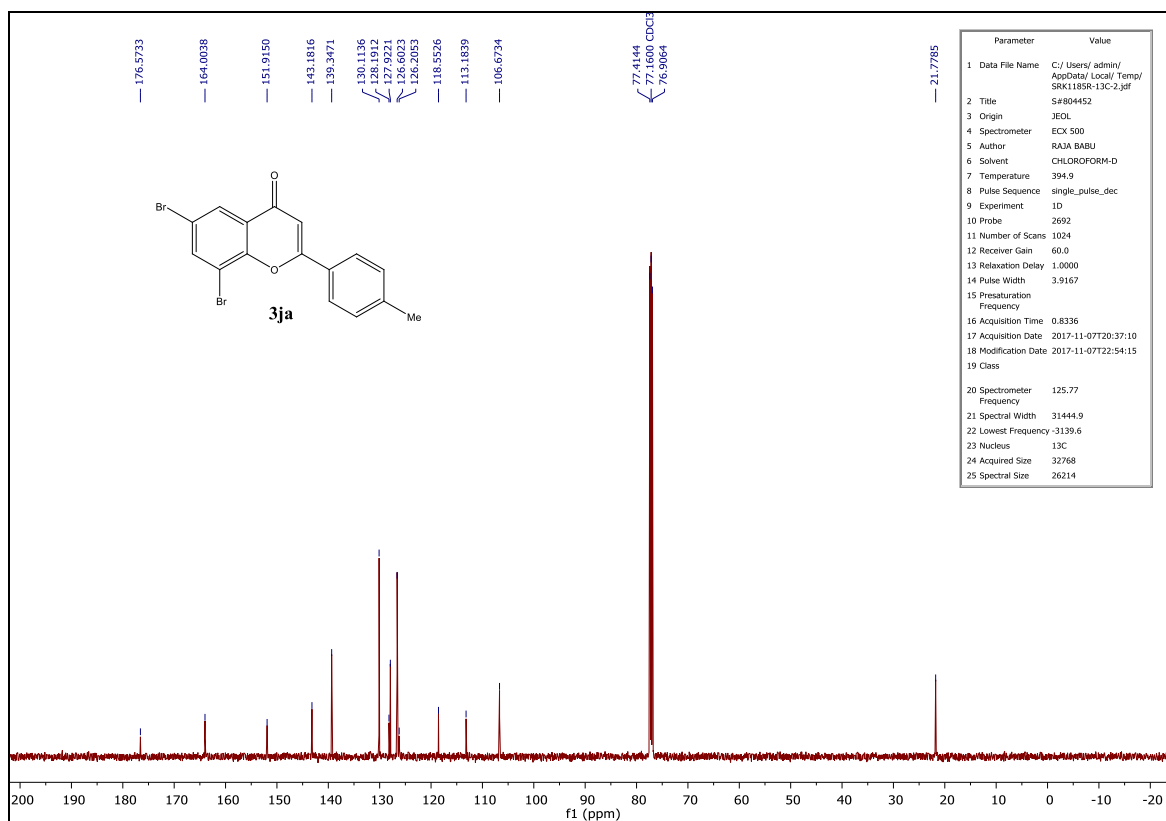
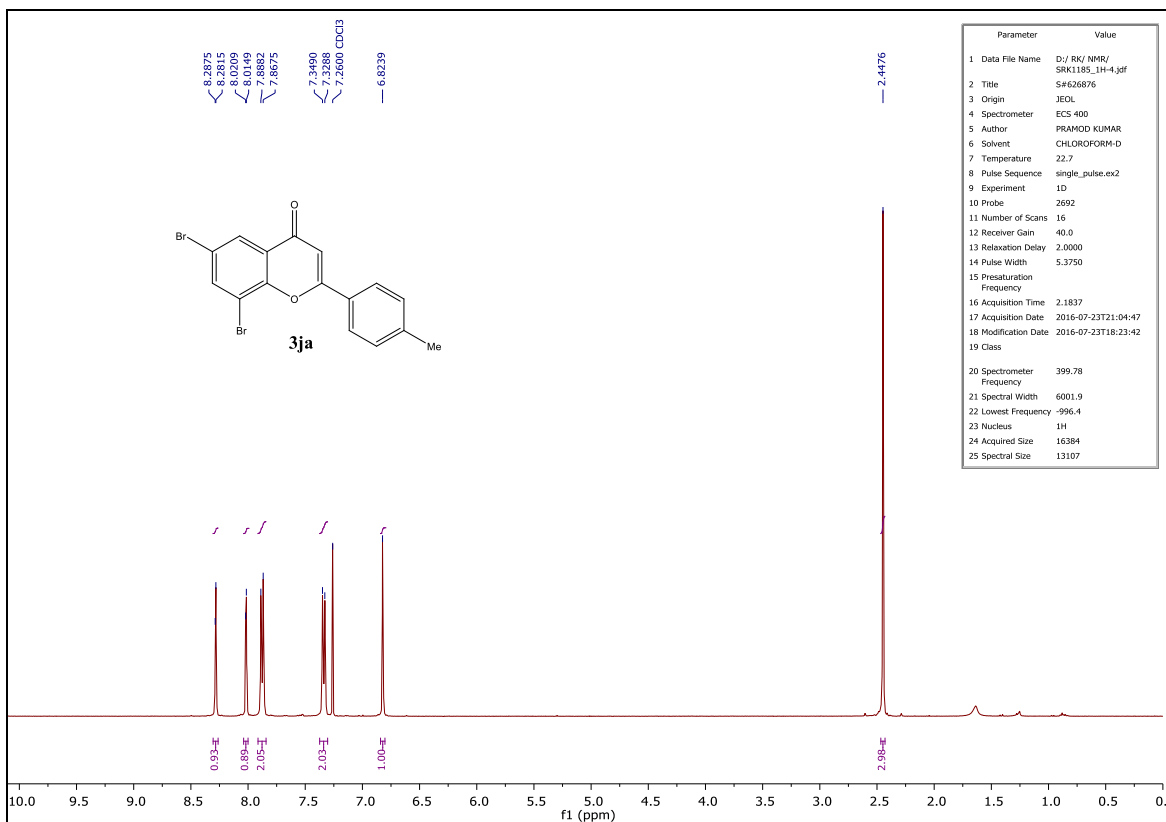
<sup>1</sup>H and <sup>13</sup>C NMR spectra of 6-chloro-2-p-tolyl-4H-chromen-4-one (**3ga**)



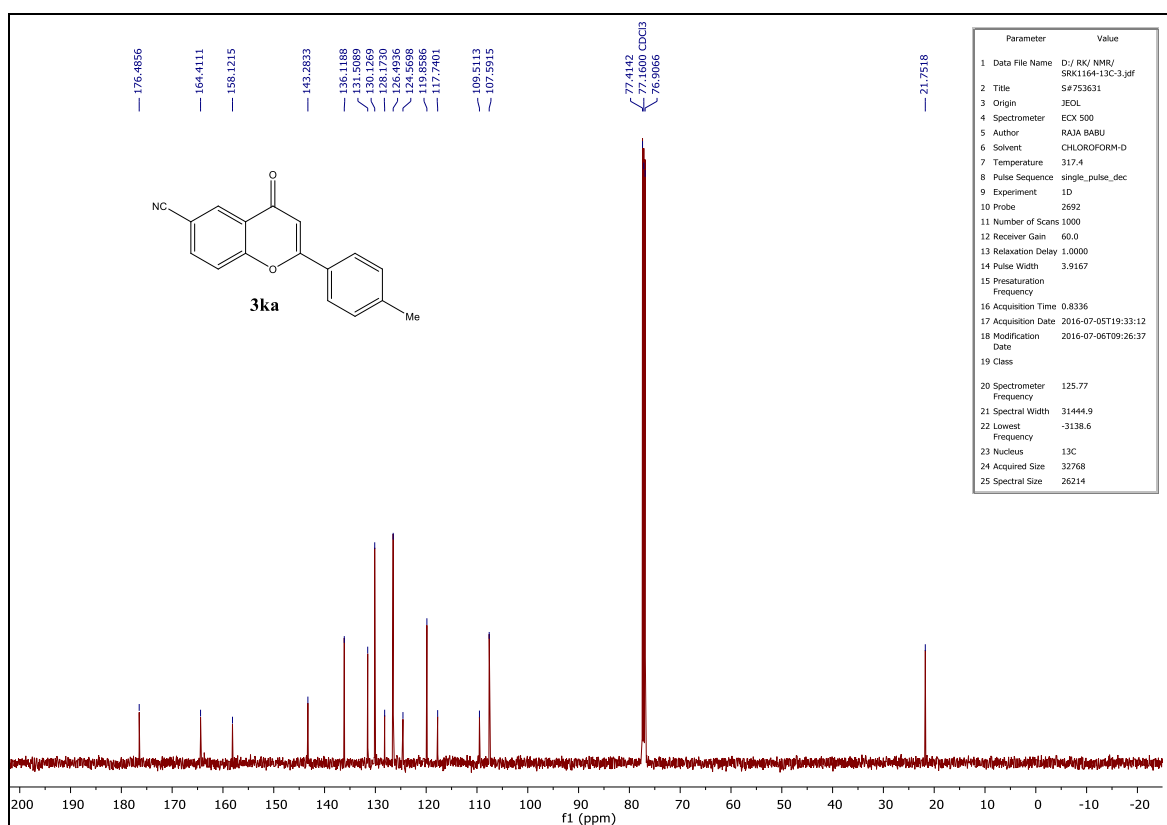
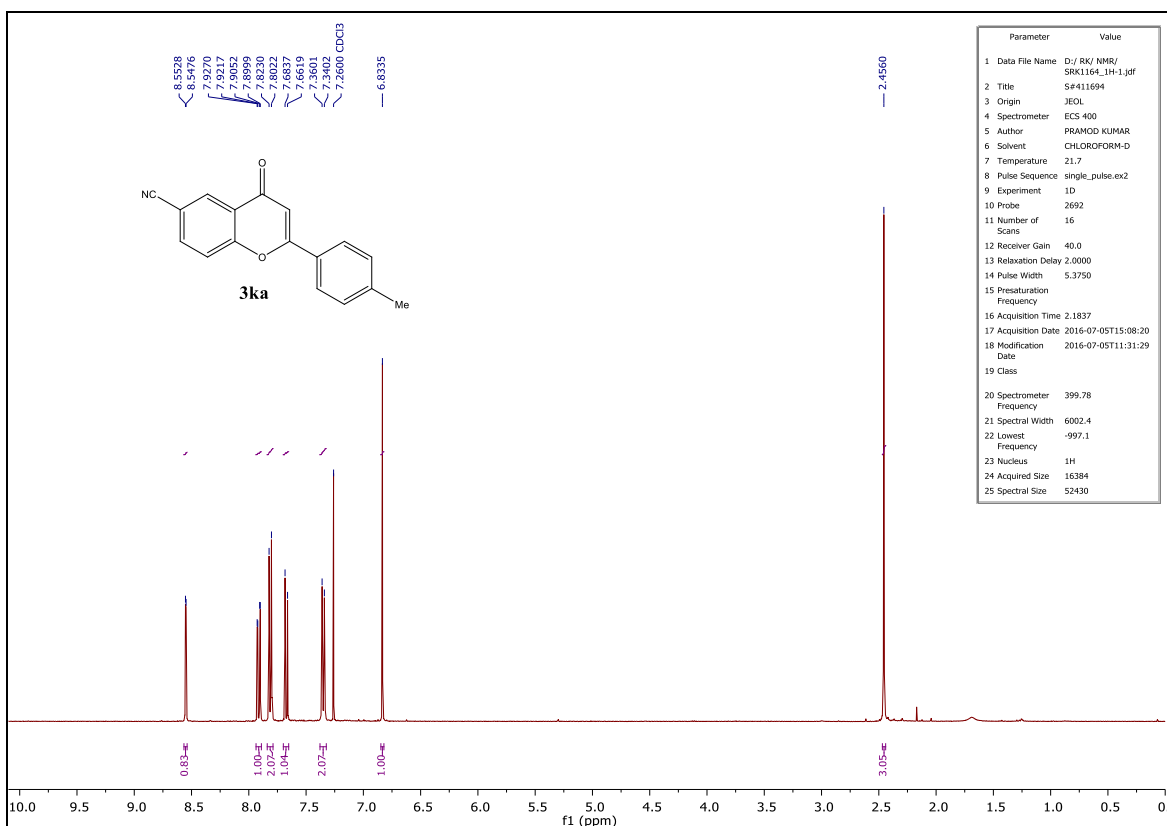
<sup>1</sup>H and <sup>13</sup>C NMR spectra of 6-bromo-2-p-tolyl-4H-chromen-4-one (**3ha**)



<sup>1</sup>H and <sup>13</sup>C NMR spectra of 6,8-dichloro-2-p-tolyl-4H-chromen-4-one (**3ia**)

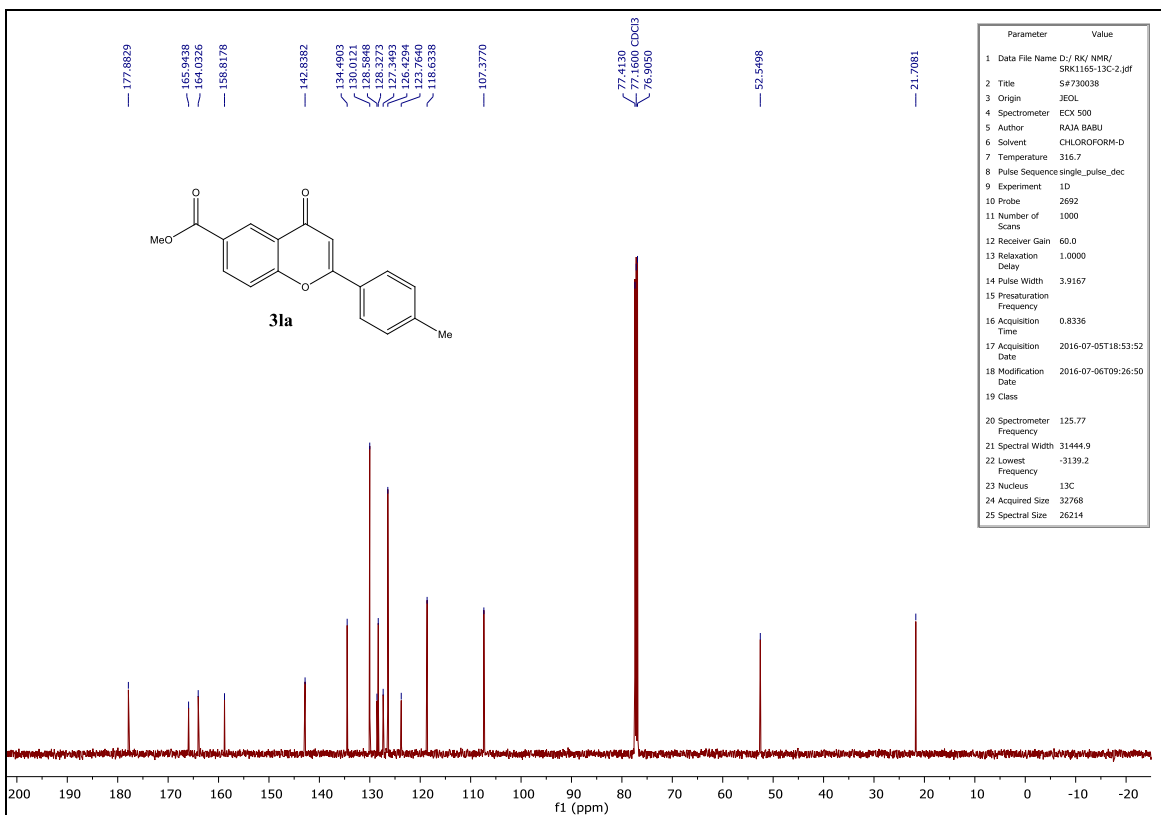
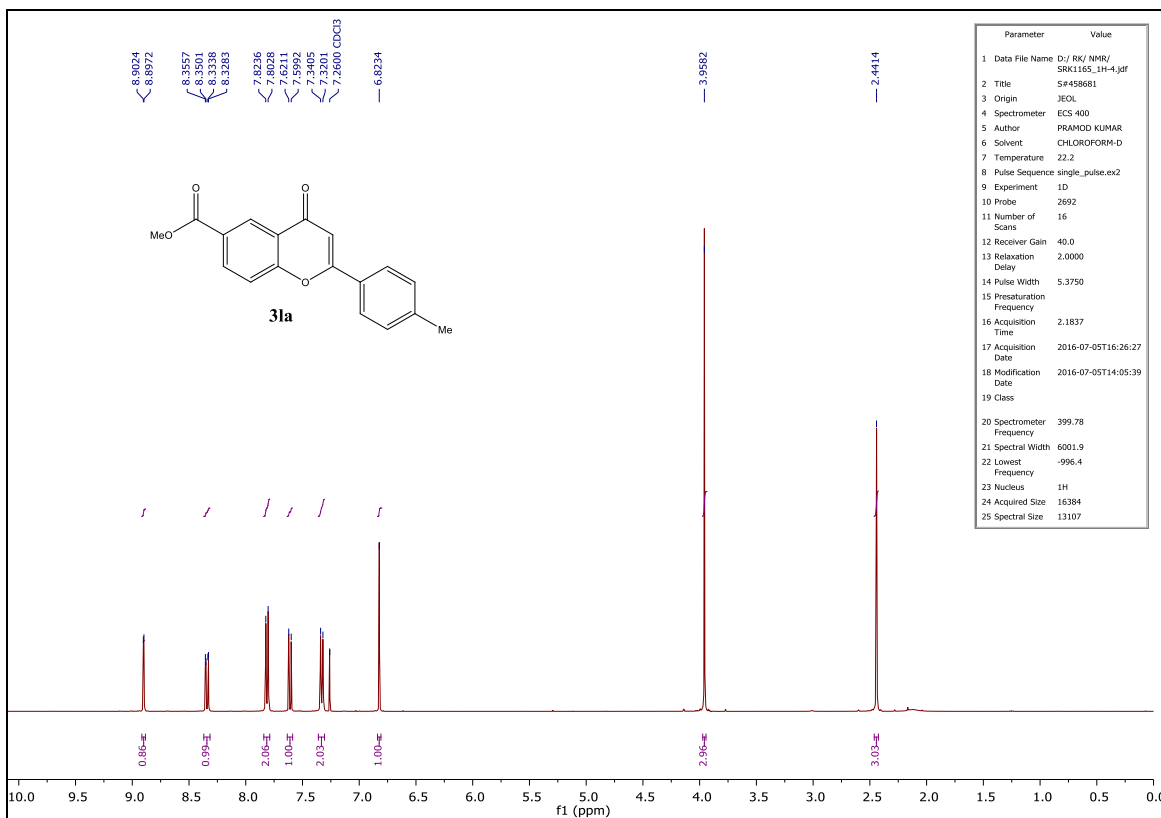


<sup>1</sup>H and <sup>13</sup>C NMR spectra of 6,8-dibromo-2-*p*-tolyl-4*H*-chromen-4-one (**3ja**)

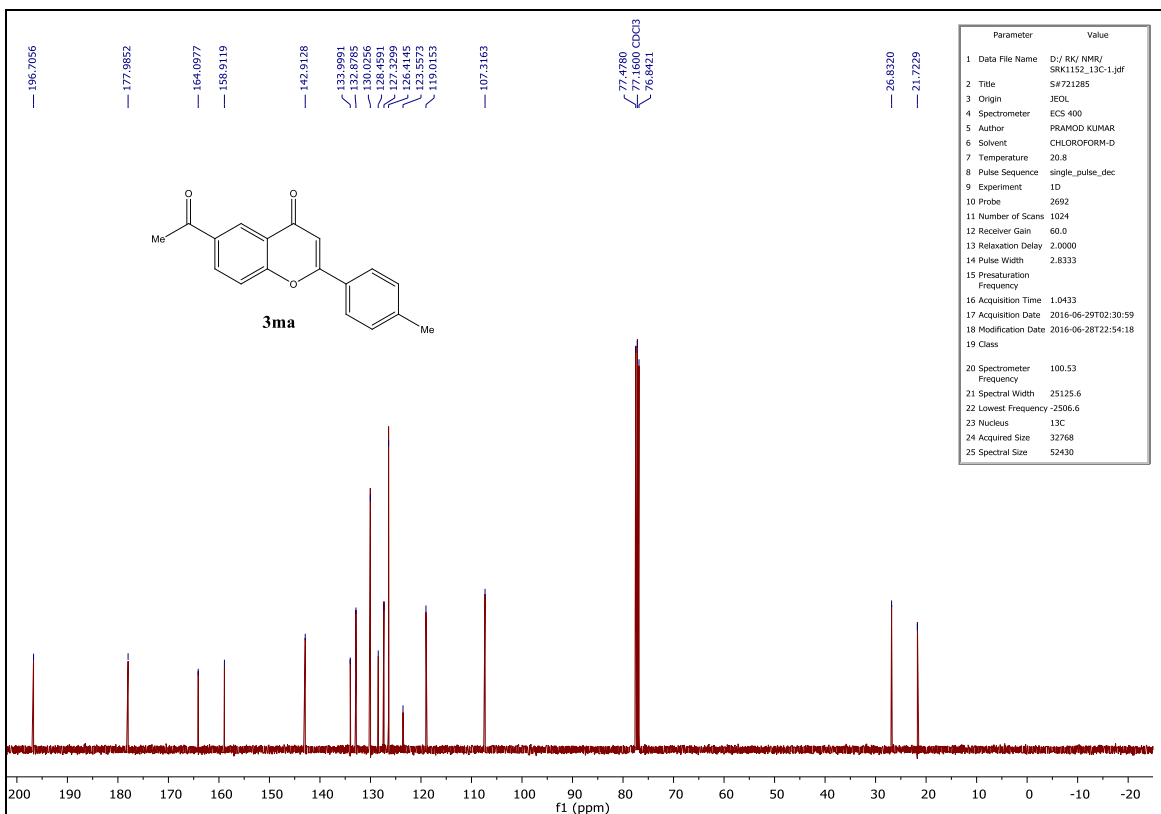
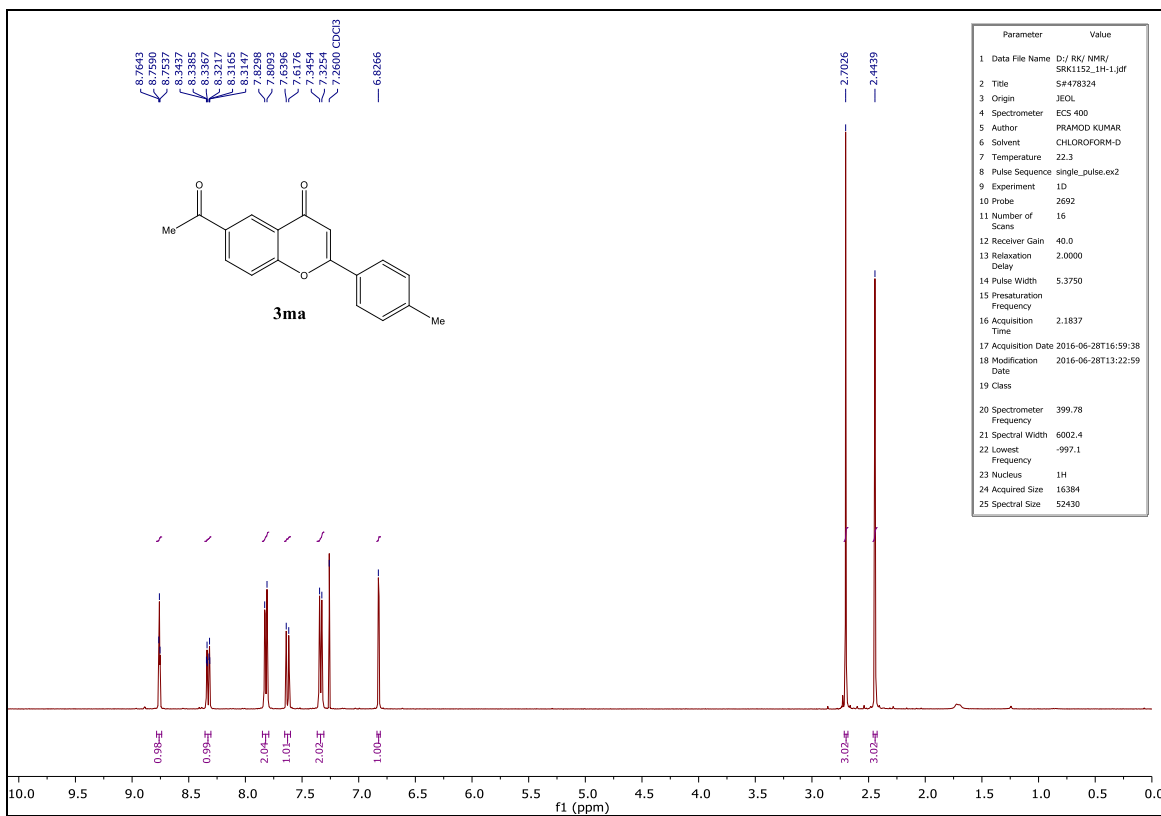


<sup>1</sup>H and <sup>13</sup>C NMR spectra of 4-oxo-2-p-tolyl-4H-chromen-6-carbonitrile (**3ka**)

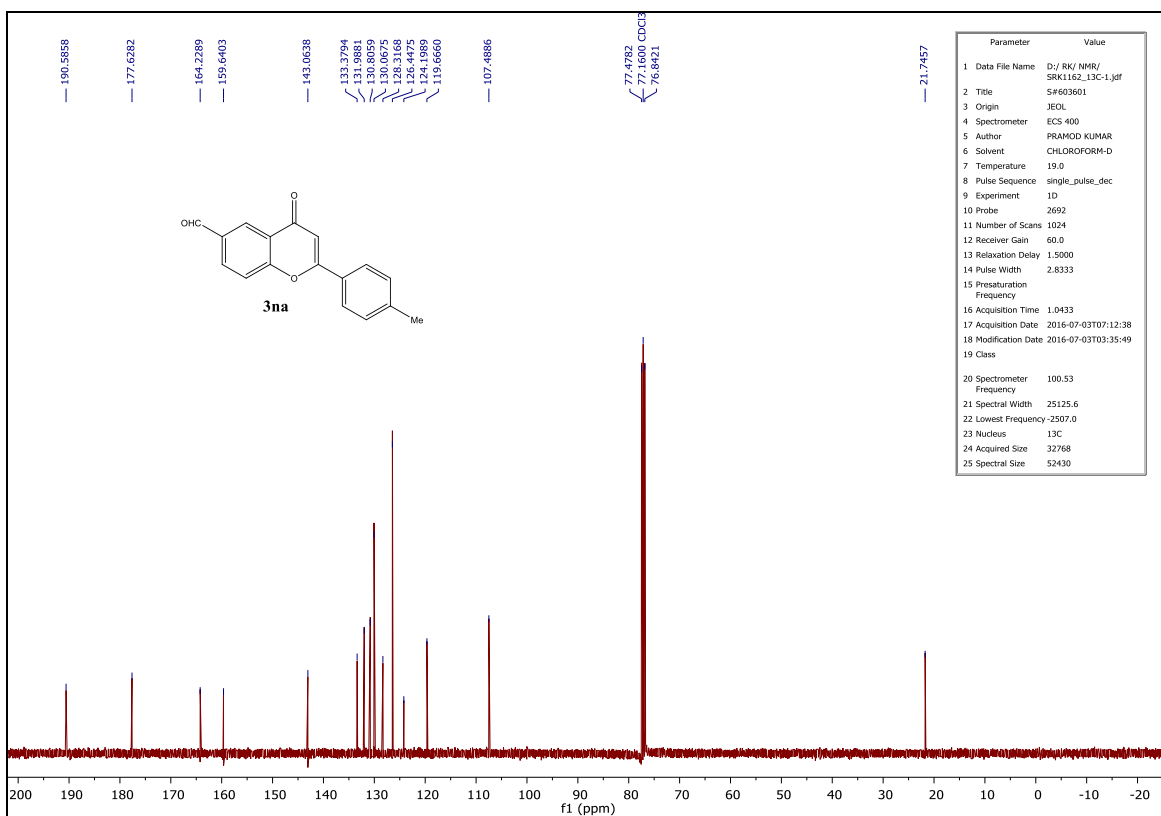
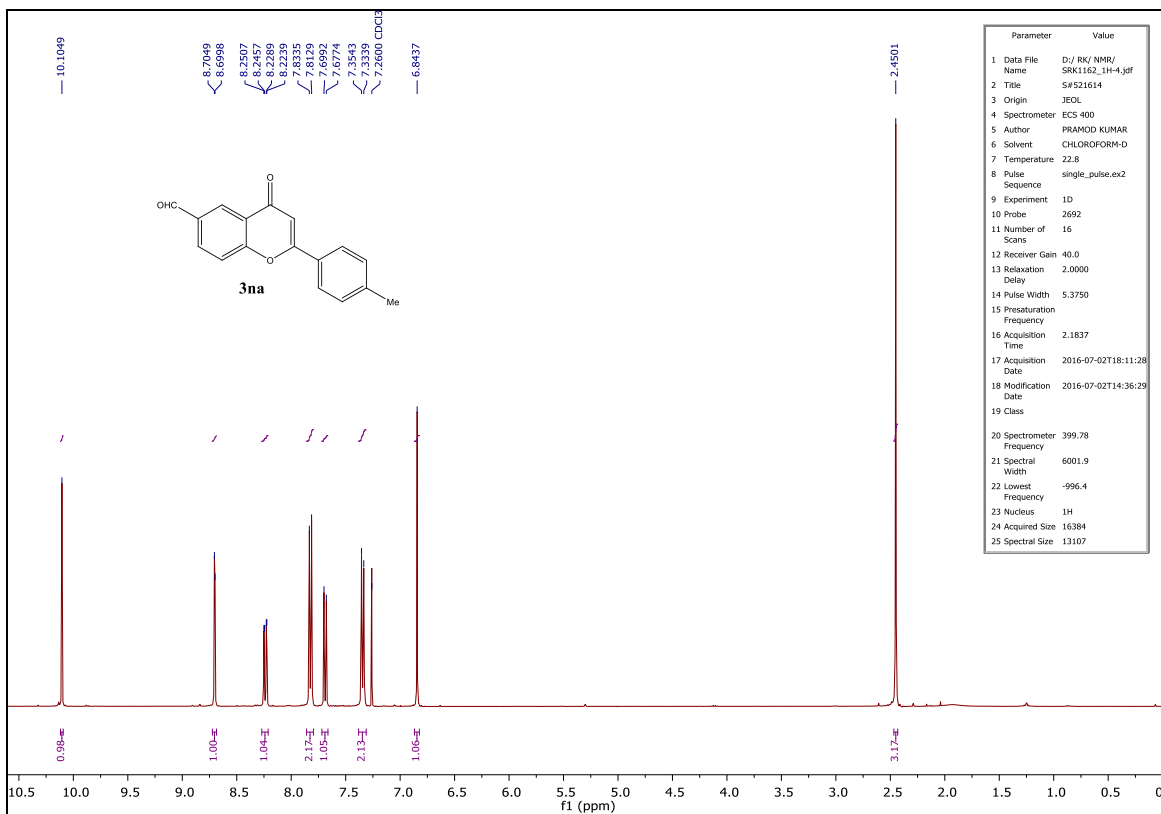




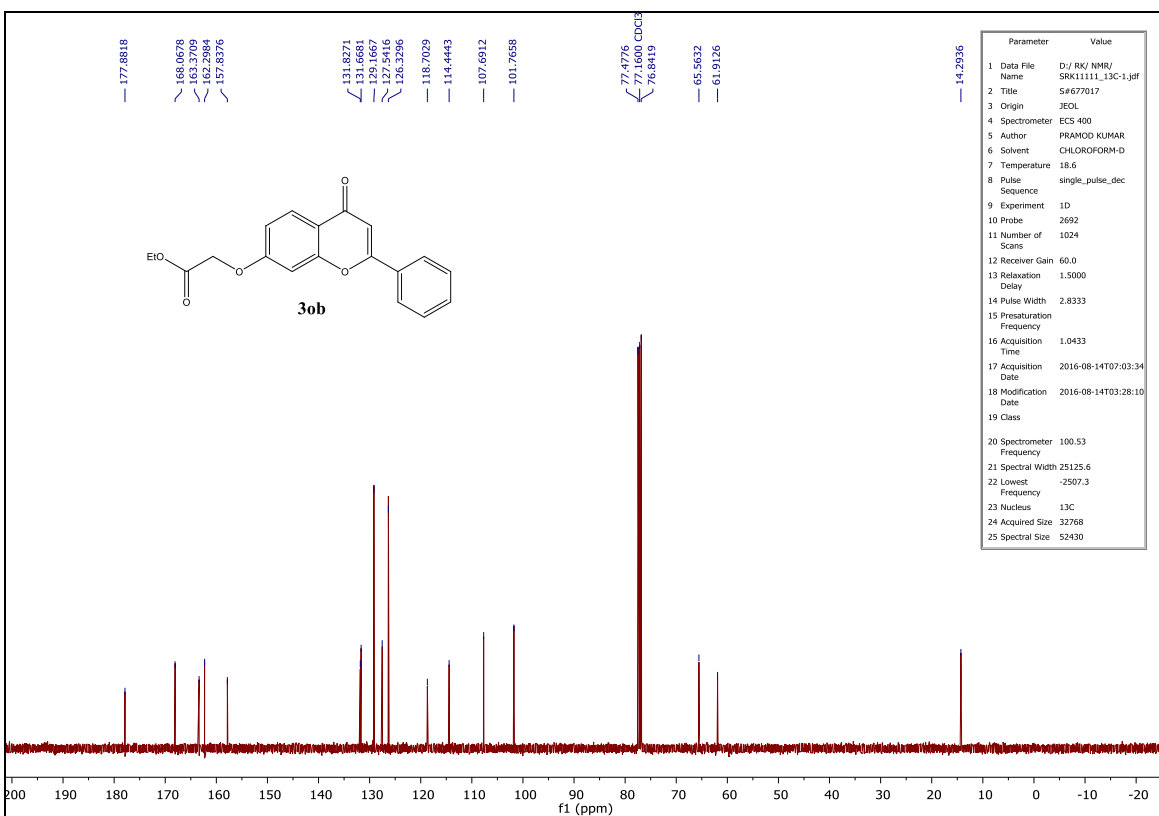
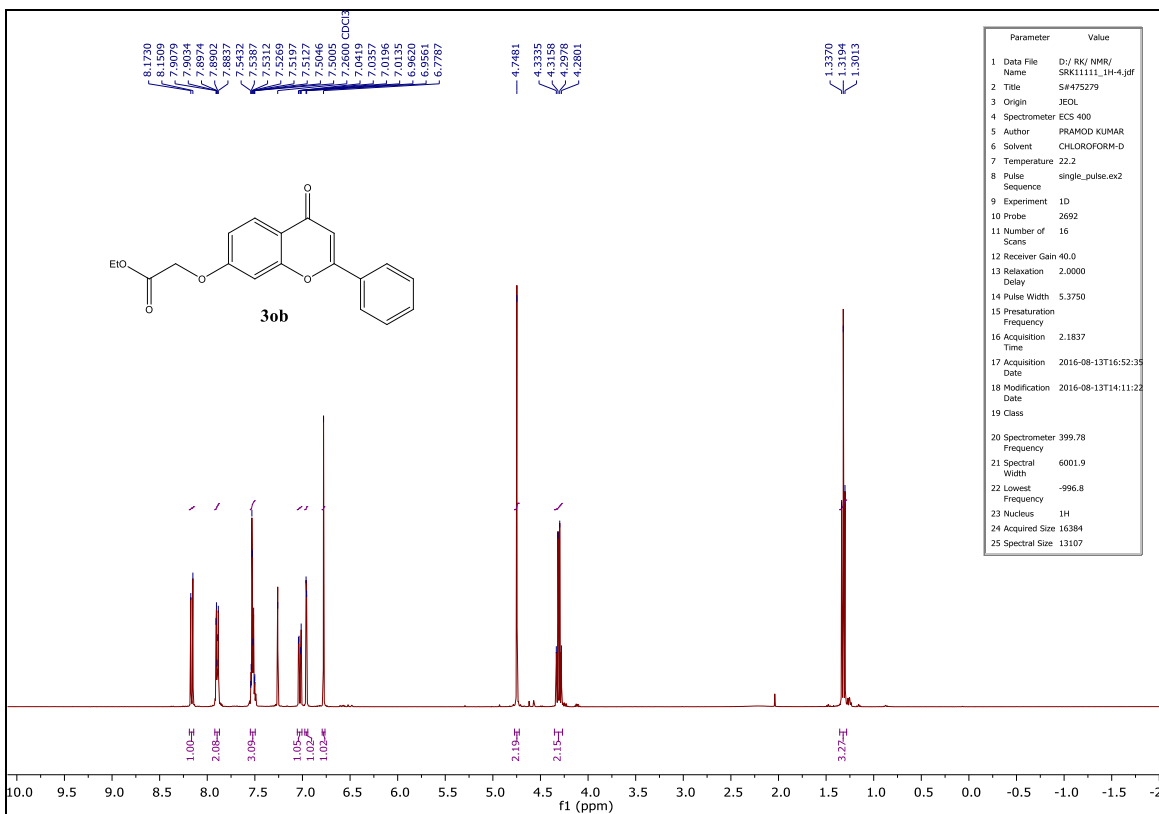
<sup>1</sup>H and <sup>13</sup>C NMR spectra of methyl 4-oxo-2-*p*-tolyl-4*H*-chromen-6-carboxylate (**31a**)



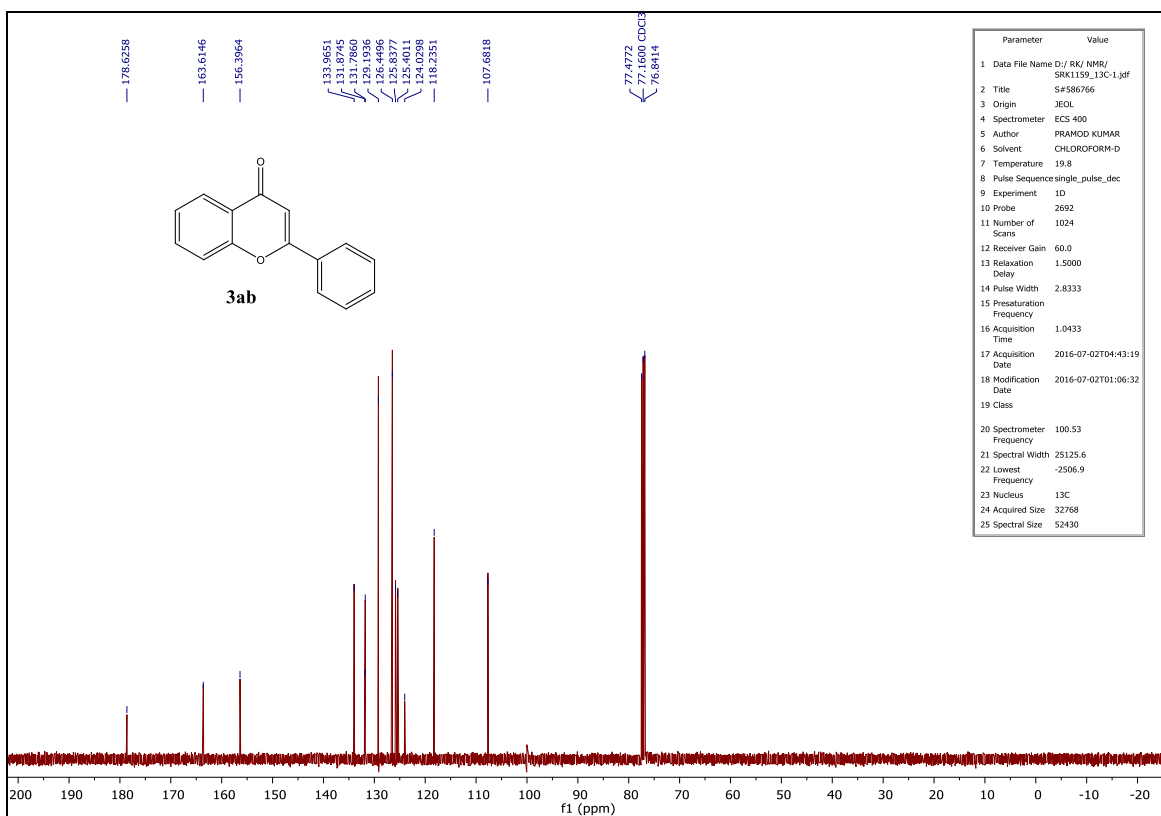
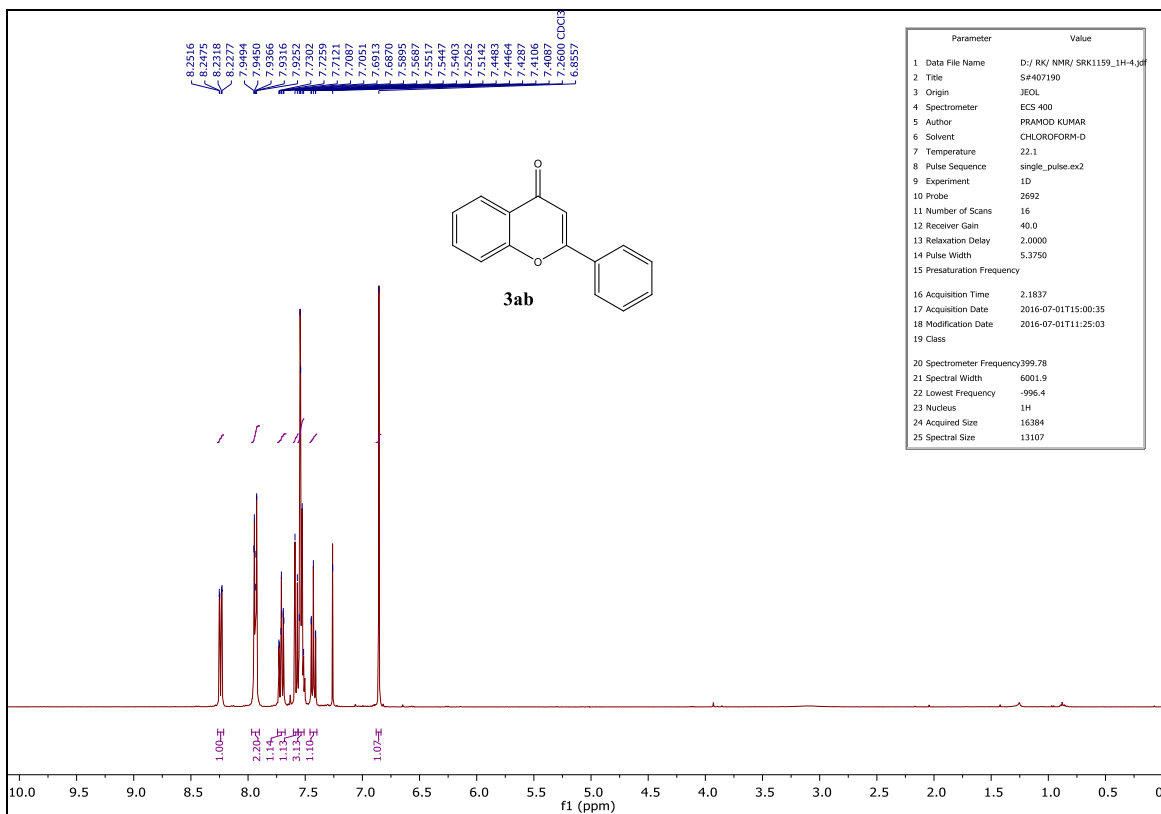
<sup>1</sup>H and <sup>13</sup>C NMR spectra of 6-acetyl-2-p-tolyl-4H-chromen-4-one (3ma)



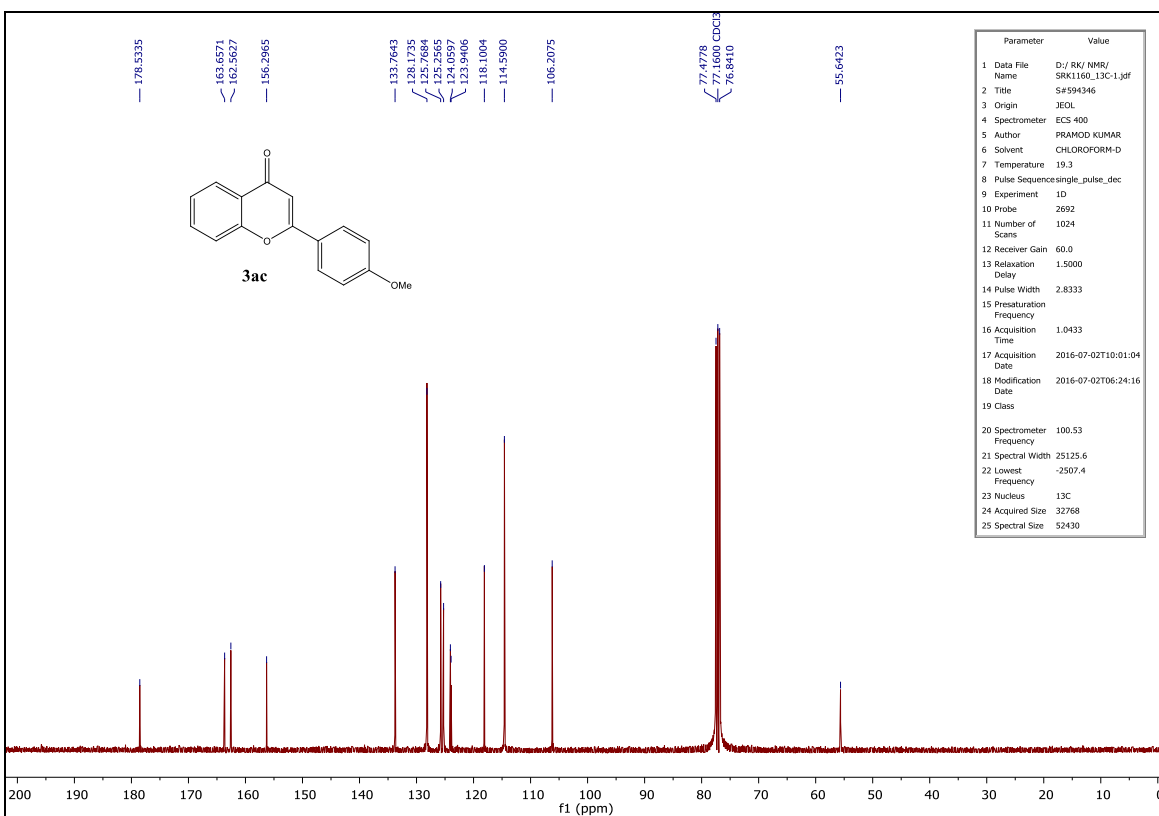
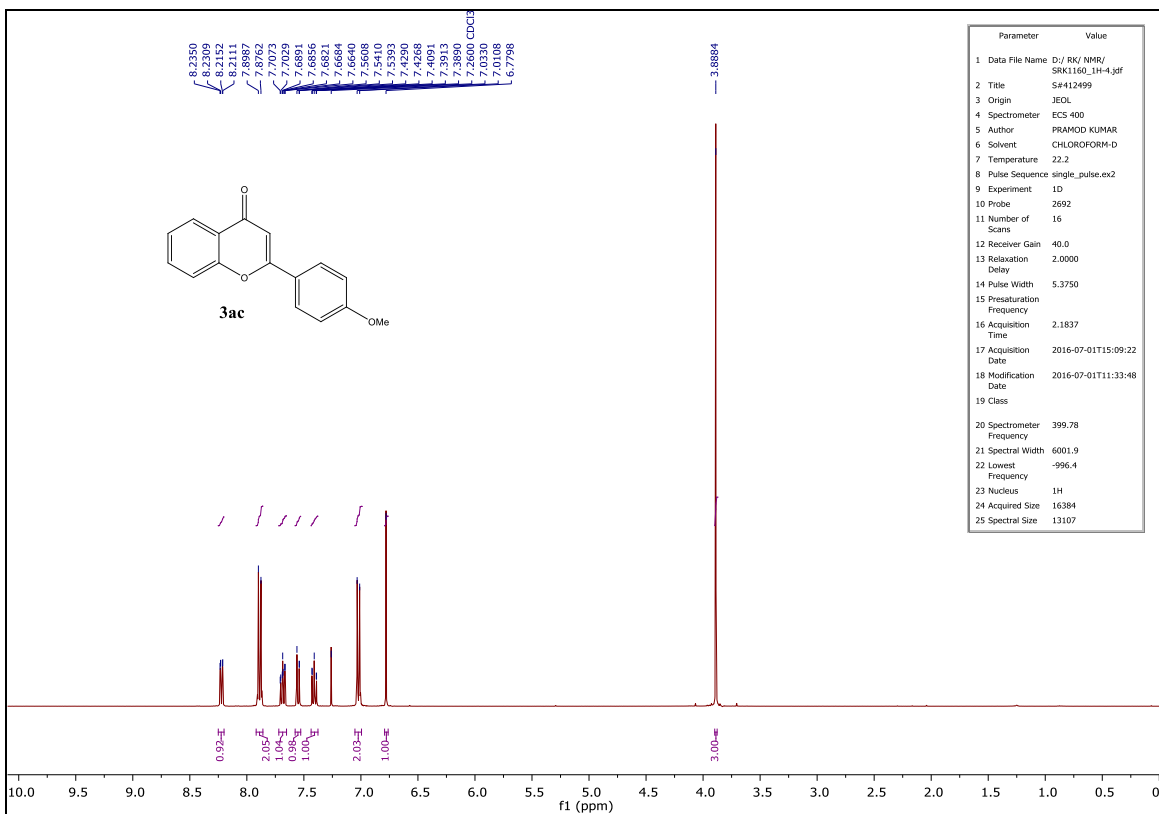
$^1\text{H}$  and  $^{13}\text{C}$  NMR spectra of 4-oxo-2-p-tolyl-4H-chromen-6-carbaldehyde (**3na**)



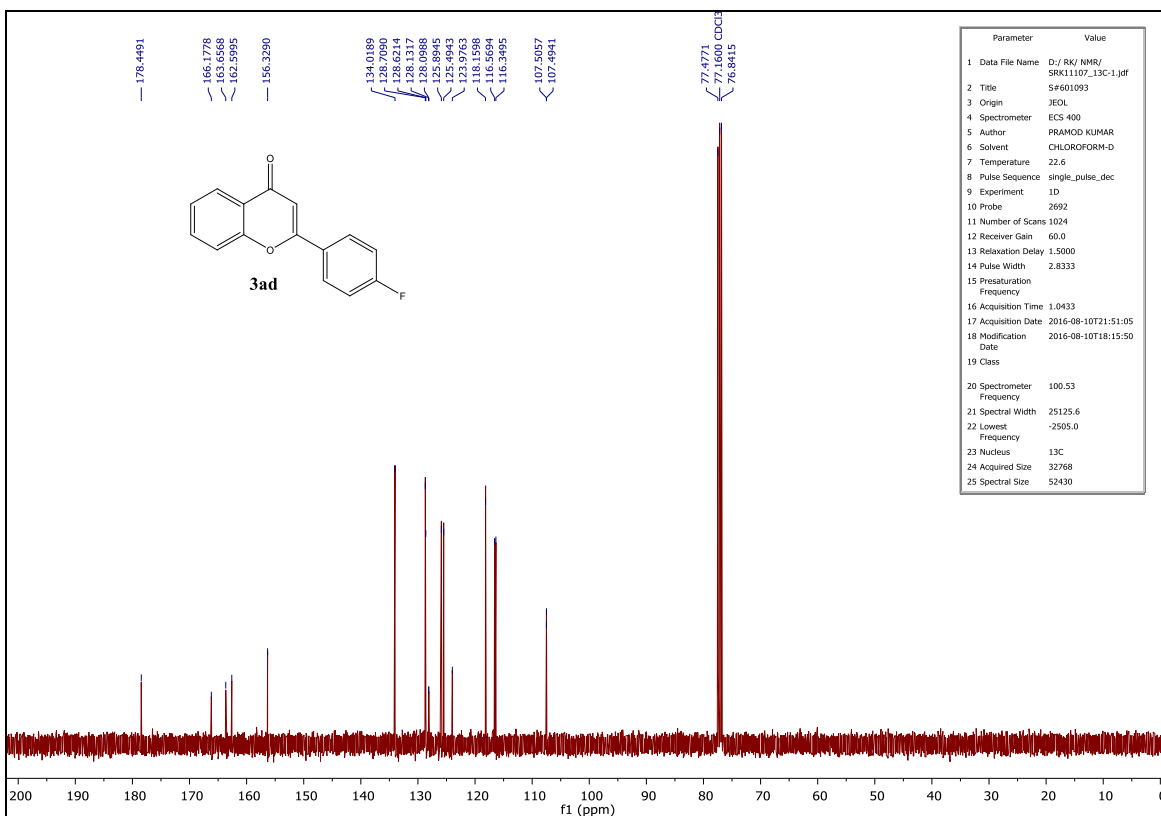
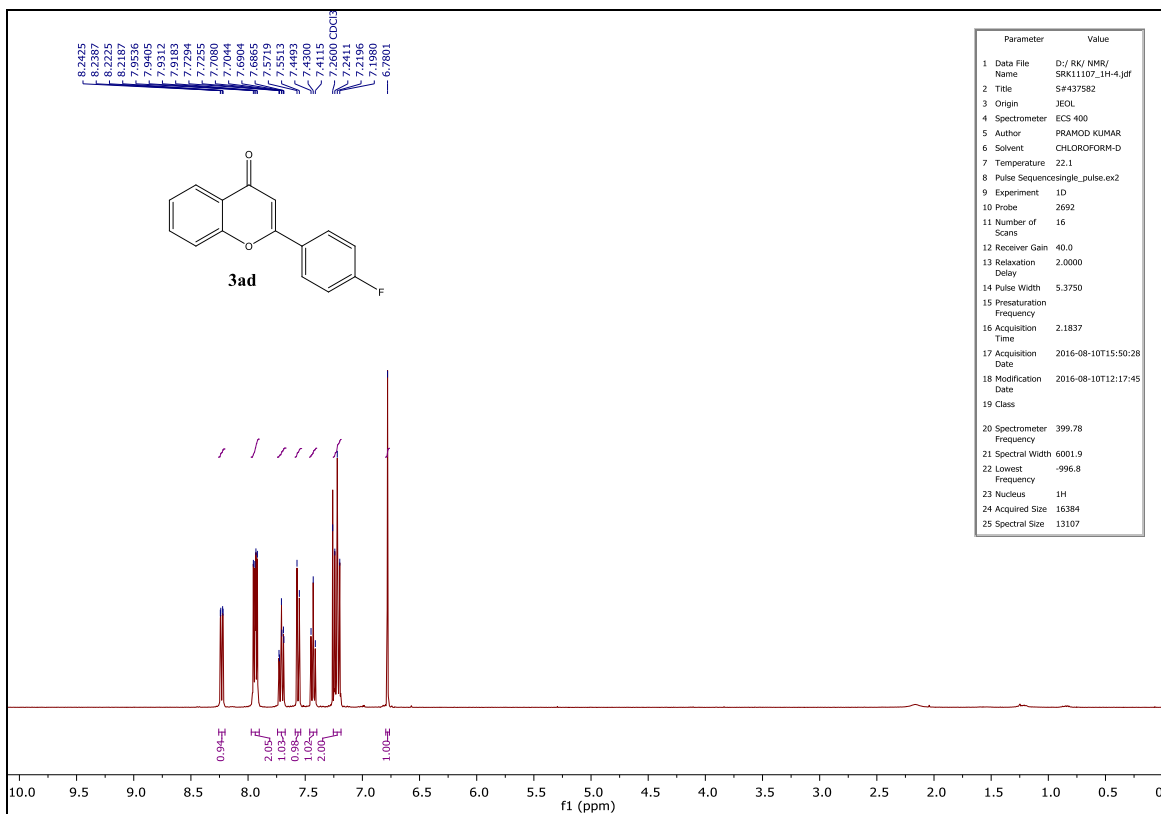
<sup>1</sup>H and <sup>13</sup>C NMR spectra of ethyl 2-(4-oxo-2-phenyl-4H-chromen-7-yl)oxyacetate (**3ob**)



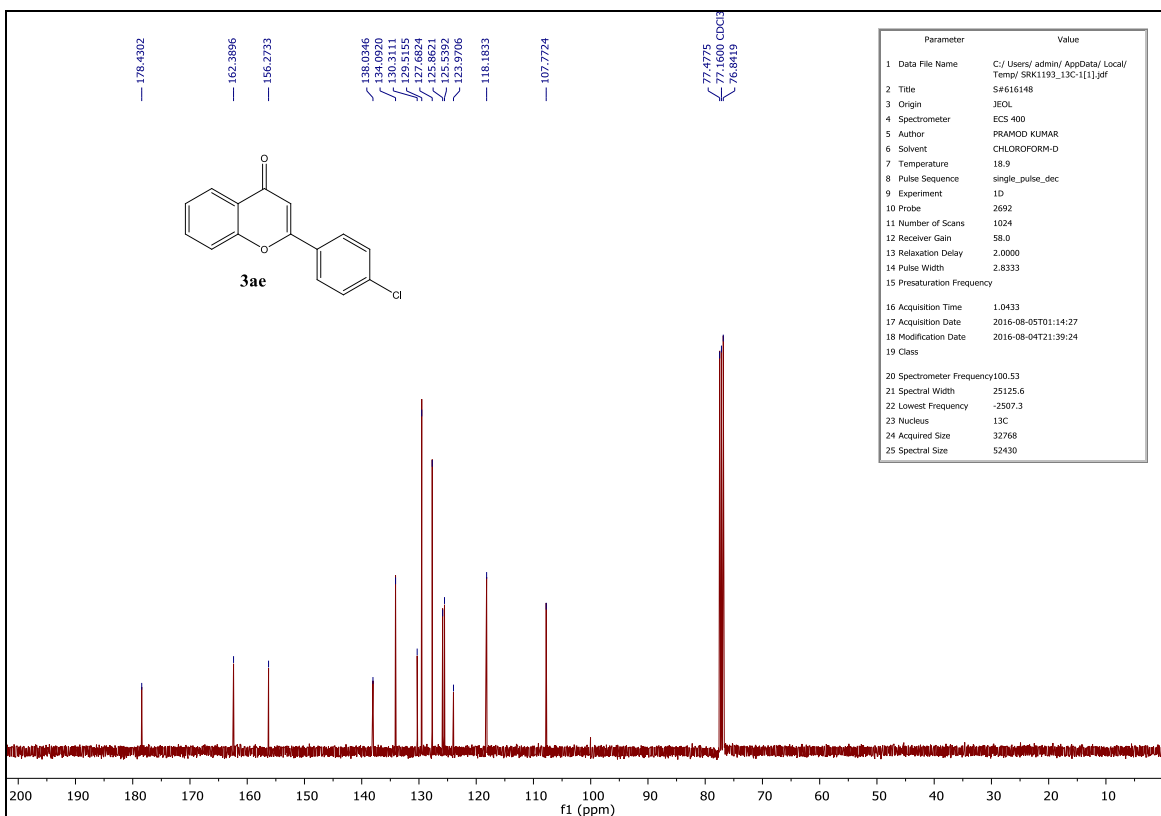
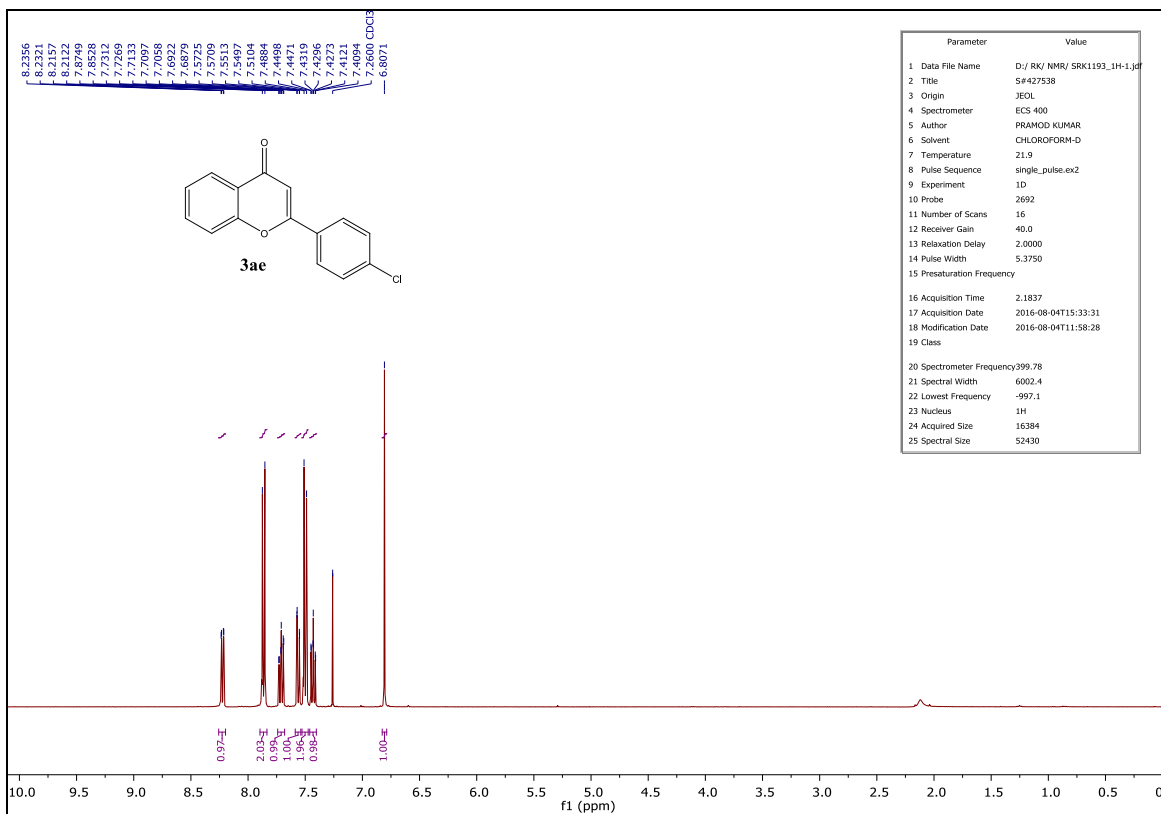
$^1\text{H}$  and  $^{13}\text{C}$  NMR spectra of 2-phenyl-4H-chromen-4-one (**3ab**)



<sup>1</sup>H and <sup>13</sup>C NMR spectra of 2-(4-methoxyphenyl)-4H-chromen-4-one (3ac)

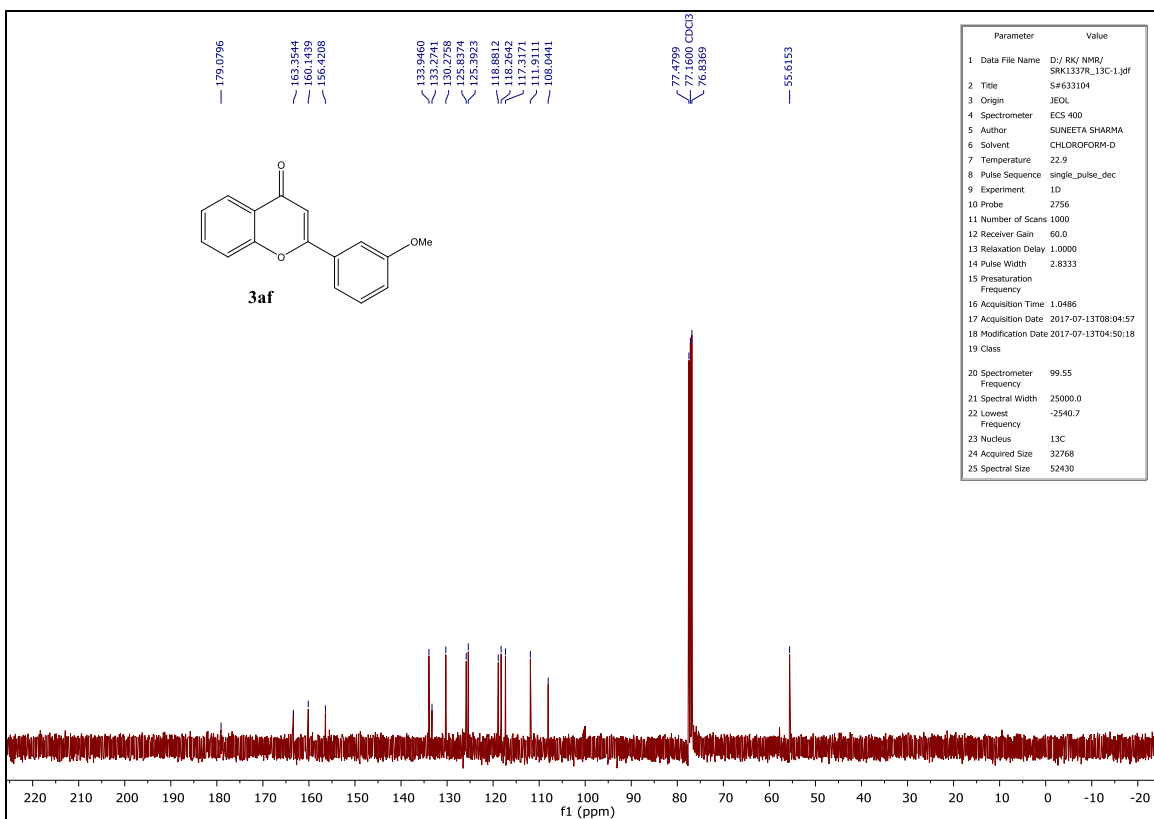
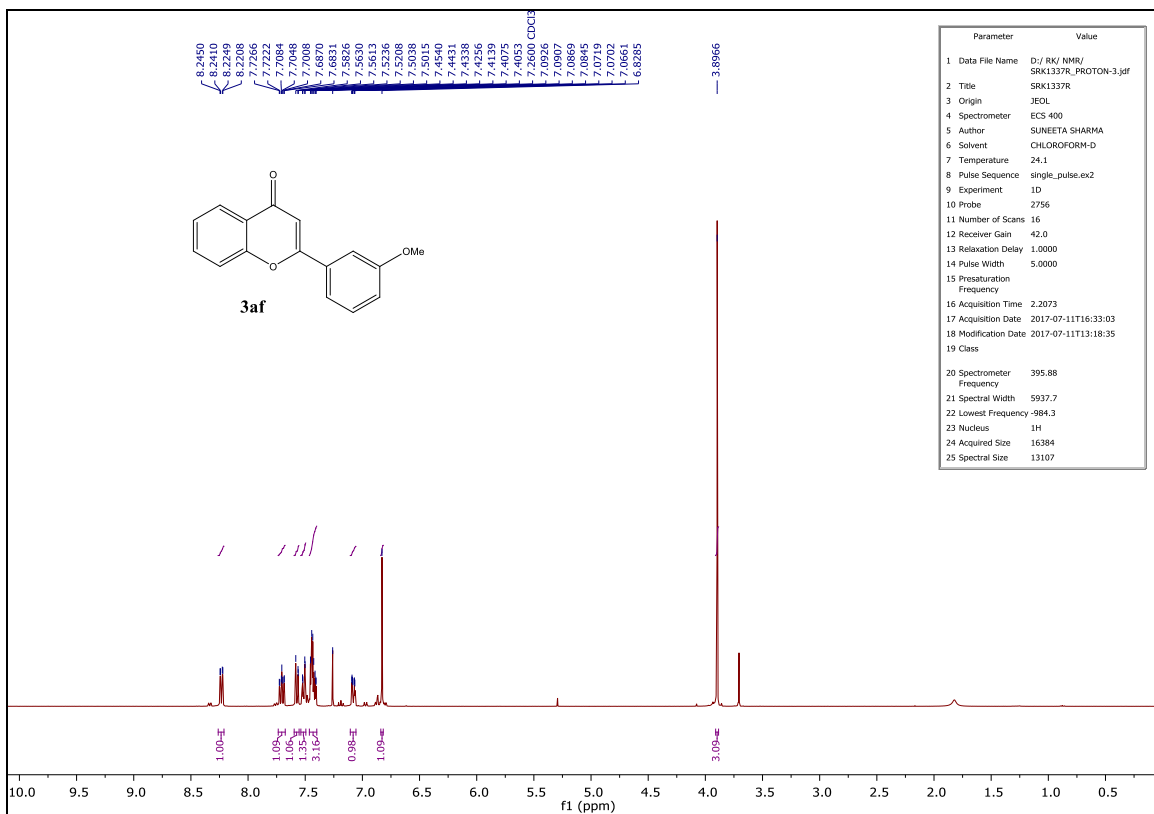


<sup>1</sup>H and <sup>13</sup>C NMR spectra of 2-(4-fluorophenyl)-4H-chromen-4-one (**3ad**)

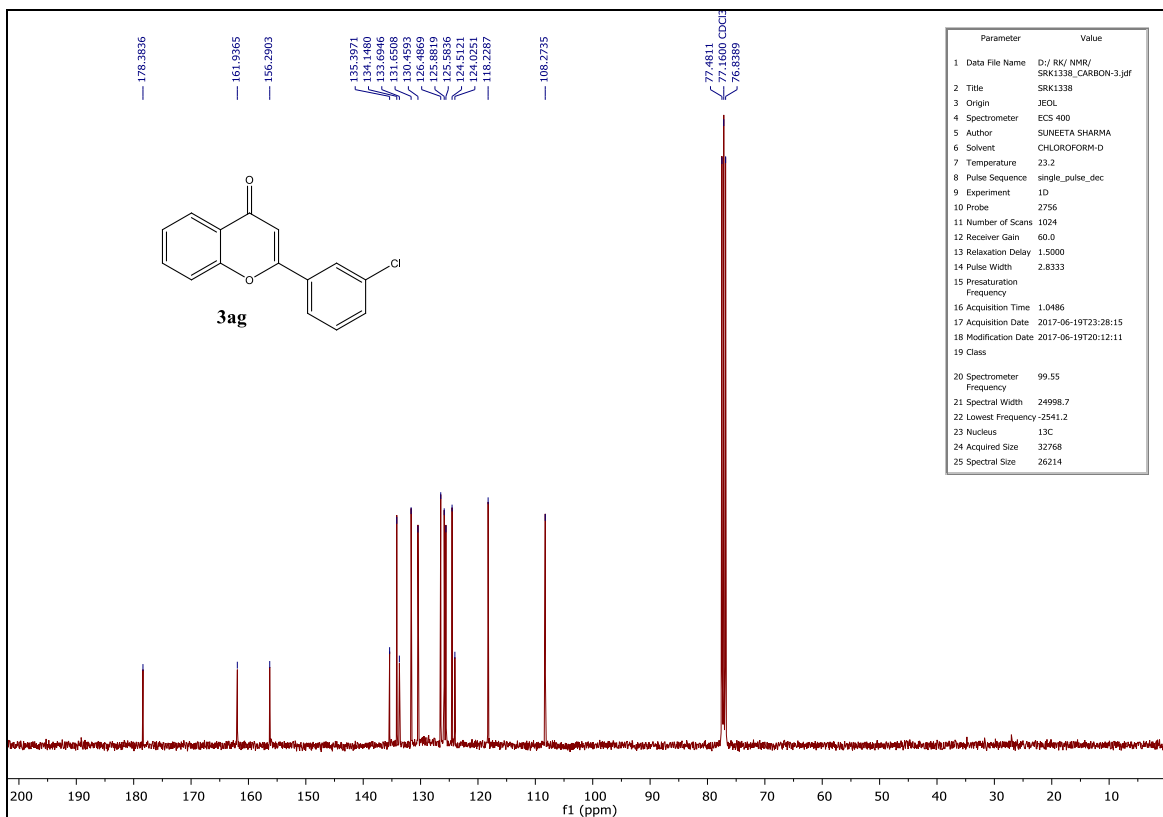
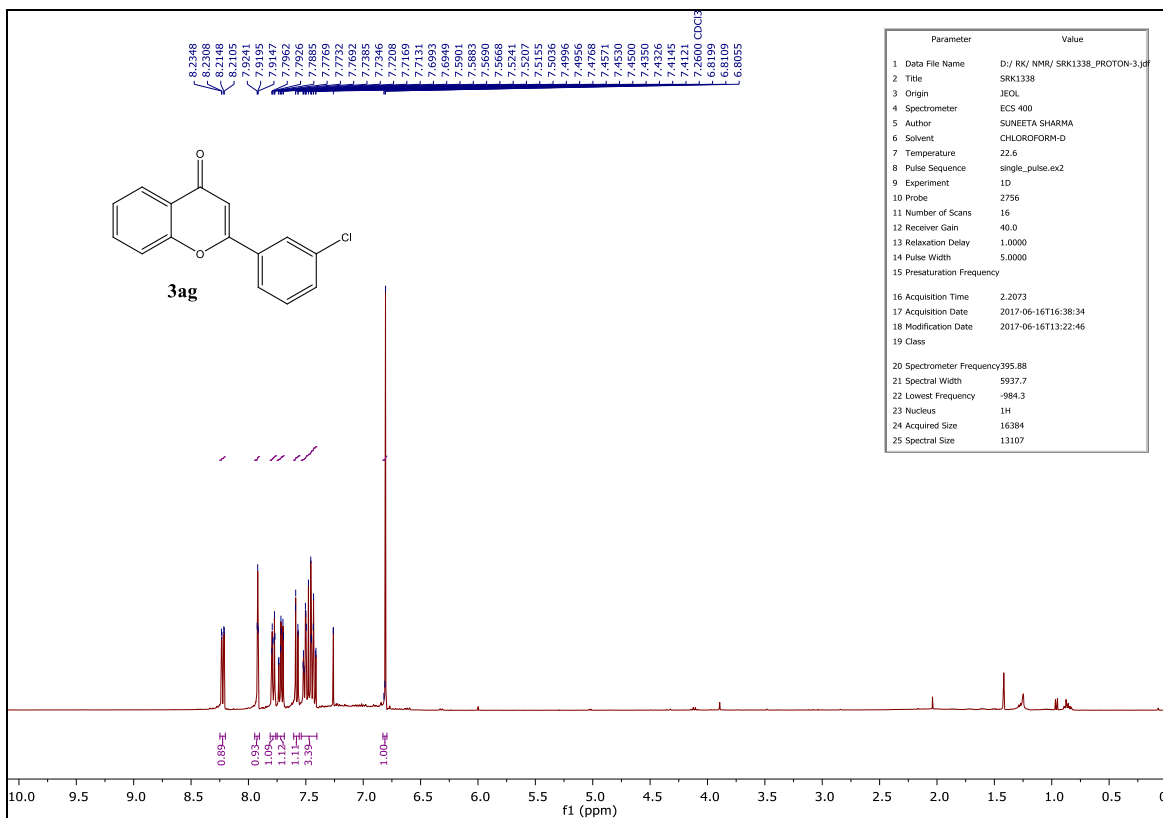


<sup>1</sup>H and <sup>13</sup>C NMR spectra of 2-(4-chlorophenyl)-4H-chromen-4-one (**3ae**)

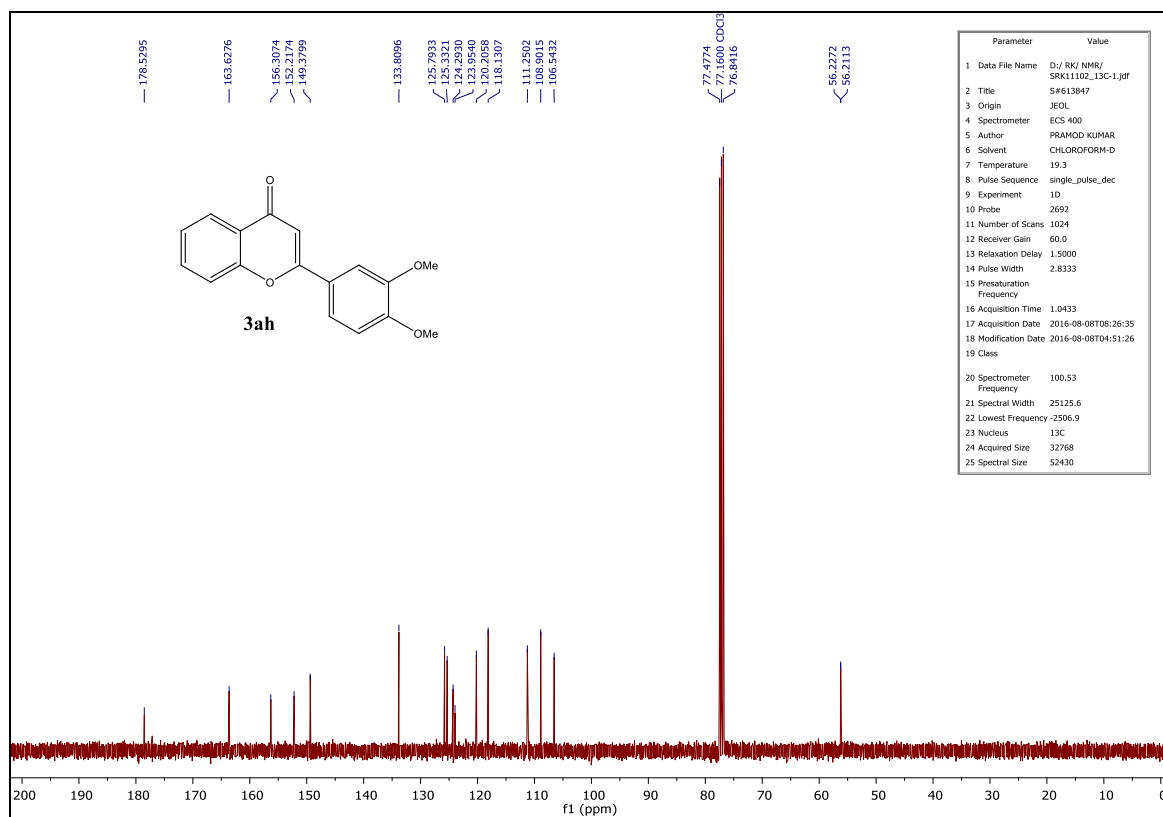
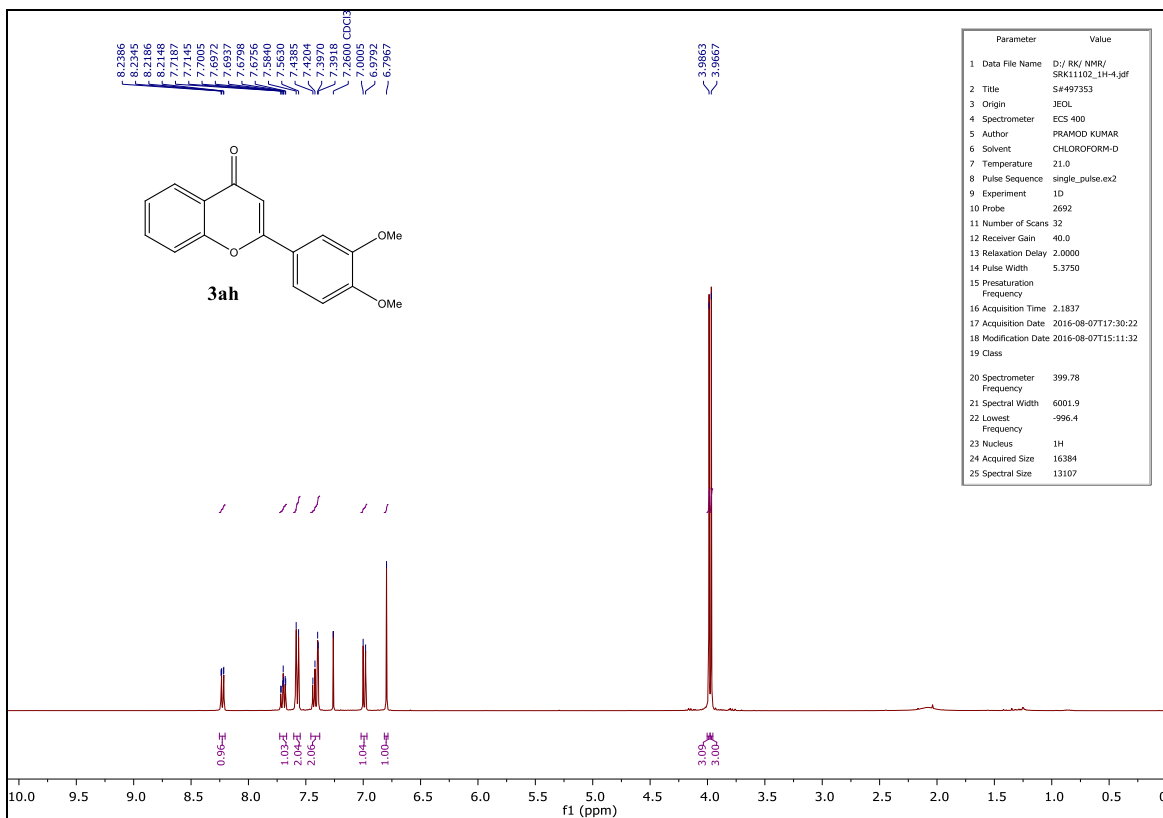




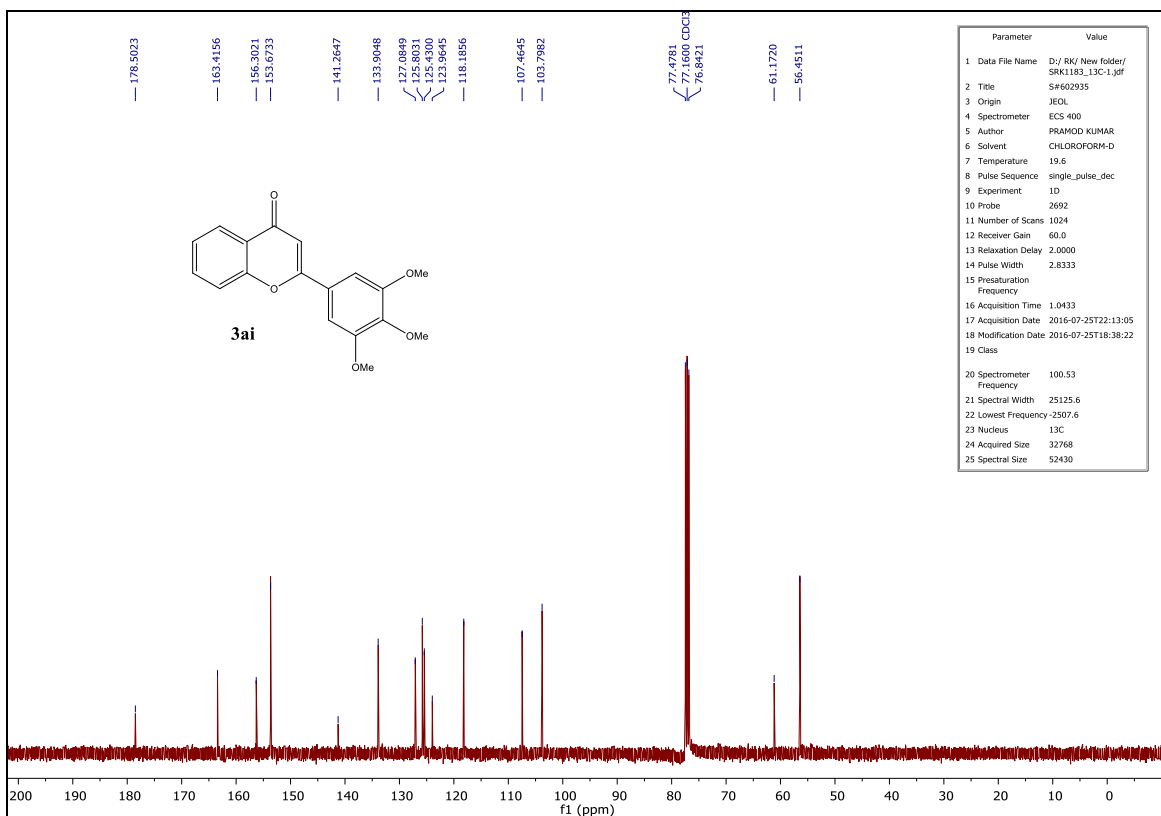
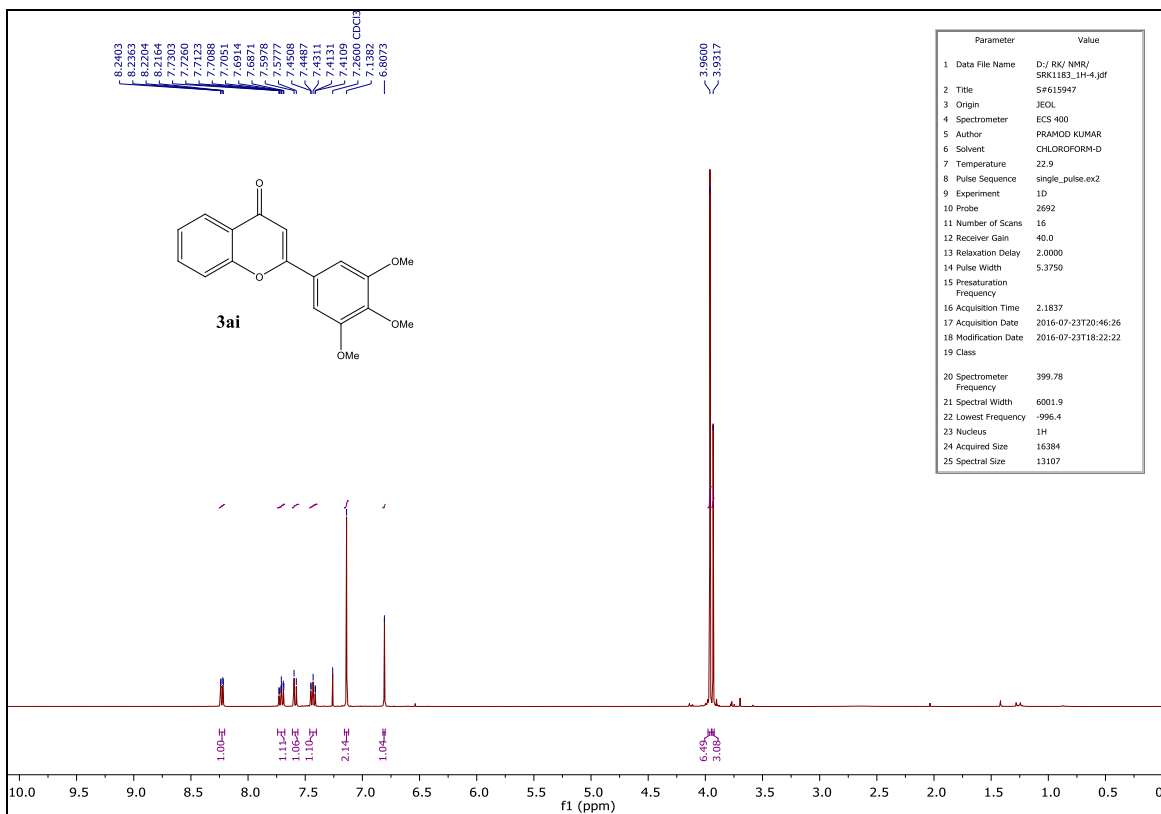
<sup>1</sup>H and <sup>13</sup>C NMR spectra of 2-(3-methoxyphenyl)-4H-chromen-4-one (**3af**)



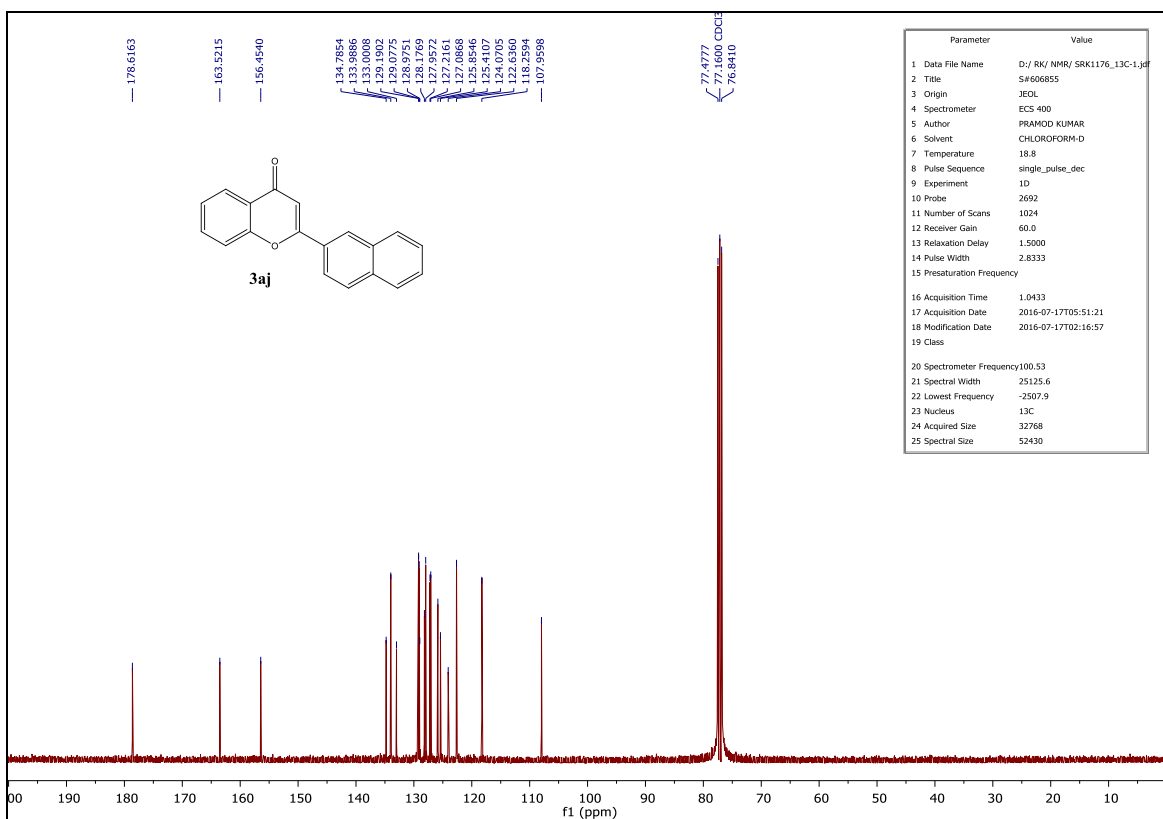
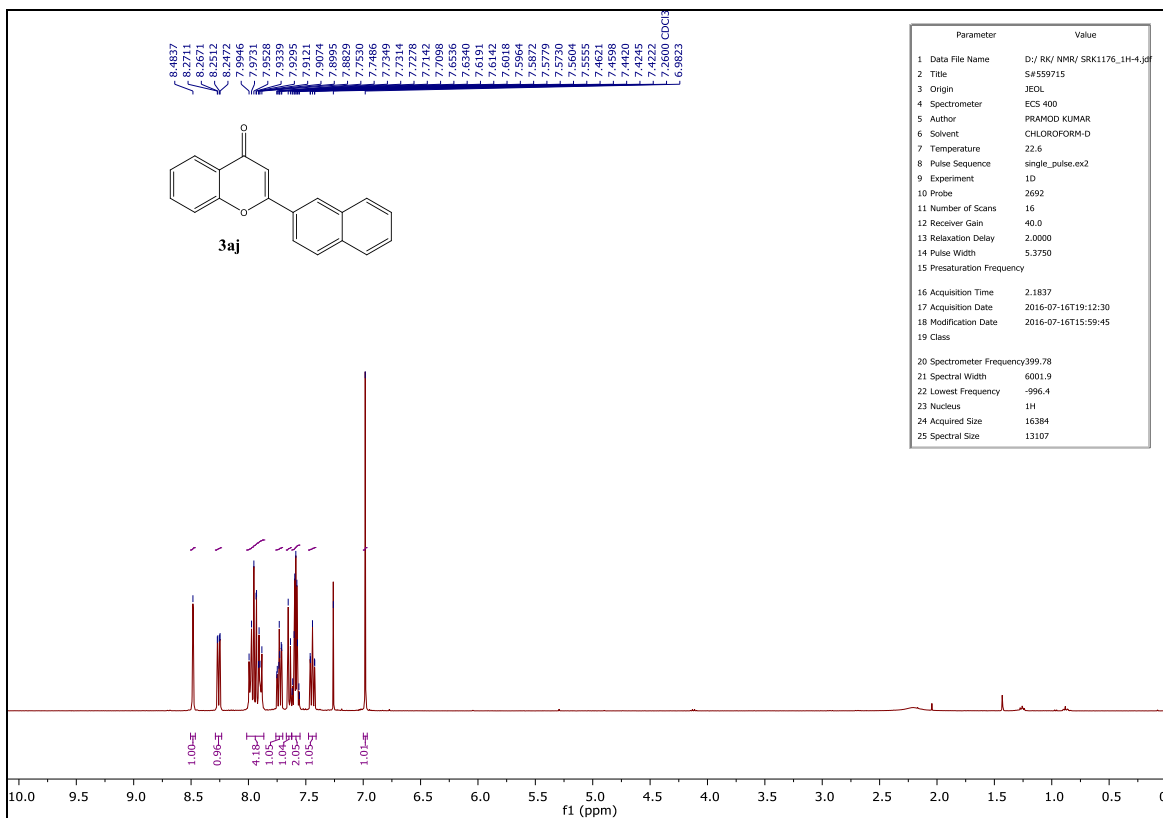
<sup>1</sup>H and <sup>13</sup>C NMR spectra of 2-(3-chlorophenyl)-4H-chromen-4-one (**3ag**)



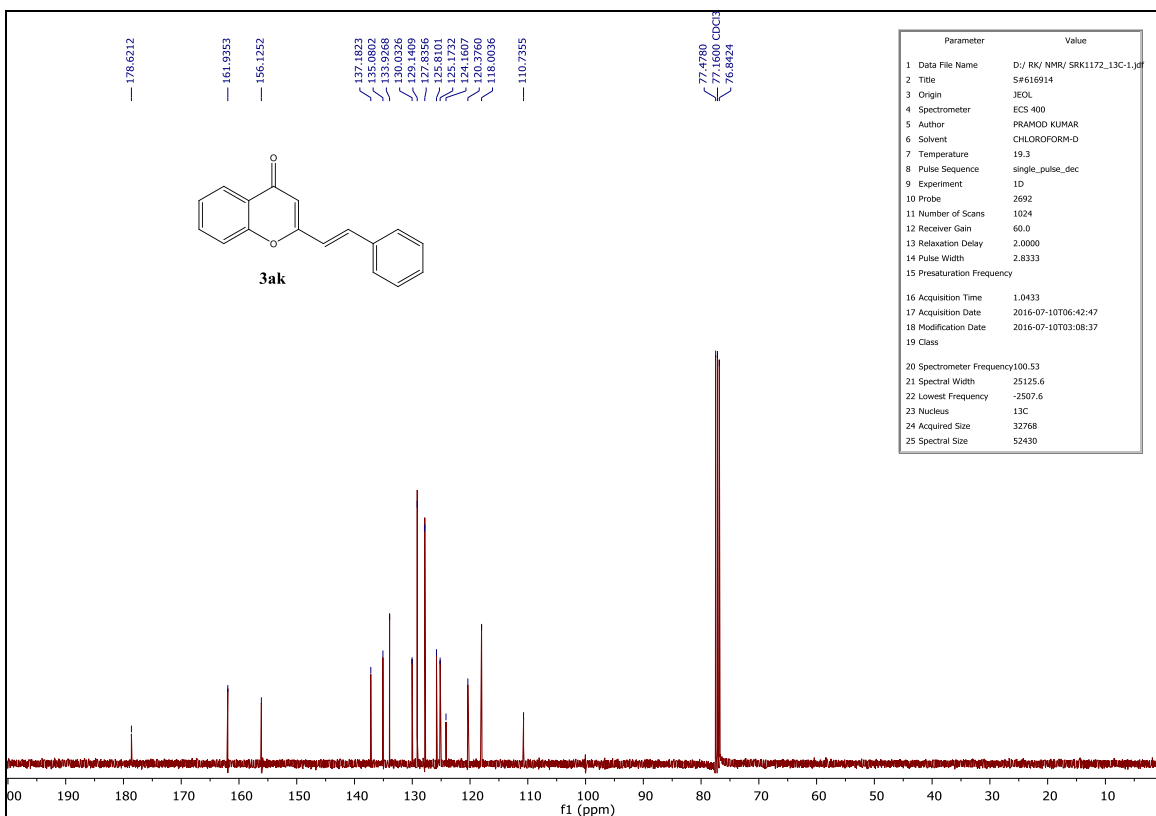
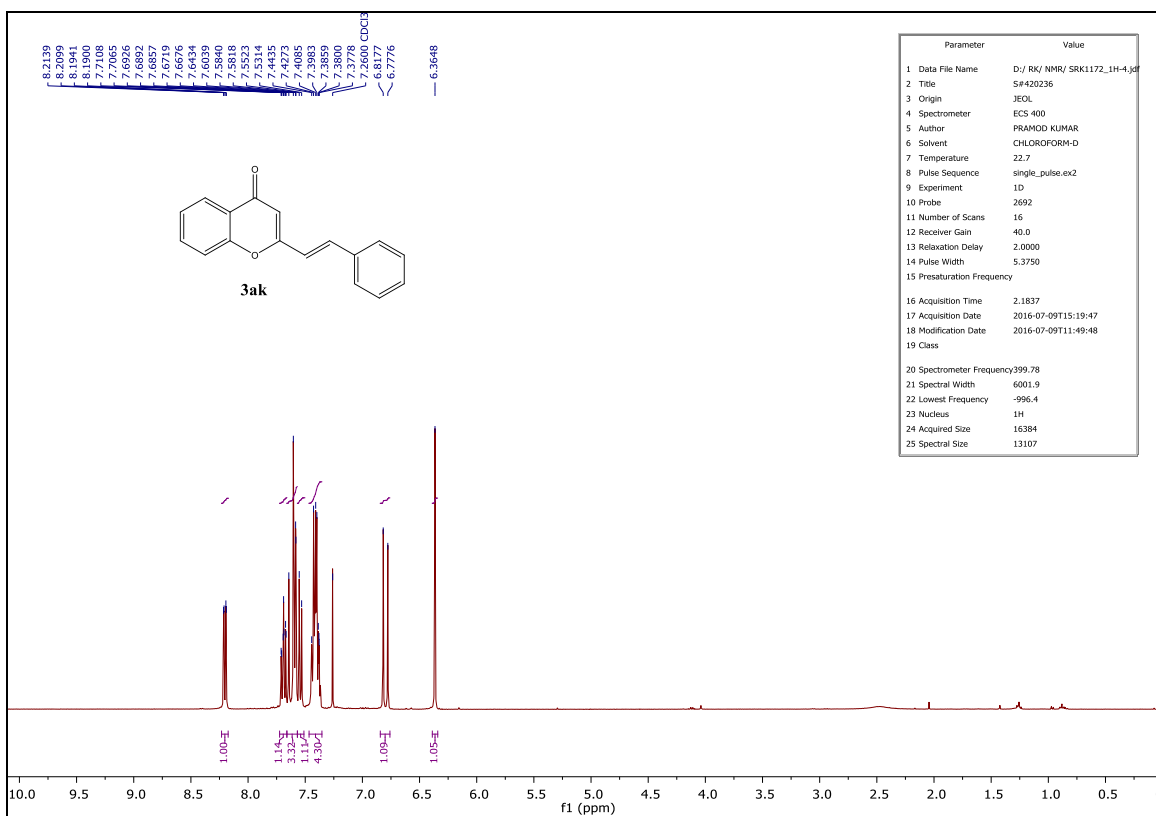
<sup>1</sup>H and <sup>13</sup>C NMR spectra of 2-(3,4-dimethoxyphenyl)-4H-chromen-4-one (**3ah**)



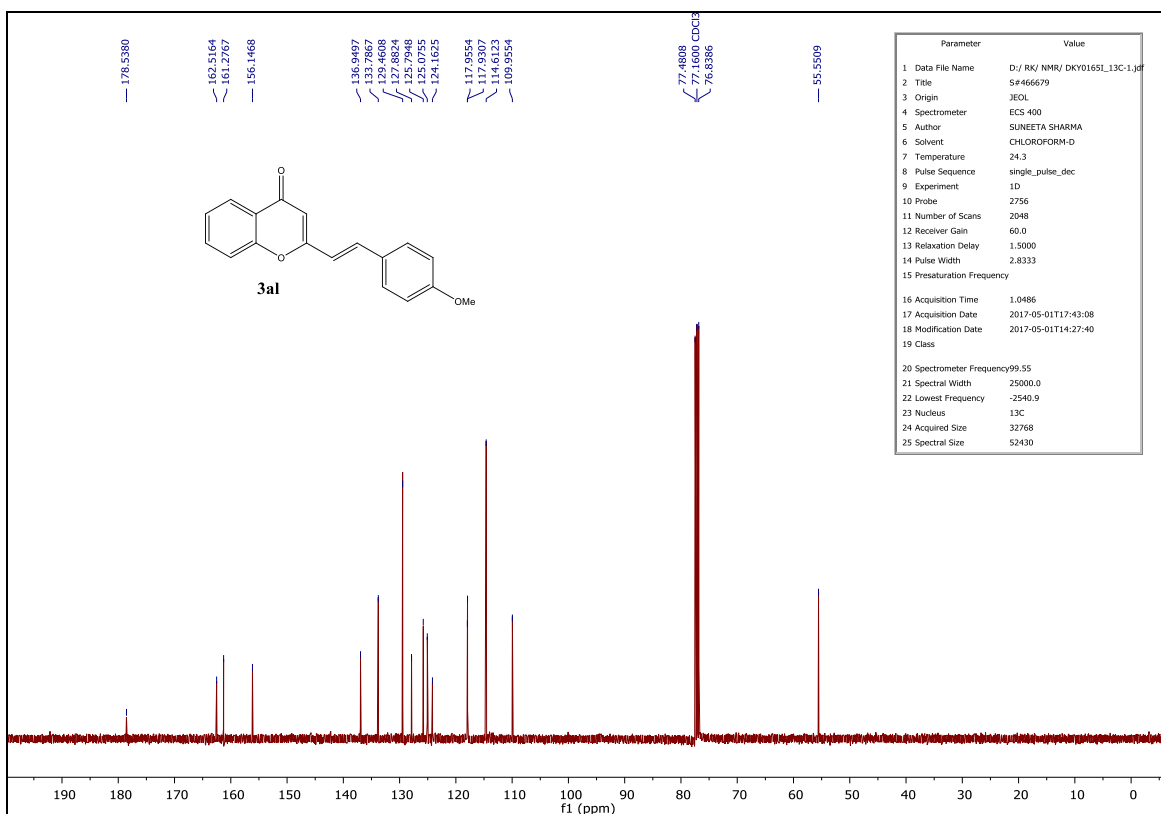
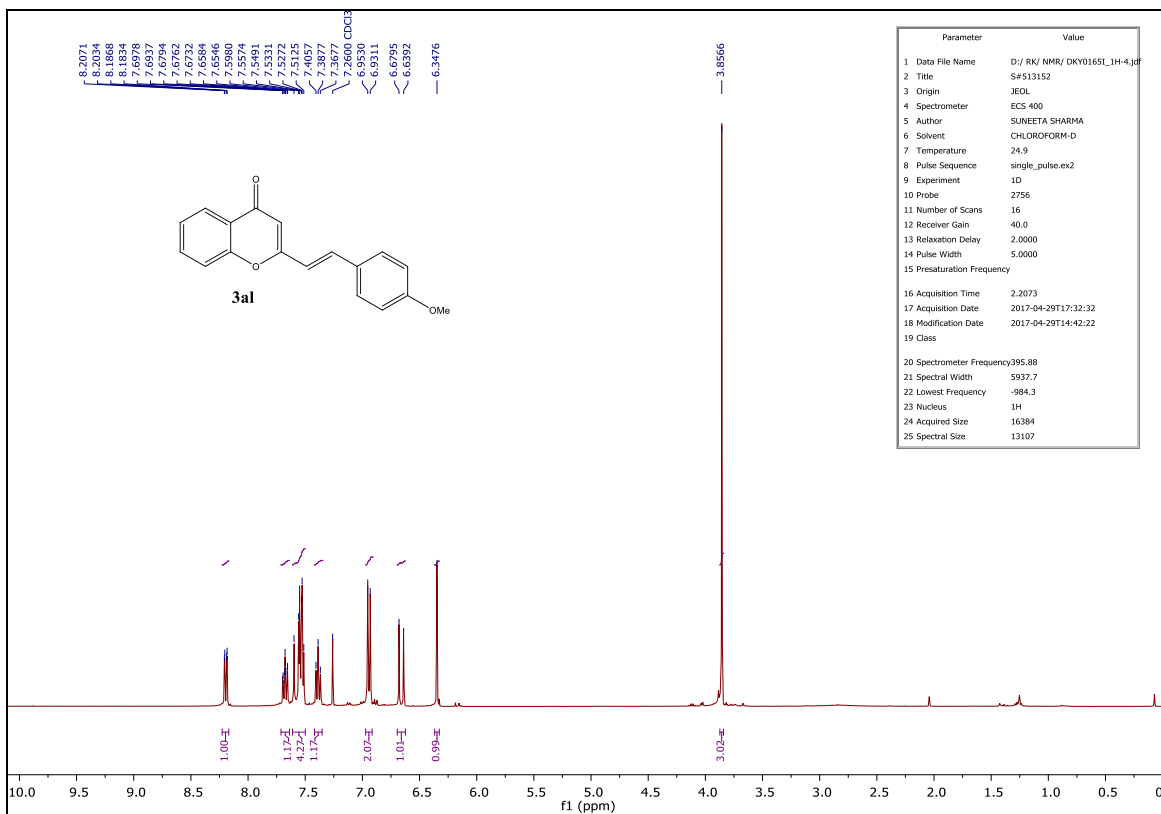
<sup>1</sup>H and <sup>13</sup>C NMR spectra of 2-(3,4,5-trimethoxyphenyl)-4H-chromen-4-one (**3ai**)



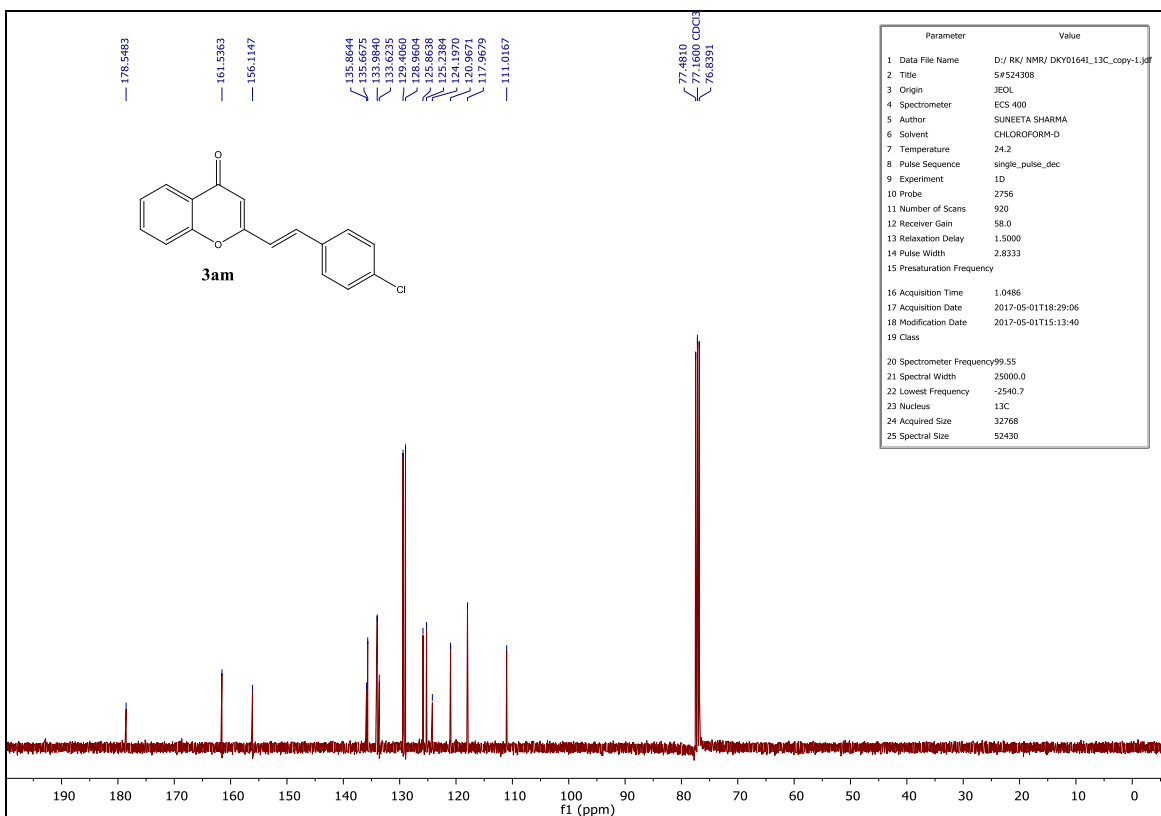
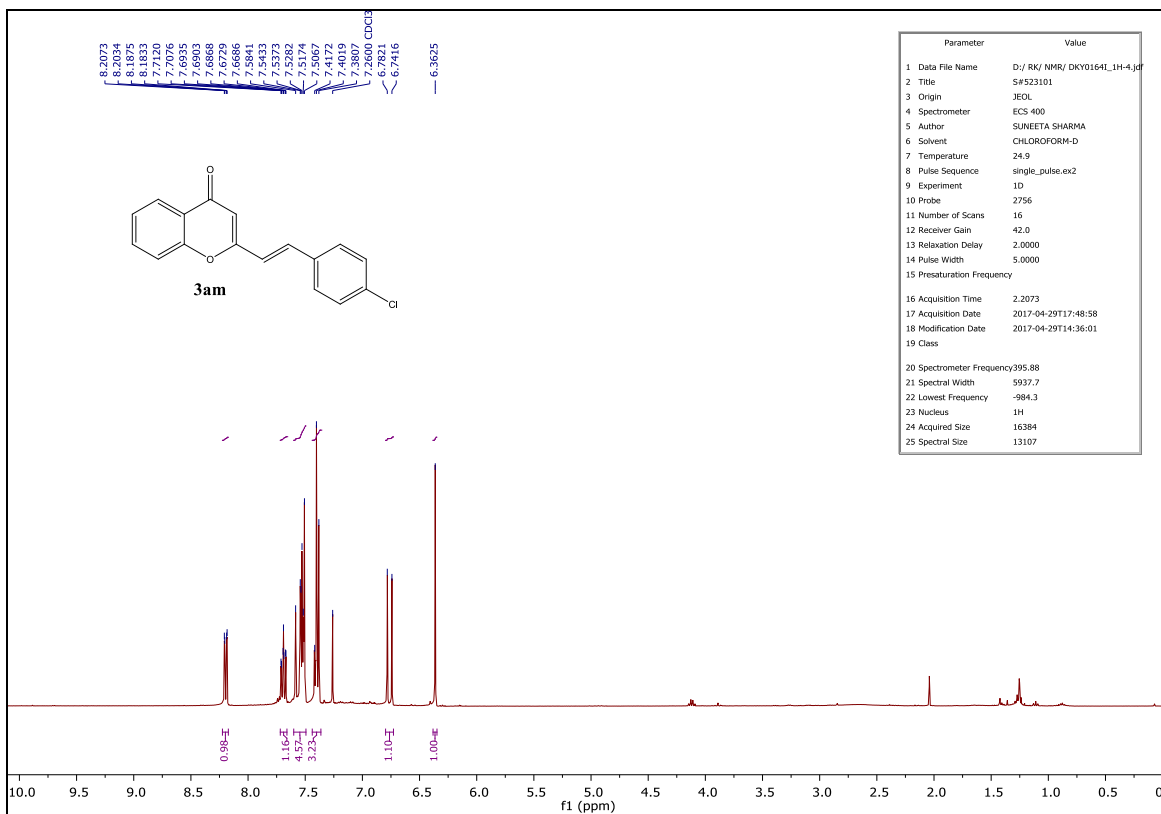
<sup>1</sup>H and <sup>13</sup>C NMR spectra of 2-(naphthalen-2-yl)-4H-chromen-4-one (**3aj**)



<sup>1</sup>H and <sup>13</sup>C NMR spectra of (*E*)-2-styryl-4H-chromen-4-one (**3ak**)

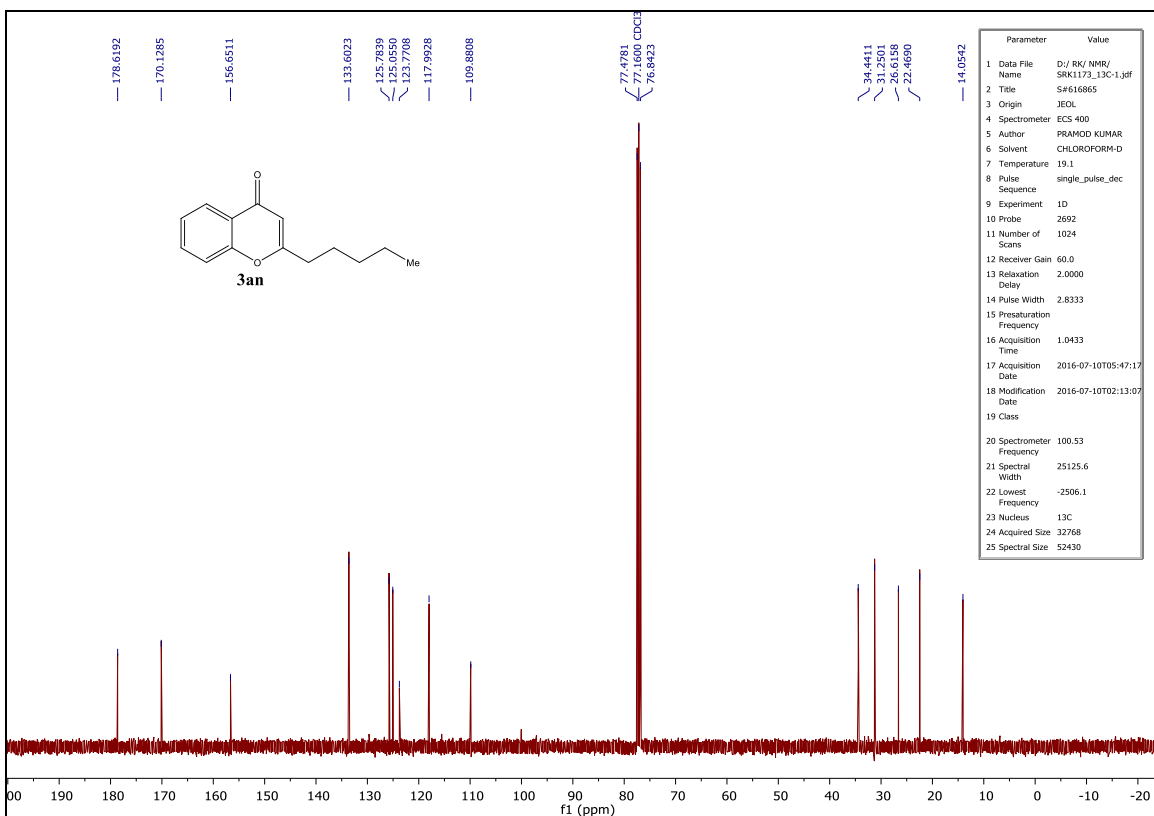
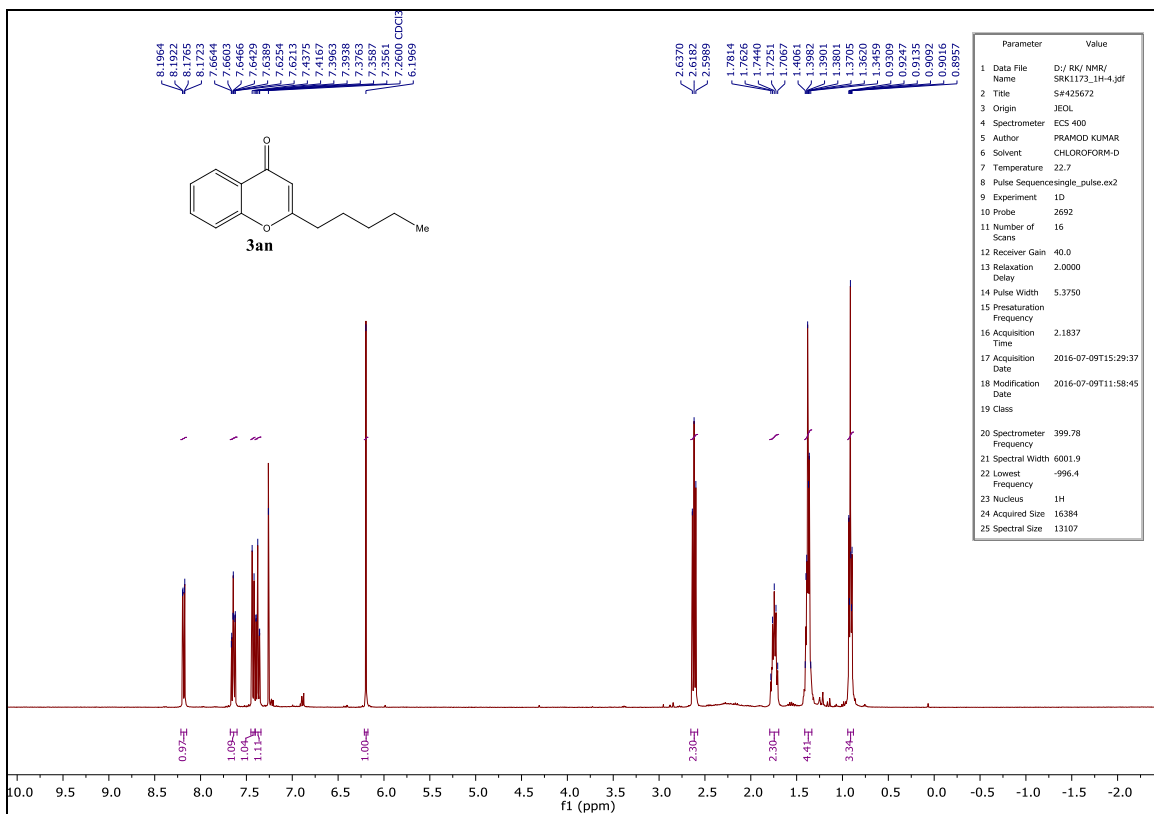


<sup>1</sup>H and <sup>13</sup>C NMR spectra of (*E*)-2-(4-methoxystyryl)-4*H*-chromen-4-one (**3al**)

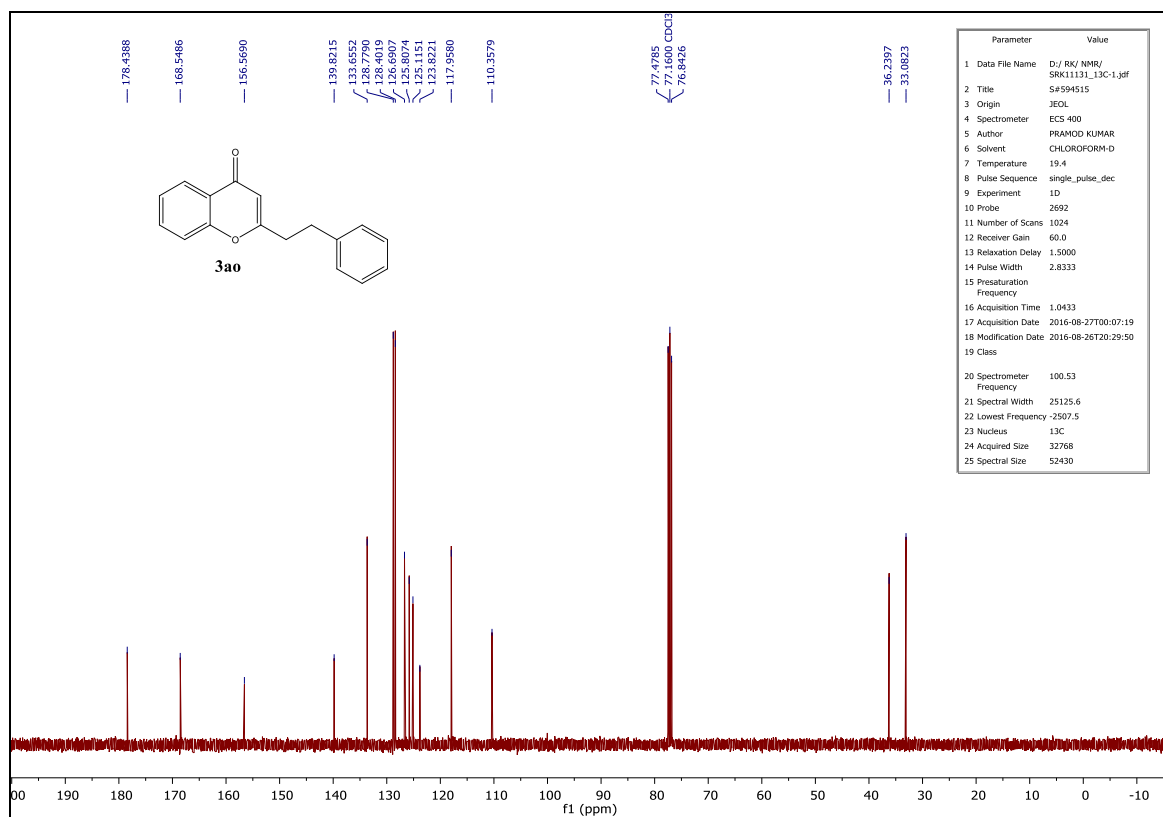
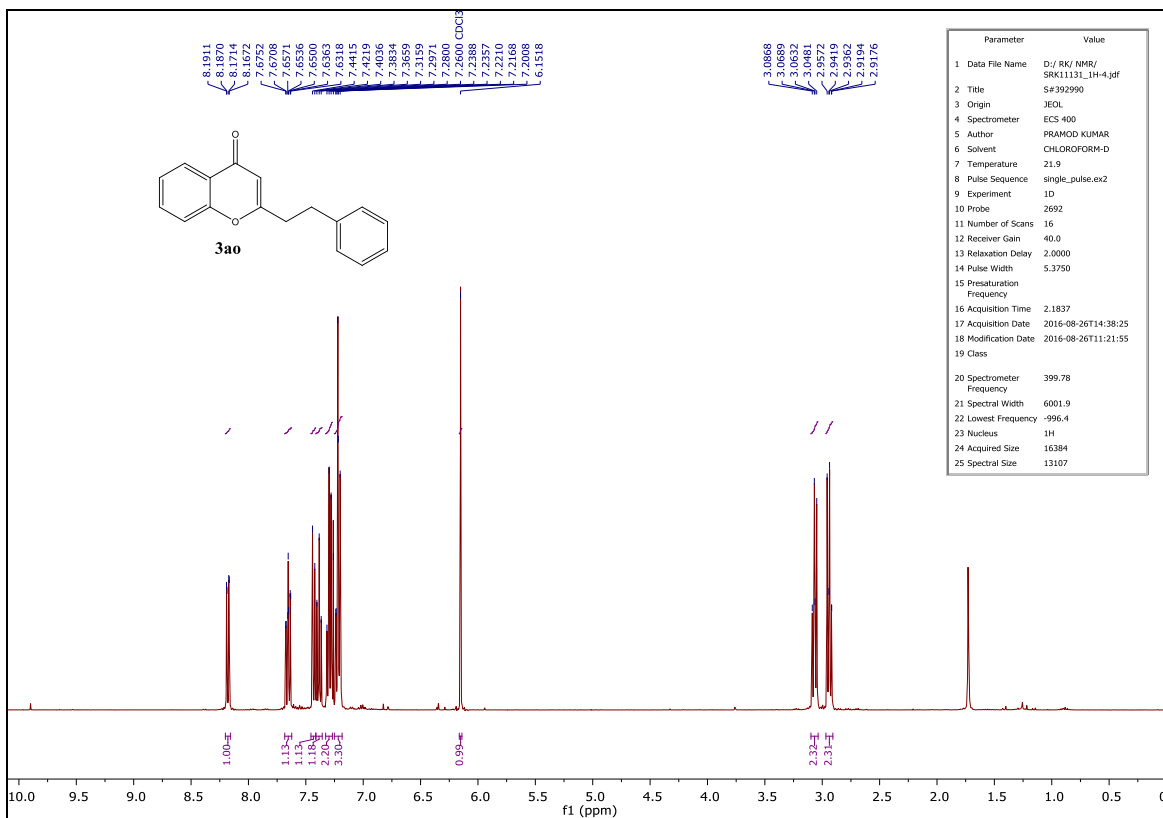


<sup>1</sup>H and <sup>13</sup>C NMR spectra of (E)-2-(4-chlorostyryl)-4H-chromen-4-one (**3am**)

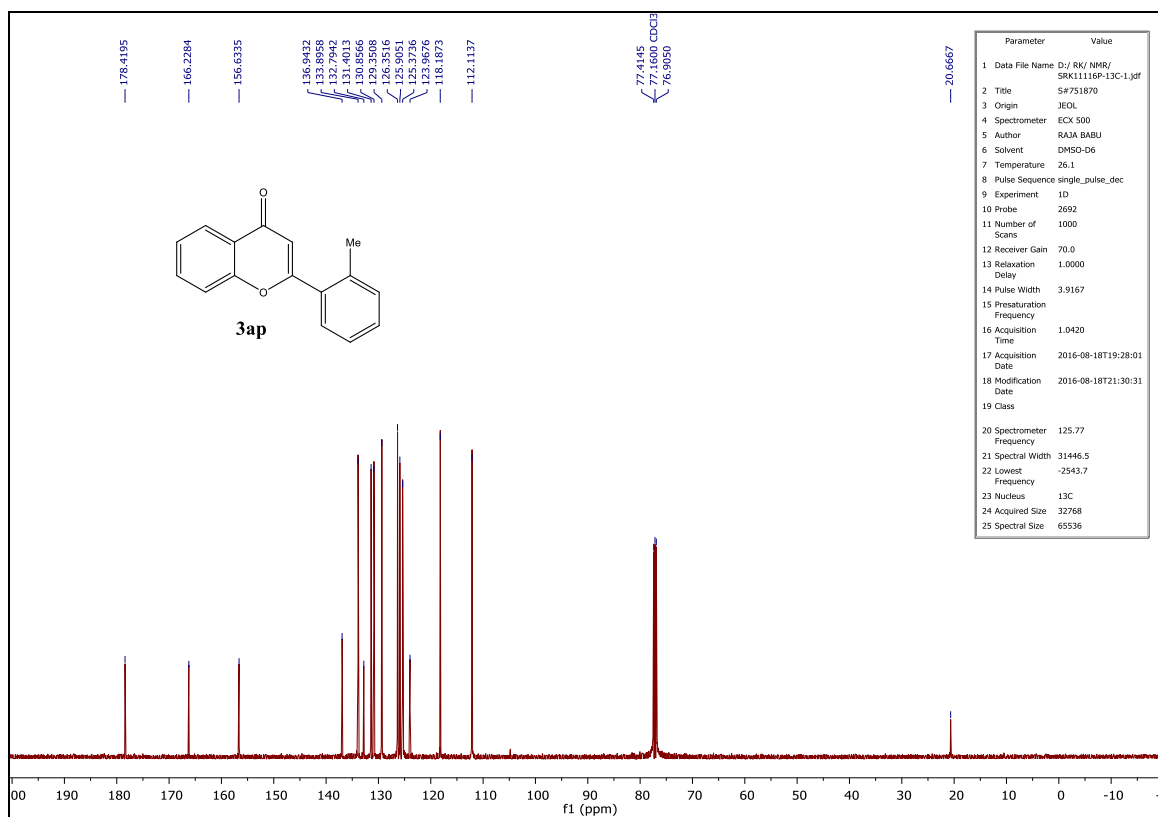
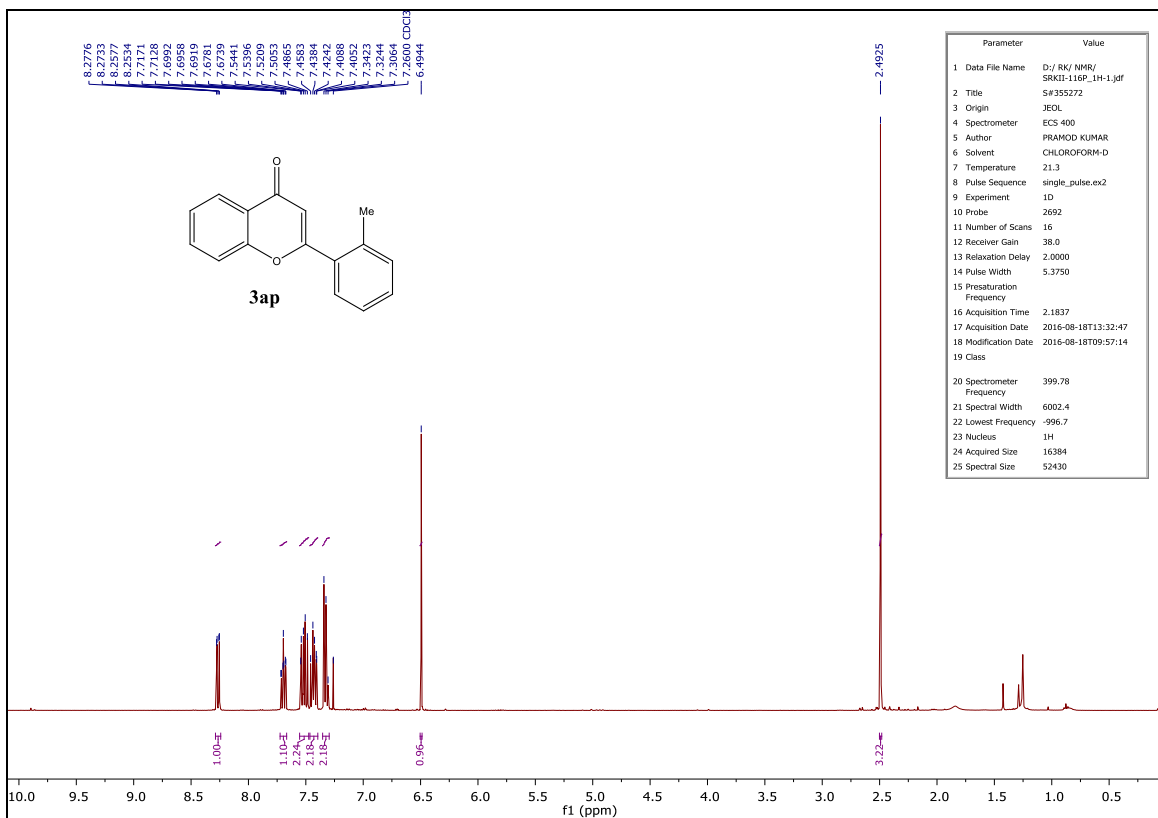




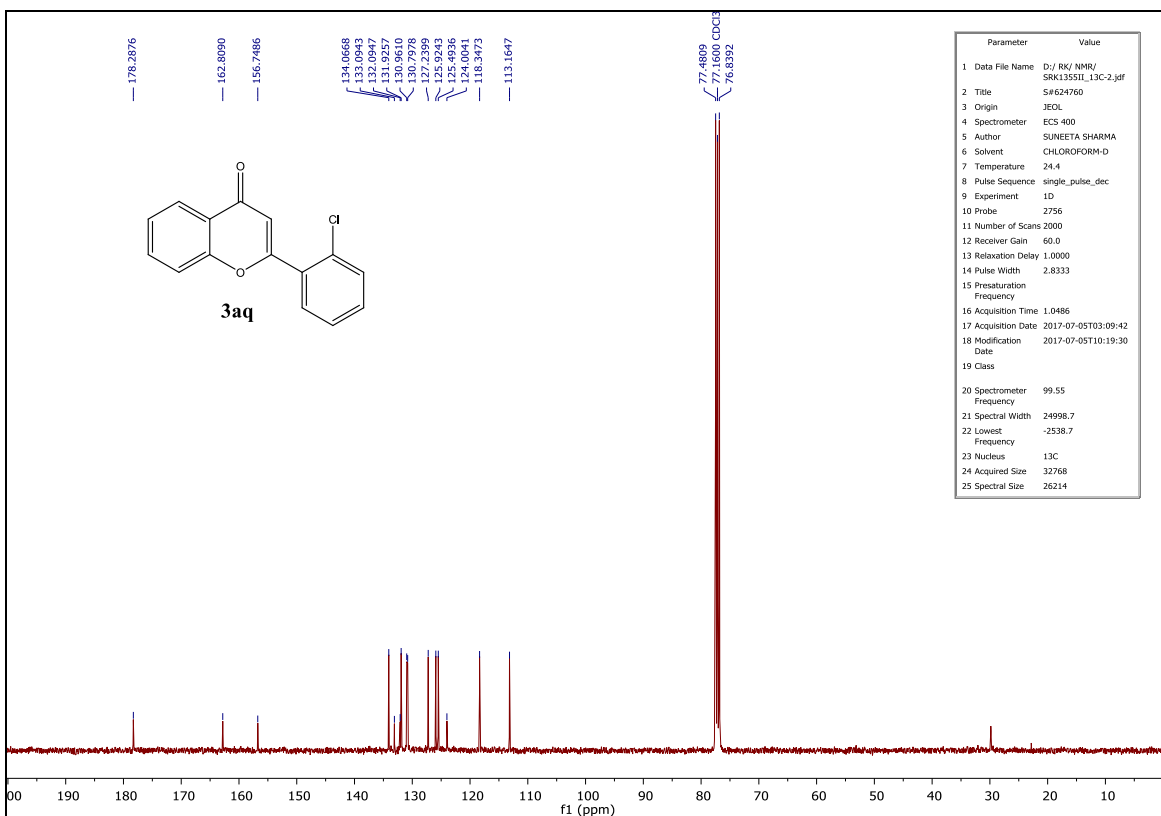
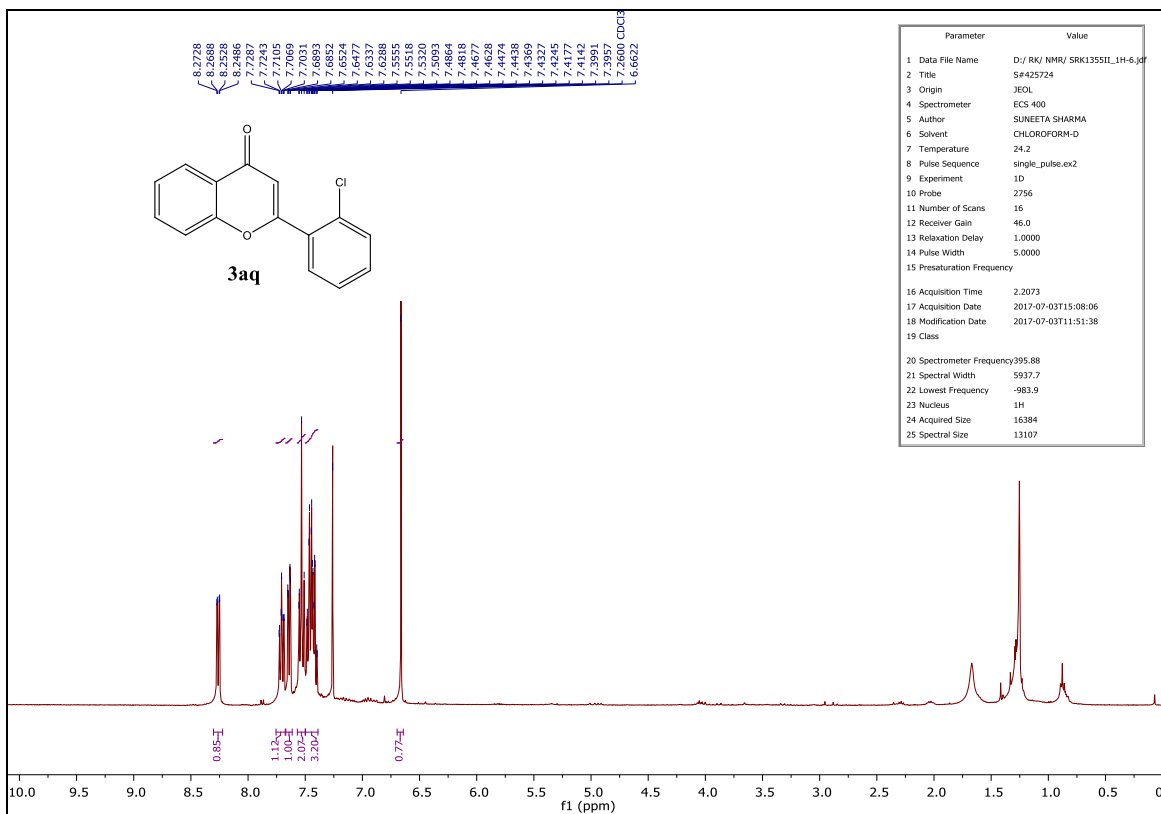
<sup>1</sup>H and <sup>13</sup>C NMR spectra of 2-pentyl-4H-chromen-4-one (3an)



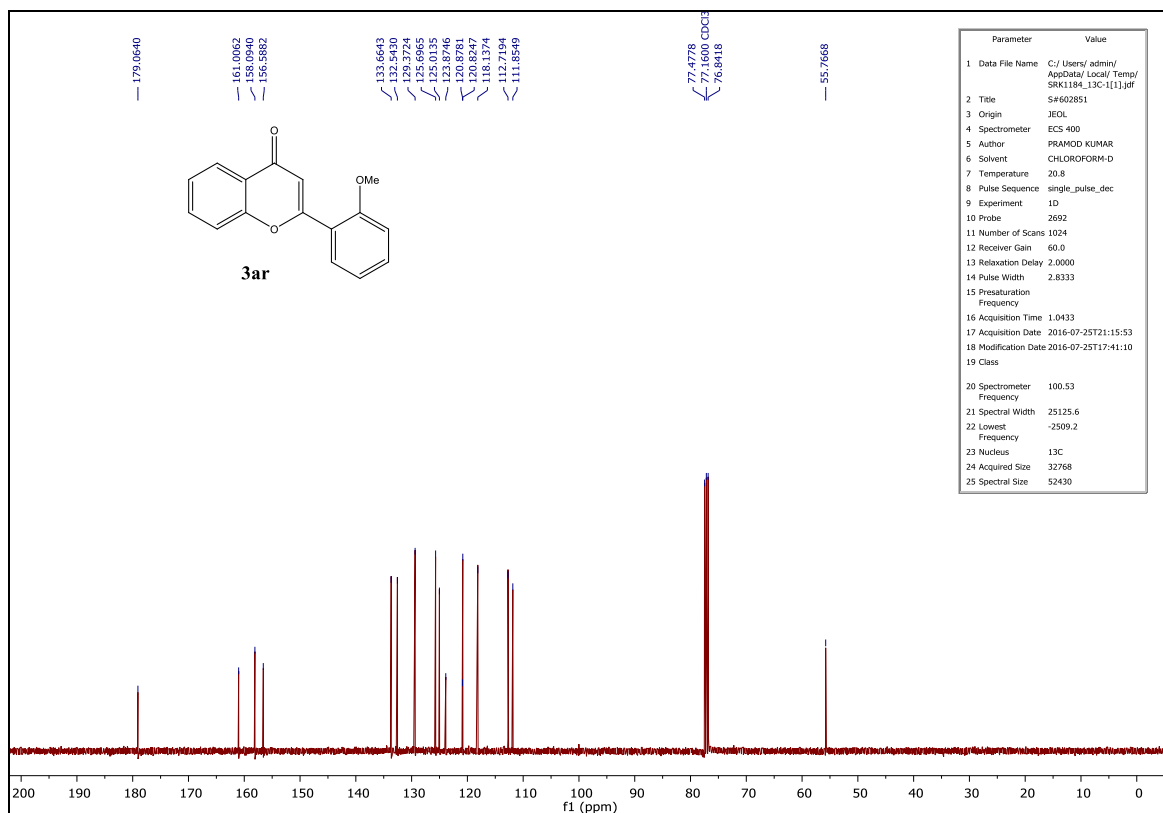
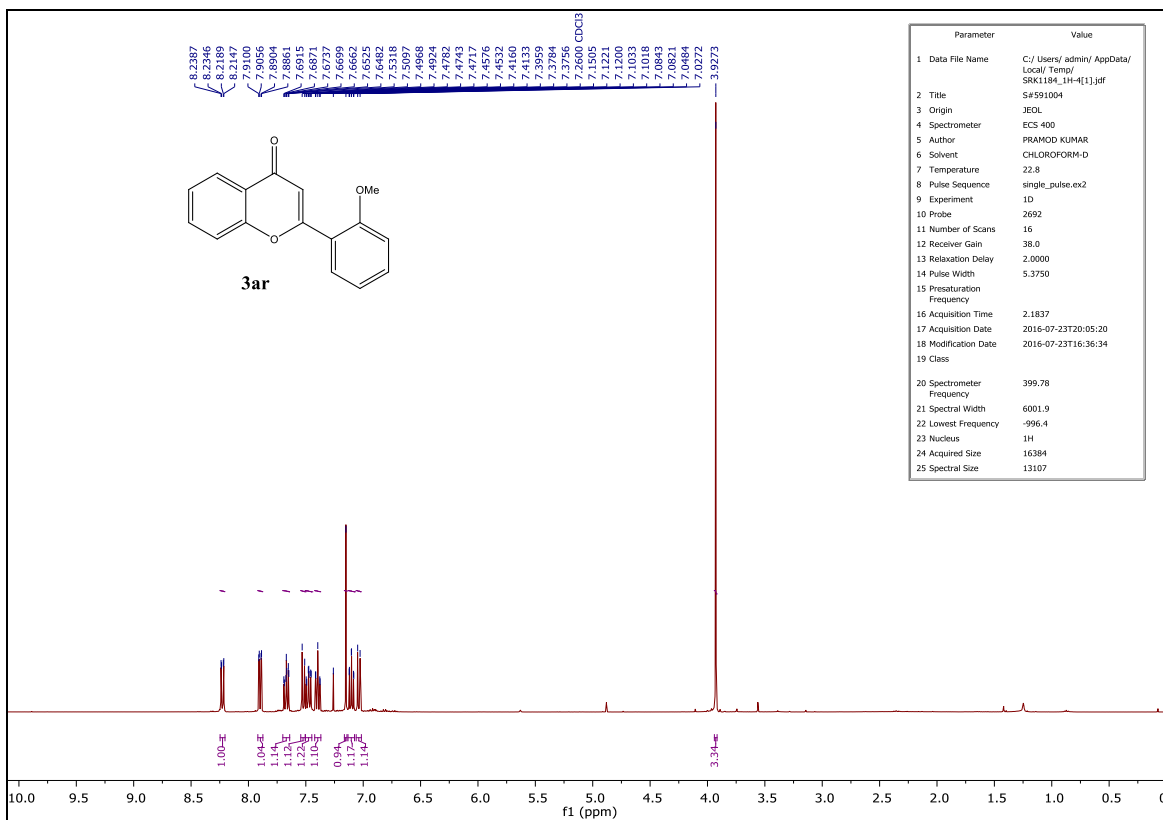
<sup>1</sup>H and <sup>13</sup>C NMR spectra of 2-phenethyl-4H-chromen-4-one (**3ao**)



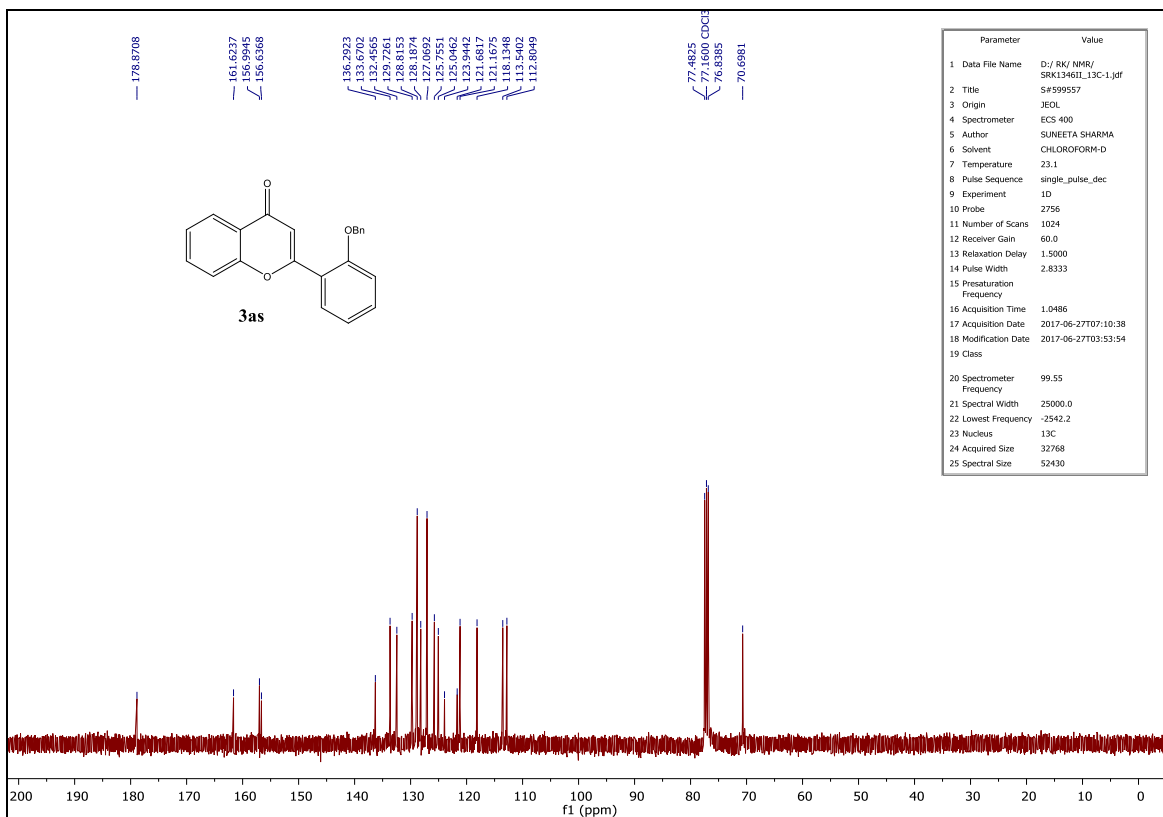
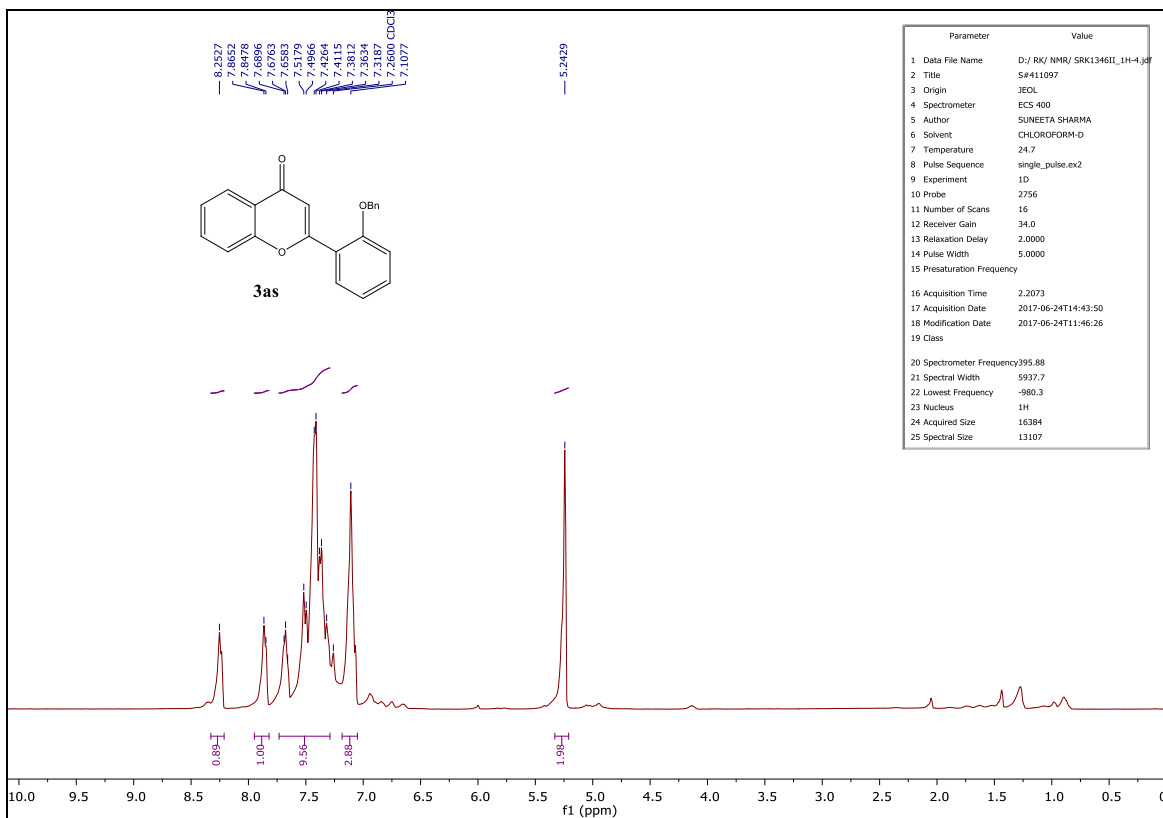
<sup>1</sup>H and <sup>13</sup>C NMR spectra of *o*-tolyl-4*H*-chromen-4-one (**3ap**)



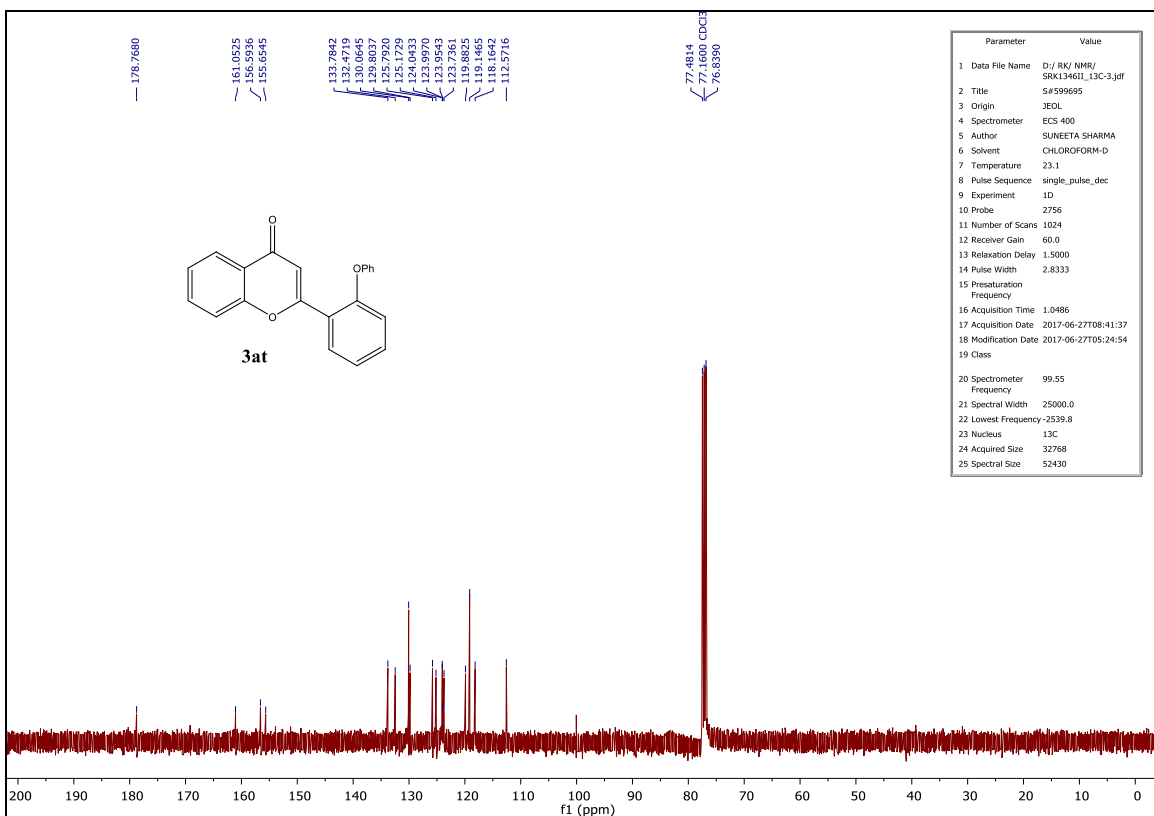
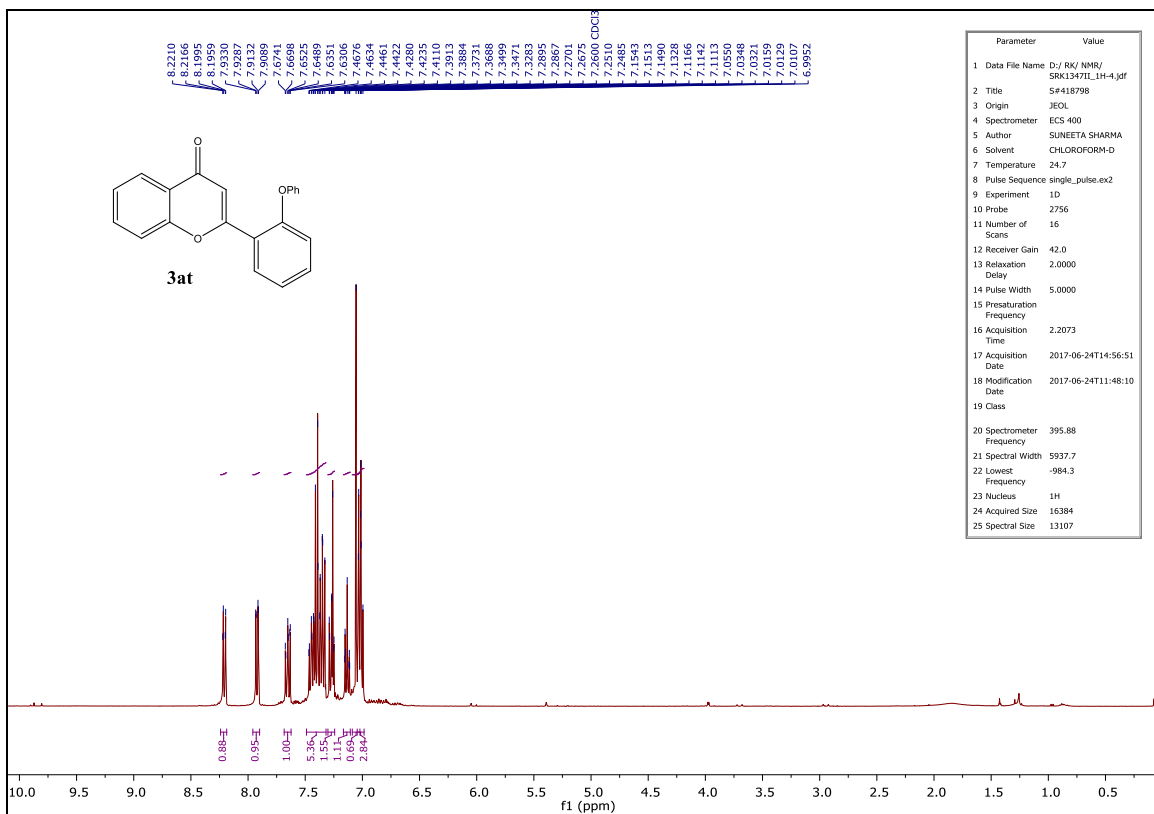
<sup>1</sup>H and <sup>13</sup>C NMR spectra of 2-(2-chlorophenyl)-4H-chromen-4-one (**3aq**)



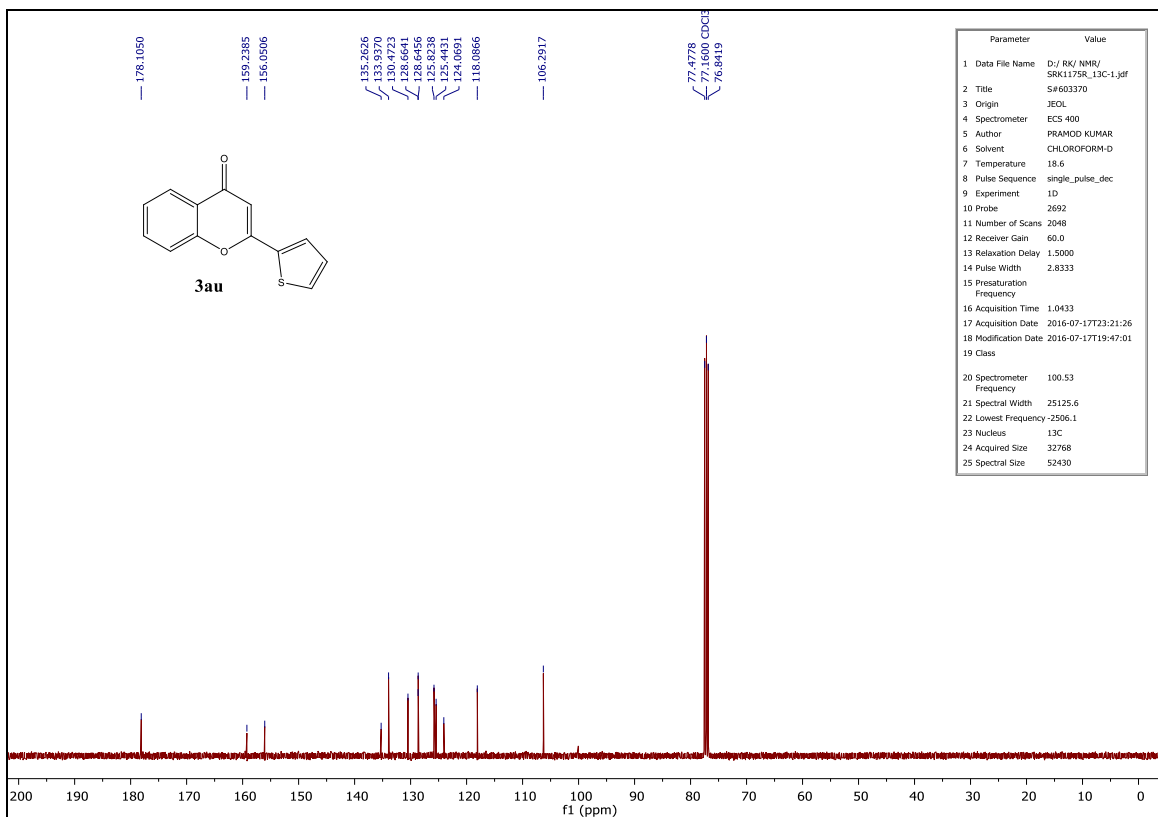
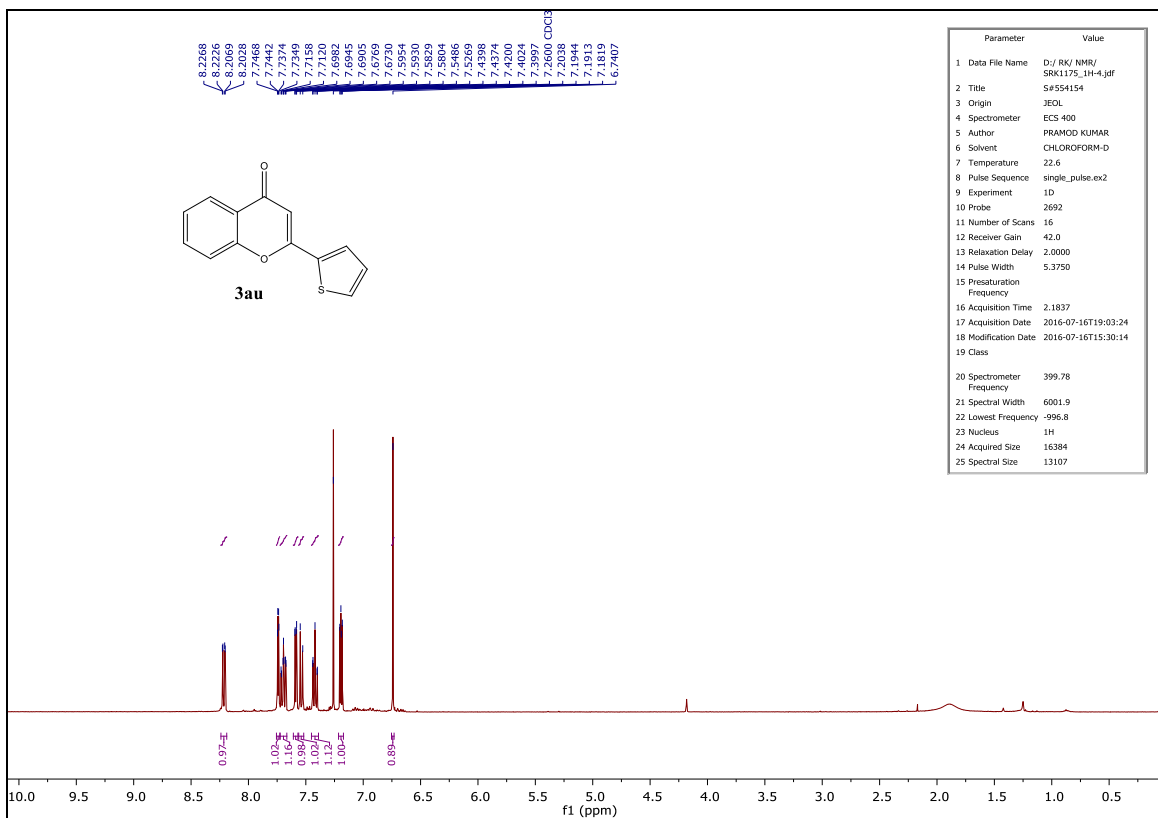
<sup>1</sup>H and <sup>13</sup>C NMR spectra of 2-(2-methoxyphenyl)-4H-chromen-4-one (**3ar**)



<sup>1</sup>H and <sup>13</sup>C NMR spectra of 2-(2-benzyloxyphenyl)-4H-chromen-4-one (**3as**)



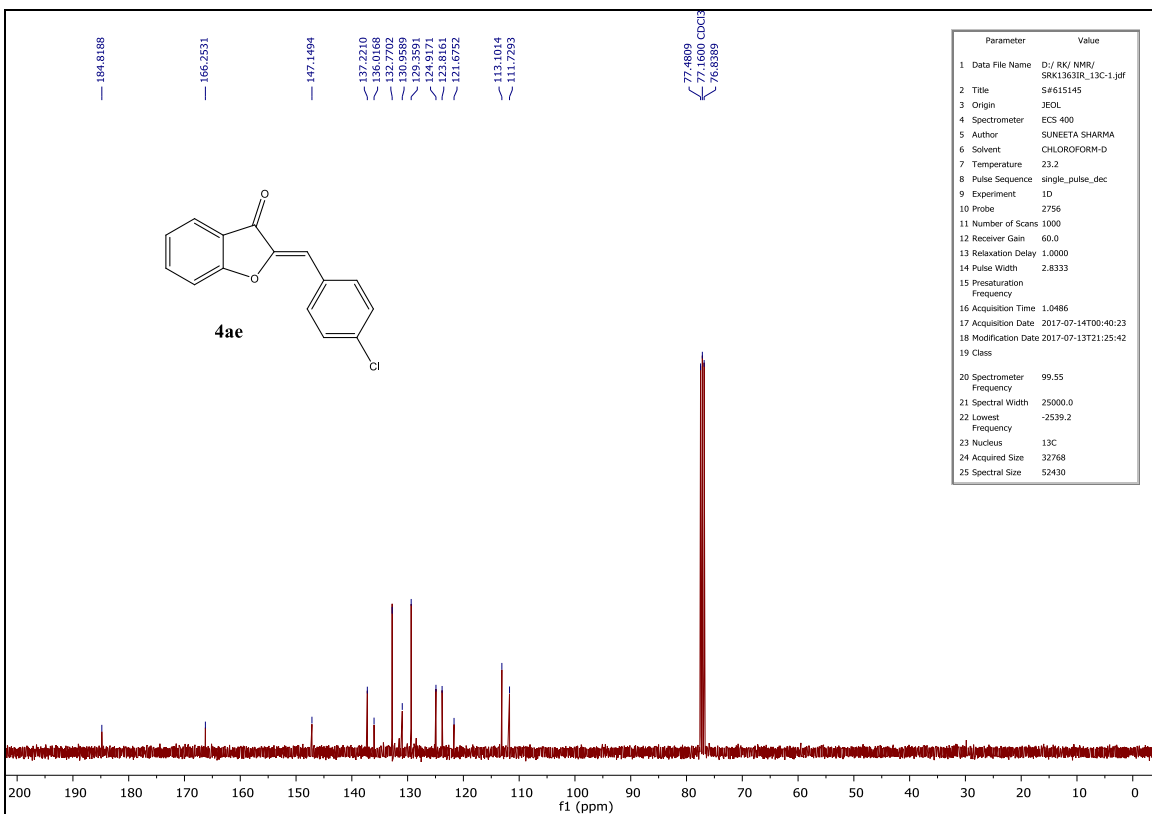
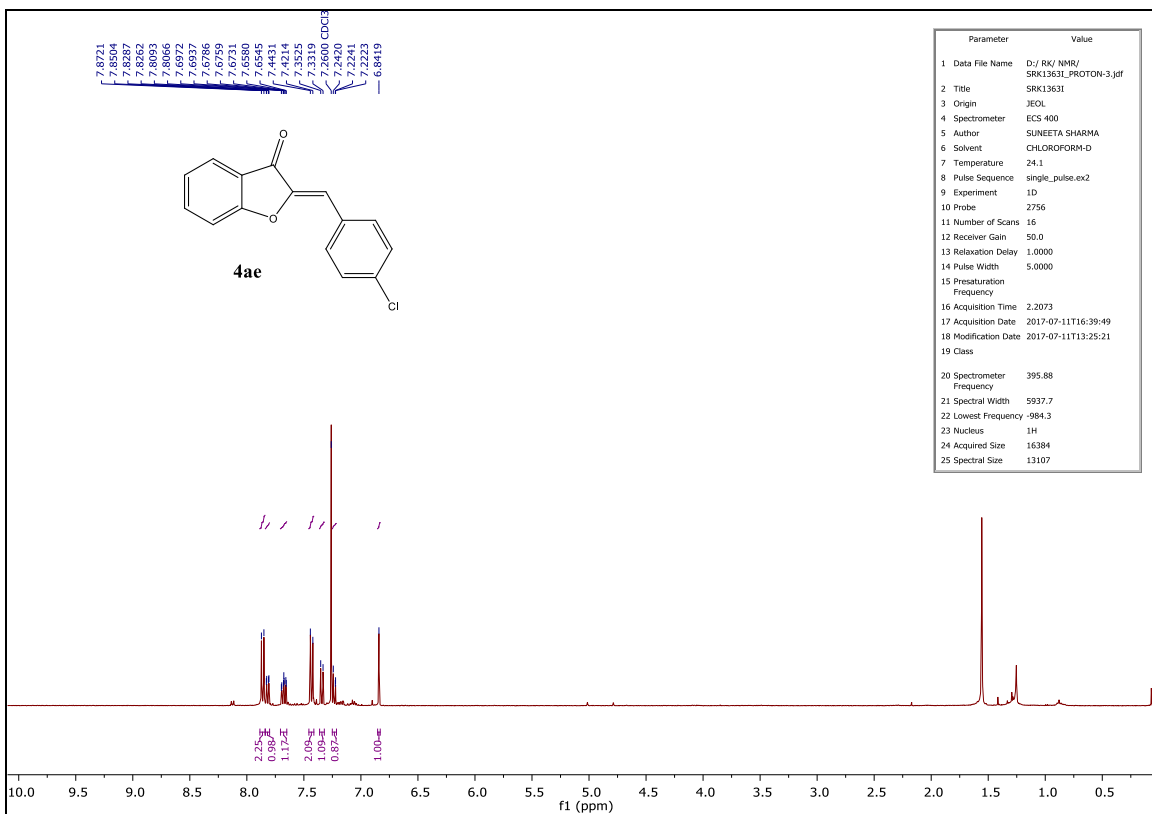
<sup>1</sup>H and <sup>13</sup>C NMR spectra of 2-(2-phenoxyphenyl)-4H-chromen-4-one (**3at**)



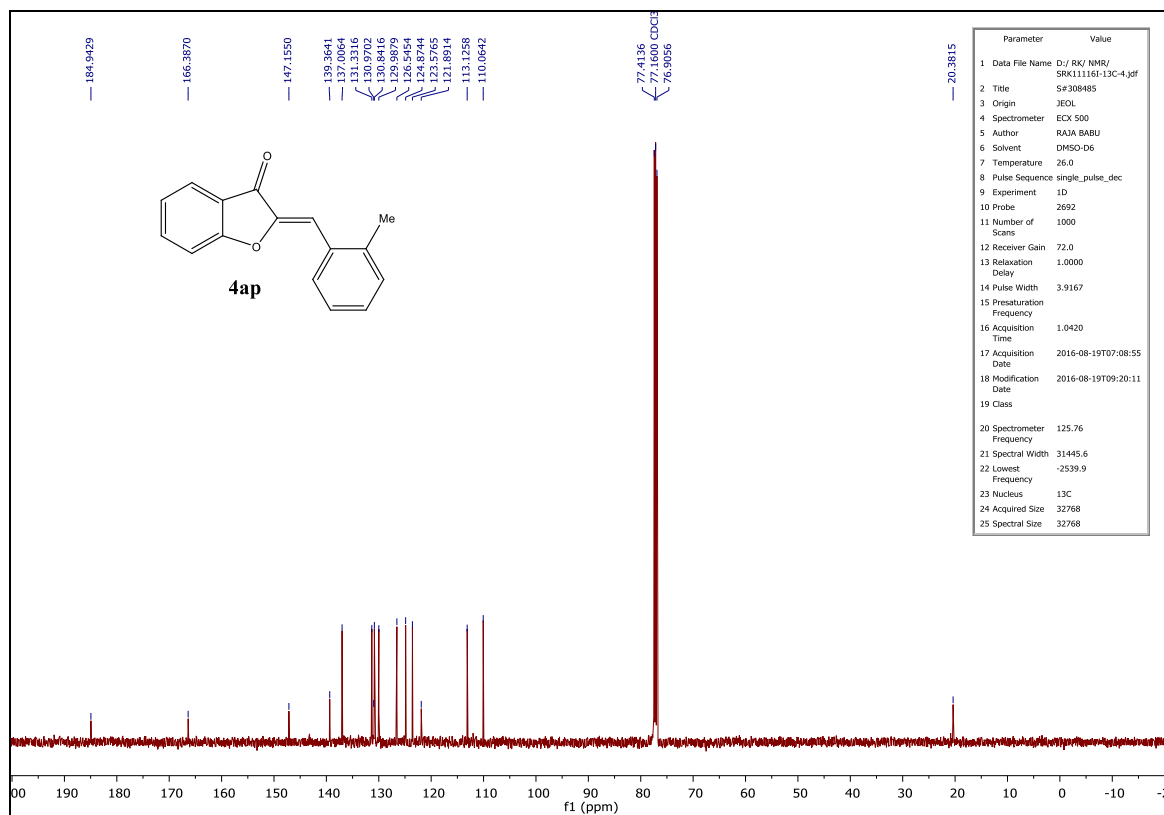
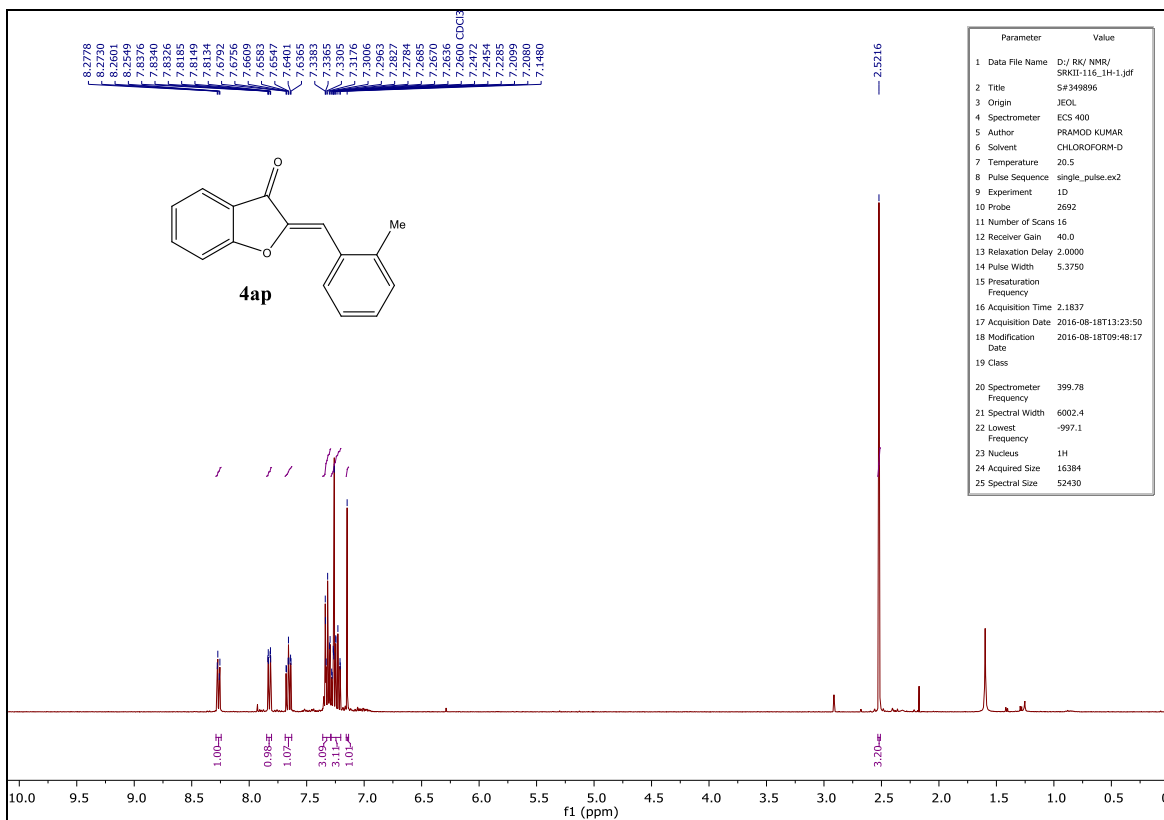
<sup>1</sup>H and <sup>13</sup>C NMR spectra of 2-(thiophen-2-yl)-4H-chromen-4-one (3au)



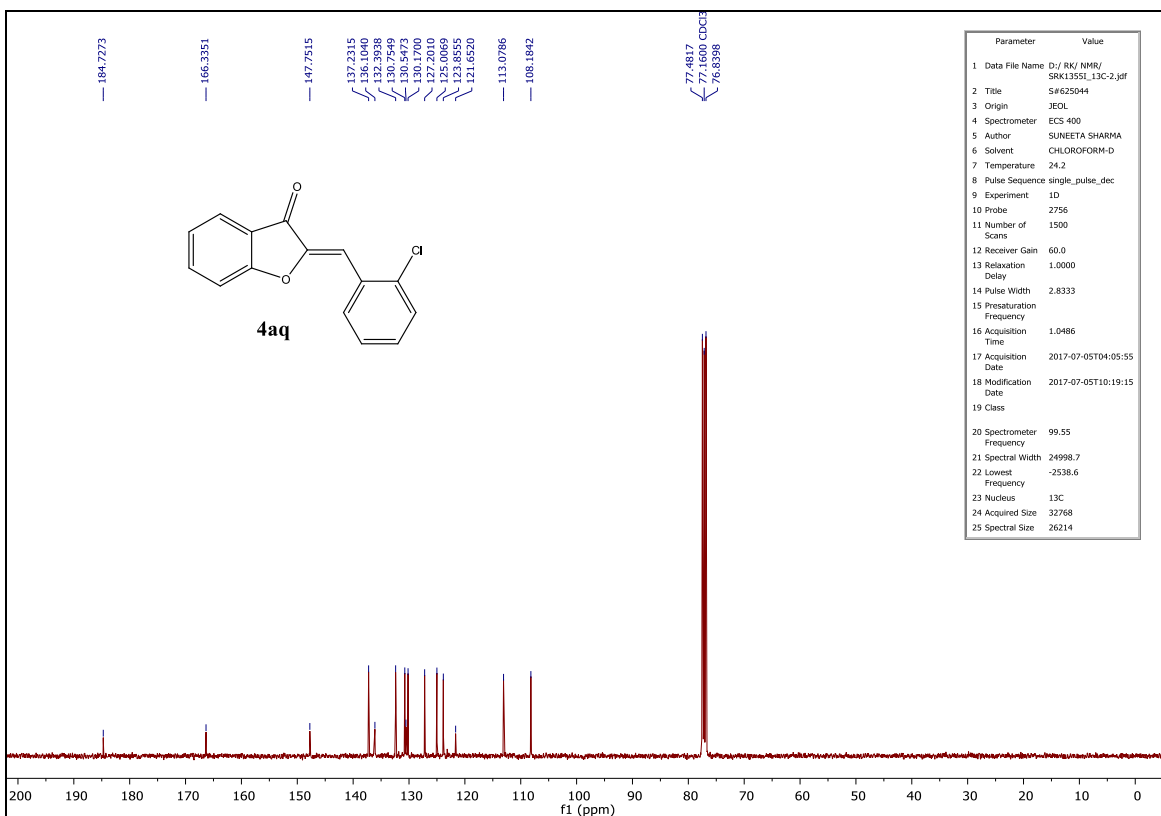
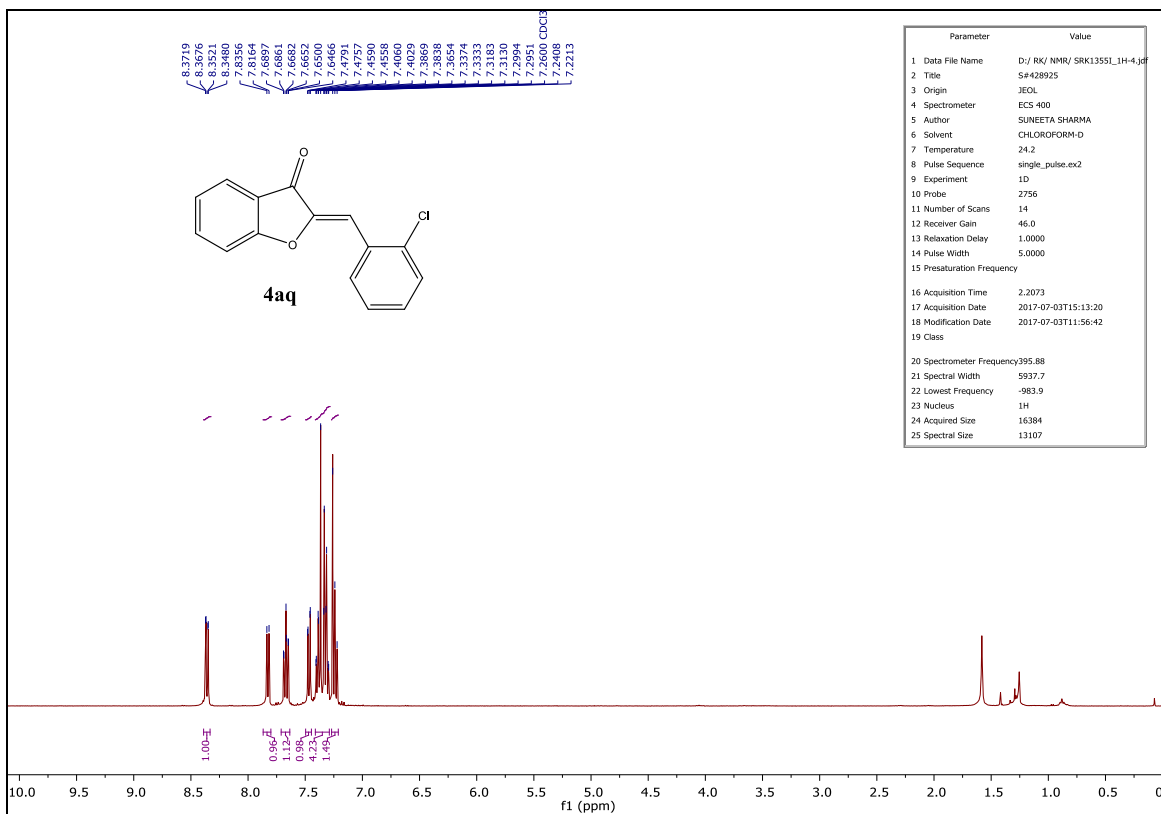




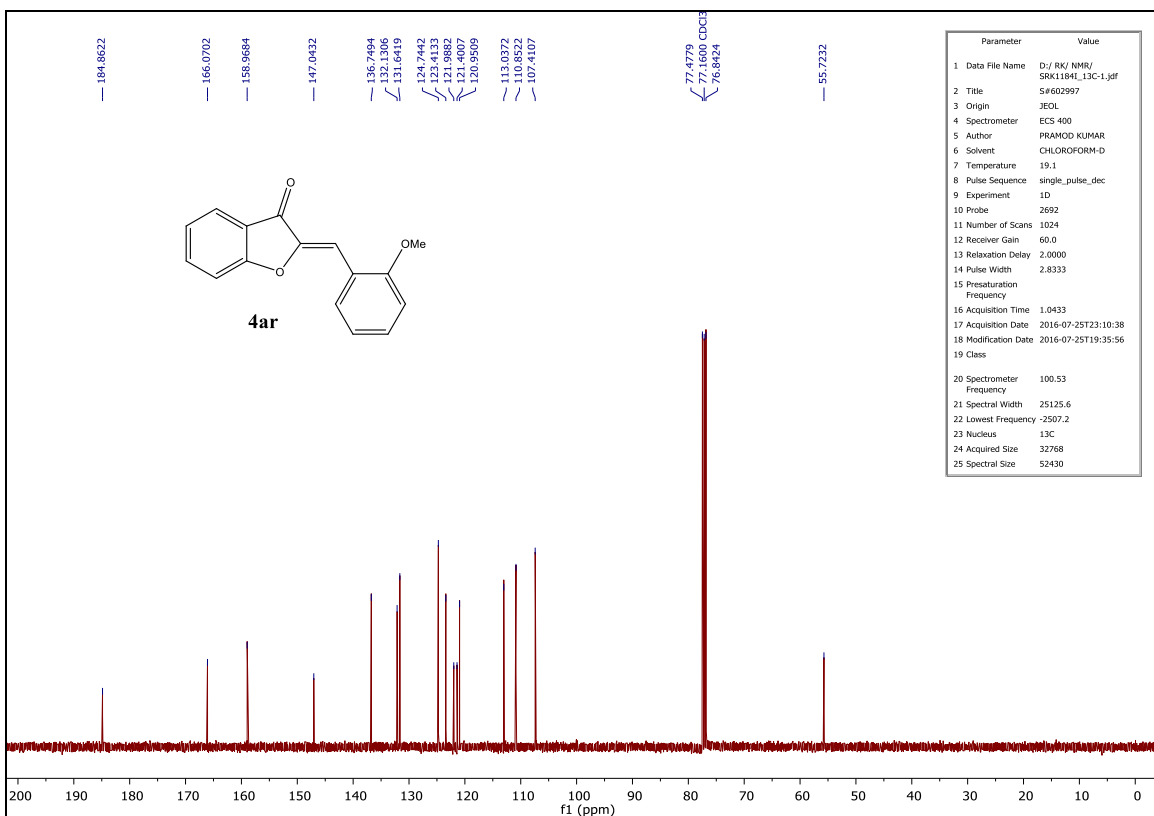
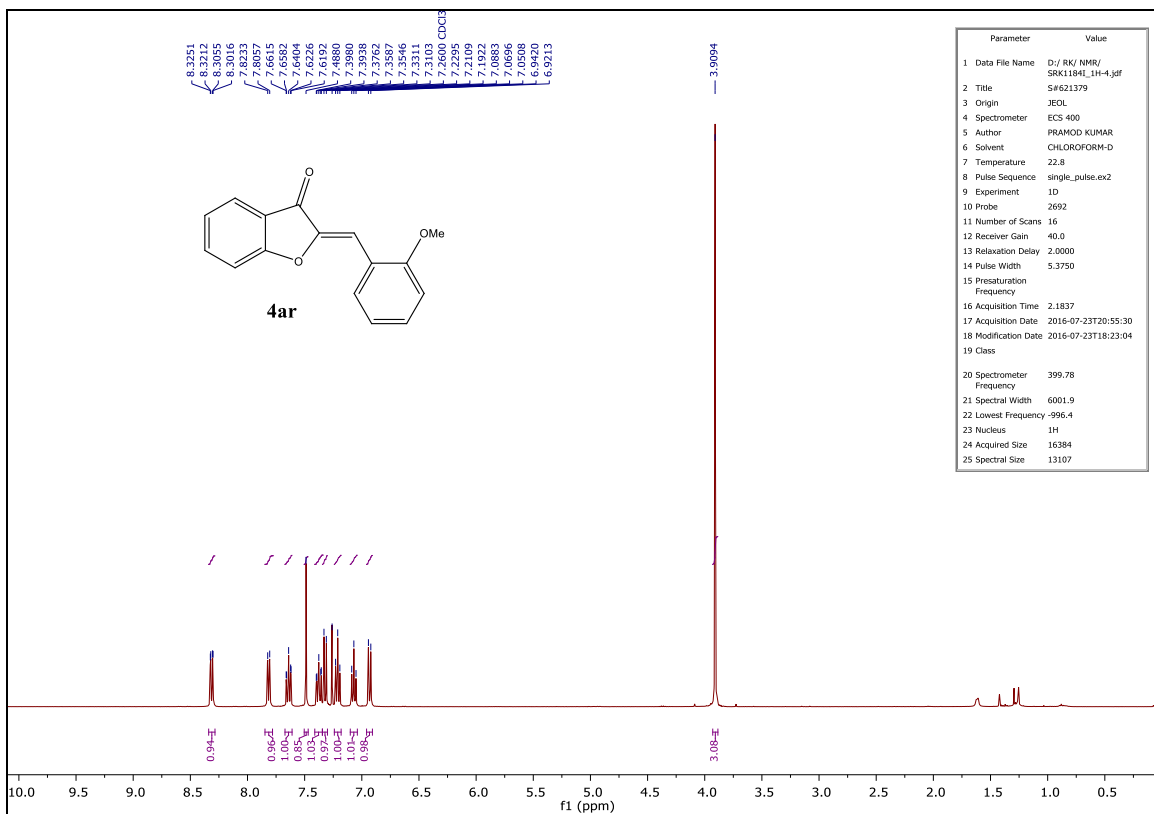
<sup>1</sup>H and <sup>13</sup>C NMR spectra of (Z)-2-(4-chlorobenzylidene)benzofuran-3(2H)-one (**4ae**)



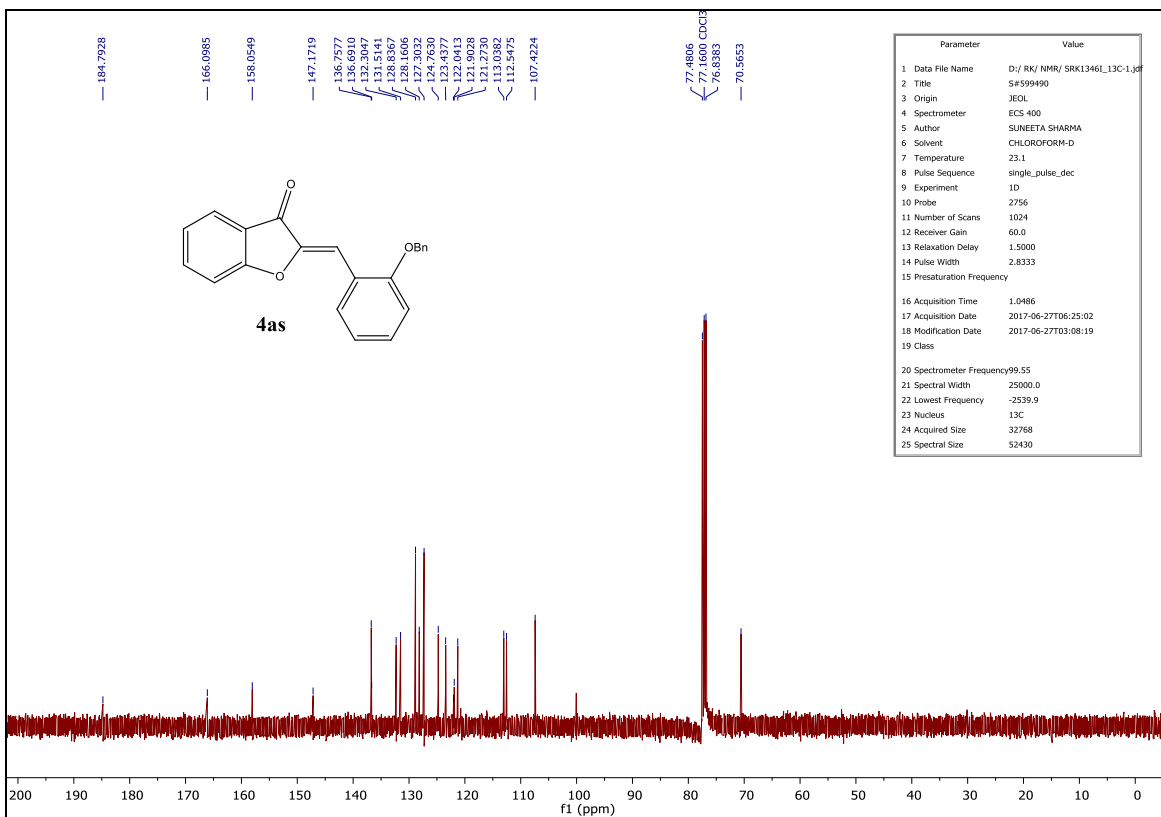
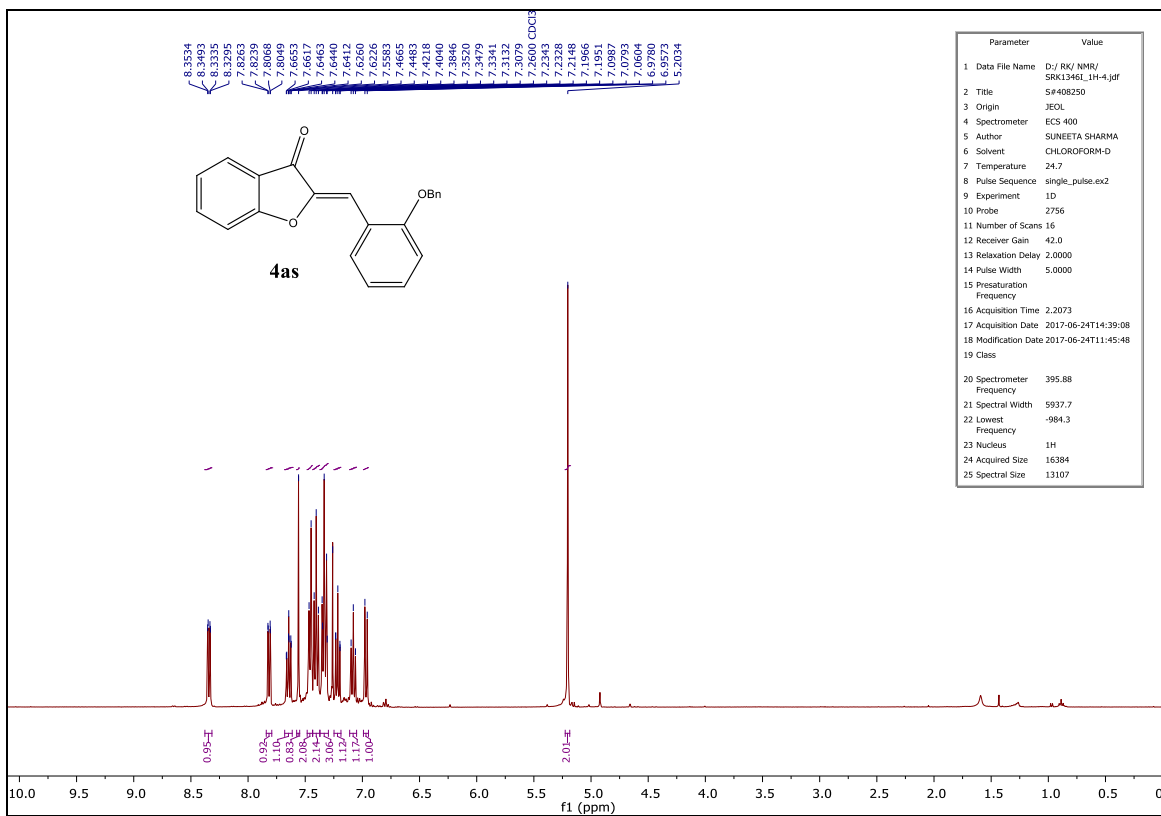
<sup>1</sup>H and <sup>13</sup>C NMR spectra of (Z)-2-(2-methylbenzylidene)benzofuran-3(2H)-one (**4ap**)



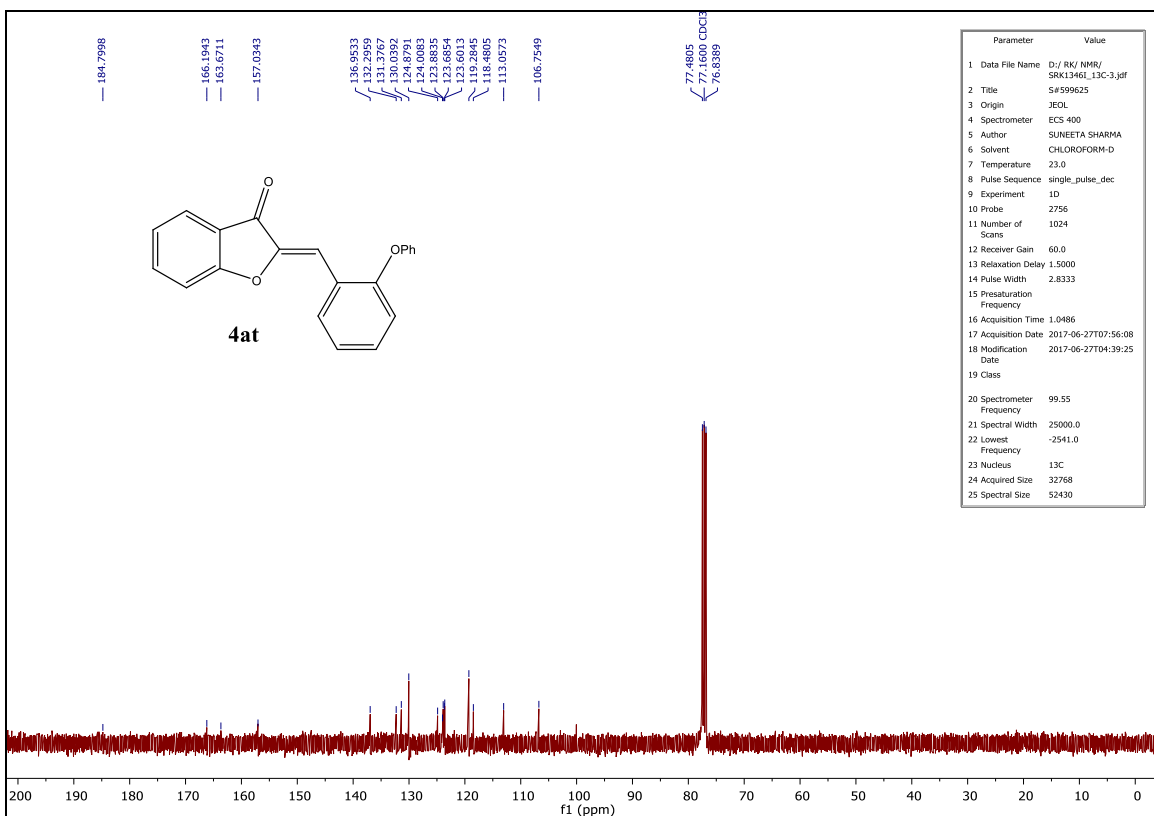
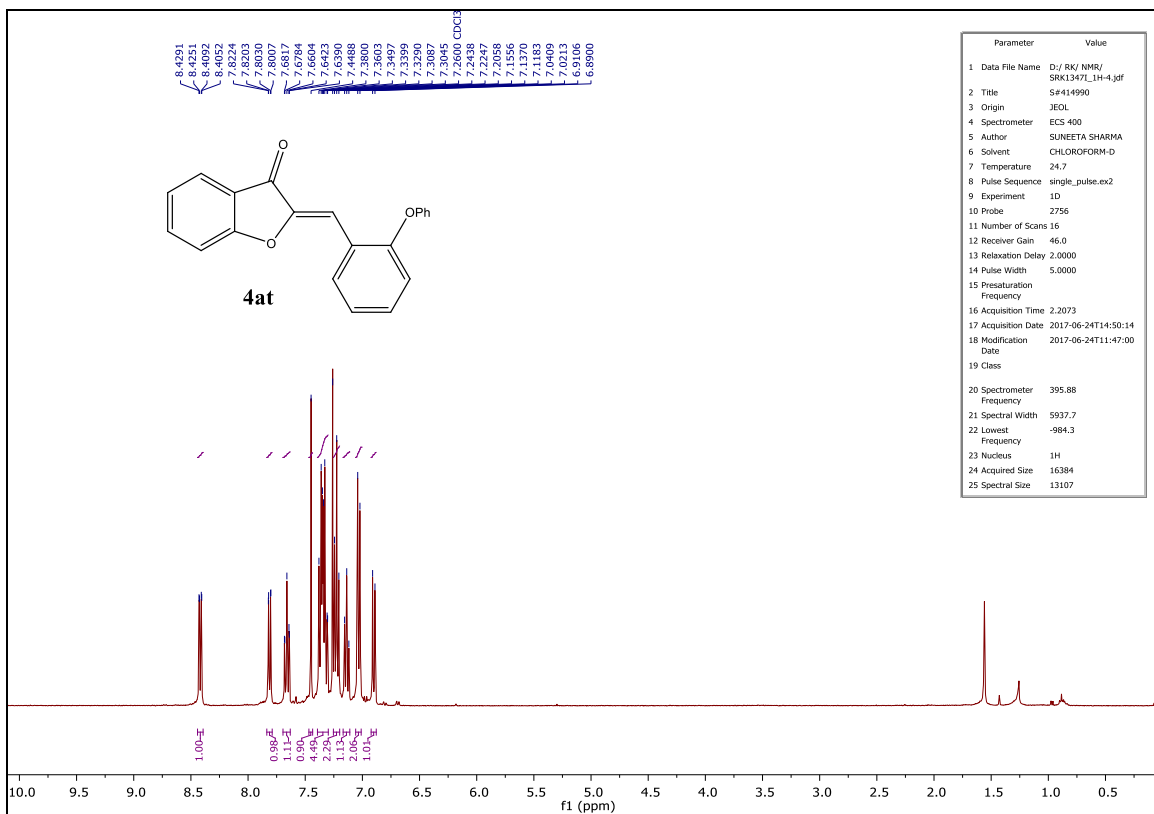
<sup>1</sup>H and <sup>13</sup>C NMR spectra of (Z)-2-(2-chlorobenzylidene)benzofuran-3(2H)-one (**4aq**)



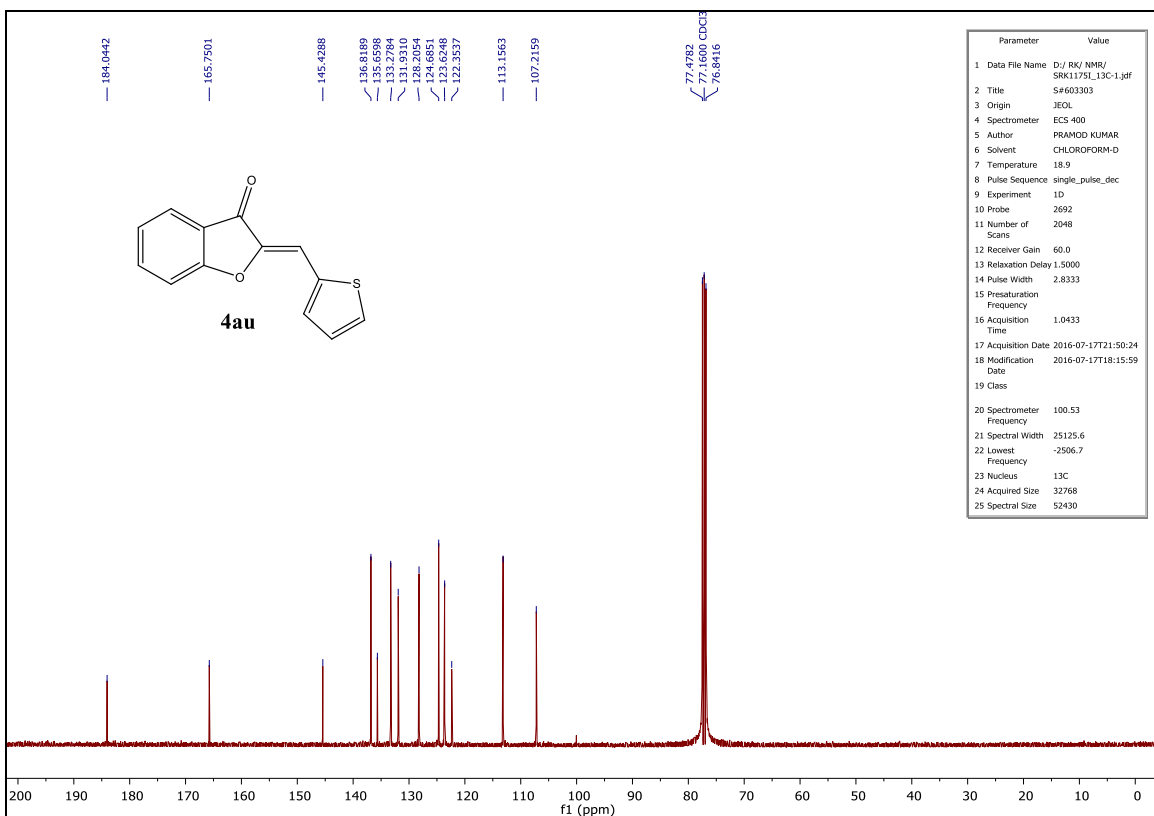
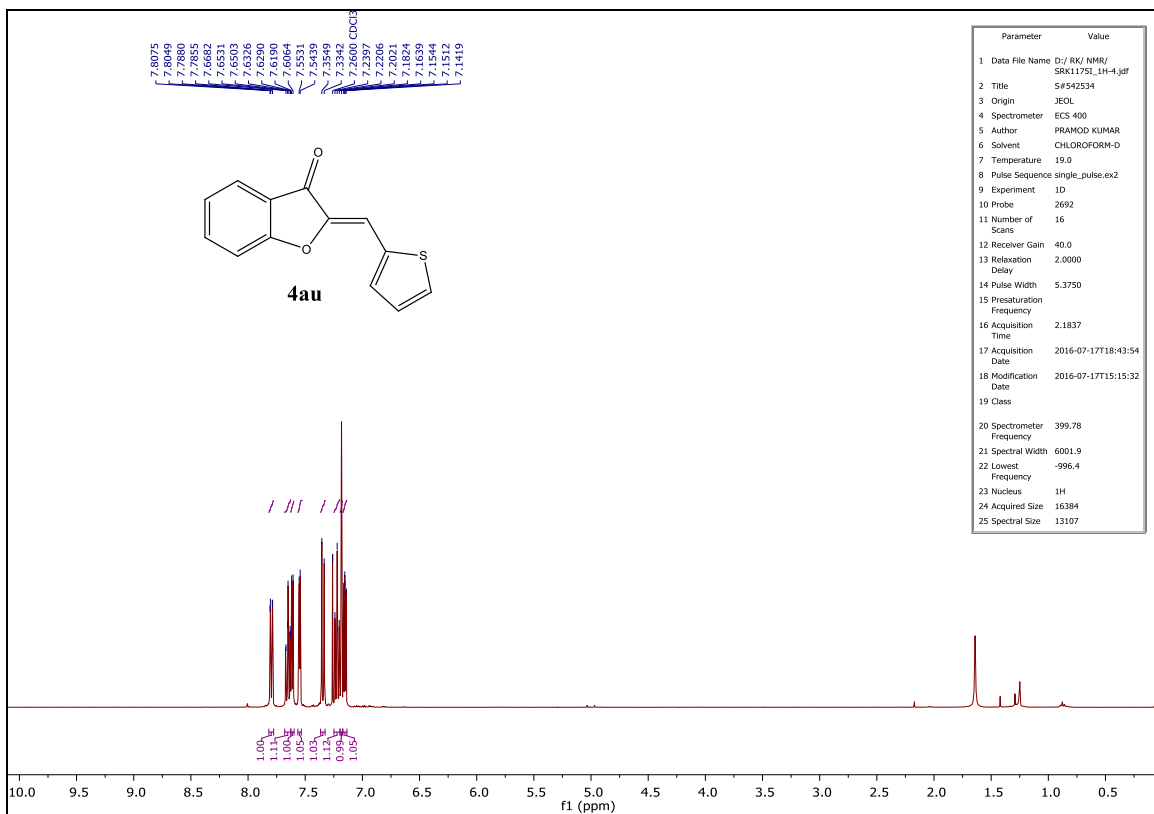
<sup>1</sup>H and <sup>13</sup>C NMR spectra of (*Z*)-2-(2-methoxybenzylidene)benzofuran-3(2*H*)-one (**4ar**)



<sup>1</sup>H and <sup>13</sup>C NMR spectra of (*Z*)-2-(2-(benzyloxy)benzylidene)benzofuran-3(*2H*)-one (**4as**)

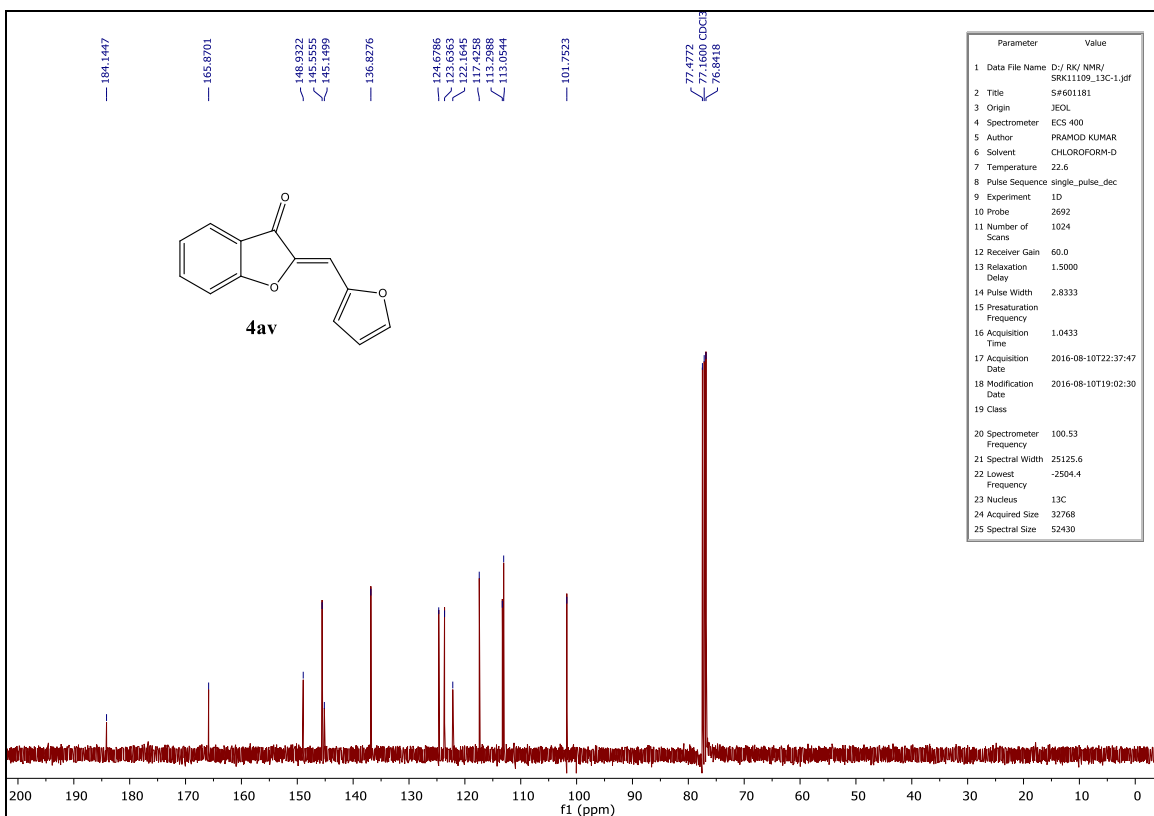
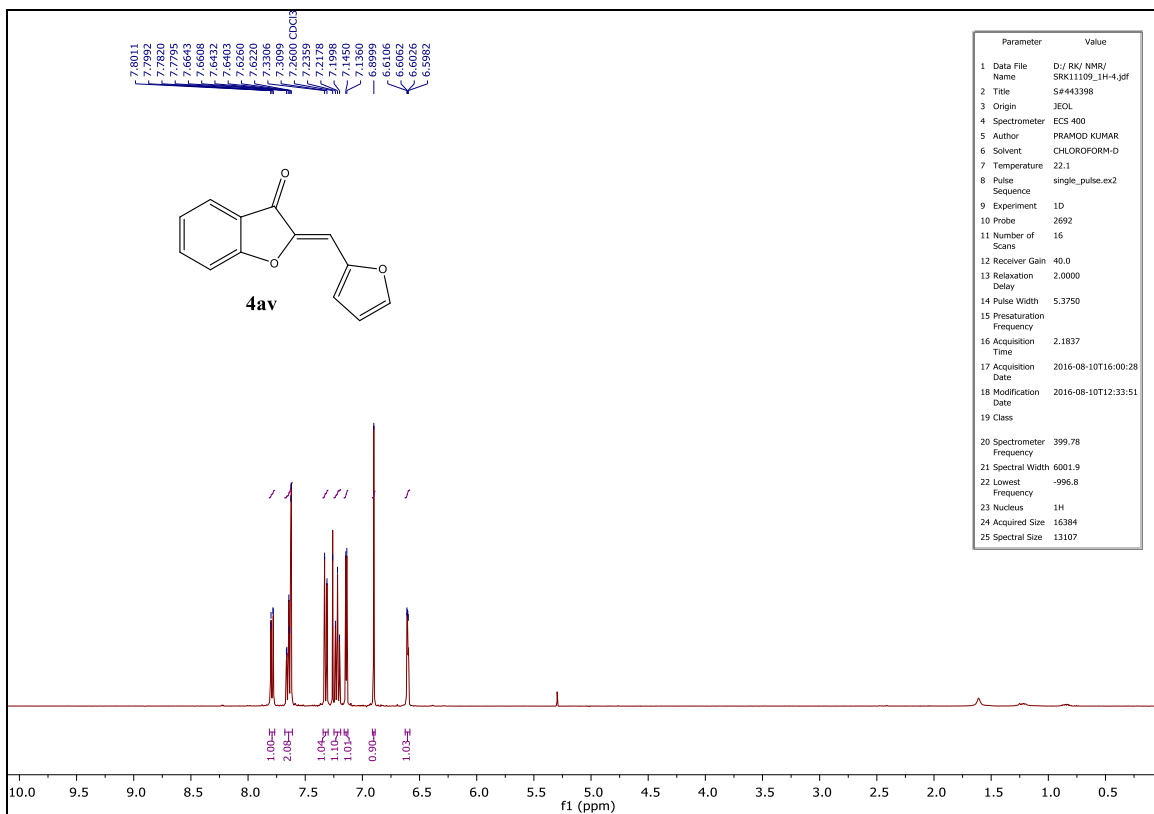


<sup>1</sup>H and <sup>13</sup>C NMR spectra of (Z)-2-(2-phenoxybenzylidene)benzofuran-3(2H)-one (**4at**)

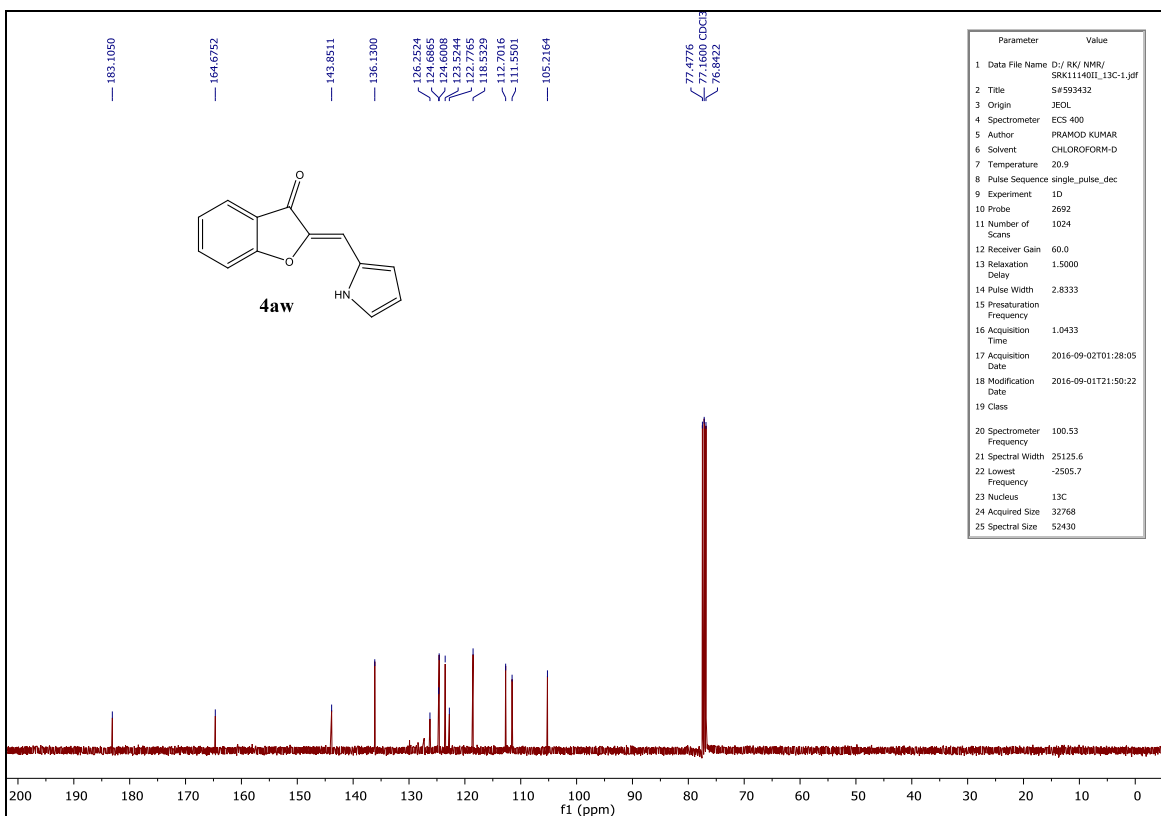
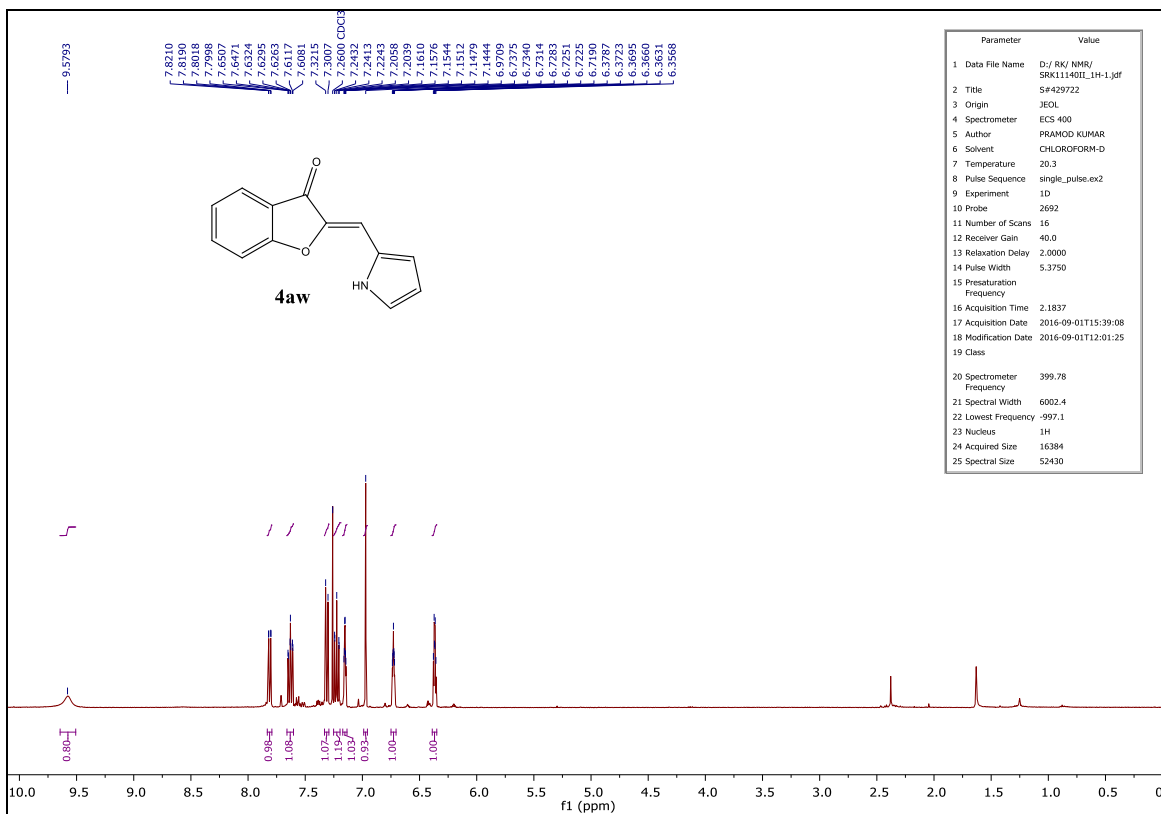


<sup>1</sup>H and <sup>13</sup>C NMR spectra of (Z)-2-(thiophen-2-ylmethylene)benzofuran-3(2H)-one (**4au**)

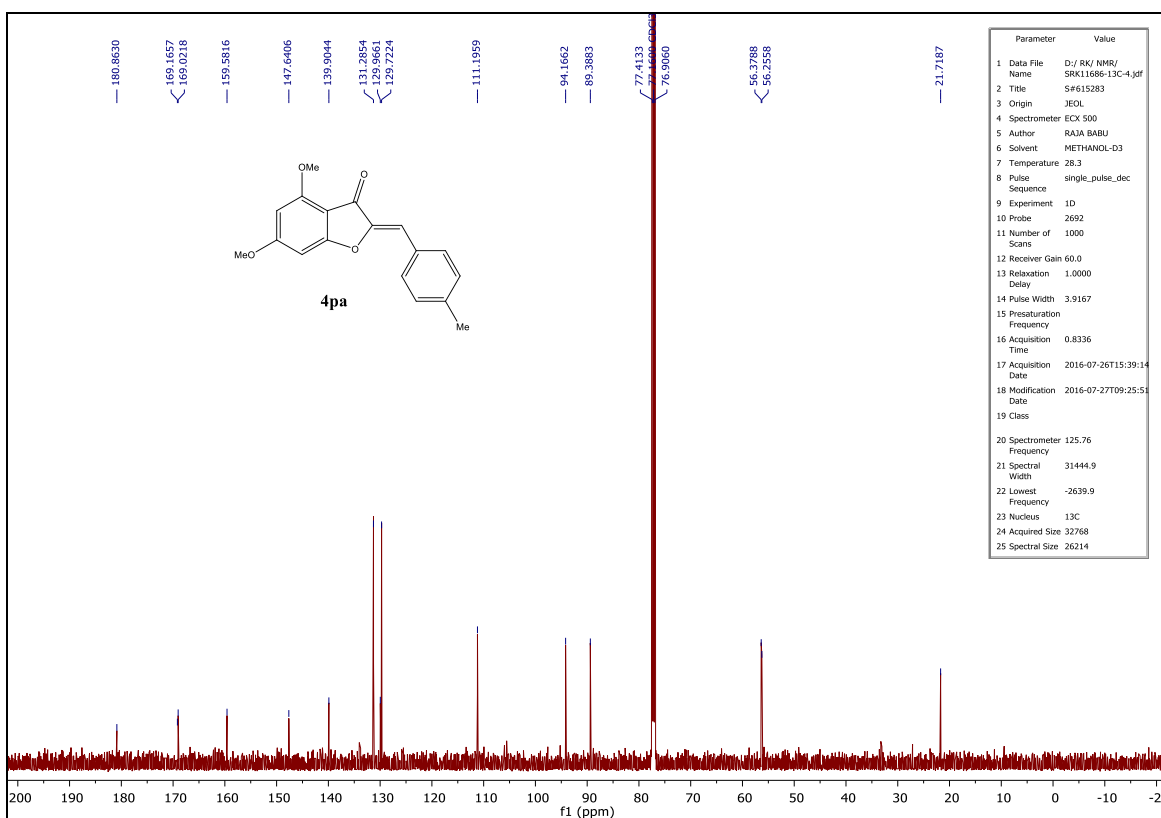
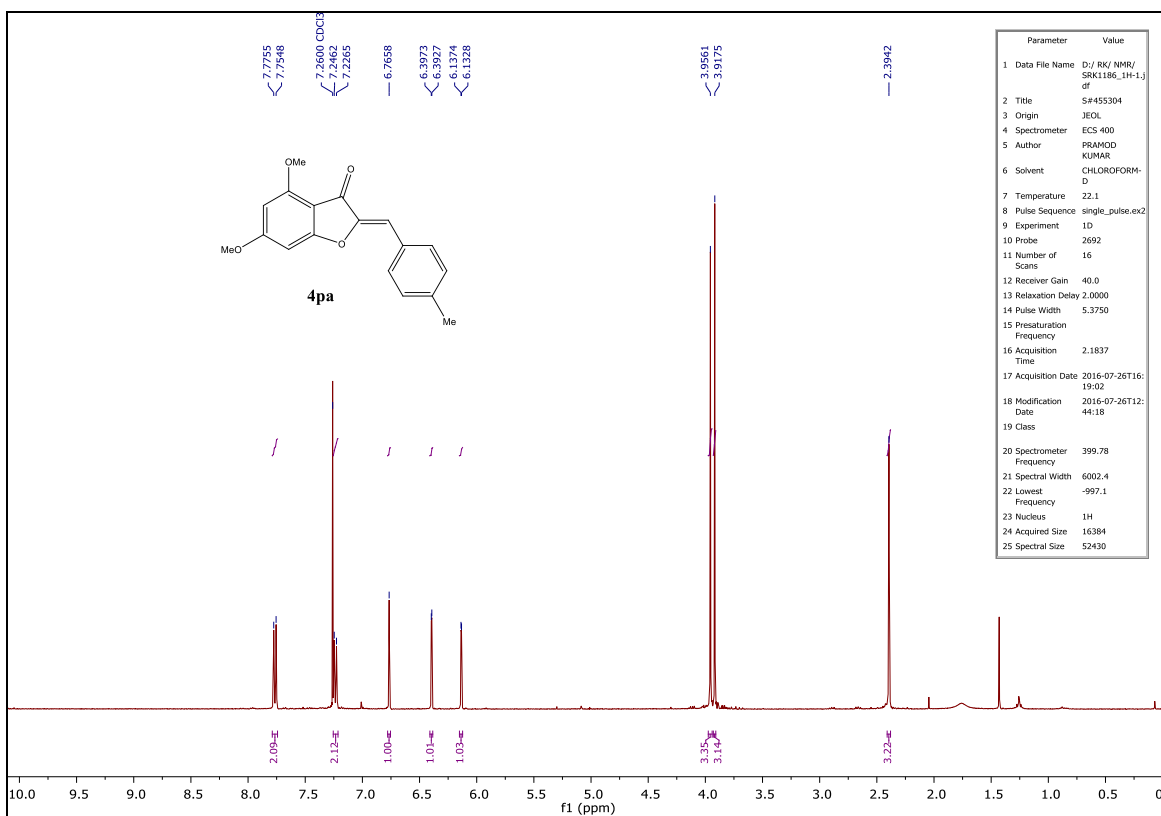




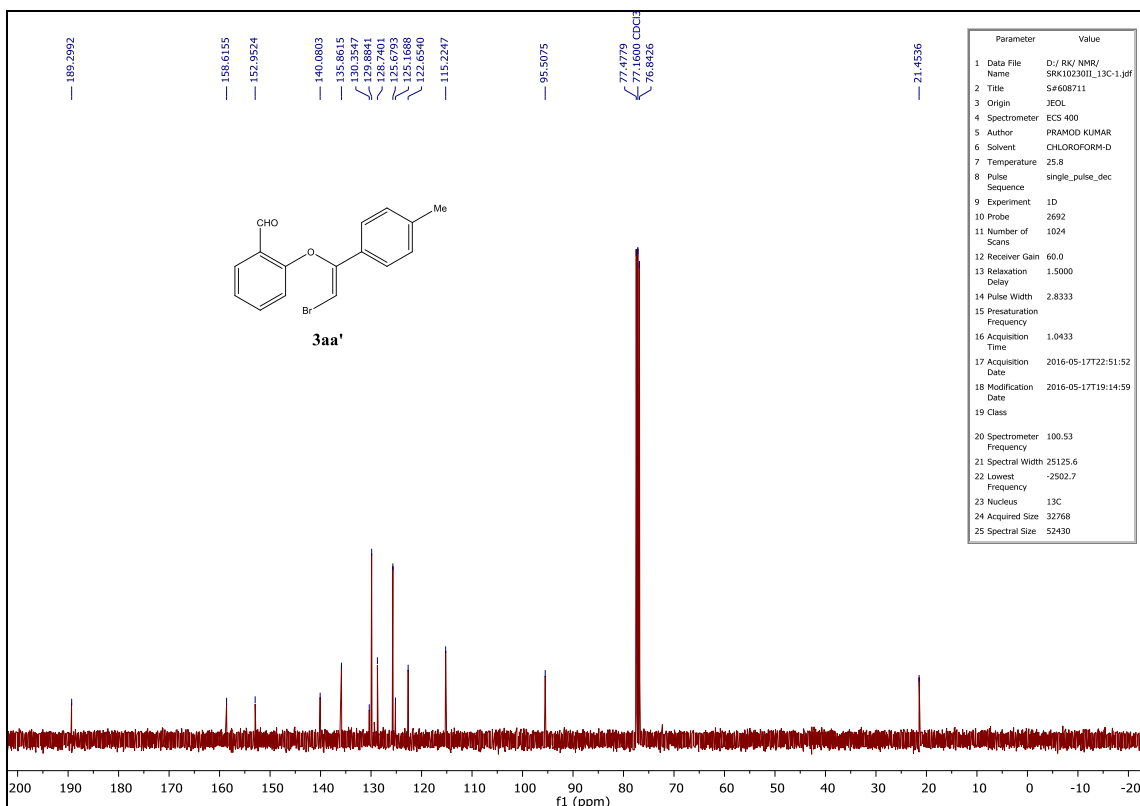
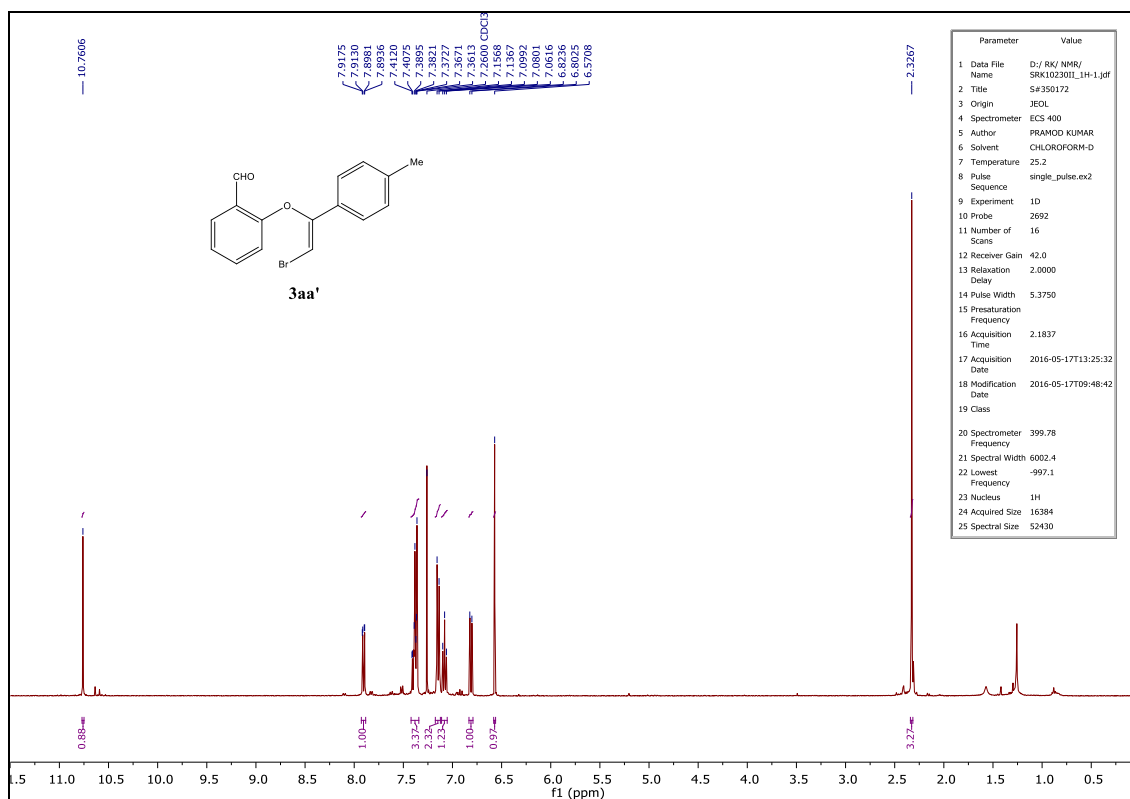
<sup>1</sup>H and <sup>13</sup>C NMR spectra of (Z)-2-(furan-2-ylmethylene)benzofuran-3(2H)-one (**4av**)



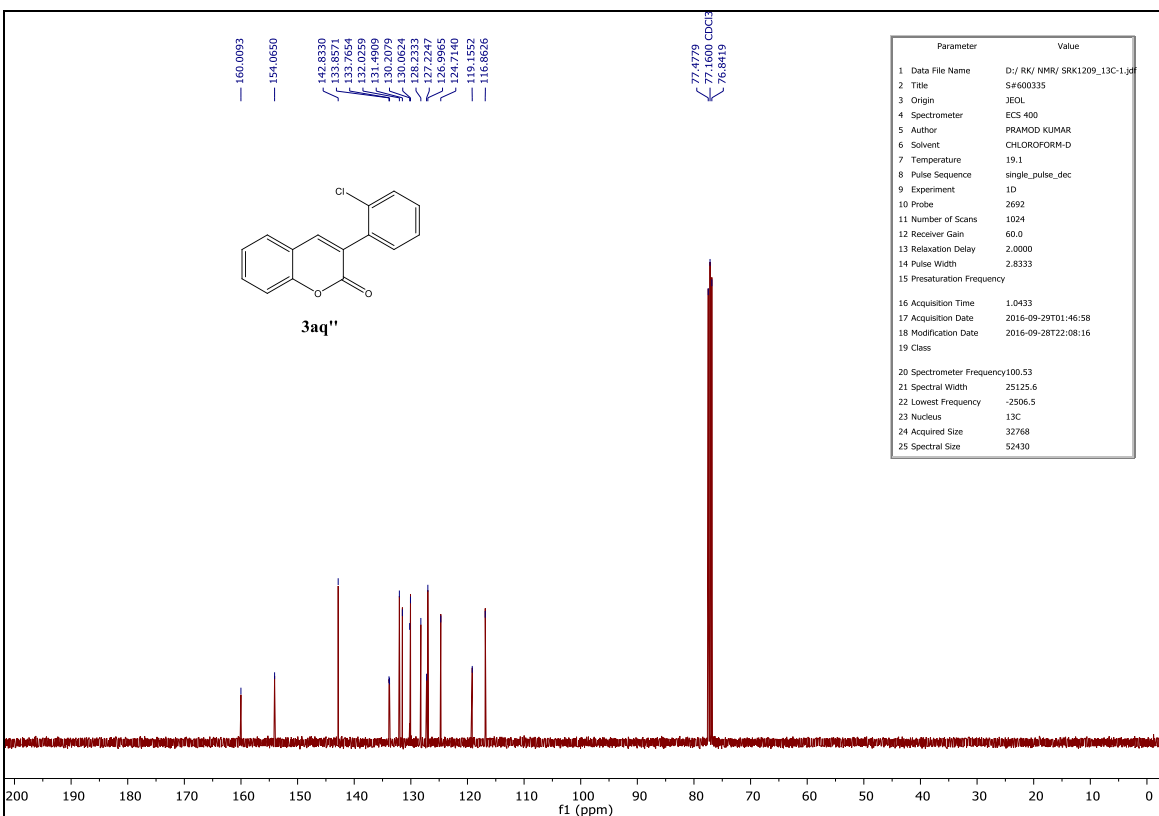
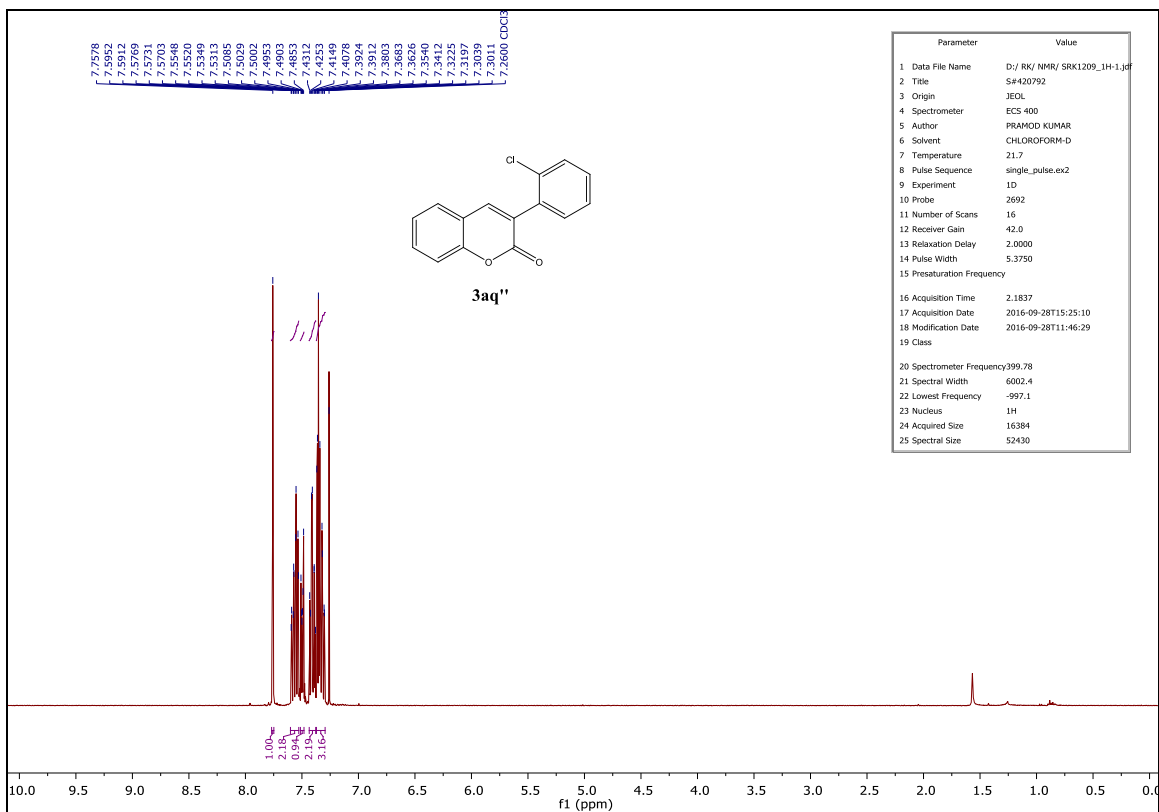
<sup>1</sup>H and <sup>13</sup>C NMR spectra of (Z)-2-((1H-pyrrol-2-yl)methylene)benzofuran-3(2H)-one (**4aw**)



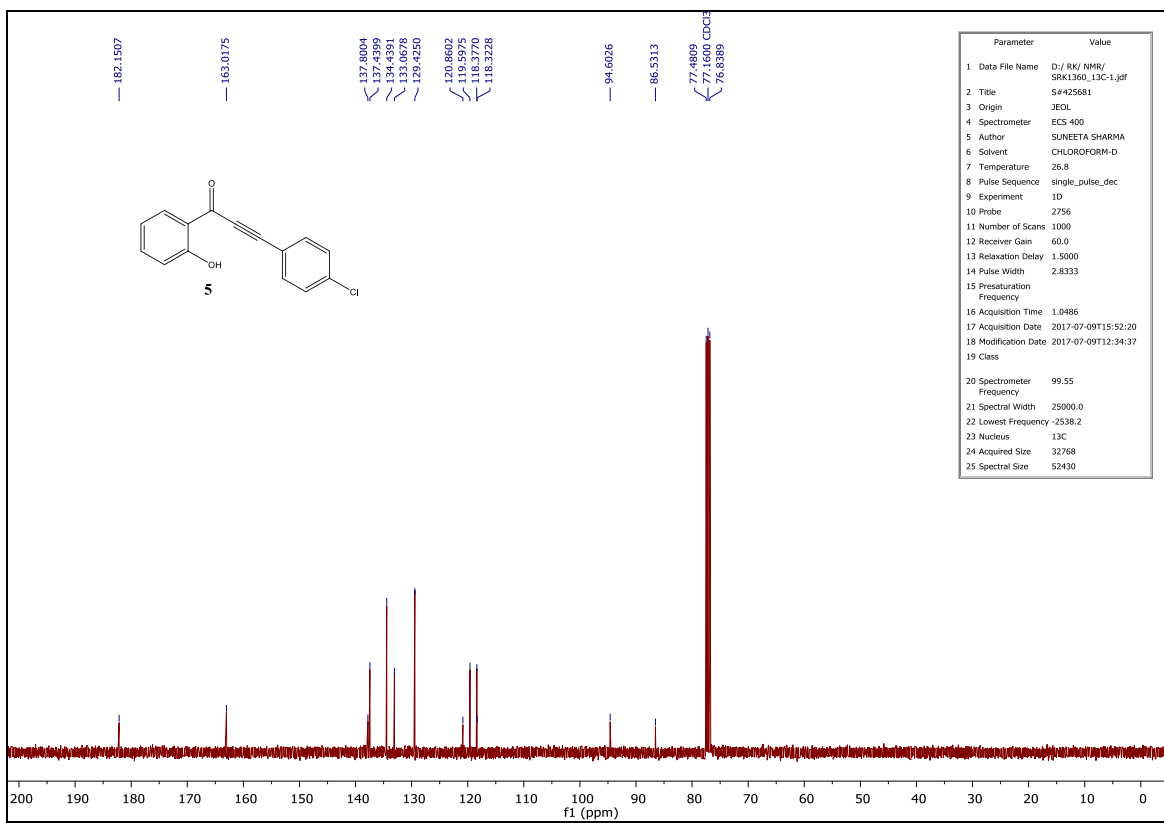
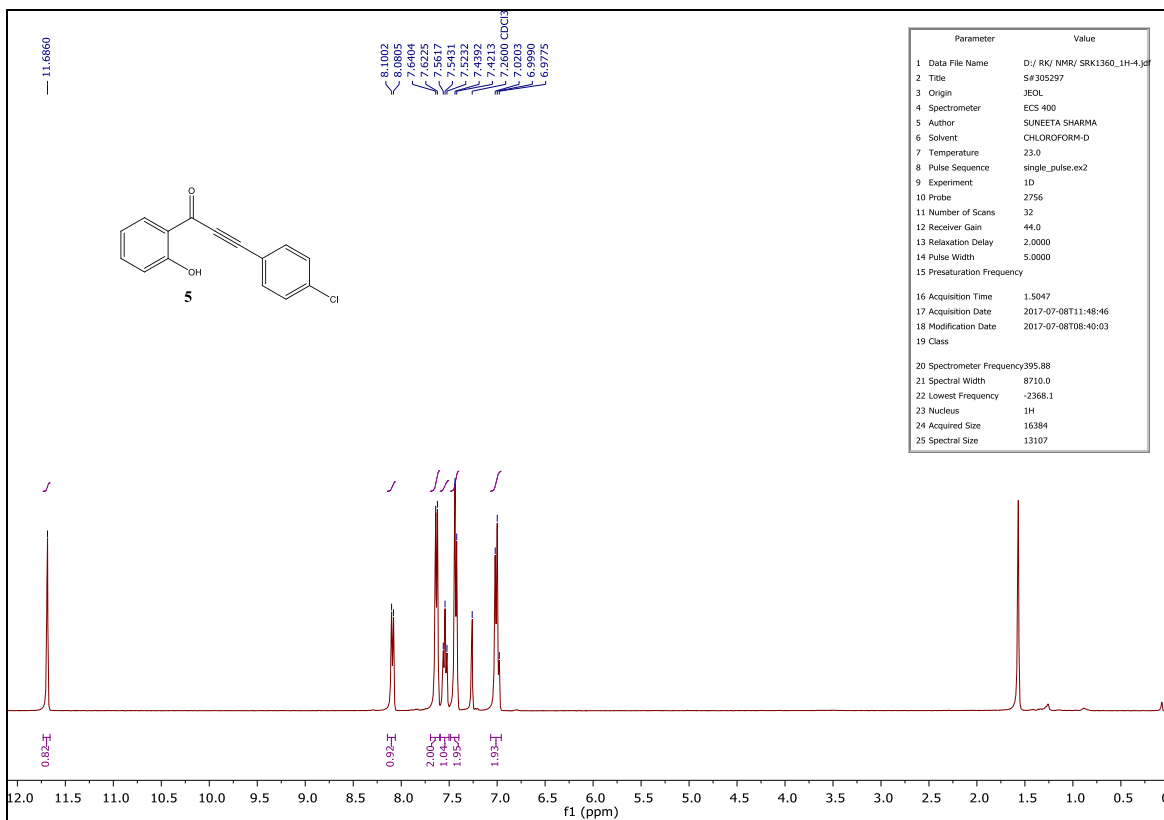
<sup>1</sup>H and <sup>13</sup>C NMR spectra of (Z)-4,6-dimethoxy-2-(4-methylbenzylidene)benzofuran-3(2H)-one (**4pa**)



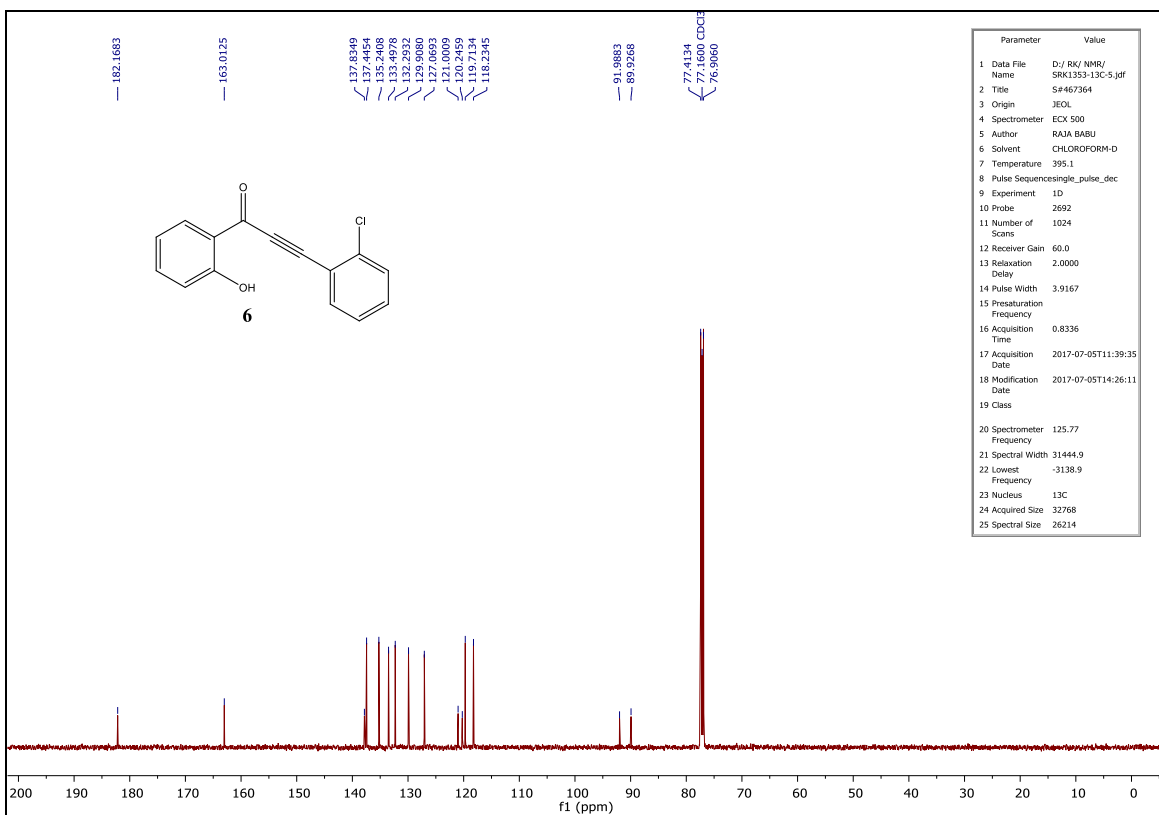
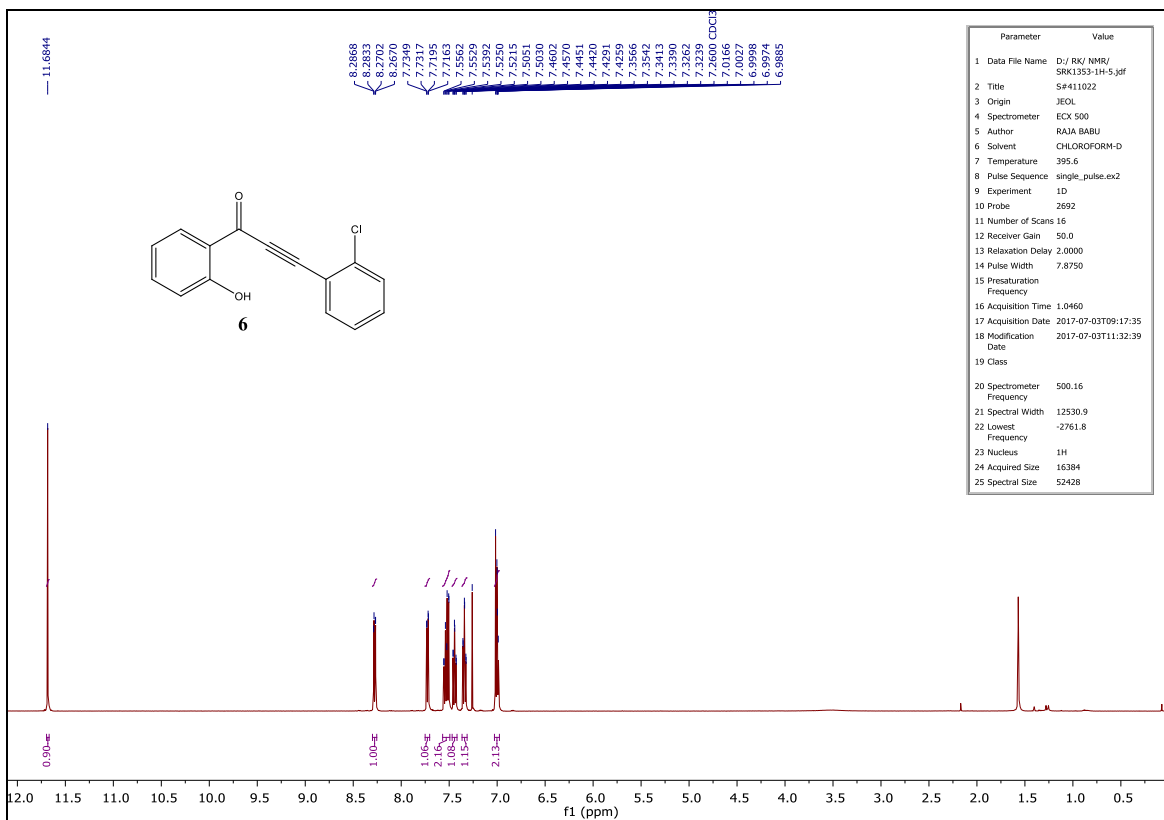
$^1\text{H}$  and  $^{13}\text{C}$  NMR spectra of (*Z*)-2-(2-bromo-1-*p*-tolylvinyl)oxybenzaldehyde (**3aa'**)



<sup>1</sup>H and <sup>13</sup>C NMR spectra of 3-(2-chlorophenyl)-2H-chromen-2-one (3aq'')



$^1\text{H}$  and  $^{13}\text{C}$  NMR spectra of 3-(4-chlorophenyl)-1-(2-hydroxyphenyl)prop-2-yn-1-one (**5**)



<sup>1</sup>H and <sup>13</sup>C NMR spectra of 3-(2-chlorophenyl)-1-(2-hydroxyphenyl)prop-2-yn-1-one (**6**)

2. Copies of HRMS spectra of all compounds (3-6)

