

**Supporting information**

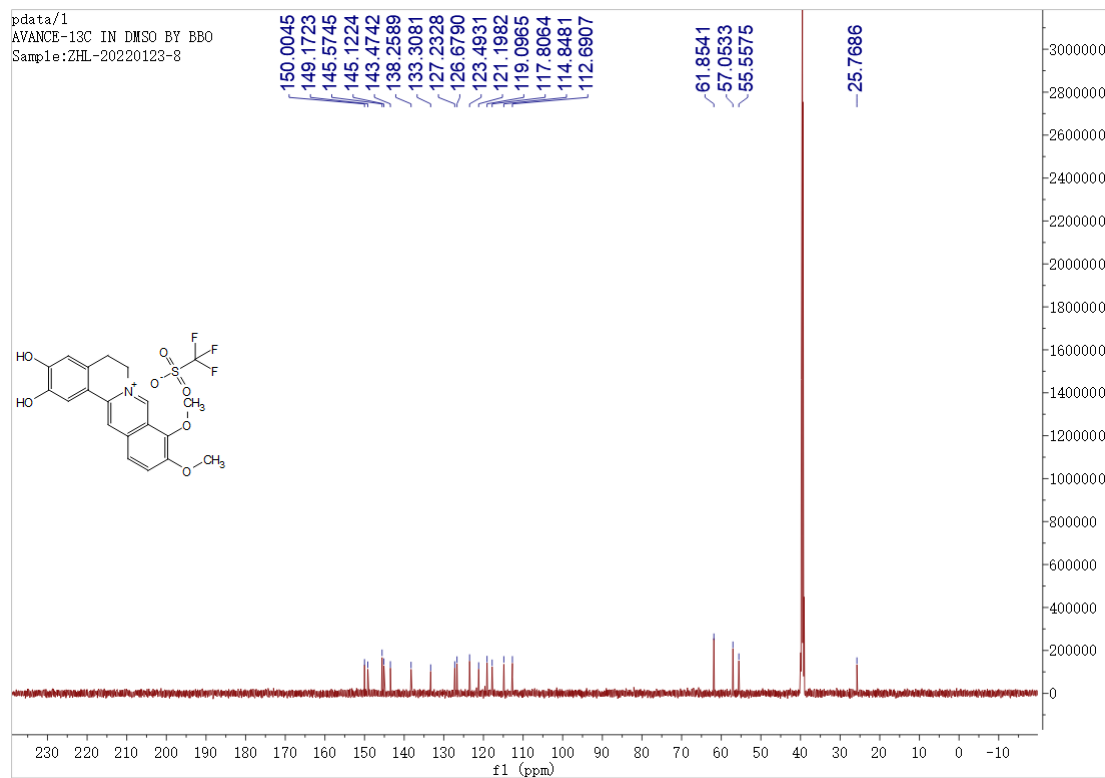
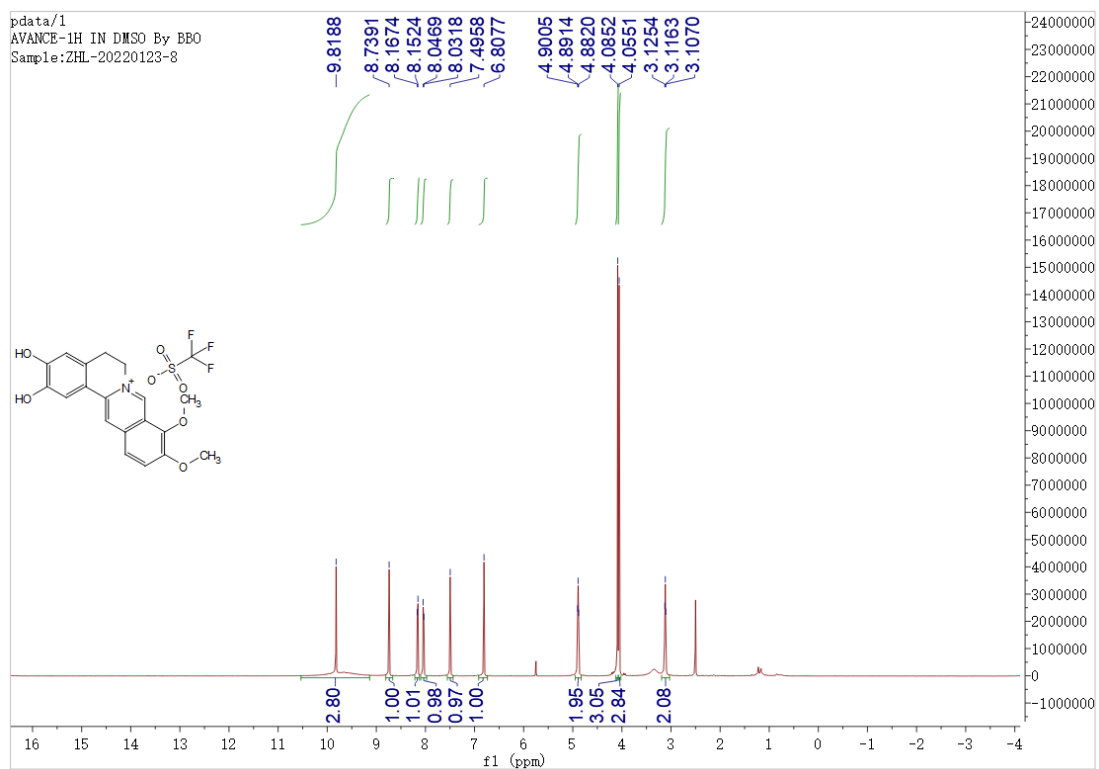
**SYNTHESIS AND *IN VITRO* TRIGLYCERIDE-LOWERING ACTIVITY OF  
2,3-DISUBSTITUTED BERBERINE DERIVATIVES**

**Hualin Zhang, Yue Wang, Weicong Zhang, Zhixiong Li, and Weina Han \***

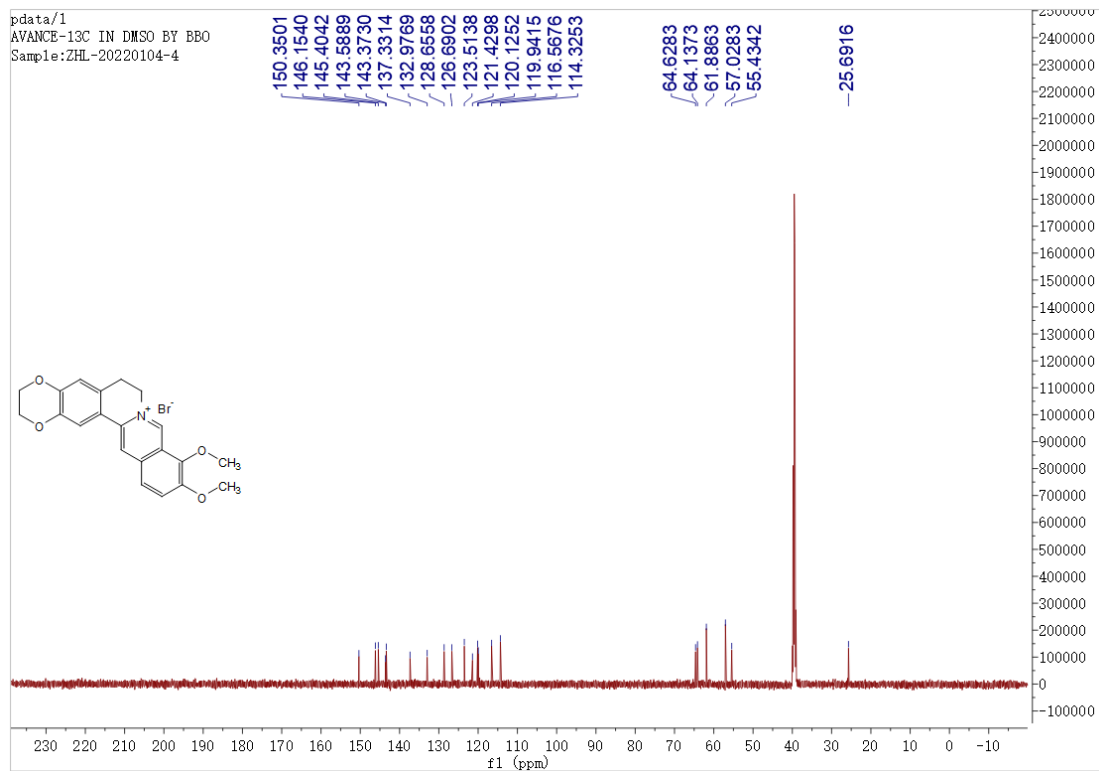
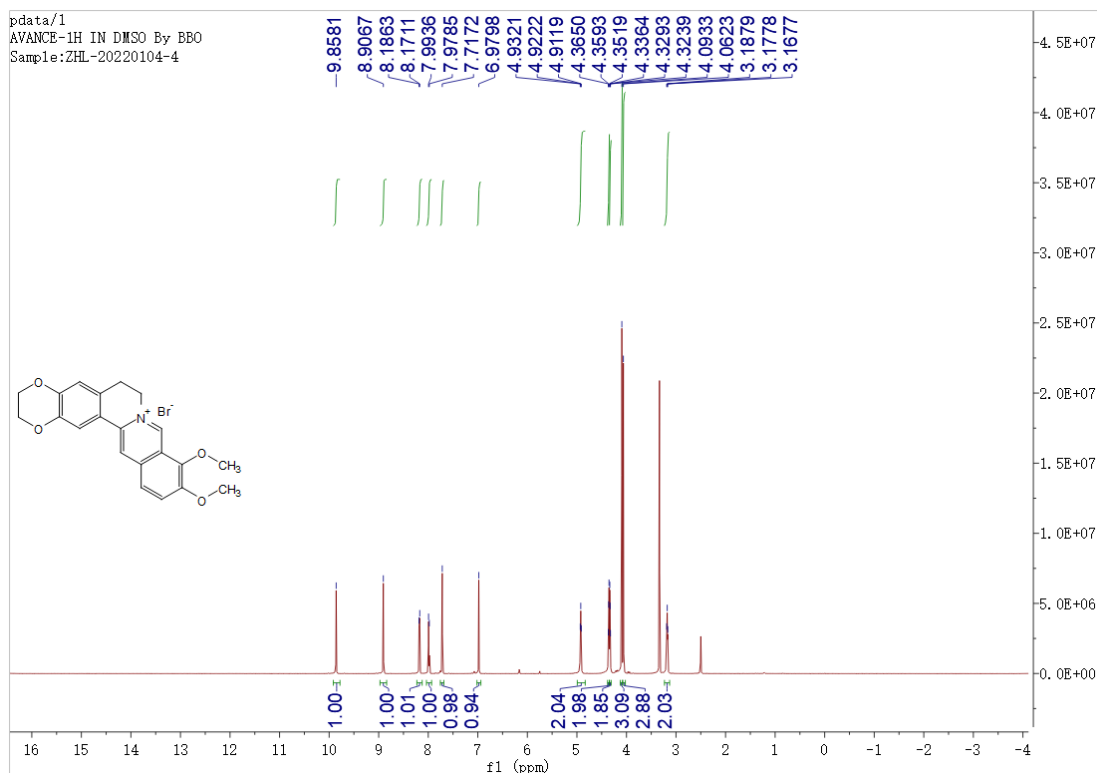
Department of Medicinal Chemistry and Natural Medicine Chemistry, College of  
Pharmacy, Harbin Medical University, Harbin 150081, China; E-mail:

hanweina@163.com

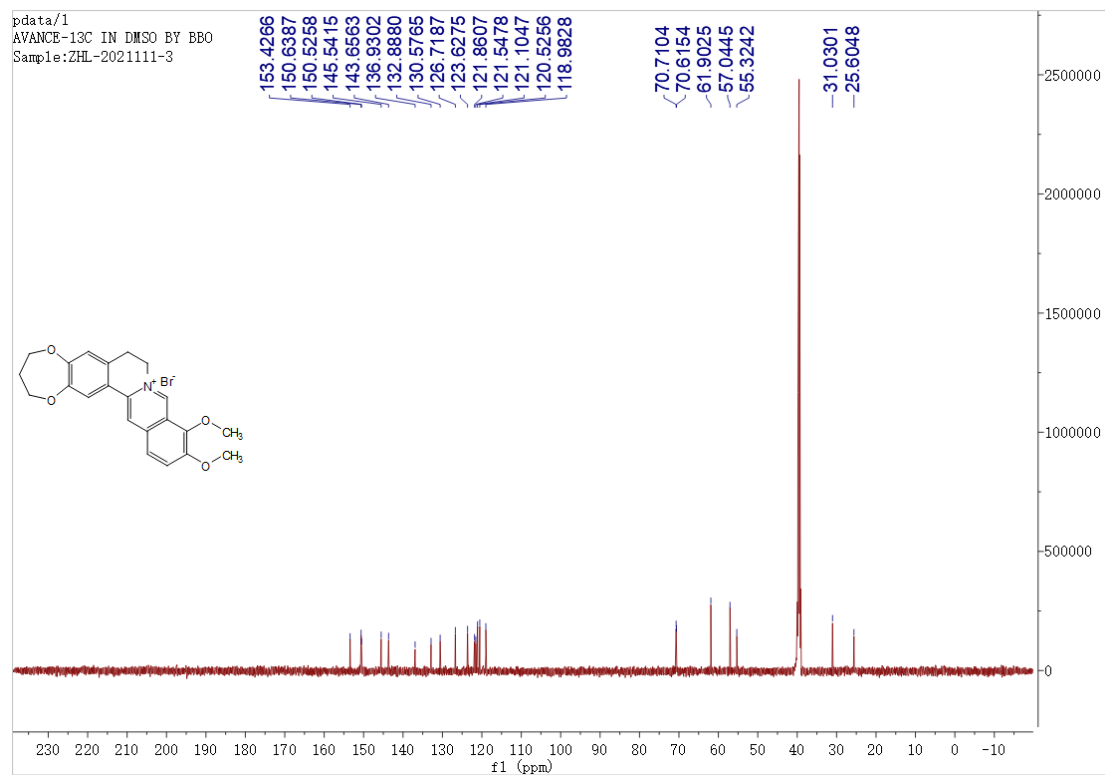
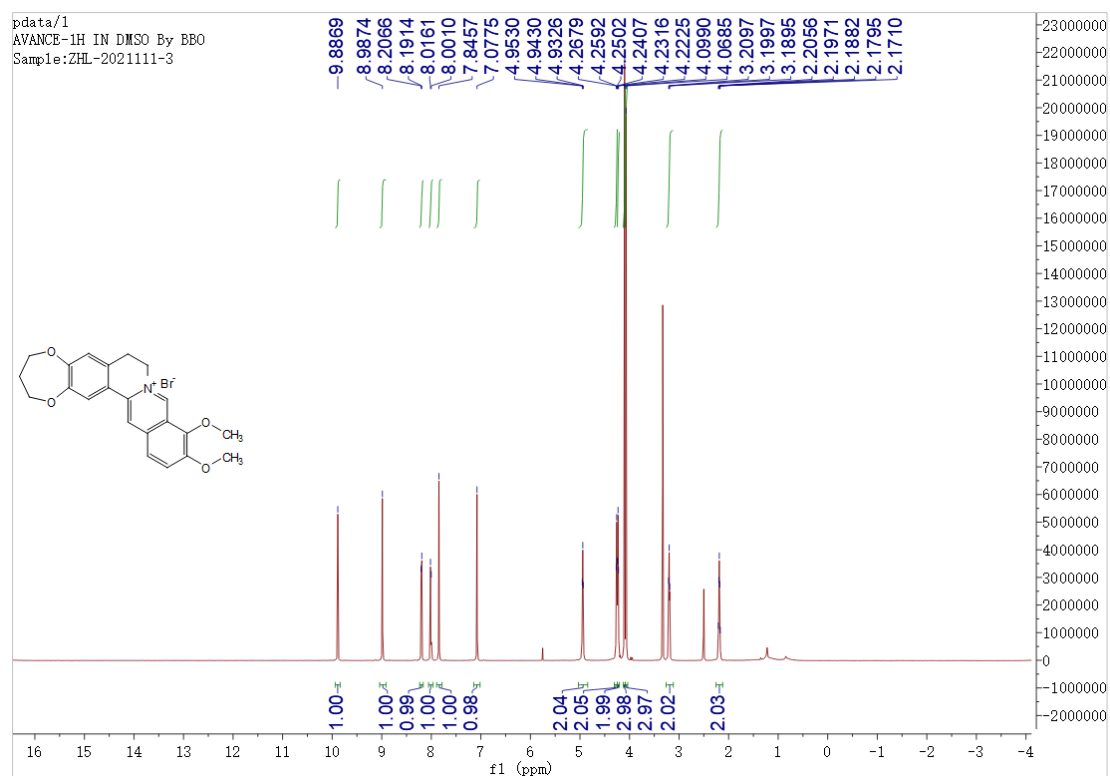
# $^1\text{H}$ NMR and $^{13}\text{C}$ NMR spectra of compound 2.



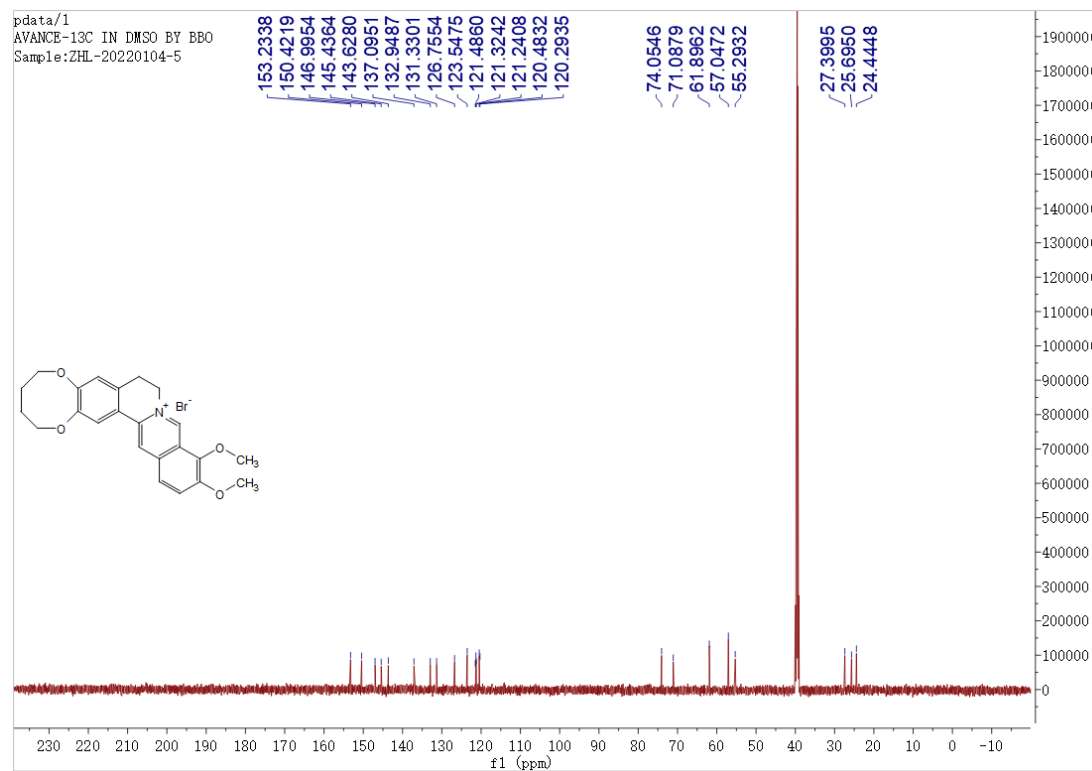
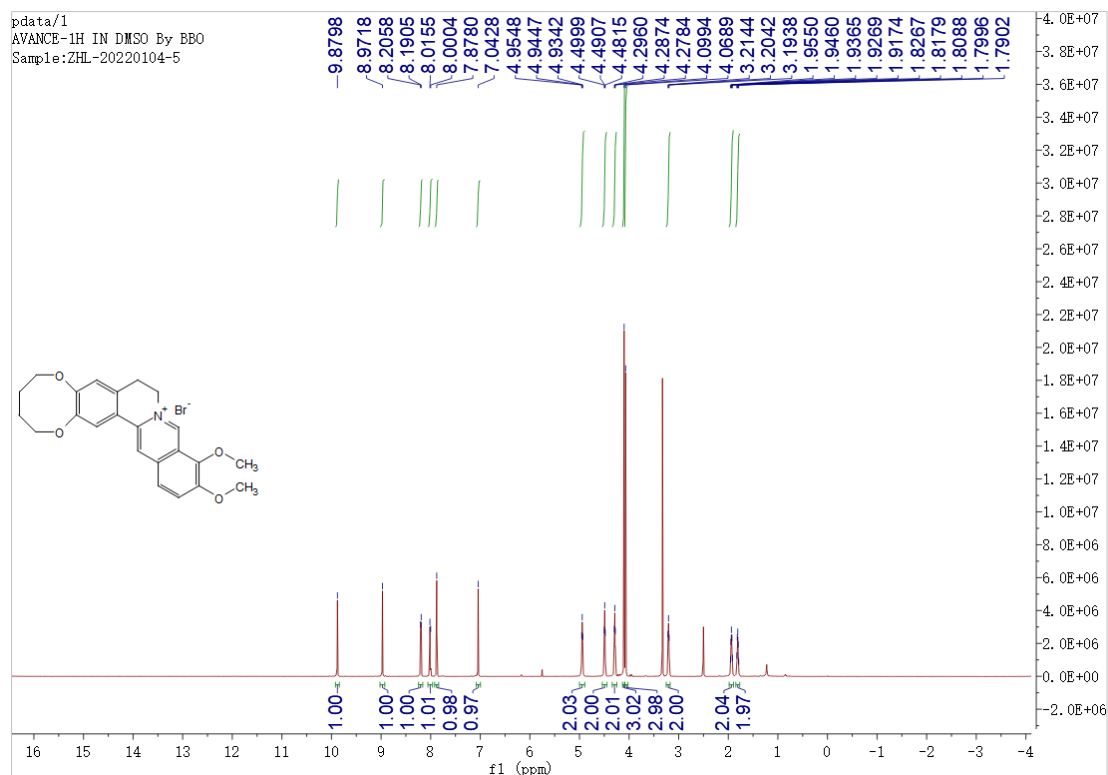
# $^1\text{H}$ NMR and $^{13}\text{C}$ NMR spectra of compound **3a**.



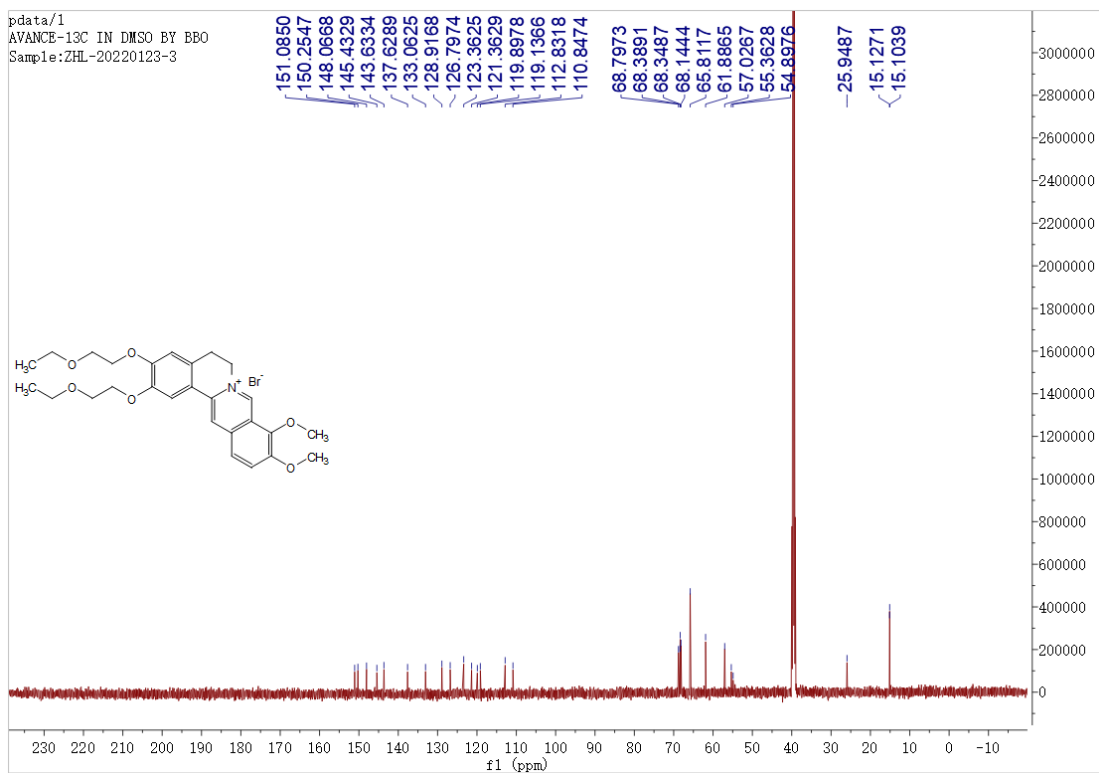
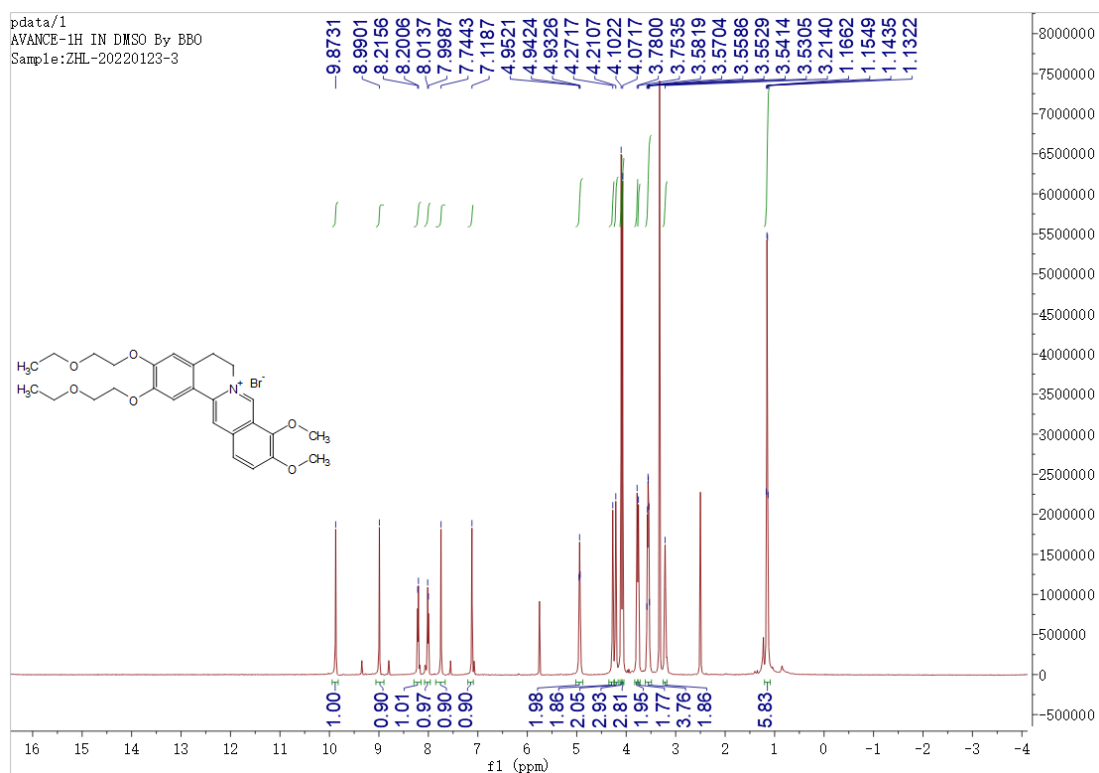
$^1\text{H}$  NMR and  $^{13}\text{C}$  NMR spectra of compound **3b**.



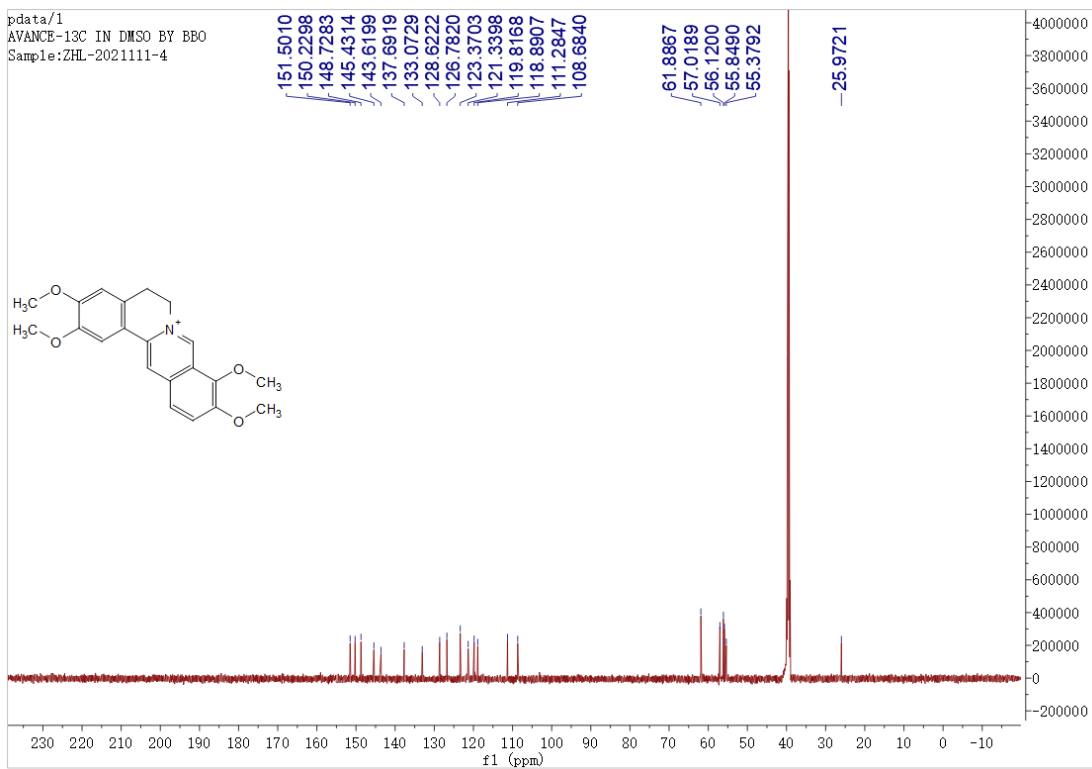
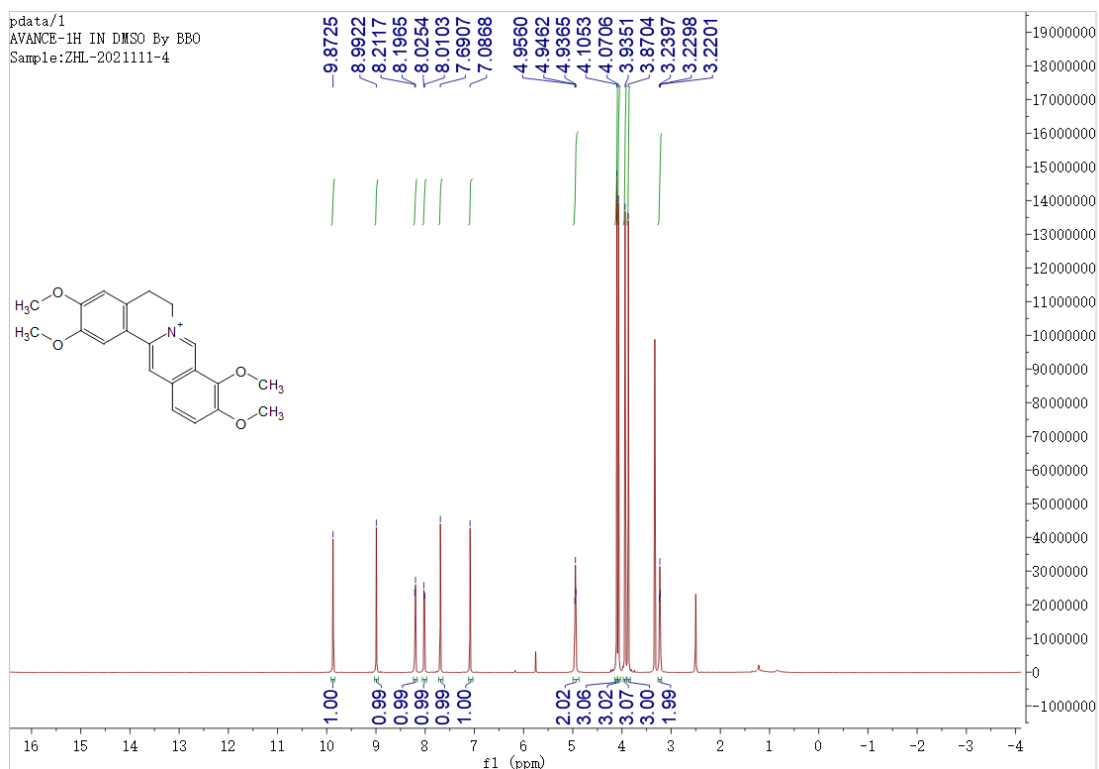
$^1\text{H}$  NMR and  $^{13}\text{C}$  NMR spectra of compound **3c**.



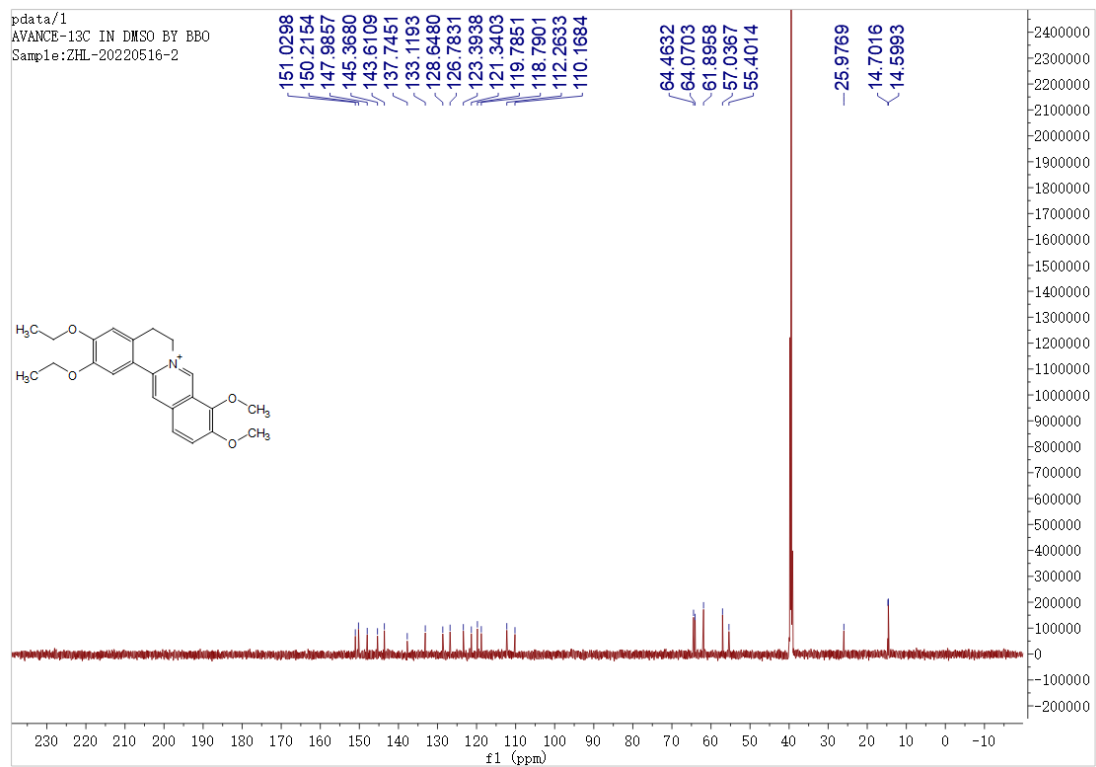
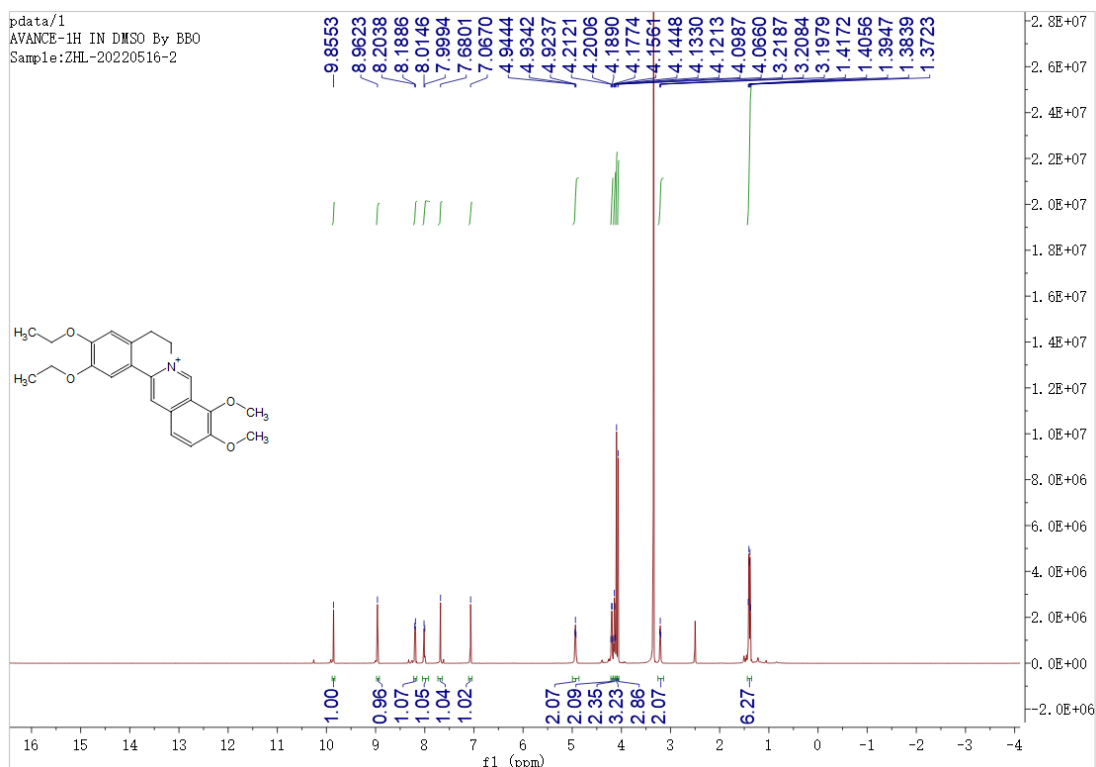
$^1\text{H}$  NMR and  $^{13}\text{C}$  NMR spectra of compound 4.



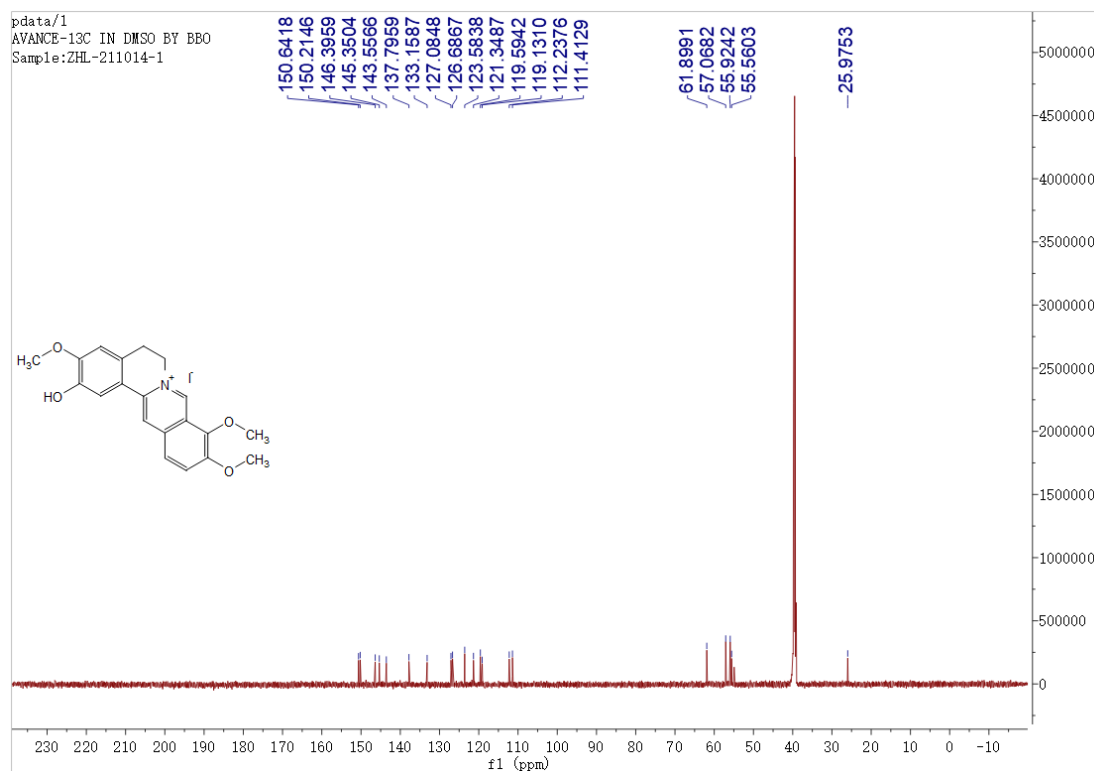
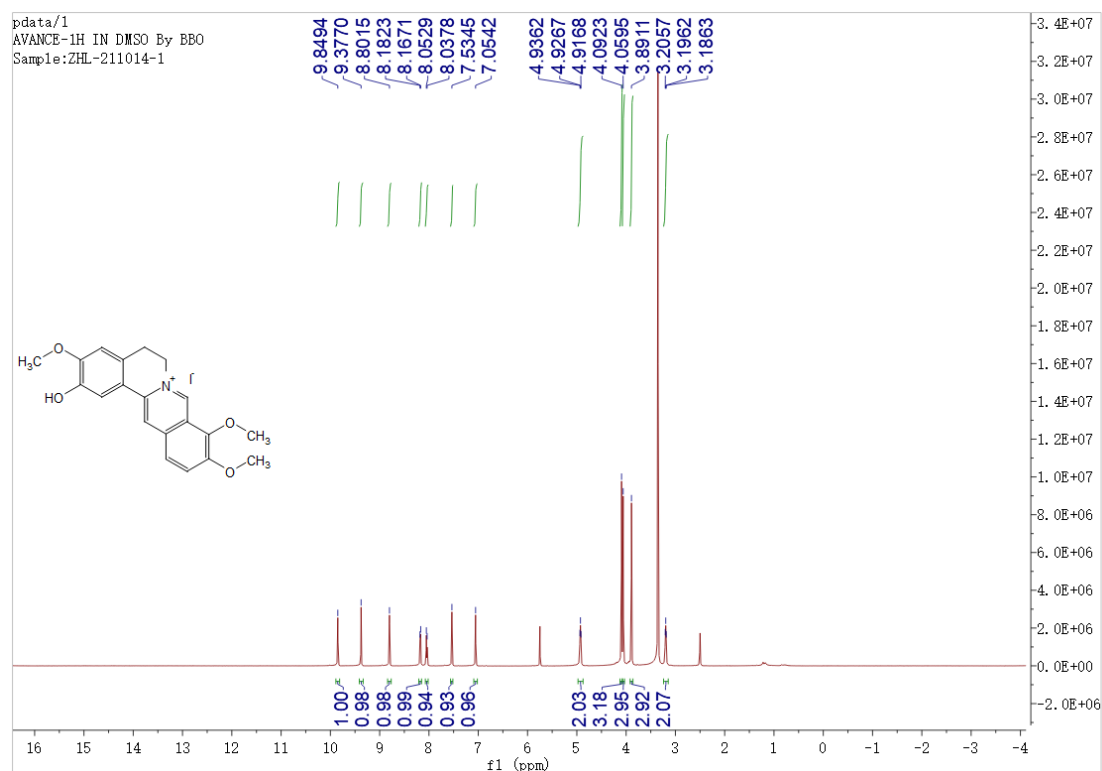
$^1\text{H}$  NMR and  $^{13}\text{C}$  NMR spectra of compound **5a**.



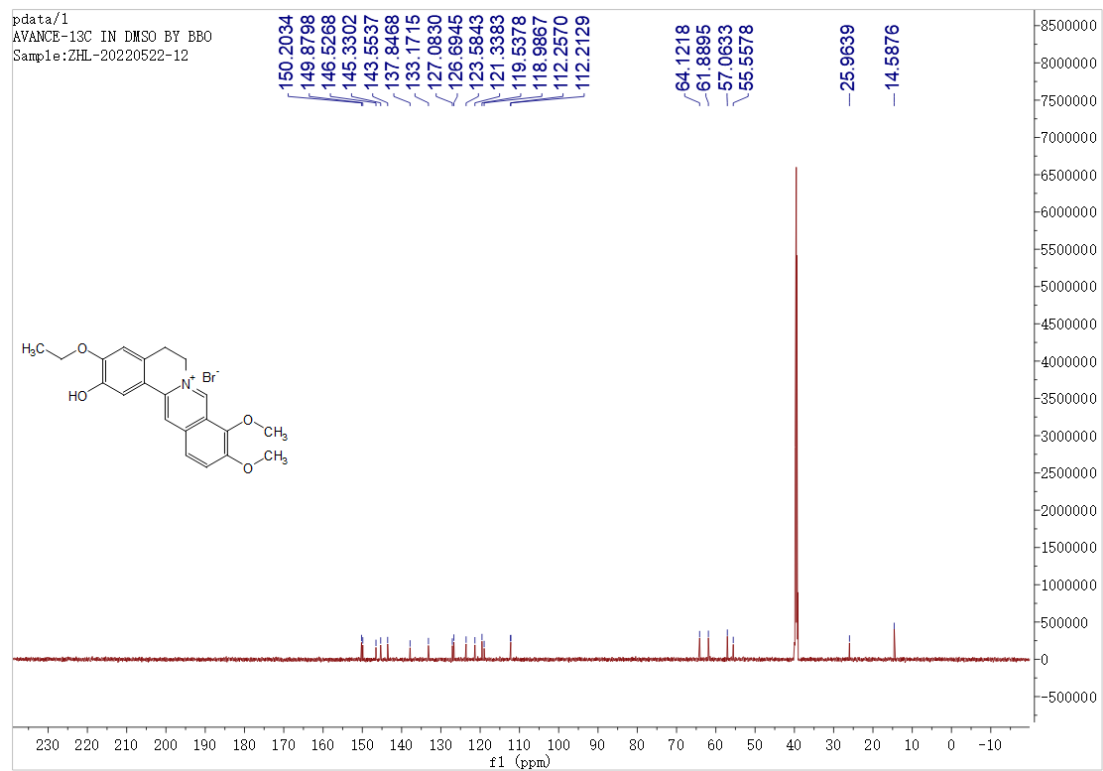
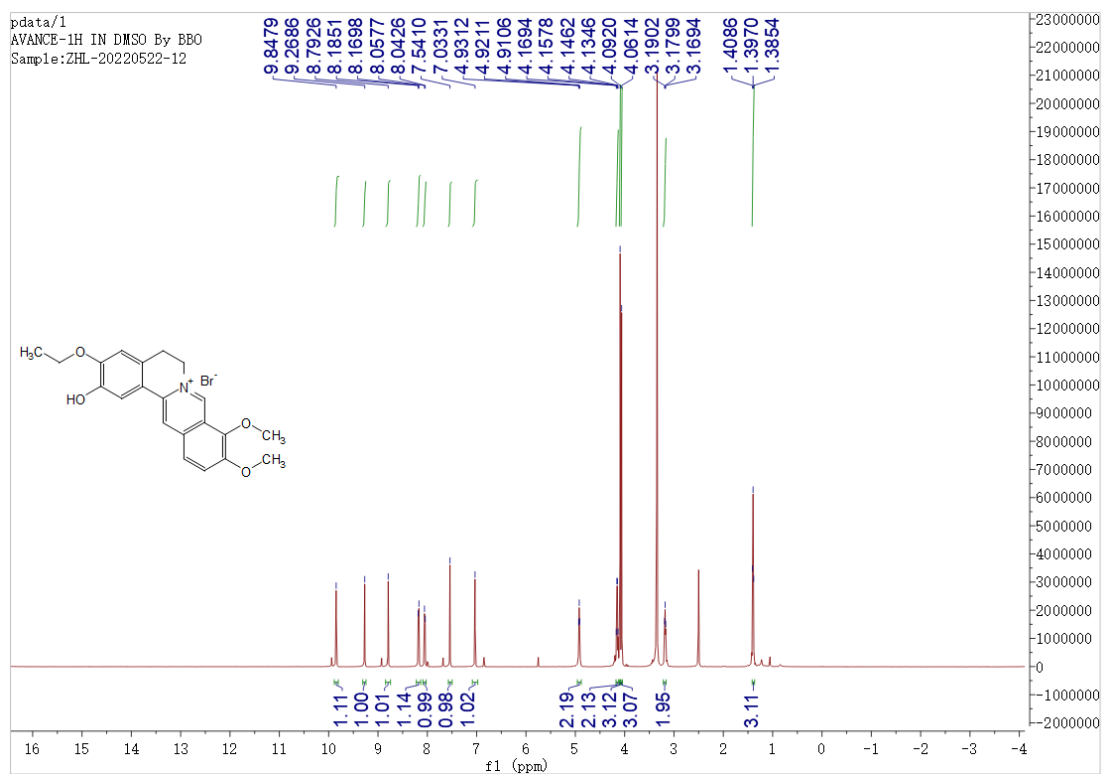
# $^1\text{H}$ NMR and $^{13}\text{C}$ NMR spectra of compound **5b**.



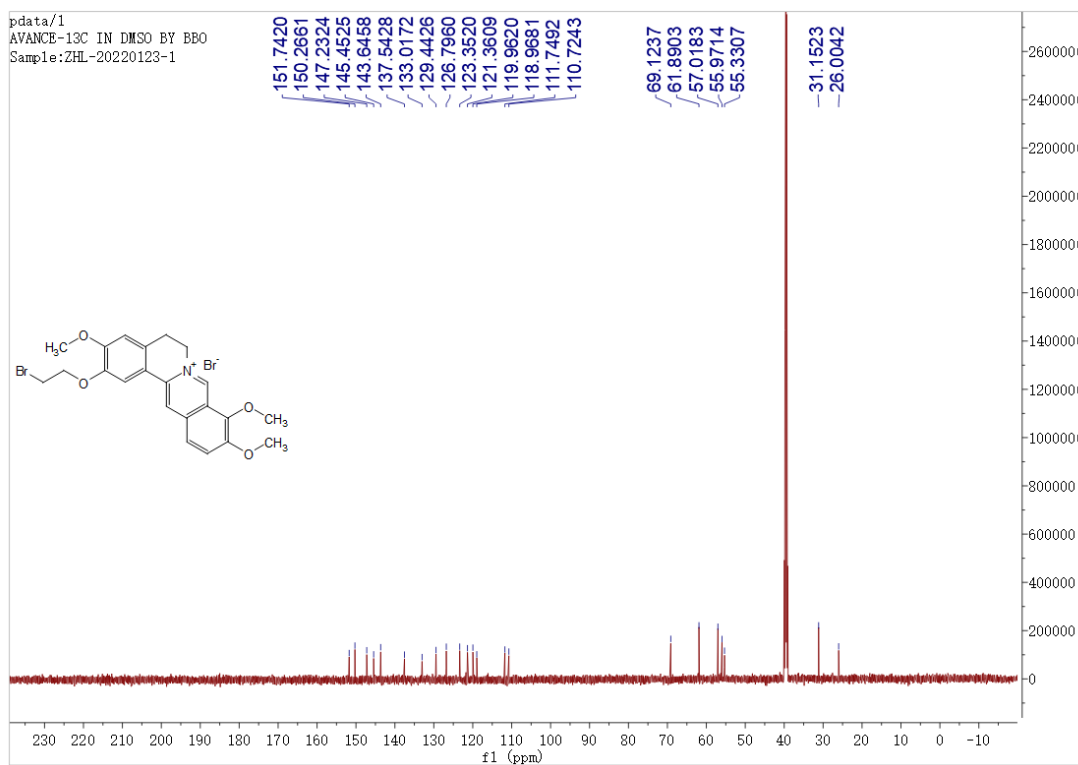
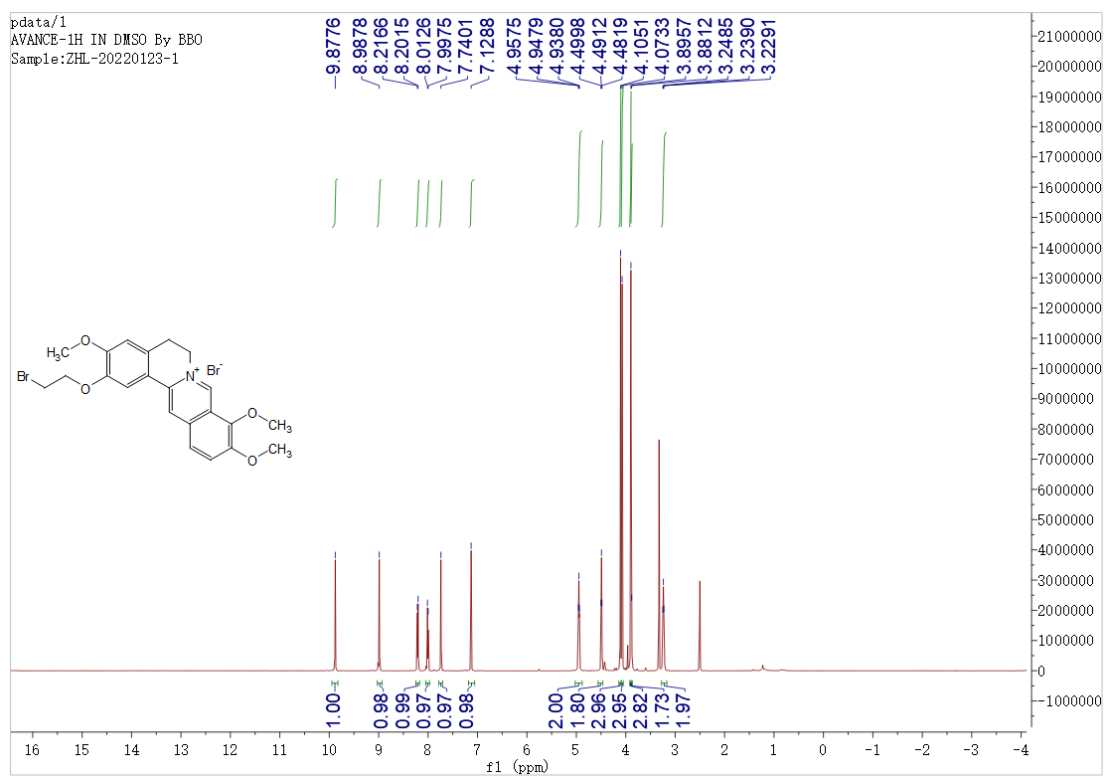
$^1\text{H}$  NMR and  $^{13}\text{C}$  NMR spectra of compound **6a**.



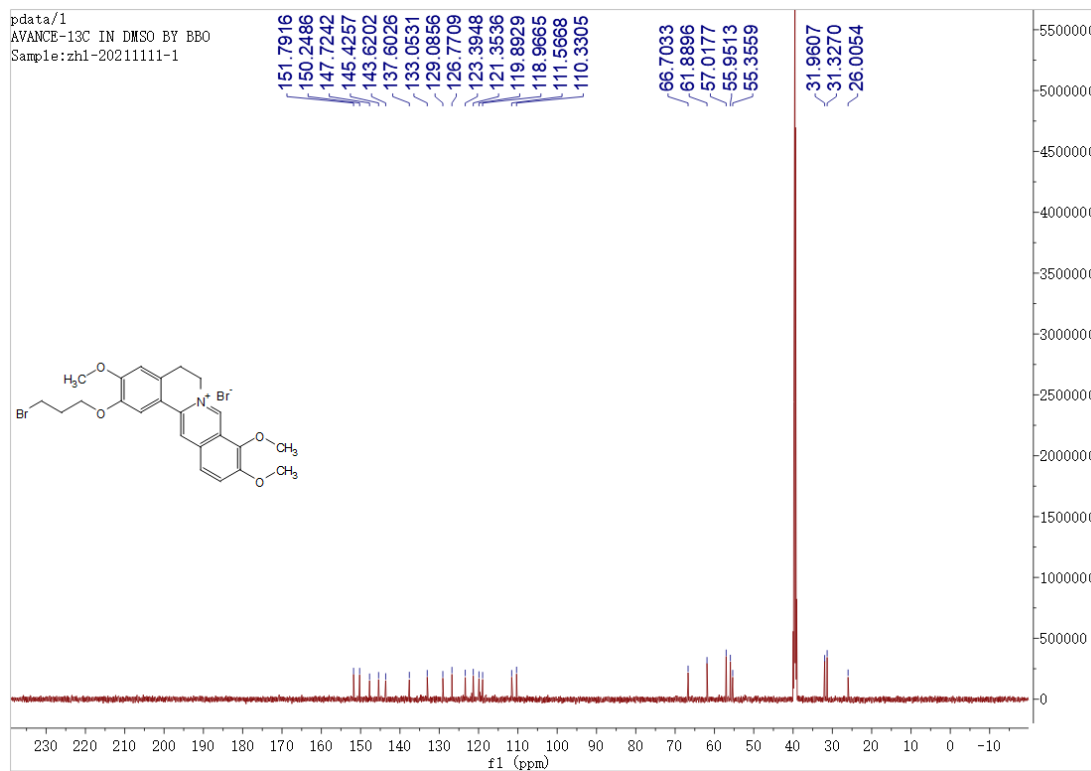
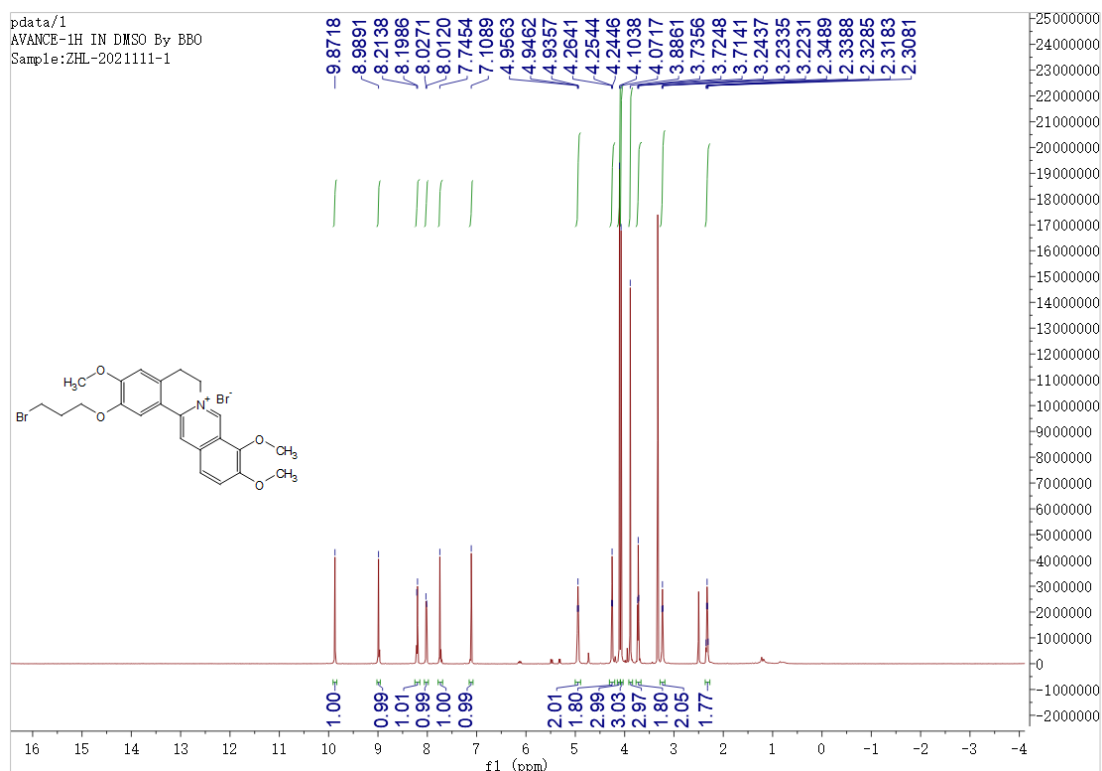
# $^1\text{H}$ NMR and $^{13}\text{C}$ NMR spectra of compound **6b**.



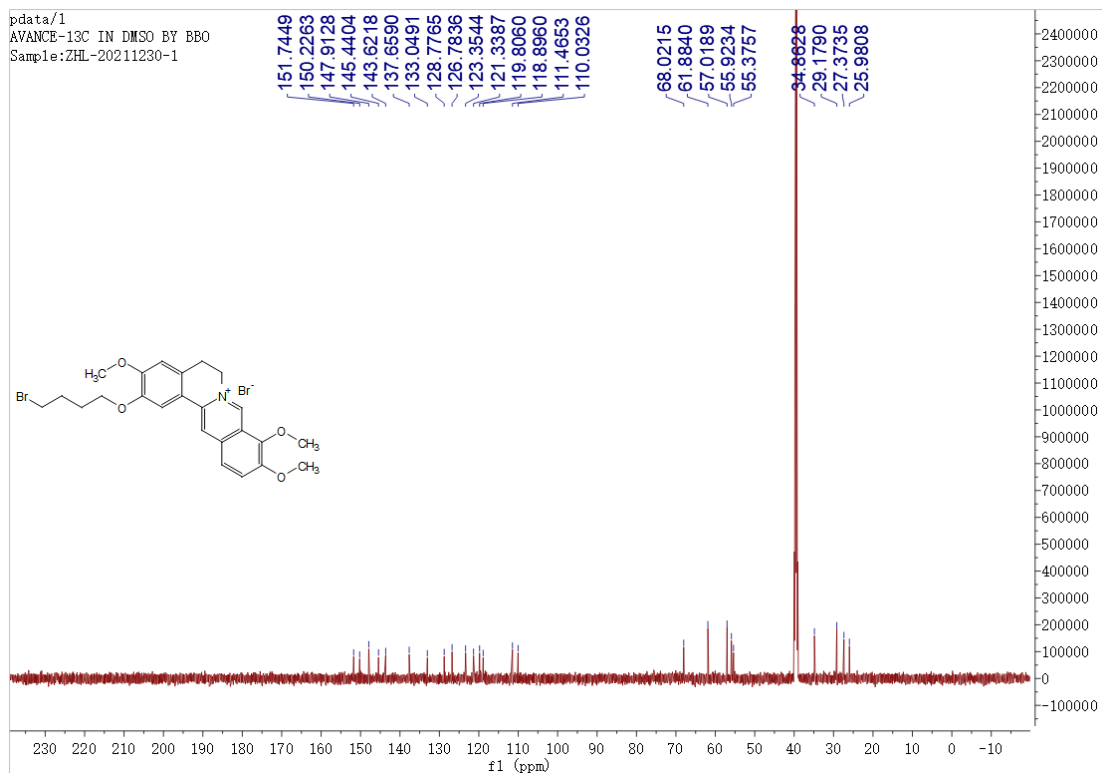
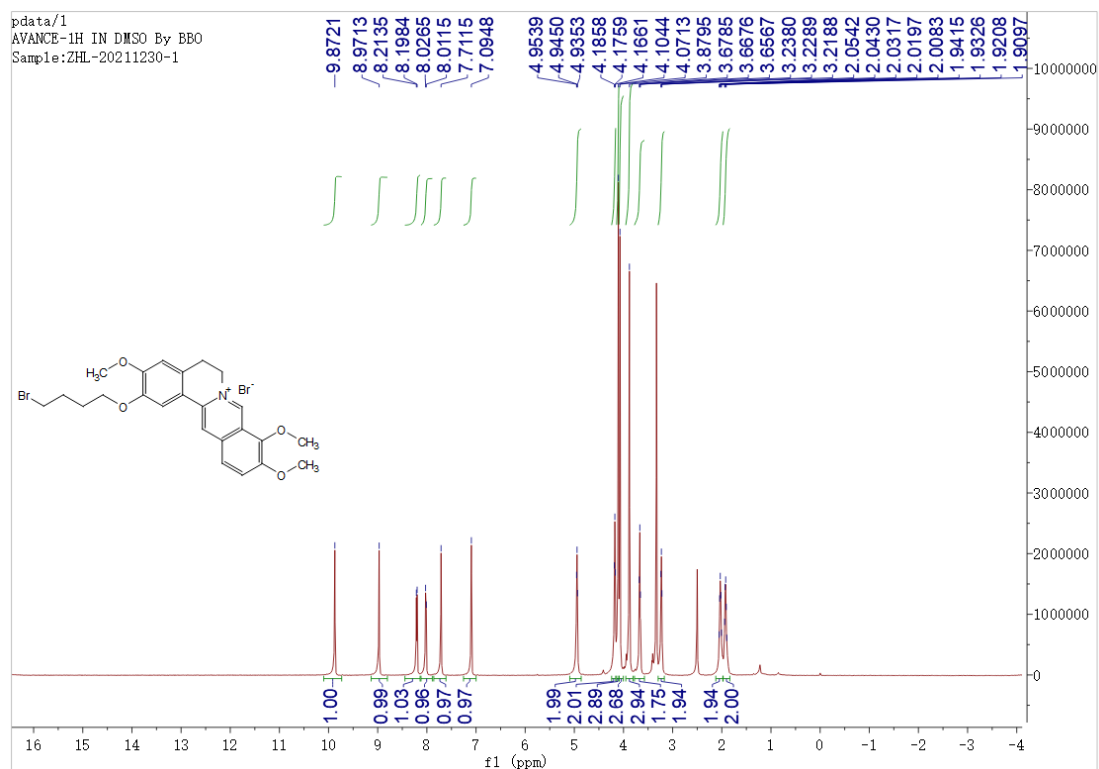
# $^1\text{H}$ NMR and $^{13}\text{C}$ NMR spectra of compound **7a**.



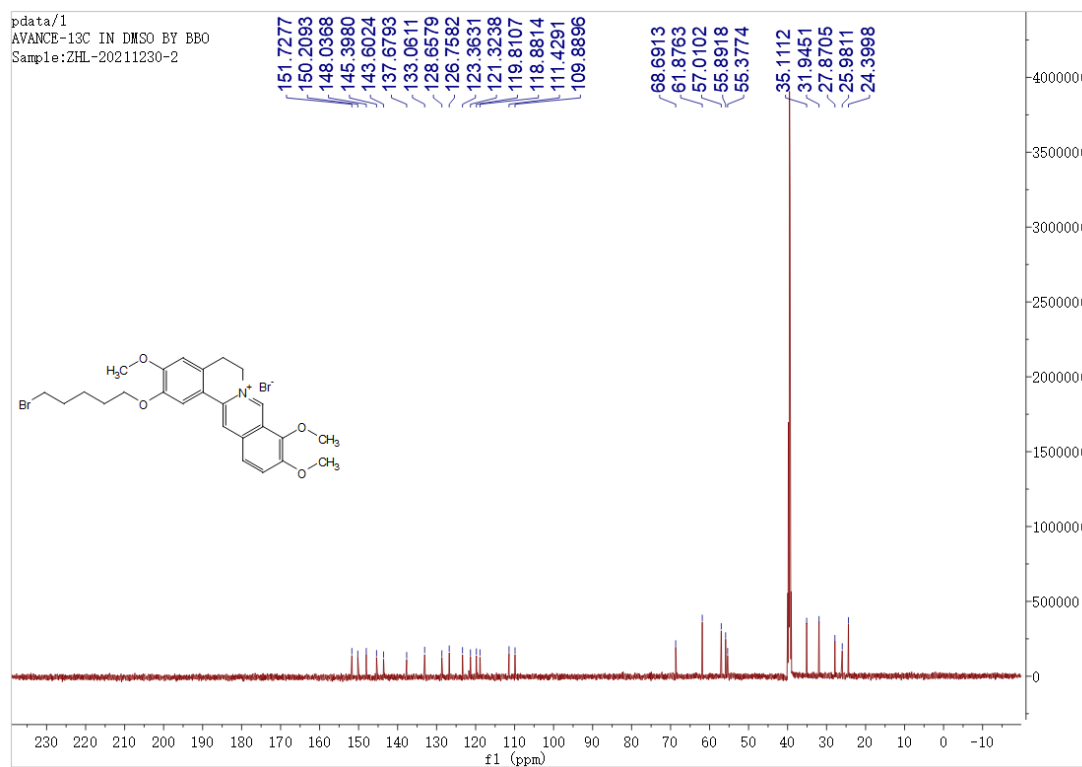
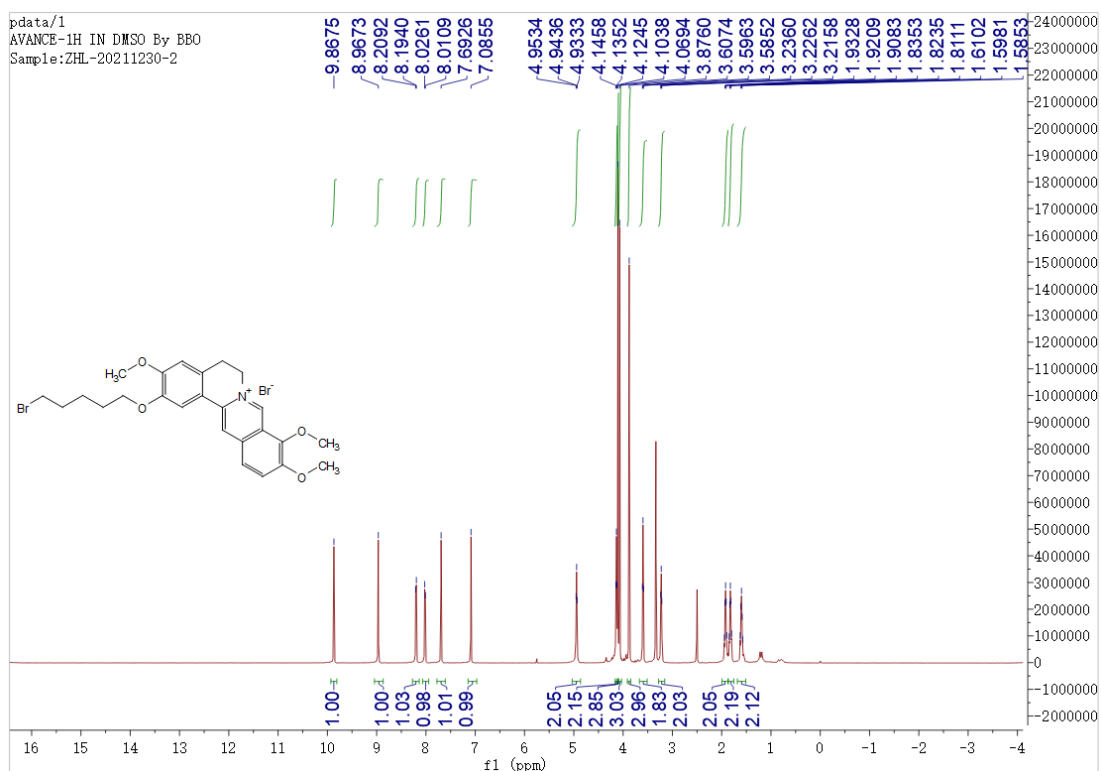
$^1\text{H}$  NMR and  $^{13}\text{C}$  NMR spectra of compound **7b**.



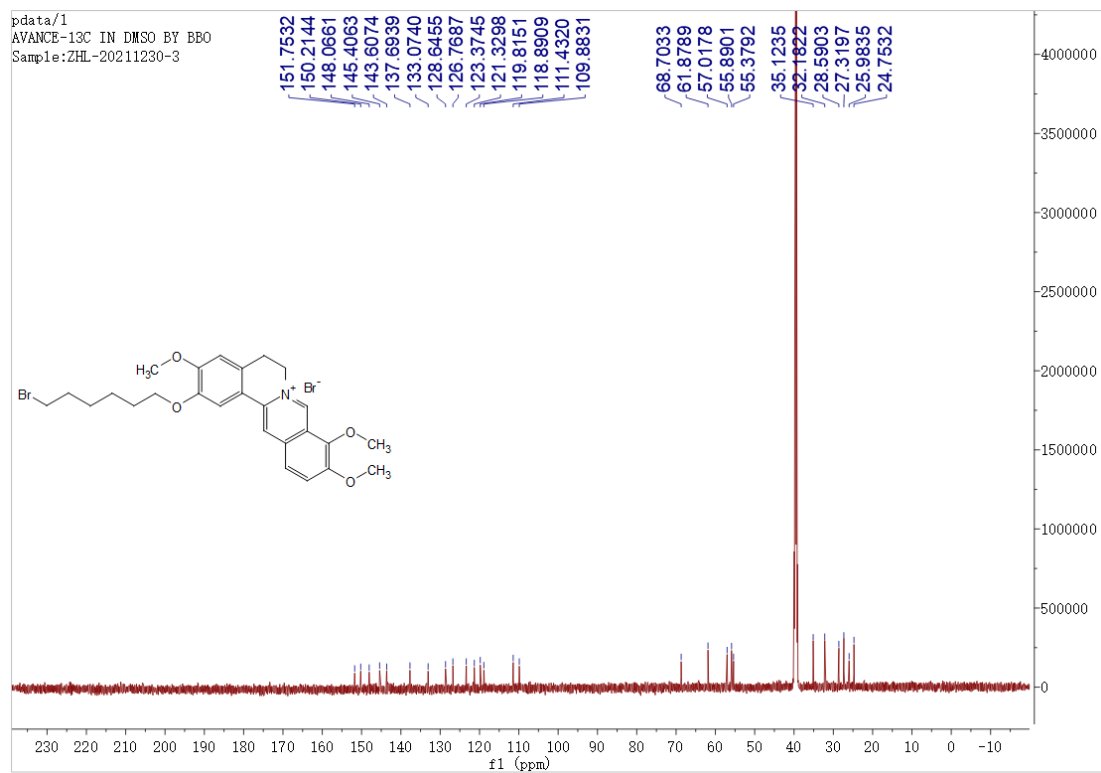
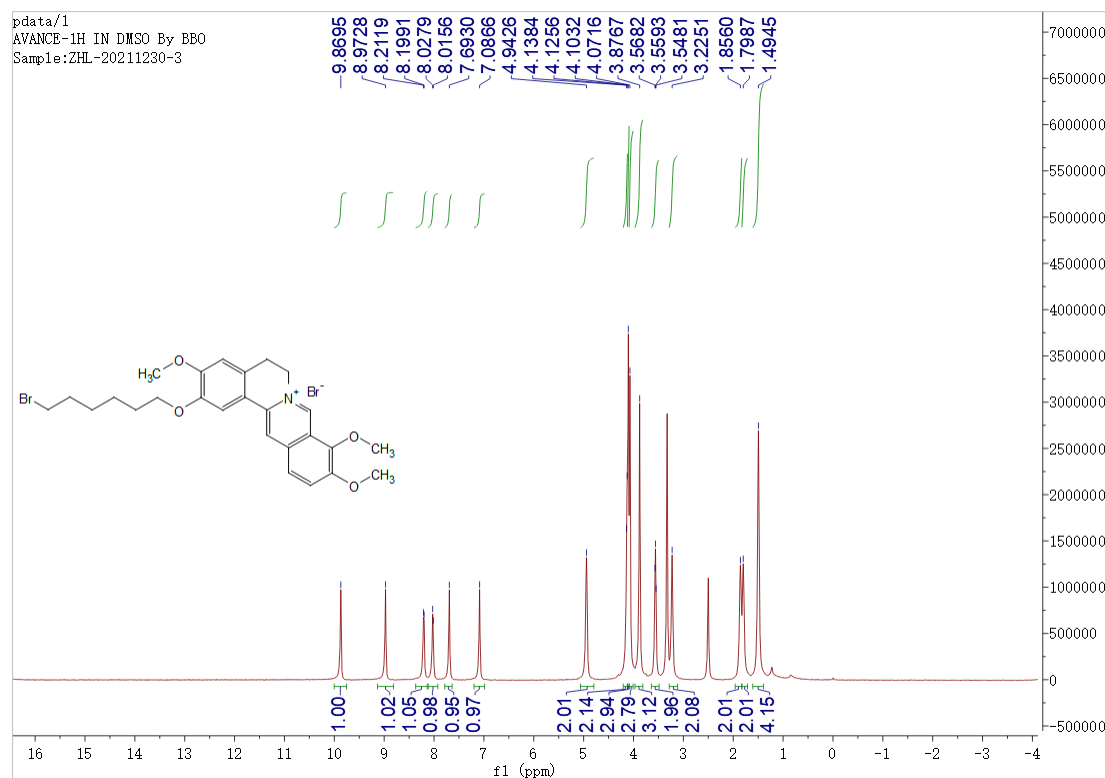
$^1\text{H}$  NMR and  $^{13}\text{C}$  NMR spectra of compound **7c**.



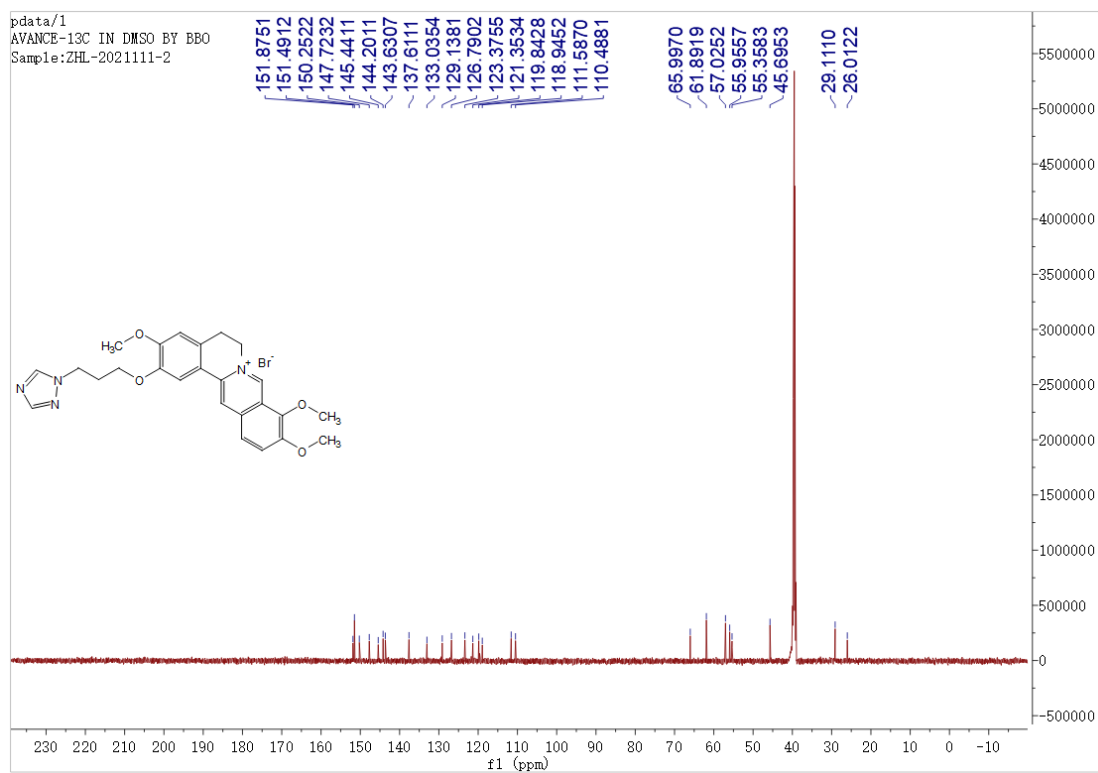
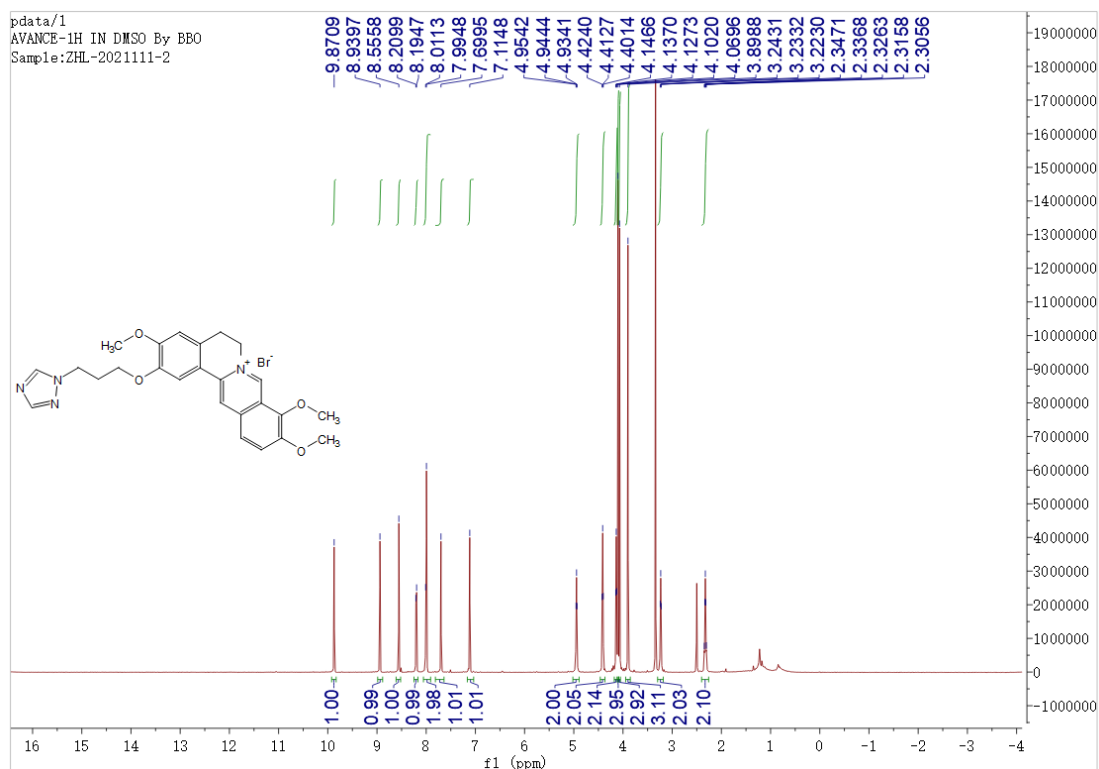
$^1\text{H}$  NMR and  $^{13}\text{C}$  NMR spectra of compound **7d**.



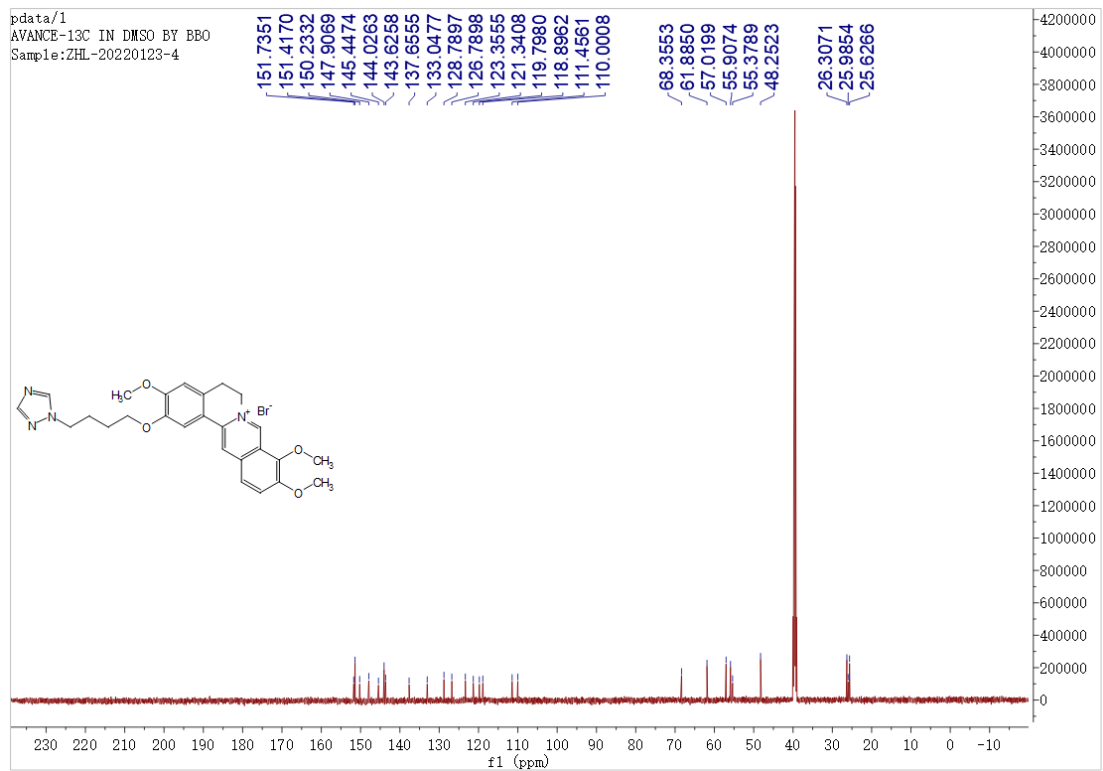
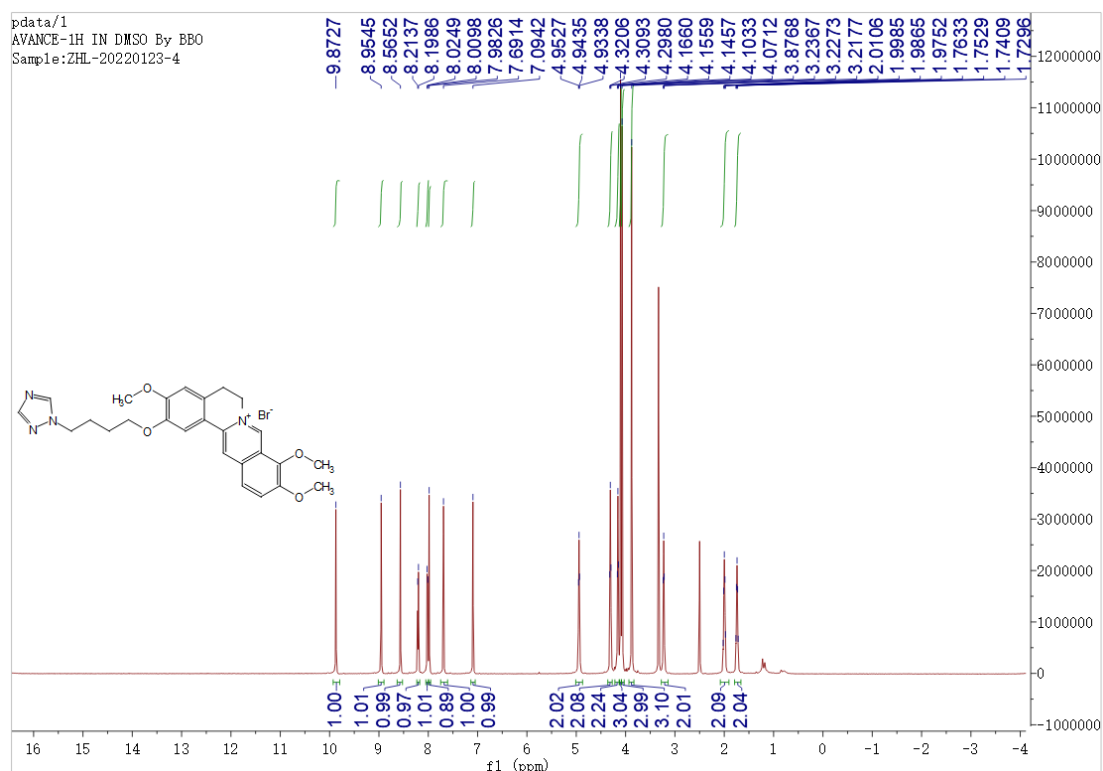
$^1\text{H}$  NMR and  $^{13}\text{C}$  NMR spectra of compound **7e**.



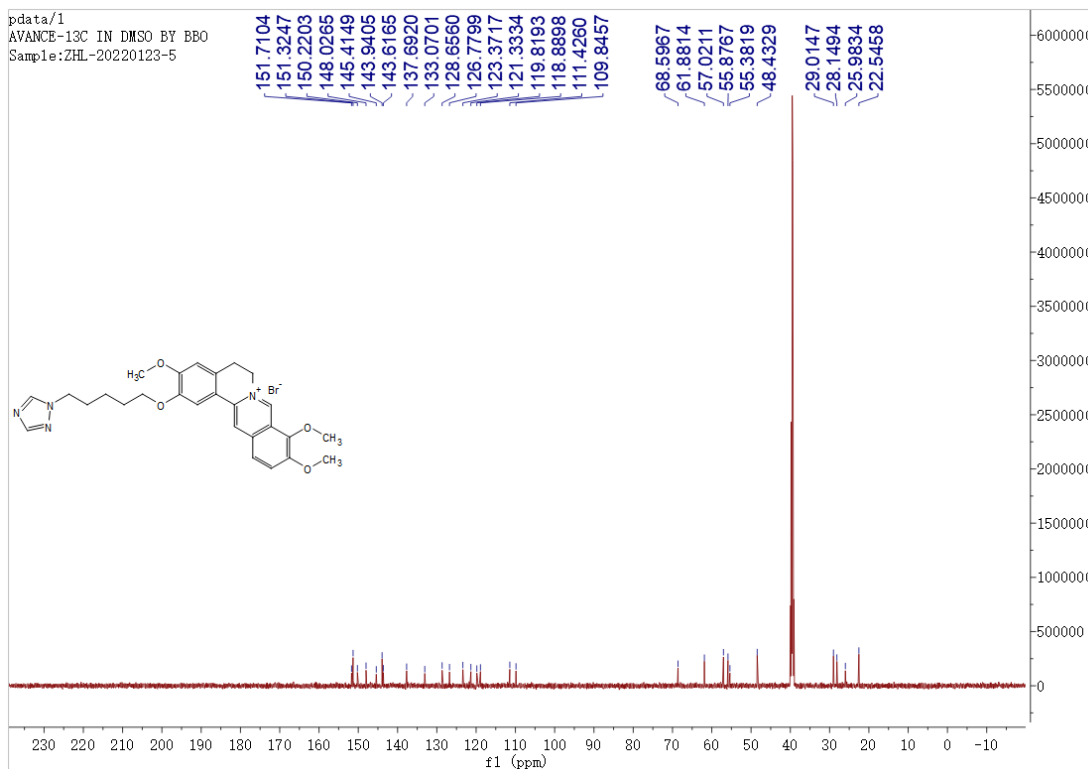
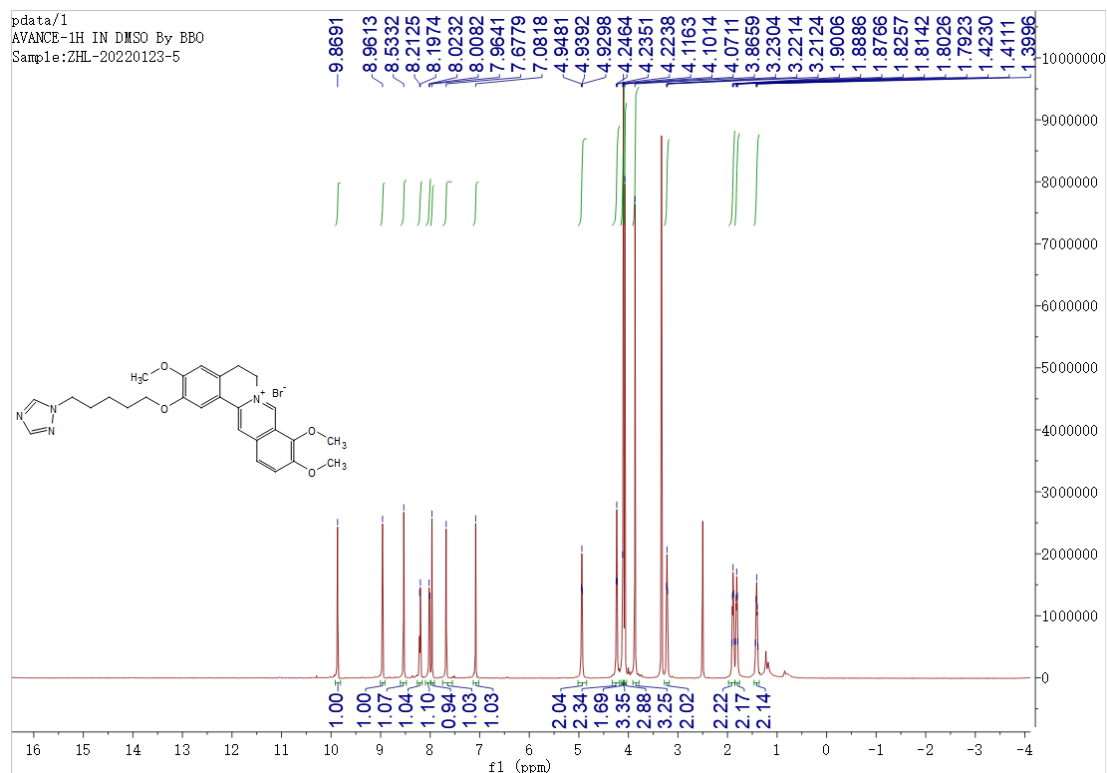
$^1\text{H}$  NMR and  $^{13}\text{C}$  NMR spectra of compound **8a**.



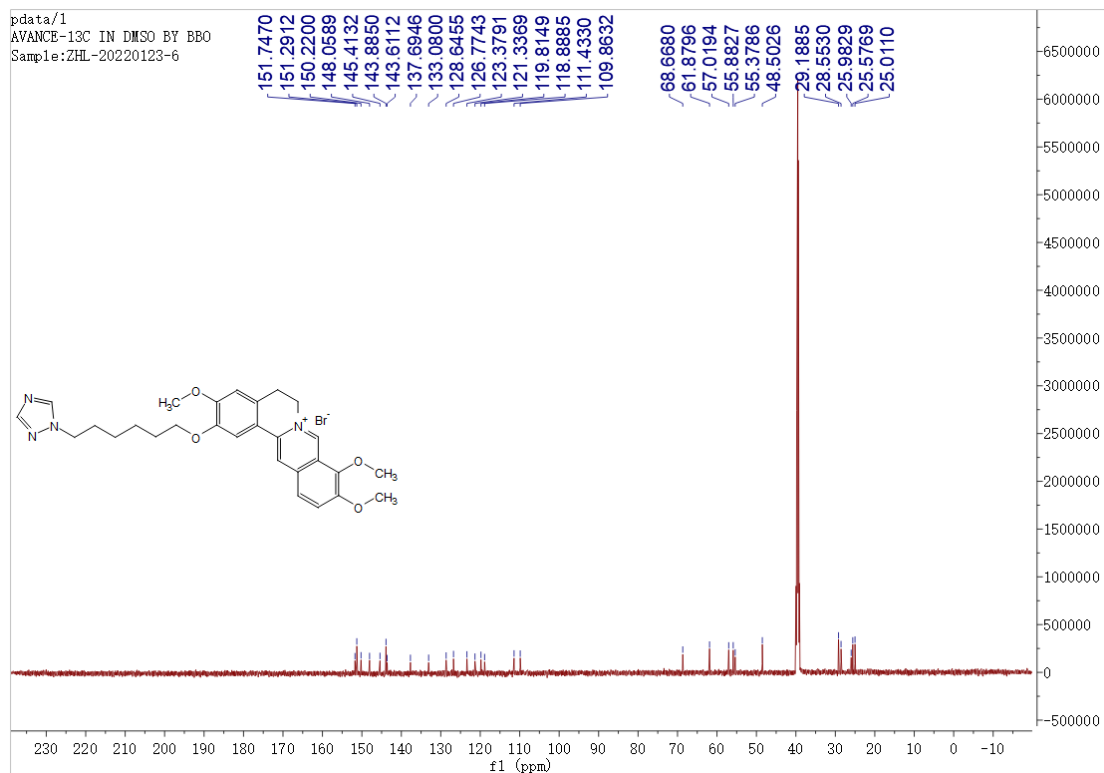
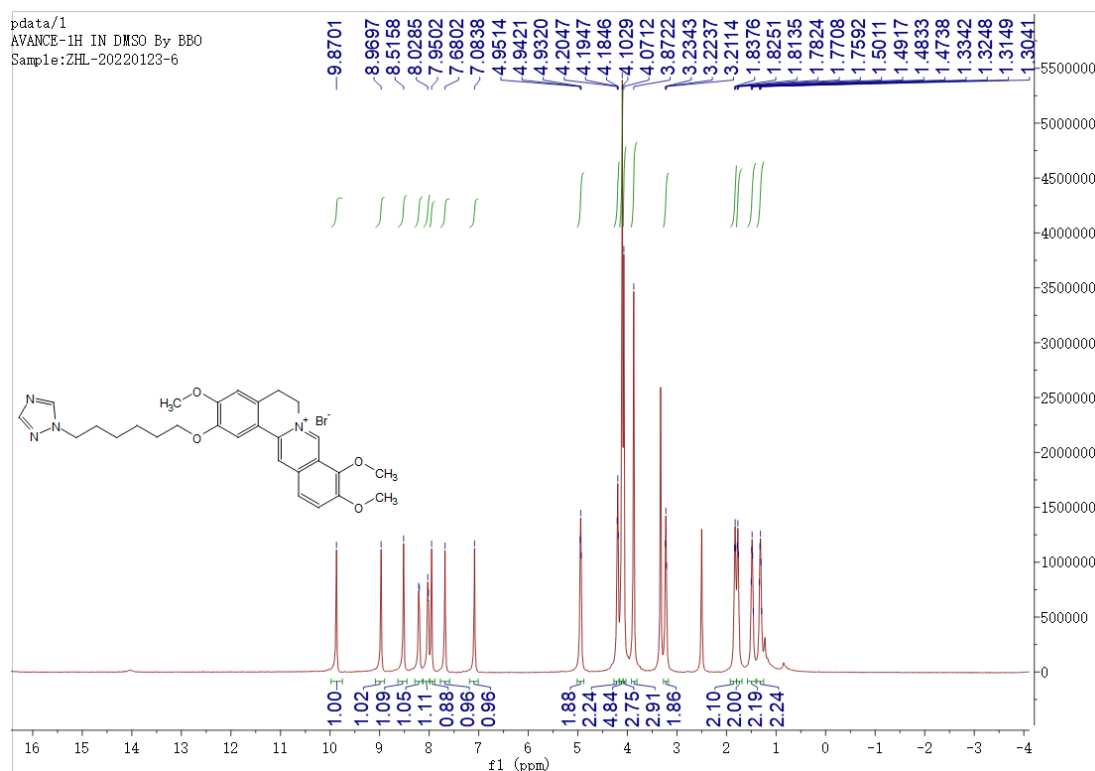
# $^1\text{H}$ NMR and $^{13}\text{C}$ NMR spectra of compound **8b**.



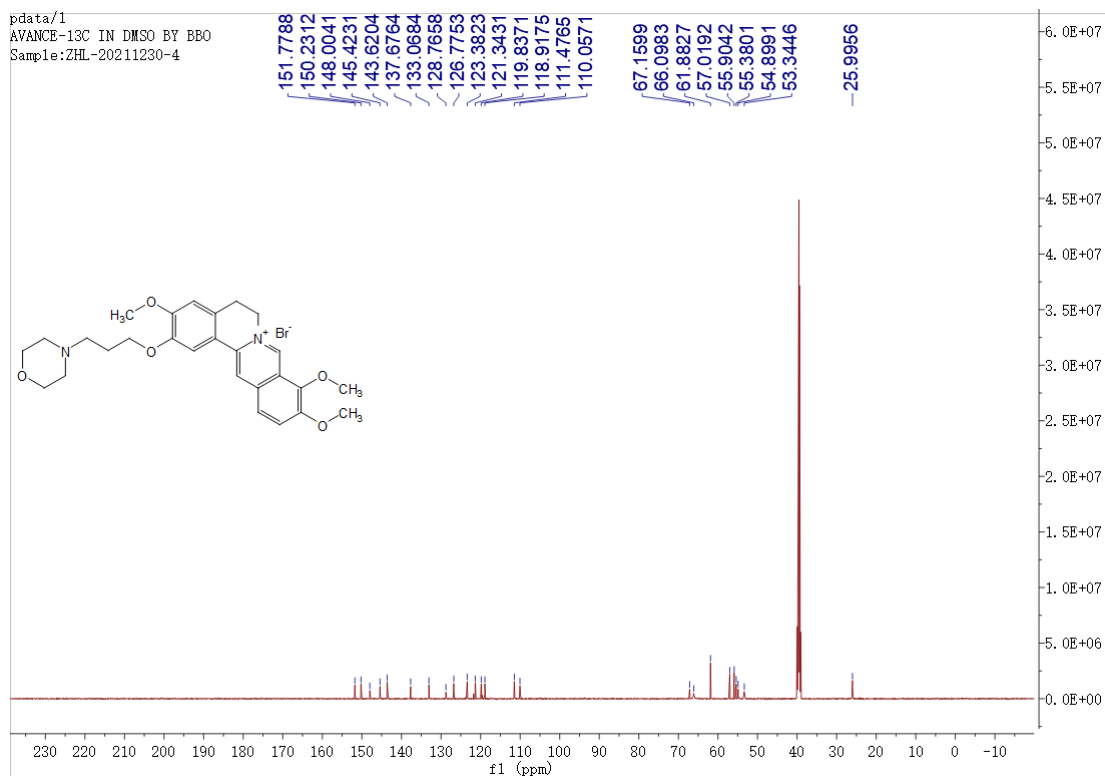
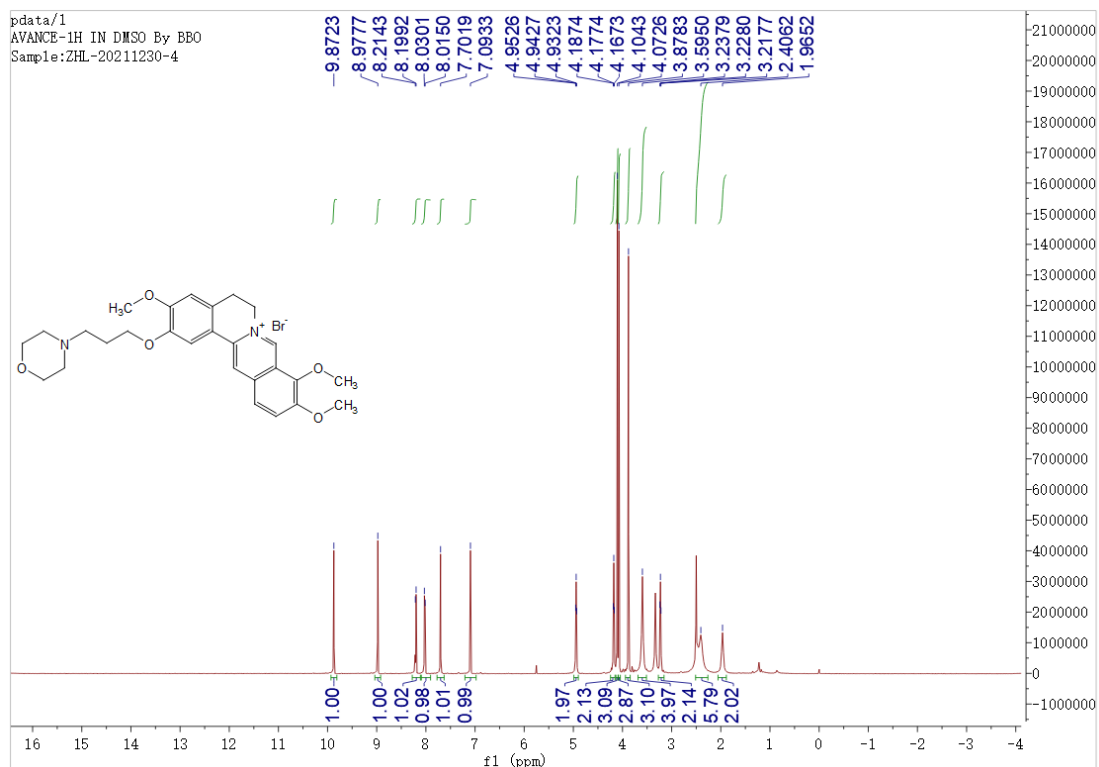
# $^1\text{H}$ NMR and $^{13}\text{C}$ NMR spectra of compound **8c**.



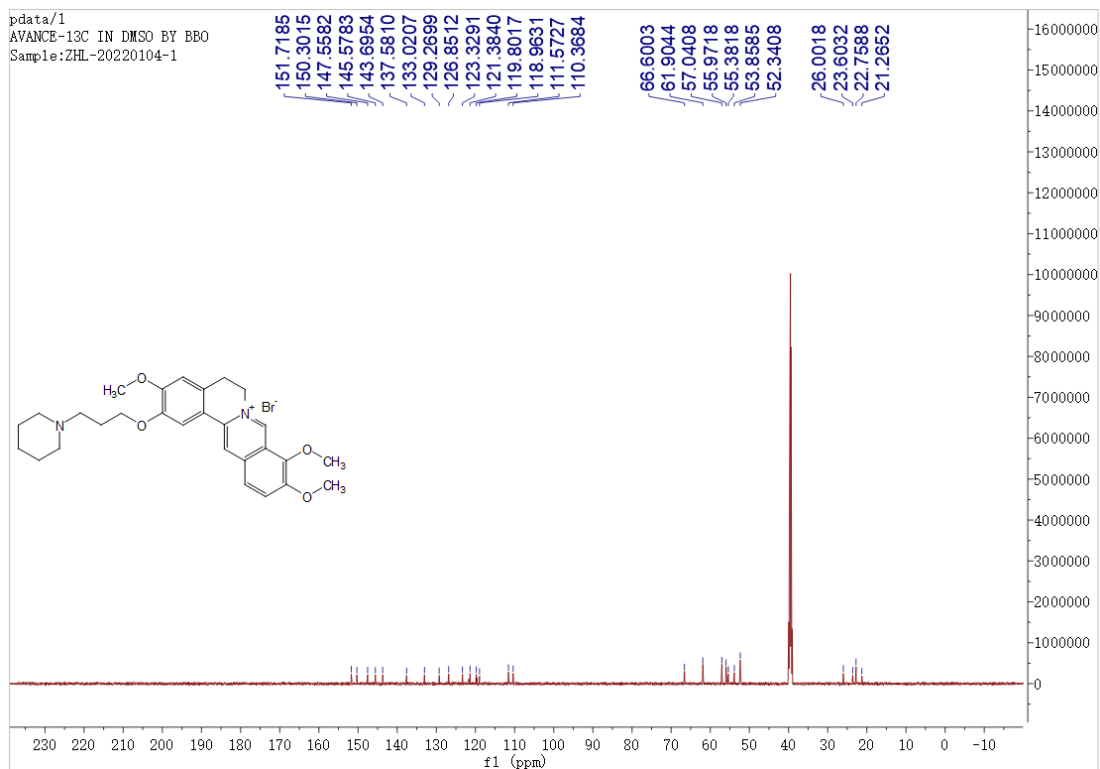
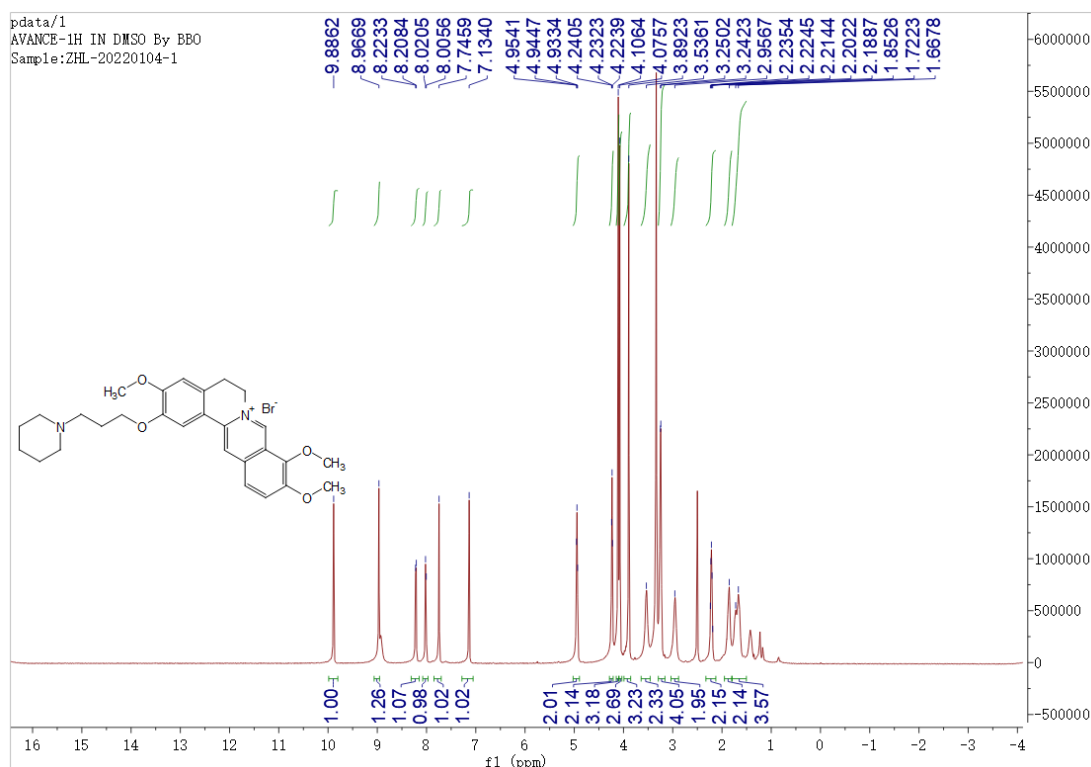
# $^1\text{H}$ NMR and $^{13}\text{C}$ NMR spectra of compound **8d**.



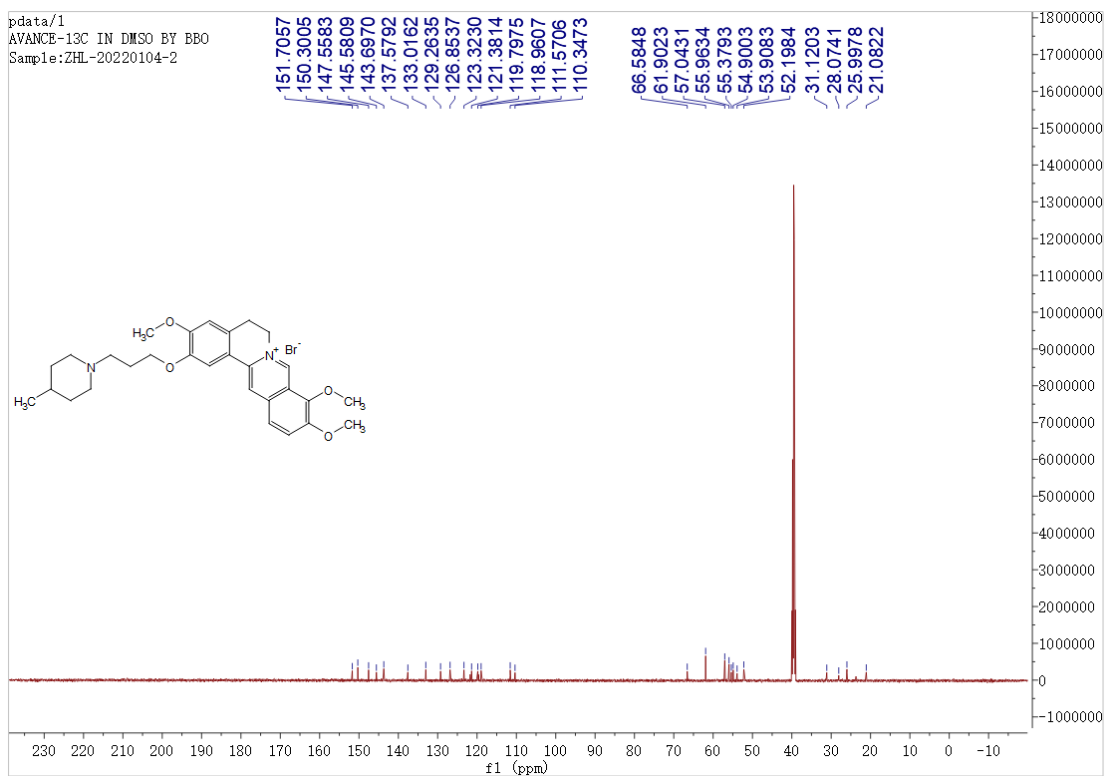
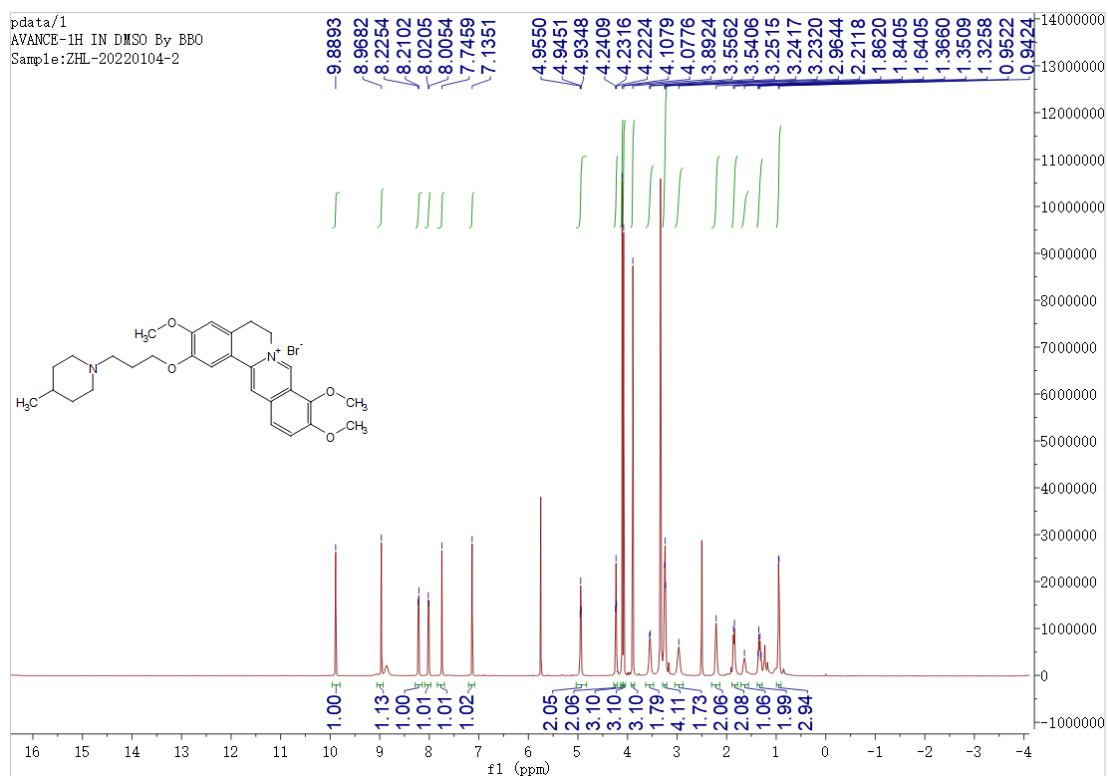
$^1\text{H}$  NMR and  $^{13}\text{C}$  NMR spectra of compound **8e**.



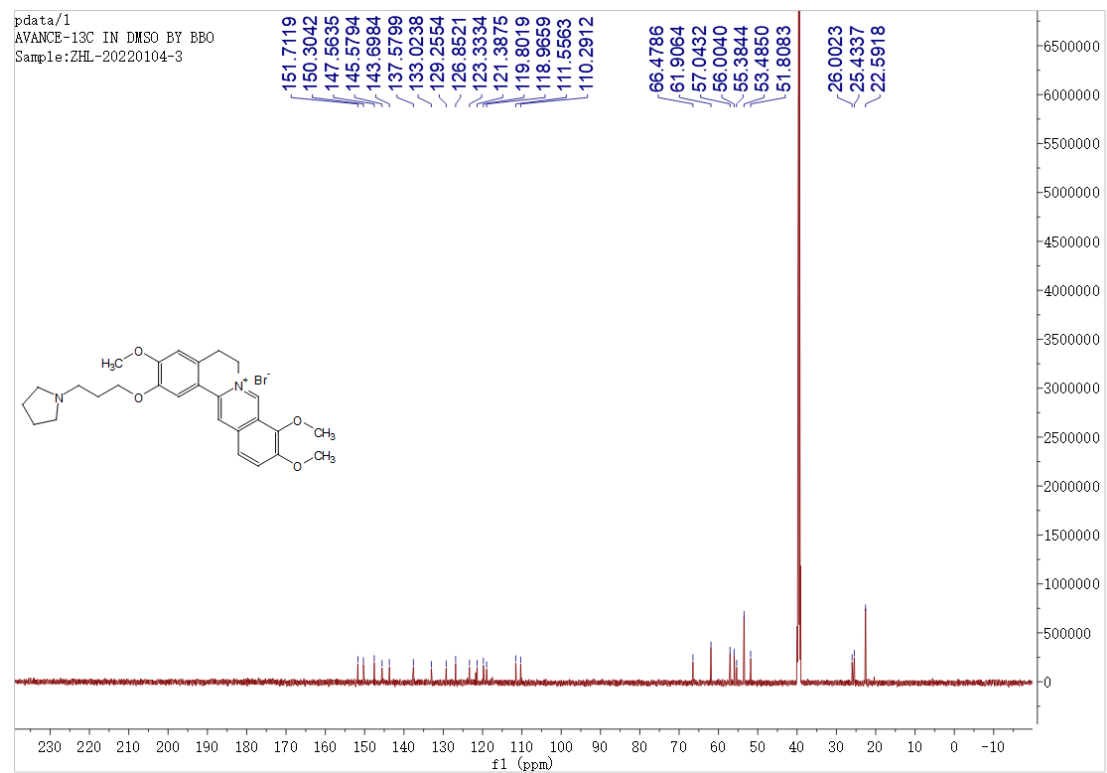
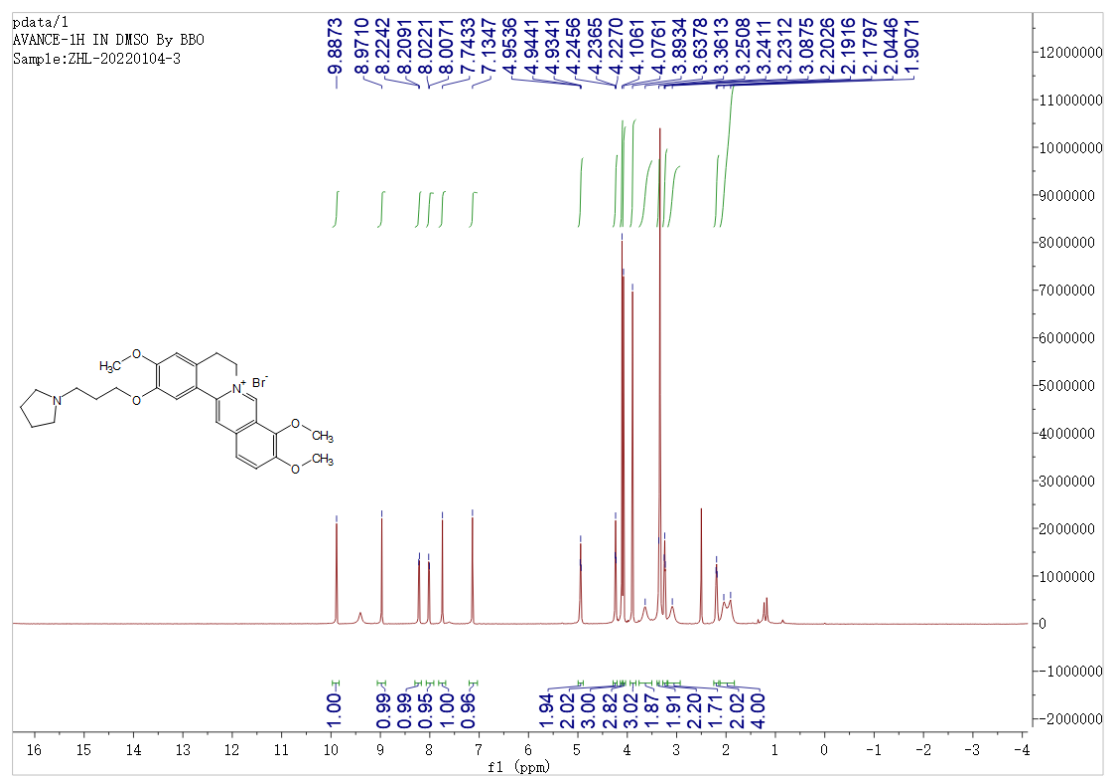
# $^1\text{H}$ NMR and $^{13}\text{C}$ NMR spectra of compound **8f**.



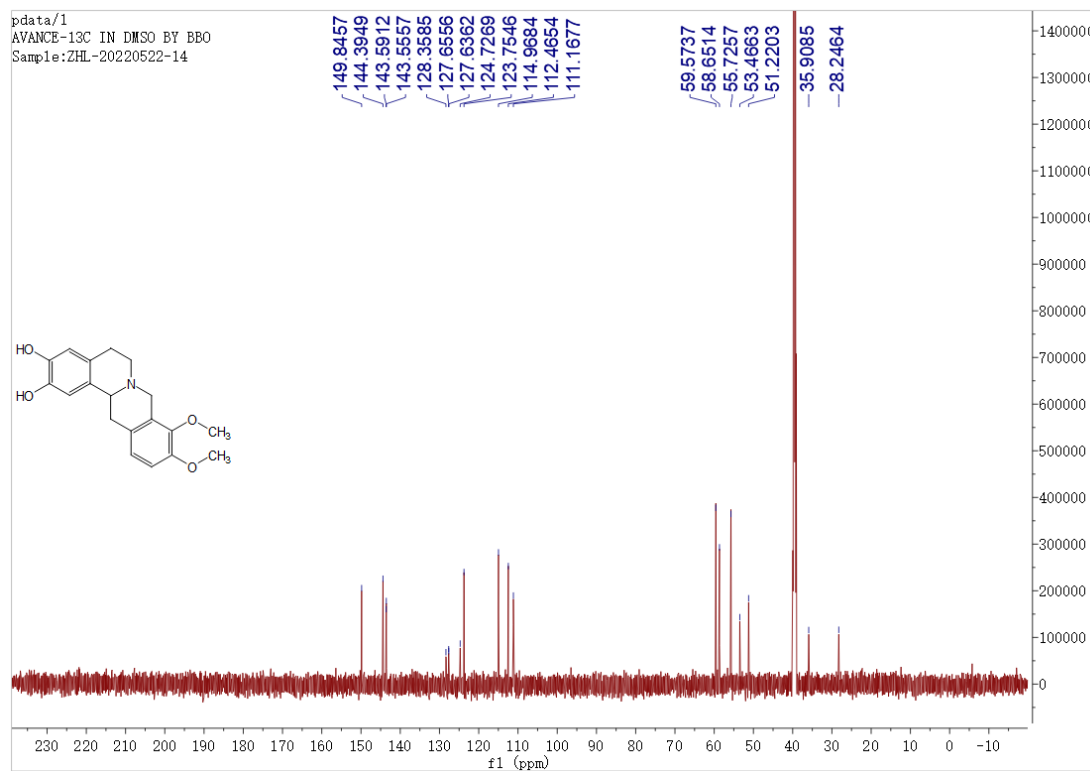
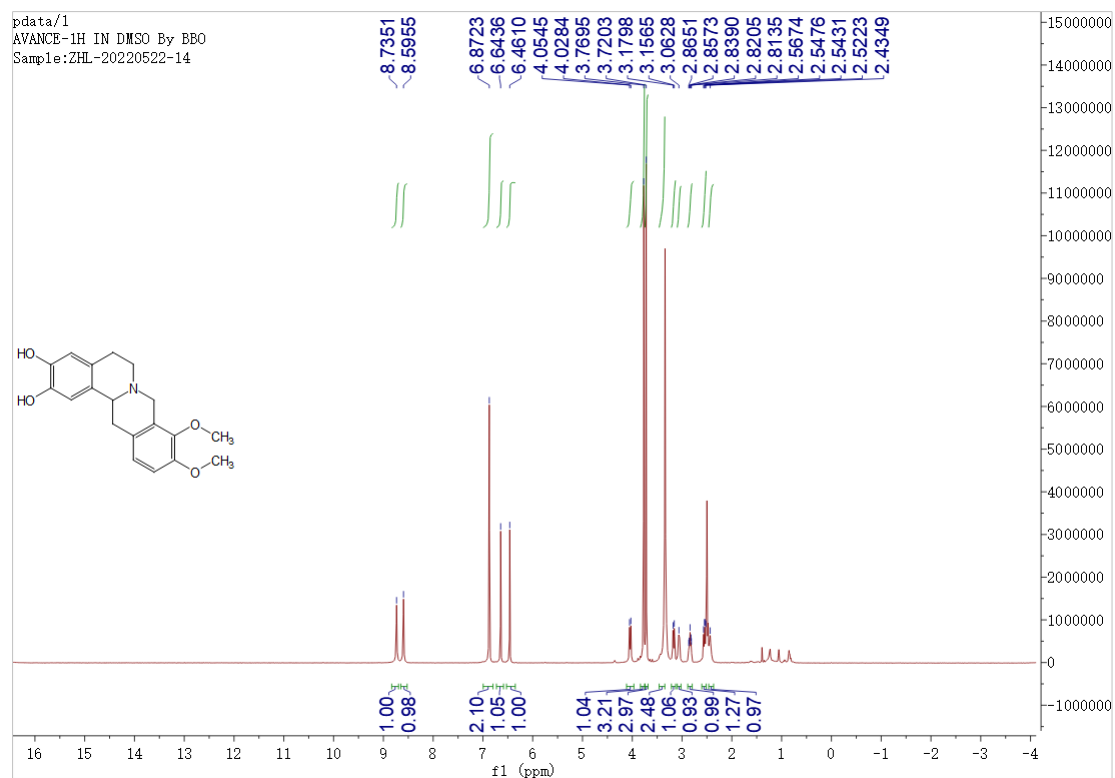
$^1\text{H}$  NMR and  $^{13}\text{C}$  NMR spectra of compound **8g**.



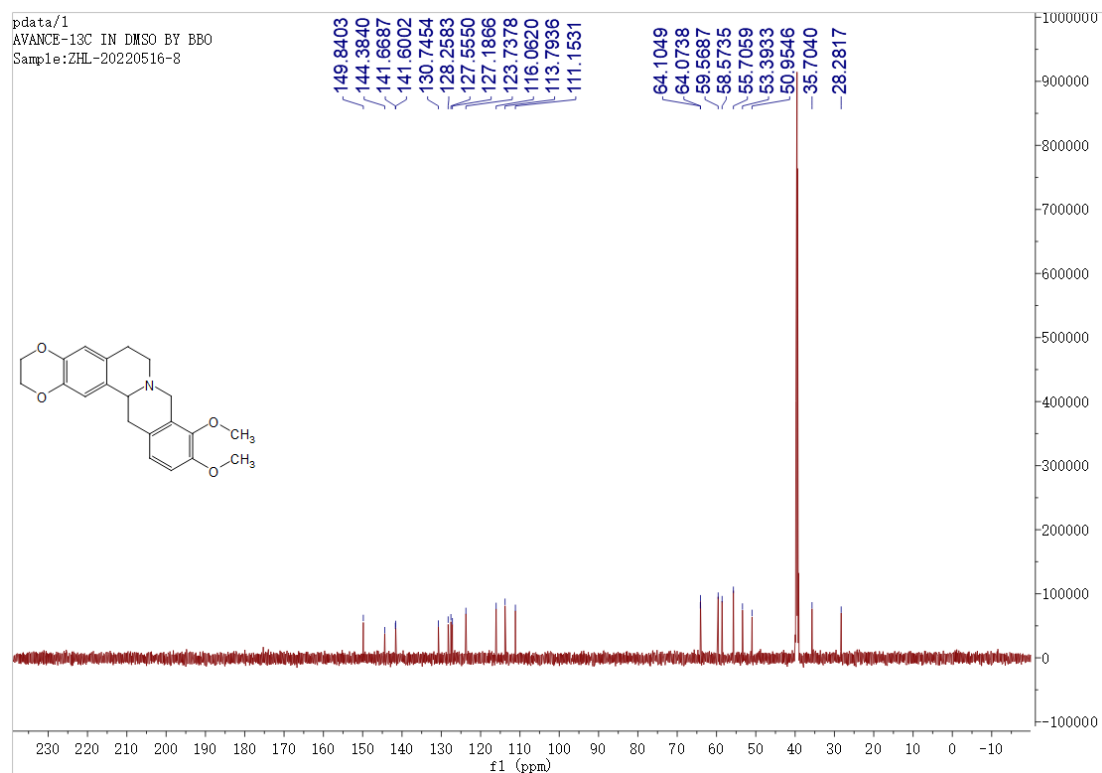
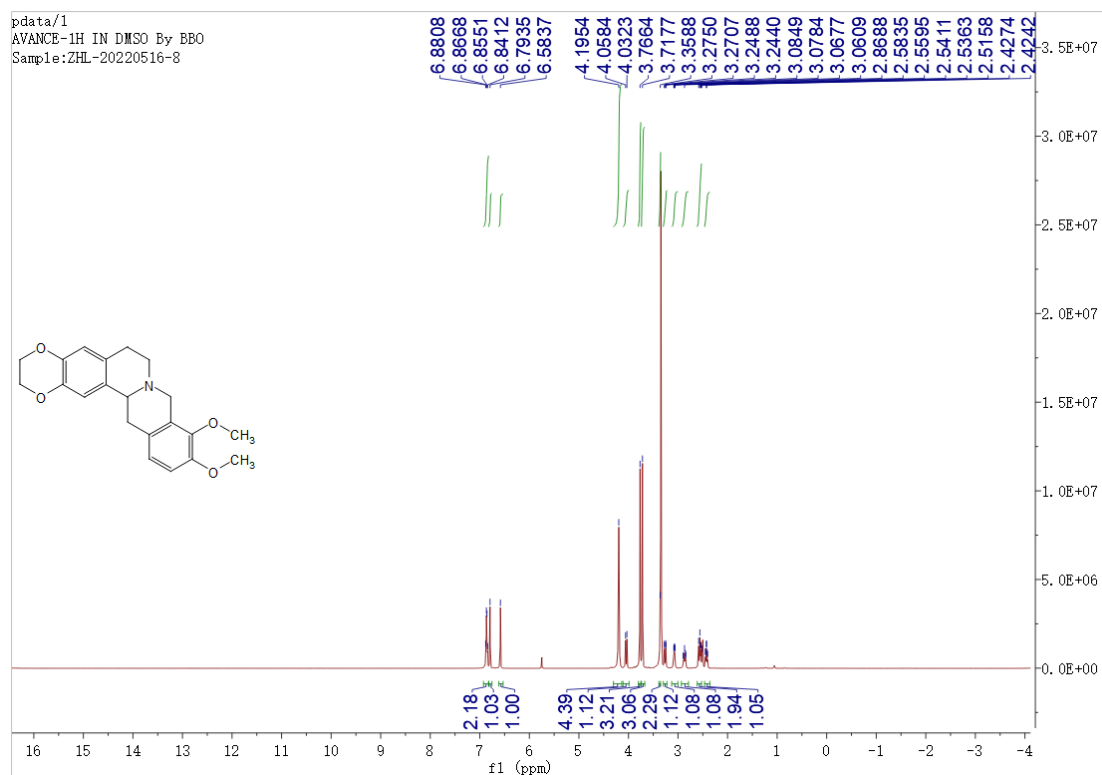
$^1\text{H}$  NMR and  $^{13}\text{C}$  NMR spectra of compound **8h**.



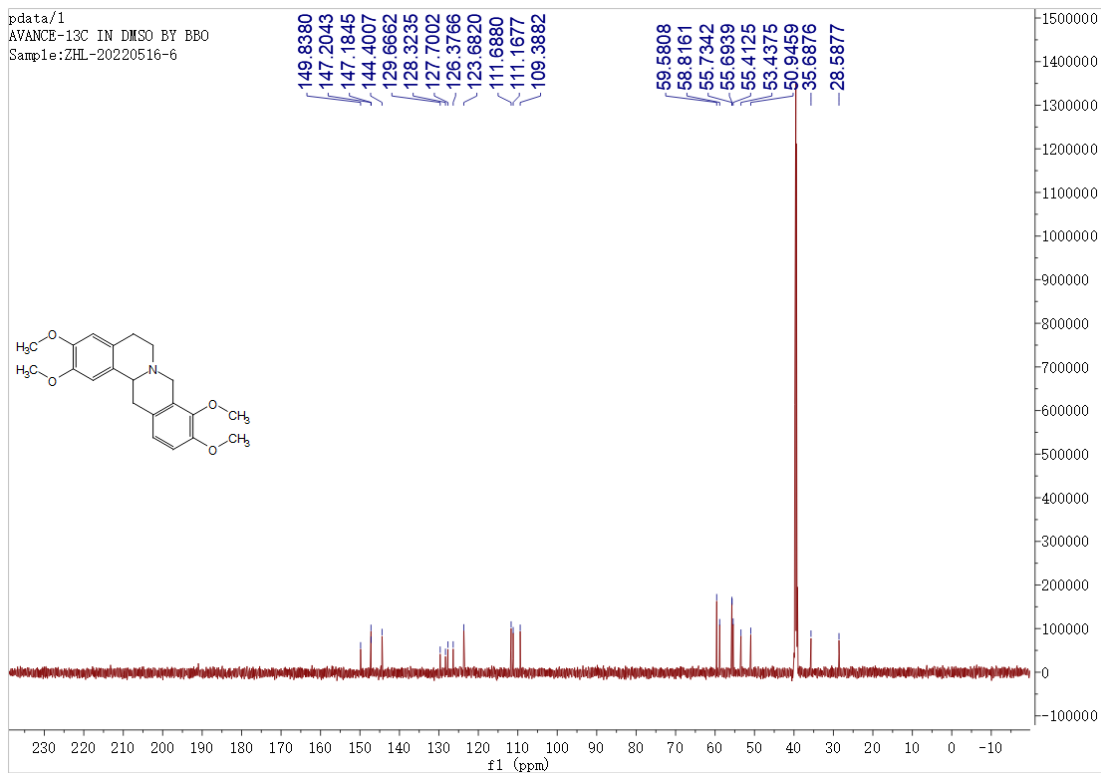
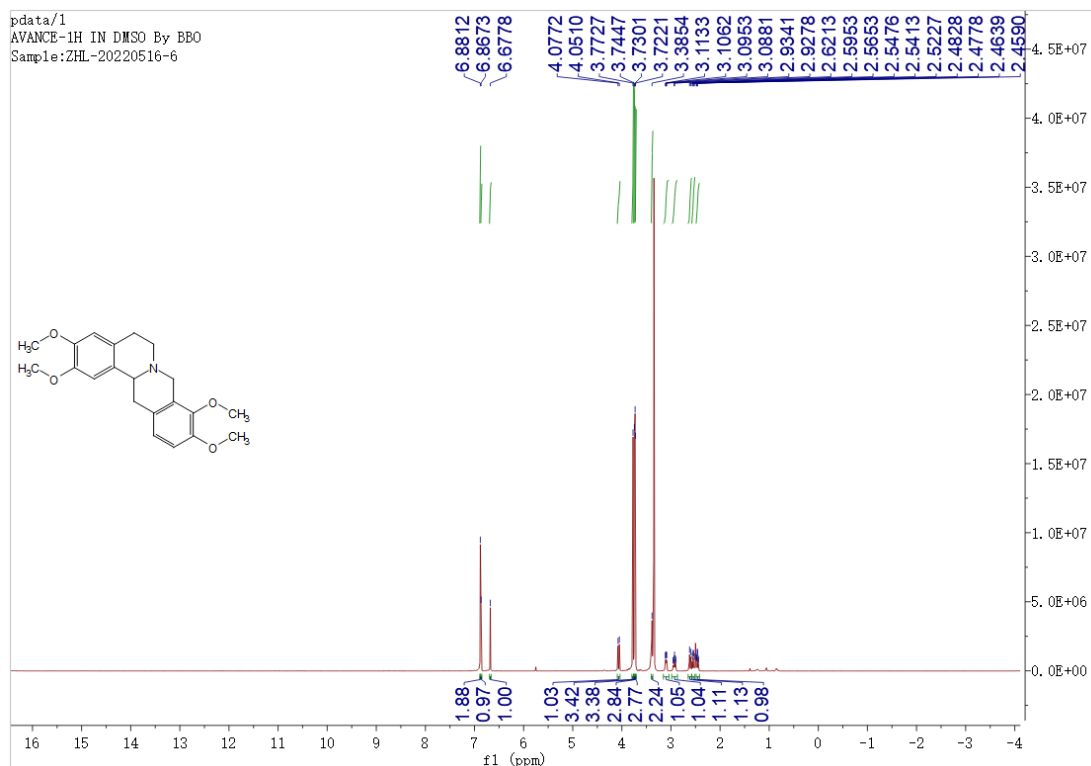
# $^1\text{H}$ NMR and $^{13}\text{C}$ NMR spectra of compound **9a**.



# $^1\text{H}$ NMR and $^{13}\text{C}$ NMR spectra of compound **9b**.



# $^1\text{H}$ NMR and $^{13}\text{C}$ NMR spectra of compound **9c**.



# $^1\text{H}$ NMR and $^{13}\text{C}$ NMR spectra of compound **9d**.

