

# Supporting Information

## The Effect of Carbonyl on the Isomerization of Galanthan Ring System and Total Synthesis of ( $\pm$ )- $\beta$ -lycorane *via* a Double Michael Addition Approach

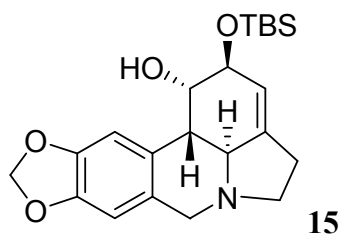
Leilei Liang,<sup>a†</sup> Ji Li,<sup>a†</sup> Baochun Shen,<sup>a</sup> Yili Zhang,<sup>a</sup> Jianping Liu,<sup>b</sup> Jingbo Chen,<sup>\*b</sup> Dandan Liu<sup>\*a</sup>

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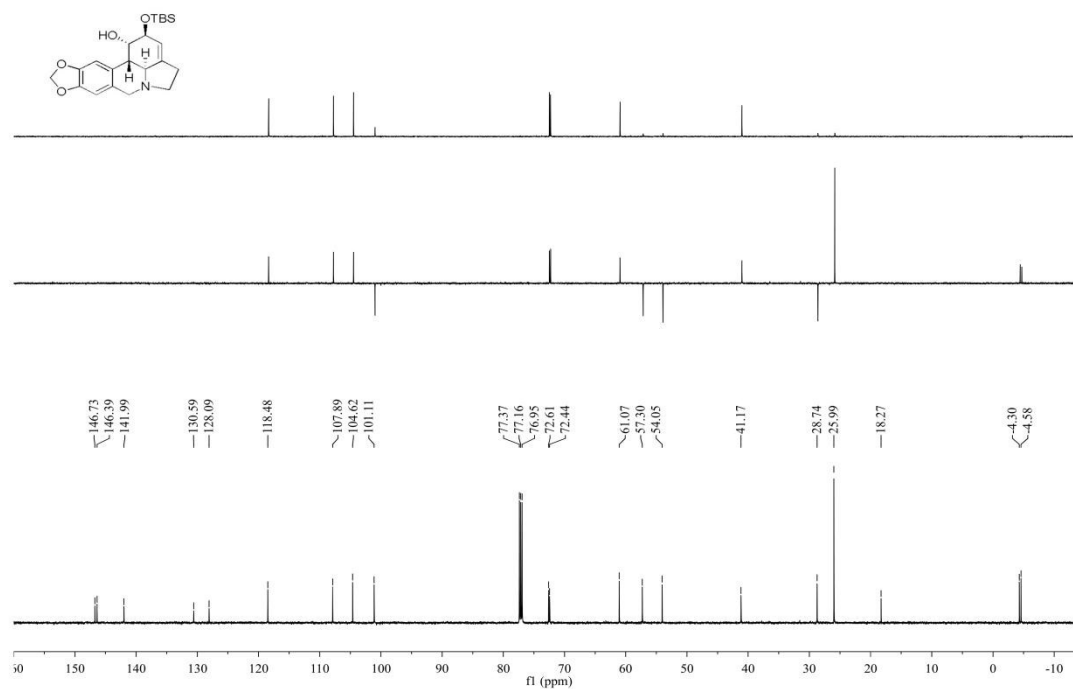
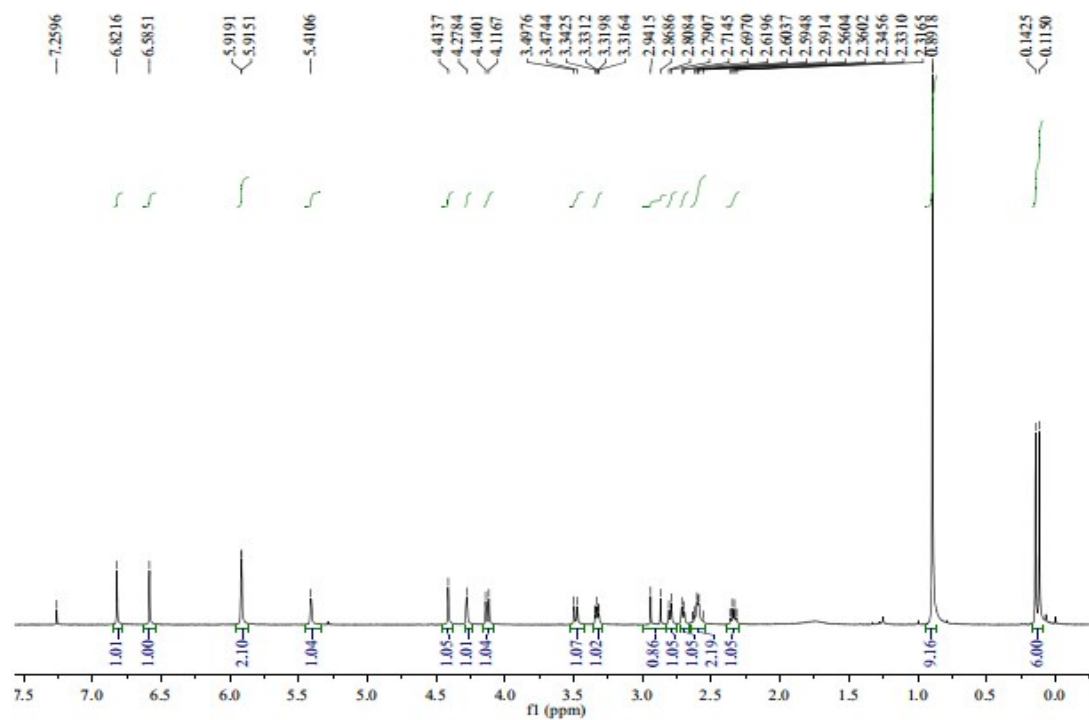
<sup>a</sup> School of Pharmaceutical Sciences and Yunnan Key Laboratory of Pharmacology for Natural Products, Kunming Medical University, Kunming, Yunnan 650500, P. R. China. E-mail: liudandan1017@qq.com

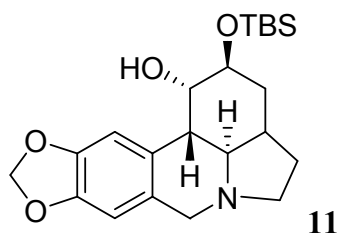
<sup>b</sup> Key Laboratory of Medicinal Chemistry for Natural Resource, Ministry of Education and Yunnan Province, Yunnan University, Kunming 650091, P. R. China. E-mail: chenjb@ynu.edu.cn

† These authors contributed equally.

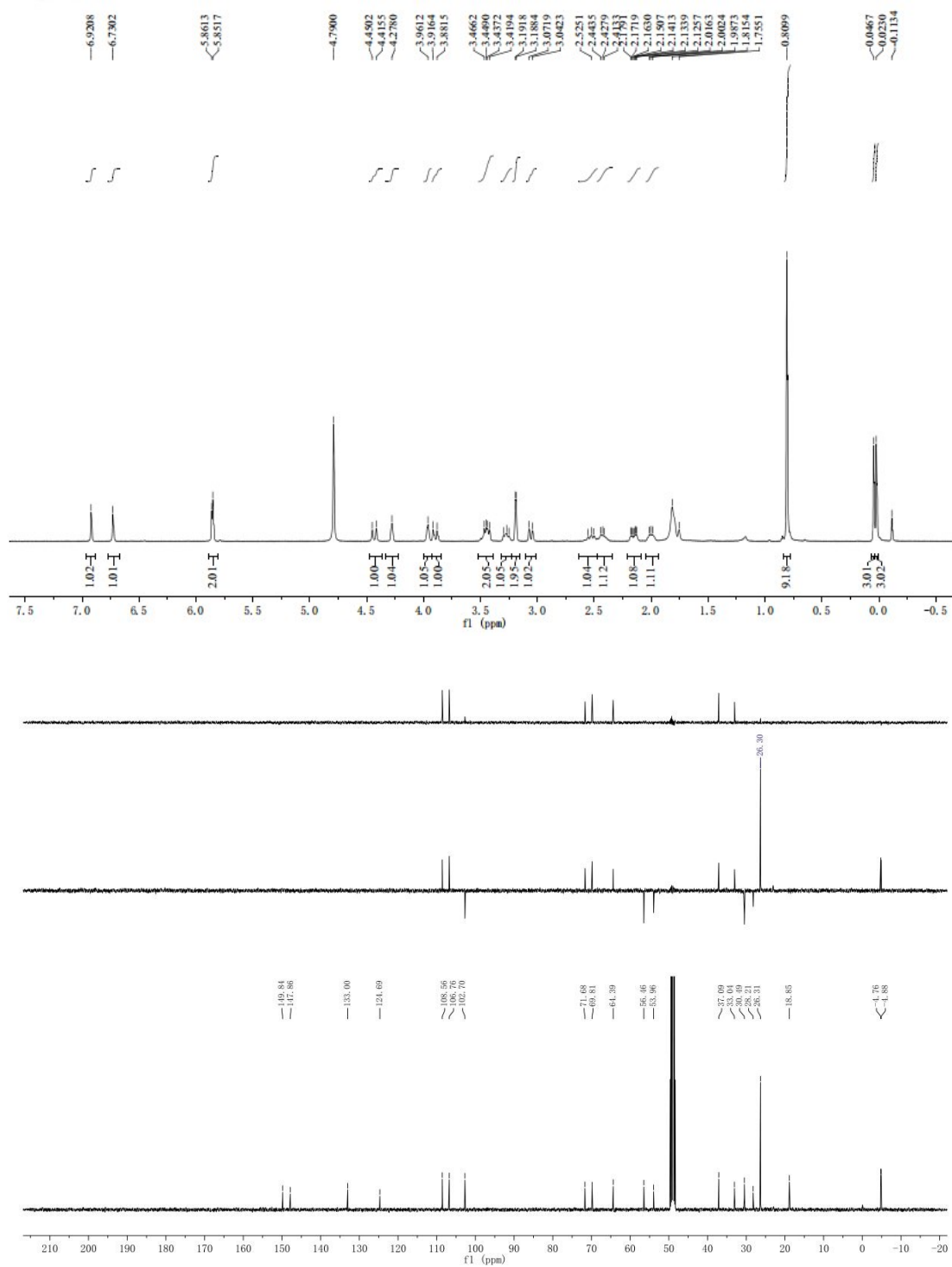


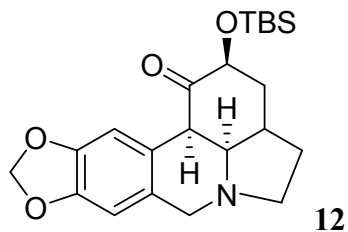
$^1\text{H}$  NMR ( $\text{CDCl}_3$ , 600 MHz),  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 150 MHz)



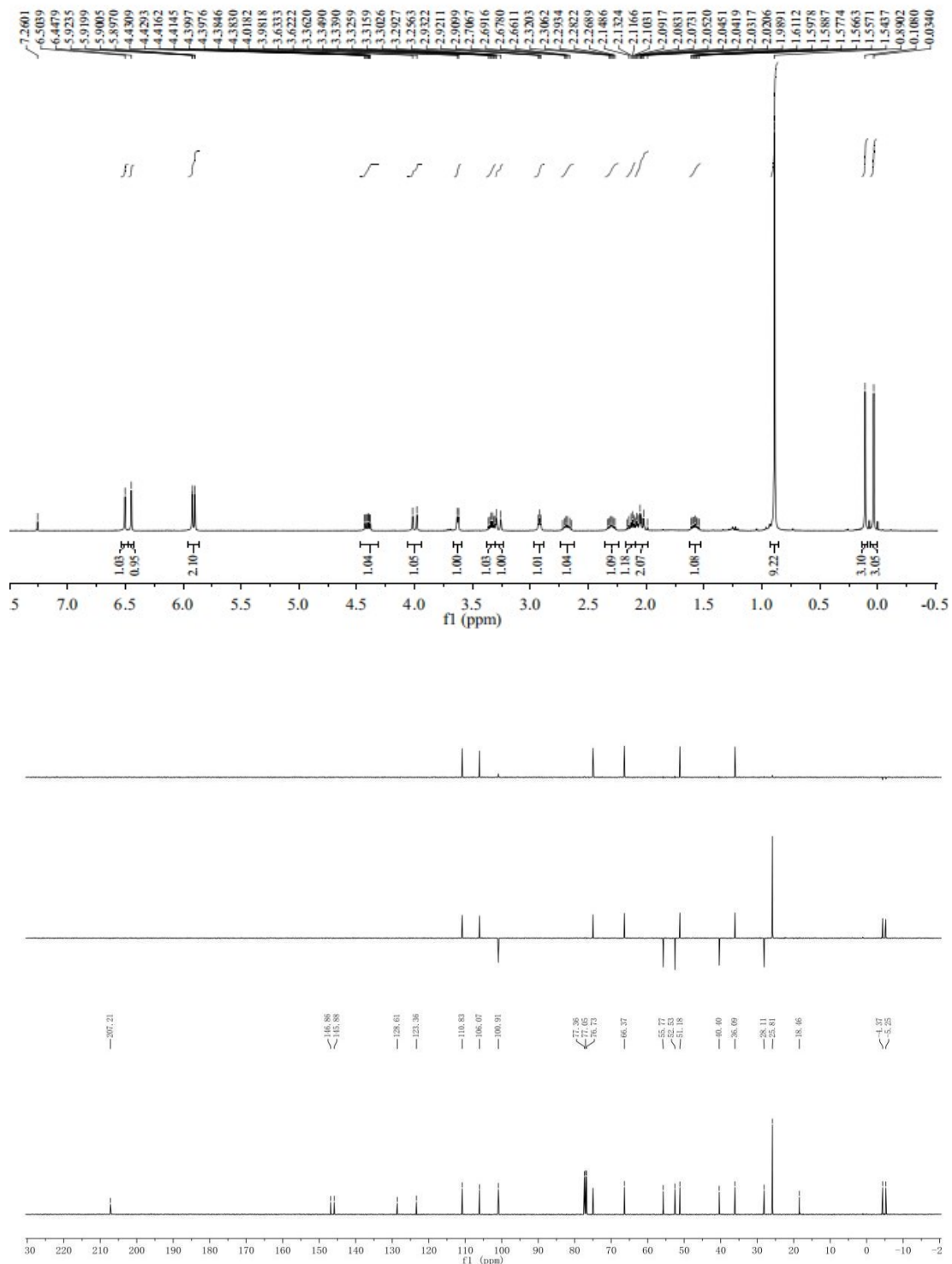


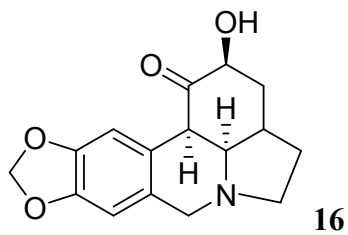
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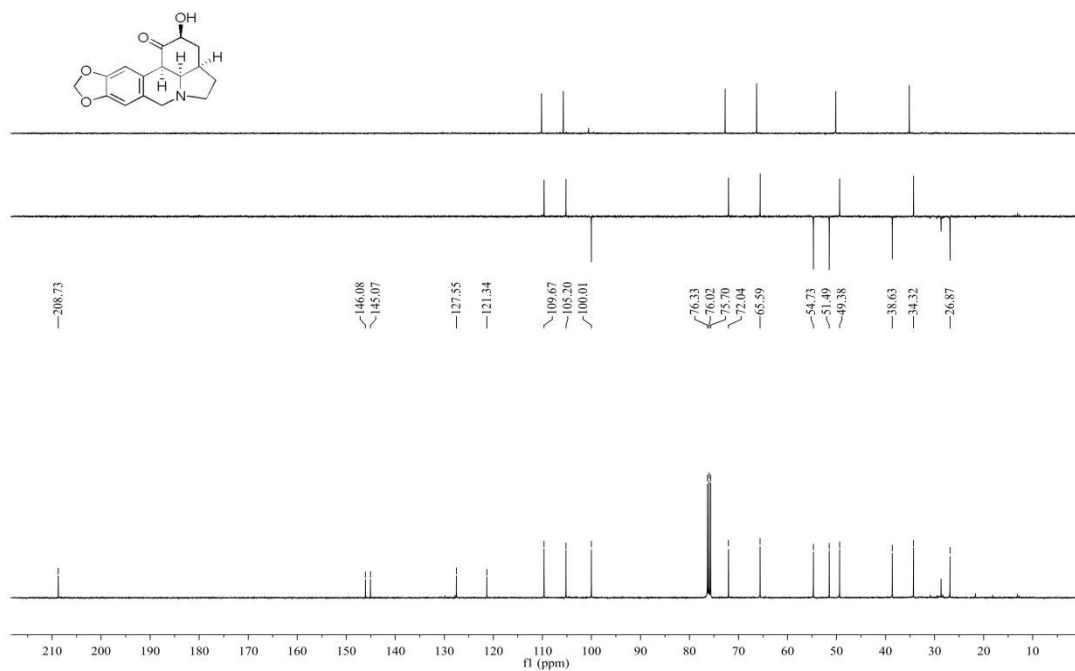
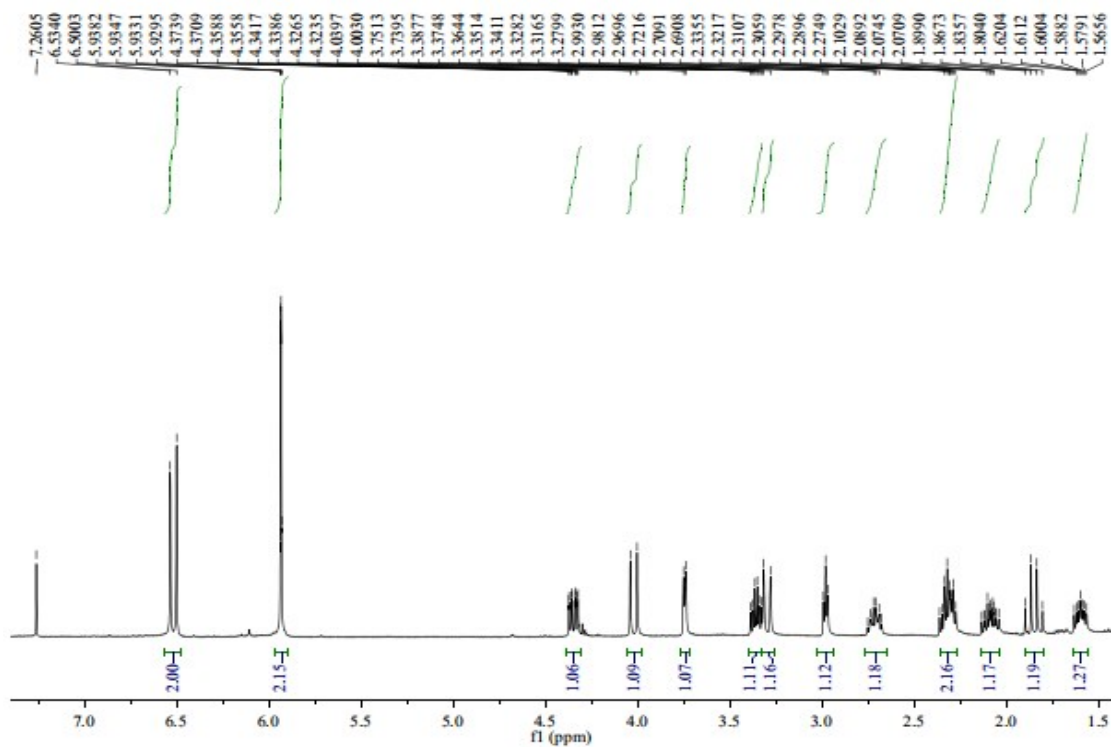


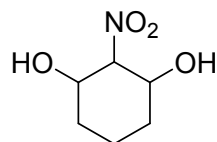
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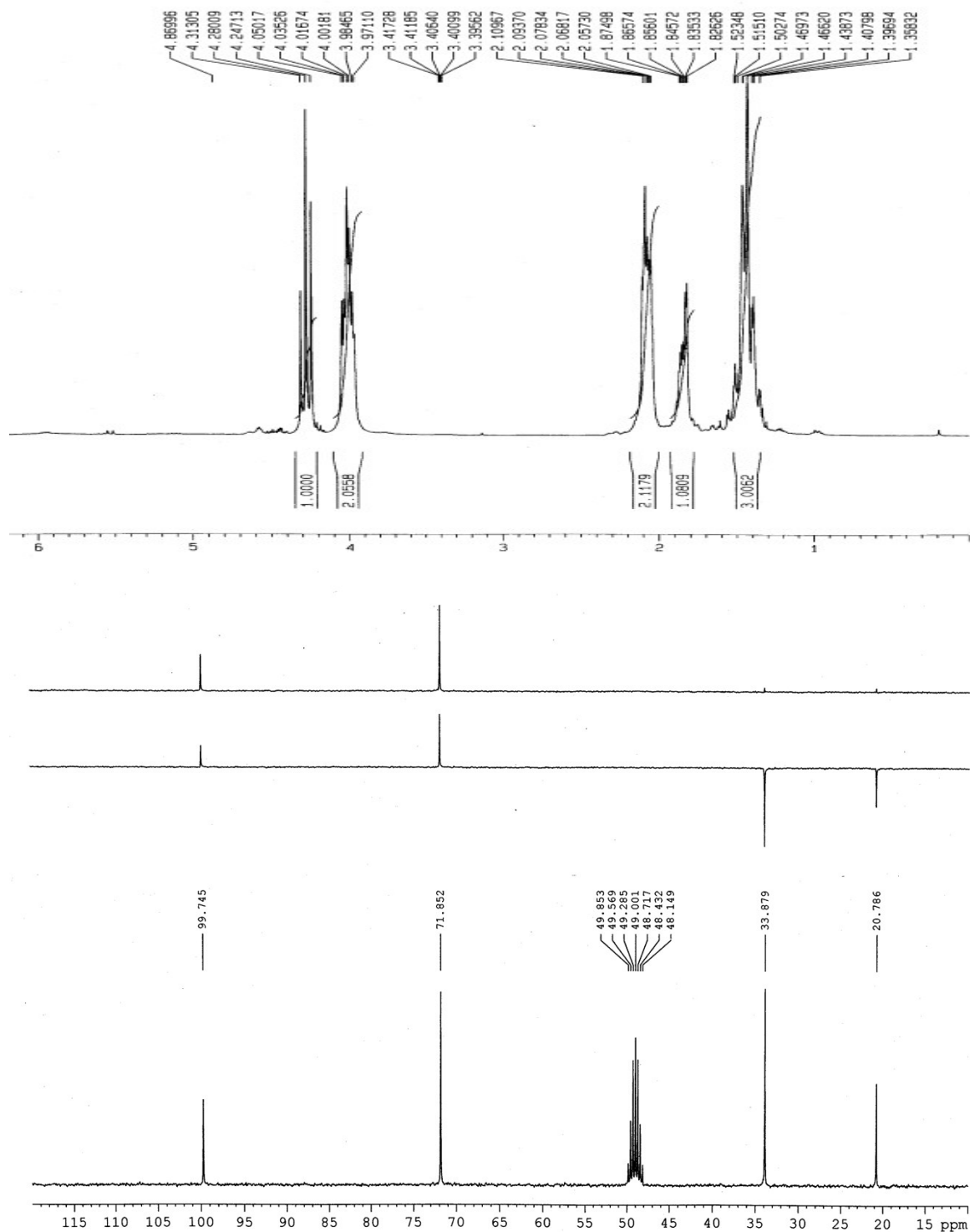
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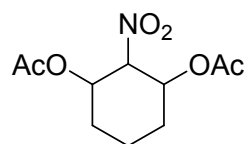




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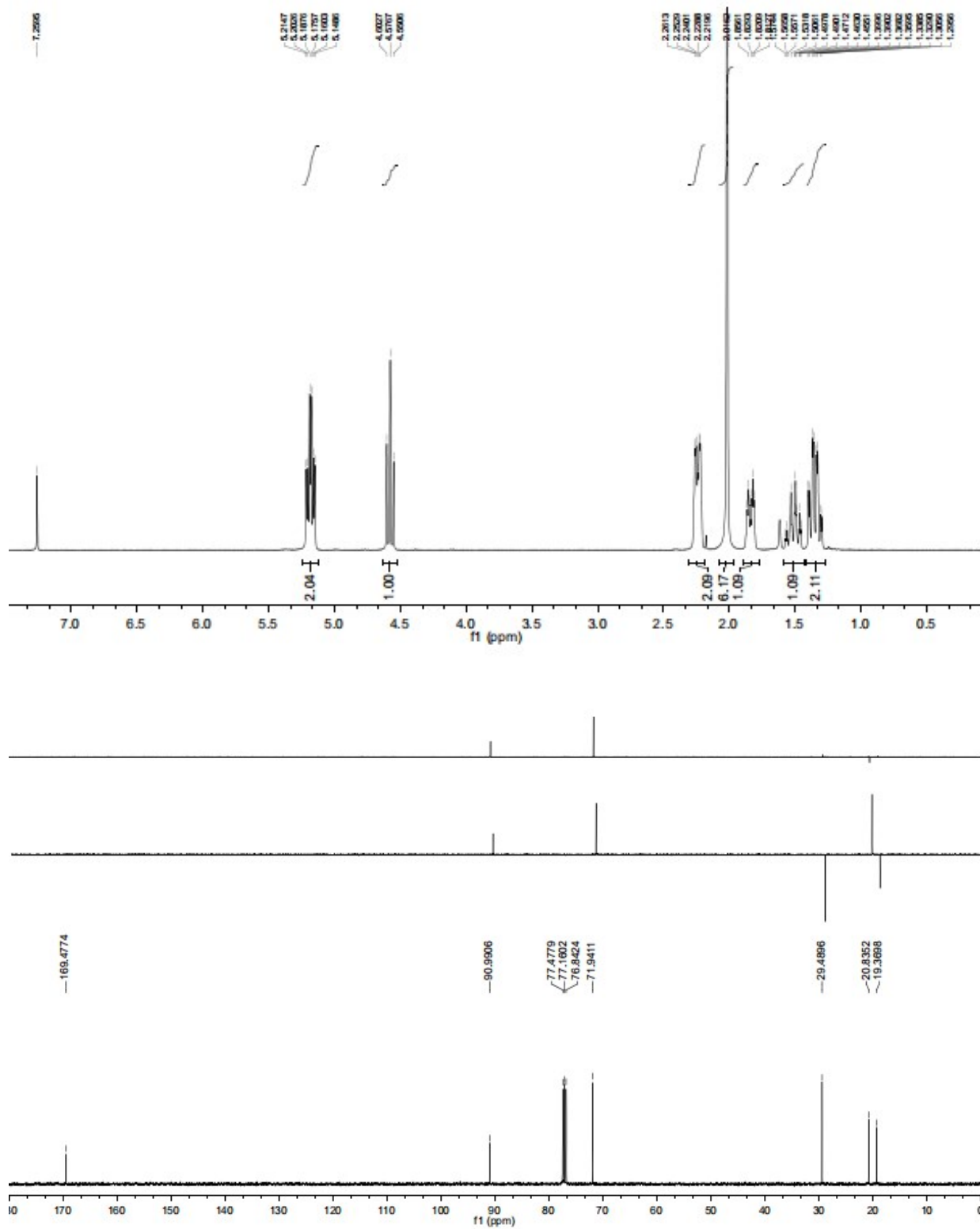
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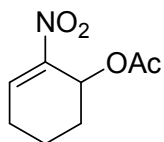




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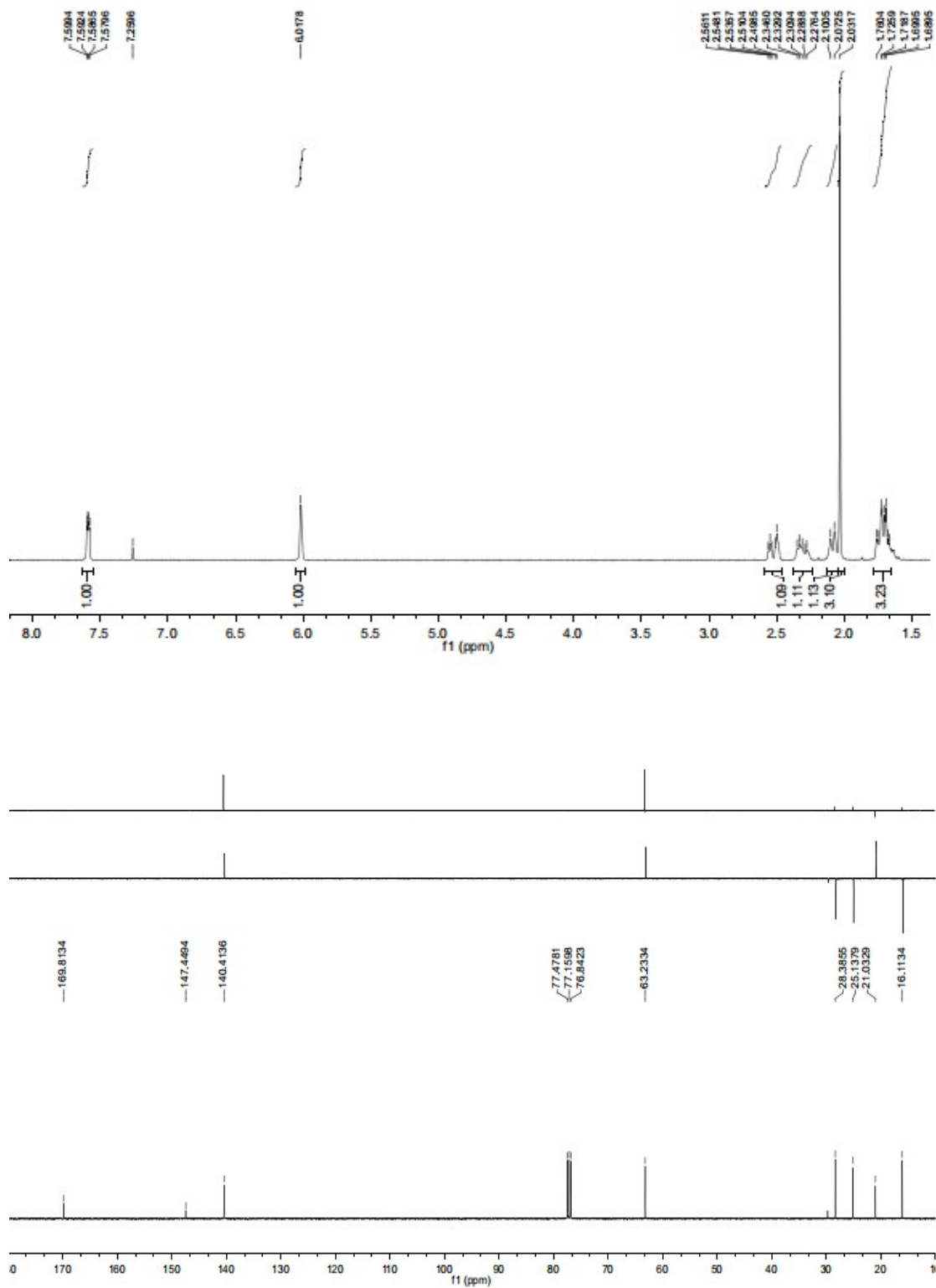
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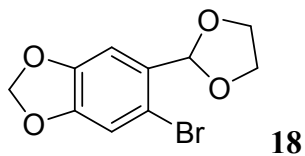


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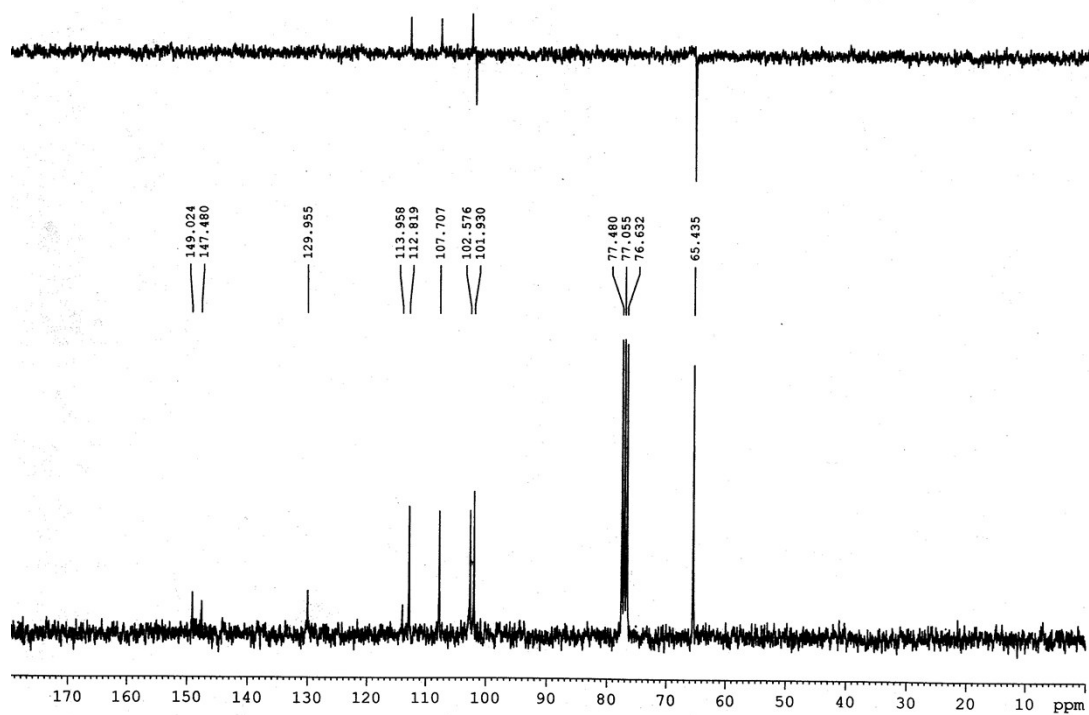
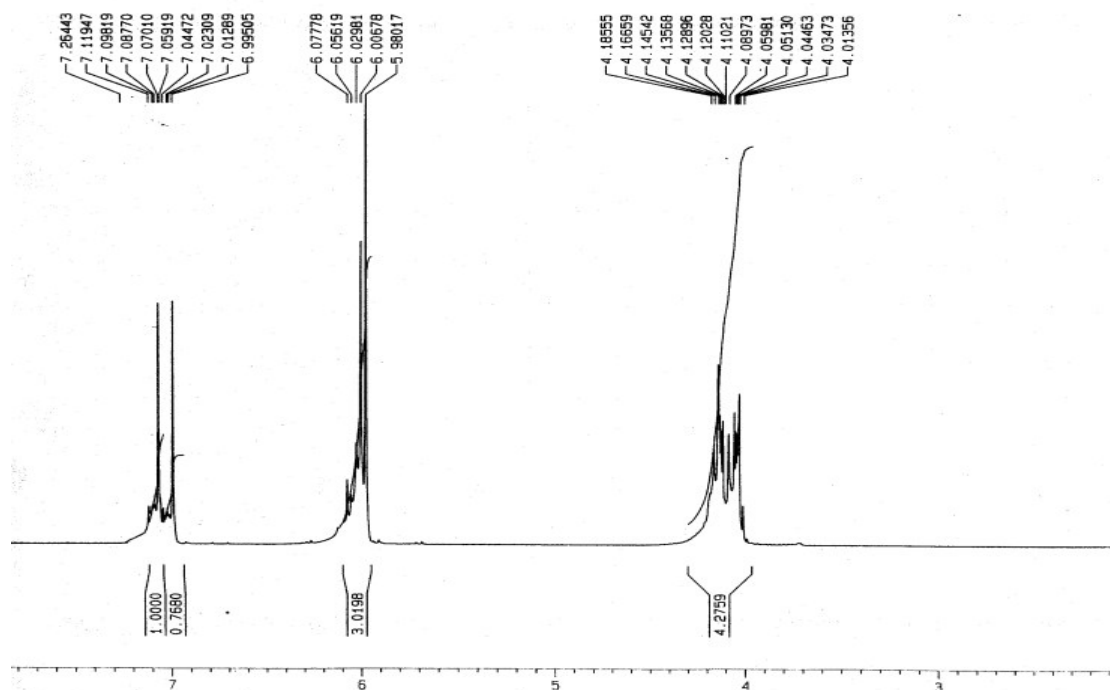
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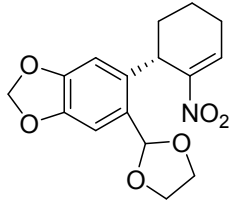






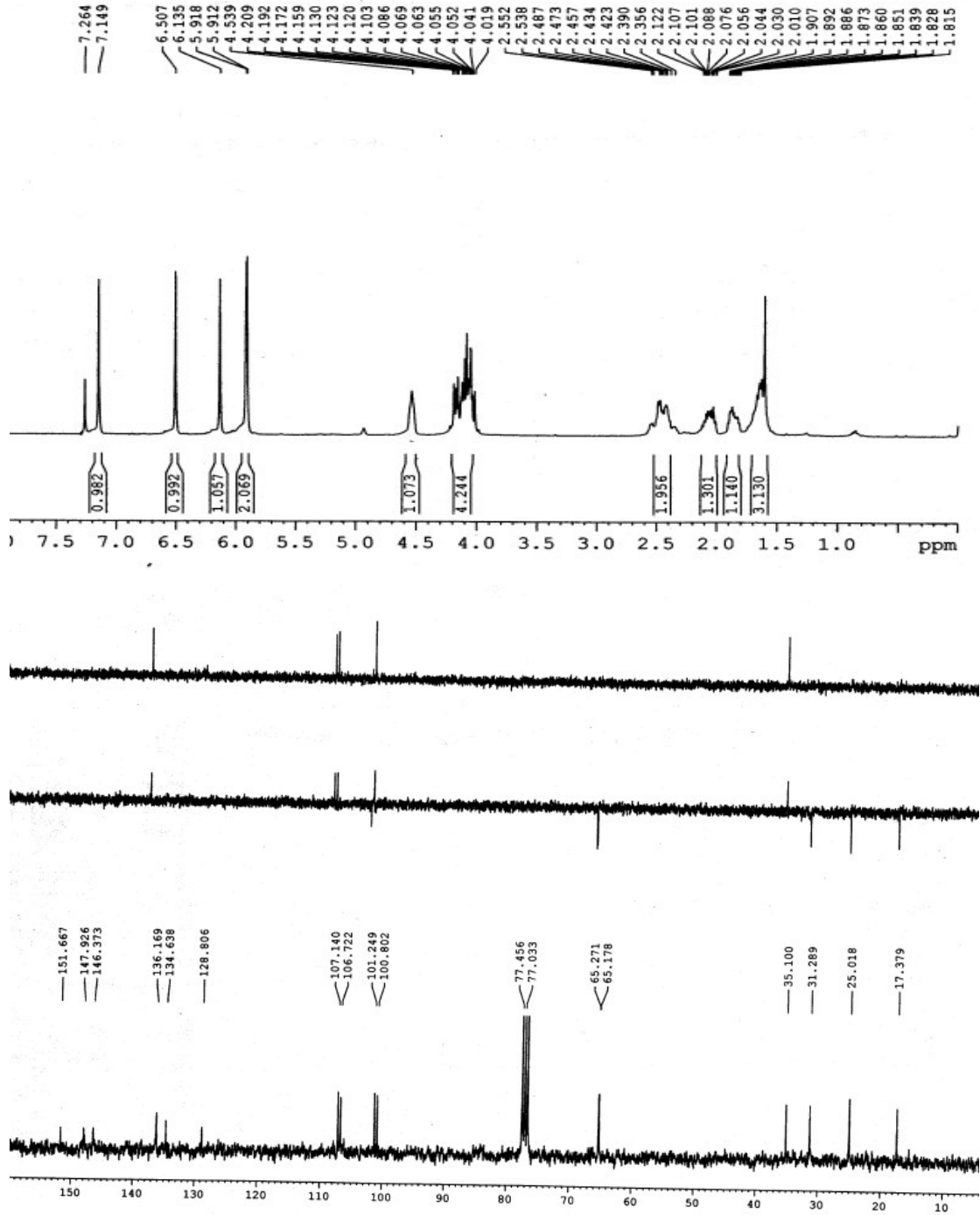
$^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz),  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz)

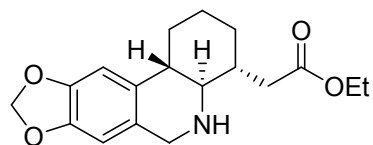




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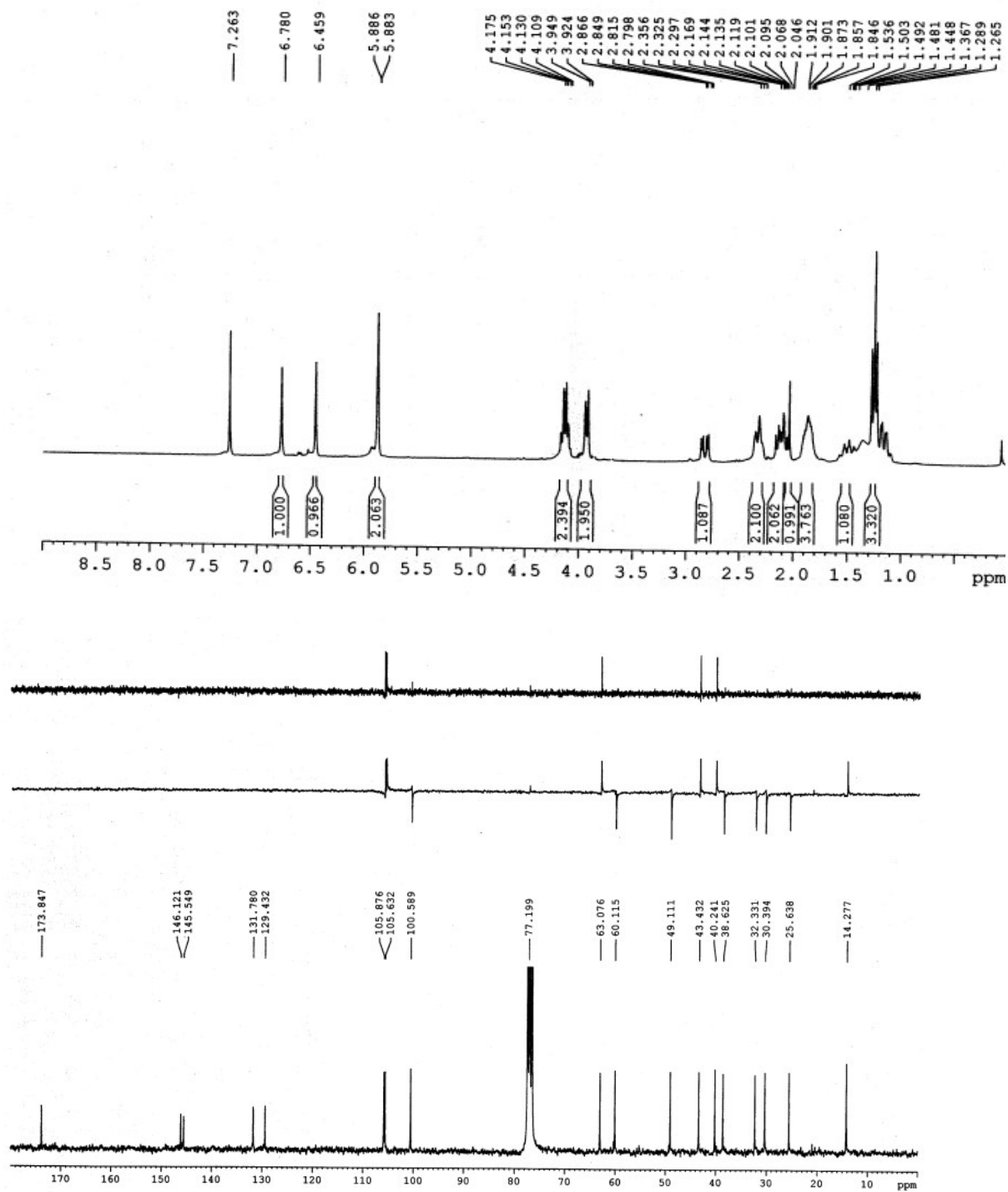
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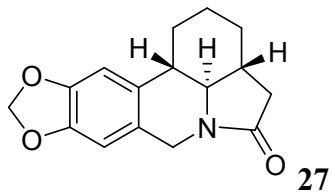




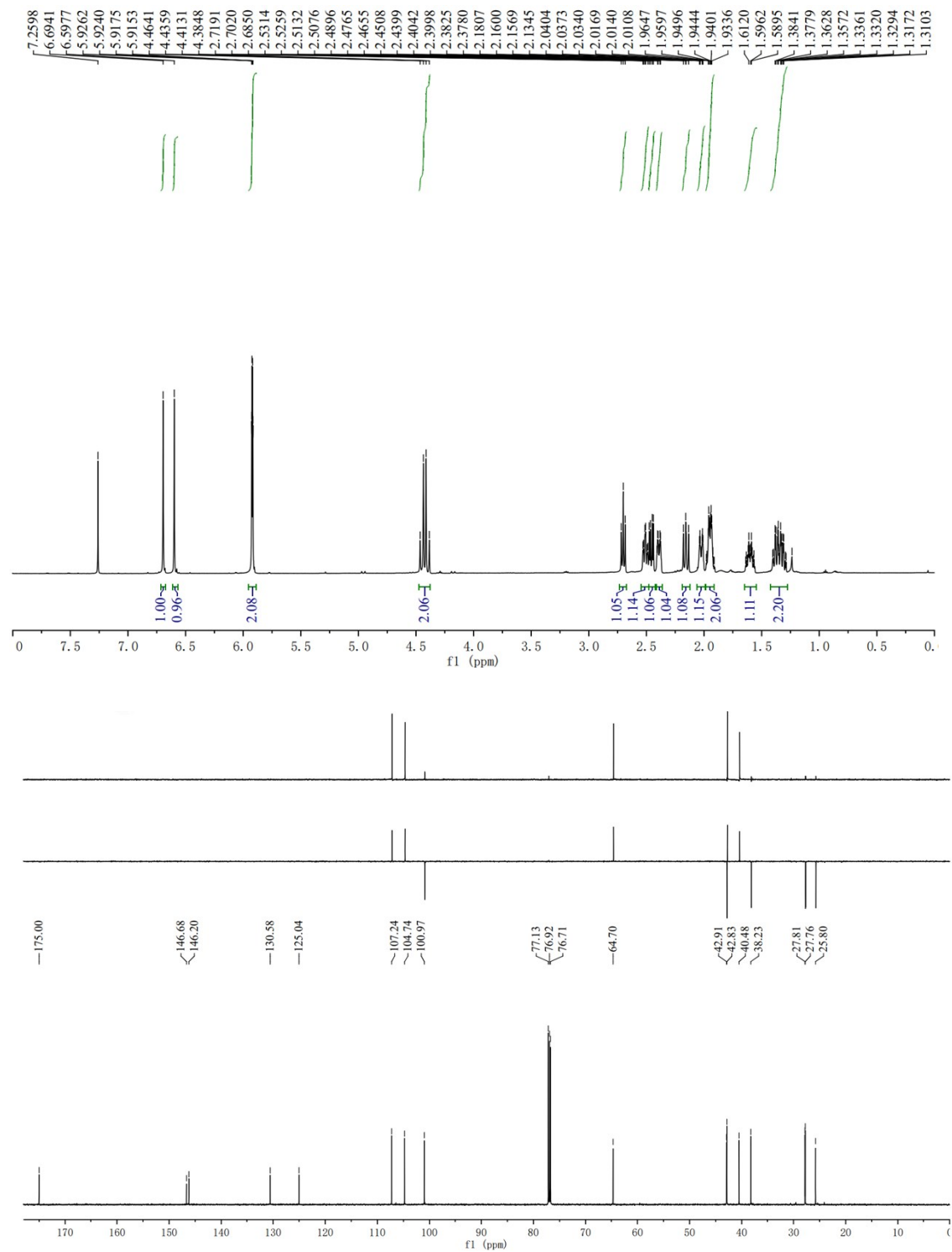
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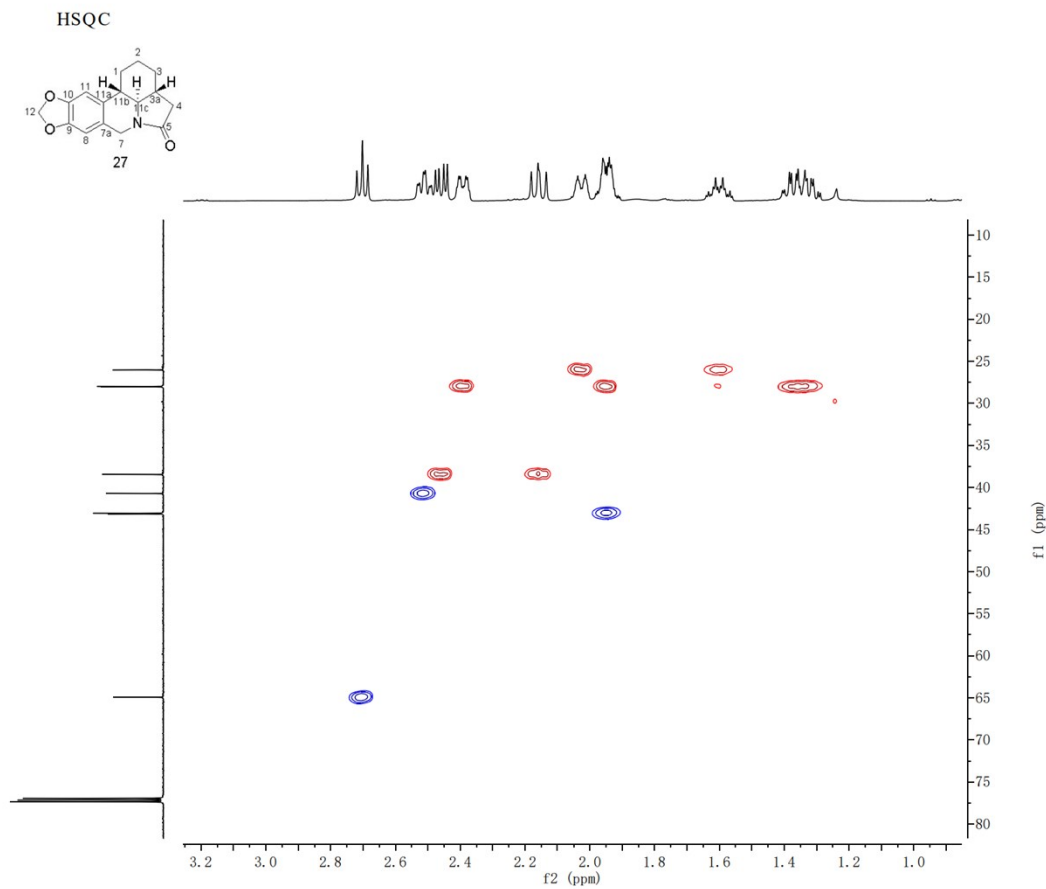
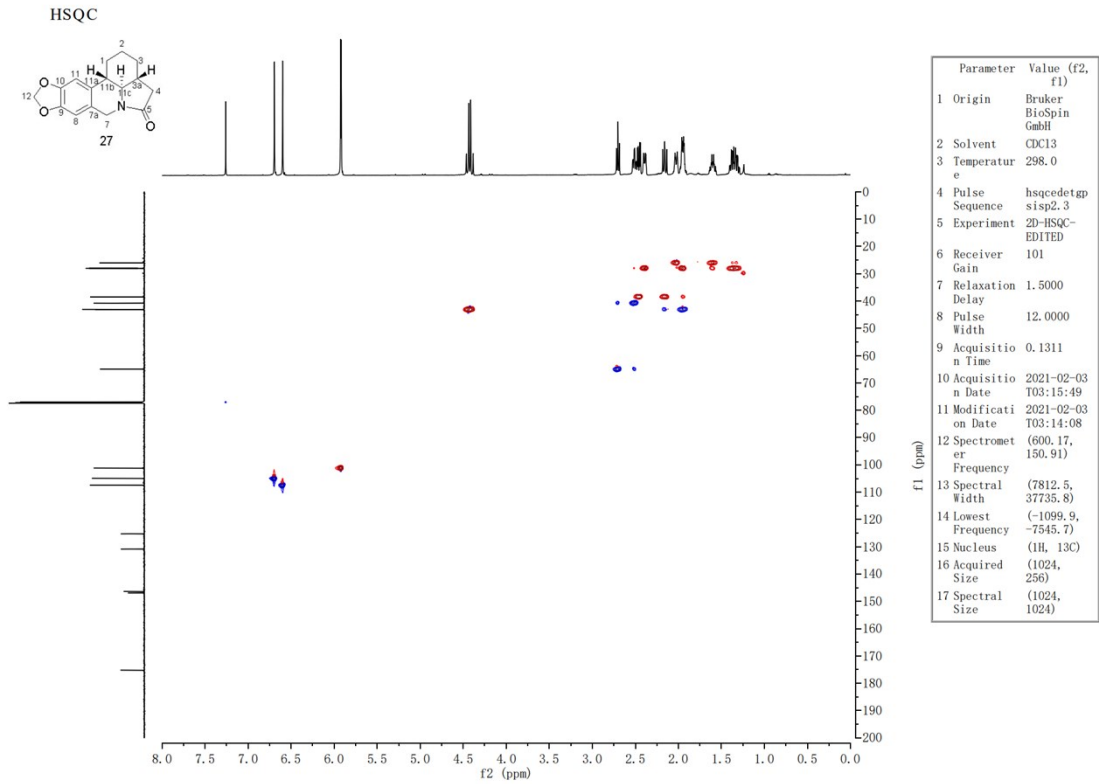
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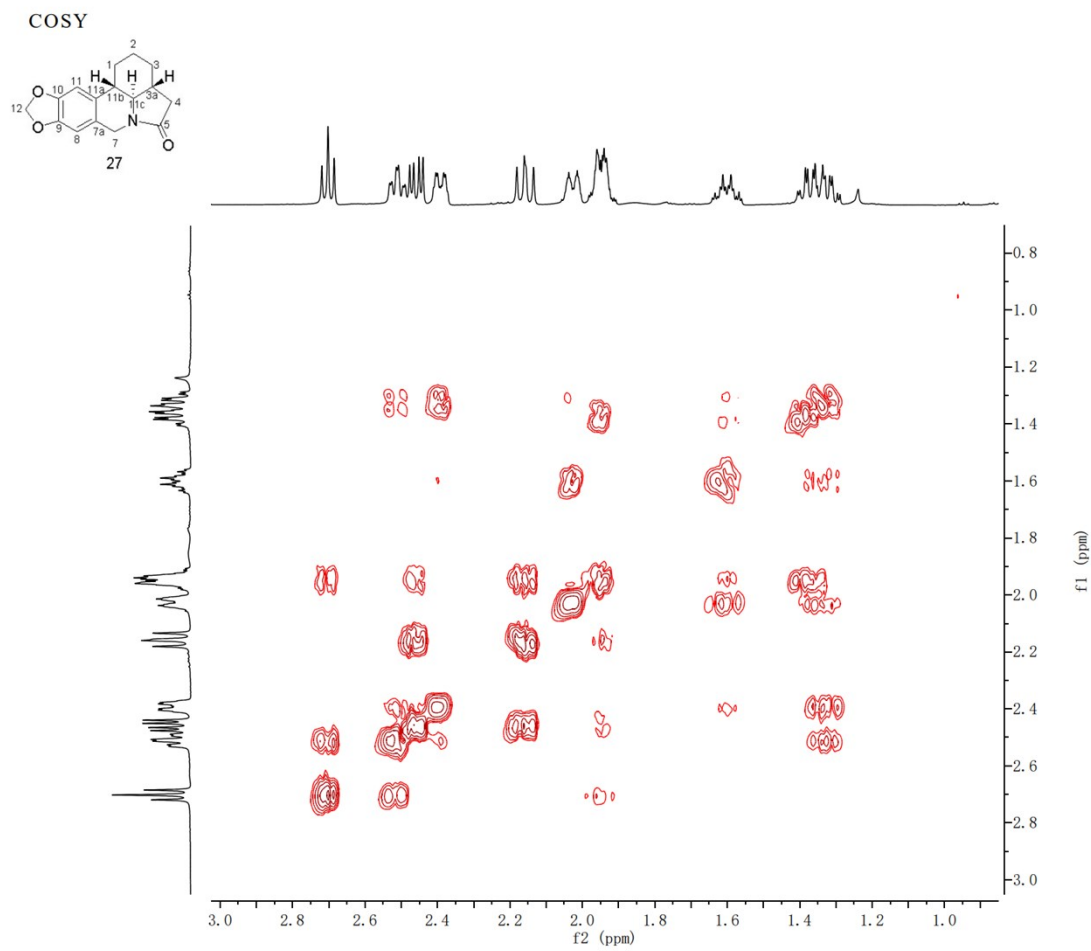
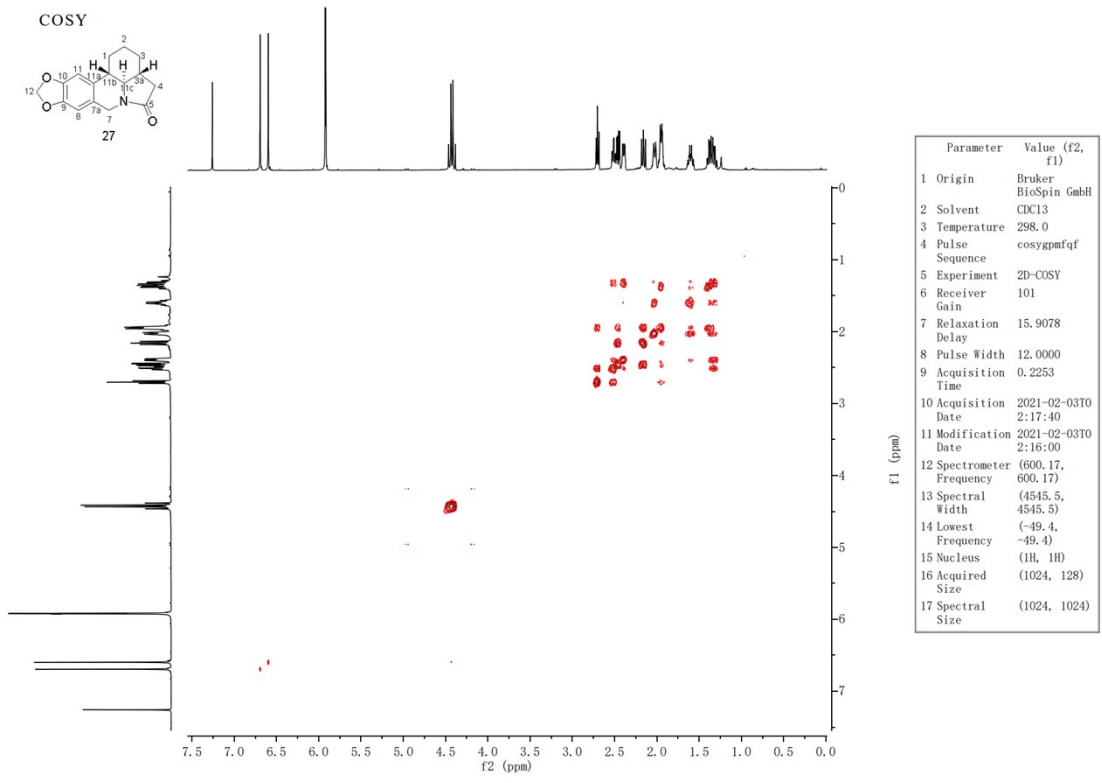


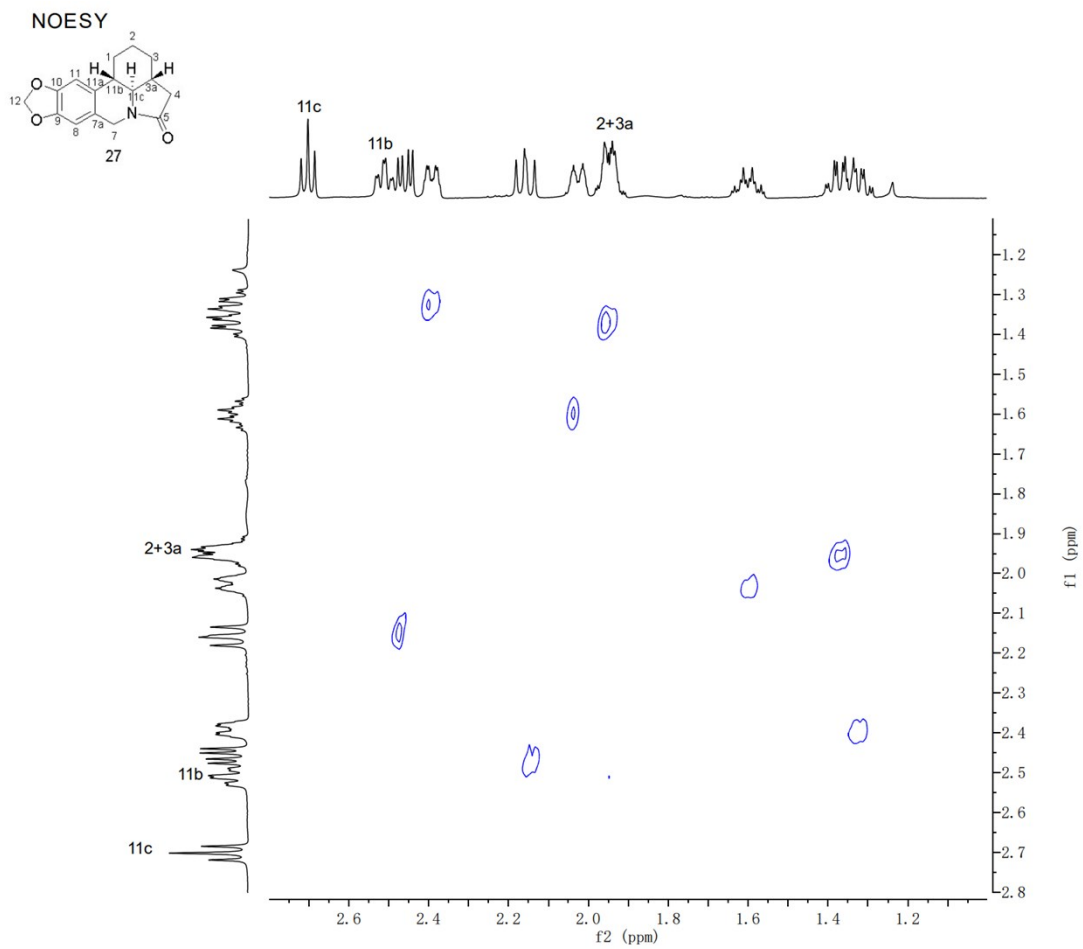
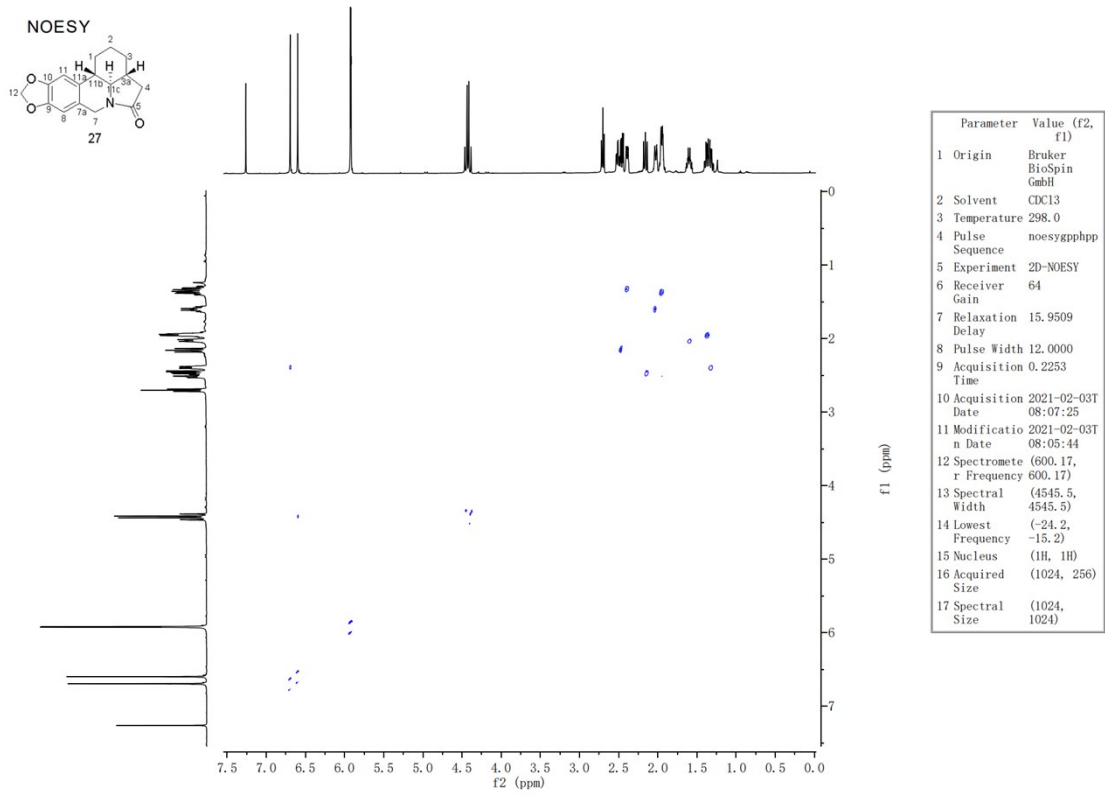


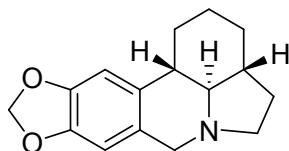
$^1\text{H}$  NMR ( $\text{CDCl}_3$ , 600 MHz),  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 150 MHz)











**$\beta$ -Lycorine**

$^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz),  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz)

