

## Supplementary File for

### Synthesis of disaccharide modified berberine derivatives and their anti-diabetic investigation in zebrafish using a fluorescence-based technology

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Kechun Liu<sup>a,b,\*</sup>

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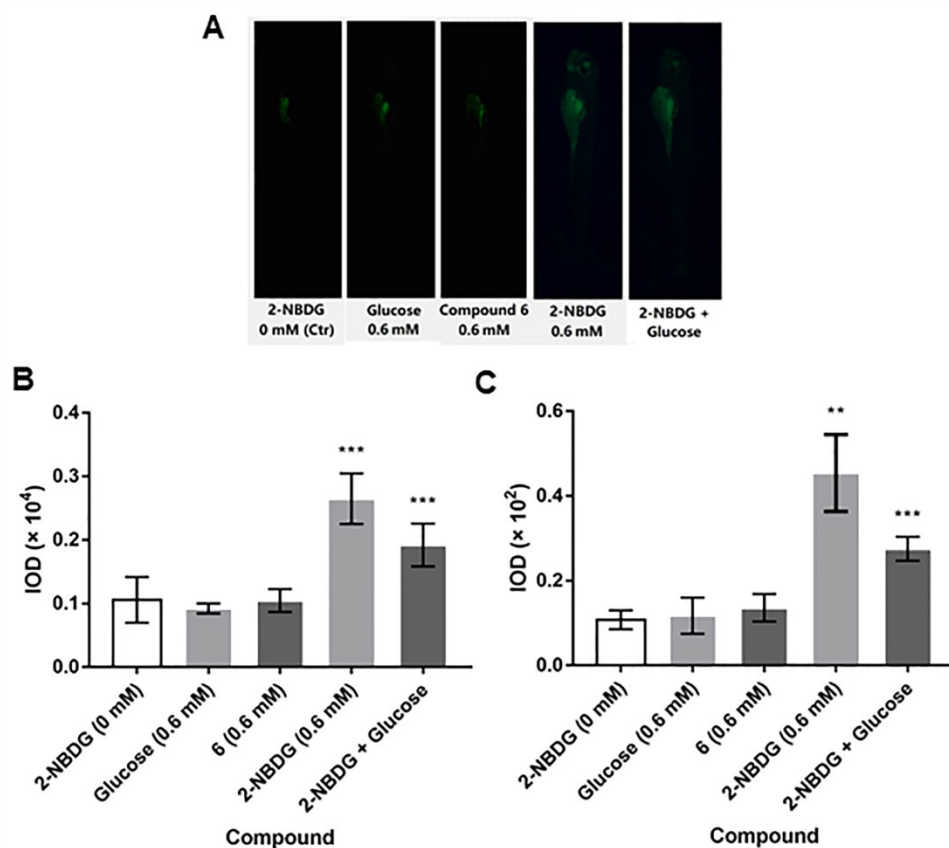
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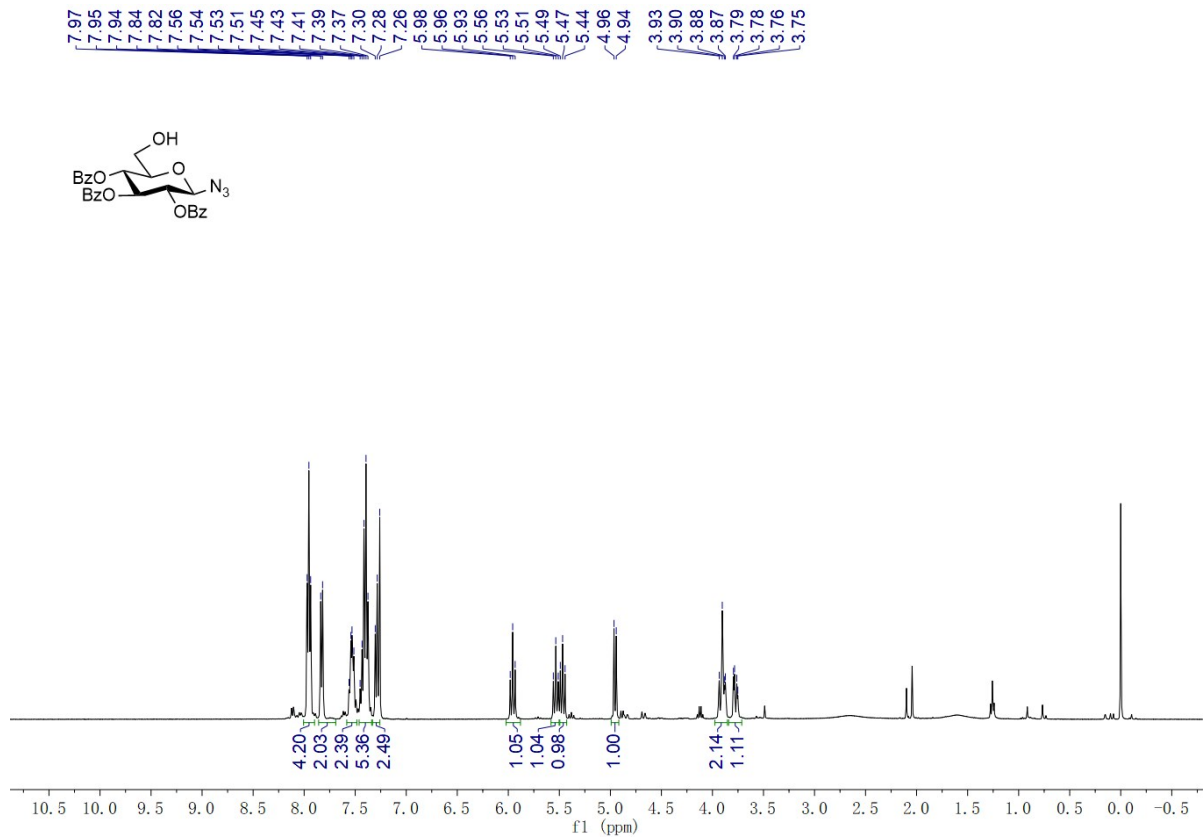
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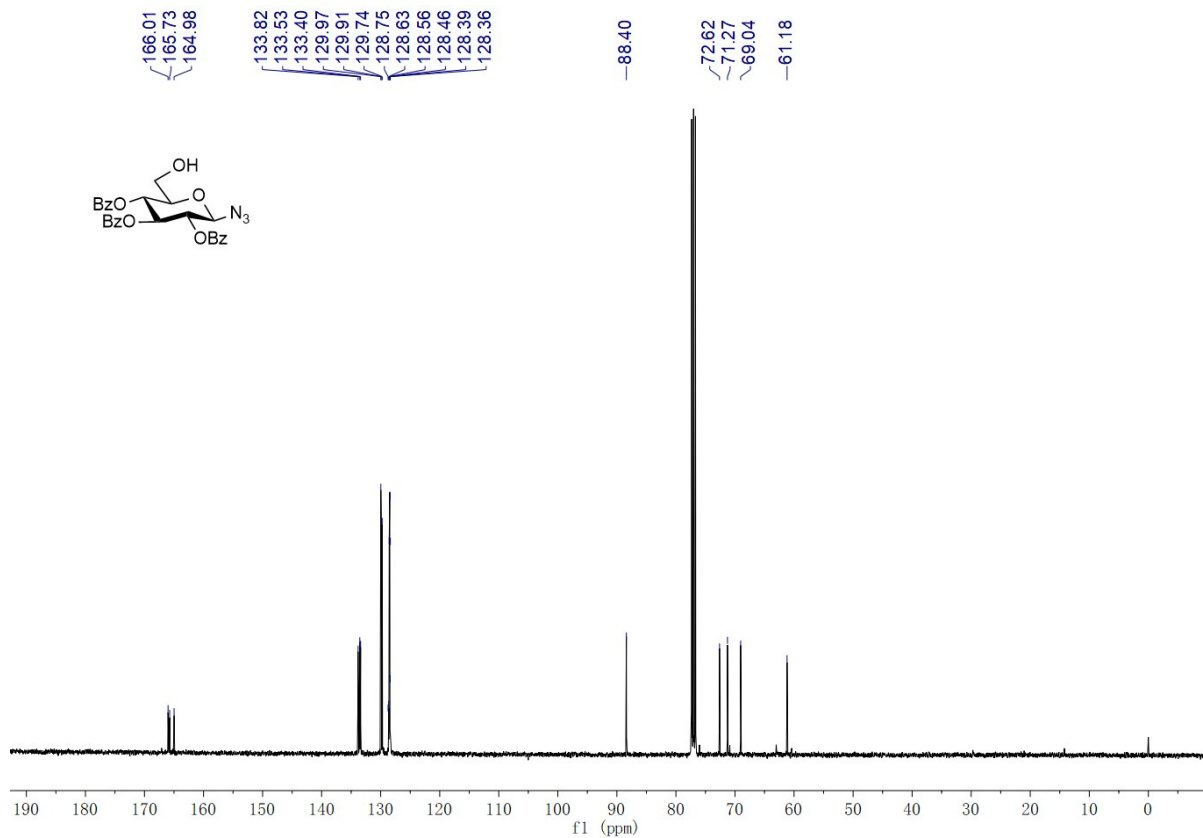
<sup>§</sup>These authors contributed equally to this paper.



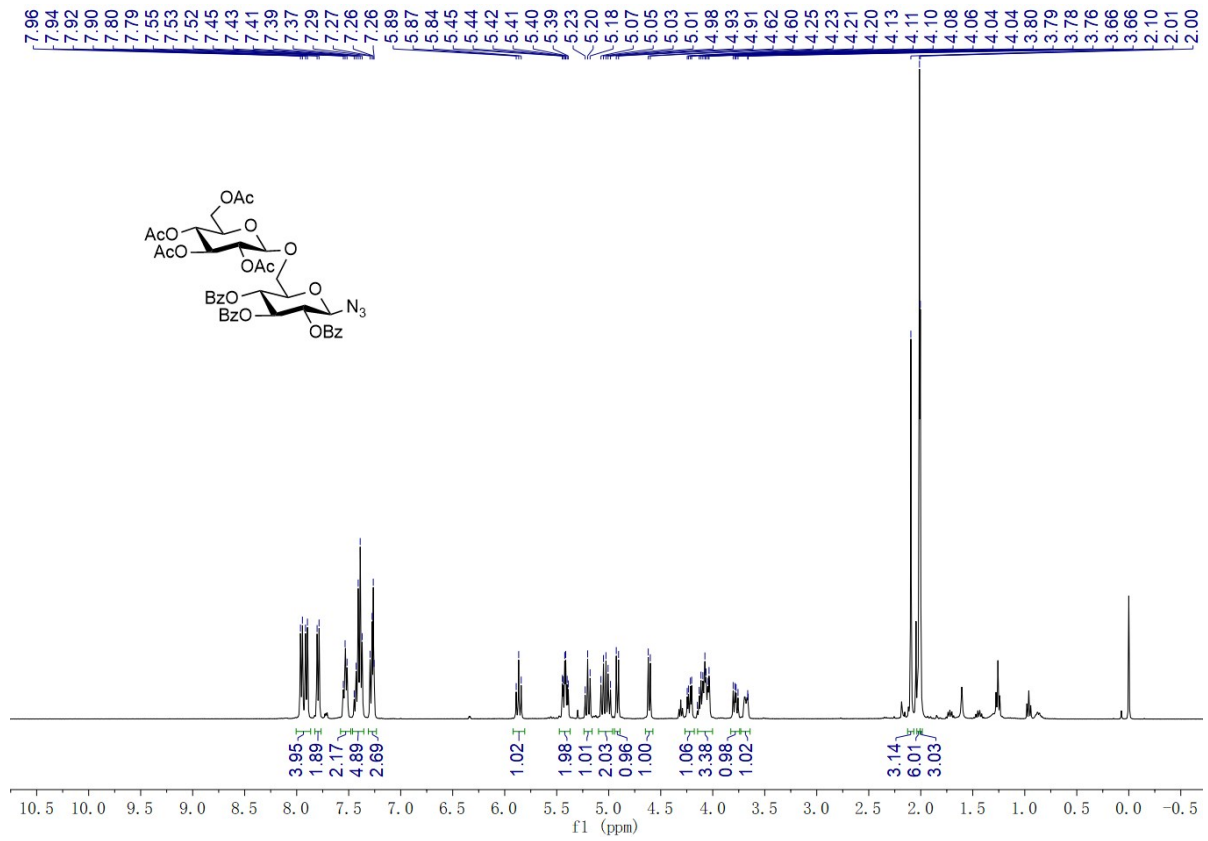
**Figure S1.** Fluorescent image of zebrafish larvae treated with (A) 0 mM of 2-NBDG, 0.6 mM of 2-NBDG, 0.6 mM of glucose, 0.6 mM of compound **6**, and 0.6 mM of 2-NBDG + 0.6 mM of glucose; (B) IOD in zebrafish after incubating with tested compounds mentioned above; (C) IOD in zebrafish eyes after incubating with tested compounds mentioned above.  $**P < 0.01$ ,  $***P < 0.001$  vs zebrafish treated with 0 mM 2-NBDG.



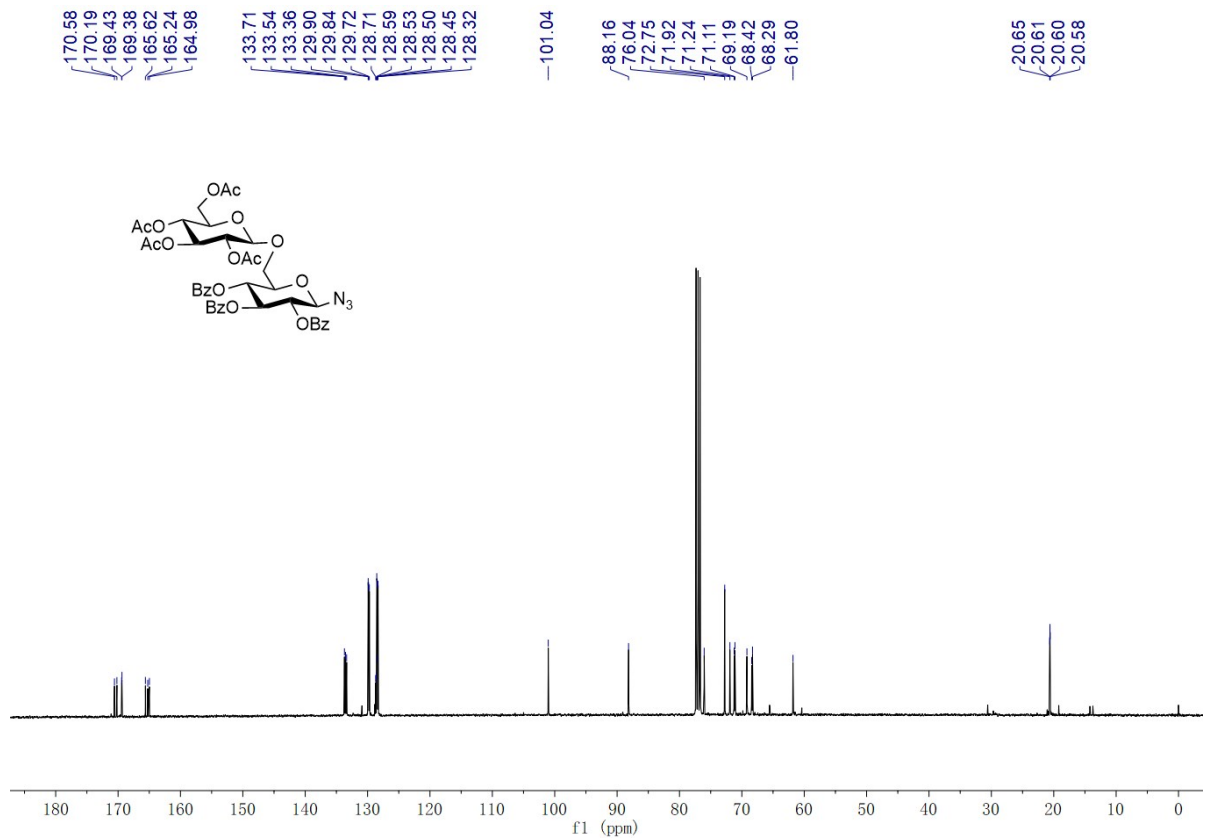
<sup>1</sup>H NMR spectrum of compound **13**



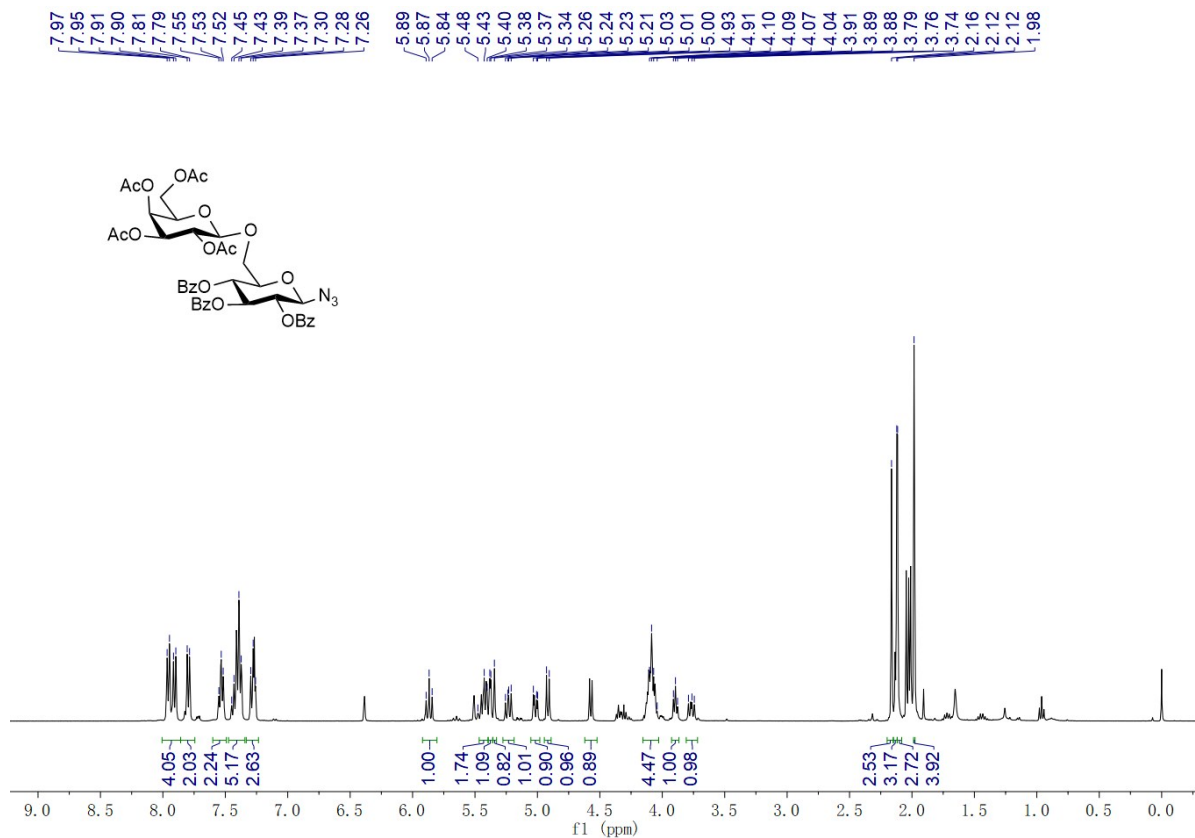
<sup>13</sup>C NMR spectrum of compound **13**



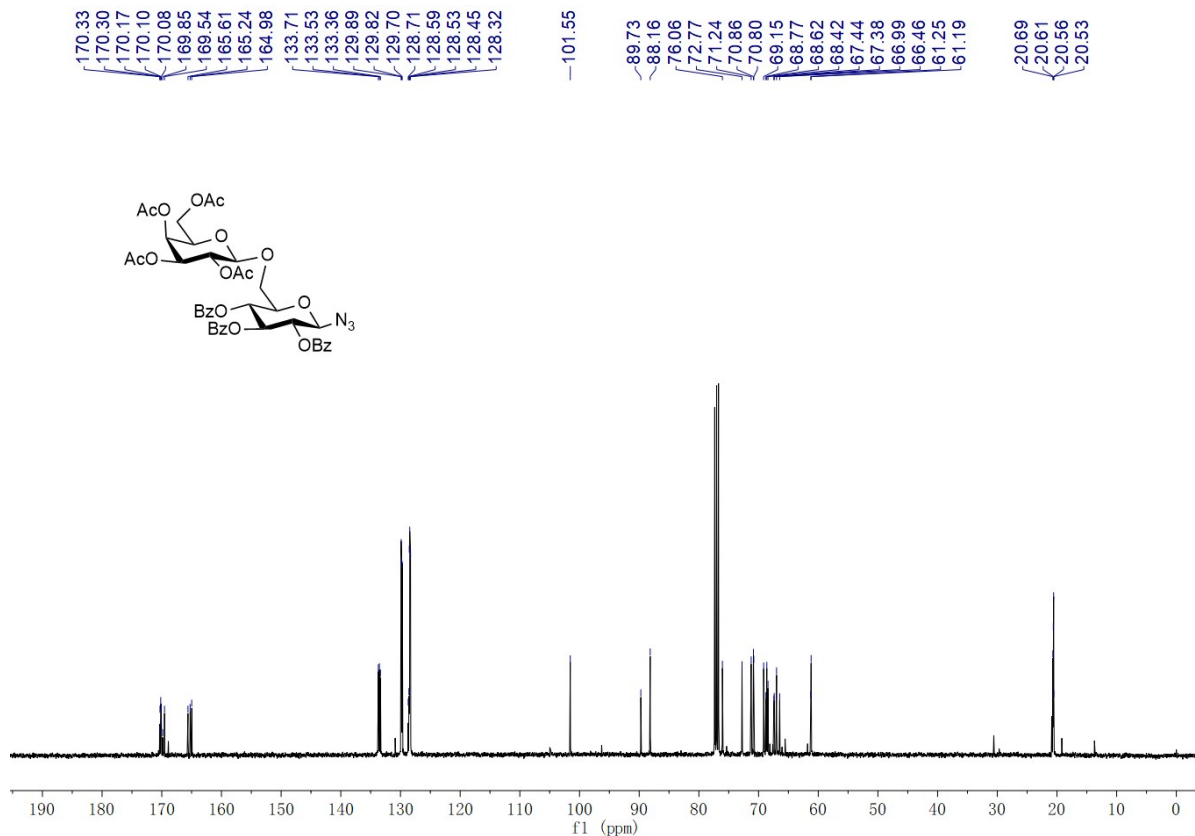
<sup>1</sup>H NMR spectrum of compound 24



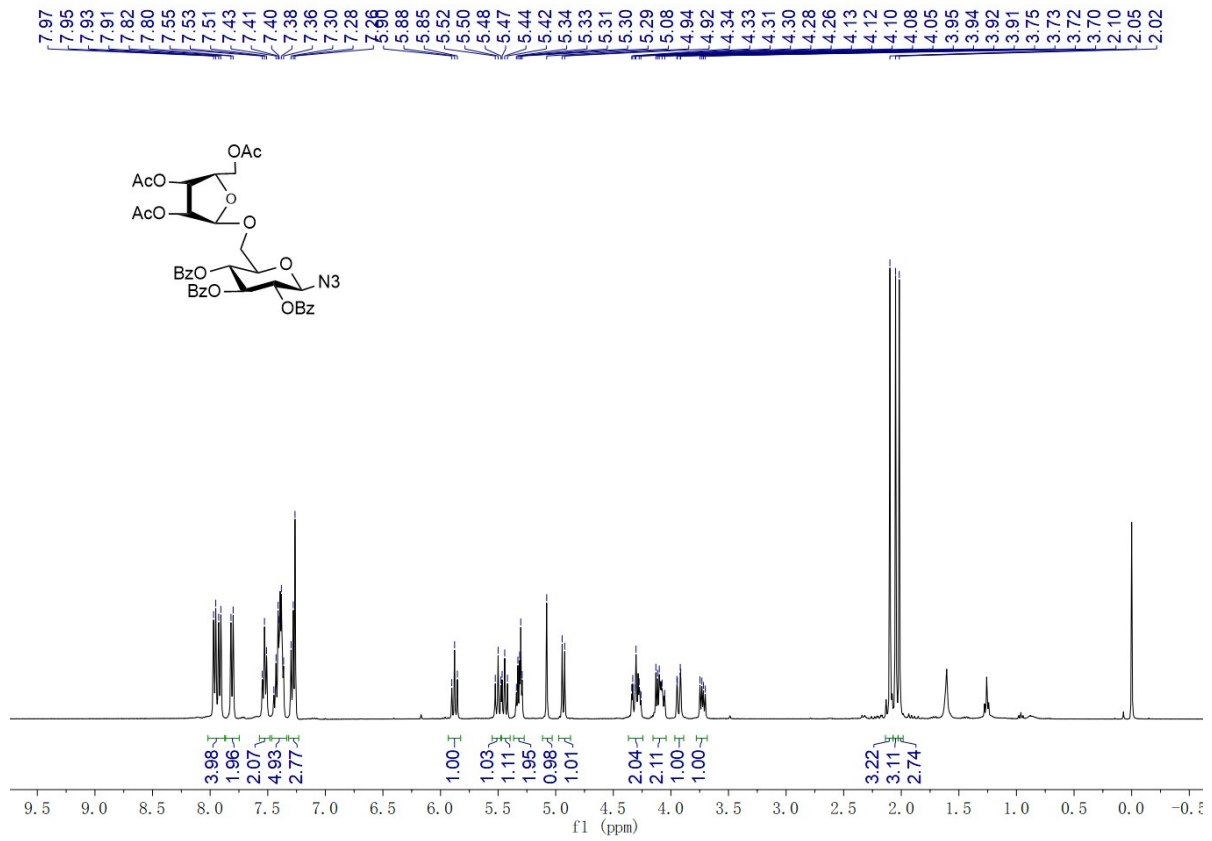
<sup>13</sup>C NMR spectrum of compound 24



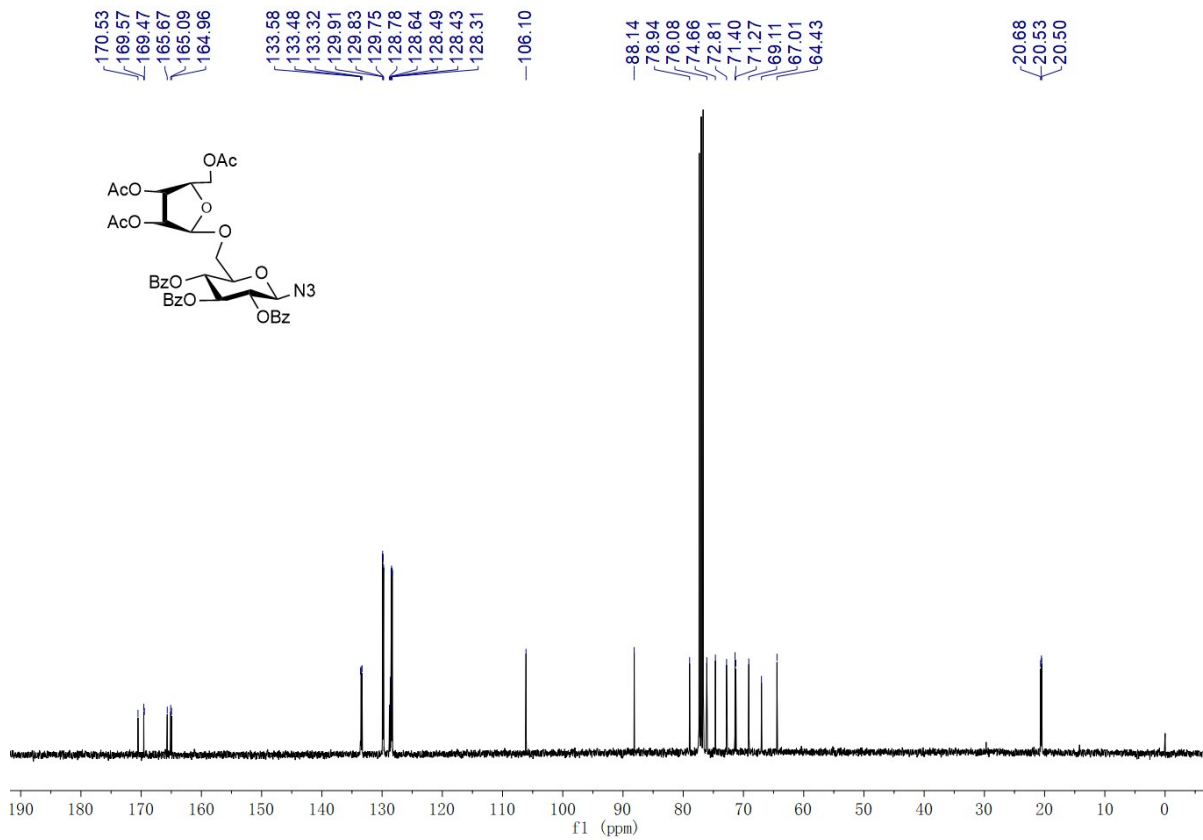
<sup>1</sup>H NMR spectrum of compound 25



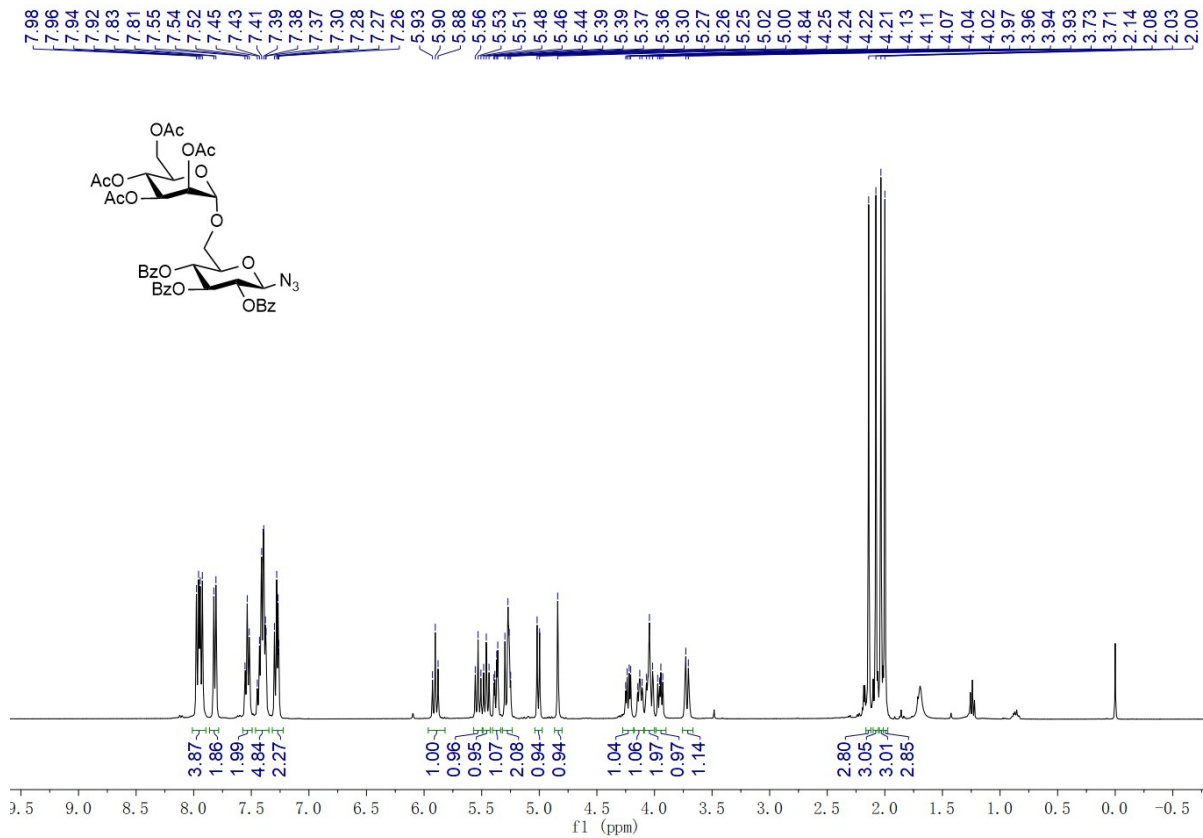
<sup>13</sup>C NMR spectrum of compound 25



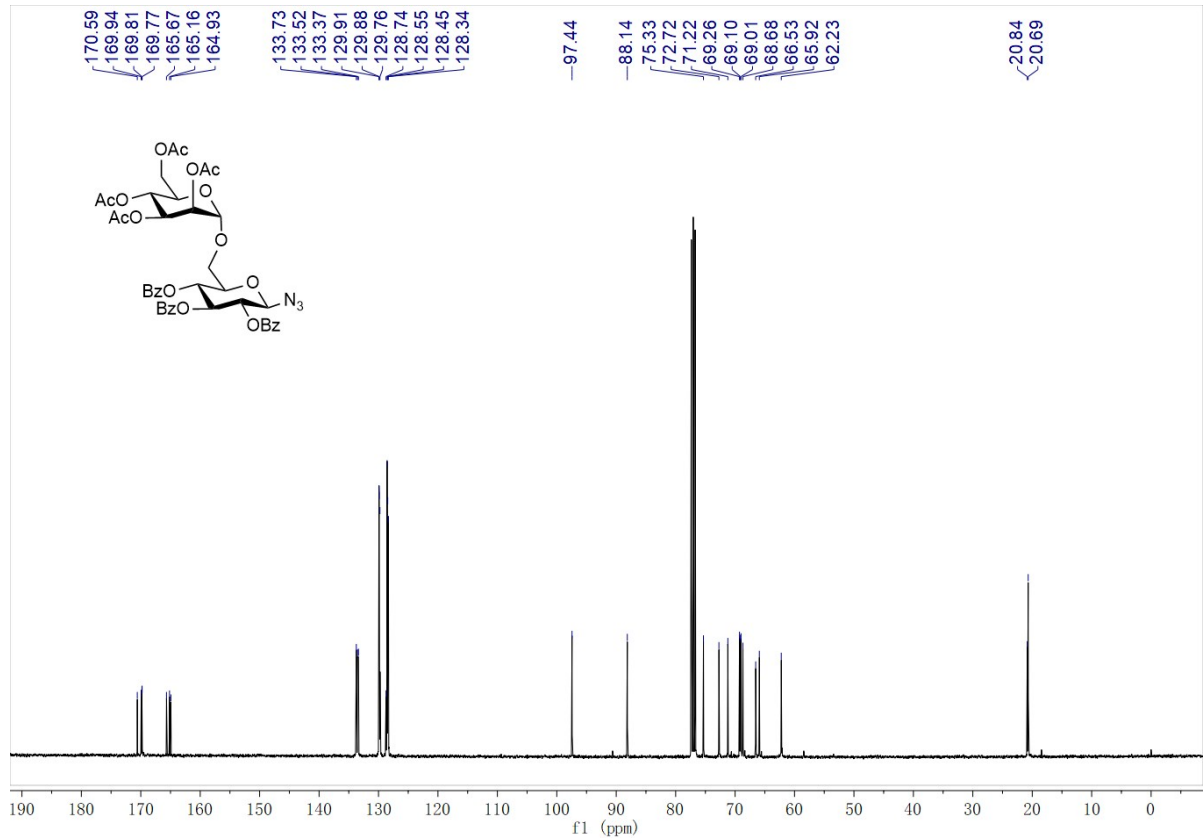
<sup>1</sup>H NMR spectrum of compound 26



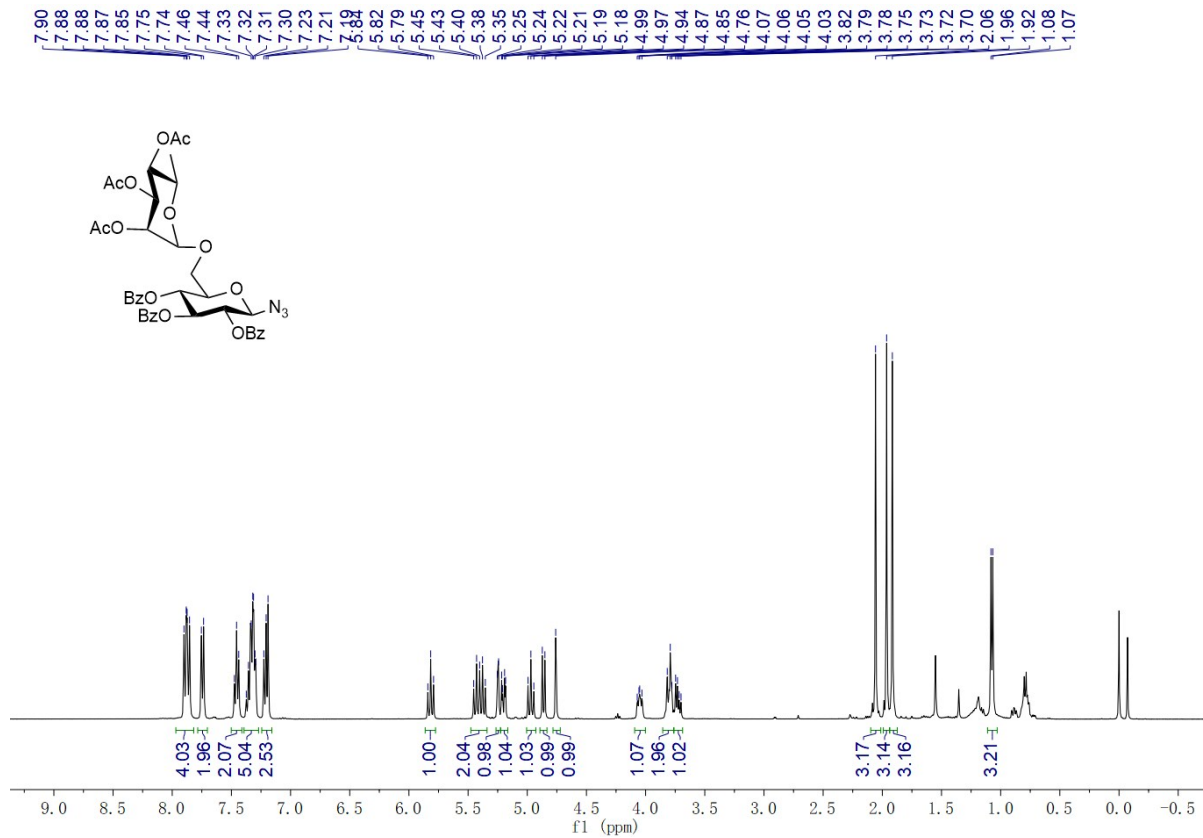
<sup>13</sup>C NMR spectrum of compound 26



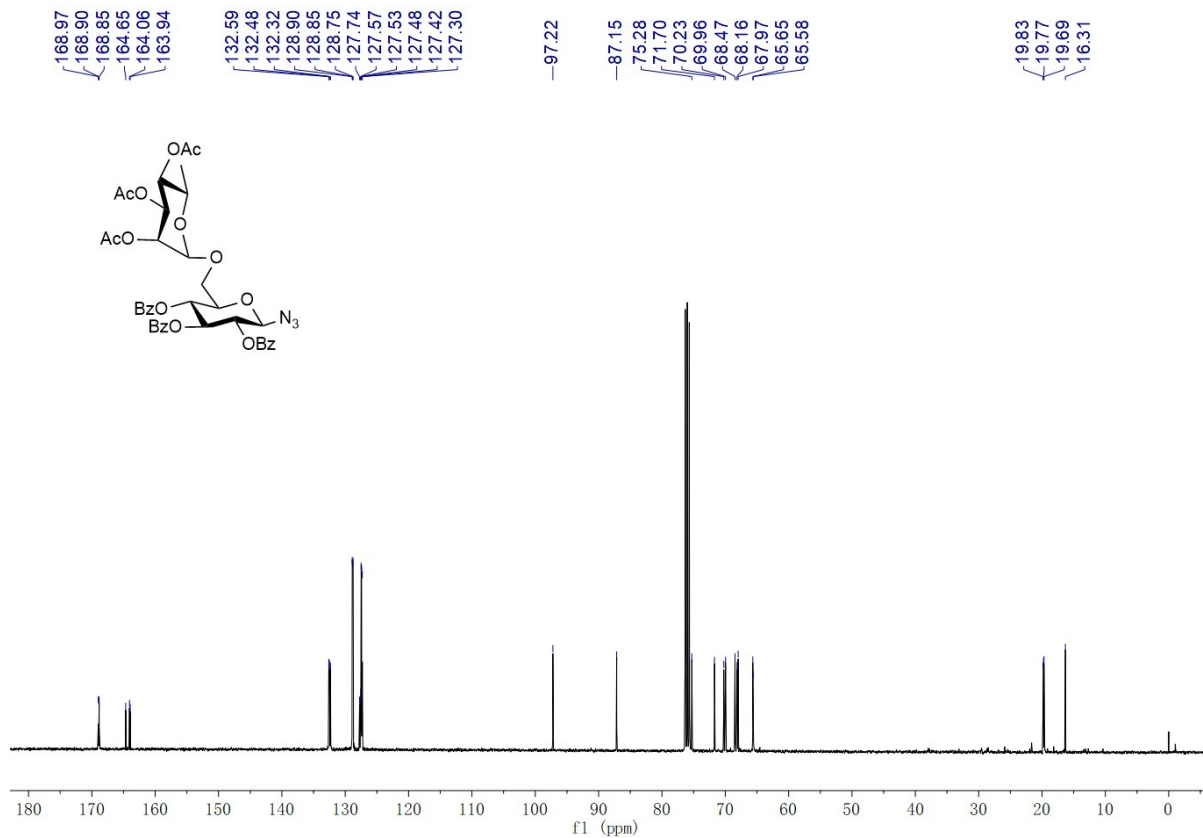
<sup>1</sup>H NMR spectrum of compound 27



<sup>13</sup>C NMR spectrum of compound 27

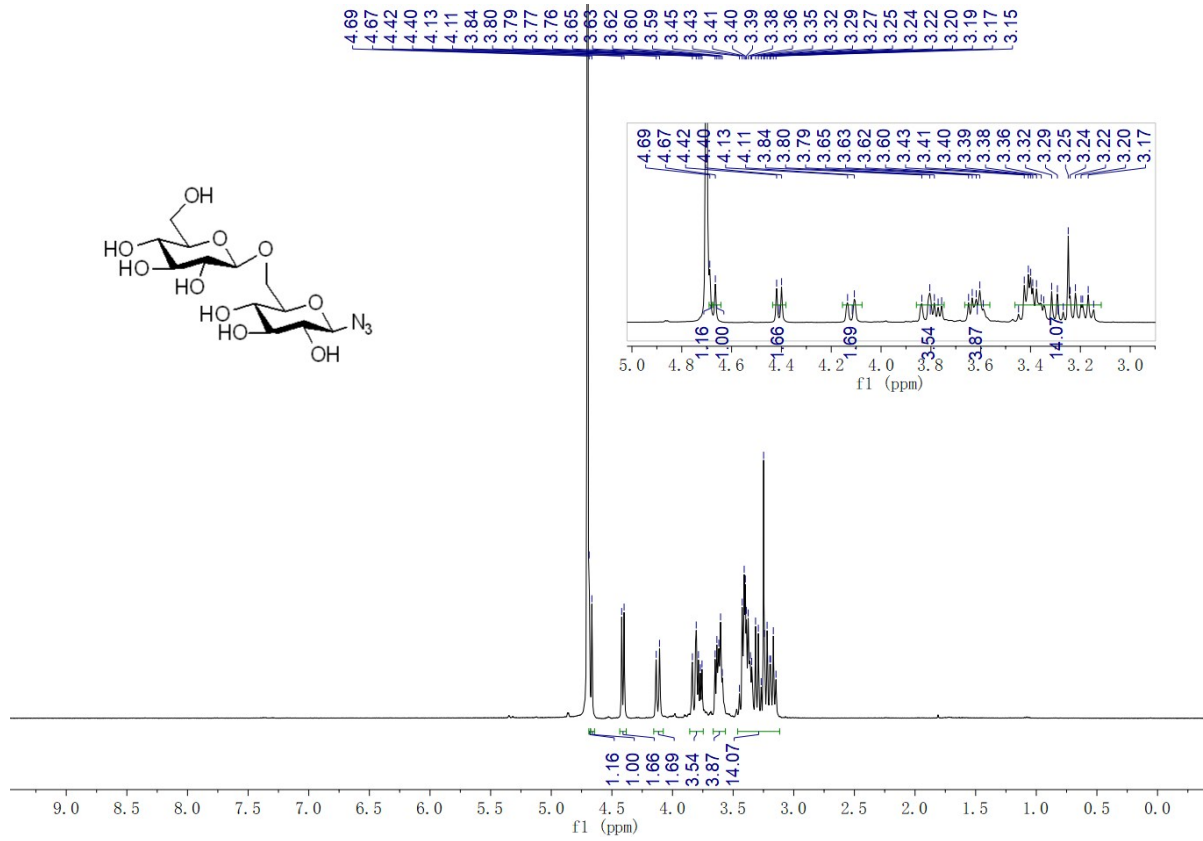


<sup>1</sup>H NMR spectrum of compound 28

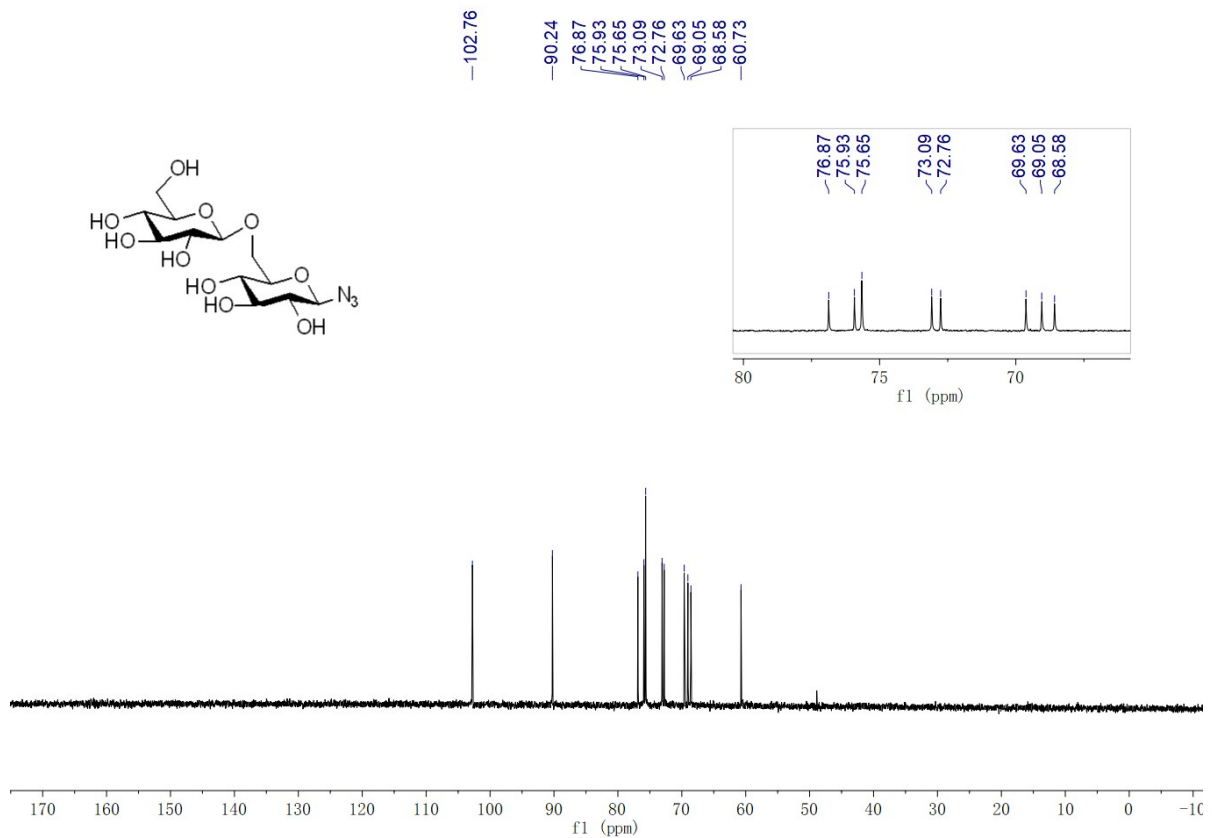


<sup>13</sup>C NMR spectrum of compound 28

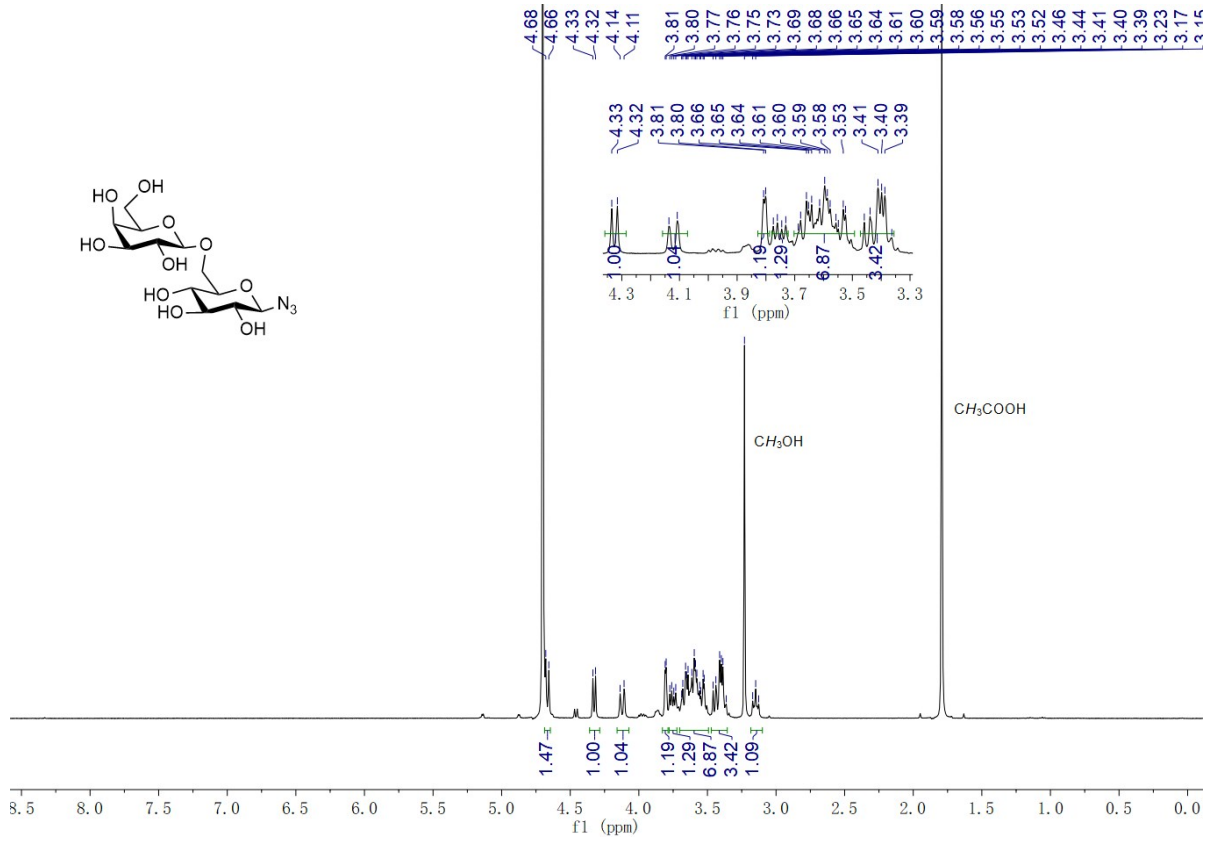




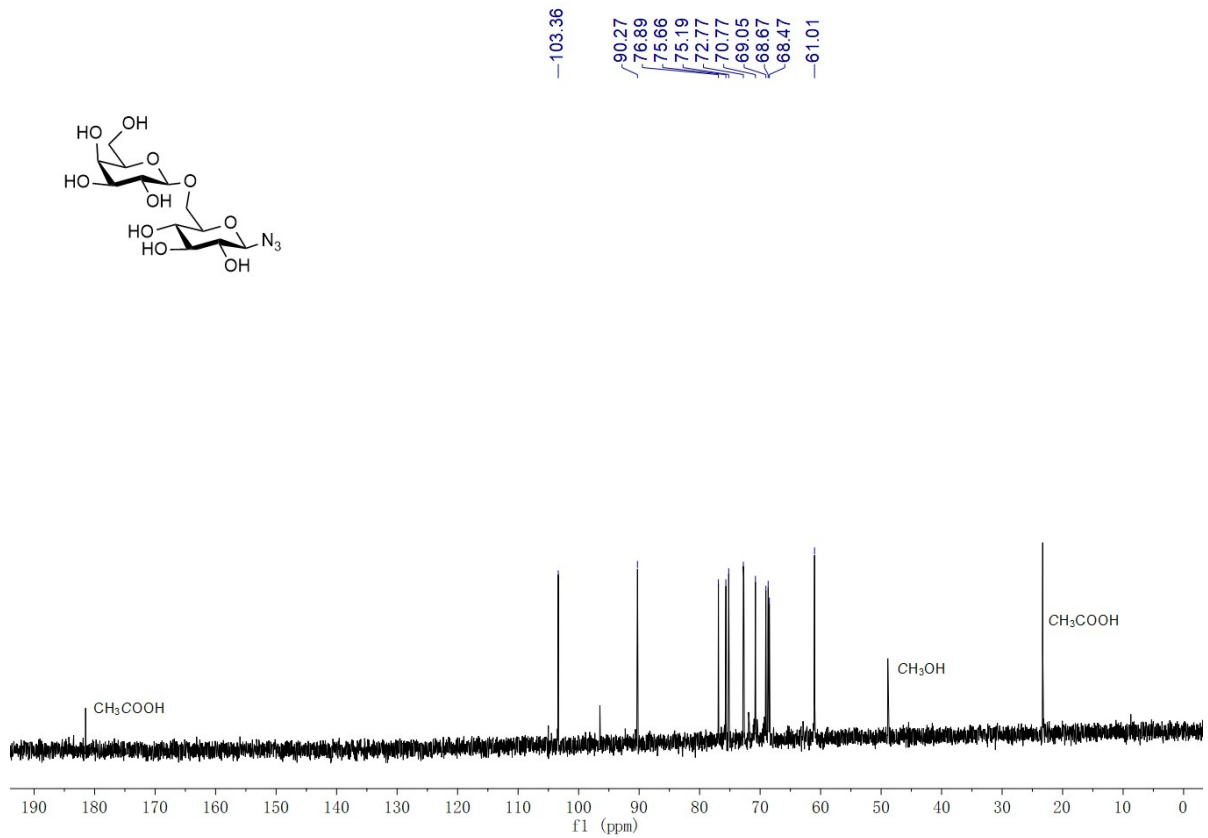
**<sup>1</sup>H NMR spectrum of compound 6**



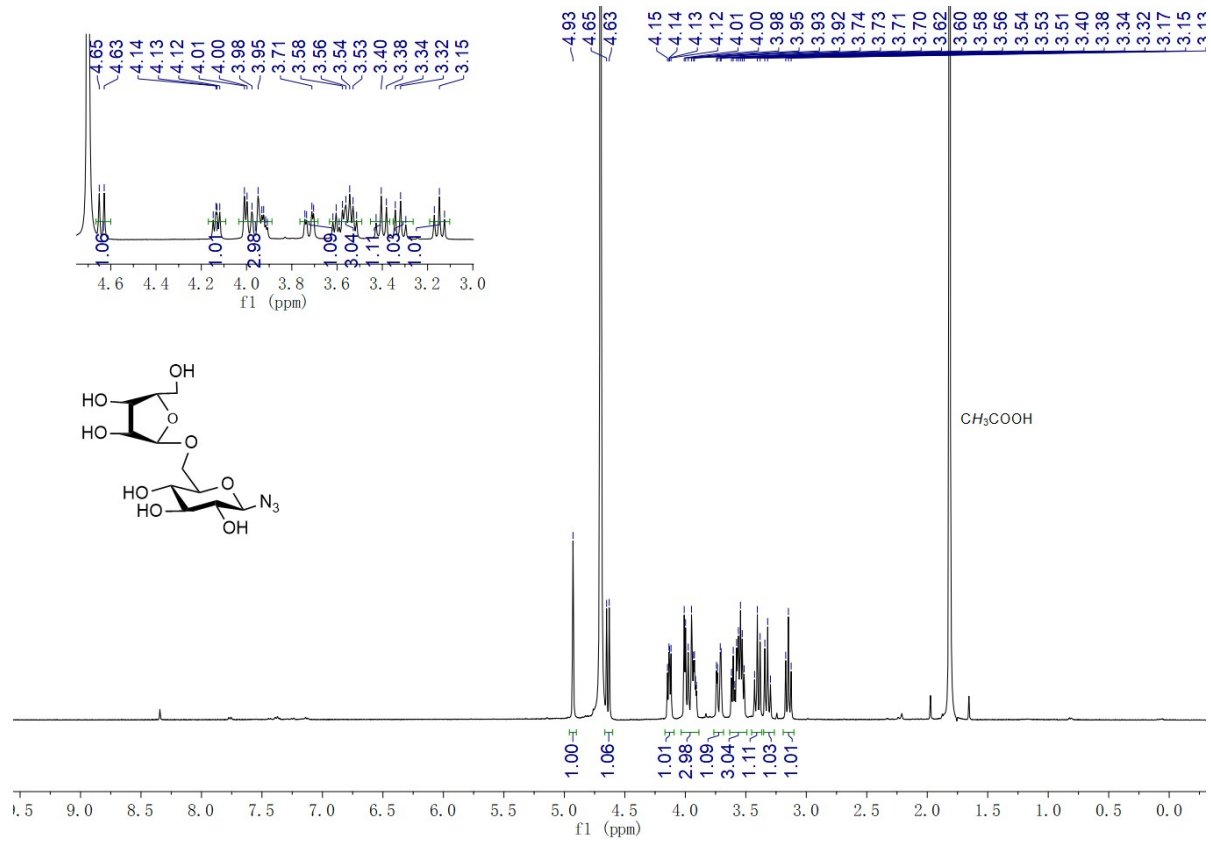
**<sup>13</sup>C NMR spectrum of compound 6**



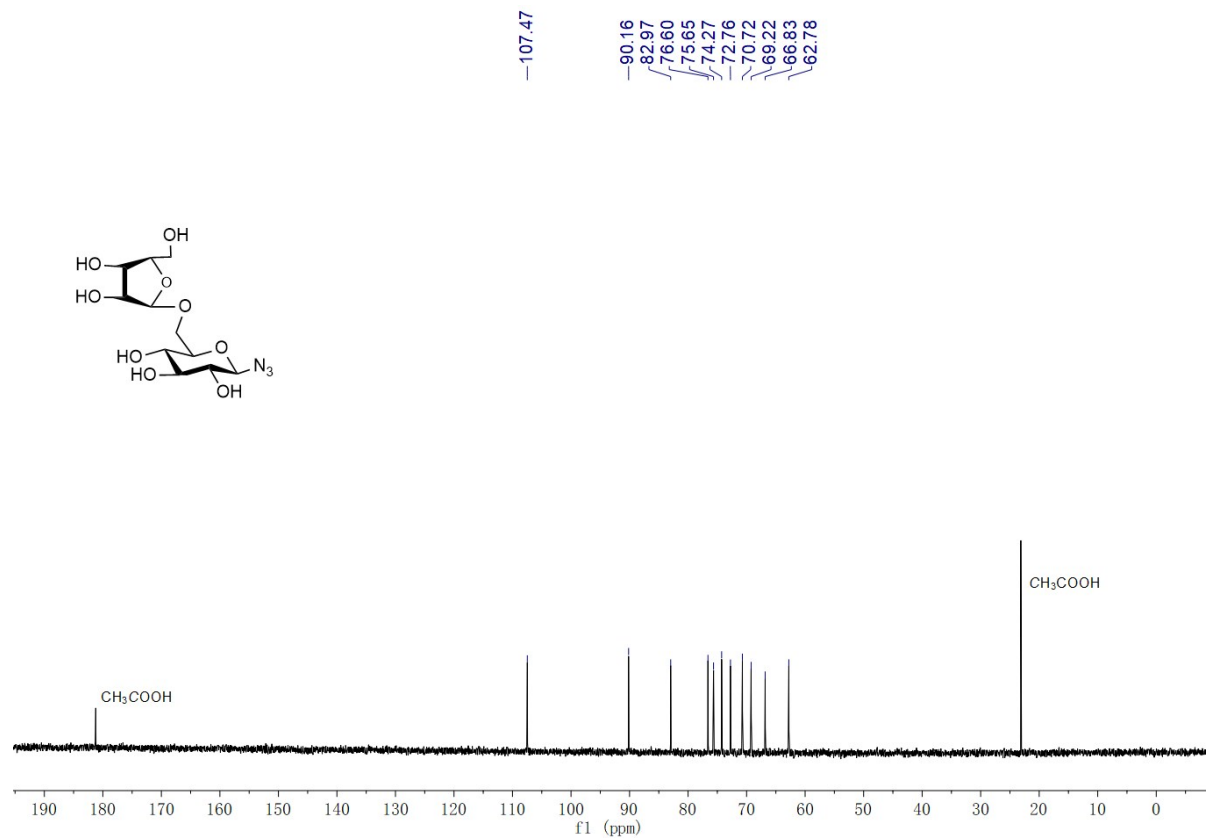
<sup>1</sup>H NMR spectrum of compound 7



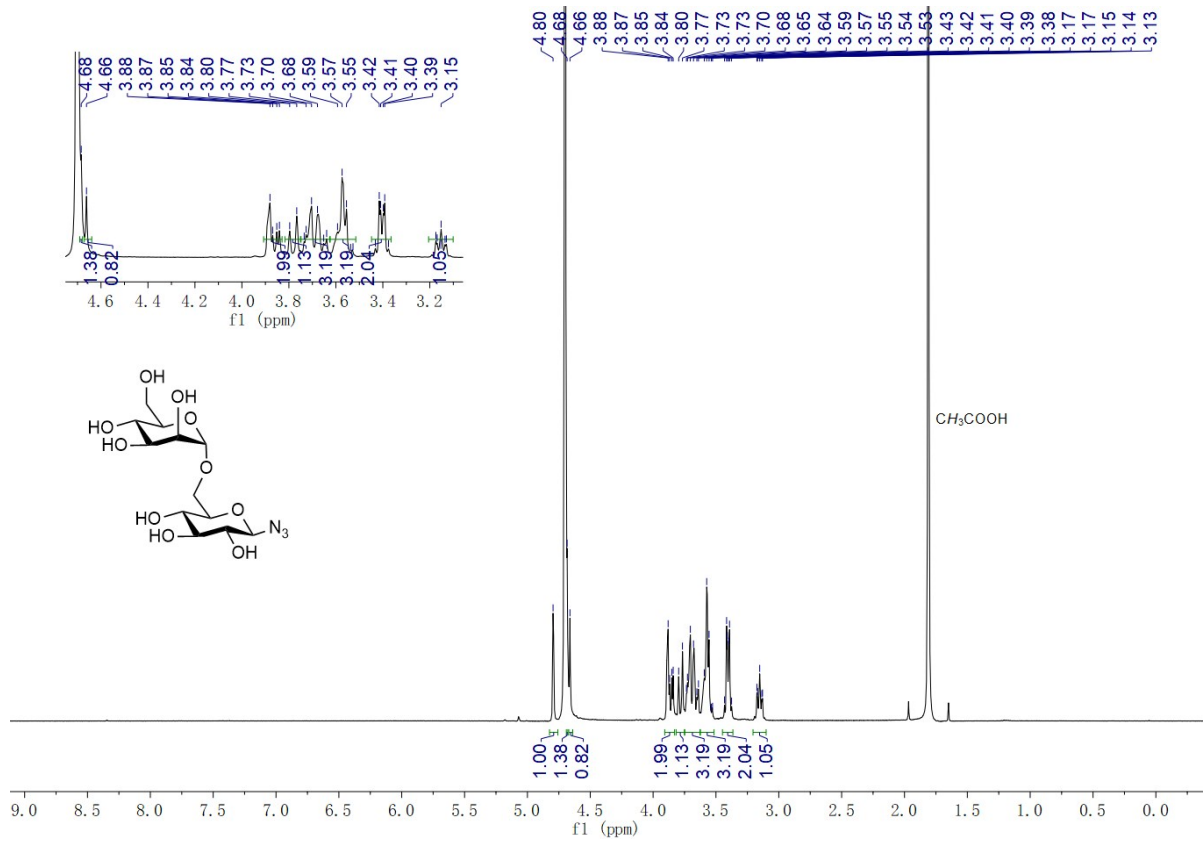
<sup>13</sup>C NMR spectrum of compound 7



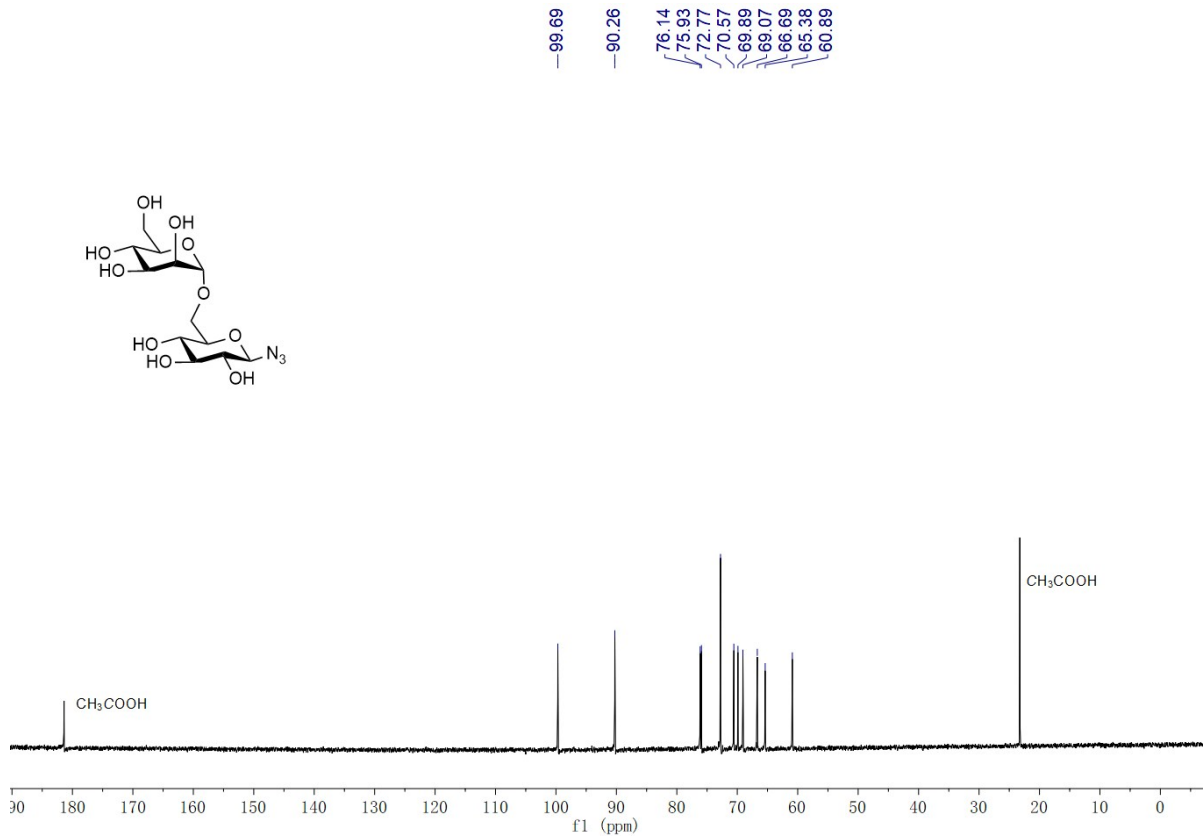
$^1\text{H}$  NMR spectrum of compound **8**



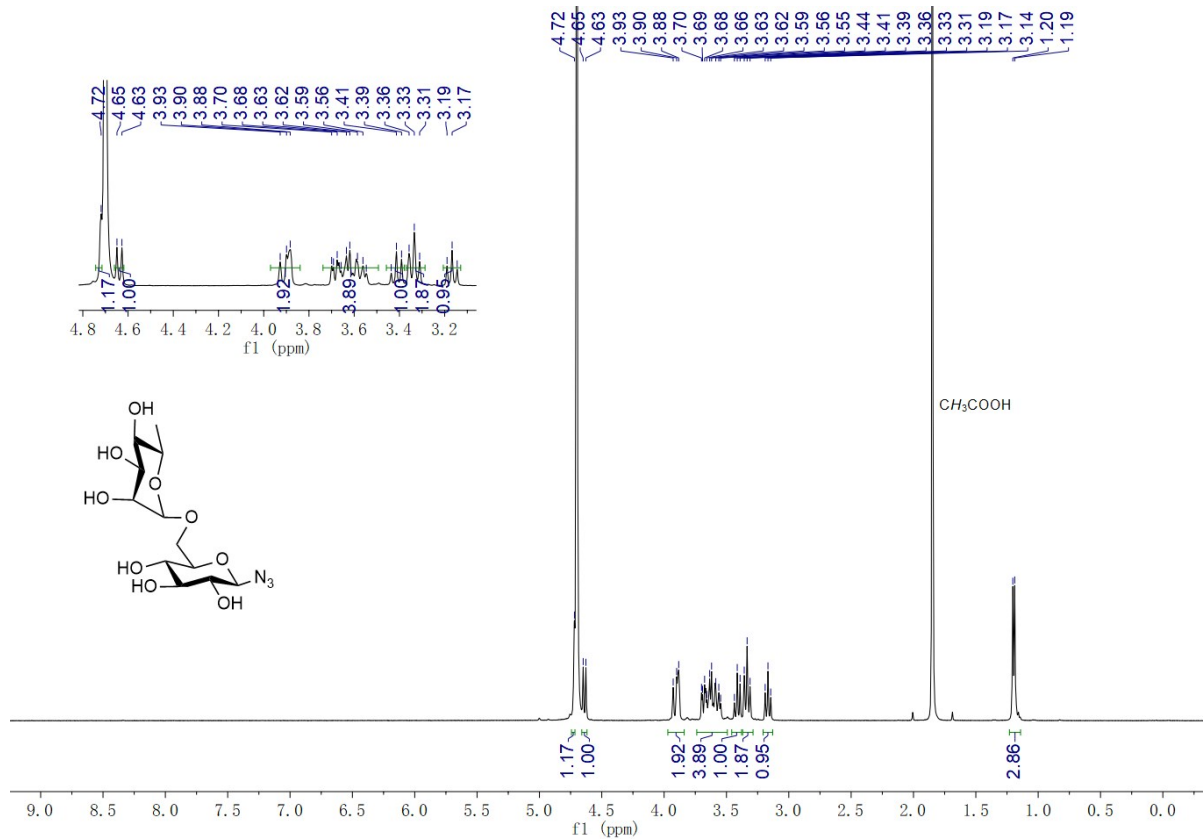
$^{13}\text{C}$  NMR spectrum of compound **8**



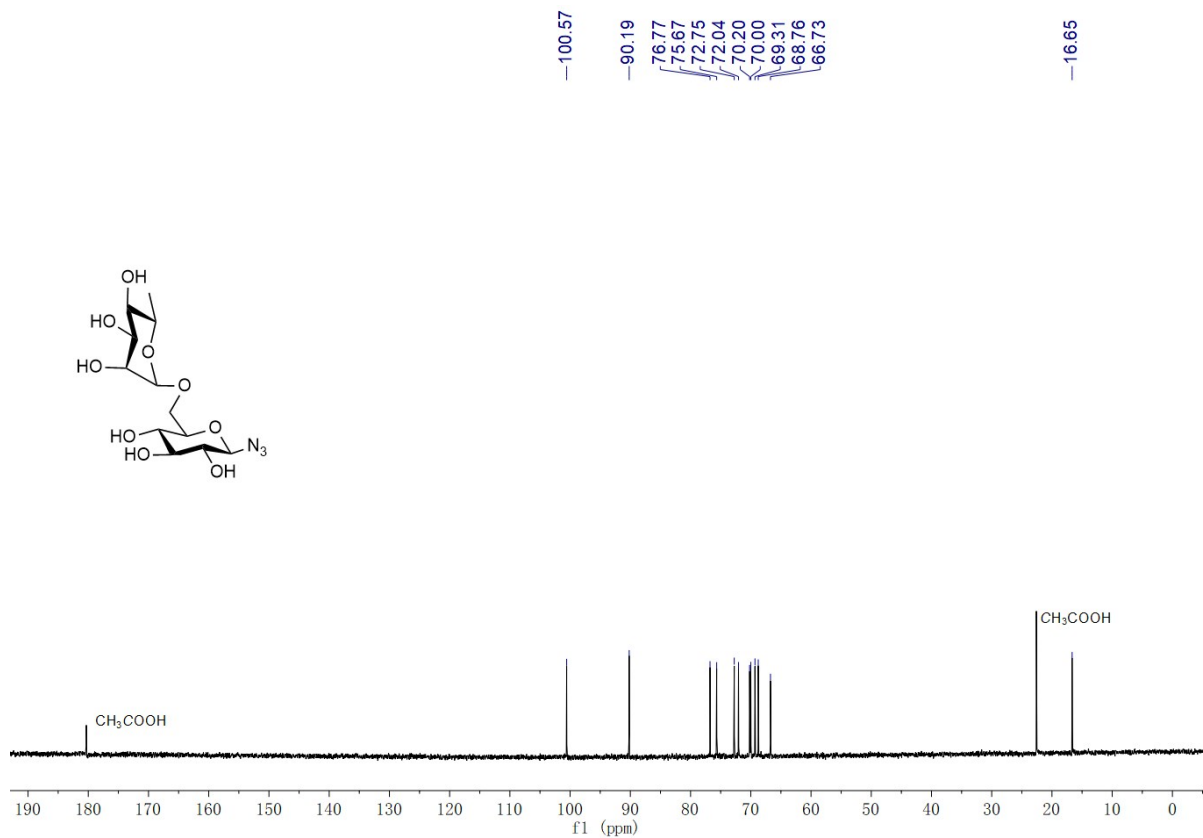
<sup>1</sup>H NMR spectrum of compound 9



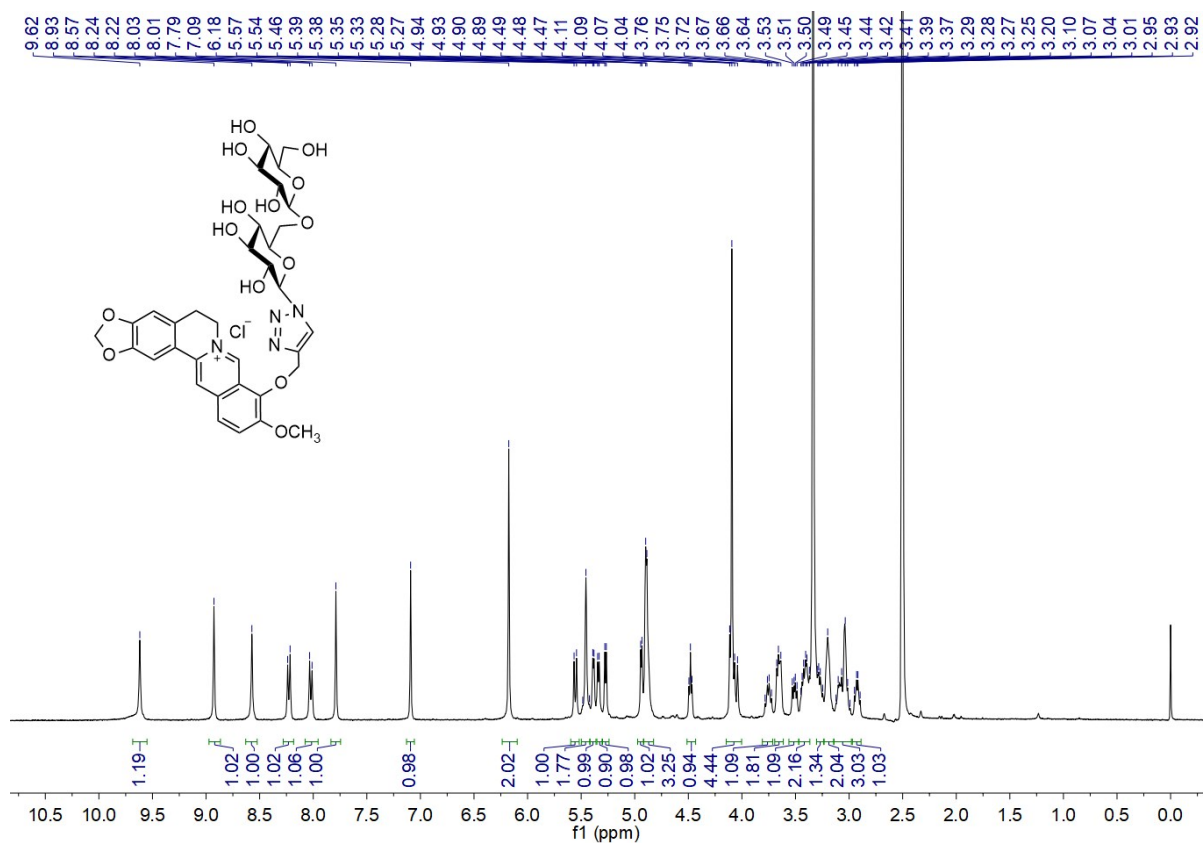
<sup>13</sup>C NMR spectrum of compound 9



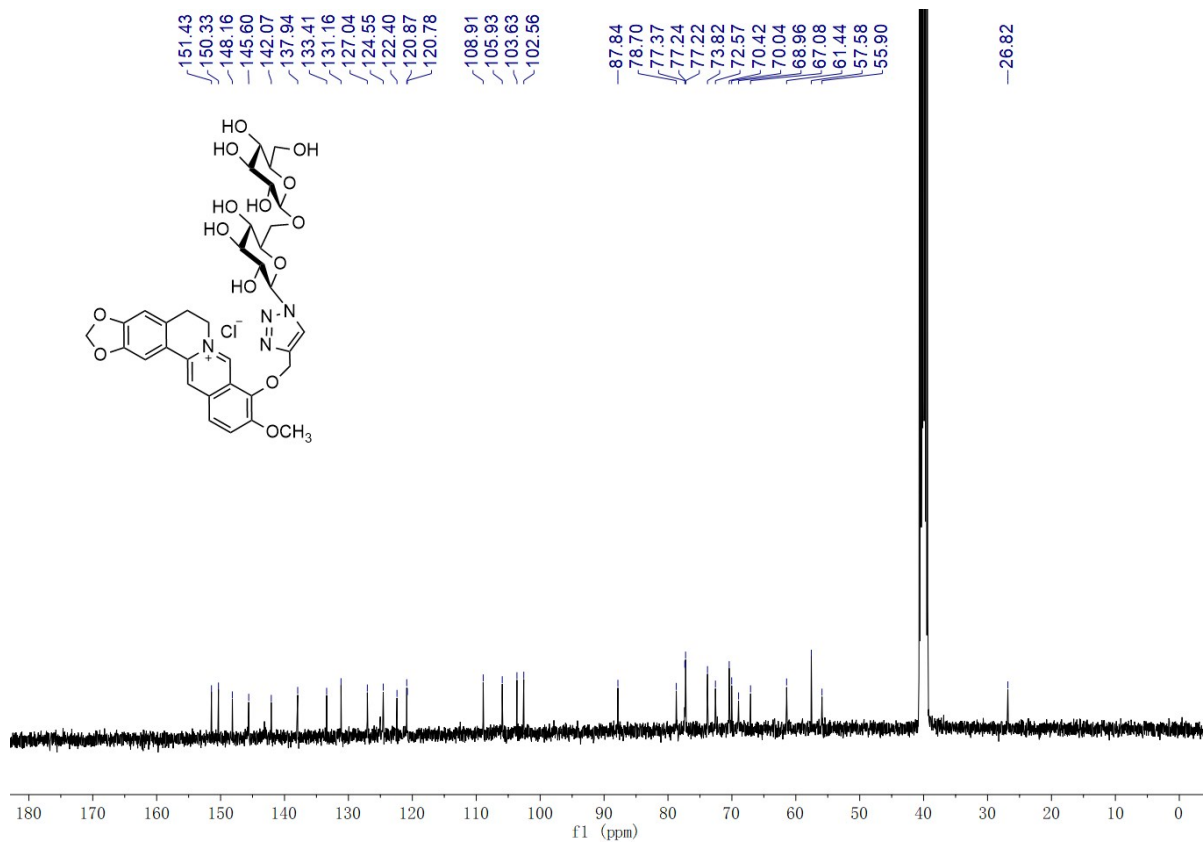
**<sup>1</sup>H NMR spectrum of compound 10**



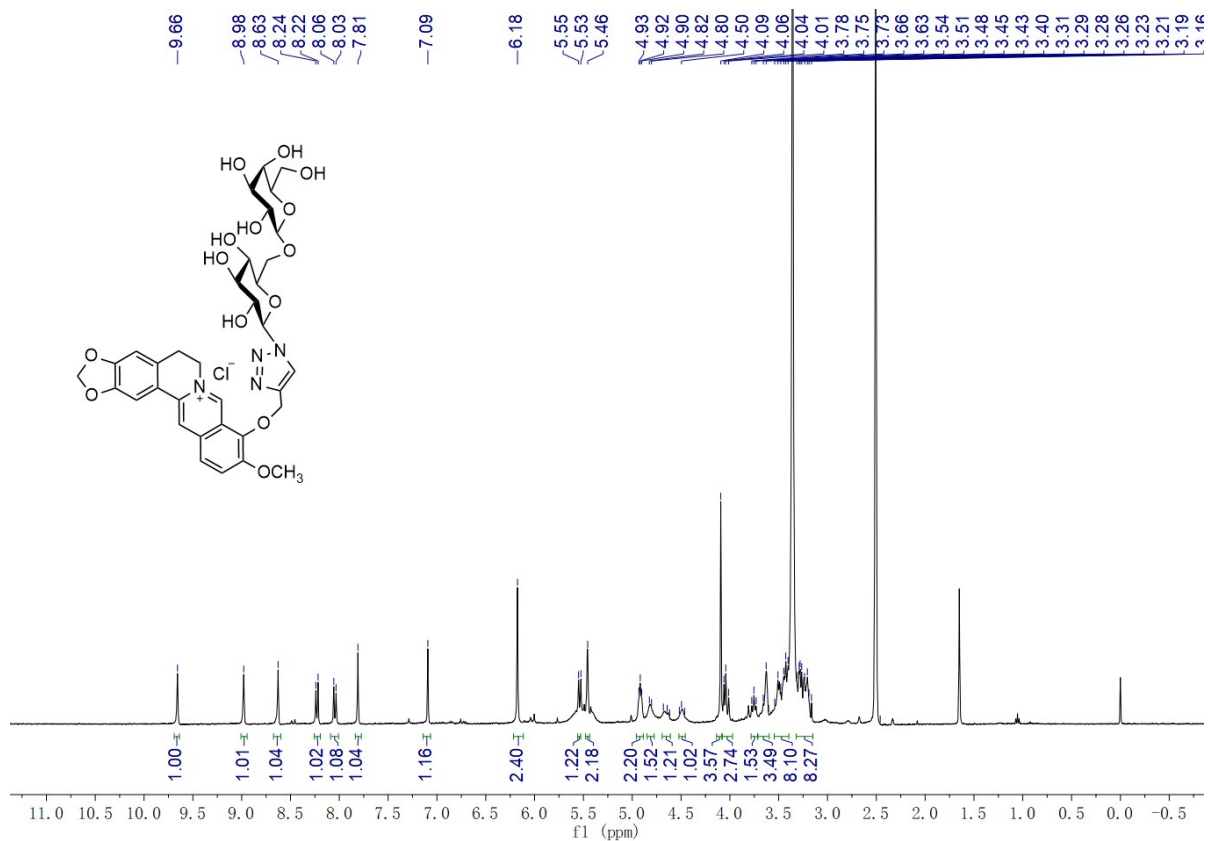
**<sup>13</sup>C NMR spectrum of compound 10**



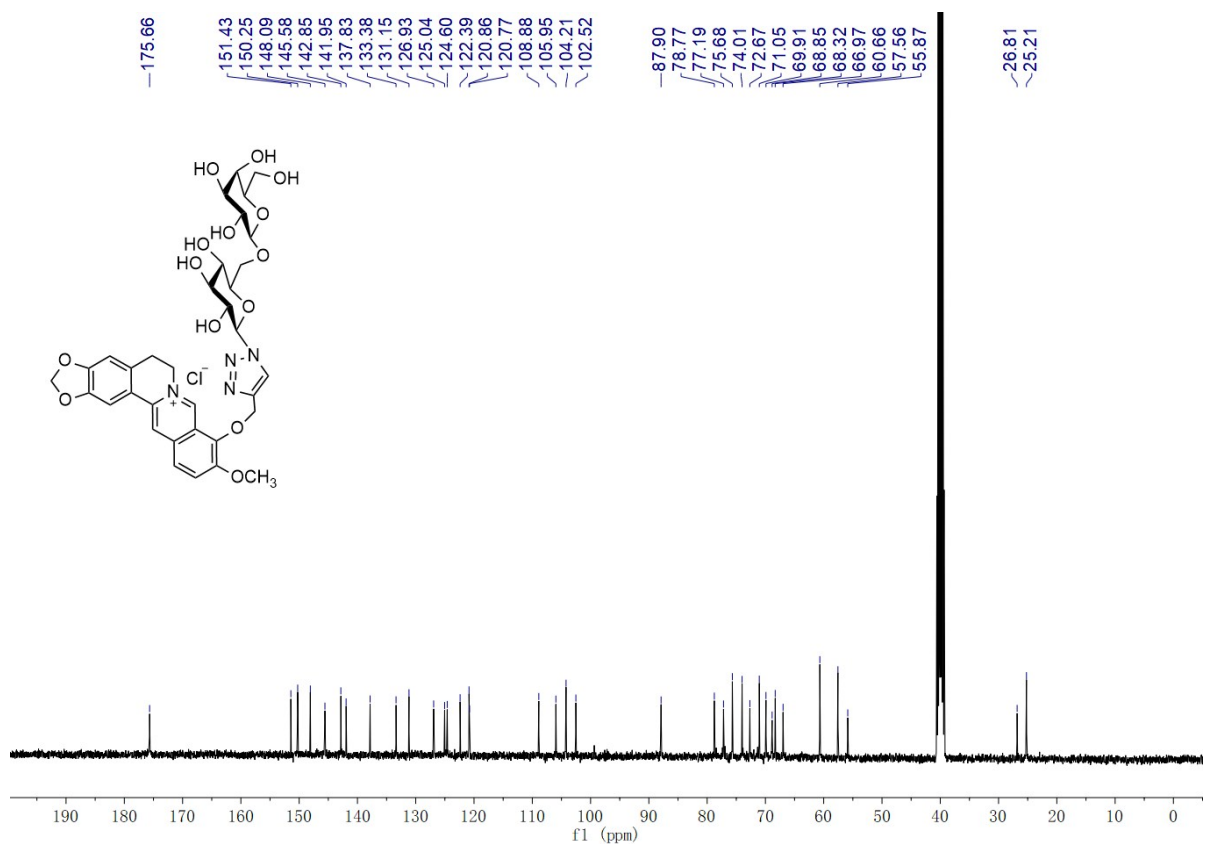
<sup>1</sup>H NMR spectrum of compound 1



<sup>13</sup>C NMR spectrum of compound 1

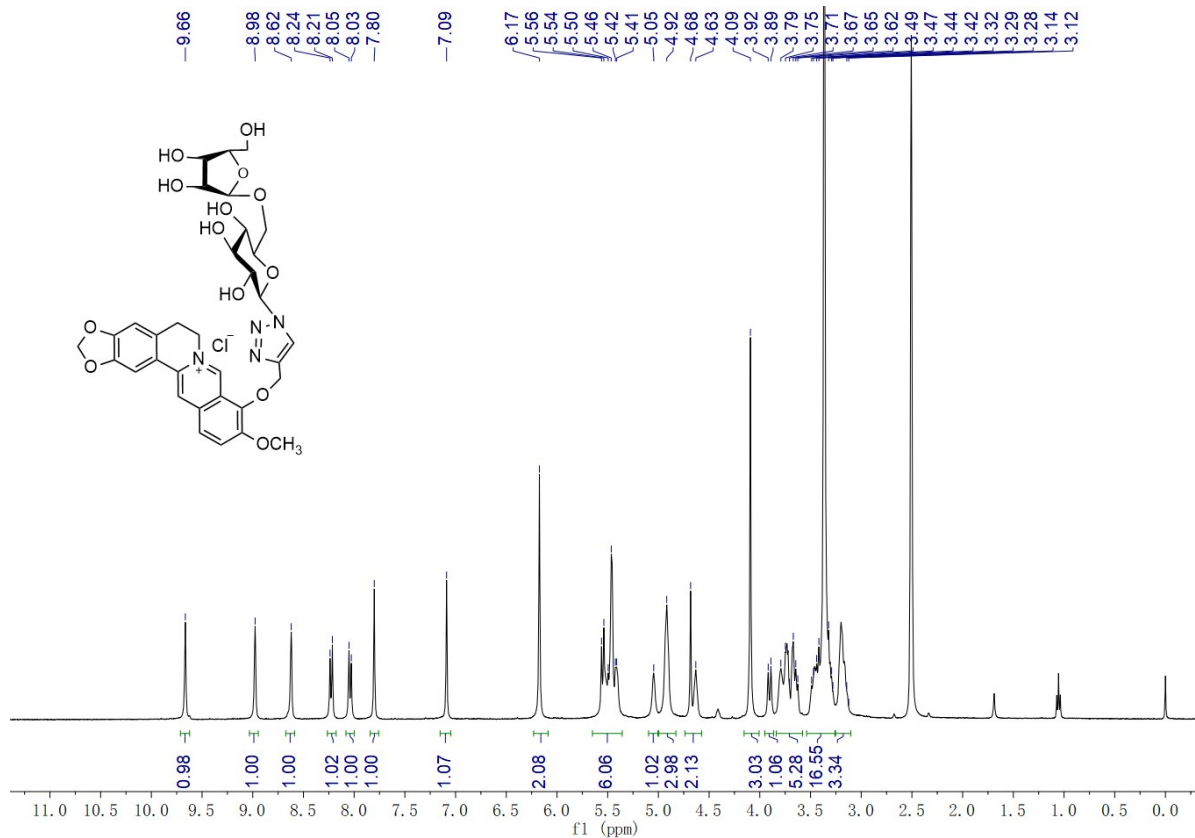


<sup>1</sup>H NMR spectrum of compound 2

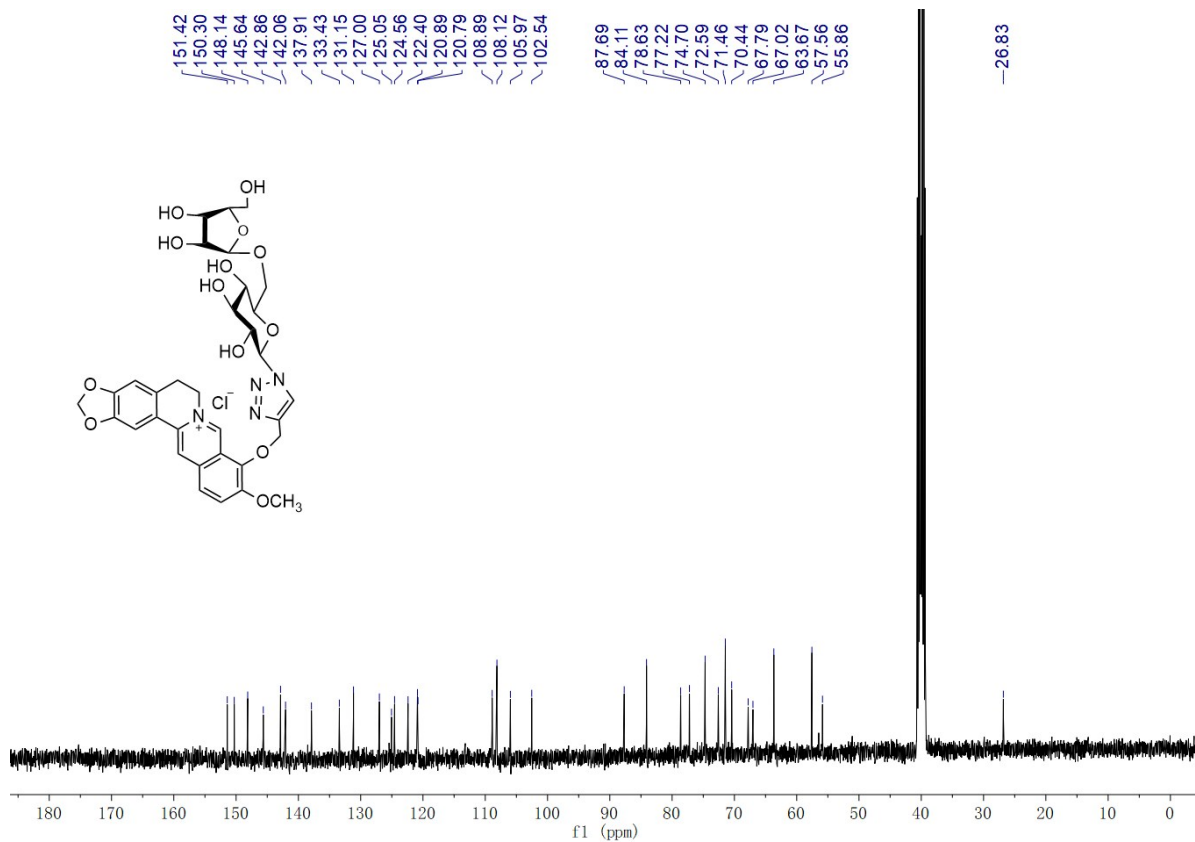


<sup>13</sup>C NMR spectrum of compound 2



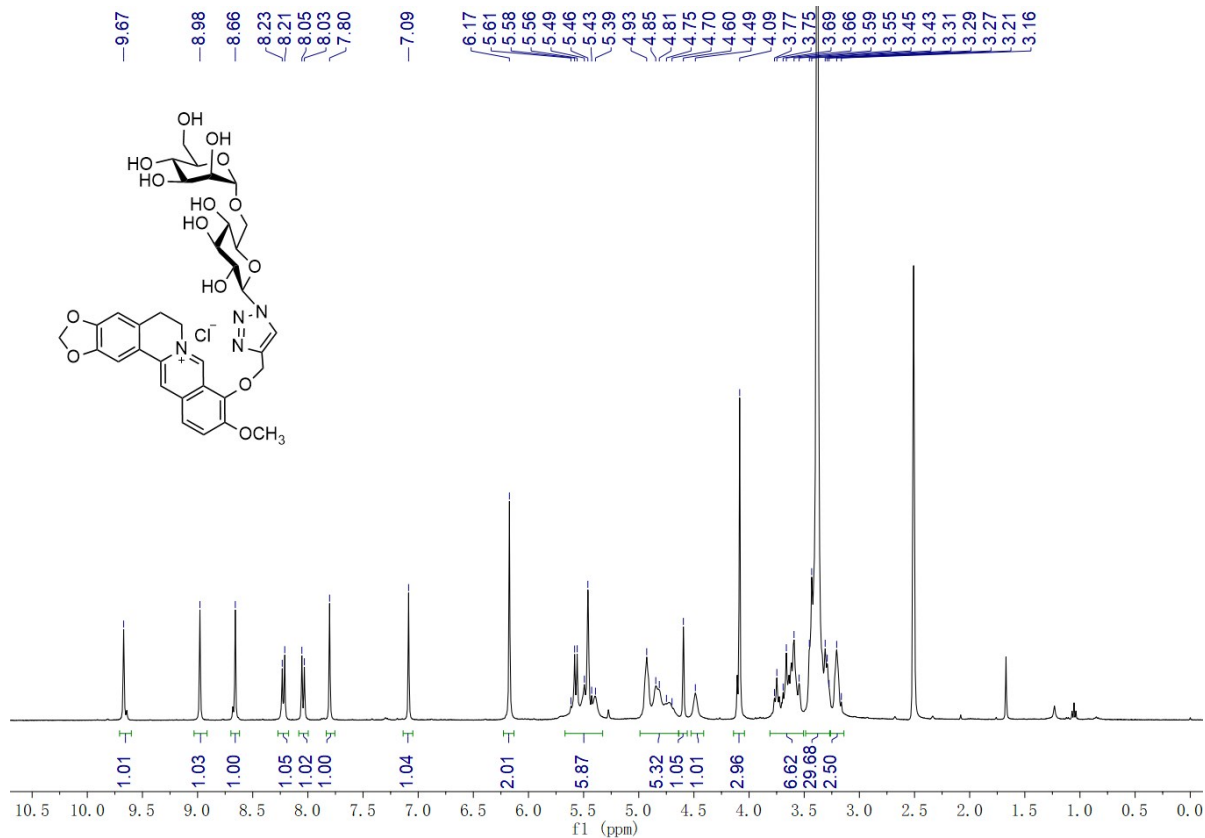


<sup>1</sup>H NMR spectrum of compound 3

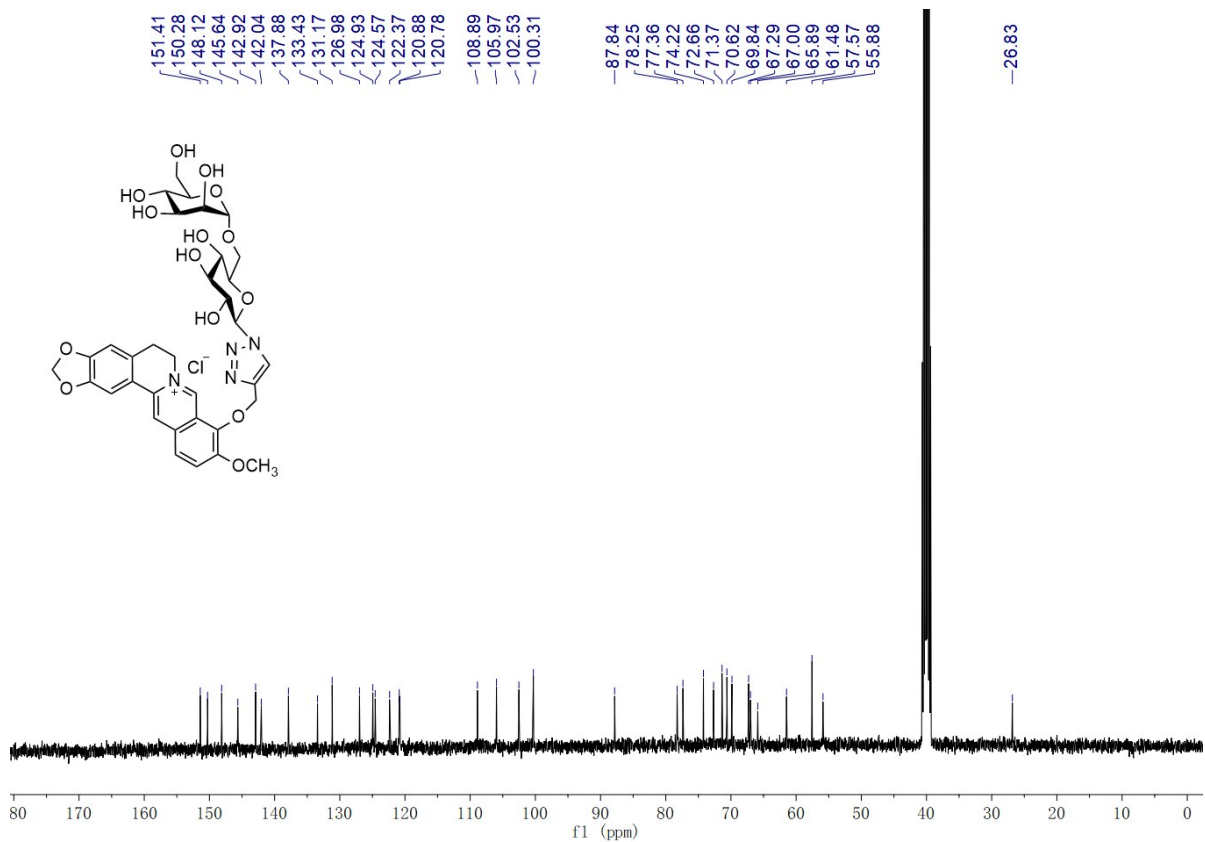


<sup>13</sup>C NMR spectrum of compound 3

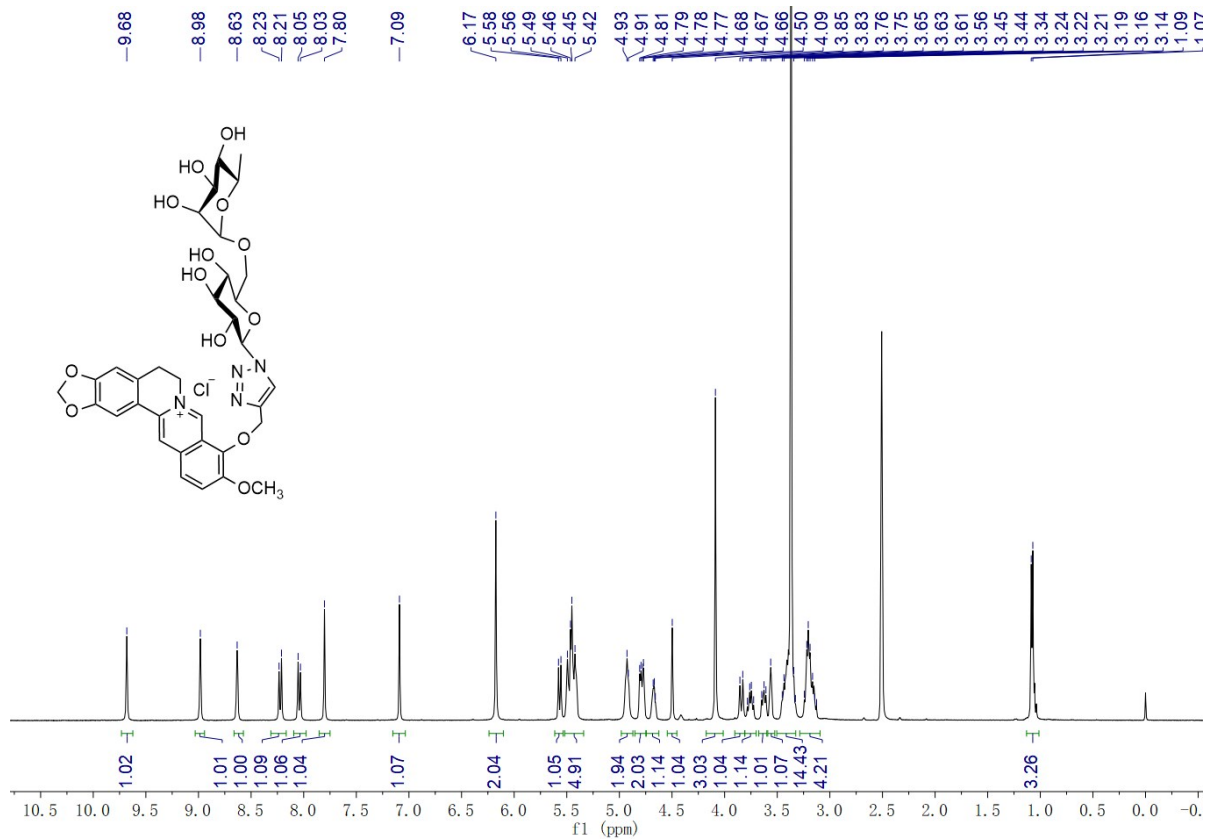




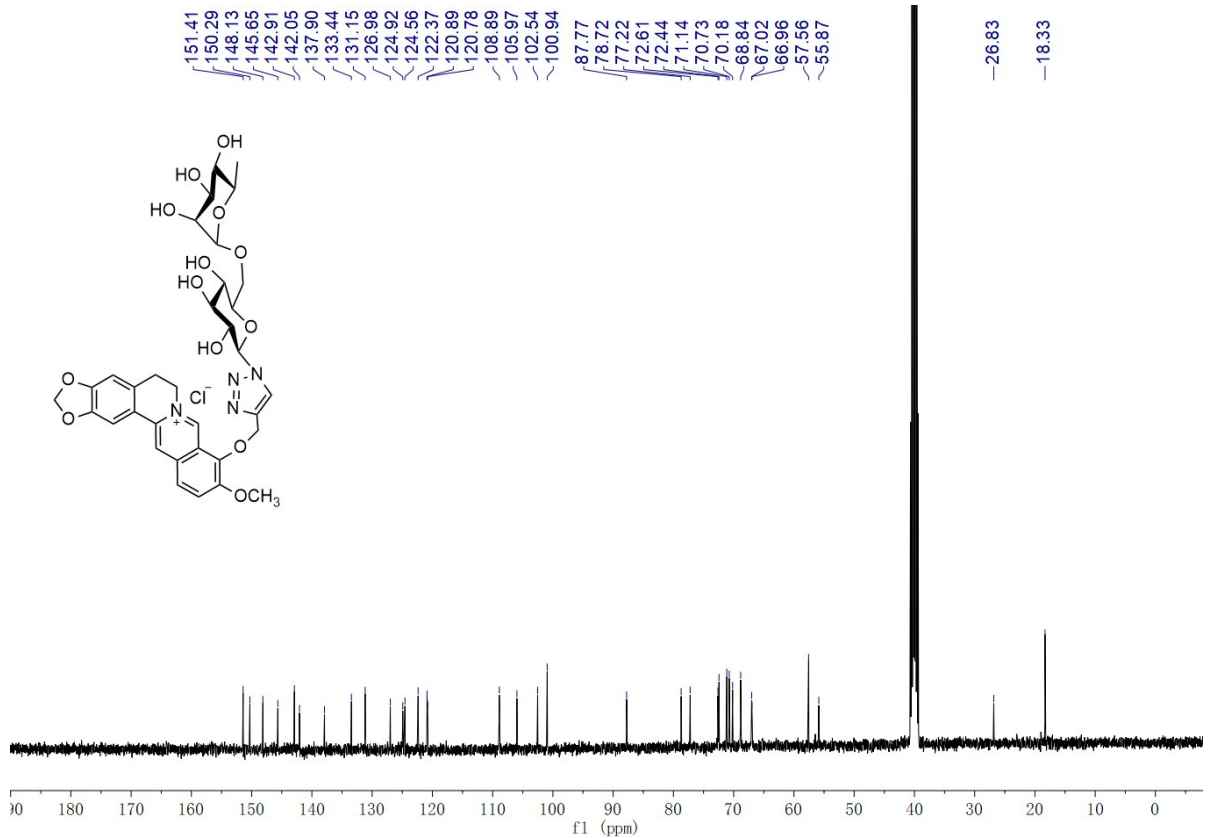
<sup>1</sup>H NMR spectrum of compound 4



<sup>13</sup>C NMR spectrum of compound 4



<sup>1</sup>H NMR spectrum of compound 5



<sup>13</sup>C NMR spectrum of compound 5