

Supporting Information

**Synthesis of bicyclic dioxetanes bearing a hydroxyphenanthrene or hydroxy[4]helicene moiety and their base-induced chemiluminescent decomposition**

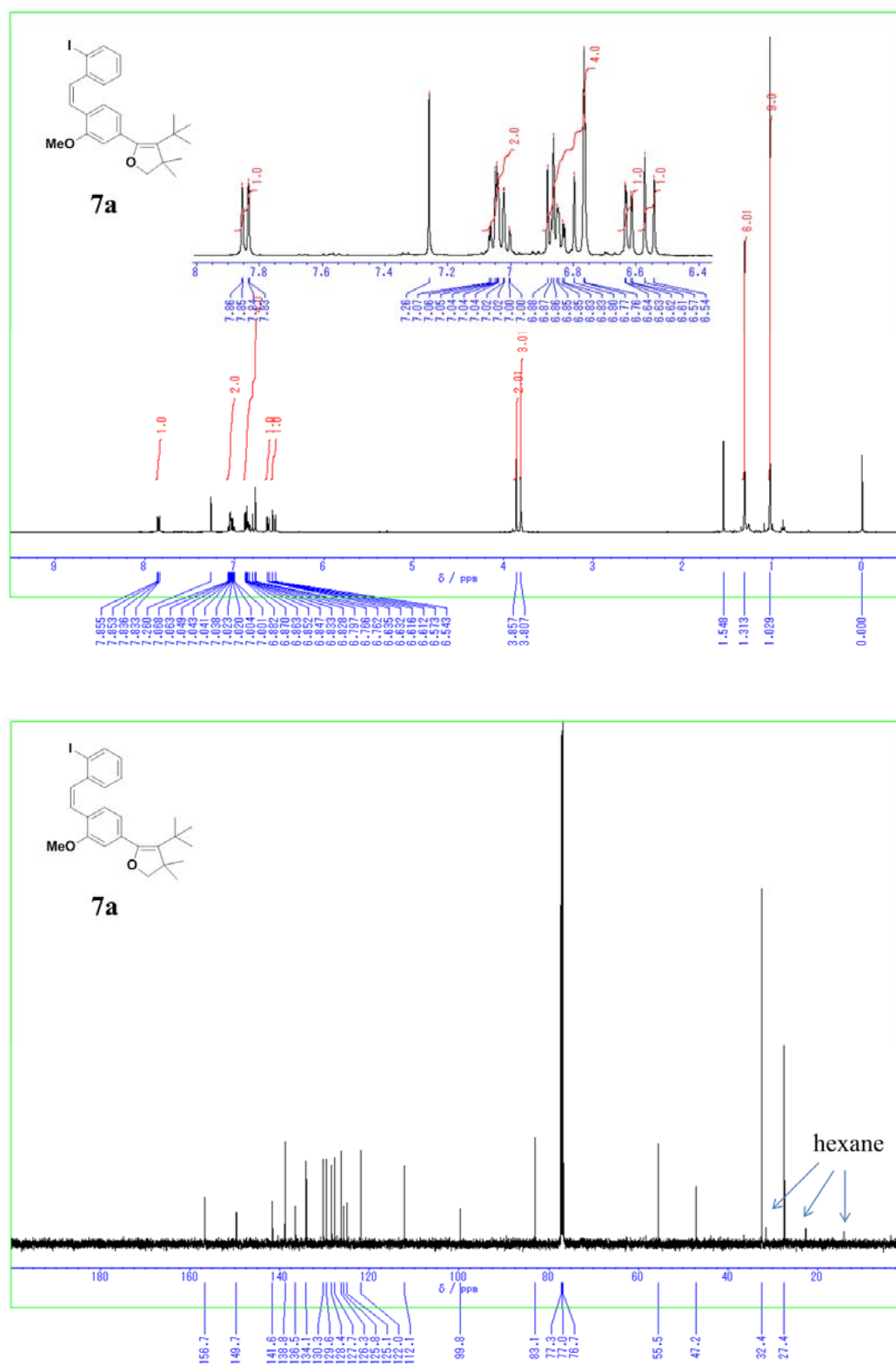
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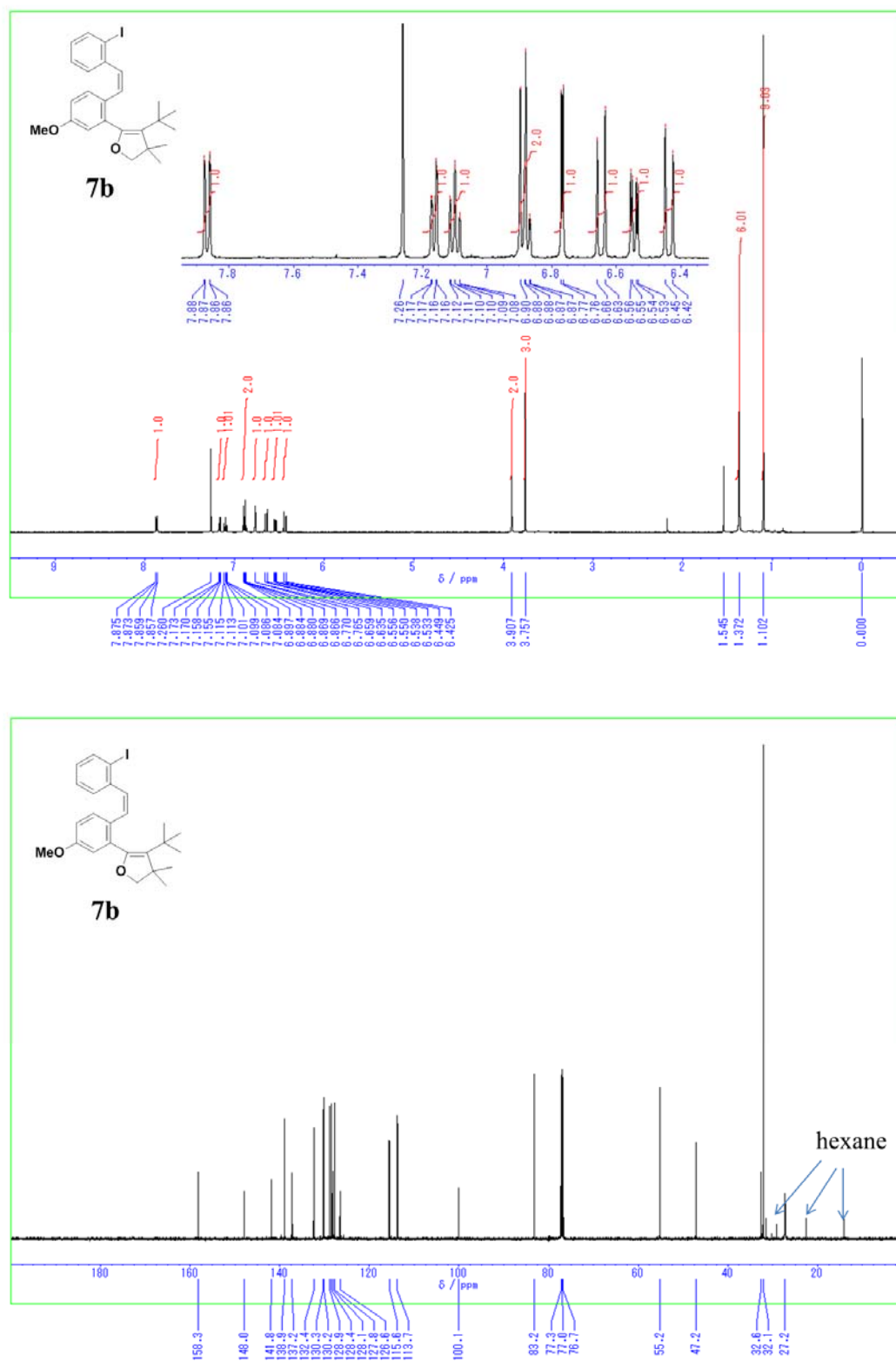
E-mail: matsumo-chem@kanagawa-u.ac.jp

<b>Content</b>	<b>page</b>
<sup>1</sup> H NMR and <sup>13</sup> C NMR spectra <b>S1—S28</b>	2-29

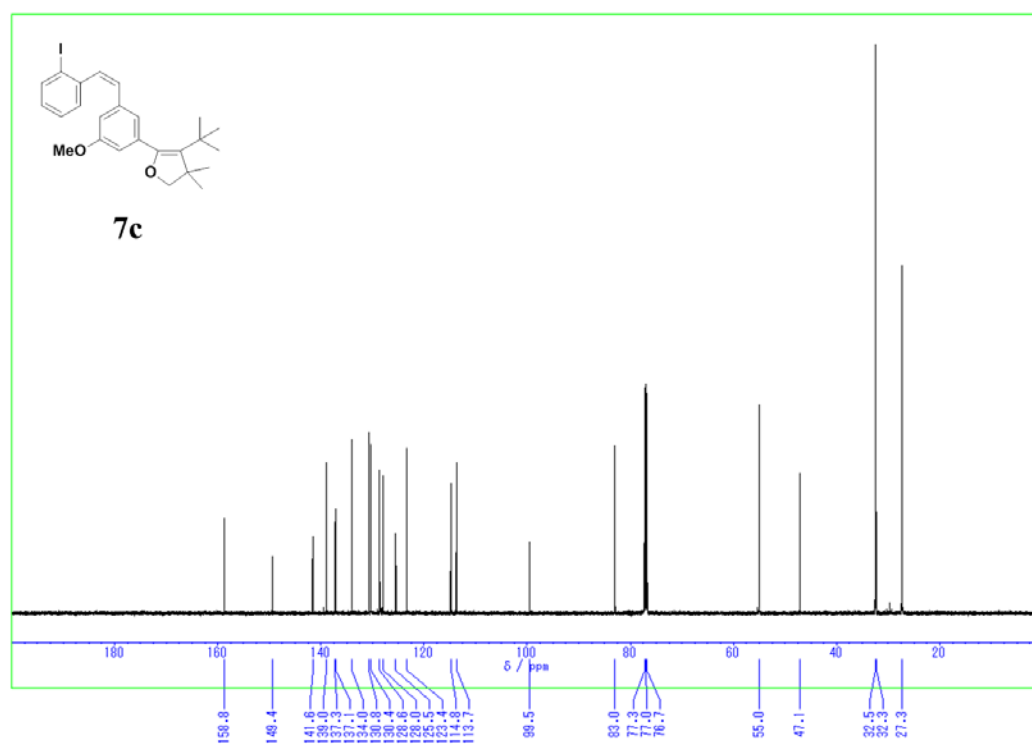
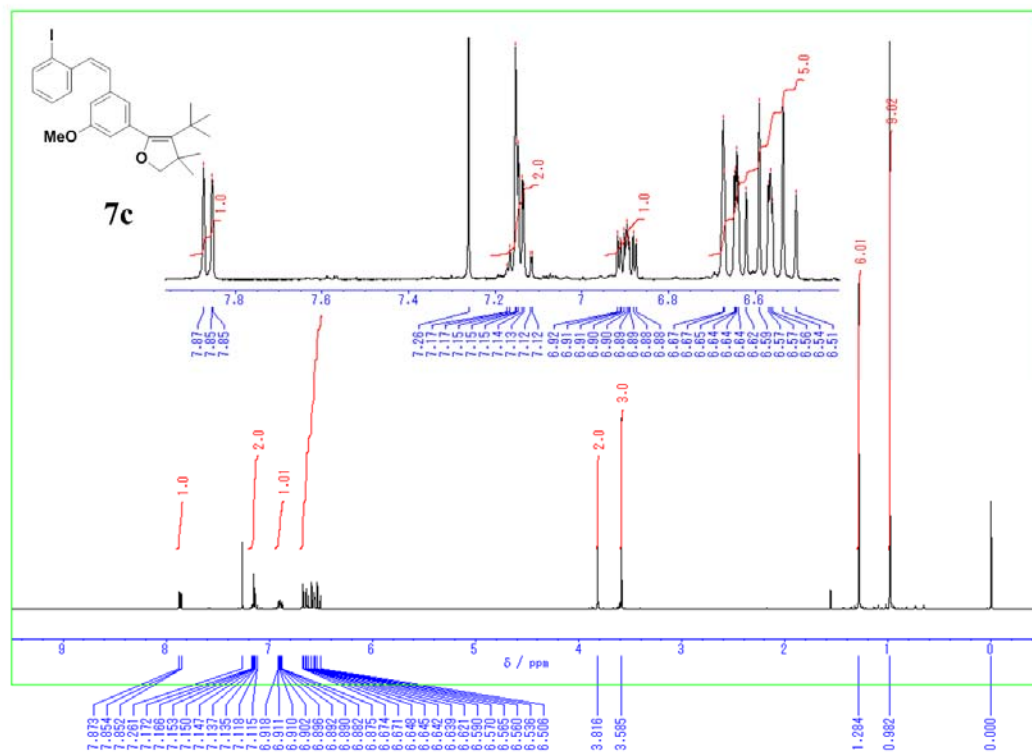
**Figure S1:**  $^1\text{H}$  NMR (400MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (125MHz,  $\text{CDCl}_3$ ) of **7a**



**Figure S2:**  $^1\text{H}$  NMR (500MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (125MHz,  $\text{CDCl}_3$ ) of **7b**



**Figure S3:**  $^1\text{H}$  NMR (400MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (125MHz,  $\text{CDCl}_3$ ) of **7c**



**Figure S4:**  $^1\text{H}$  NMR (400MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (125MHz,  $\text{CDCl}_3$ ) of **12a**

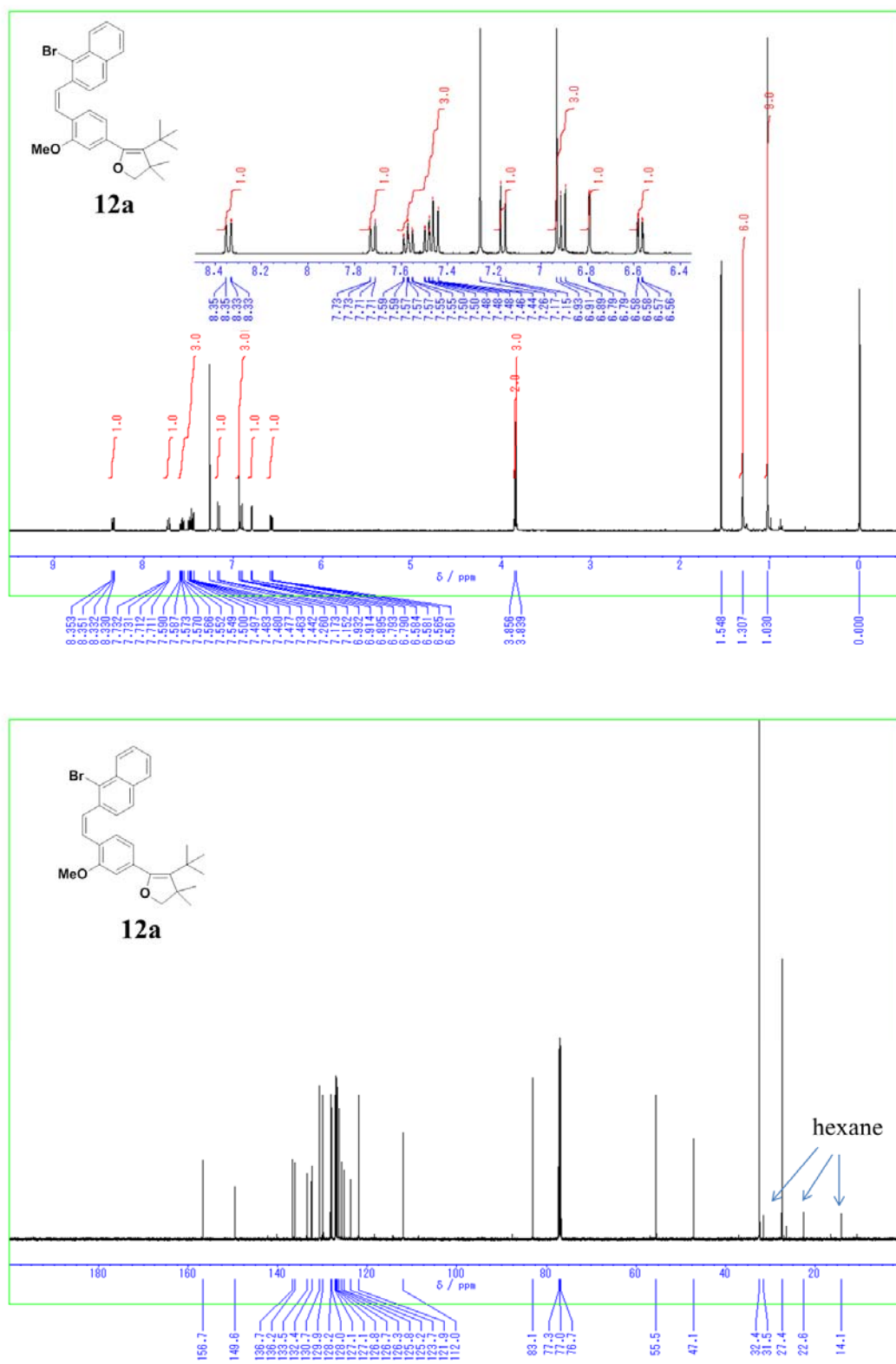
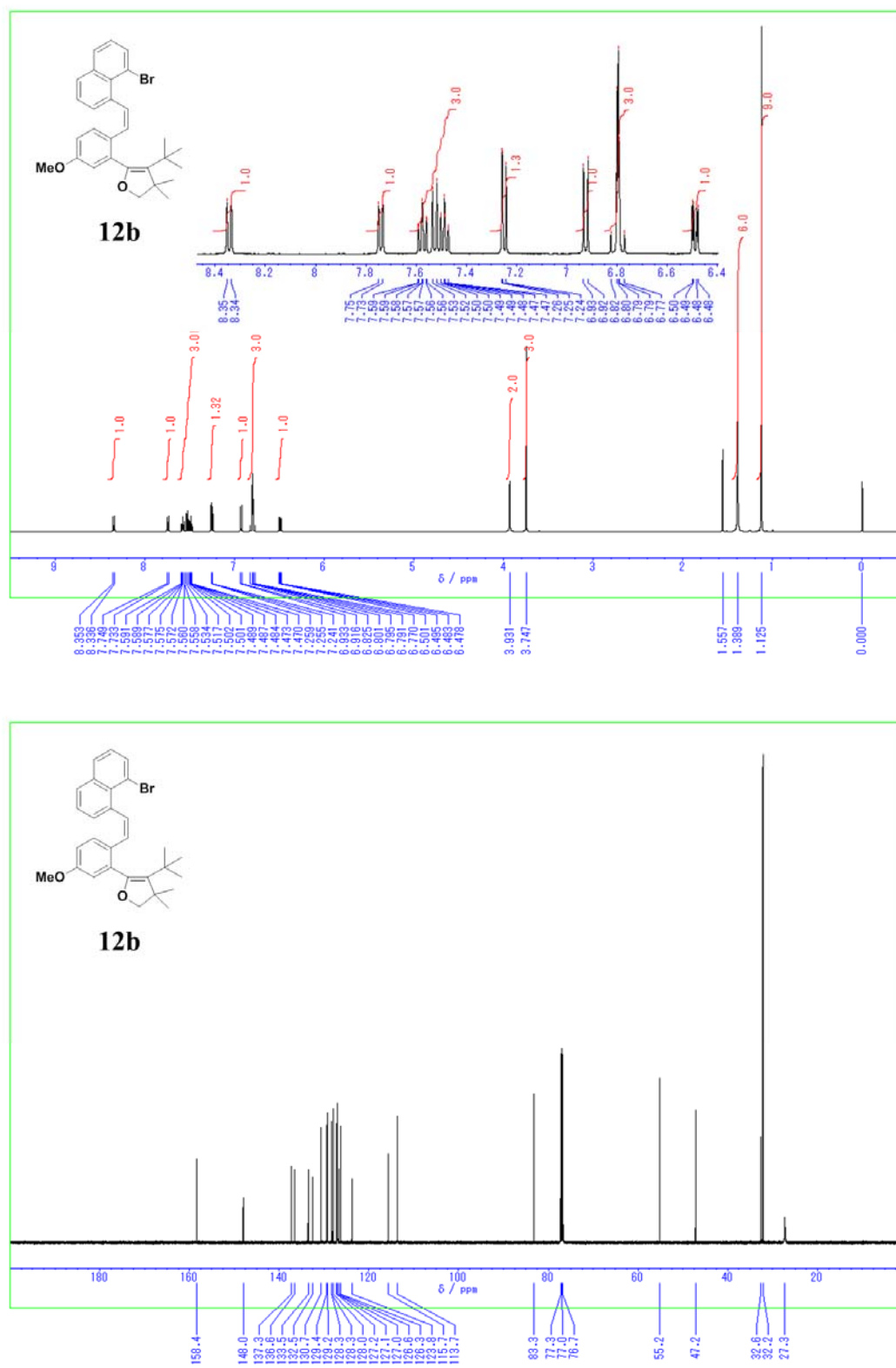


Figure S5:  $^1\text{H}$  NMR (400MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (125MHz,  $\text{CDCl}_3$ ) of **12b**



**Figure S6:**  $^1\text{H}$  NMR (400MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (125MHz,  $\text{CDCl}_3$ ) of **8-iv**

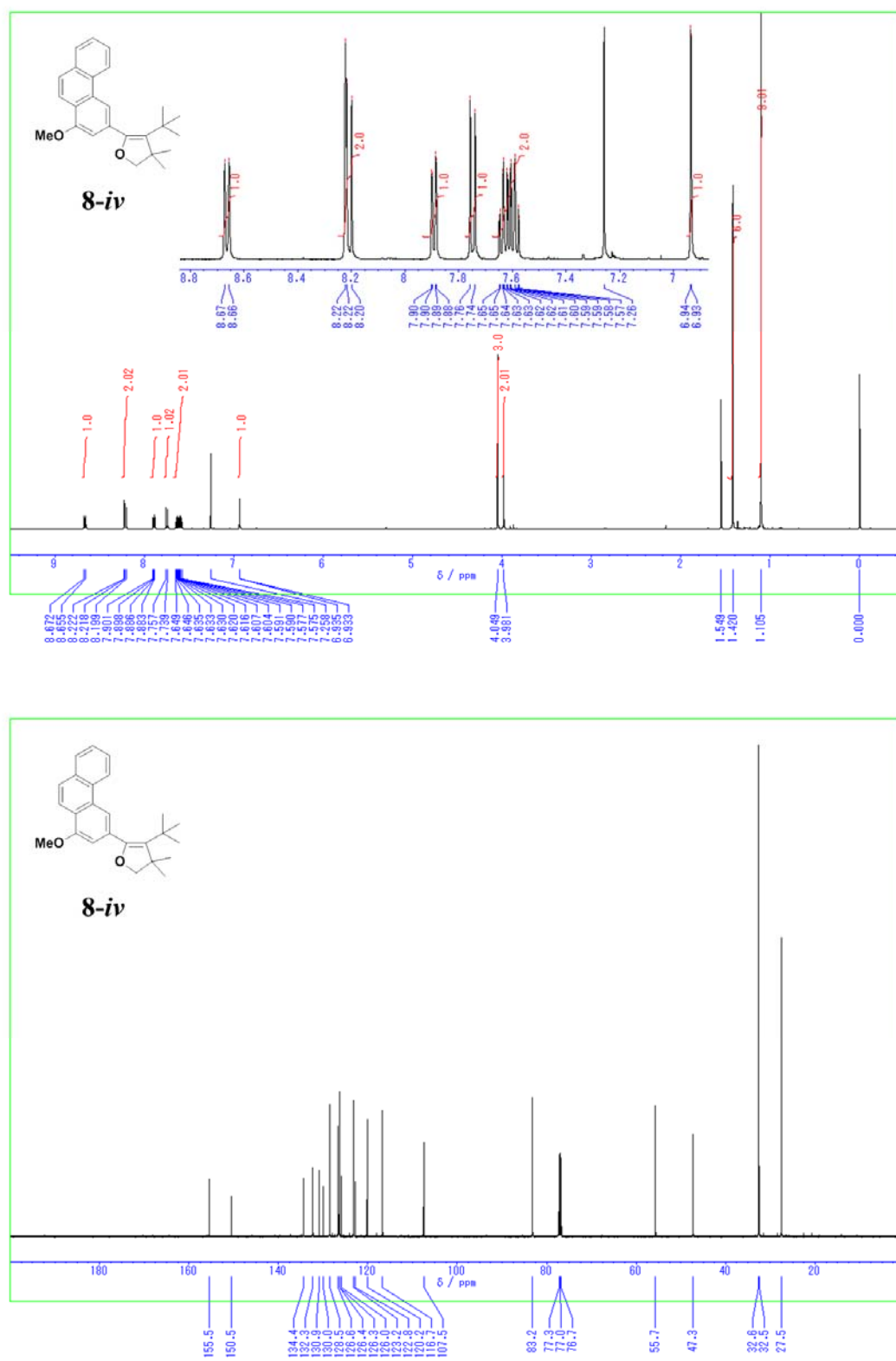
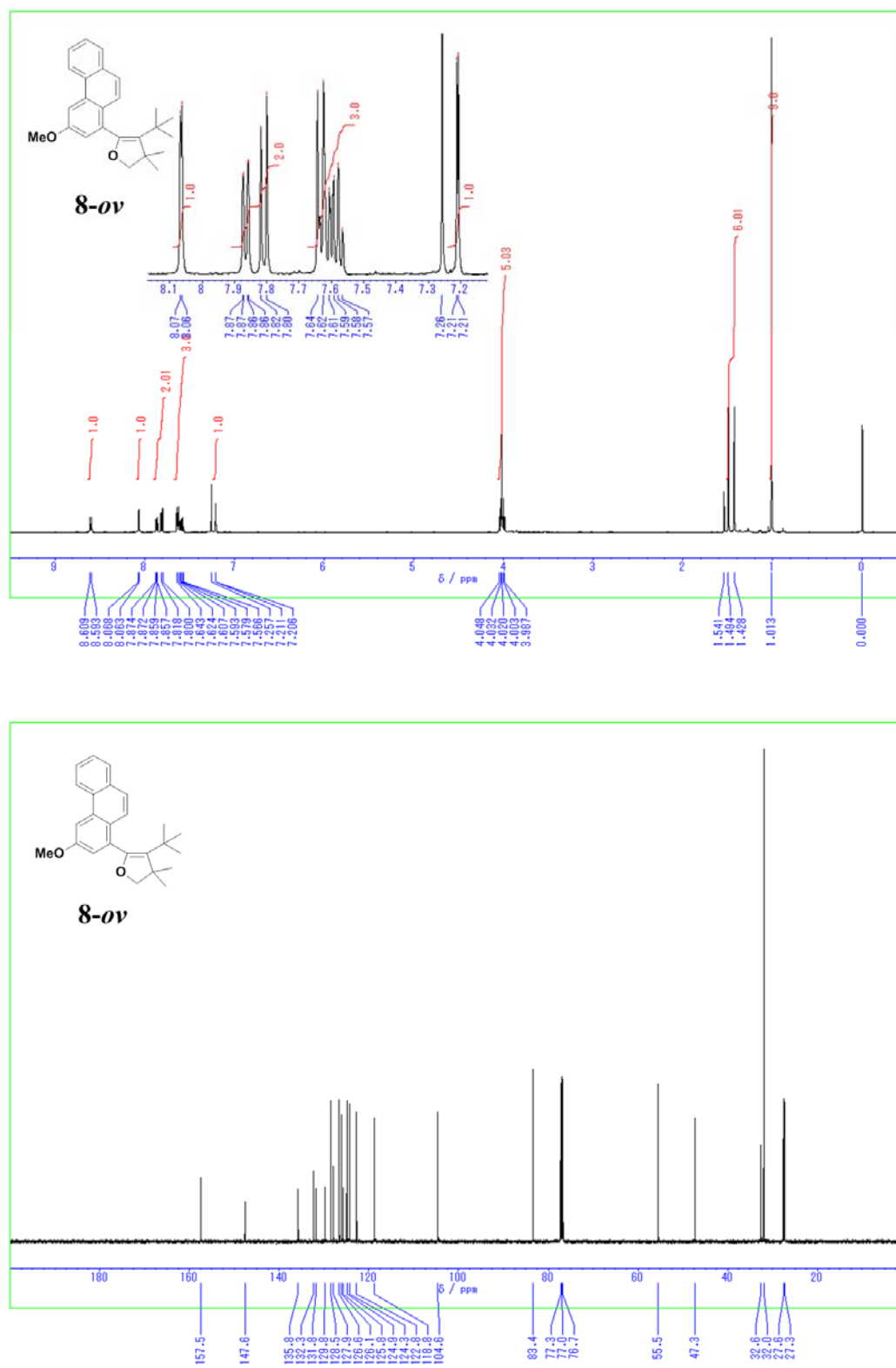
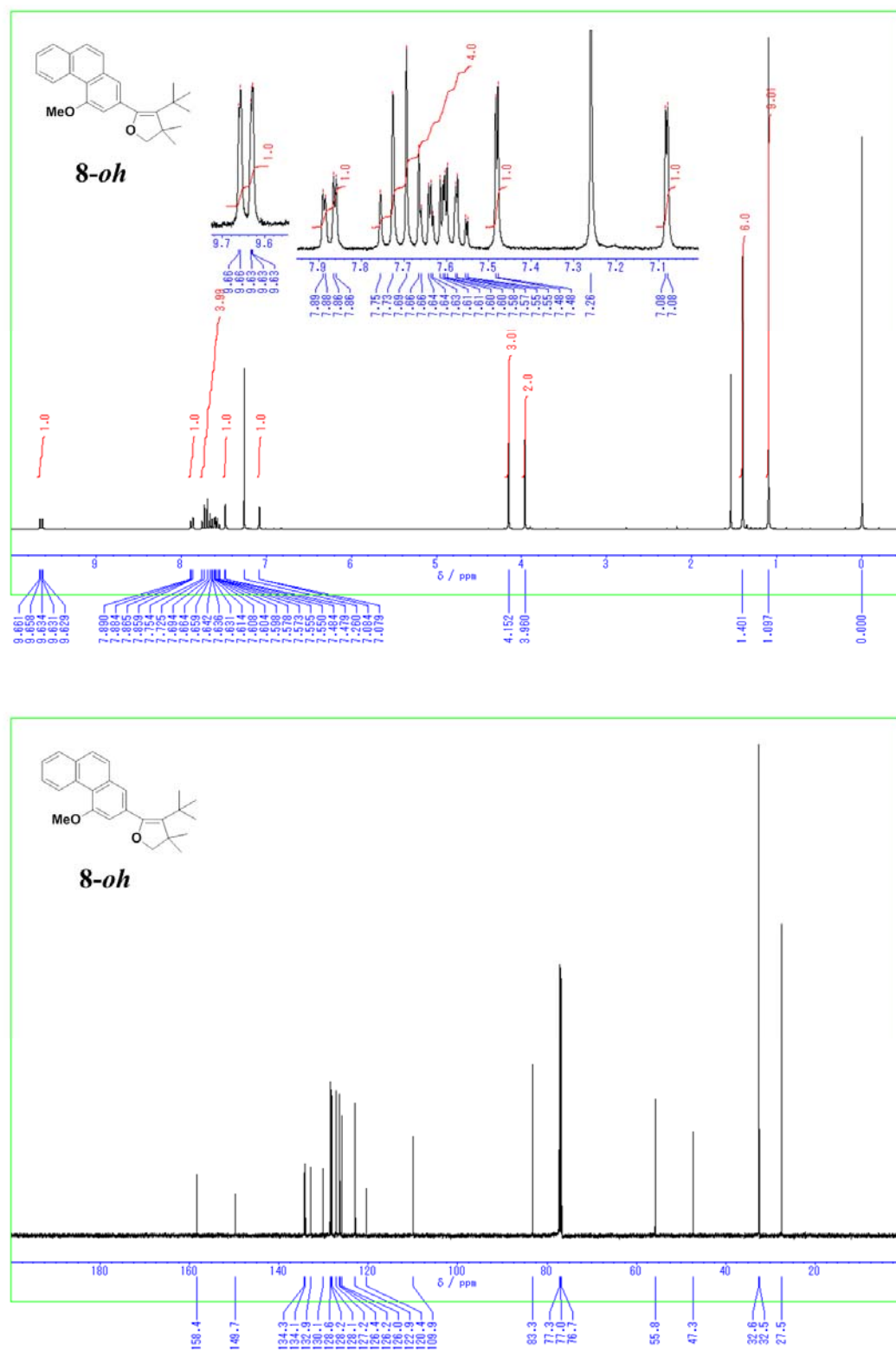


Figure S7:  $^1\text{H}$  NMR (500MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (125MHz,  $\text{CDCl}_3$ ) of **8-ov**



**Figure S8:**  $^1\text{H}$  NMR (300MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (125MHz,  $\text{CDCl}_3$ ) of **8-oh**



**Figure S9:**  $^1\text{H}$  NMR (500MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (125MHz,  $\text{CDCl}_3$ ) of **8-ih**

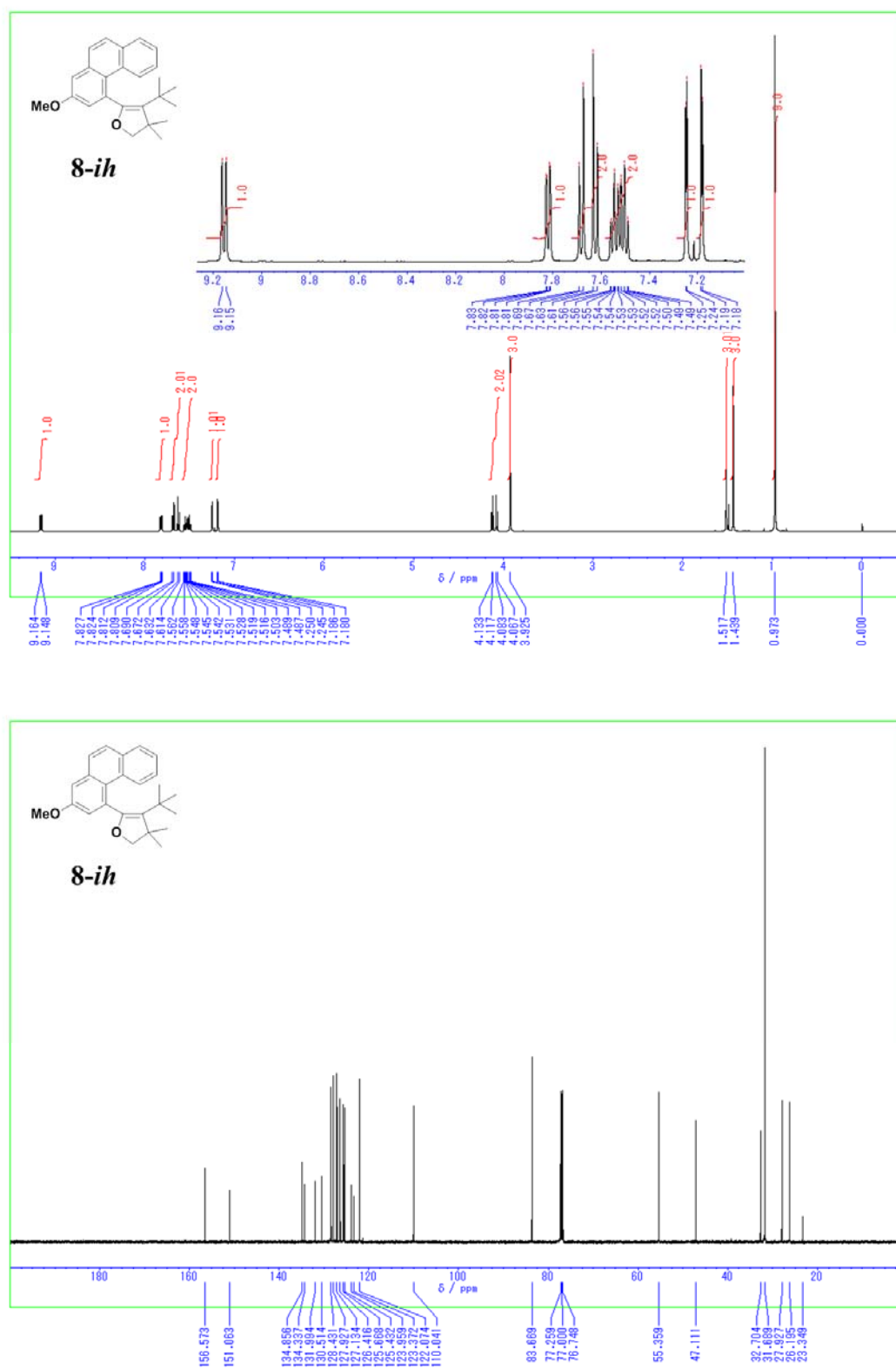


Figure S10:  $^1\text{H}$  NMR (300MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (125MHz,  $\text{CDCl}_3$ ) of **13-iv**

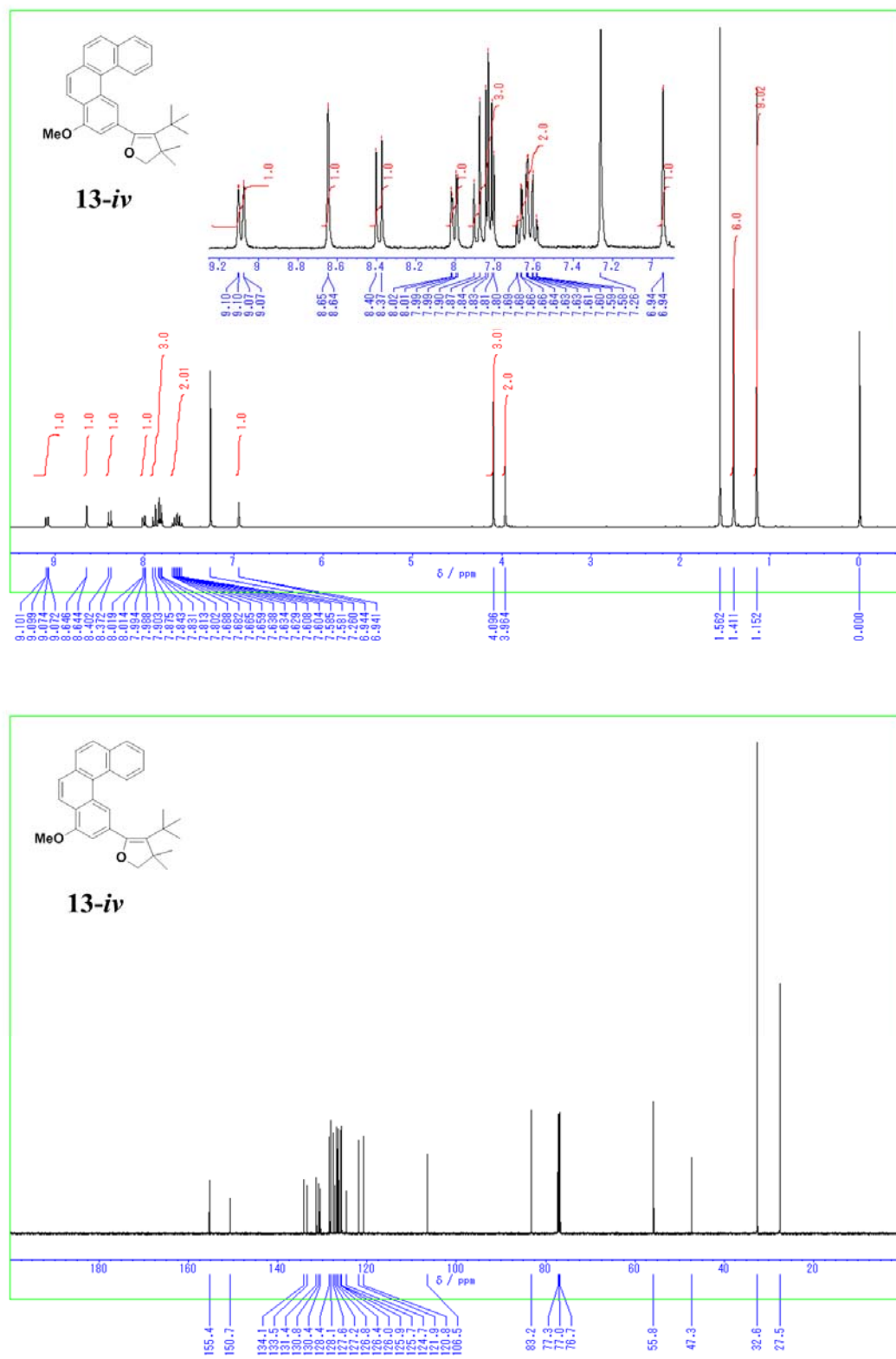
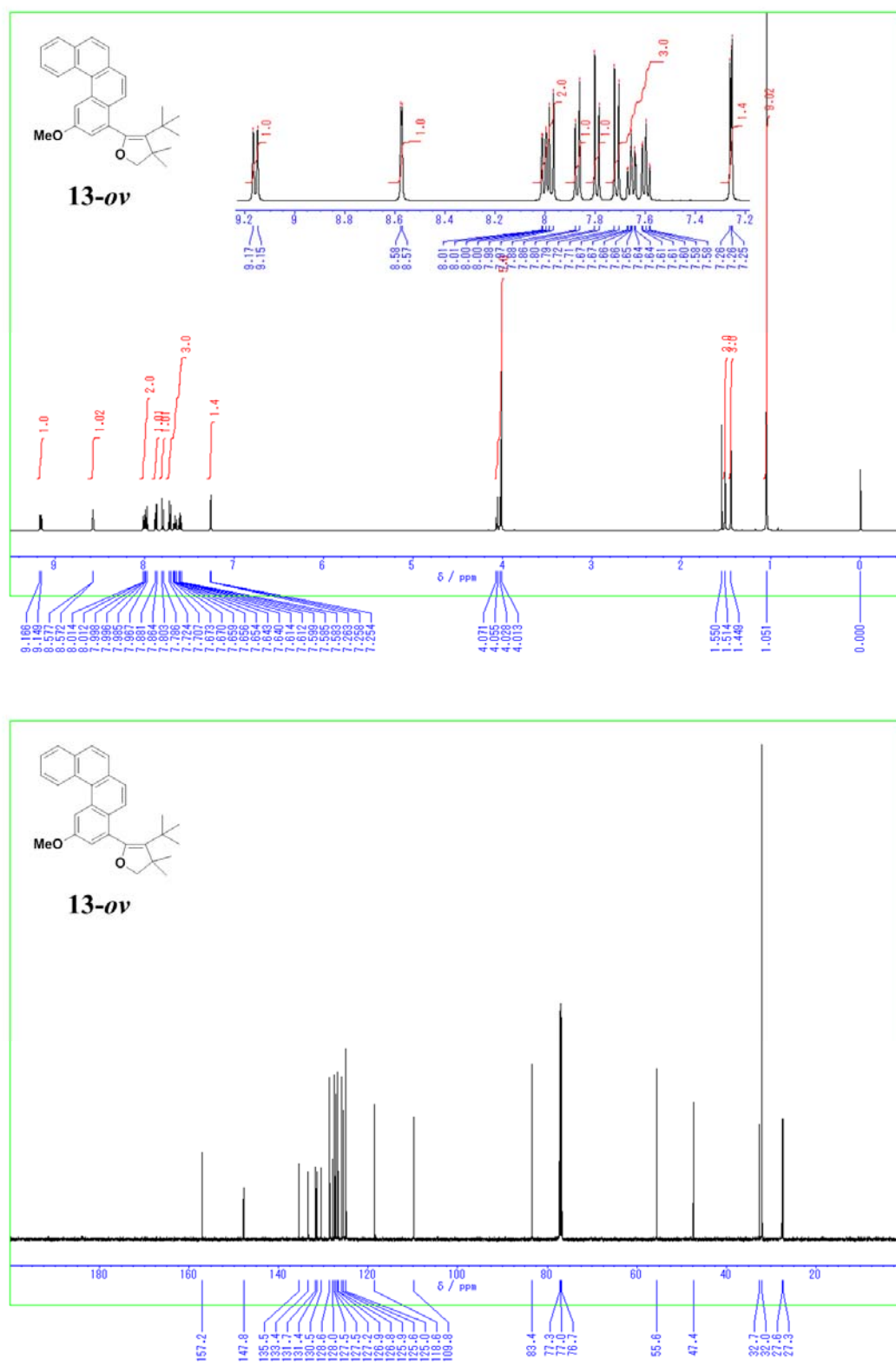
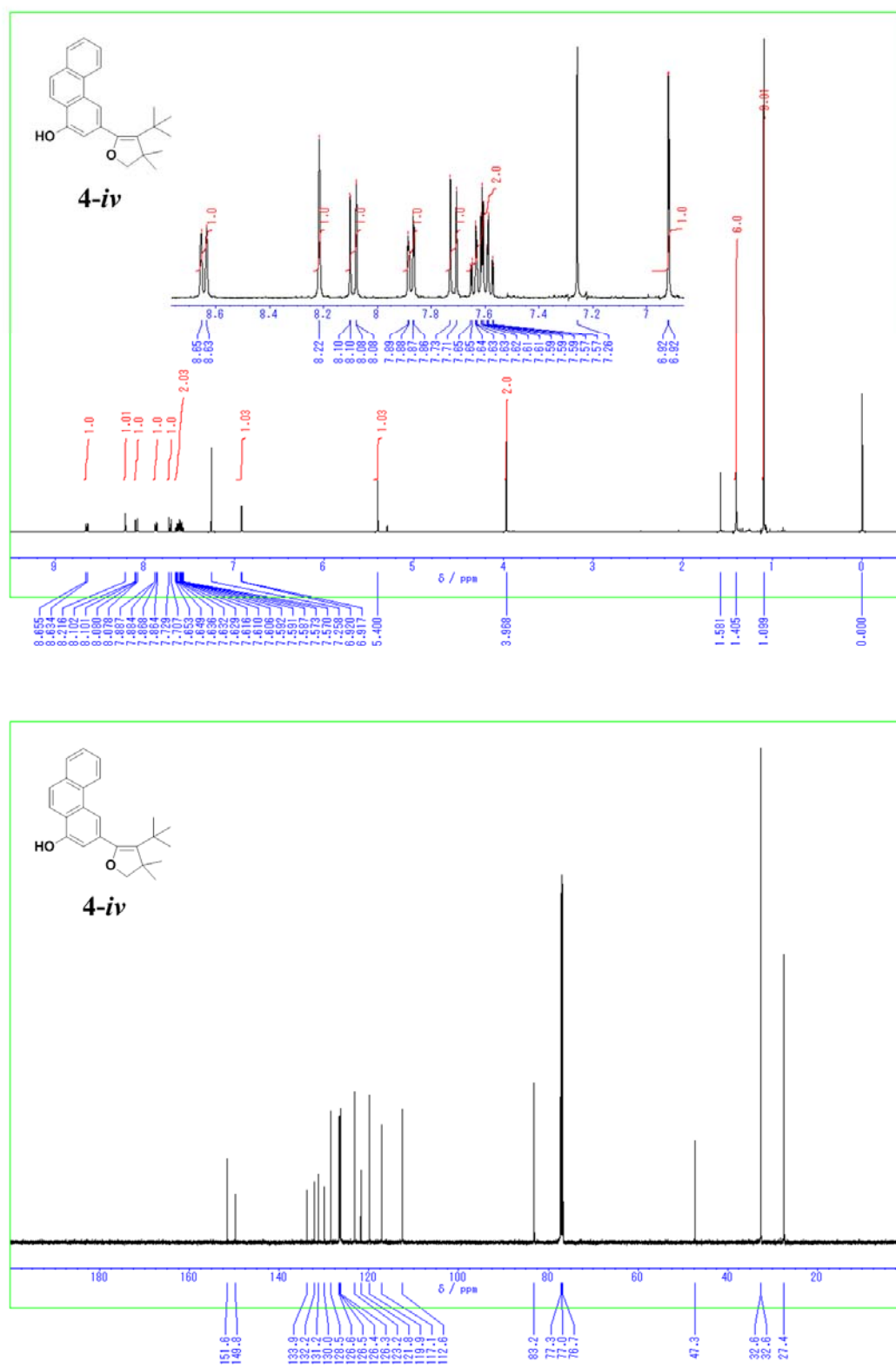


Figure S11:  $^1\text{H}$  NMR (500MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (125MHz,  $\text{CDCl}_3$ ) of **13-ov**



**Figure S12:**  $^1\text{H}$  NMR (400MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (125MHz,  $\text{CDCl}_3$ ) of **4-iv**



**Figure S13:**  $^1\text{H}$  NMR (300MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (125MHz,  $\text{CDCl}_3$ ) of **4-ov**

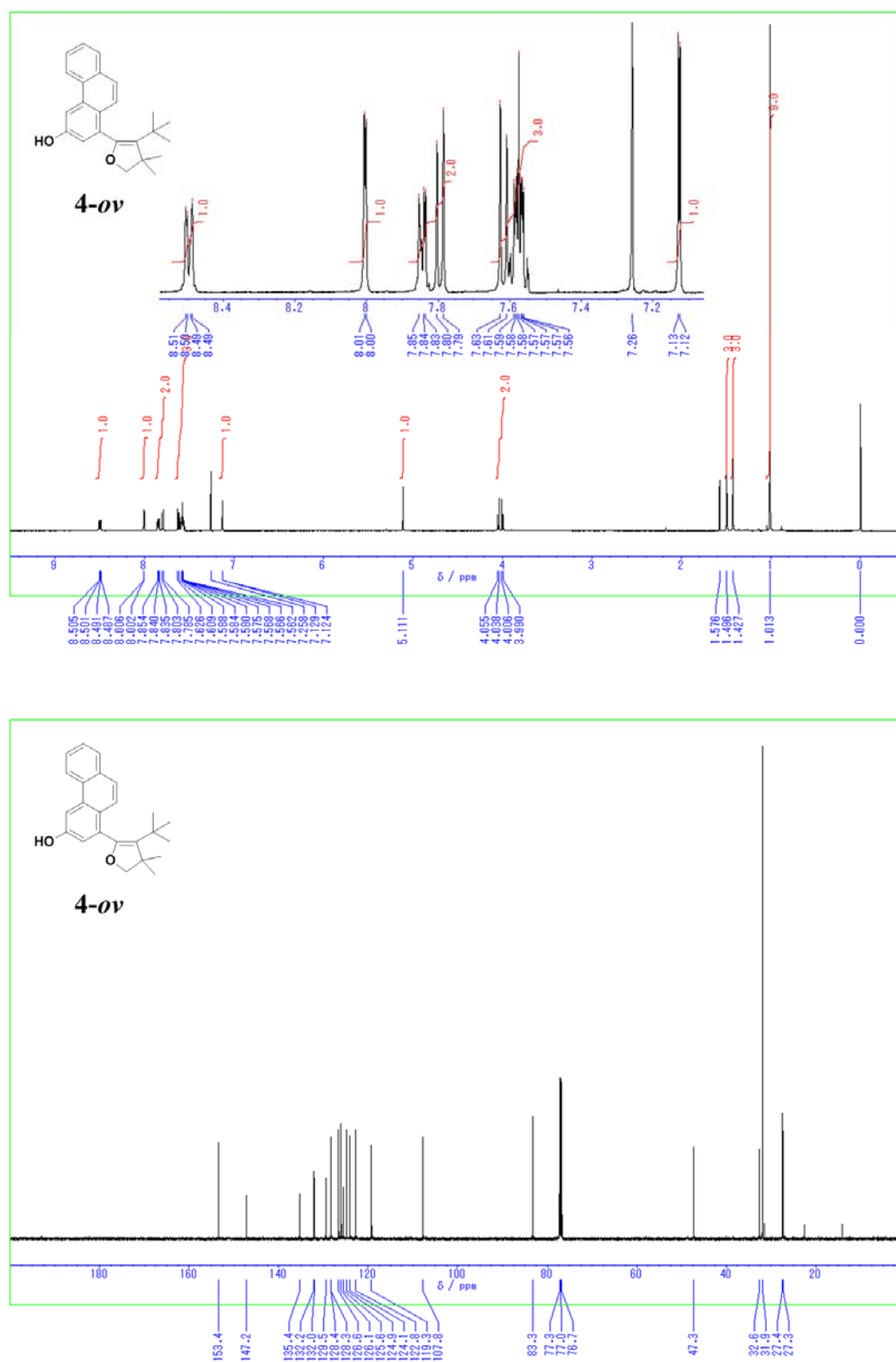
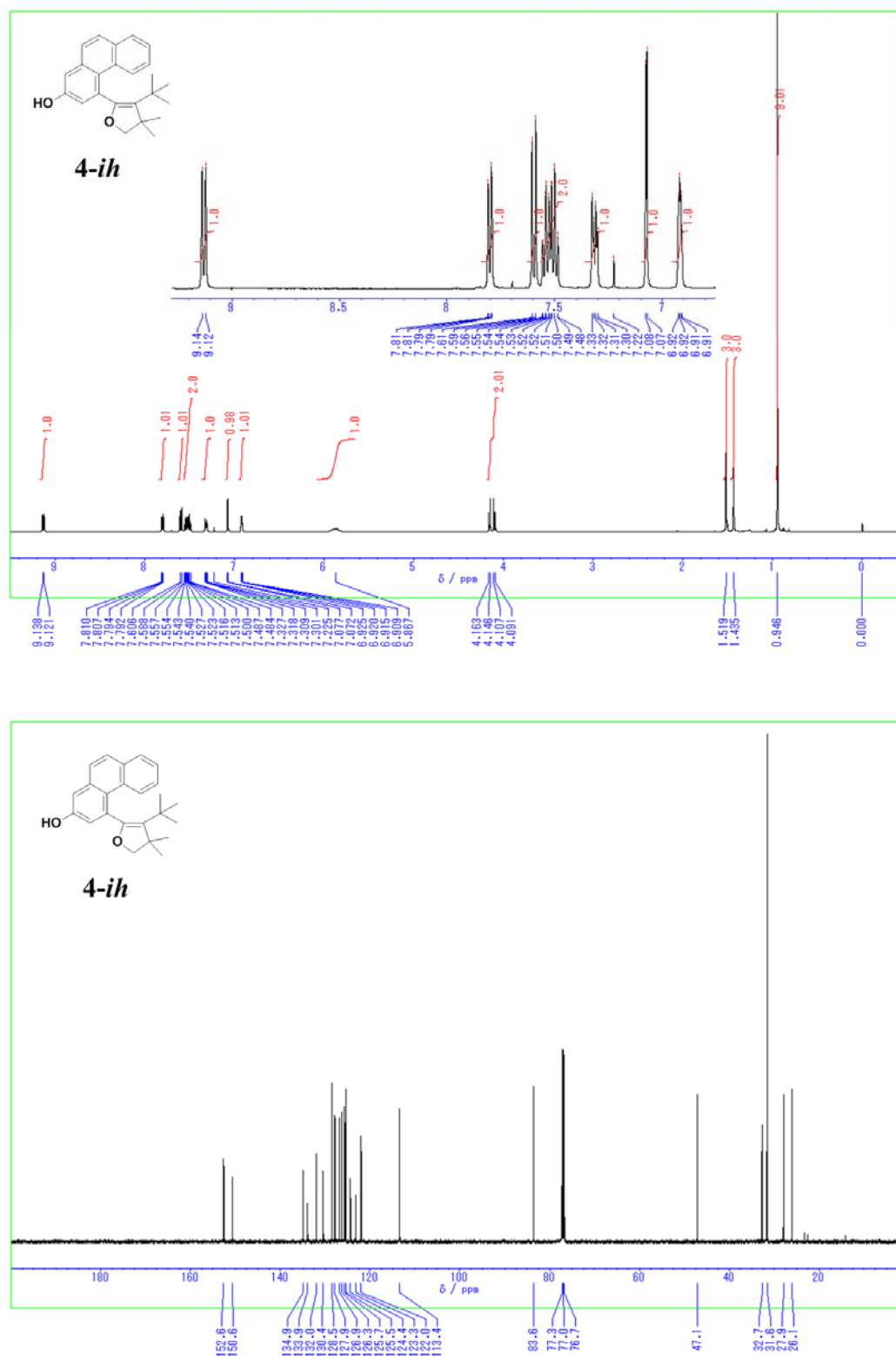


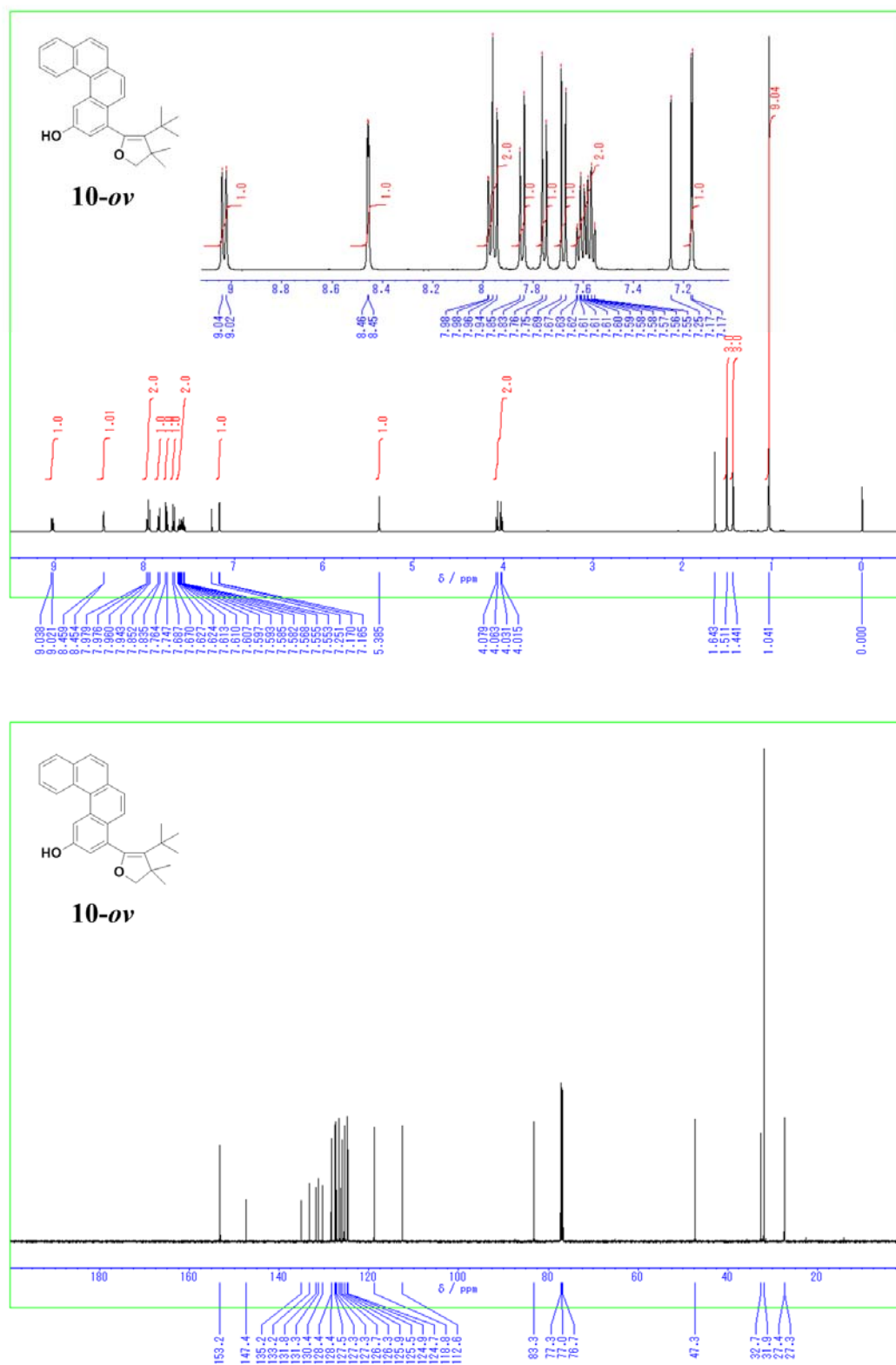


Figure S15:  $^1\text{H}$  NMR (500MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (125MHz,  $\text{CDCl}_3$ ) of **4-ih**





**Figure S17:**  $^1\text{H}$  NMR (500MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (125MHz,  $\text{CDCl}_3$ ) of **10-ov**



**Figure S18:**  $^1\text{H}$  NMR (400MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (125MHz,  $\text{CDCl}_3$ ) of **2-iv**

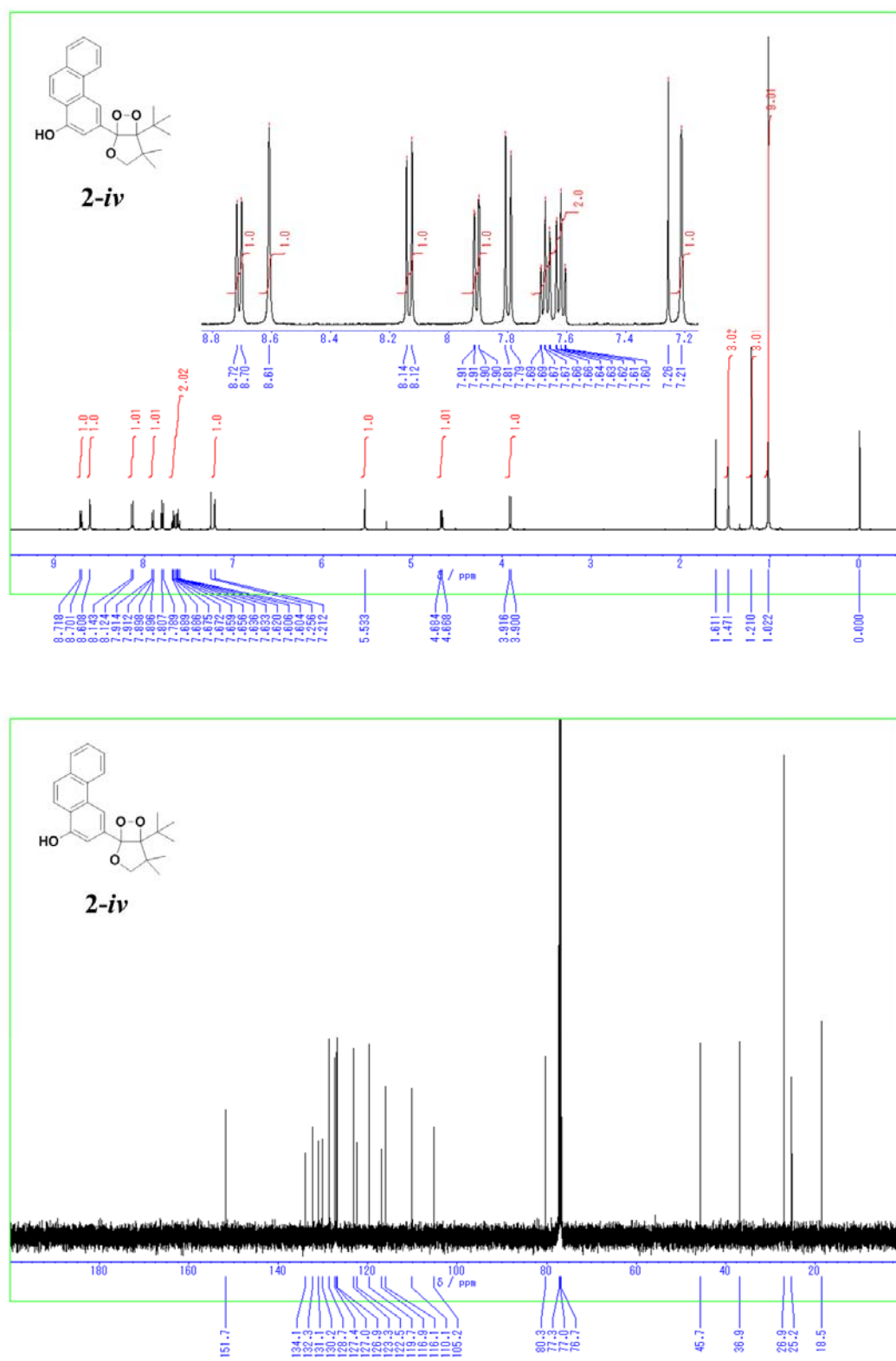




Figure S20:  $^1\text{H}$  NMR (400MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (125MHz,  $\text{CDCl}_3$ ) of **2-oh**

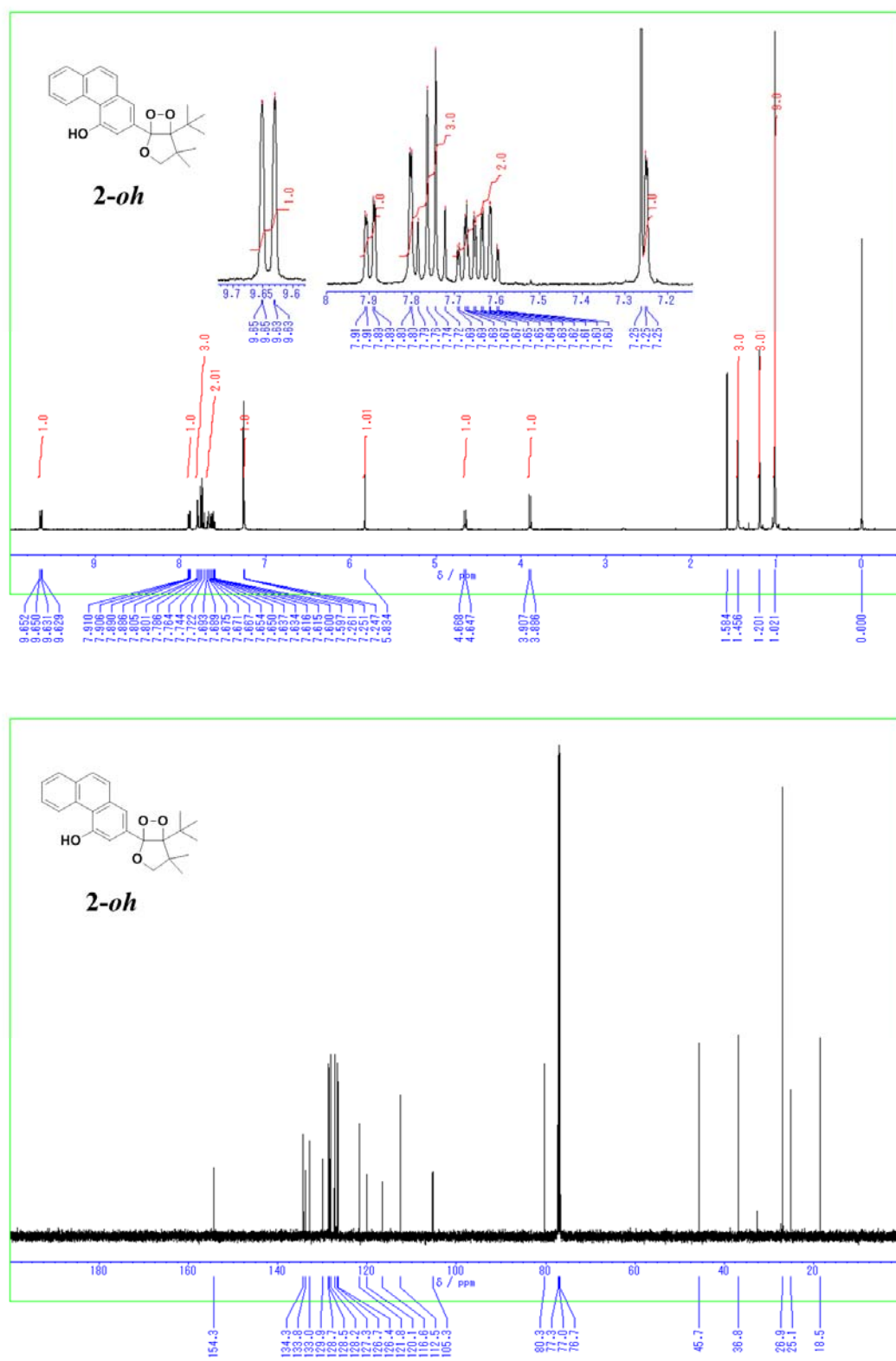


Figure S21:  $^1\text{H}$  NMR (300MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (125MHz,  $\text{CDCl}_3$ ) of **3-iv**

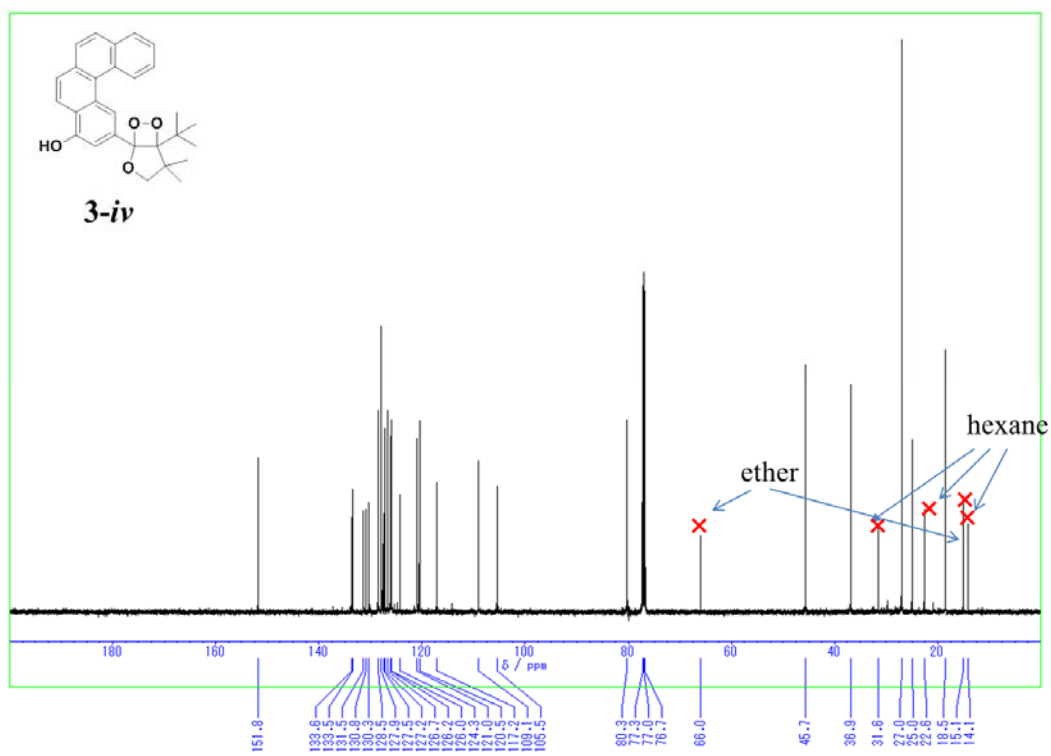
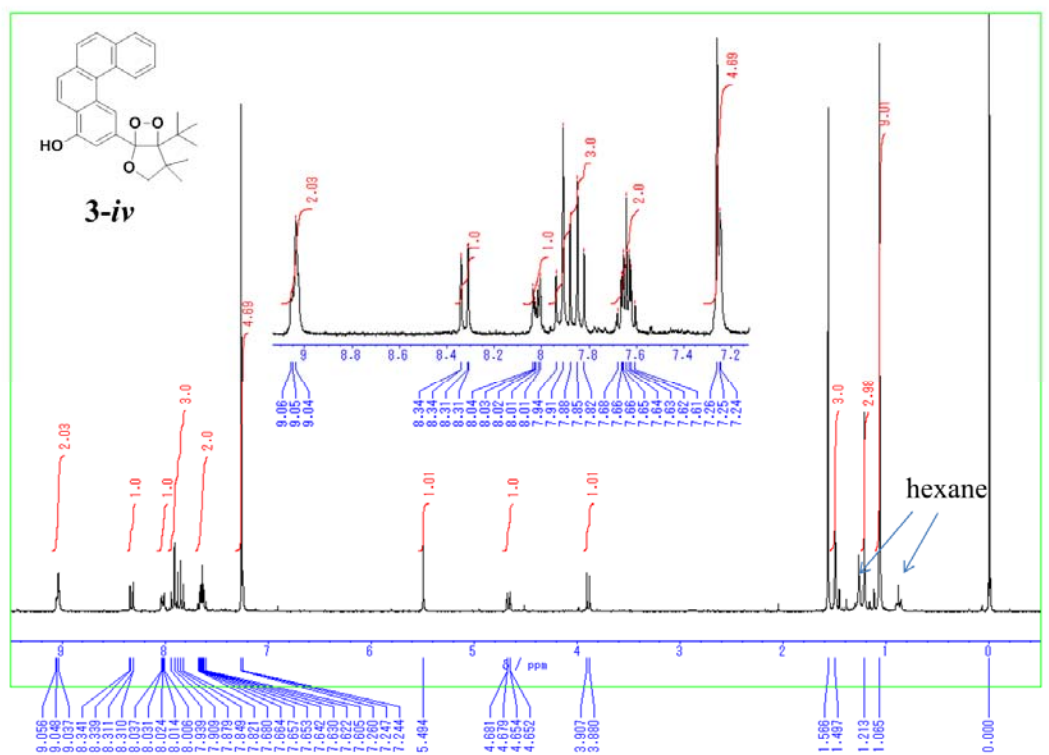


Figure S22:  $^1\text{H}$  NMR (400MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (125MHz,  $\text{CDCl}_3$ ) of **3-ov**

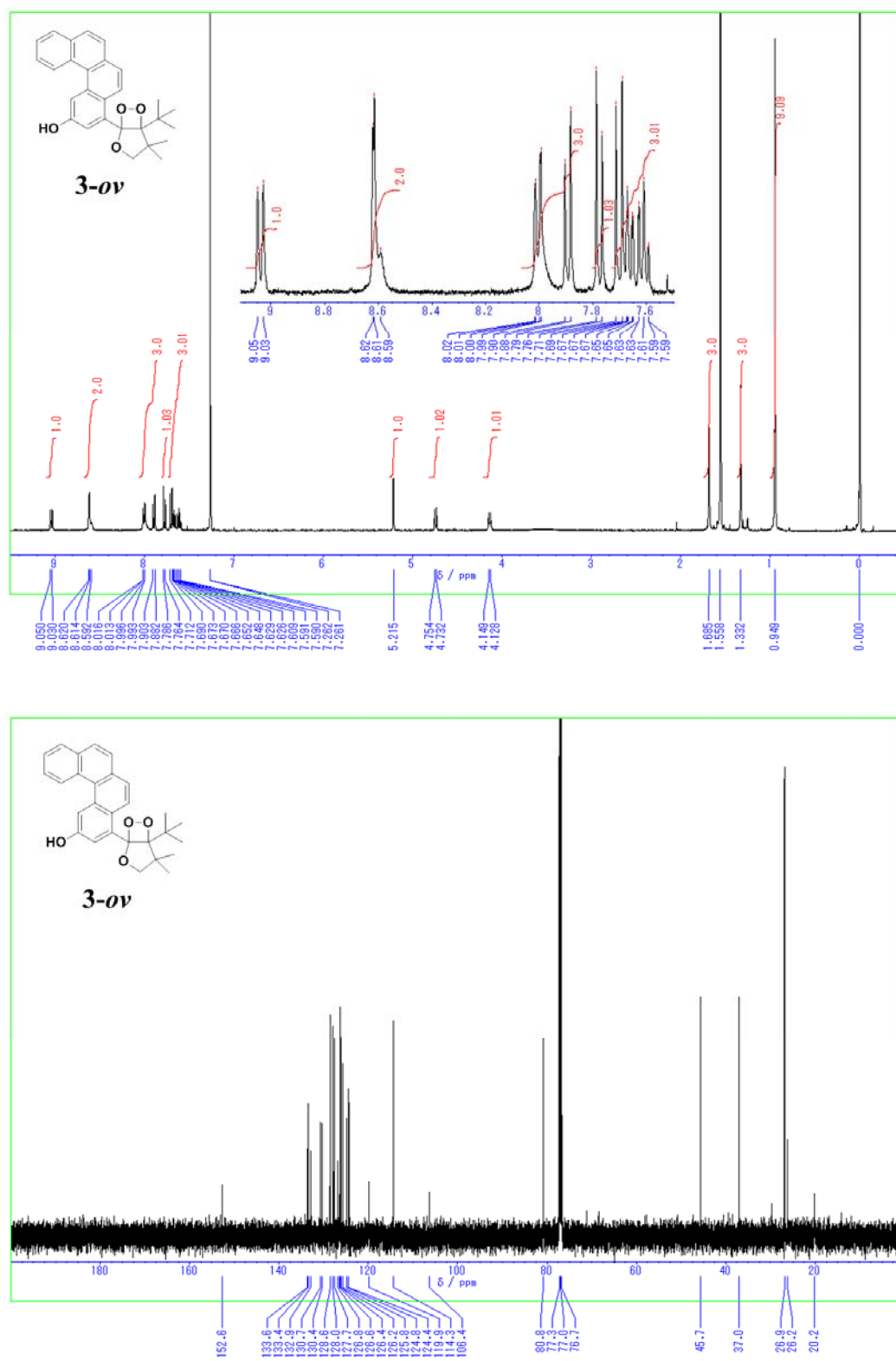


Figure S23:  $^1\text{H}$  NMR (400MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (125MHz,  $\text{CDCl}_3$ ) of **9-iv**

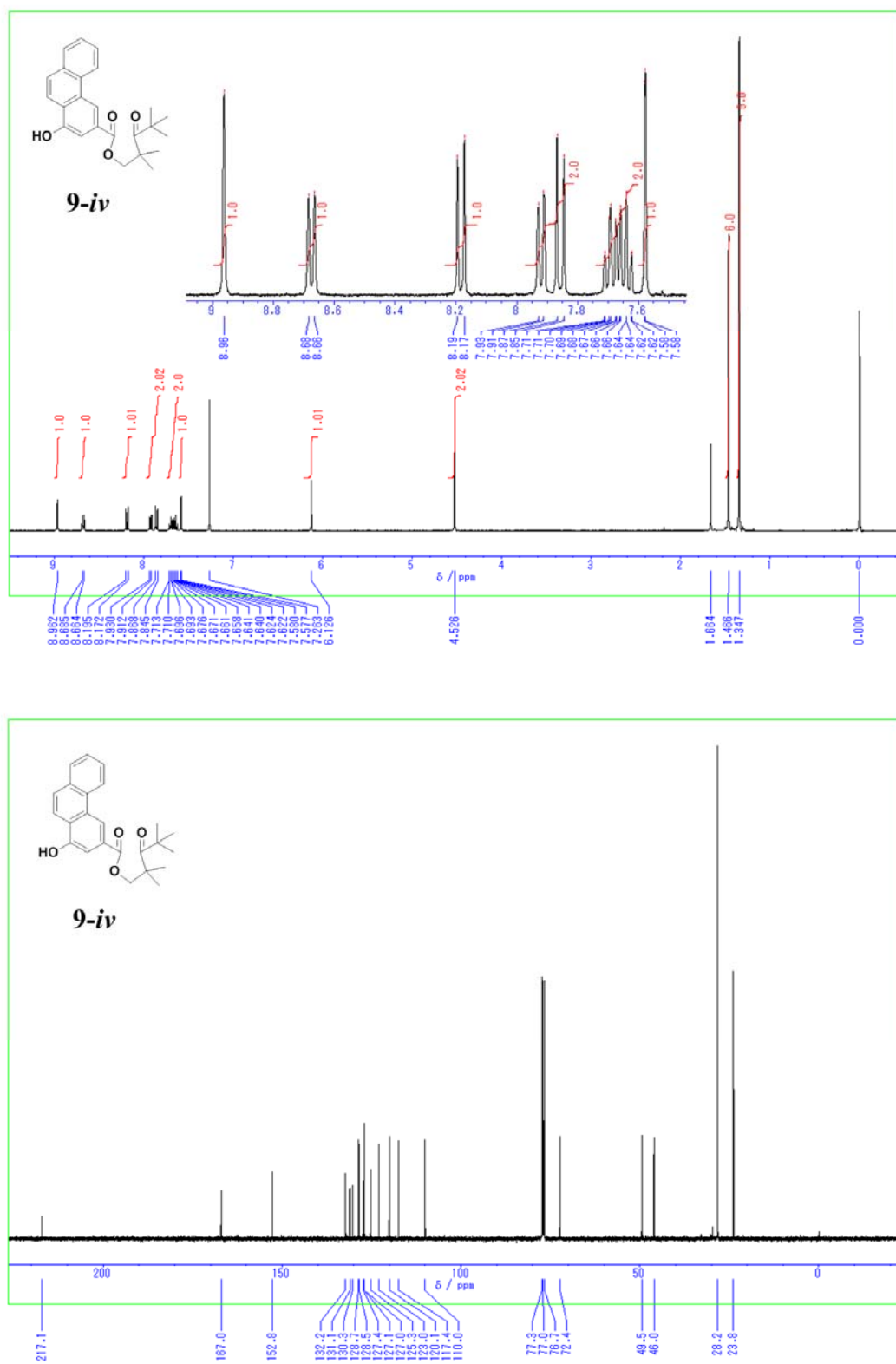


Figure S24:  $^1\text{H}$  NMR (400MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (125MHz,  $\text{CDCl}_3$ ) of **9-ov**

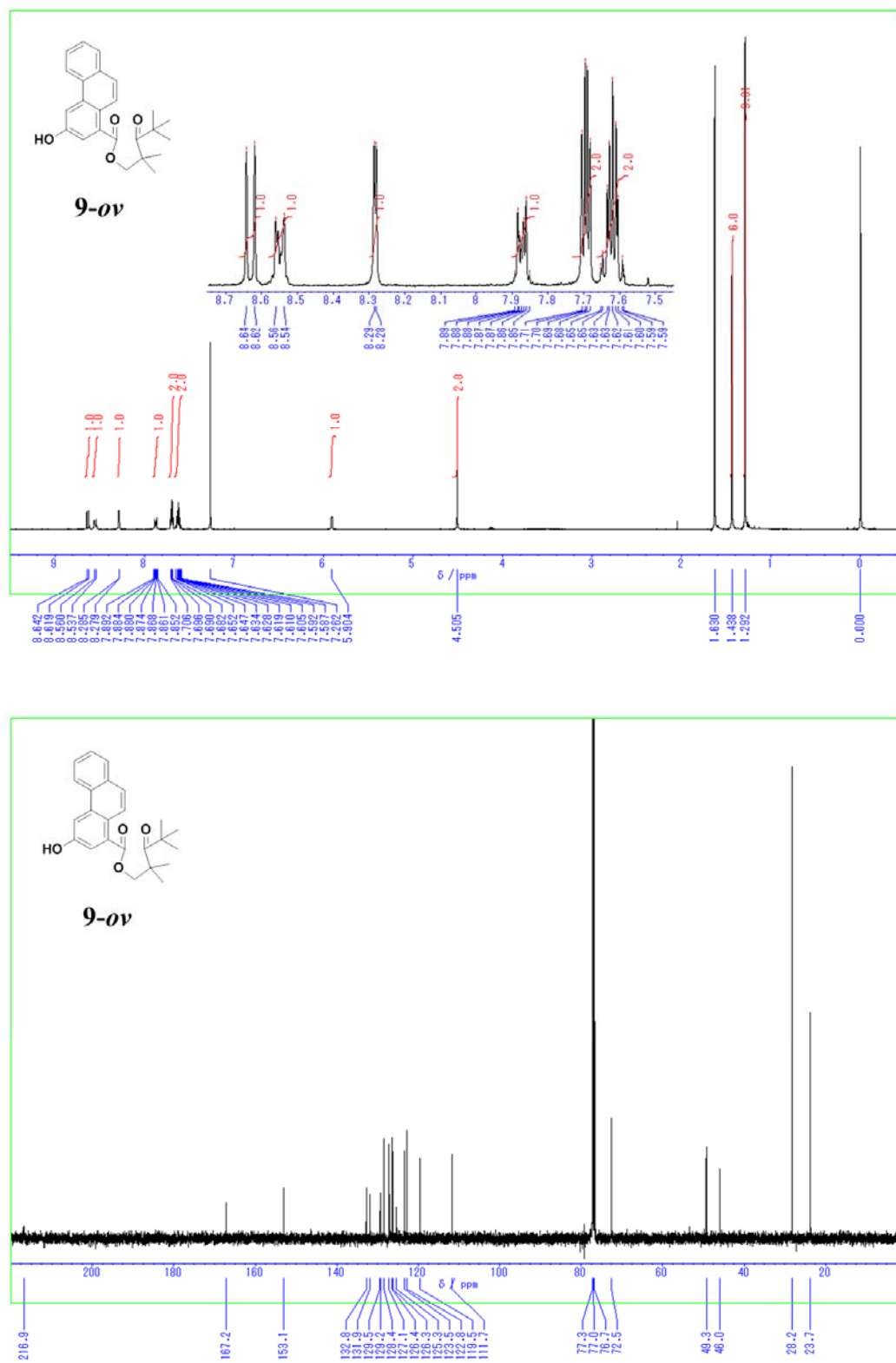


Figure S25:  $^1\text{H}$  NMR (400MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (125MHz,  $\text{CDCl}_3$ ) of **9-oh**

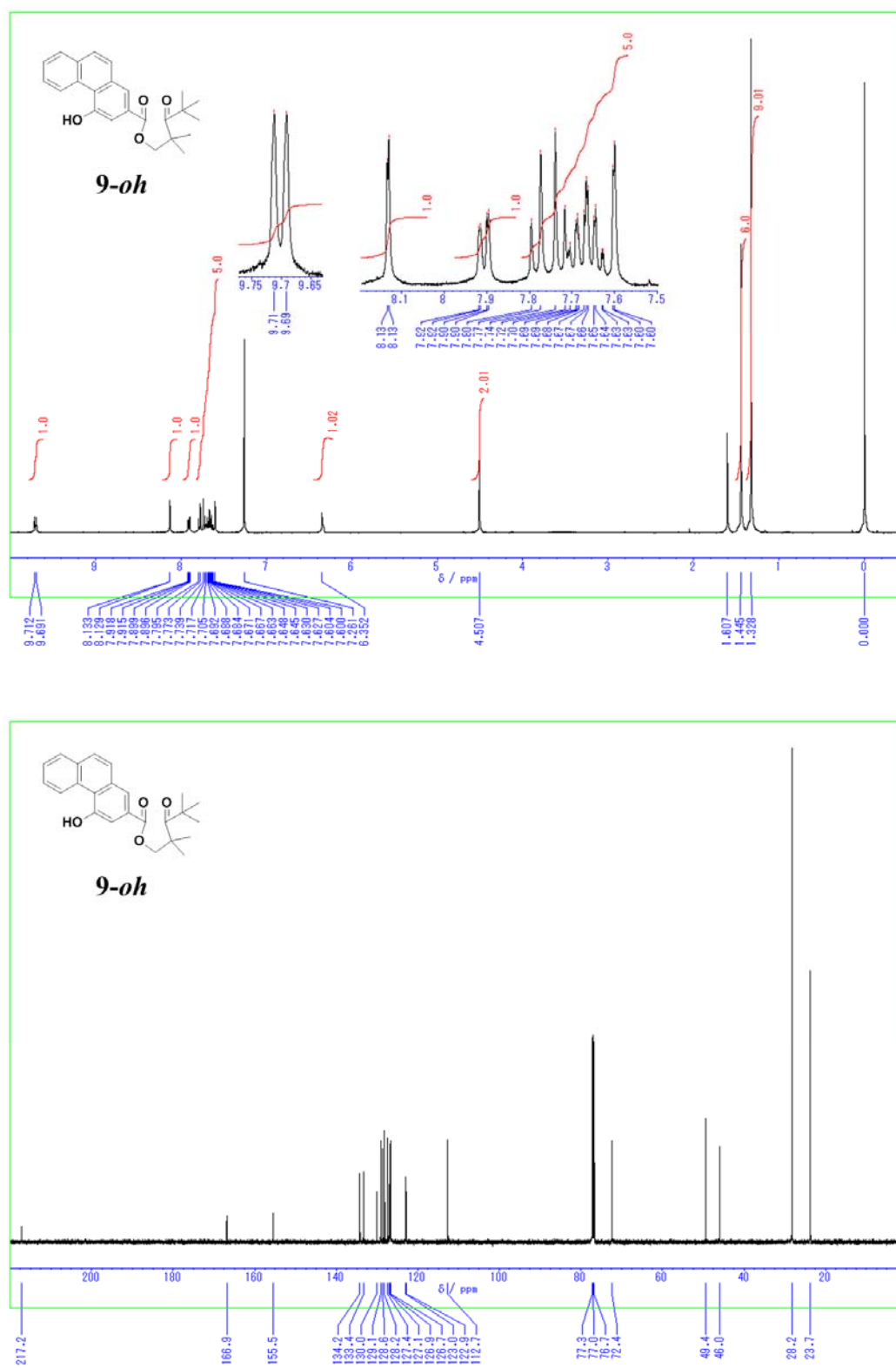




Figure S27:  $^1\text{H}$  NMR (400MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (125MHz,  $\text{CDCl}_3$ ) of **14-iv**

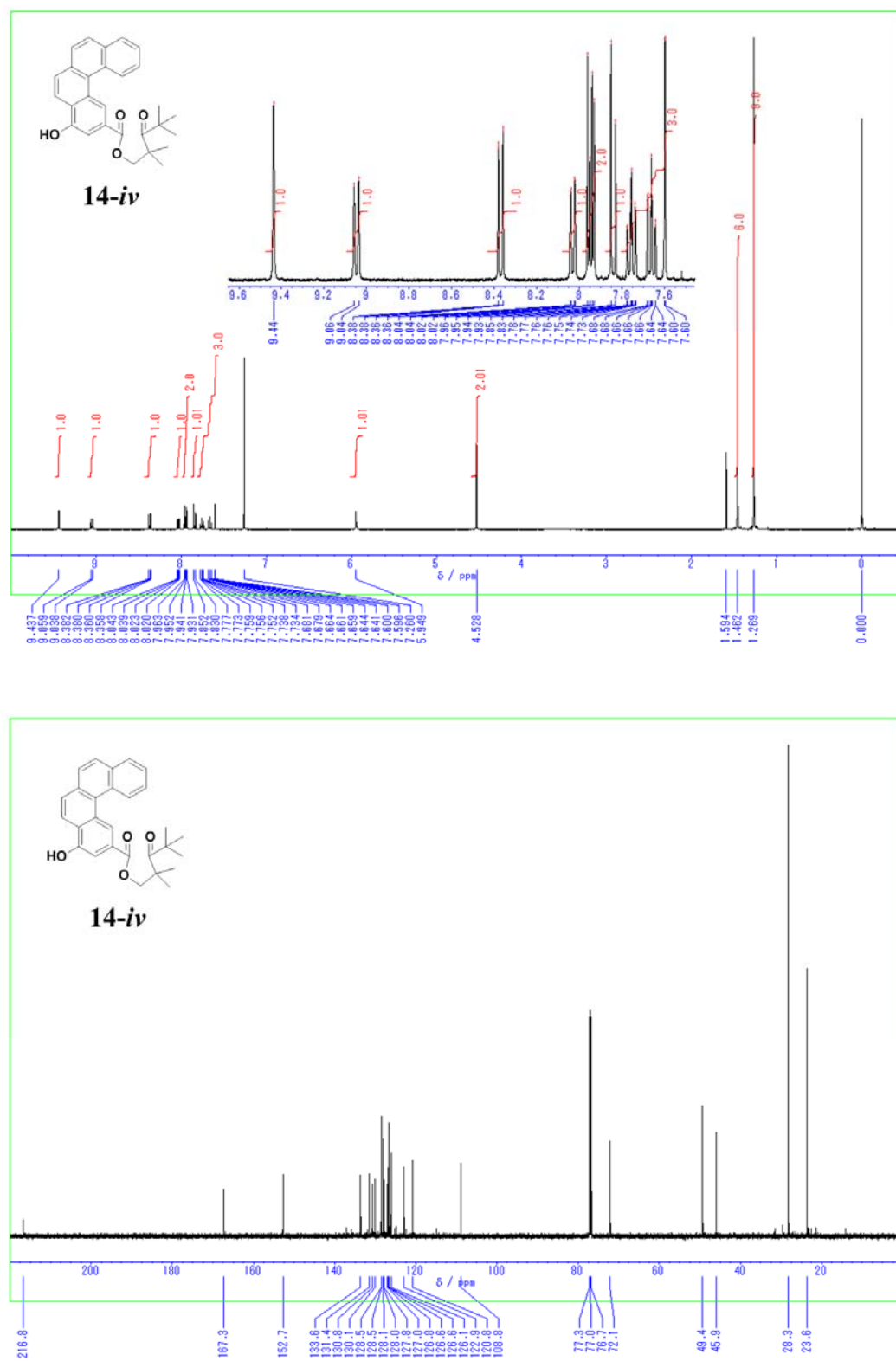


Figure S28:  $^1\text{H}$  NMR (500MHz,  $\text{CDCl}_3$ ) and  $^{13}\text{C}$  NMR (125MHz,  $\text{CDCl}_3$ ) of **14-ov**

