

# Supplementary Information

## Biological and Structure-Activity Evaluation of Chalcone Derivatives against Bacteria and Fungi

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**Table S1.** Crystal and refinement data for compounds **3a**, **3f**, **3i**, **3n**, **3o**, **3q** and **3t**

Compound	<b>3a</b>	<b>3f</b>	<b>3i</b>	<b>3n</b>	<b>3o</b>	<b>3q</b>	<b>3t</b>
Formula	C <sub>16</sub> H <sub>12</sub> O <sub>3</sub>	C <sub>16</sub> H <sub>11</sub> O <sub>4</sub> Br	C <sub>15</sub> H <sub>11</sub> N <sub>1</sub> O <sub>3</sub>	C <sub>15</sub> H <sub>12</sub> O <sub>2</sub>	C <sub>15</sub> H <sub>12</sub> O <sub>2</sub>	C <sub>15</sub> H <sub>11</sub> NO <sub>3</sub>	C <sub>13</sub> H <sub>10</sub> O <sub>3</sub>
F(000)	1056	508	352	336	608	528	572
Crystal size / mm	0.15 × 0.15 × 0.20	0.33 × 0.23 × 0.20	0.35 × 0.25 × 0.05	0.35 × 0.30 × 0.20	0.35 × 0.25 × 0.20	0.35 × 0.13 × 0.10	0.28 × 0.25 × 0.13
Crystal habit/color	prism/yellow	prism/yellow	prism/yellow	prism/yellow	block/colorless	block/colorless	block/colorless
Crystal system	orthorhombic	monoclinic	triclinic	triclinic	monoclinic	monoclinic	monoclinic
Space group	Pcab	P2 <sub>1</sub> /c	P1	P-1	P2 <sub>1</sub> /c	P2 <sub>1</sub> /c	P2 <sub>1</sub> /n
<i>a</i> / Å	7.809(2)	4.160(3)	4.7580(9)	6.822(2)	12.641(1)	6.299(3)	3.9530(9)
<i>b</i> / Å	11.176(1)	11.757(2)	6.096(1)	10.474(4)	12.066(2)	13.226(3)	14.583(2)
<i>c</i> / Å	28.679(1)	27.598(7)	10.658(2)	17.097(2)	7.813(1)	14.809(3)	17.893(5)
α / degree	90	90	95.807(2)	73.88(2)	90	90	90
β / degree	90	92.87(1)	90.482(2)	84.29(2)	101.278(1)	93.73(2)	92.16(1)
γ / degree	90	90	96.397(2)	87.66(2)	90	90	90
<i>V</i> / Å <sup>3</sup>	2496.1(8)	1348(1)	305.6(1)	1167.7(6)	1455.6(3)	1231.1	1168.6(4)
<i>Z</i>	8	4	1	2	4	4	4
ρ <sub>calc</sub> / (g cm <sup>-3</sup> )	1.343	1.710	1.208	1.291	1.274	1.366	1.387
μ / mm <sup>-1</sup>	0.756	4.291	0.799	0.673	0.814	0.793	0.672
Rad. Cu K <sub>α</sub> / Å	1.54180	1.54180	1.54180	1.54180	1.54180	1.54180	1.54180
Diffractometer	Nonius CAD-4	Nonius CAD-4	Nonius CAD-4	Nonius CAD-4	Nonius CAD-4	Nonius CAD-4	Nonius CAD-4
θ min/max / degree	3.25/70.09	3.63/66.99	3.89/67.13	4.61/67.06	4.06/67.15	4.36/67.90	2.96/67.16
Refl. collected	2201	2795	1771	4330	2832	4082	2170
Data/restr/param	2126/0/173	1995/0/156	1764/1/209	4185/0/314	2465/0/185	3528/0/274	4885/0/344
Abs. cor. T <sub>mx</sub> /T <sub>mn</sub>	none	0.6568/0.5180	none	none	none	none	none
R <sub>int</sub>	0.0111	0.0219	0.0330	0.0248	0.0157	0.0596	0.0245
R	0.0557	0.0809	0.0492	0.0701	0.0820	0.0660	0.0680
R <sub>w</sub>	0.1557	0.2286	0.1547	0.1953	0.3328	0.1611	0.1987
S on F <sup>2</sup>	1.084	1.103	1.080	1.168	1.099	1.150	1.078
Max/min peaks / (e Å <sup>-3</sup> )	0.360/-0.357	0.328/-0.232	0.223/-0.267	0.357/-0.374	0.528/-0.420	0.417/-0.409	0.234/-0.287

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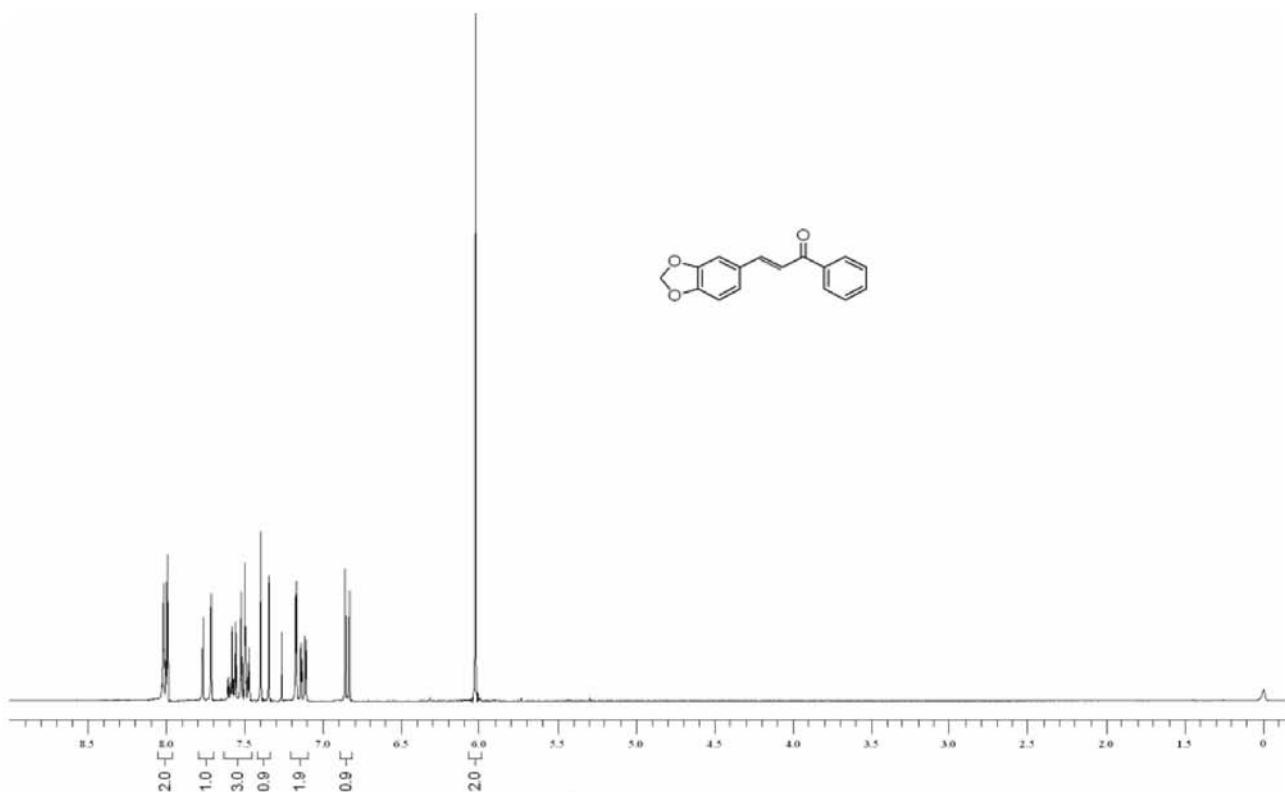


Figure S1. <sup>1</sup>H NMR (300 MHz, CDCl<sub>3</sub>) spectrum of compound 3a.

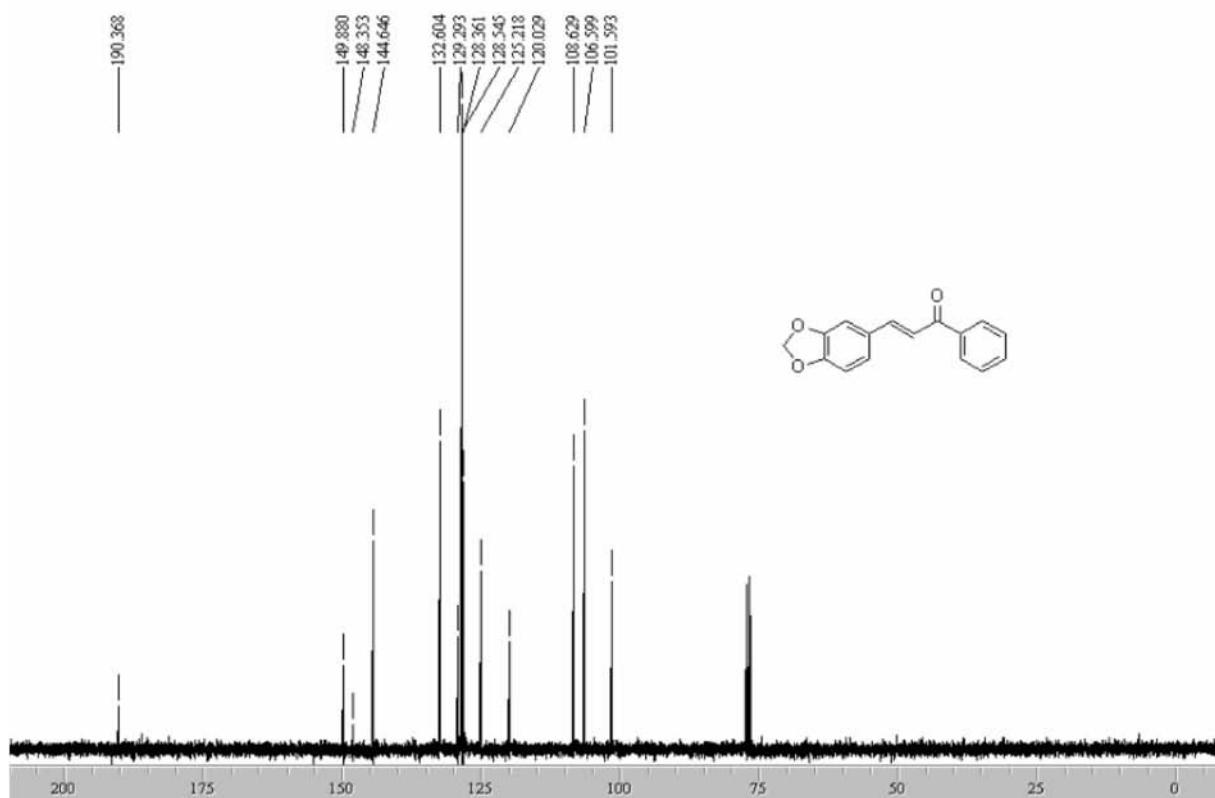
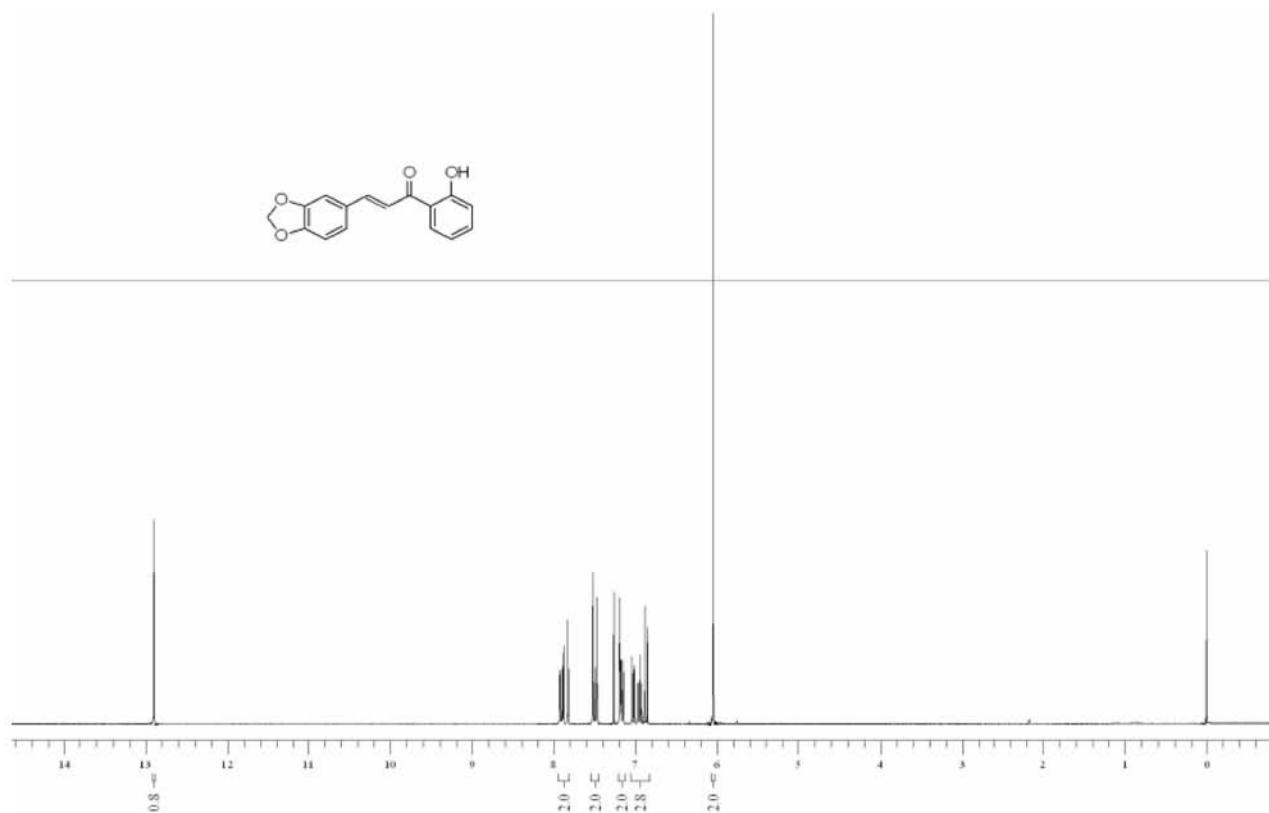
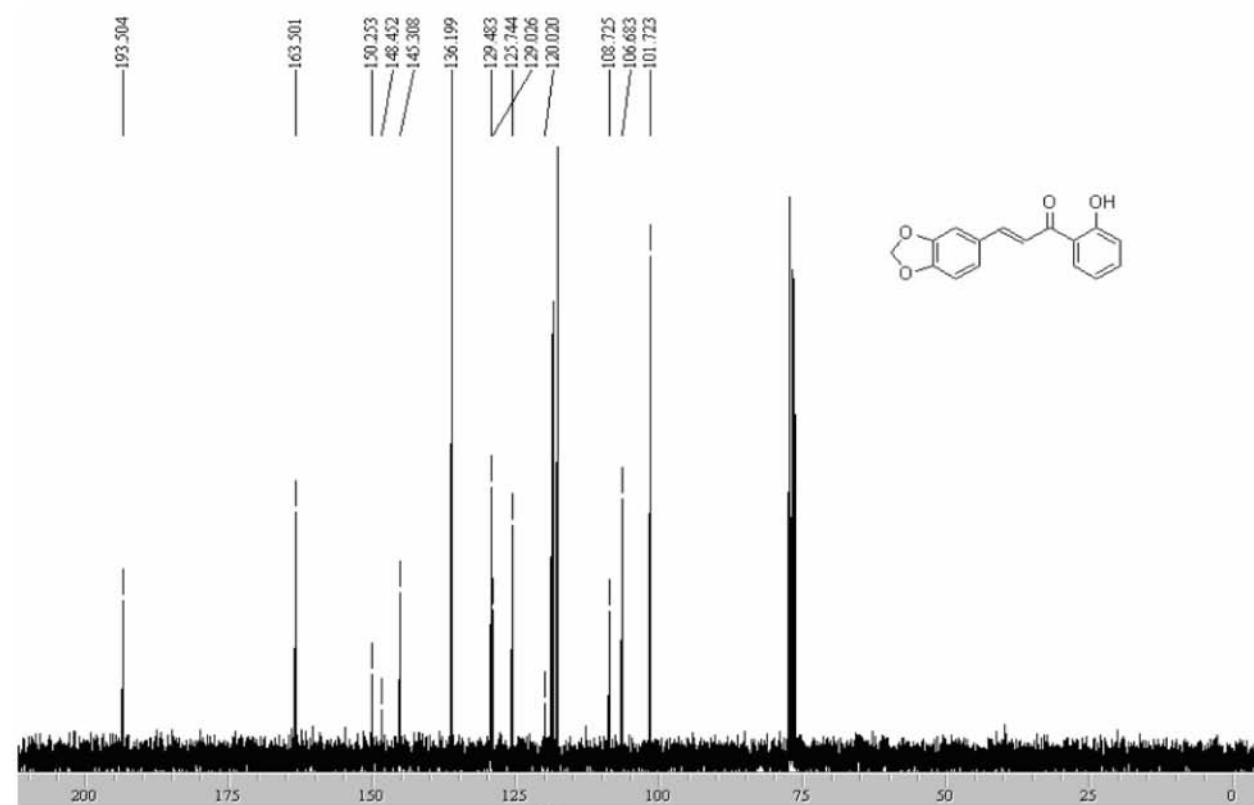


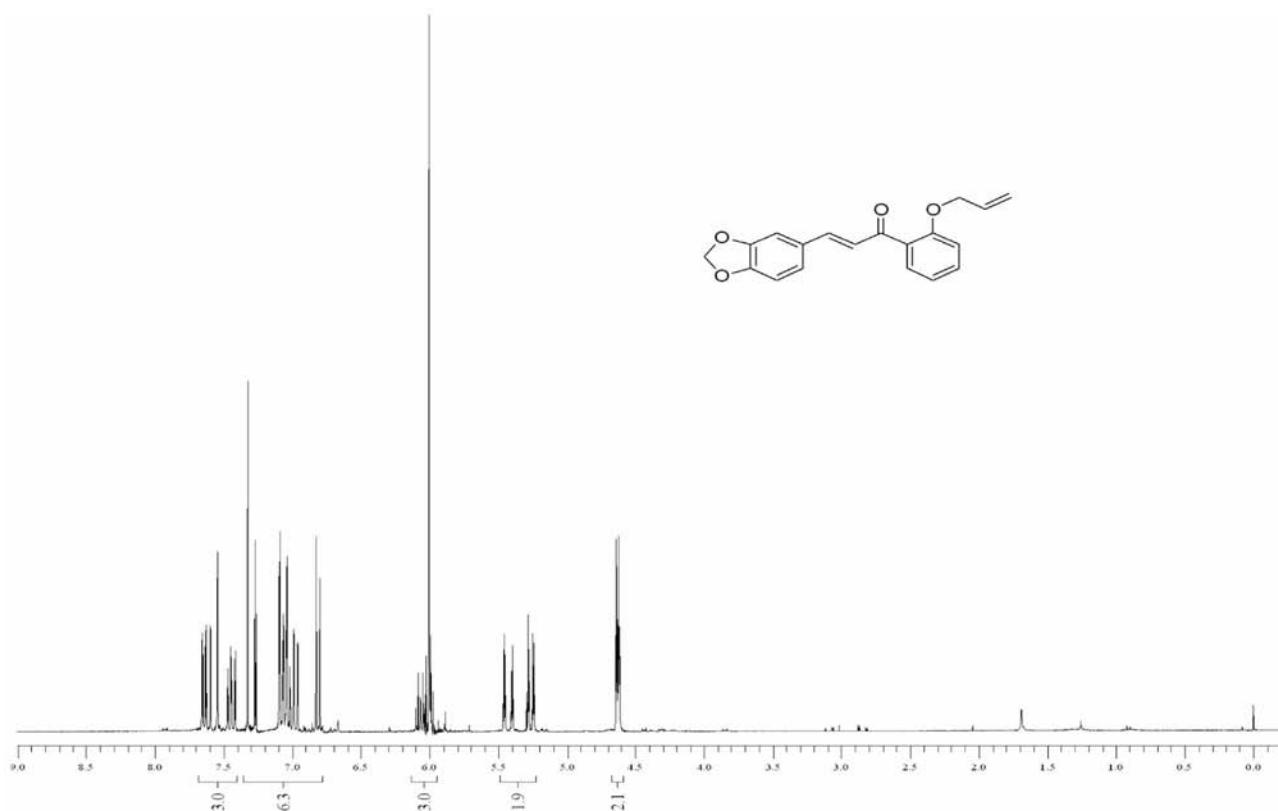
Figure S2. <sup>13</sup>C NMR (75 MHz, CDCl<sub>3</sub>) spectrum of compound 3a.



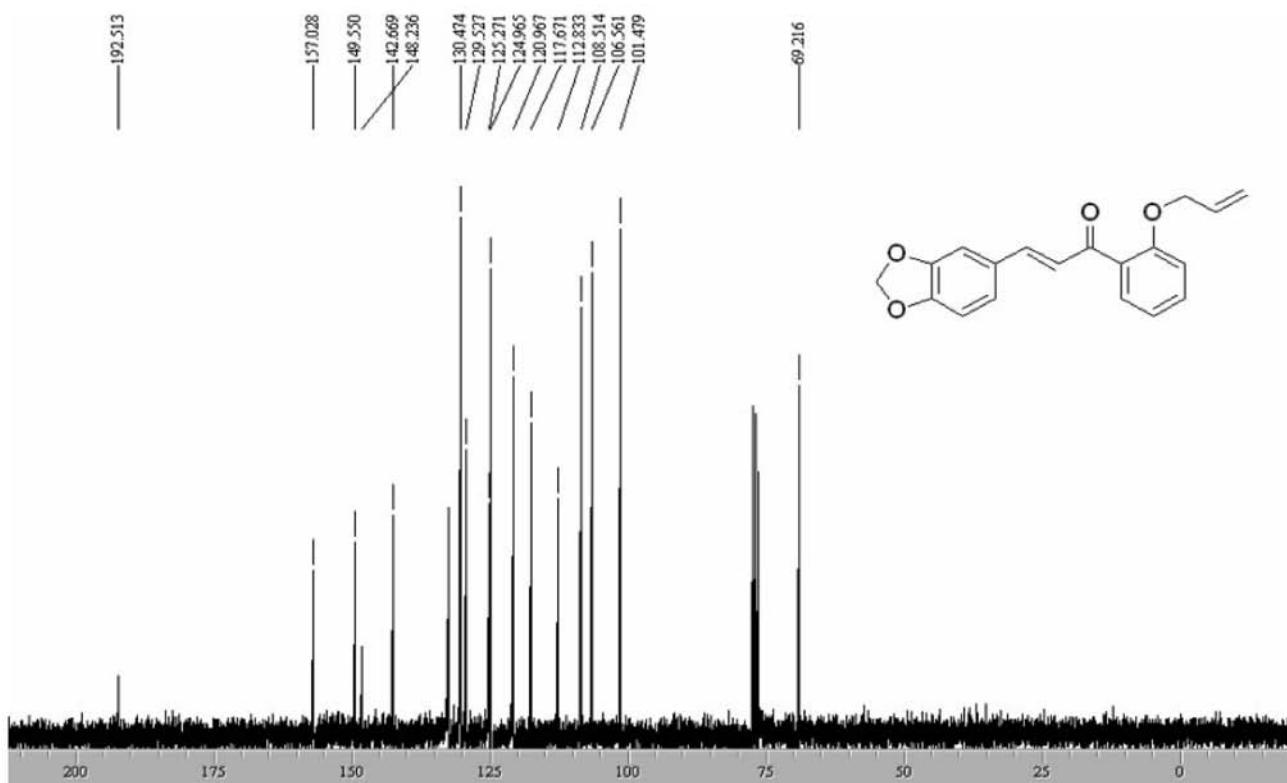
**Figure S3.** <sup>1</sup>H NMR (300 MHz, CDCl<sub>3</sub>) spectrum of compound 3b.



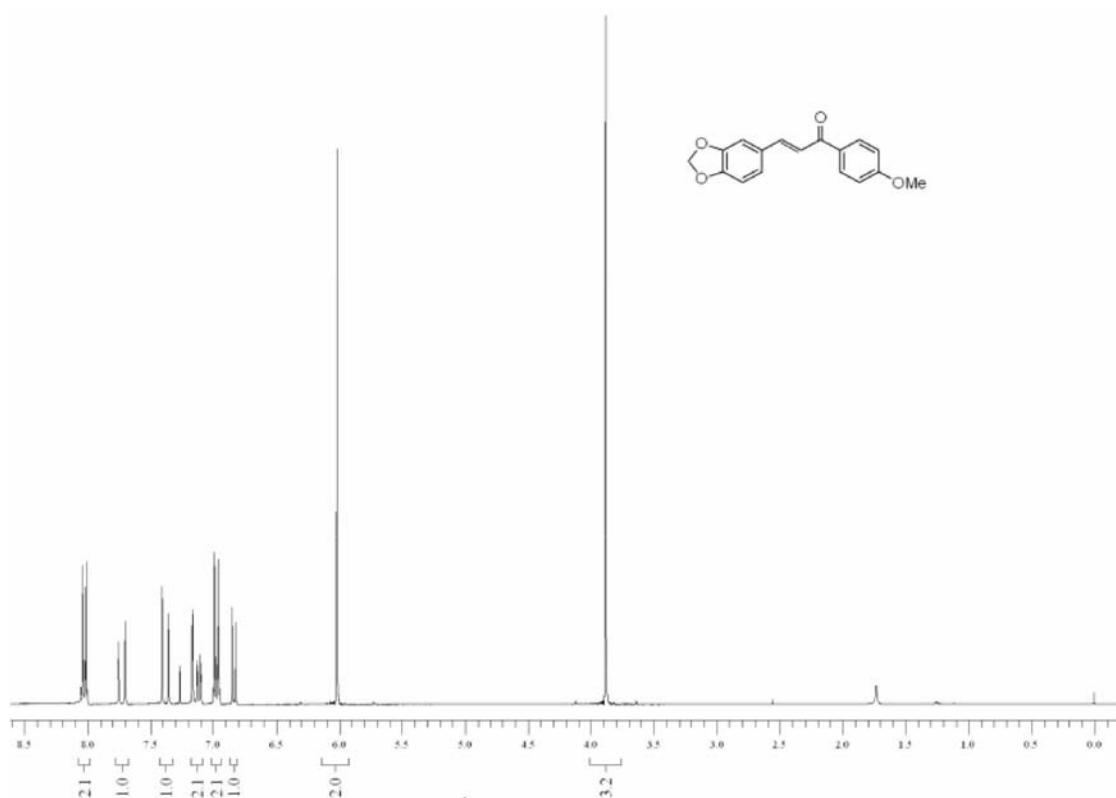
**Figure S4.** <sup>13</sup>C NMR (75 MHz, CDCl<sub>3</sub>) spectrum of compound 3b.



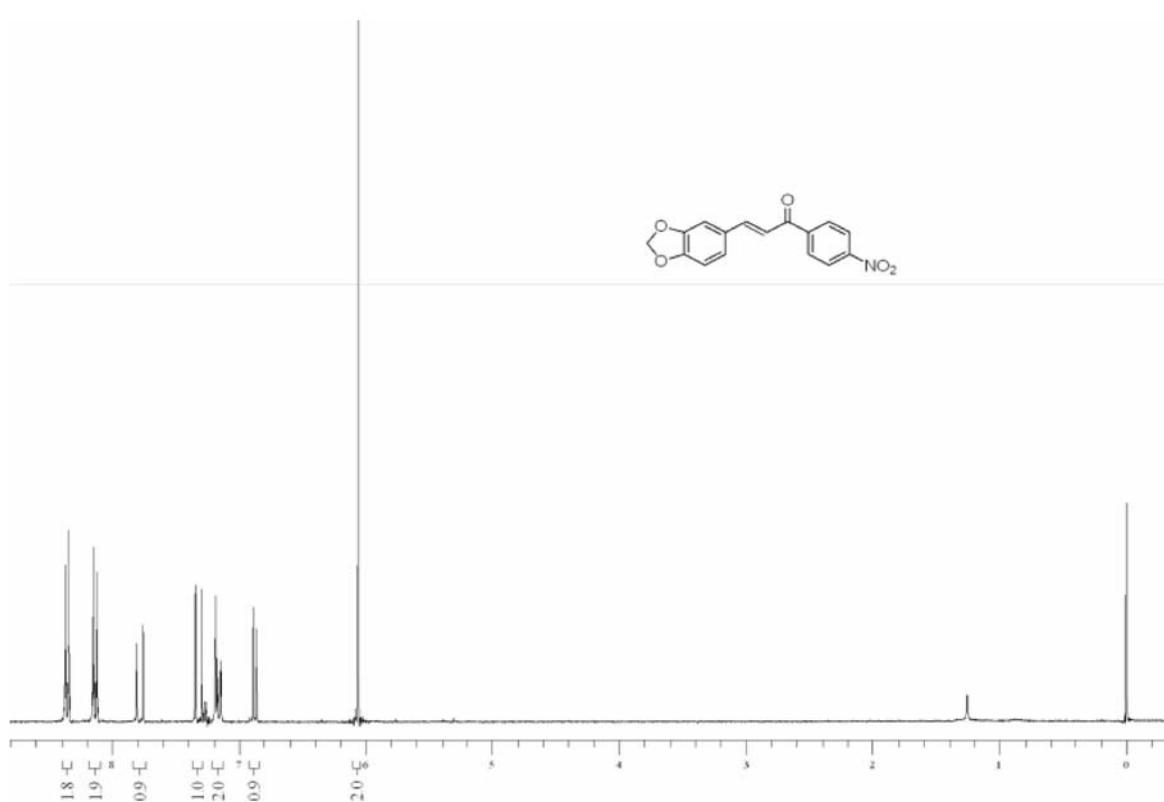
**Figure S5.**  $^1\text{H}$  NMR (300 MHz,  $\text{CDCl}_3$ ) spectrum of compound 3c.



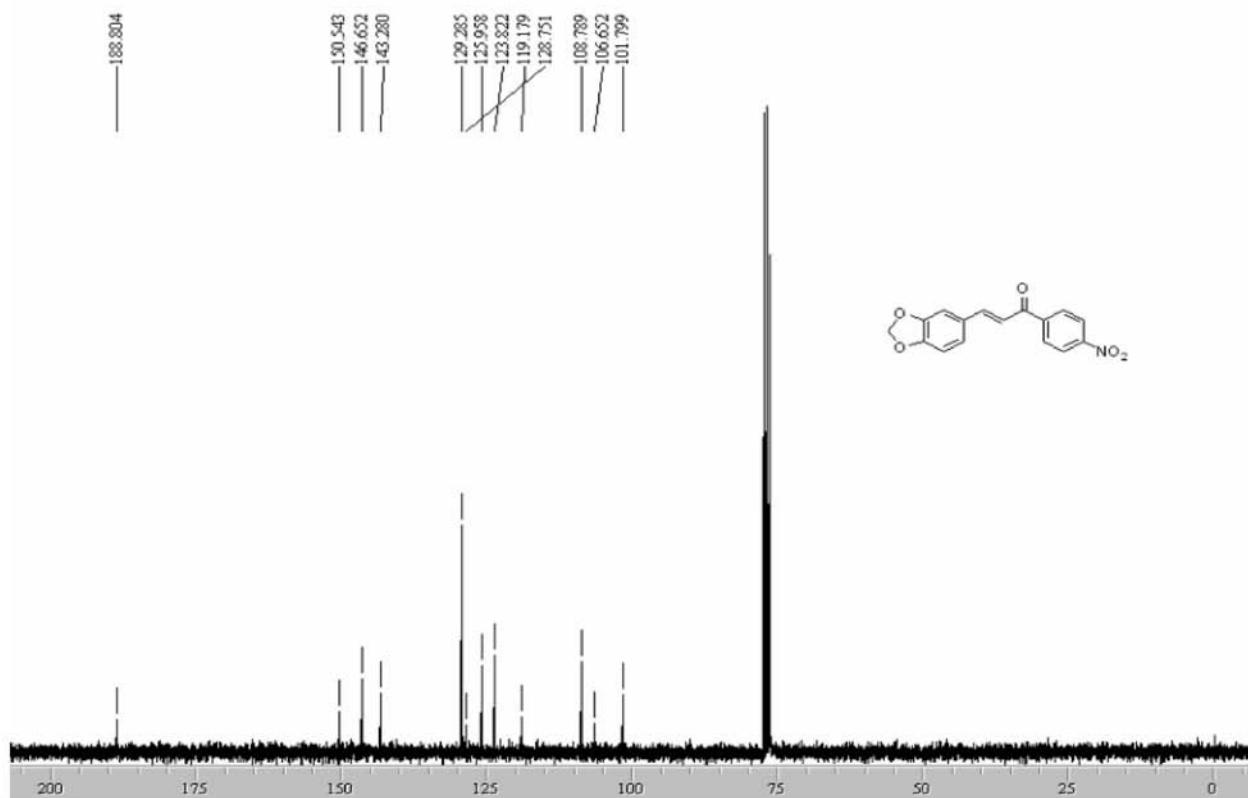
**Figure S6.**  $^{13}\text{C}$  NMR (75 MHz,  $\text{CDCl}_3$ ) spectrum of compound 3c.



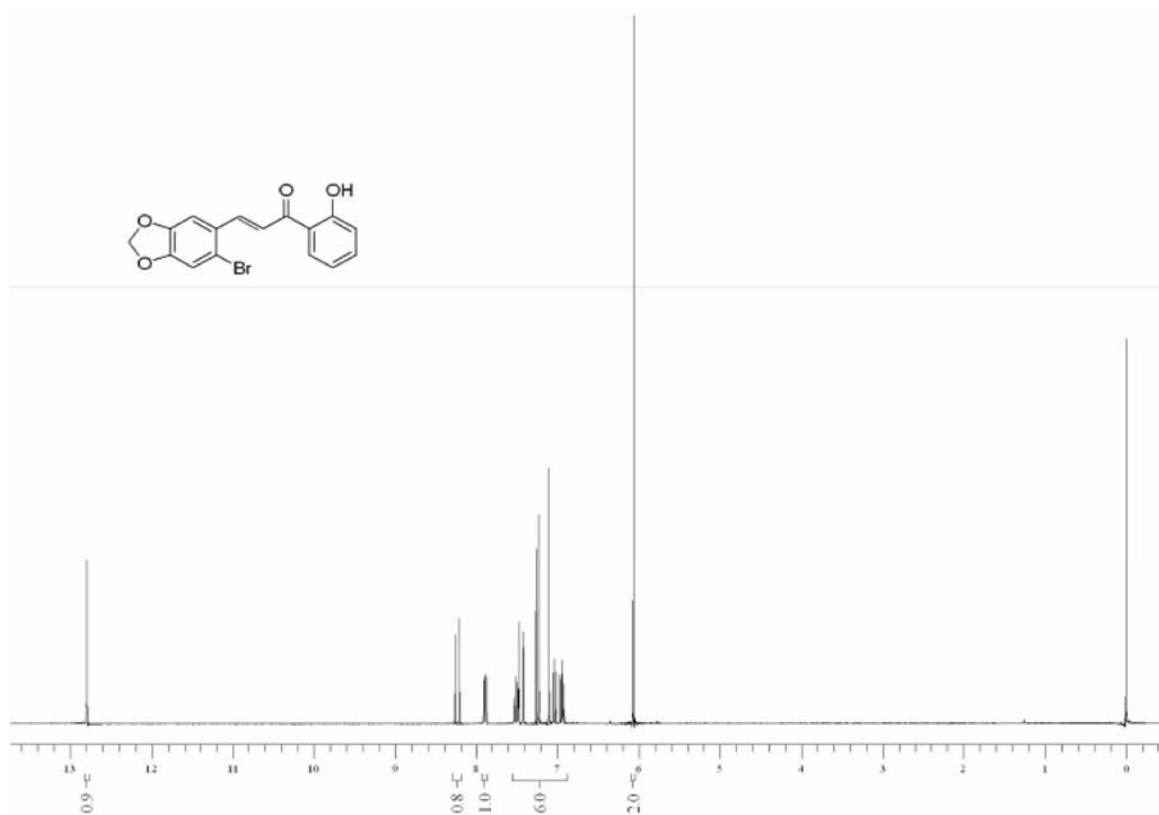
**Figure S7.**  $^1\text{H}$  NMR (300 MHz,  $\text{CDCl}_3$ ) spectrum of compound **3d**.



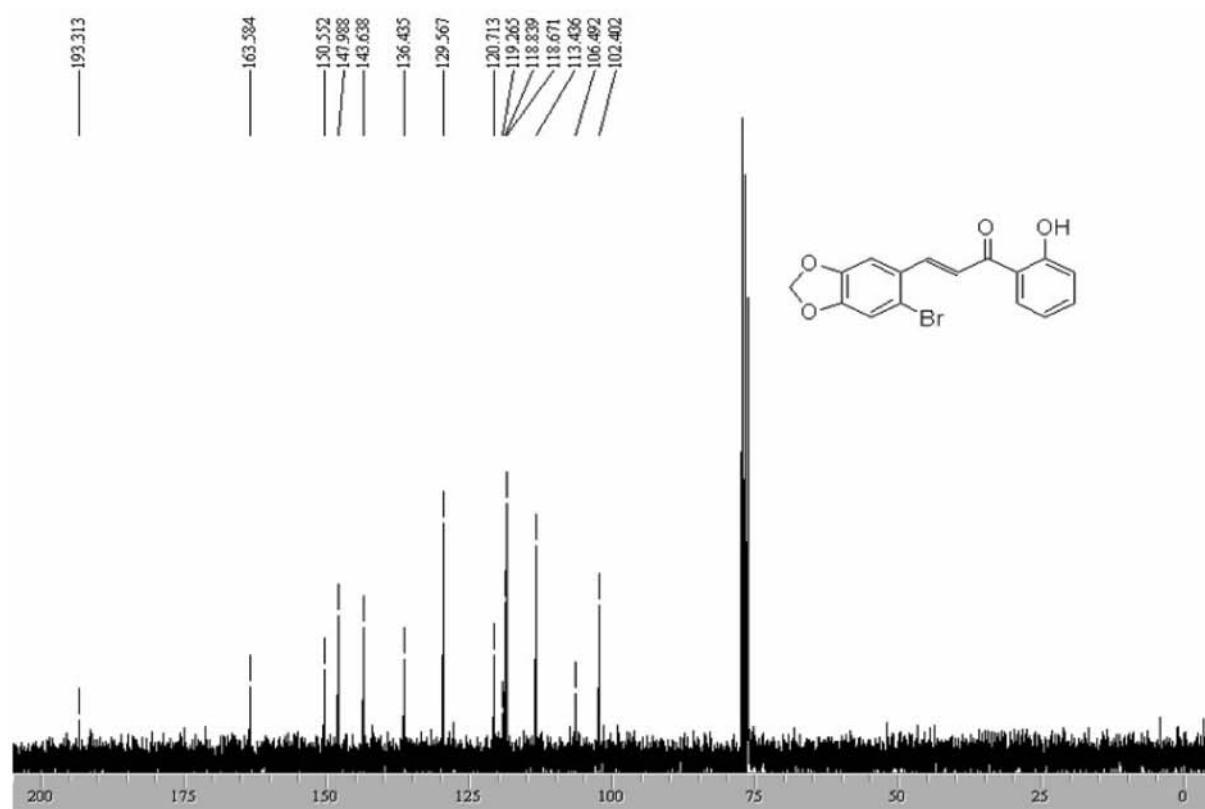
**Figure S8.**  $^1\text{H}$  NMR (300 MHz,  $\text{CDCl}_3$ ) spectrum of compound **3e**.



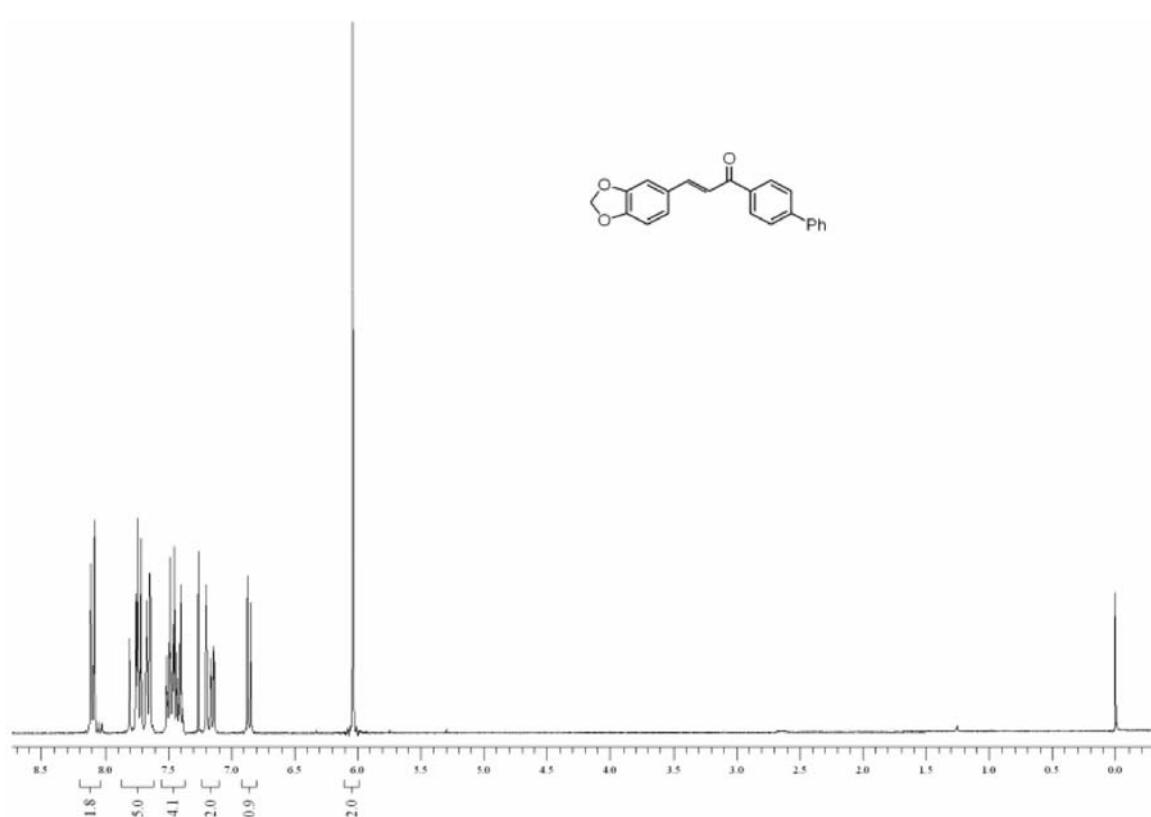
**Figure S9.**  $^{13}\text{C}$  NMR (75 MHz,  $\text{CDCl}_3$ ) spectrum of compound 3e.



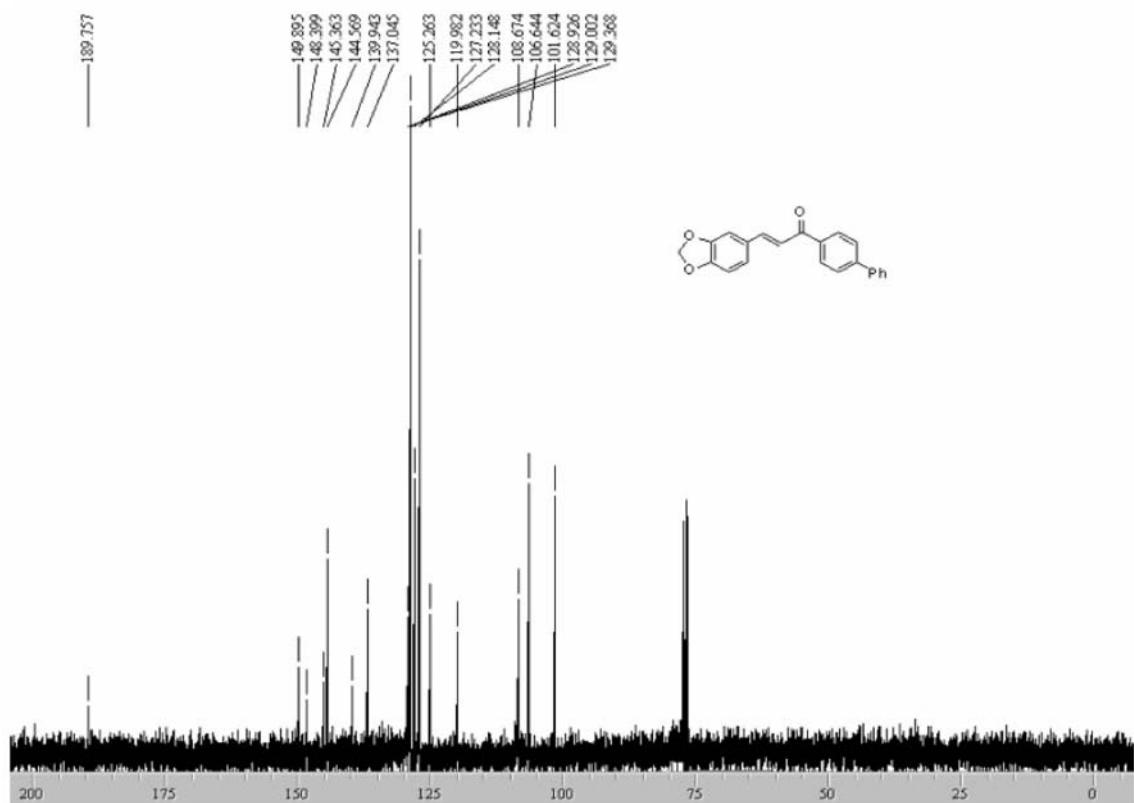
**Figure S10.**  $^1\text{H}$  NMR (300 MHz,  $\text{CDCl}_3$ ) spectrum of compound 3f.



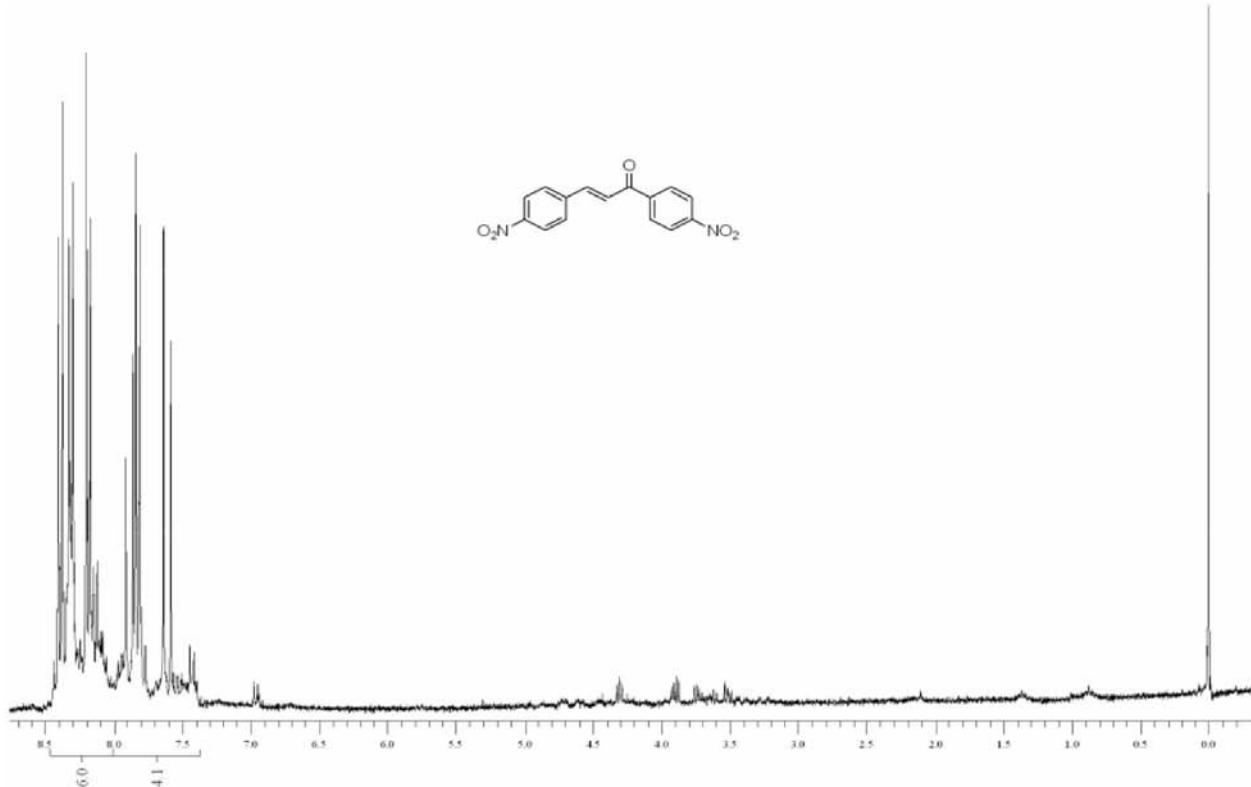
**Figure S11.**  $^{13}\text{C}$  NMR (75 MHz,  $\text{CDCl}_3$ ) spectrum of compound **3f**.



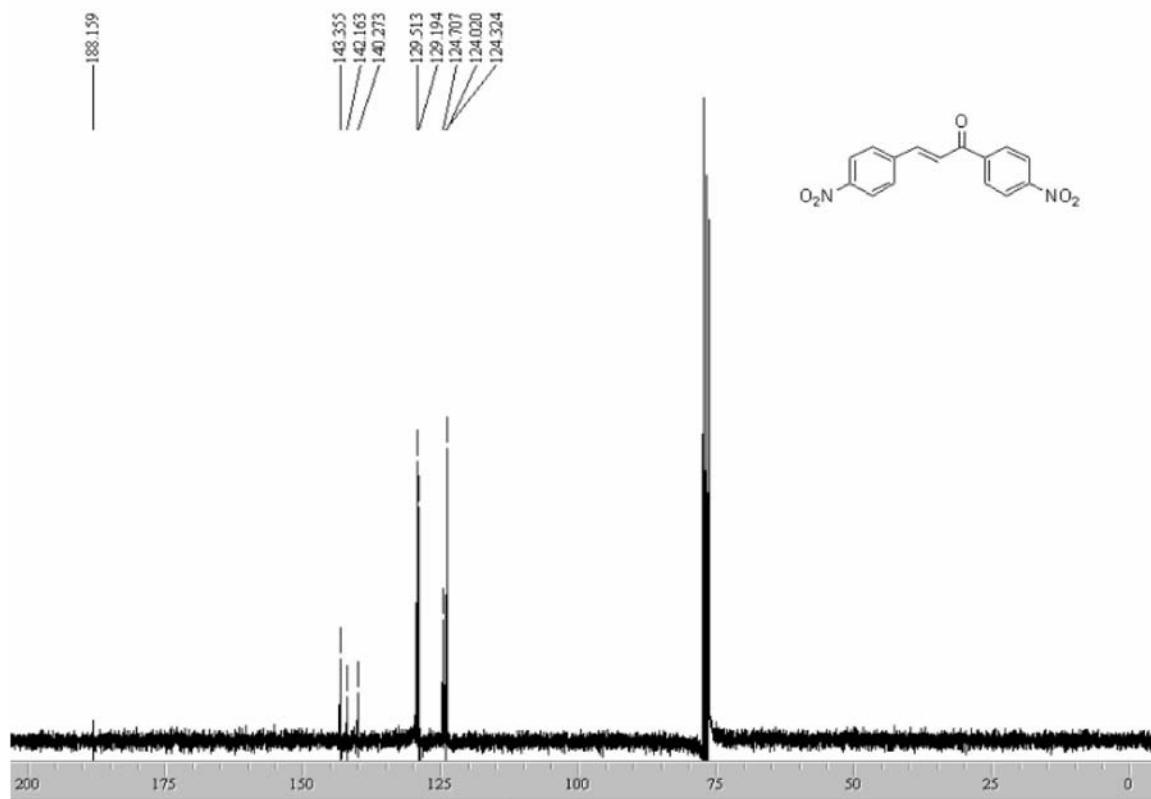
**Figure S12.**  $^1\text{H}$  NMR (300 MHz,  $\text{CDCl}_3$ ) spectrum of compound **3g**.



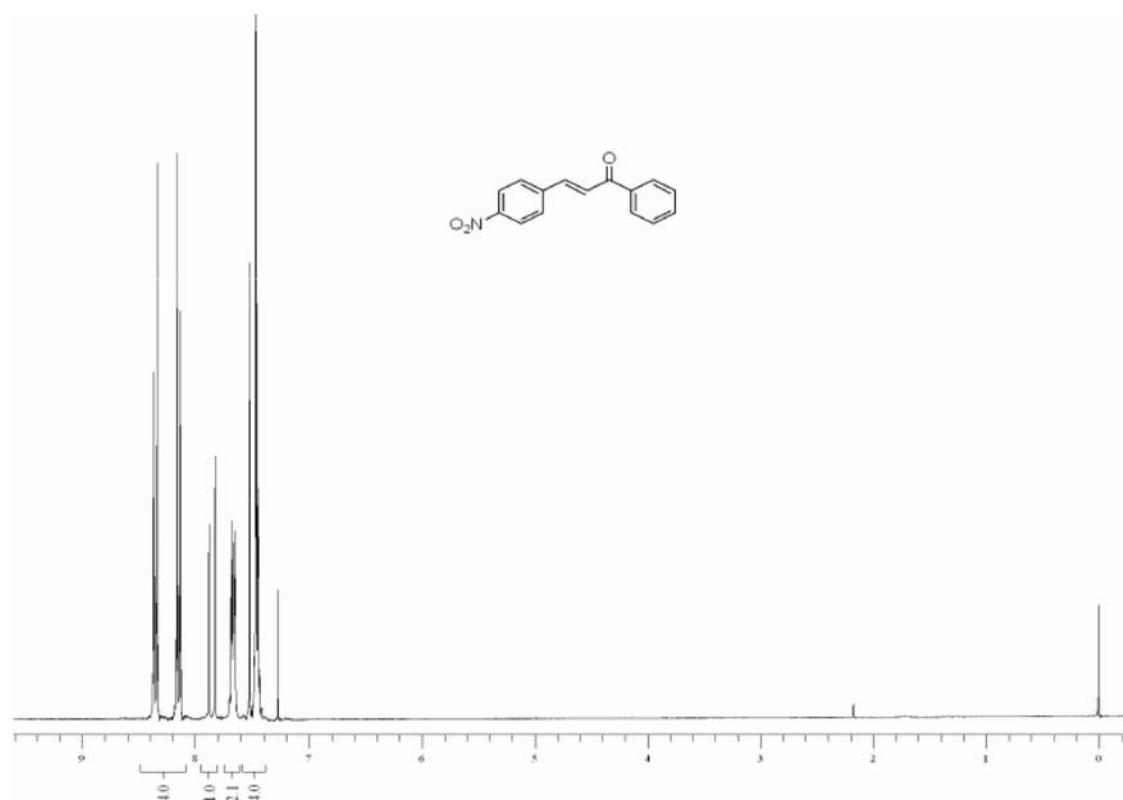
**Figure S13.**  $^{13}\text{C}$  NMR (75 MHz,  $\text{CDCl}_3$ ) spectrum of compound **3g**.



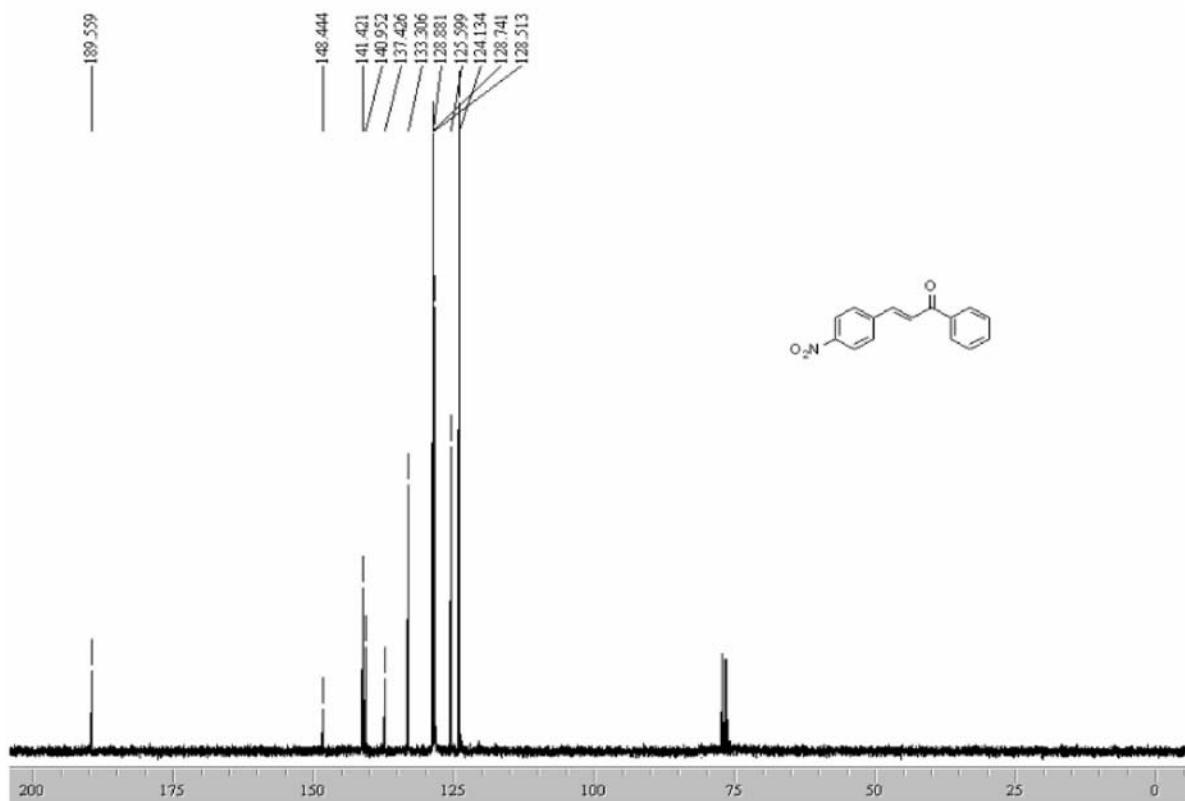
**Figure S14.**  $^1\text{H}$  NMR (300 MHz,  $\text{CDCl}_3$ ) spectrum of compound **3h**.



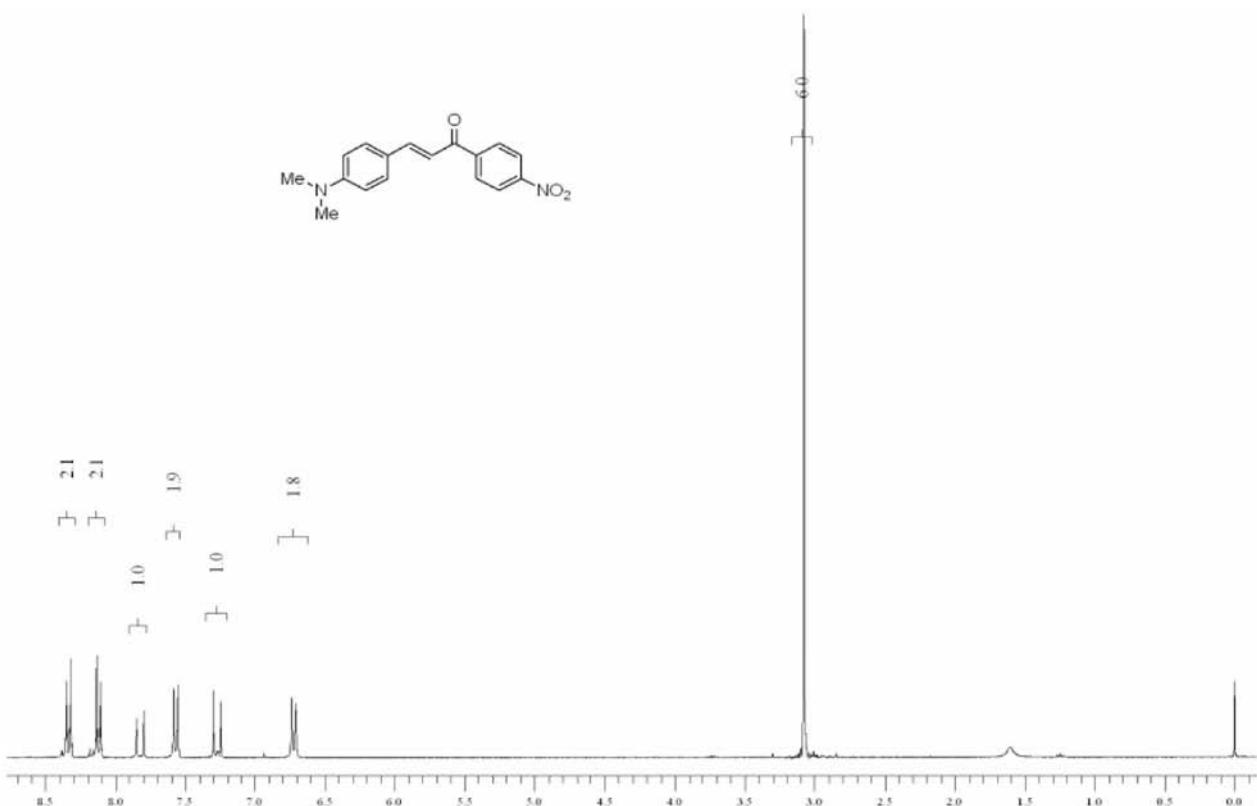
**Figure S15.** <sup>13</sup>C NMR (75 MHz, CDCl<sub>3</sub>) spectrum of compound 3h.



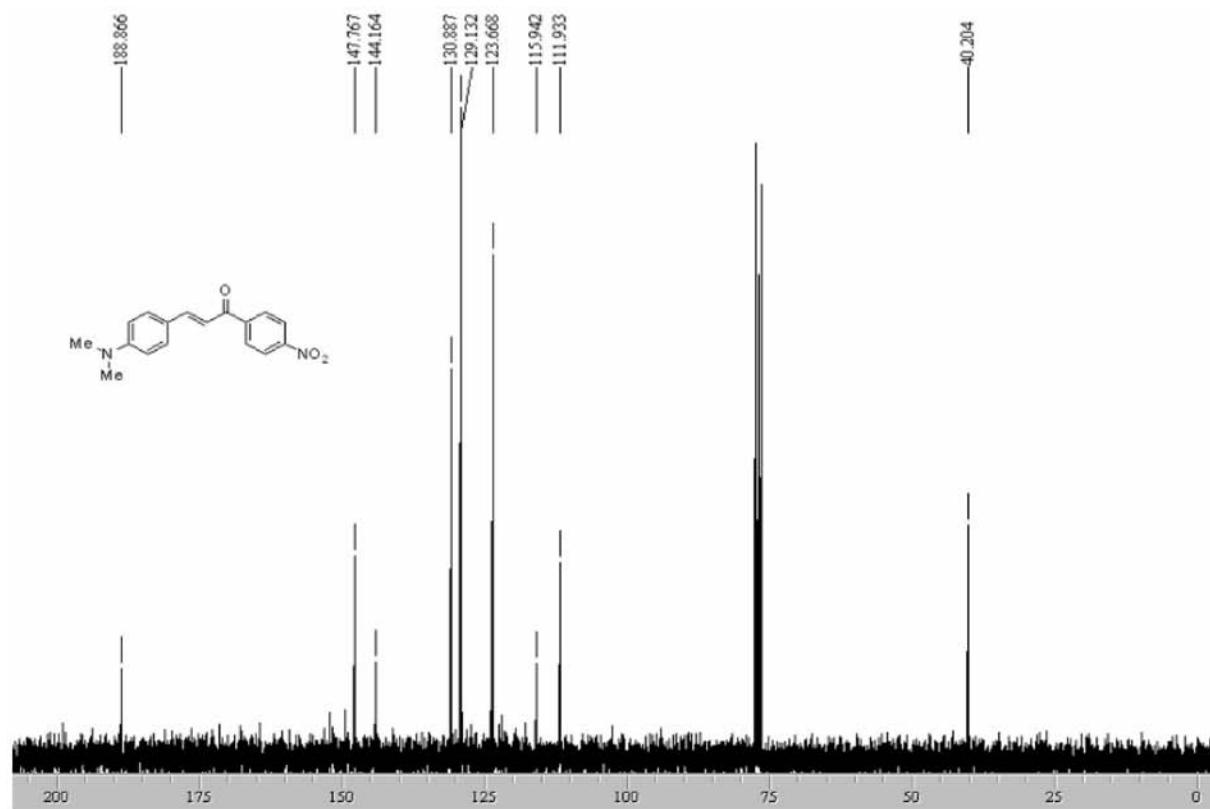
**Figure S16.** <sup>1</sup>H NMR (300 MHz, CDCl<sub>3</sub>) spectrum of compound 3i.



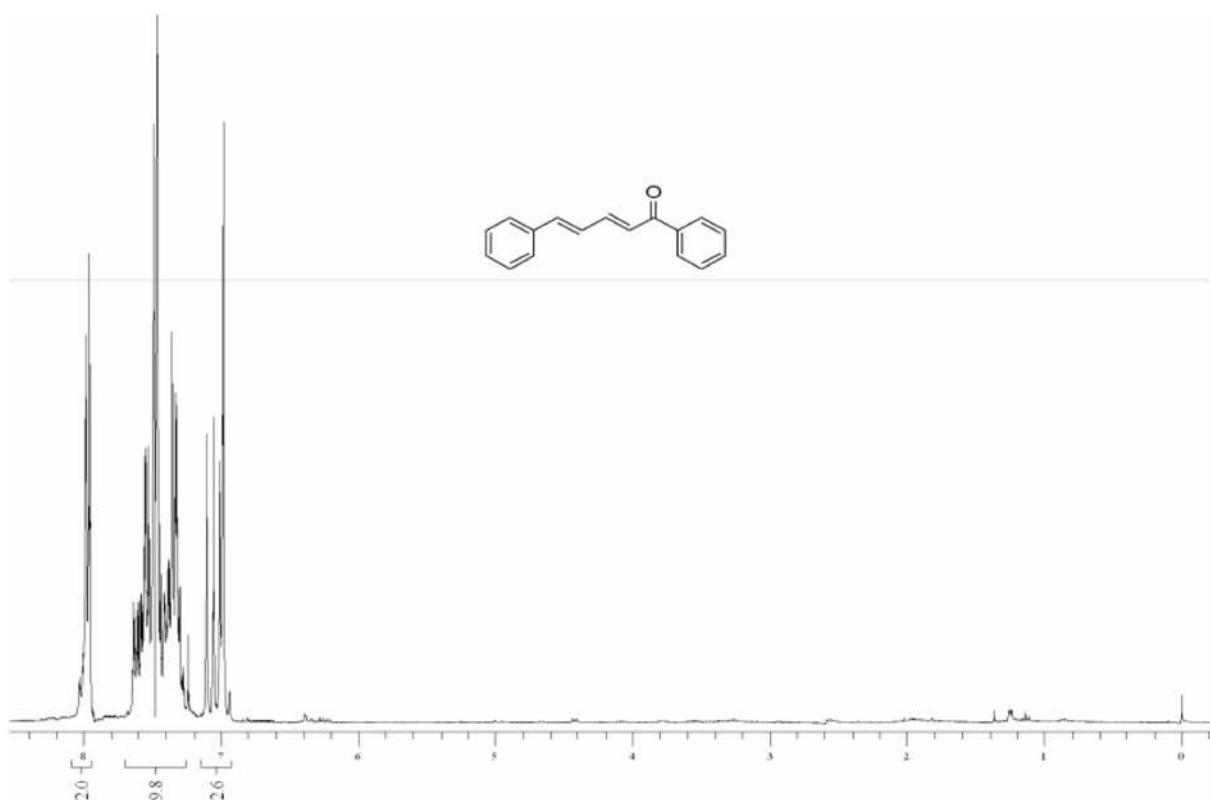
**Figure S17.**  $^{13}\text{C}$  NMR (75 MHz,  $\text{CDCl}_3$ ) spectrum of compound **3i**.



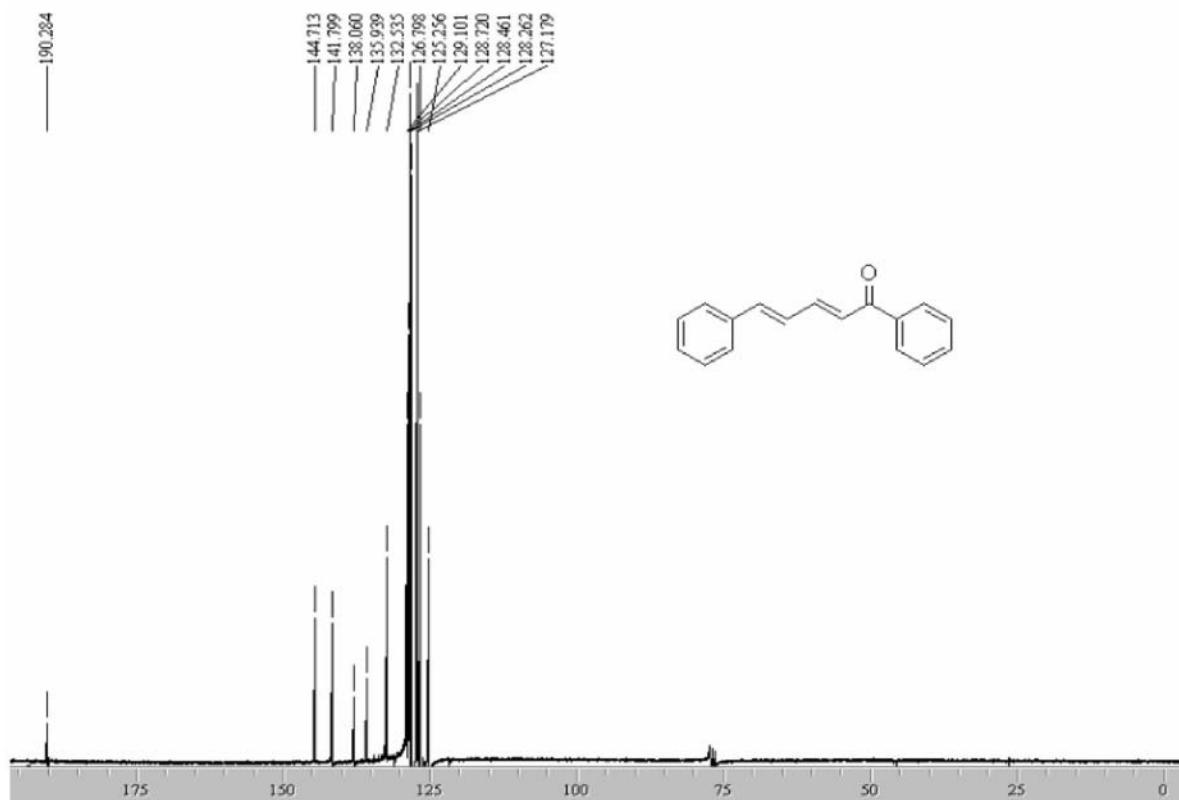
**Figure S18.**  $^1\text{H}$  NMR (300 MHz,  $\text{CDCl}_3$ ) spectrum of compound **3j**.



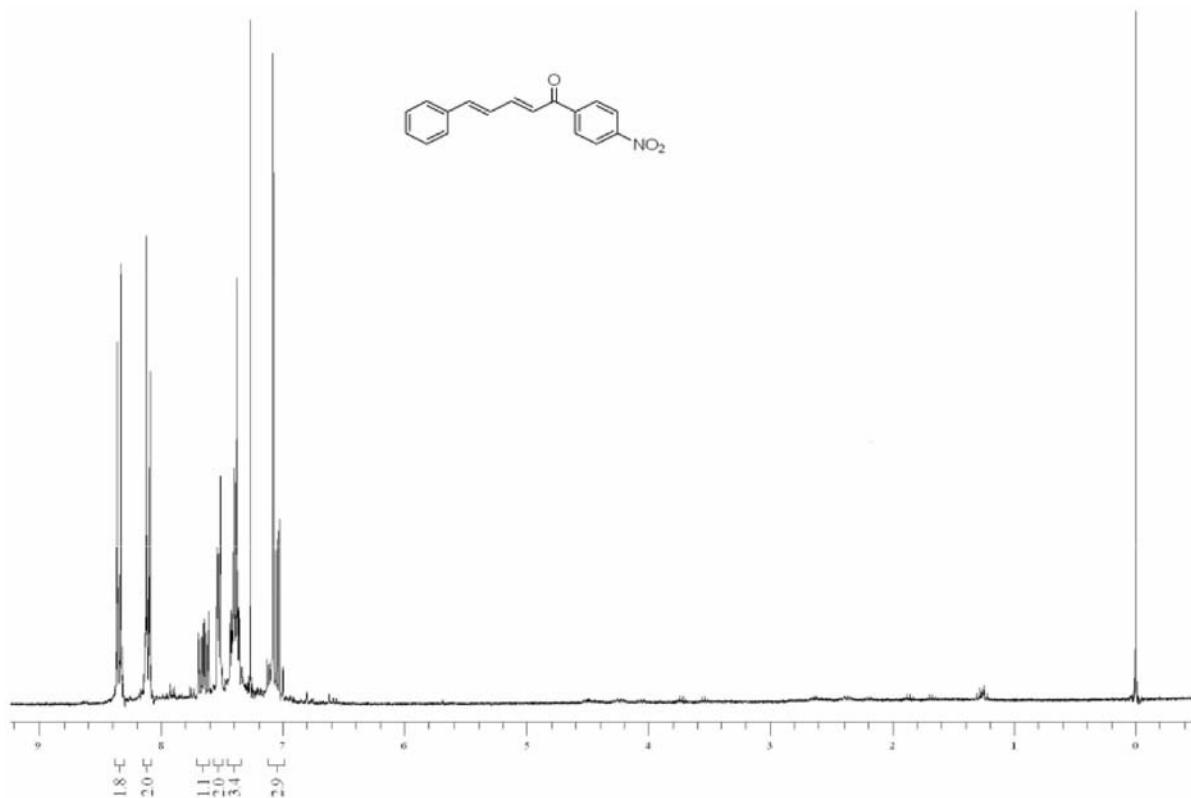
**Figure S19.**  $^{13}\text{C}$  NMR (75 MHz,  $\text{CDCl}_3$ ) spectrum of compound **3j**.



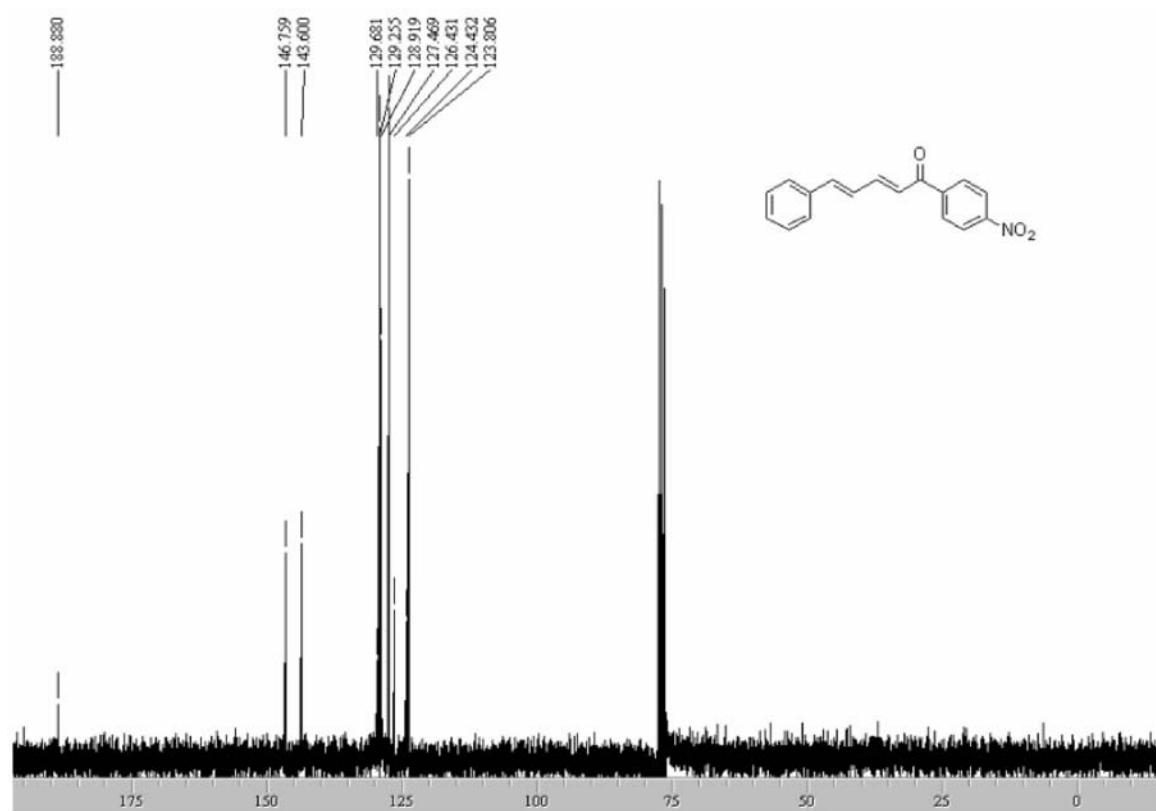
**Figure S20.**  $^1\text{H}$  NMR (300 MHz,  $\text{CDCl}_3$ ) spectrum of compound **3k**.



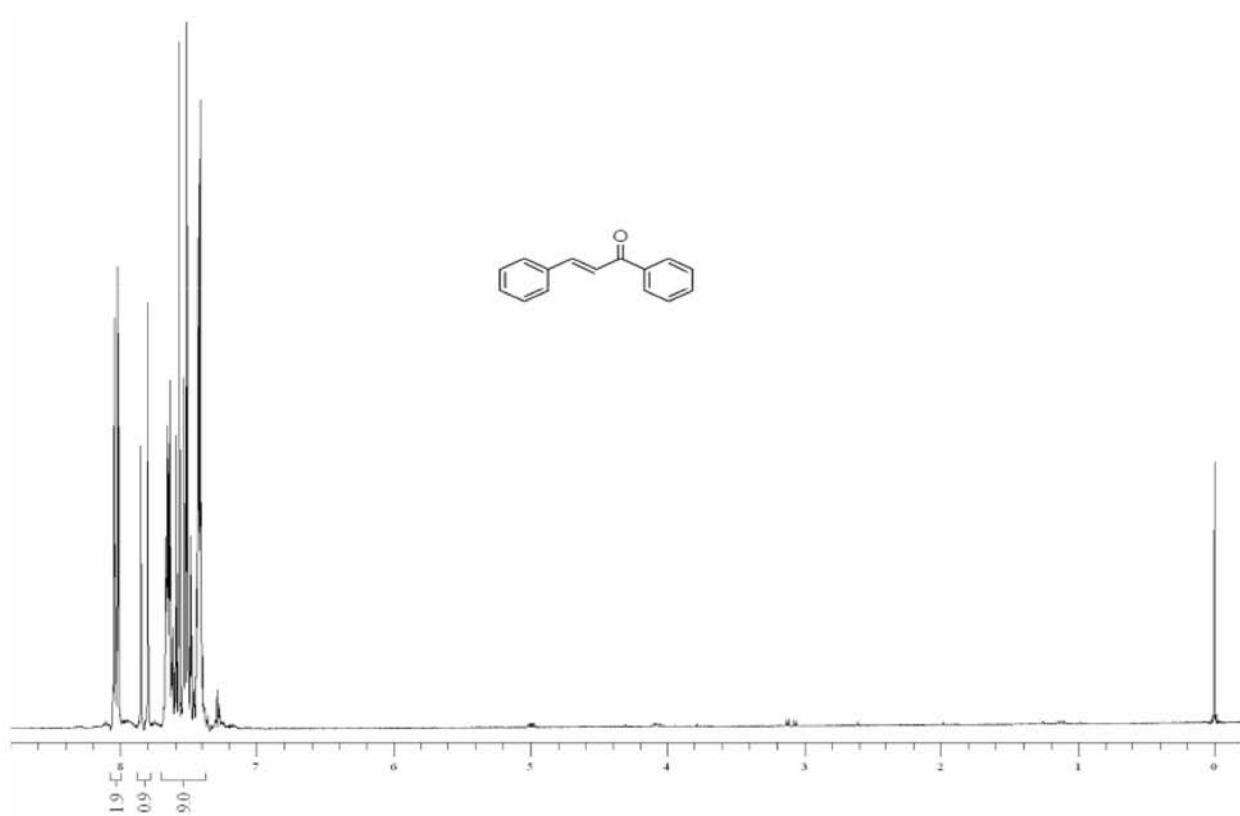
**Figure S21.**  $^{13}\text{C}$  NMR (75 MHz,  $\text{CDCl}_3$ ) spectrum of compound **3k**.



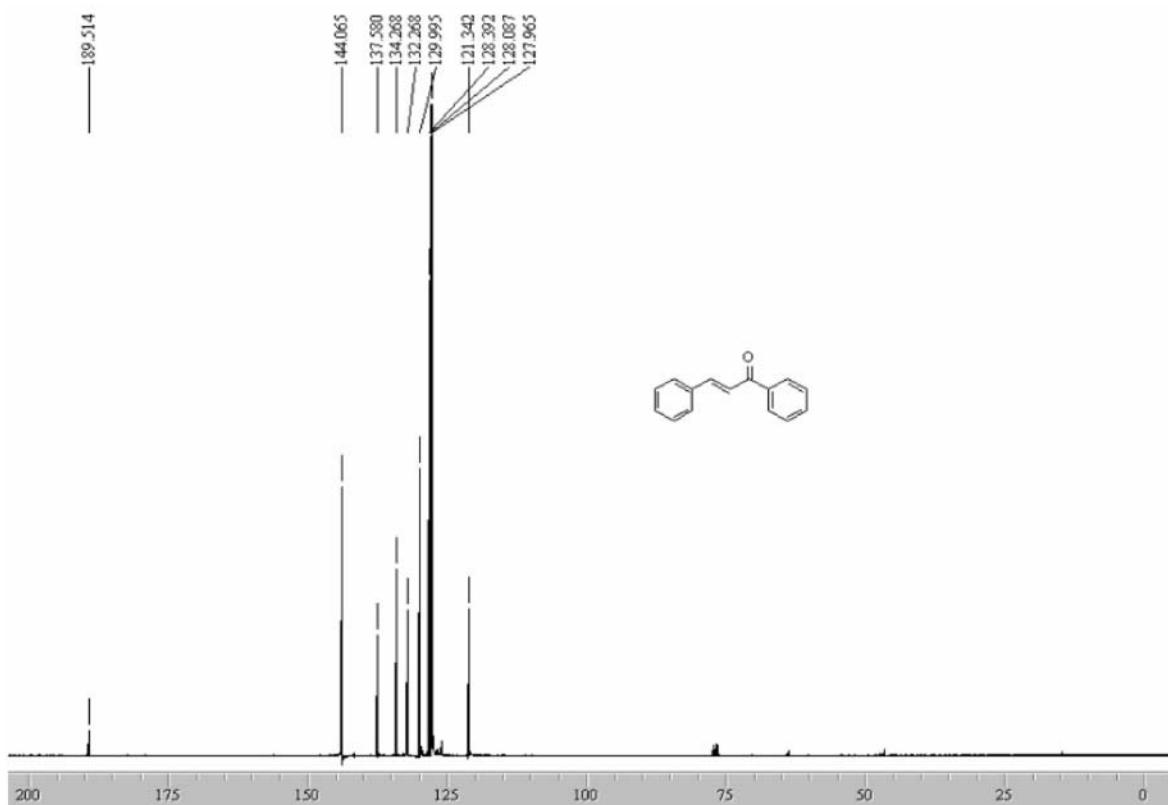
**Figure S22.**  $^1\text{H}$  NMR (300 MHz,  $\text{CDCl}_3$ ) spectrum of compound **3l**.



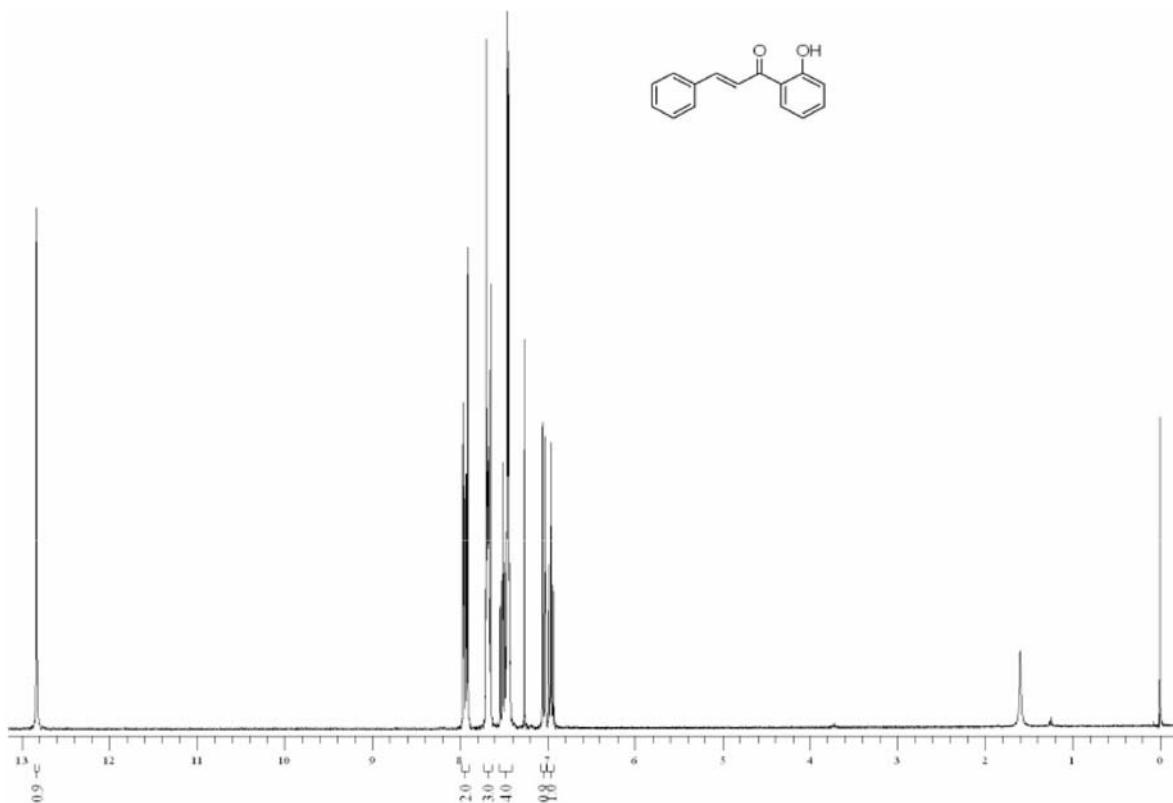
**Figure S23.**  $^{13}\text{C}$  NMR (75 MHz,  $\text{CDCl}_3$ ) spectrum of compound **3l**.



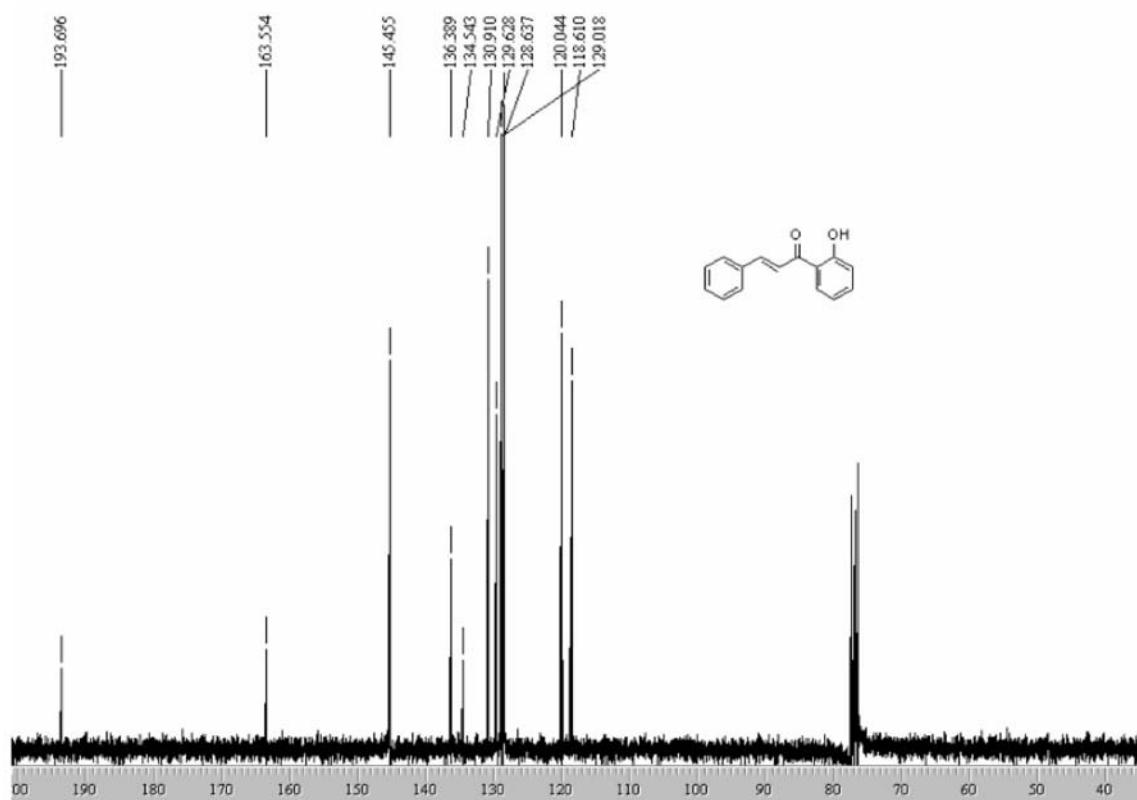
**Figure S24.**  $^1\text{H}$  NMR (300 MHz,  $\text{CDCl}_3$ ) spectrum of compound **3m**.



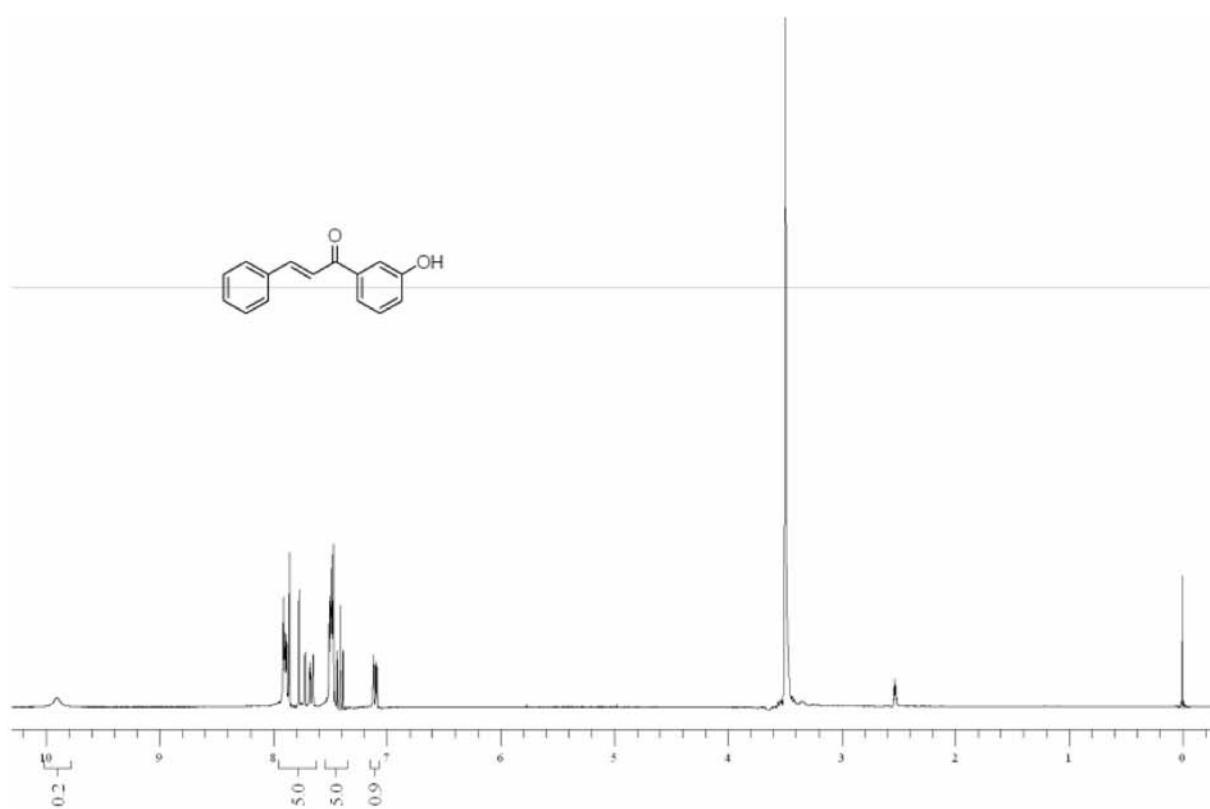
**Figure S25.**  $^{13}\text{C}$  NMR (75 MHz,  $\text{CDCl}_3$ ) spectrum of compound **3m**.



**Figure S26.**  $^1\text{H}$  NMR (300 MHz,  $\text{CDCl}_3$ ) spectrum of compound **3n**.



**Figure S27.**  $^{13}\text{C}$  NMR (75 MHz,  $\text{CDCl}_3$ ) spectrum of compound **3n**.



**Figure S28.**  $^1\text{H}$  NMR (300 MHz,  $\text{d}_6$ -DMSO) spectrum of compound **3o**.

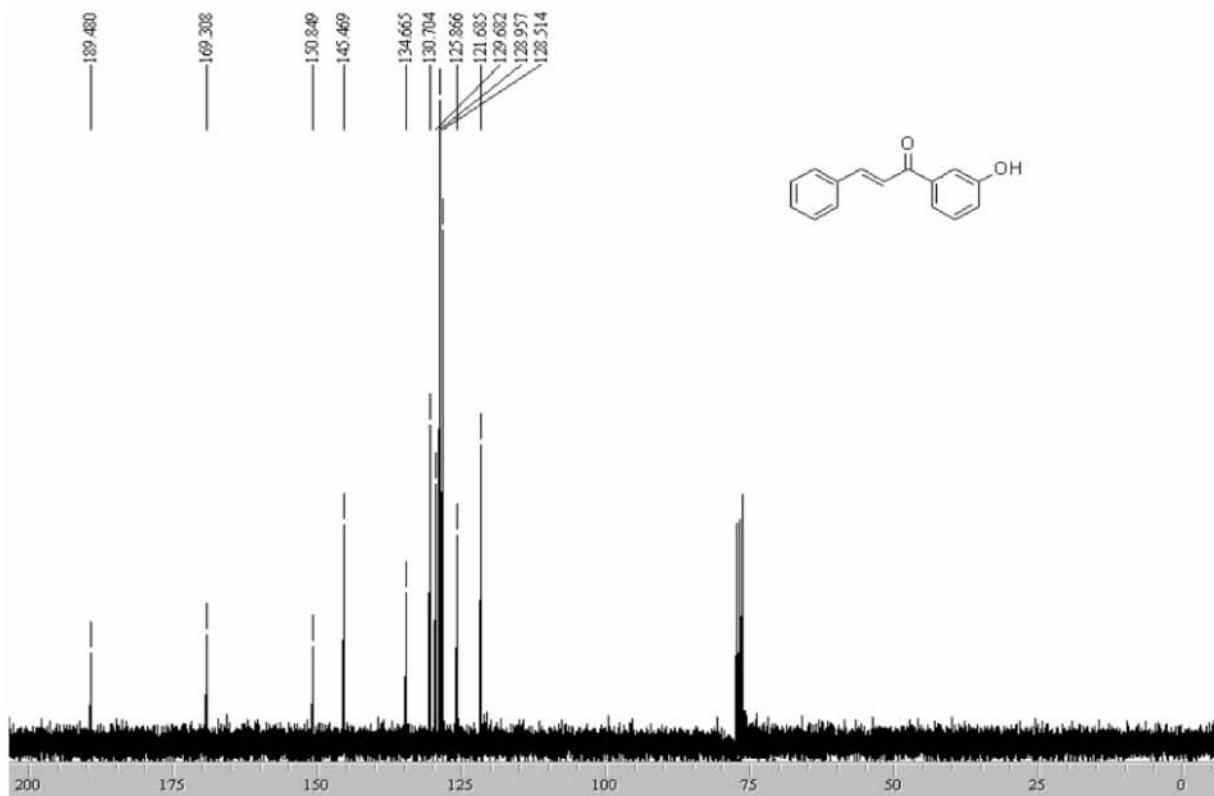


Figure S29. <sup>13</sup>C NMR (75 MHz, CDCl<sub>3</sub>) spectrum of compound 3o.

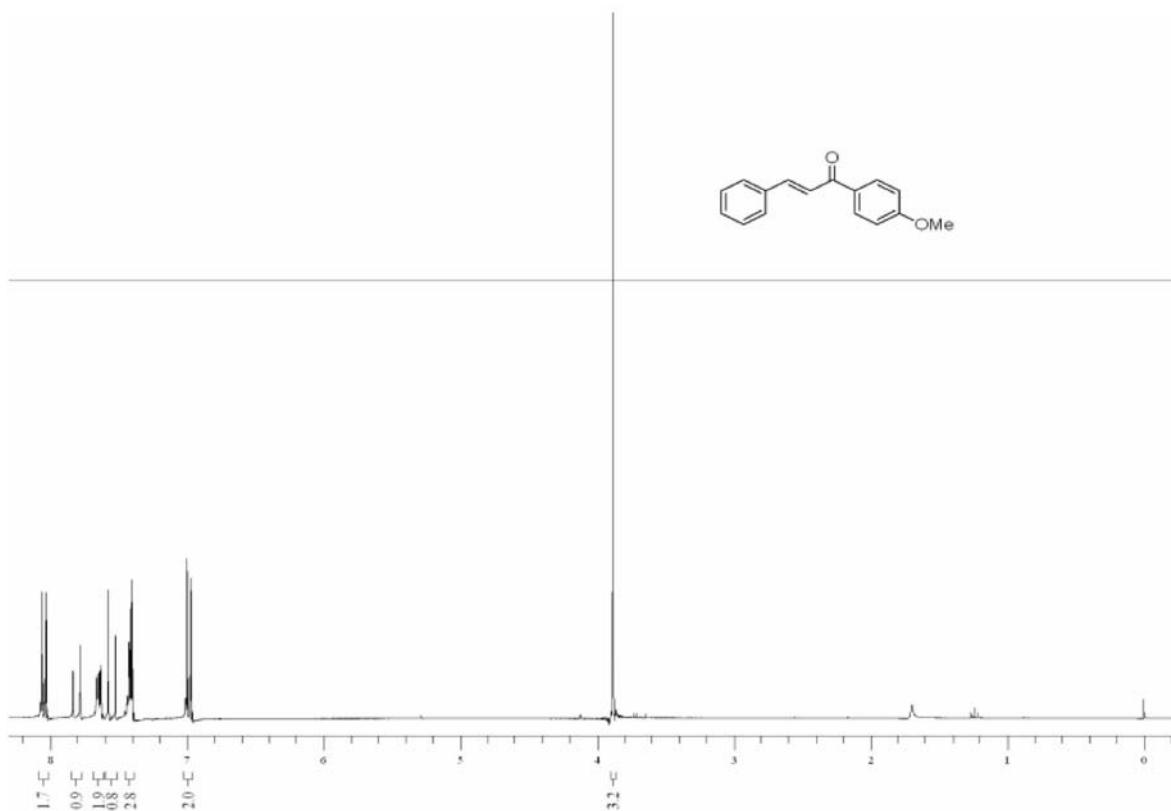
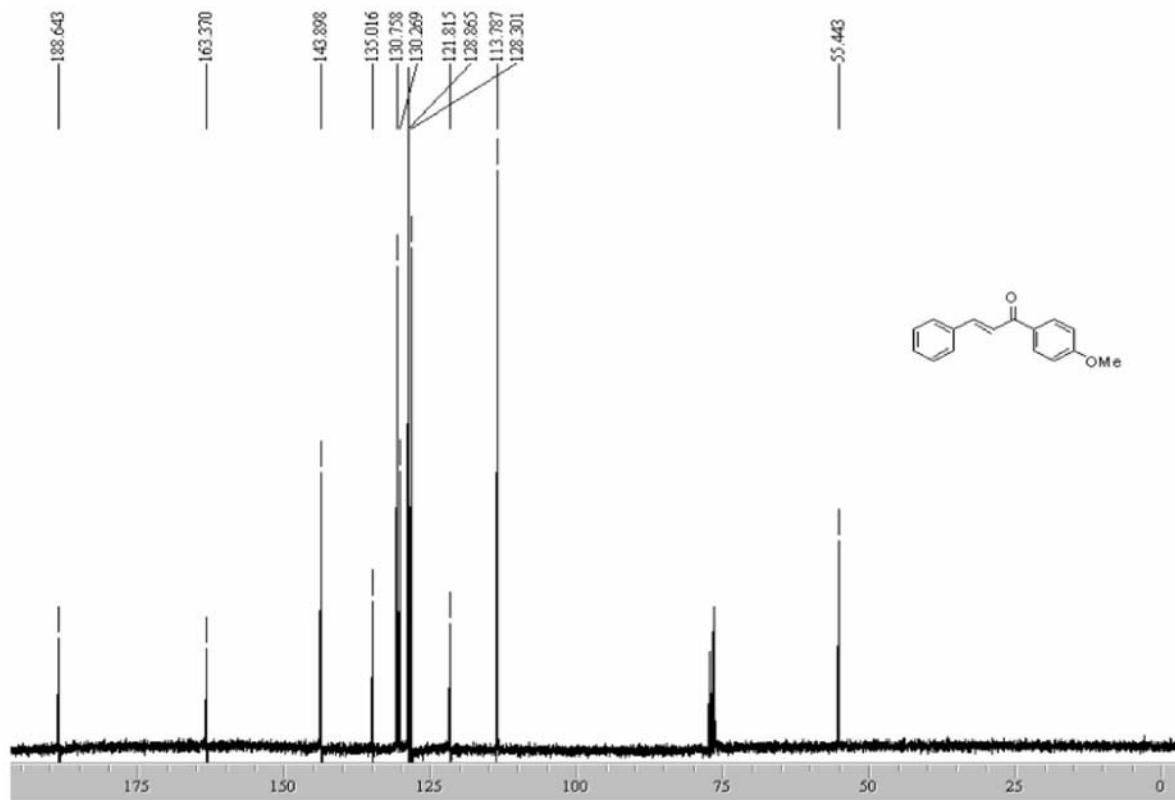
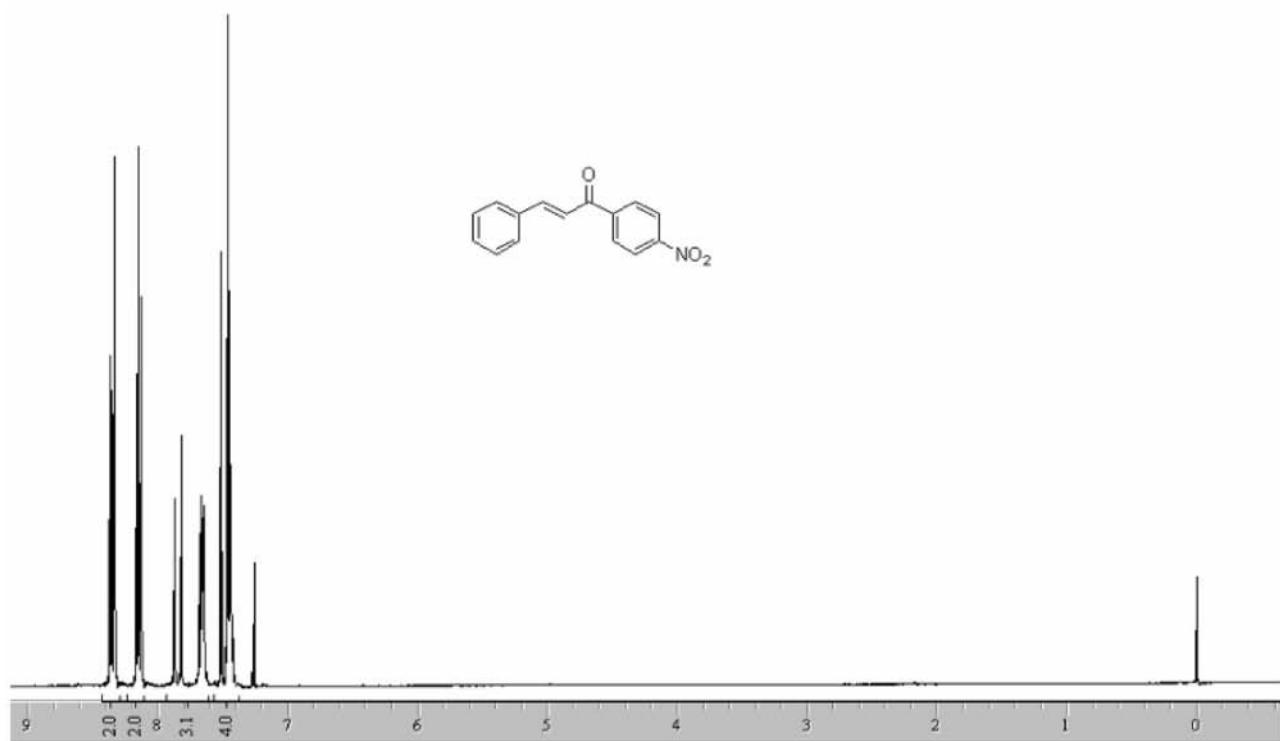


Figure S30. <sup>1</sup>H NMR (300 MHz, CDCl<sub>3</sub>) spectrum of compound 3p.



**Figure S31.**  $^{13}\text{C}$  NMR (75 MHz,  $\text{CDCl}_3$ ) spectrum of compound **3p**.



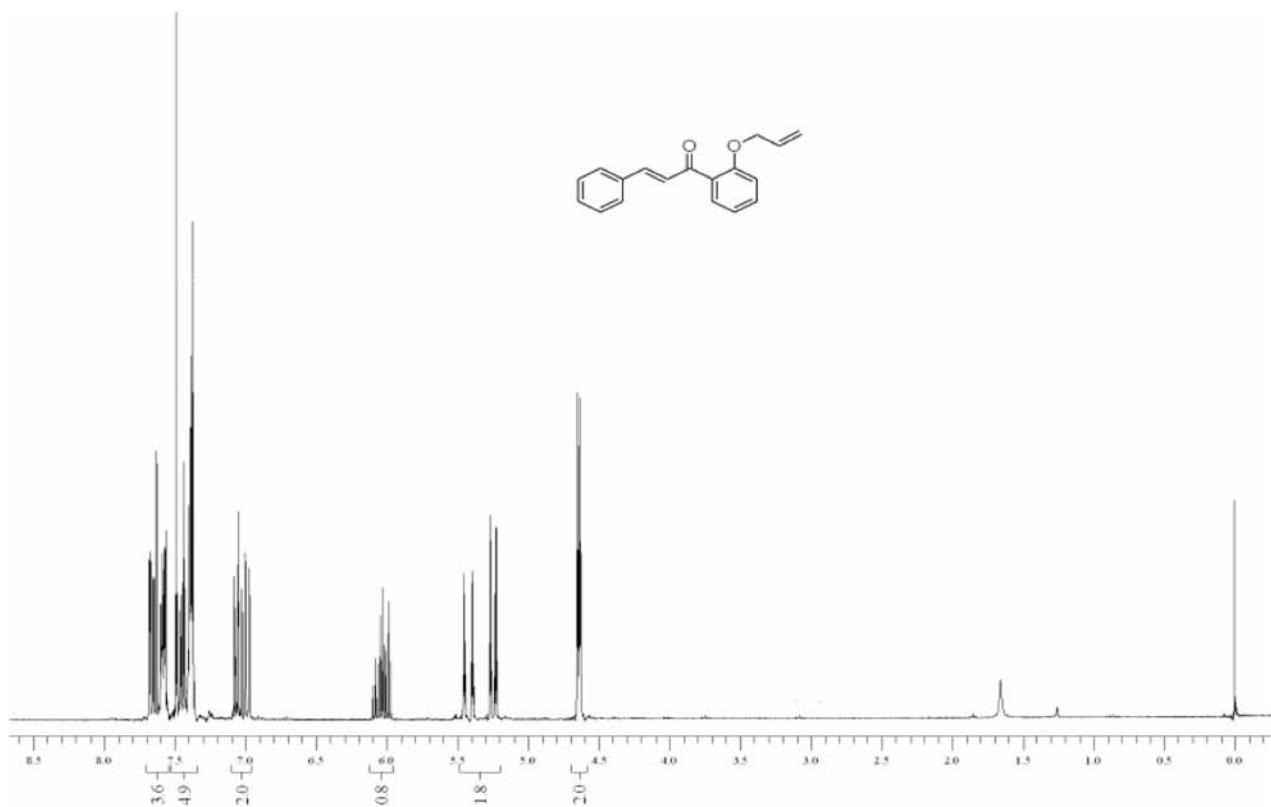


Figure S33. <sup>1</sup>H NMR (300 MHz, CDCl<sub>3</sub>) spectrum of compound 3r.

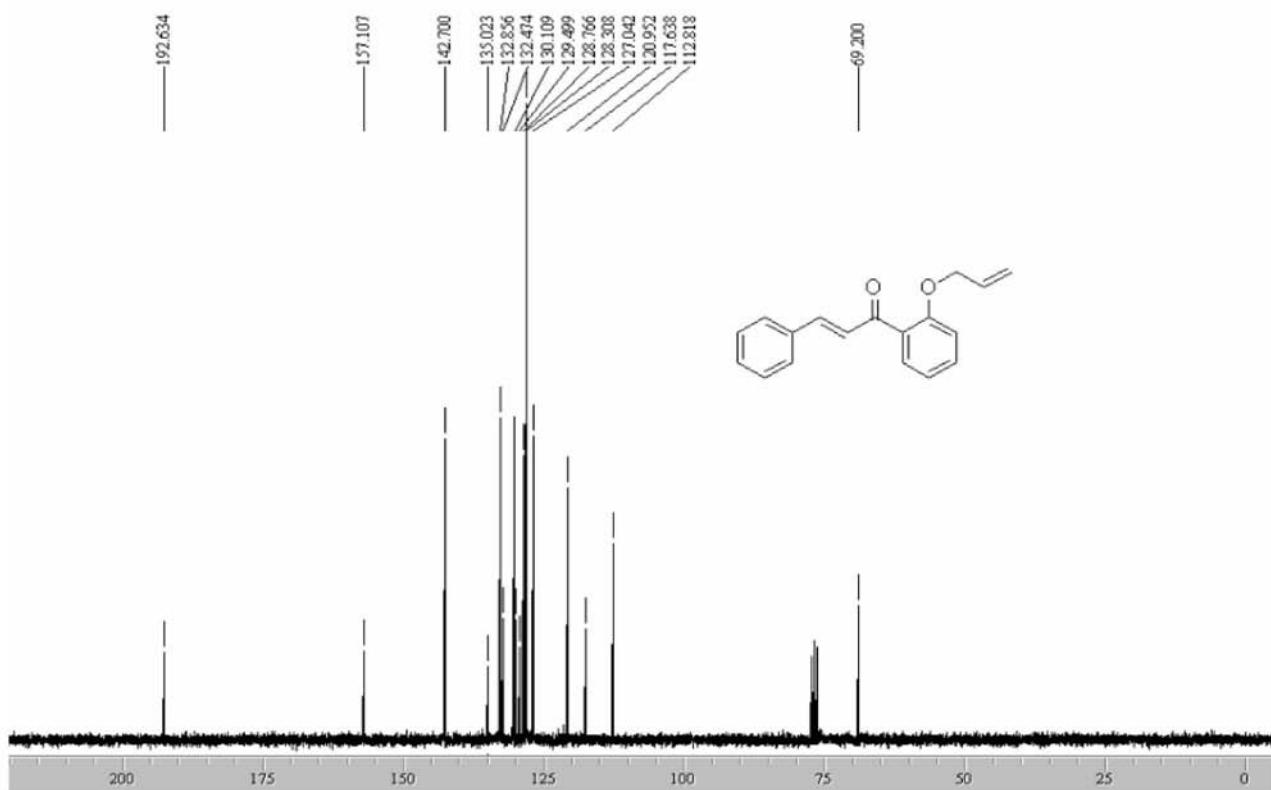


Figure S34. <sup>13</sup>C NMR (75 MHz, CDCl<sub>3</sub>) spectrum of compound 3r.

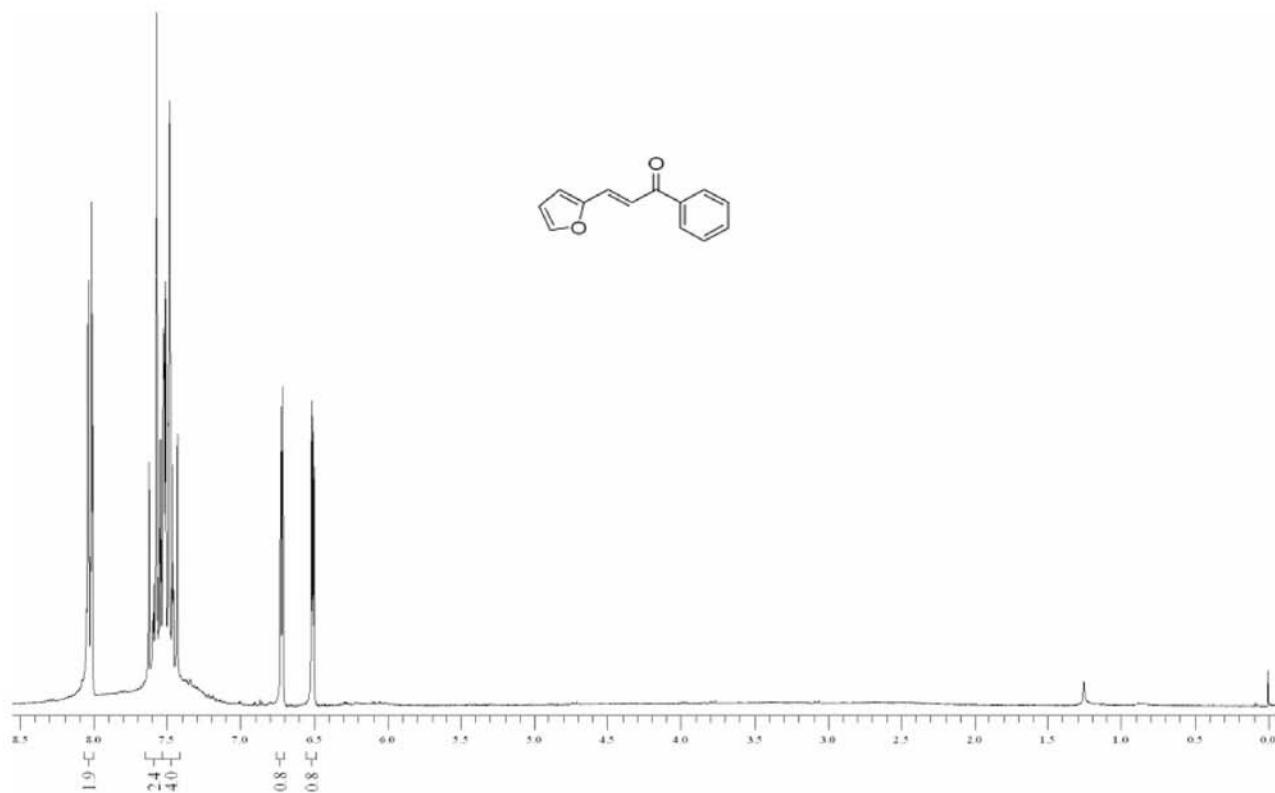


Figure S35. <sup>1</sup>H NMR (300 MHz, CDCl<sub>3</sub>) spectrum of compound 3s.

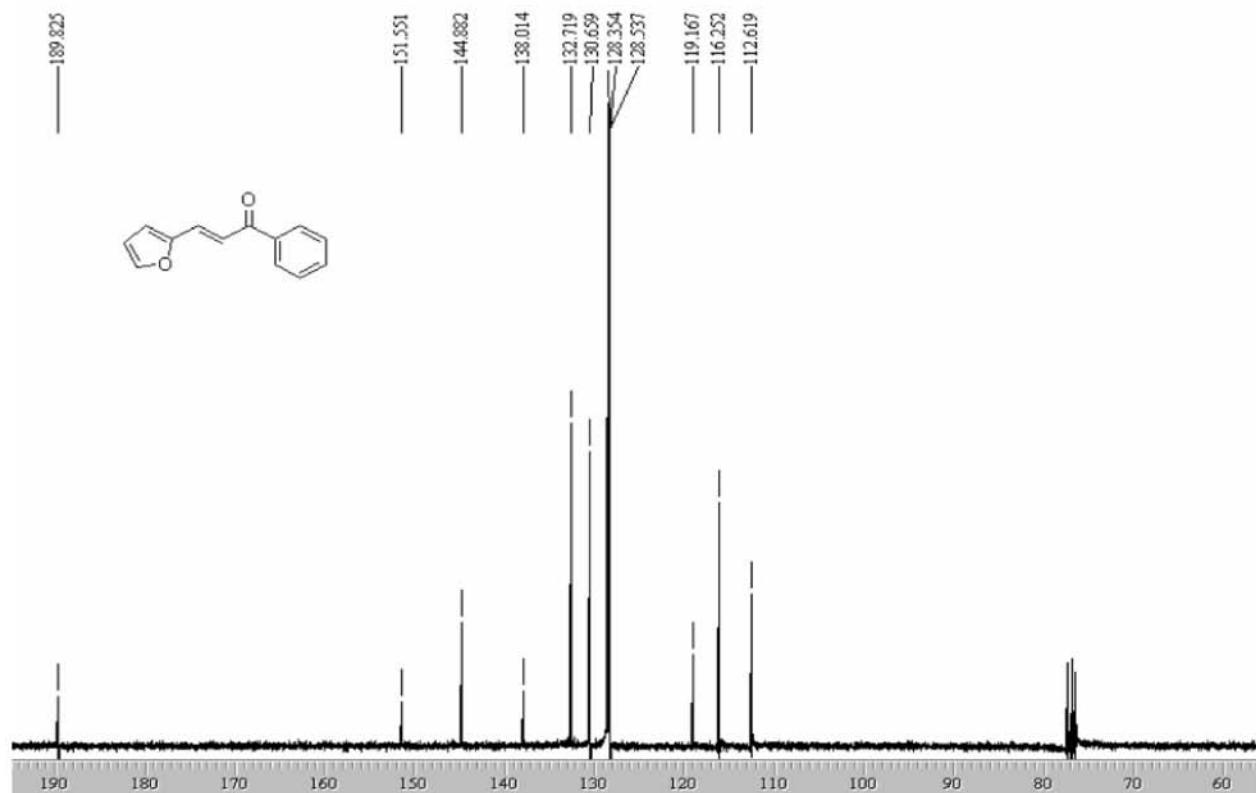


Figure S36. <sup>13</sup>C NMR (75 MHz, CDCl<sub>3</sub>) spectrum of compound 3s.

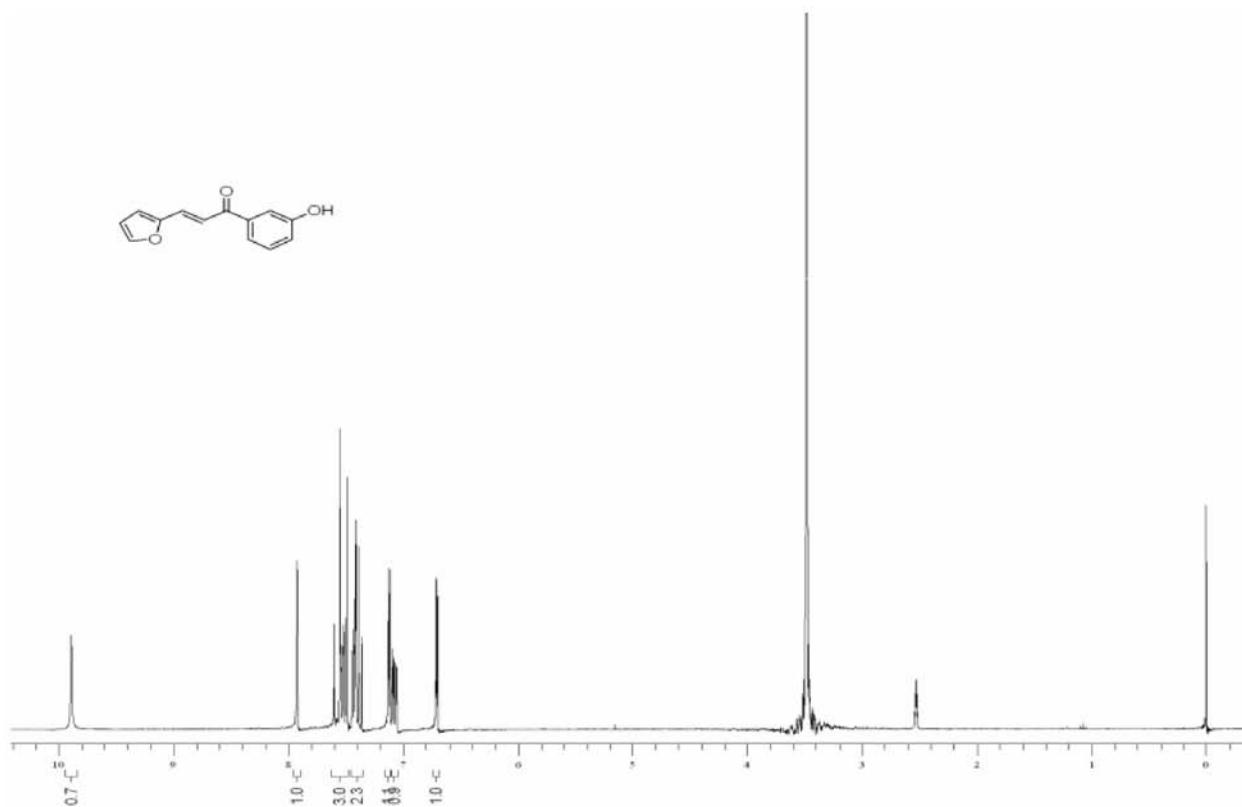


Figure S37. <sup>1</sup>H NMR (300 MHz, CDCl<sub>3</sub>) spectrum of compound 3t.

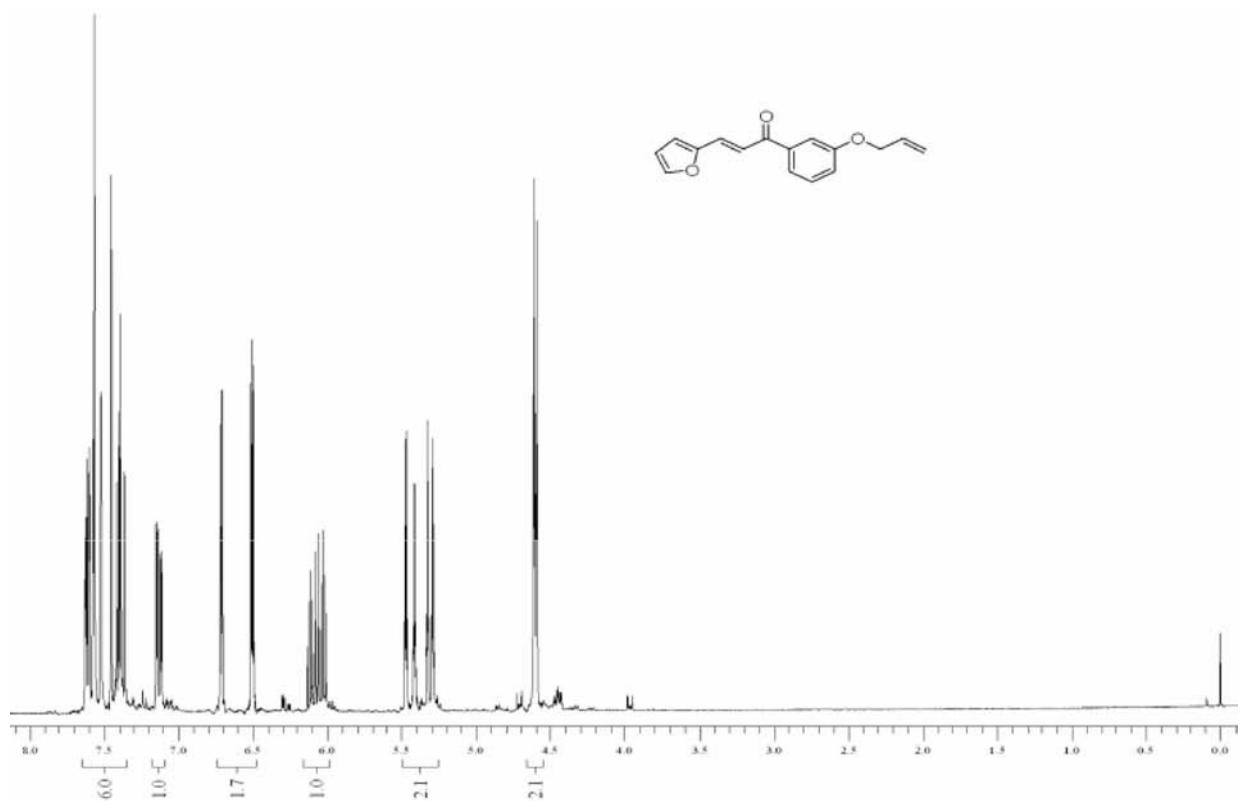
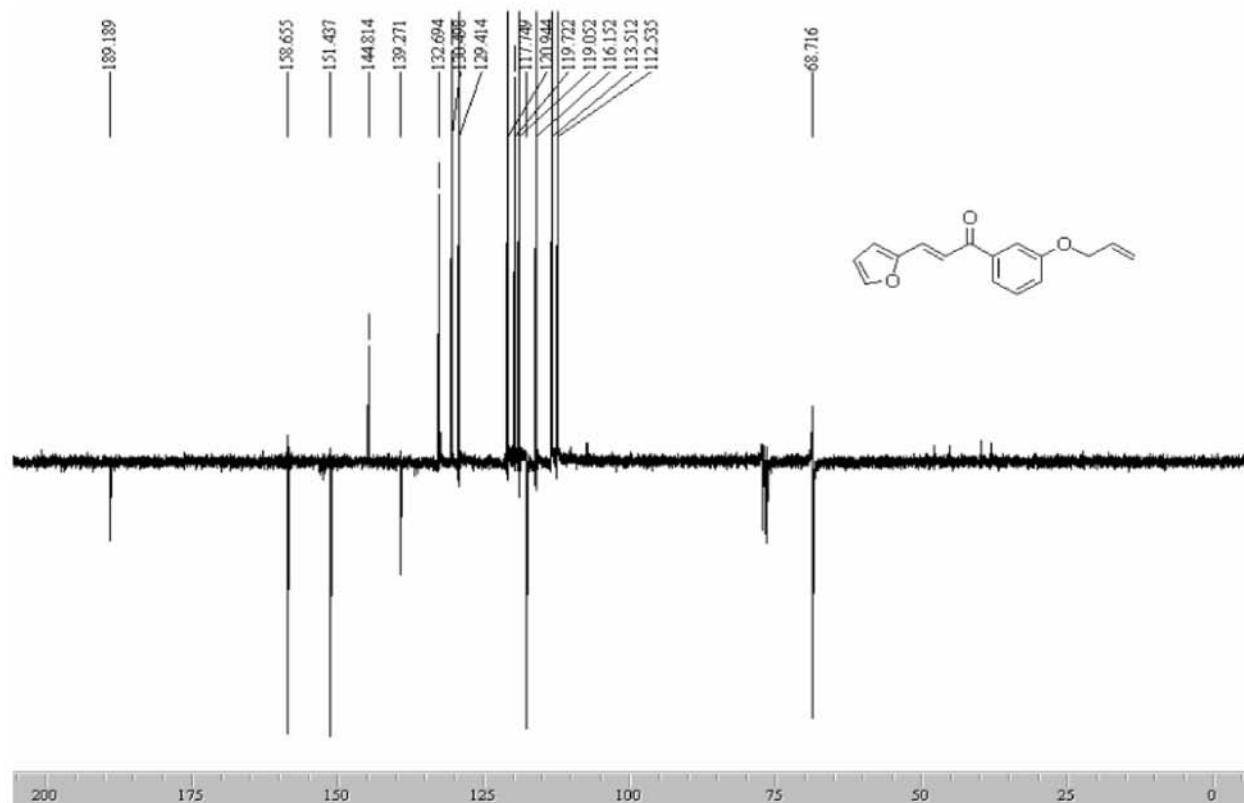


Figure S38. <sup>1</sup>H NMR (300 MHz, CDCl<sub>3</sub>) spectrum of compound 3u.



**Figure S39.**  $^{13}\text{C}$  APT (75 MHz,  $\text{CDCl}_3$ ) spectrum of compound **3u**.