

# **Supporting Information**

## **Efficient Copper-Catalyzed N-Arylations of Nitrogen-Containing Heterocycles and Aliphatic Amines in Water**

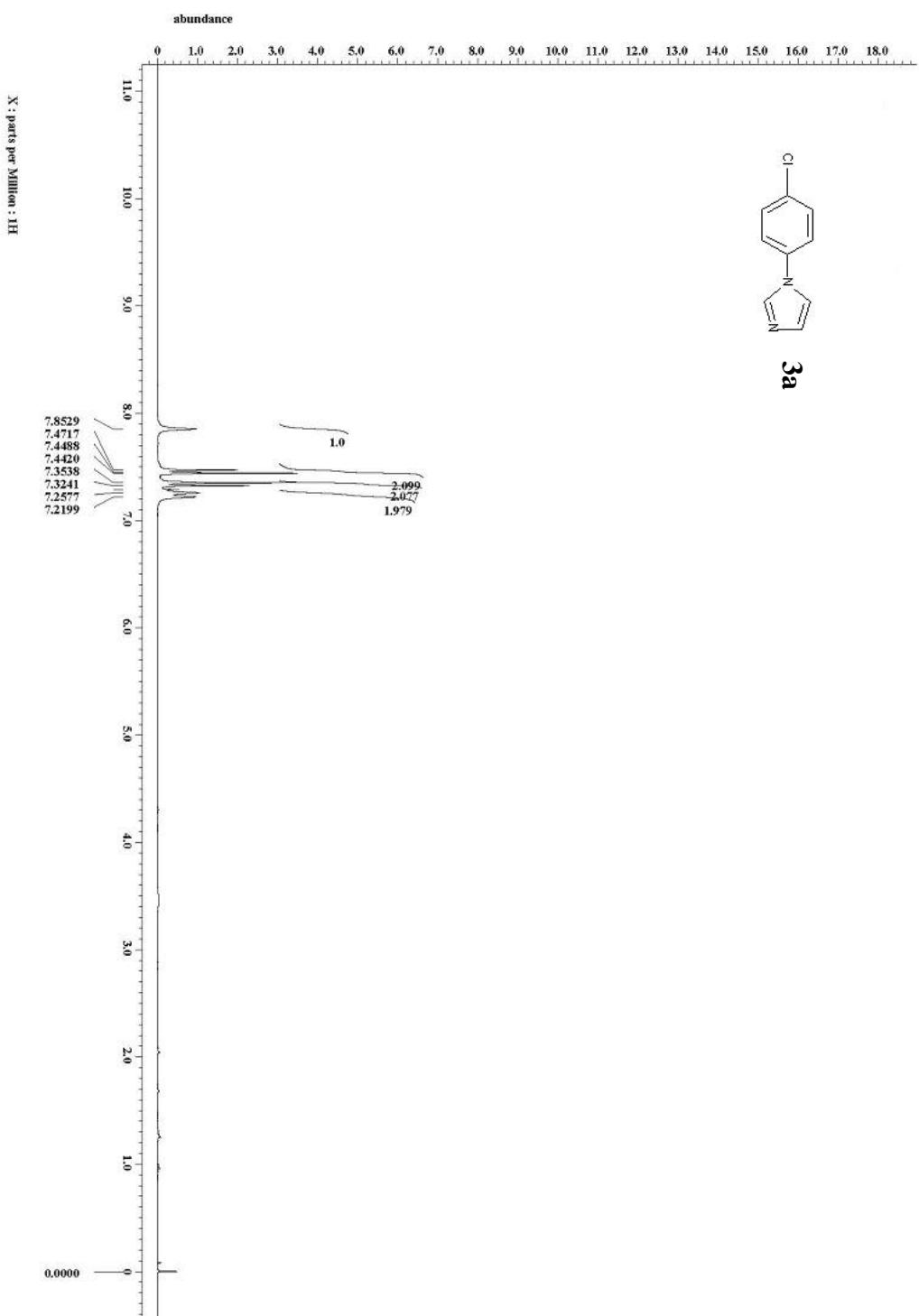
Xufeng Li,<sup>a,b</sup> Daoshan Yang,<sup>a</sup> Yuyang Jiang,<sup>b</sup> Hua Fu<sup>\*a</sup>

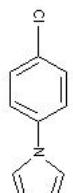
<sup>a</sup> Key Laboratory of Bioorganic Phosphorus Chemistry and Chemical Biology (Ministry of Education), Department of Chemistry, Tsinghua University, Beijing, 100084, P. R. China.

<sup>b</sup> Key Laboratory of Chemical Biology (Guangdong Province), Graduate School of Shenzhen, Tsinghua University, Shenzhen, 518057, P. R. China

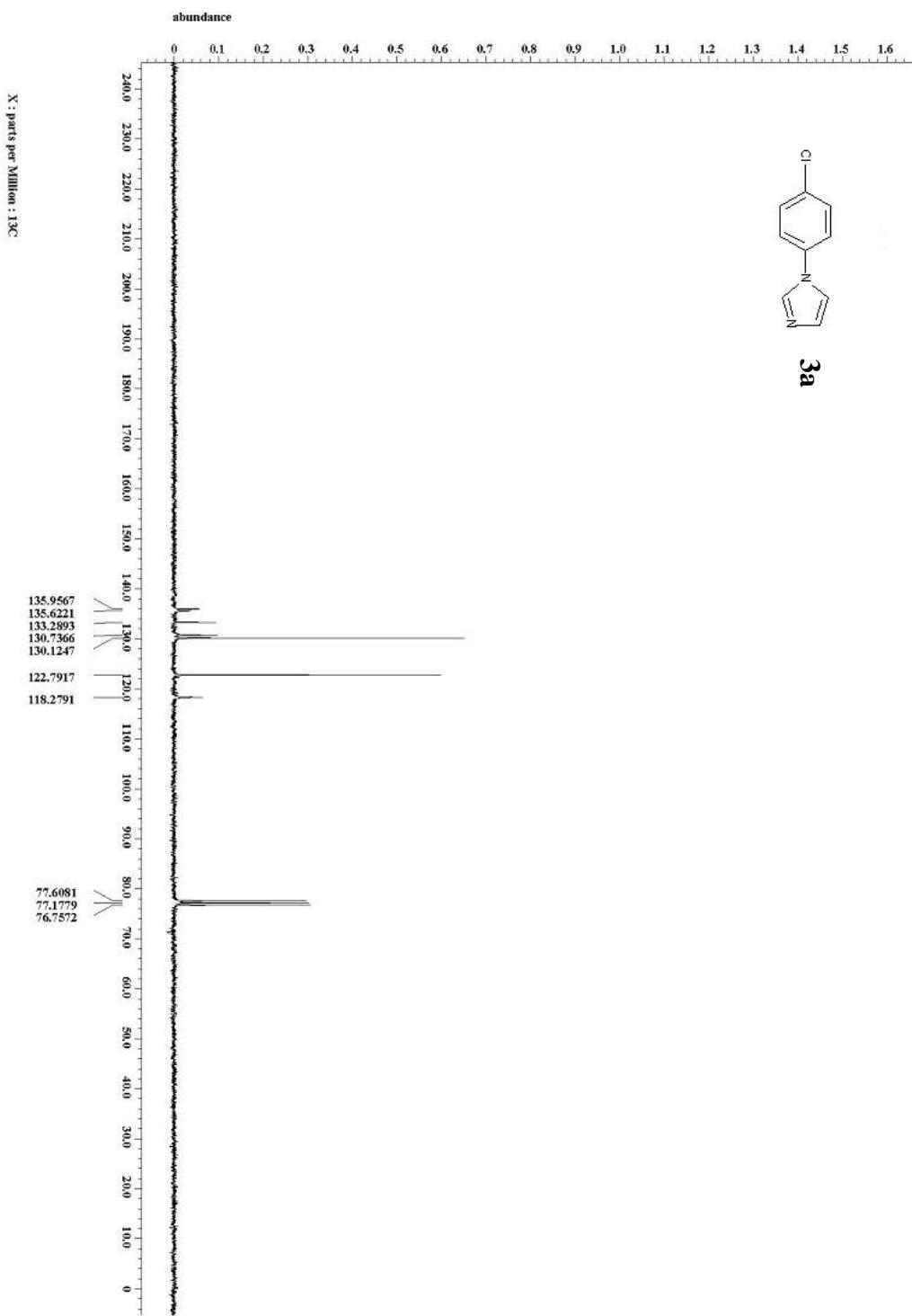
E-mail: fuhua@mail.tsinghua.edu.cn

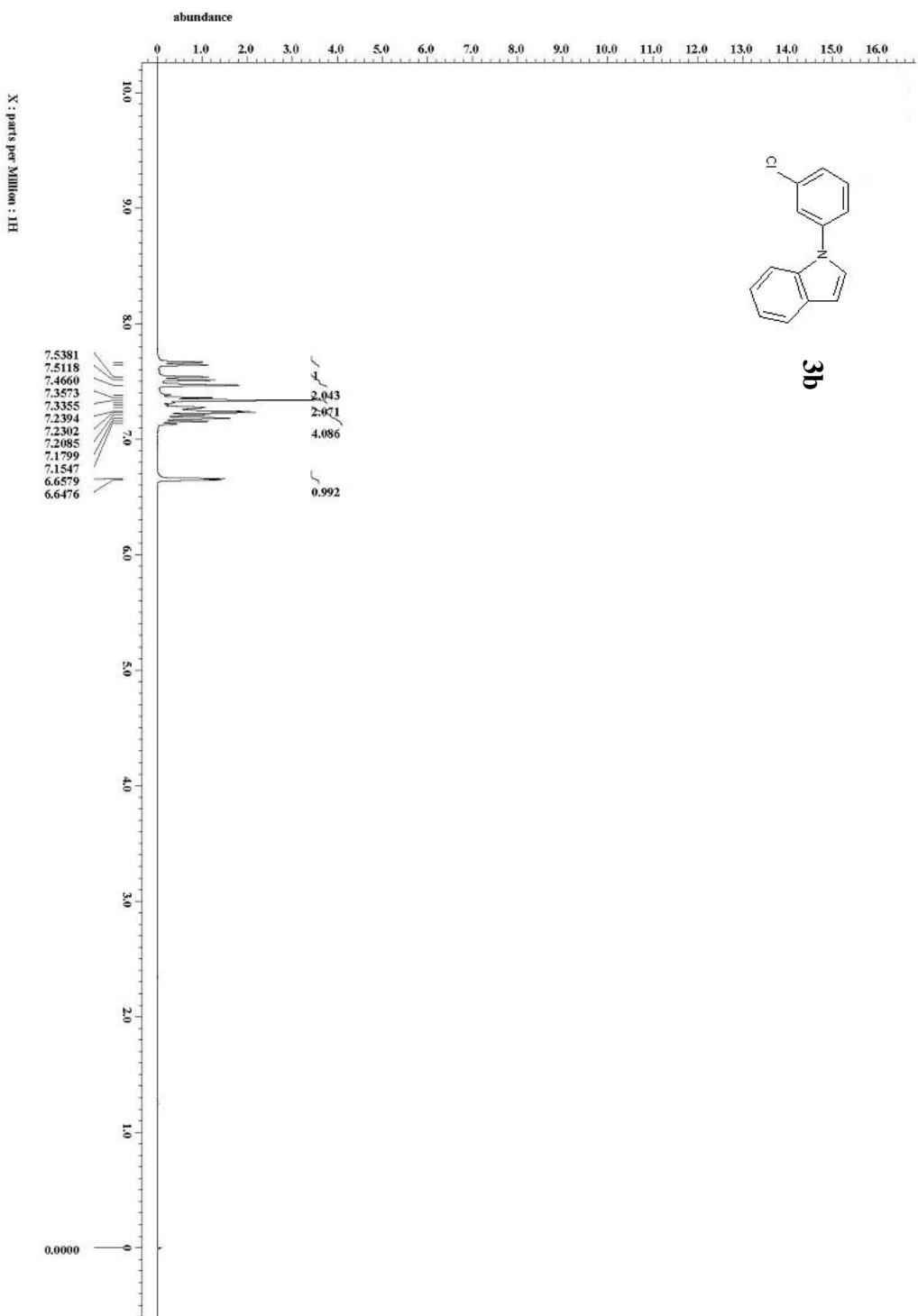
The <sup>1</sup>H and <sup>13</sup>C NMR spectra of compounds **3a-p** and **3a'-o'**

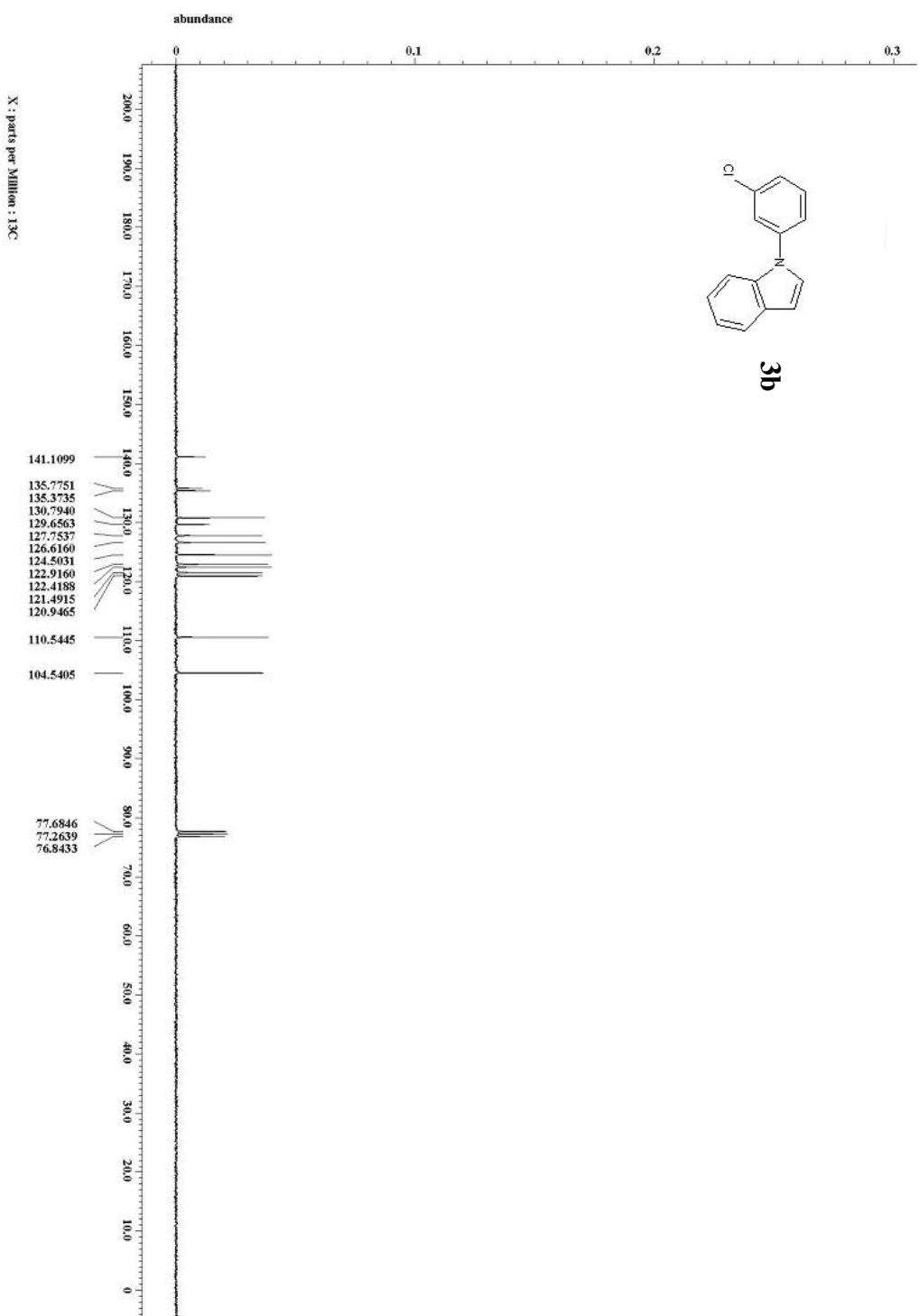


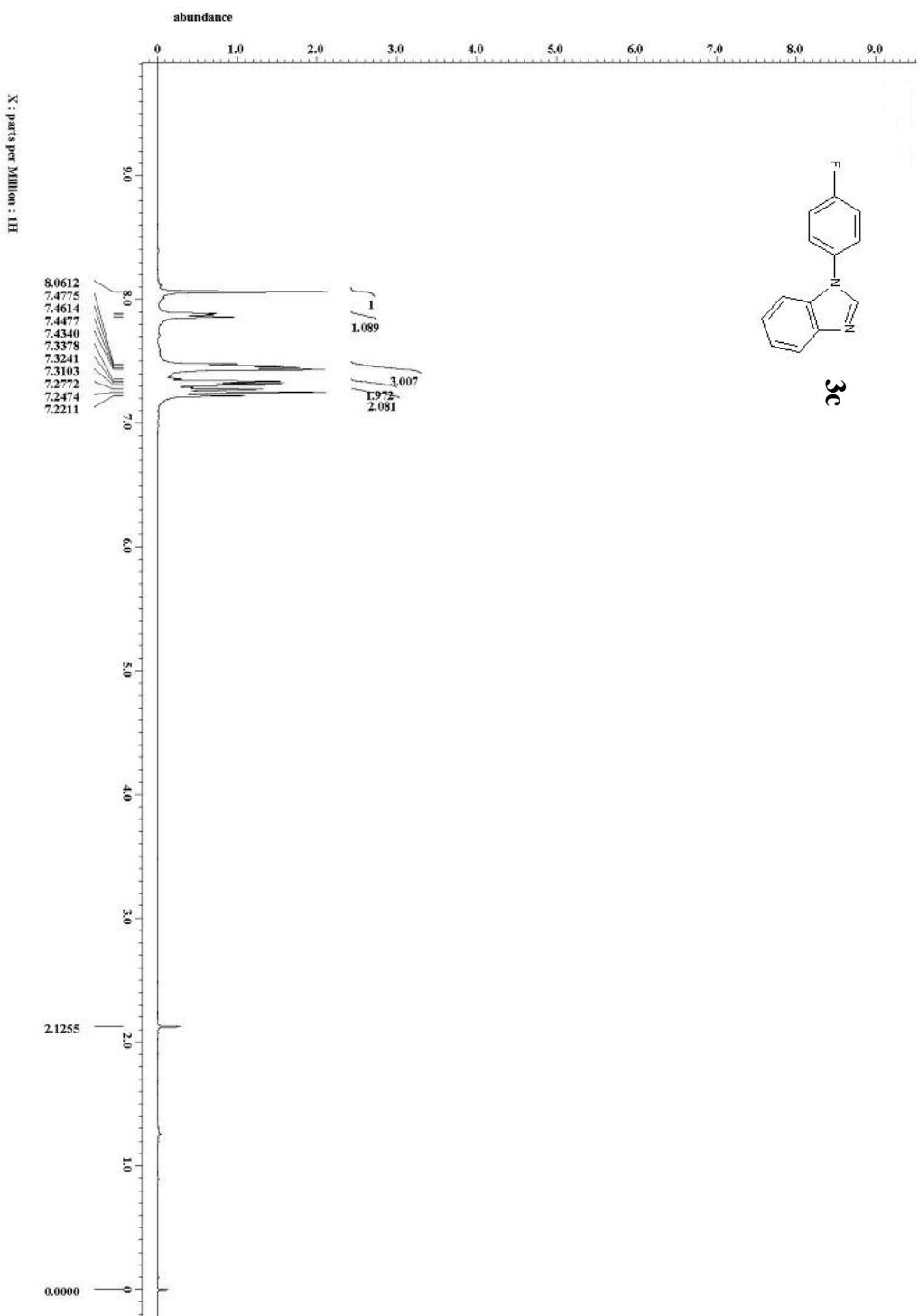


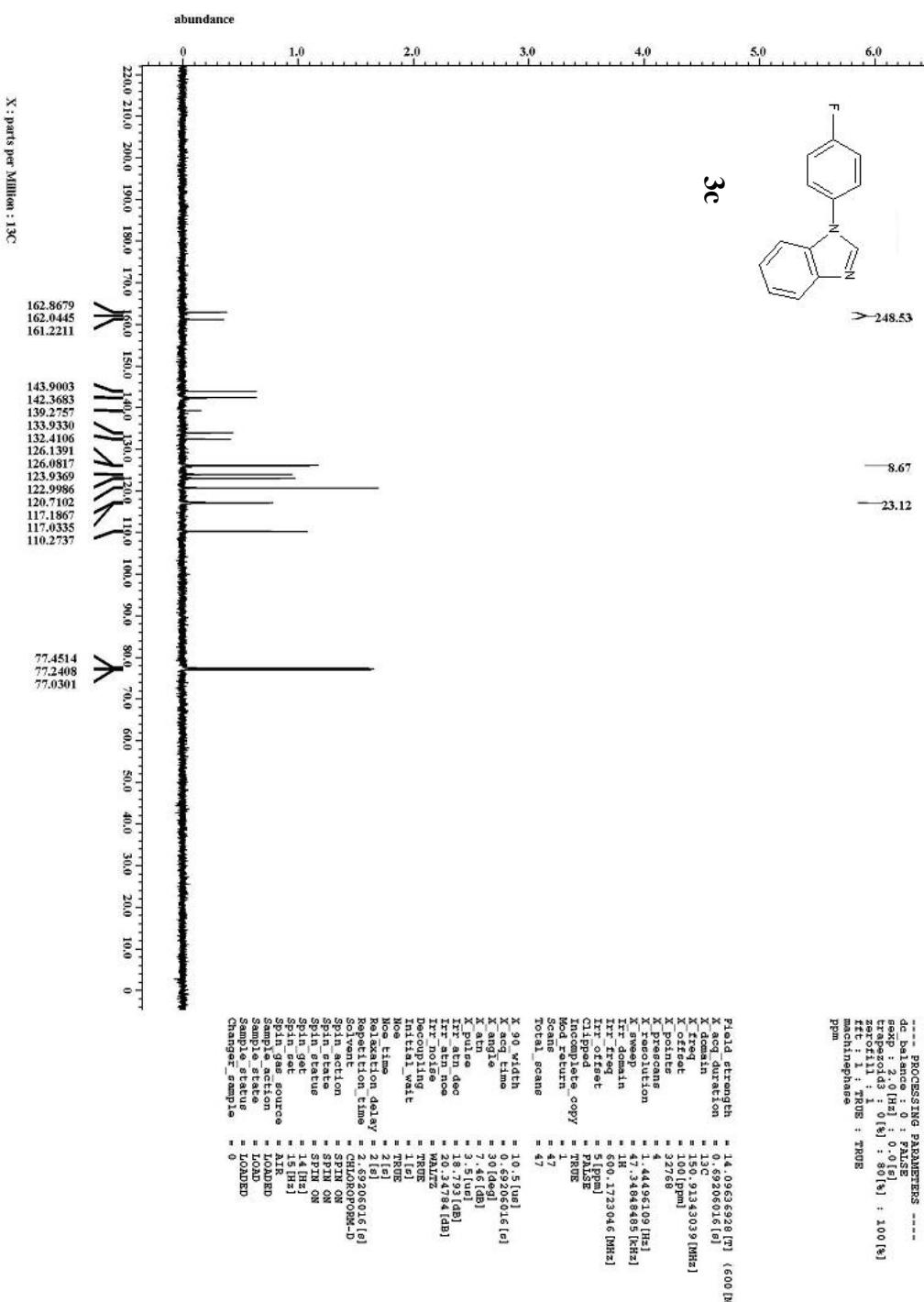
3a

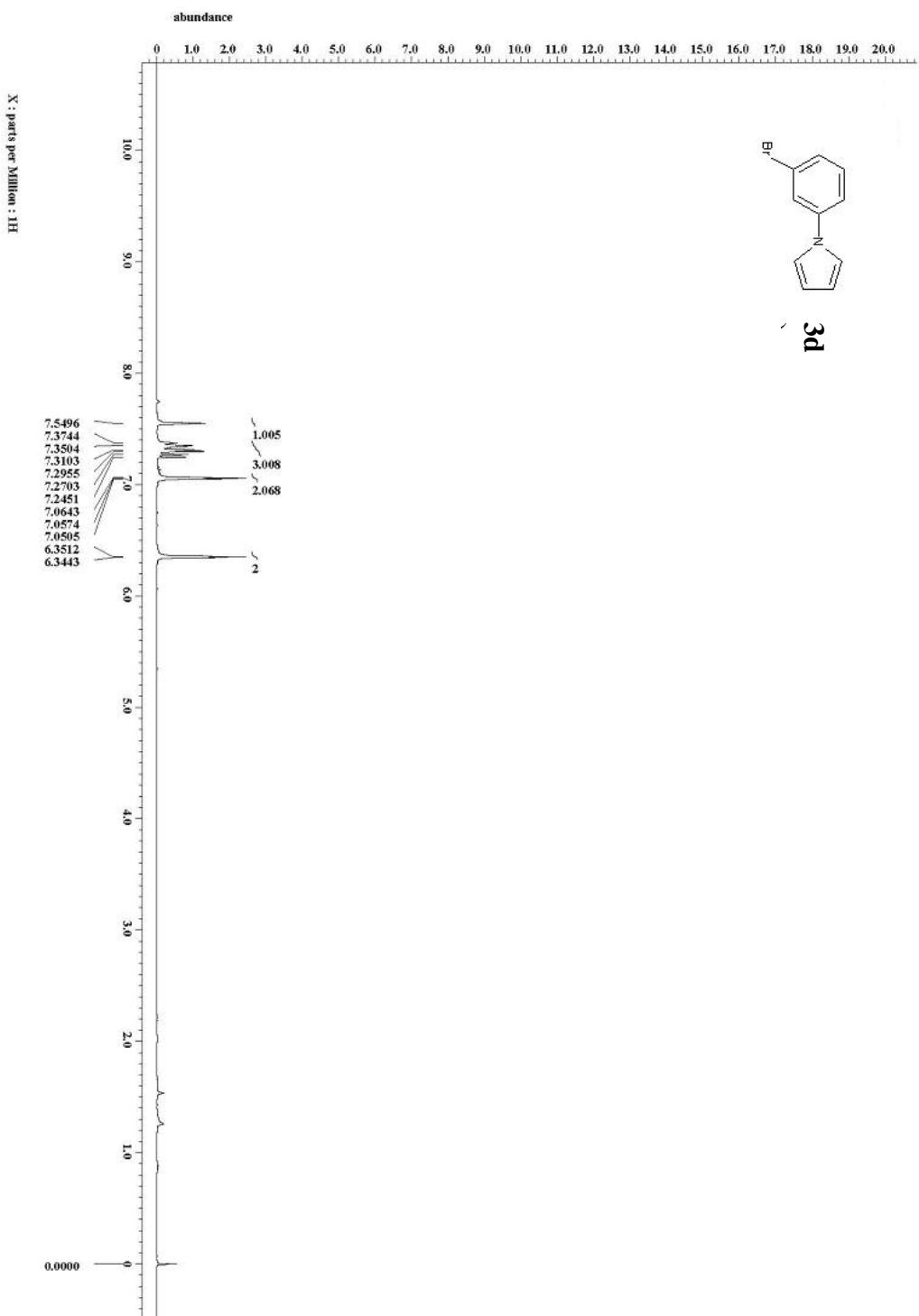


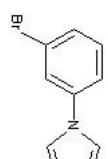




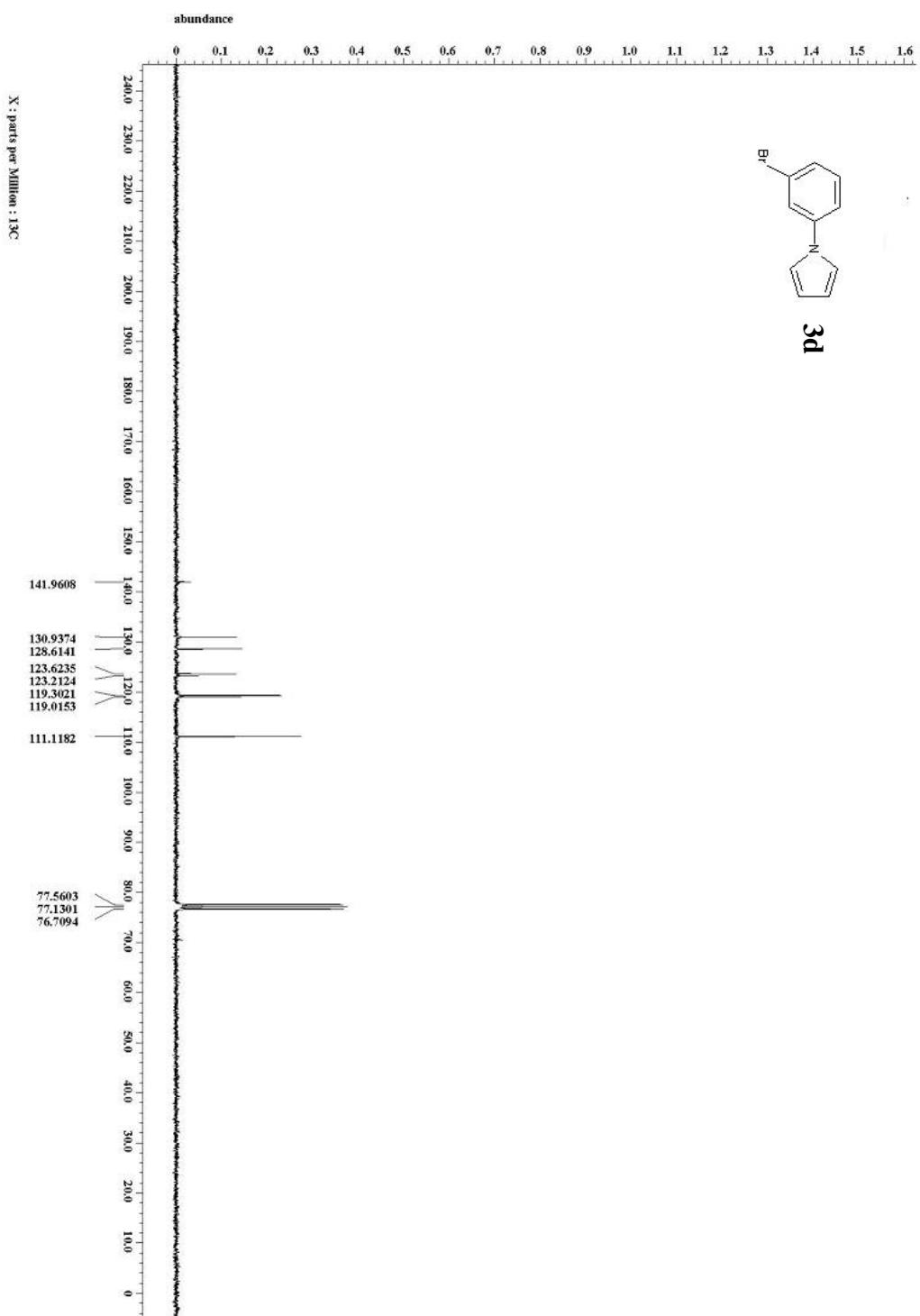


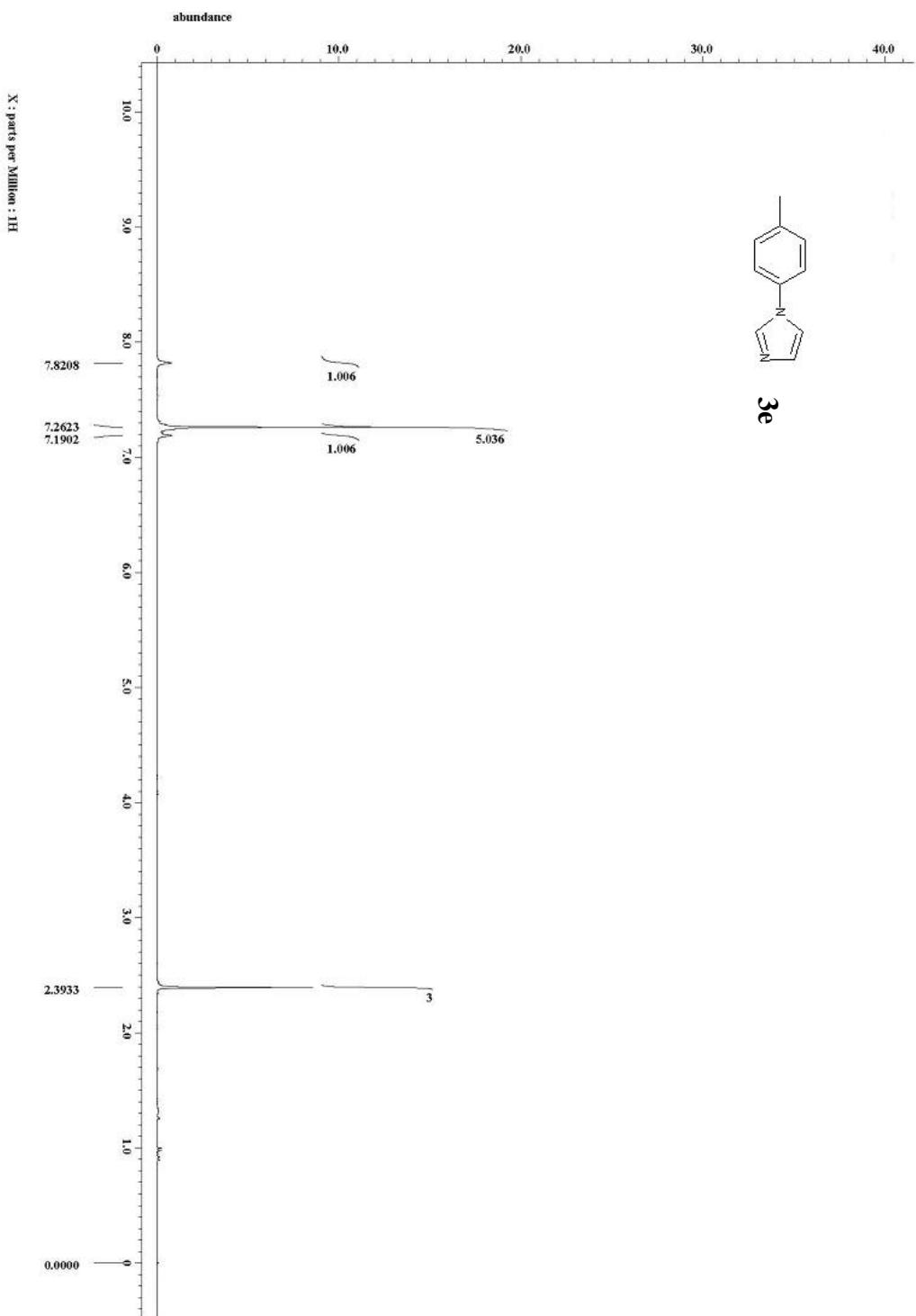


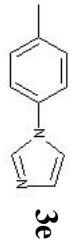




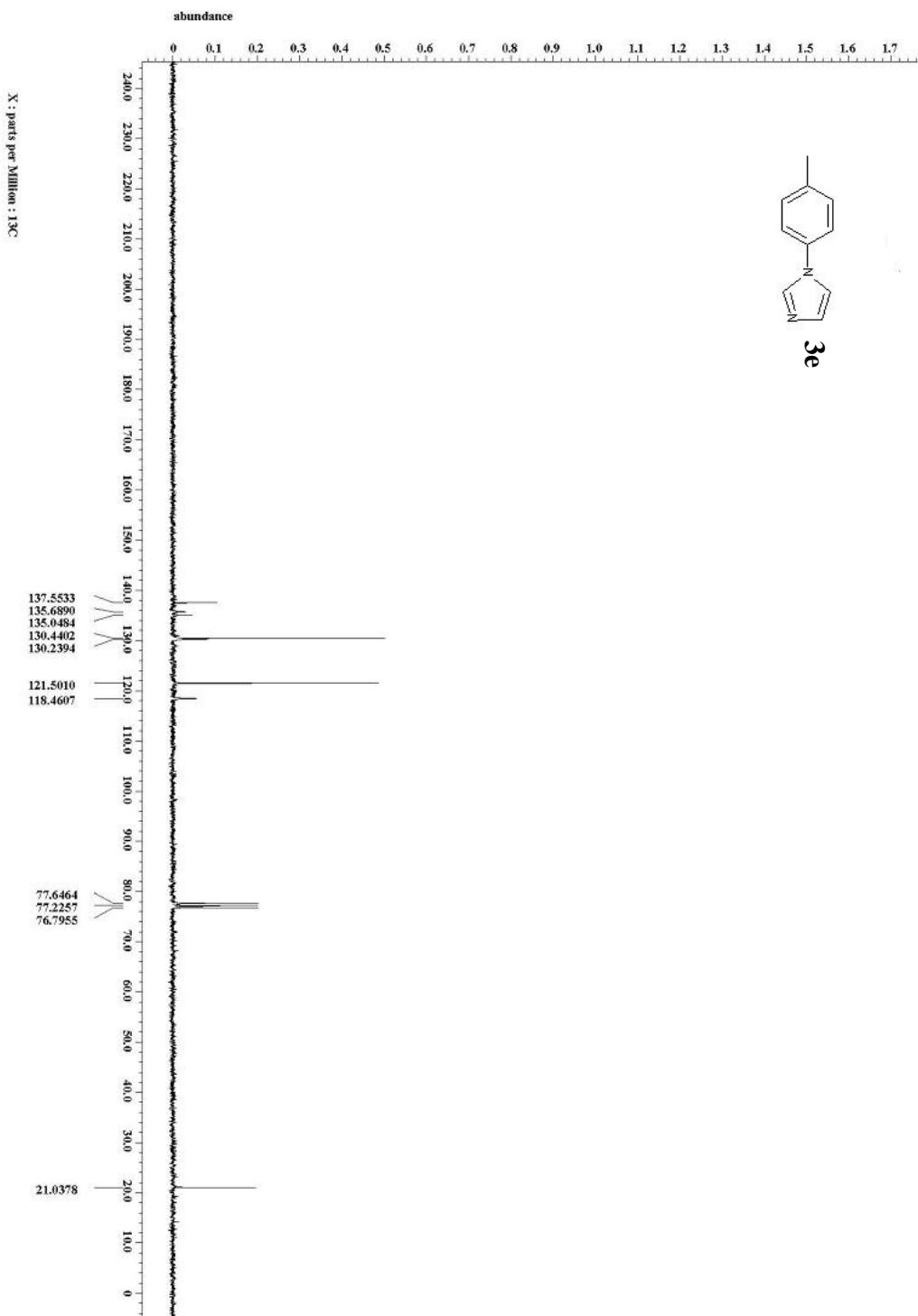
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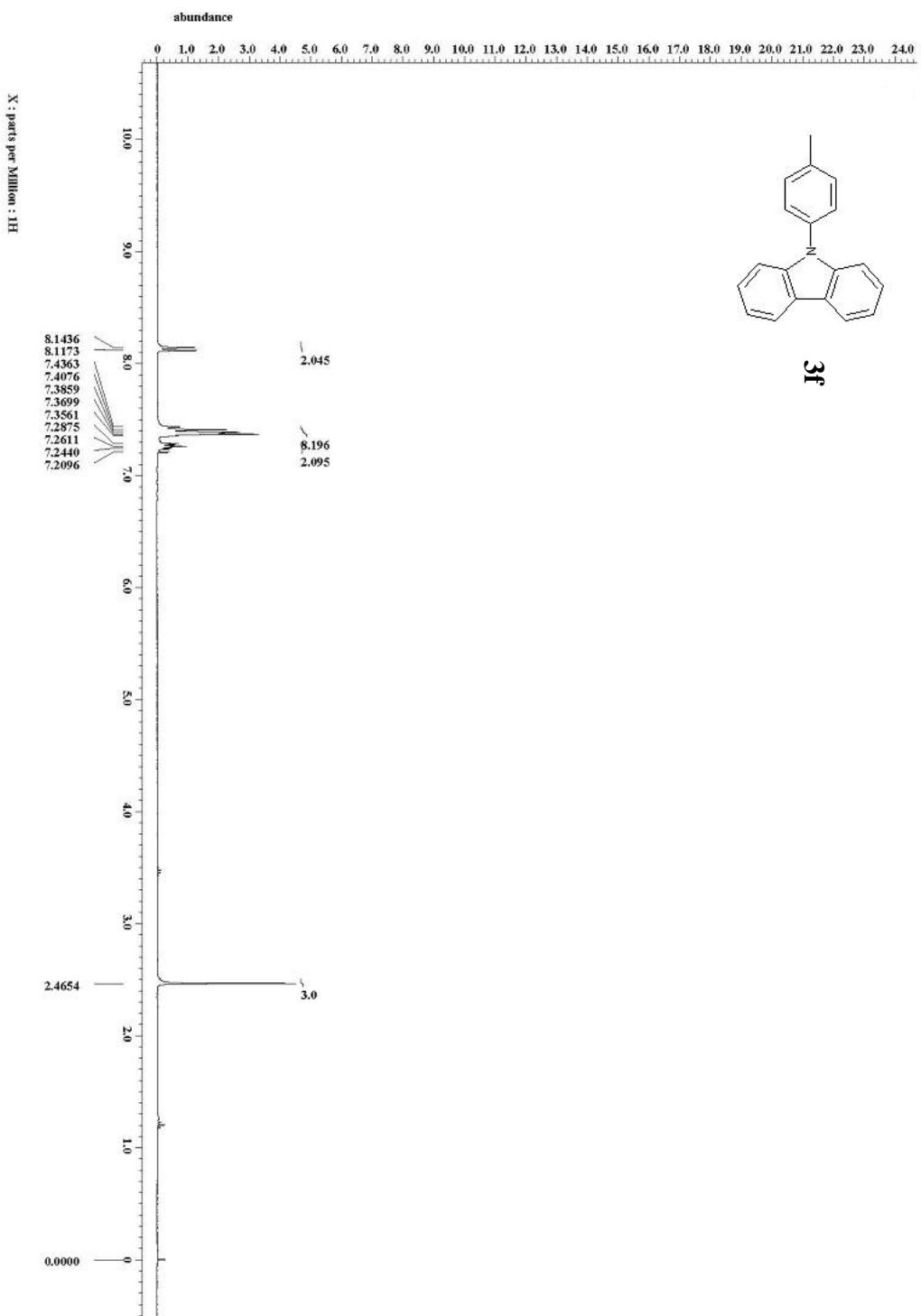


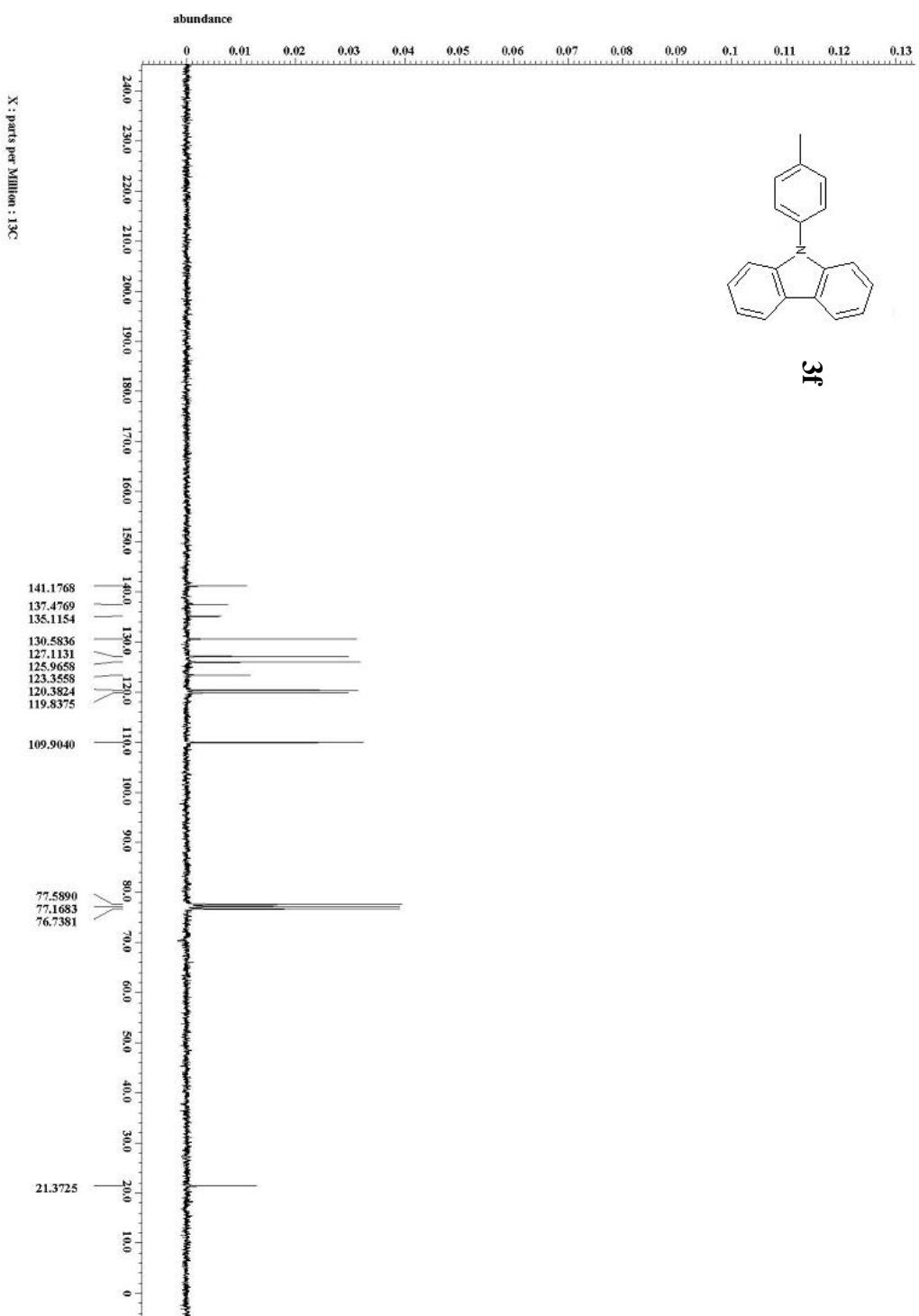


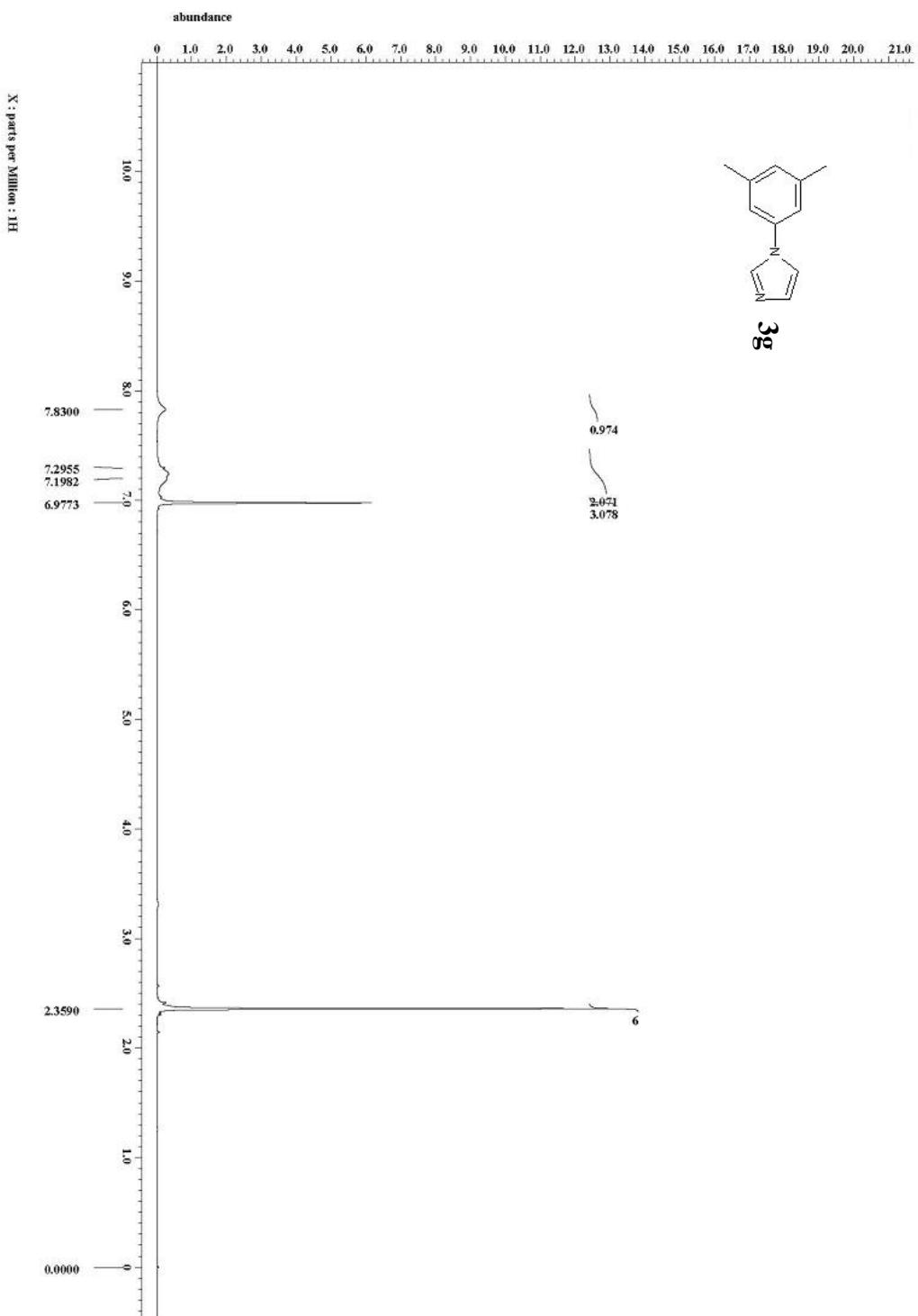


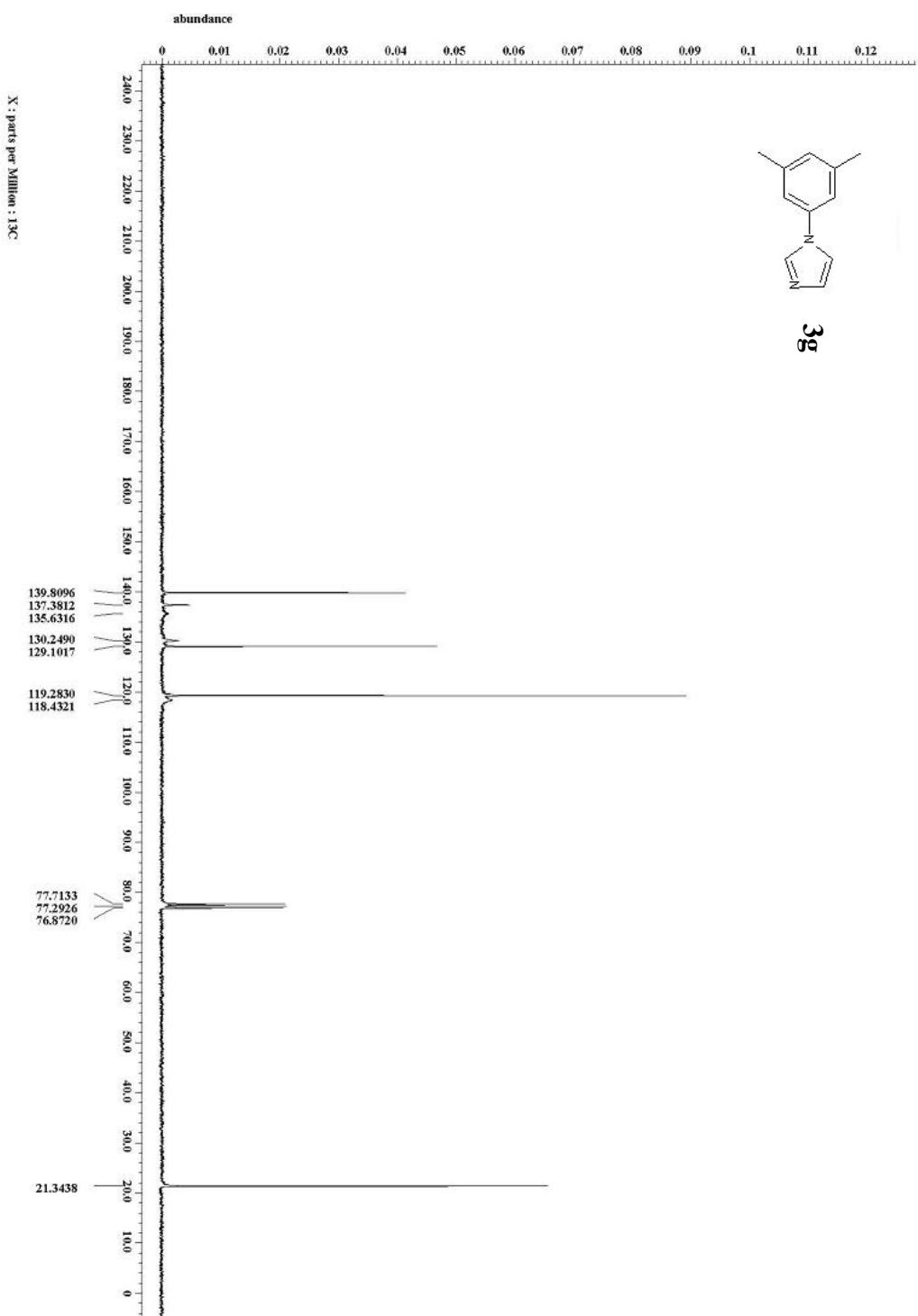
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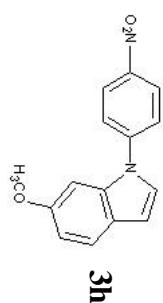




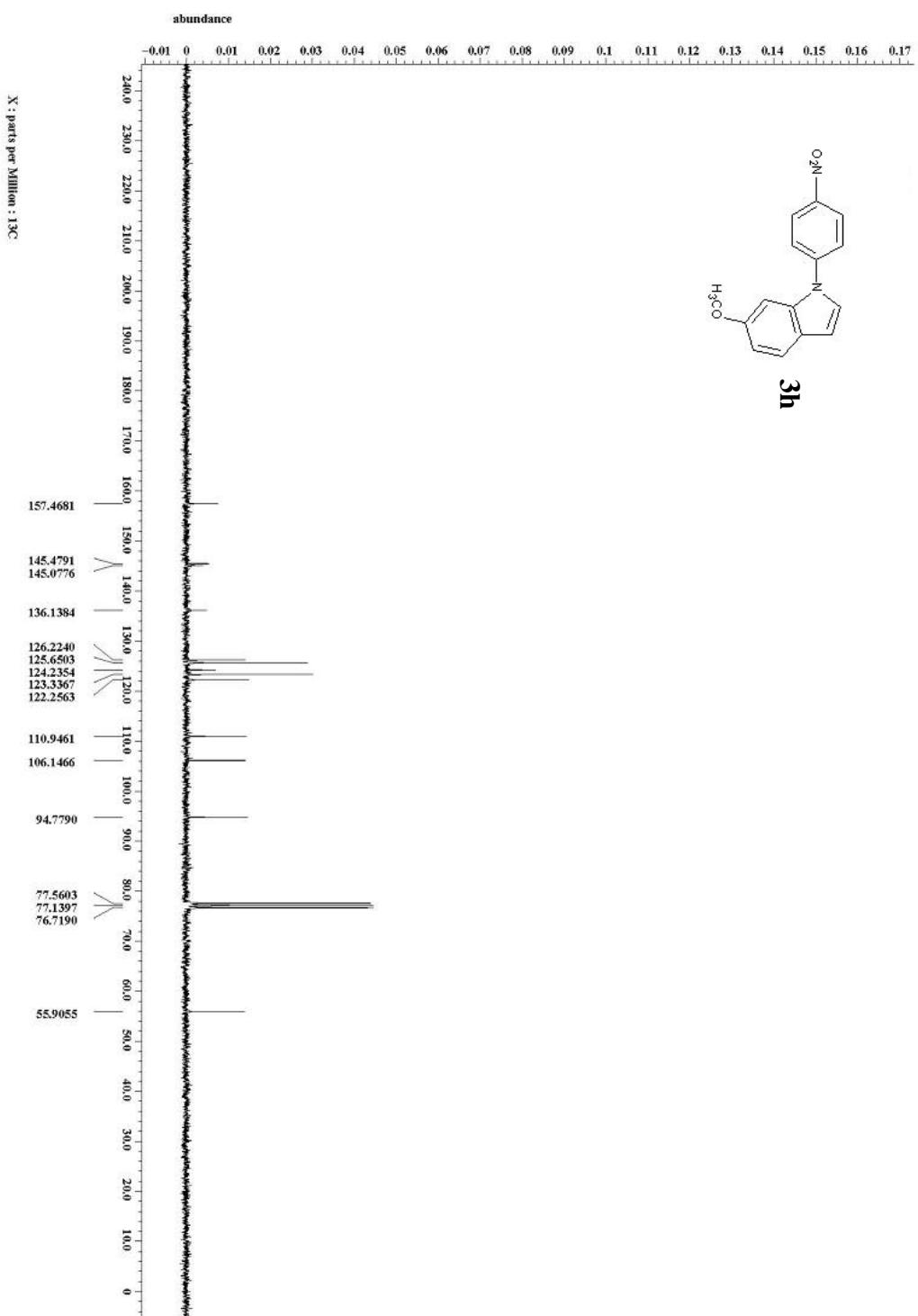


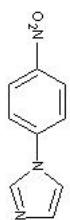




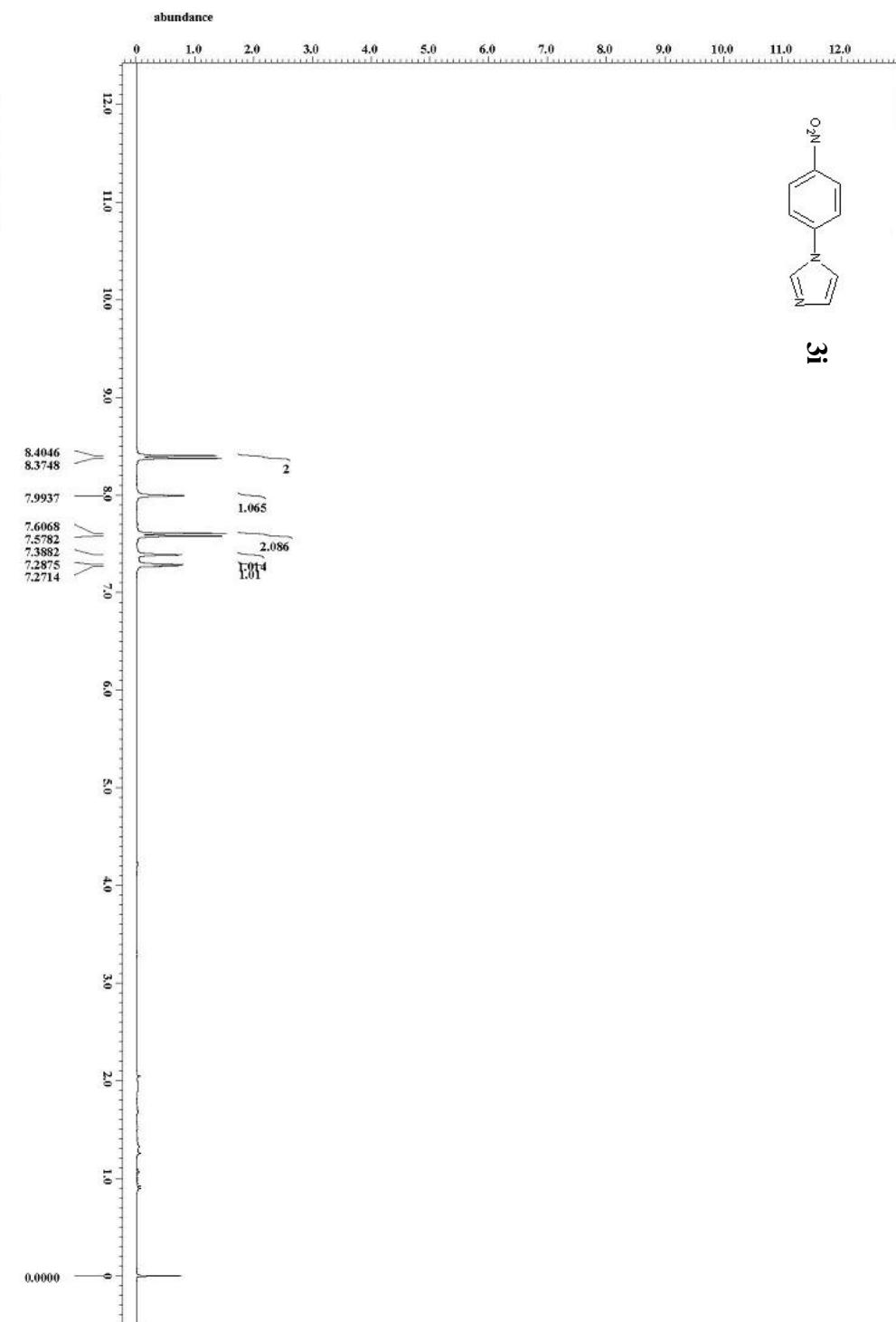


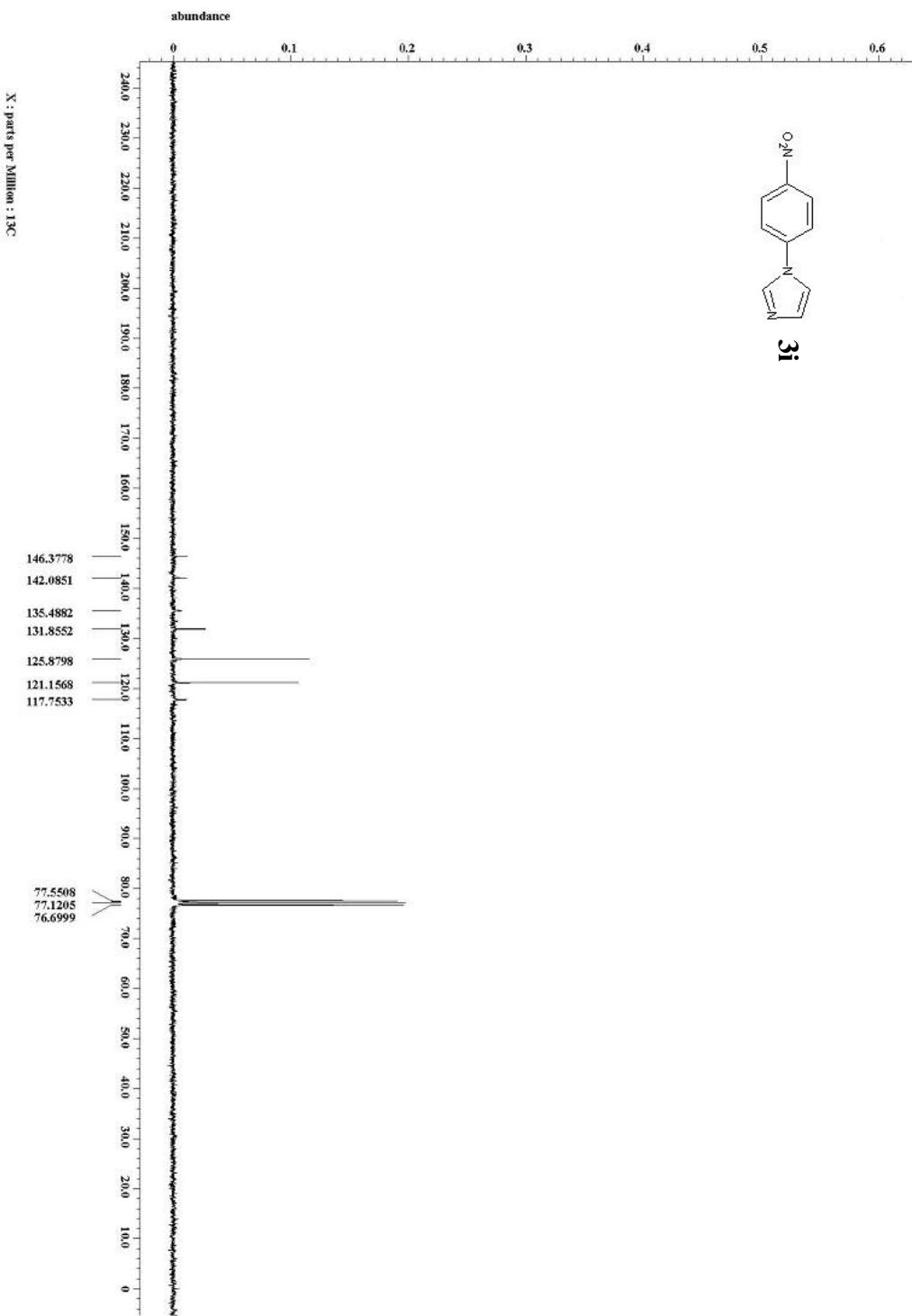
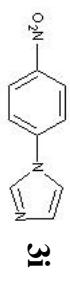
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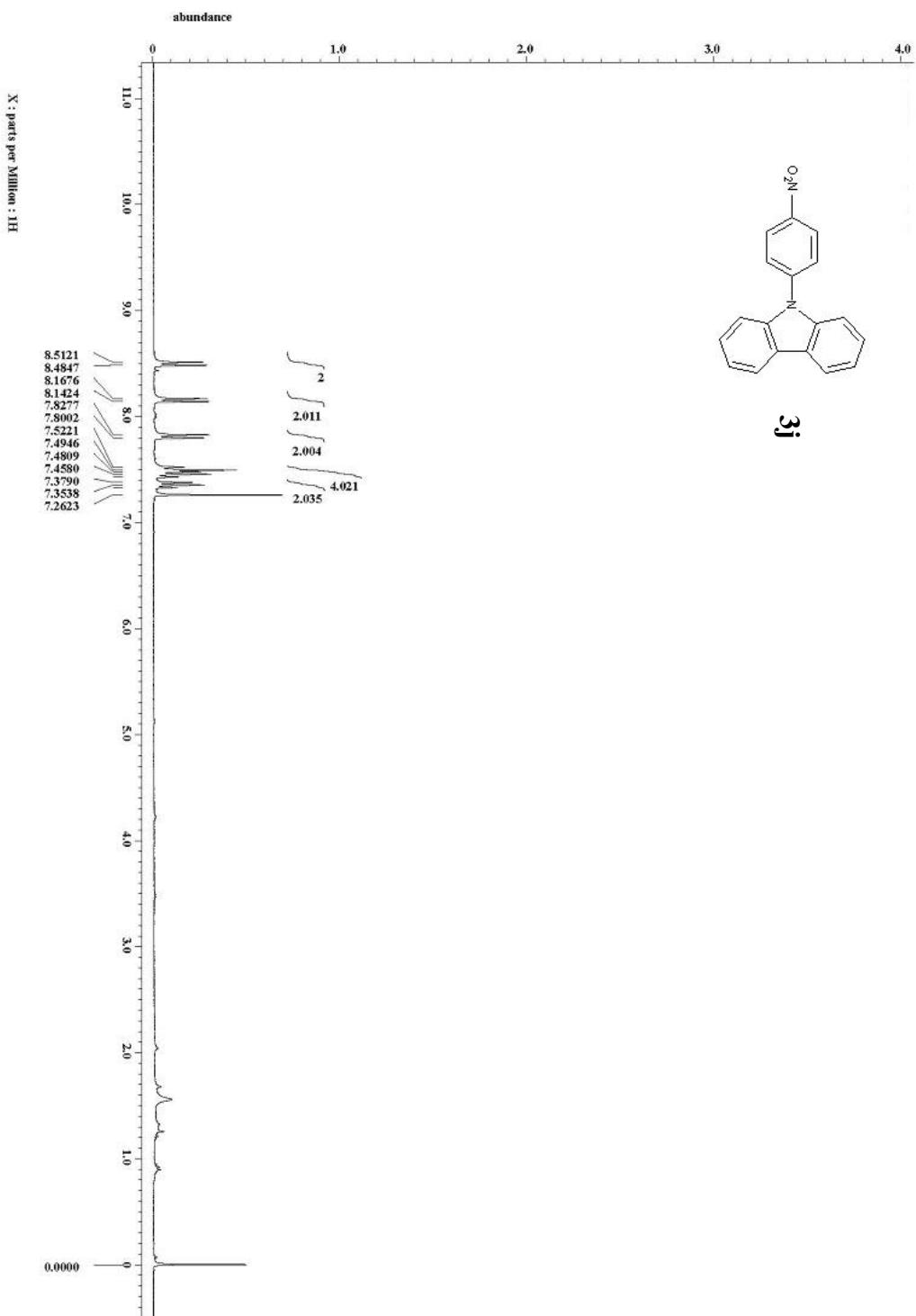


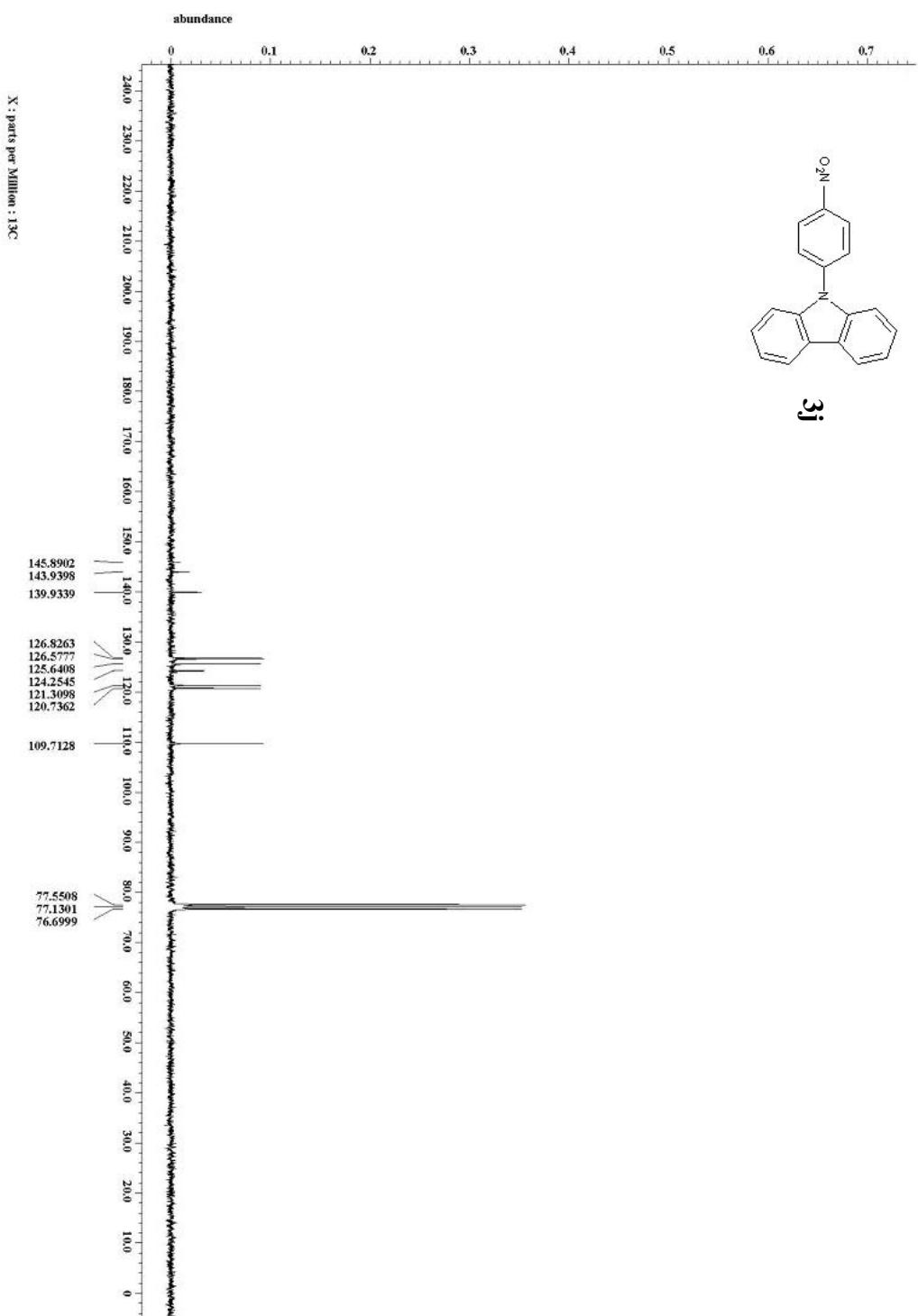


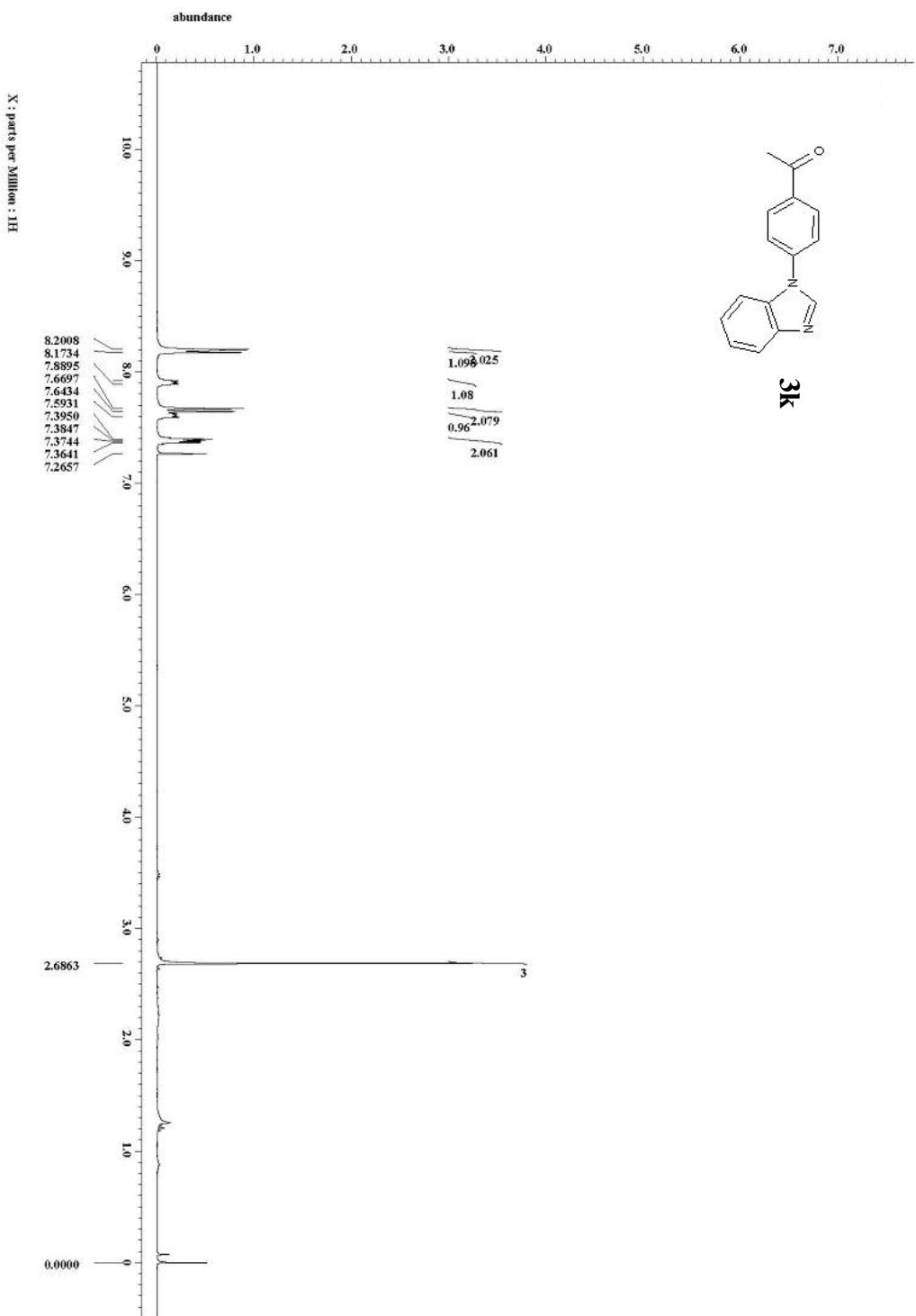
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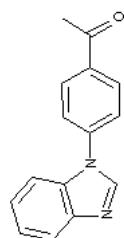




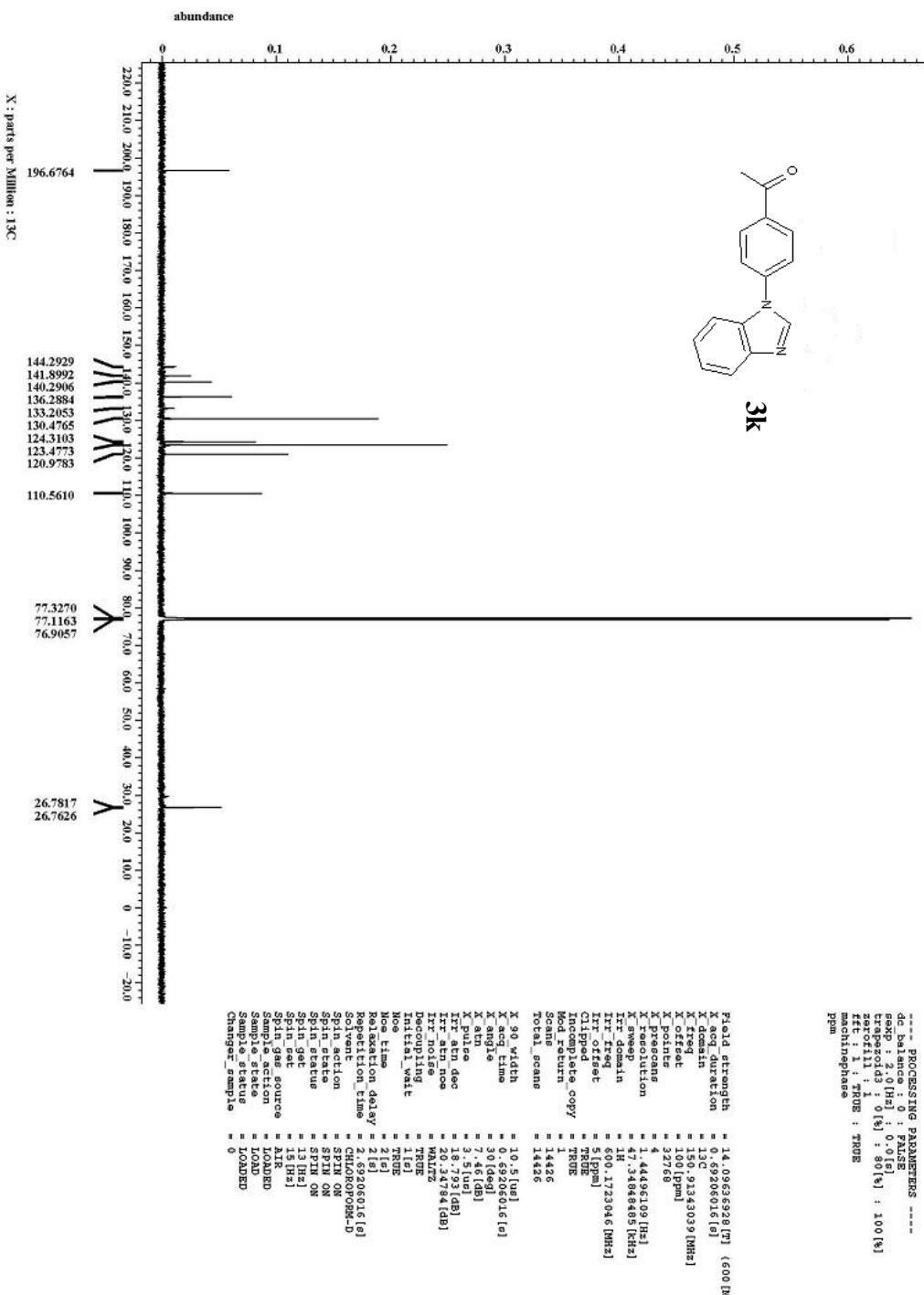


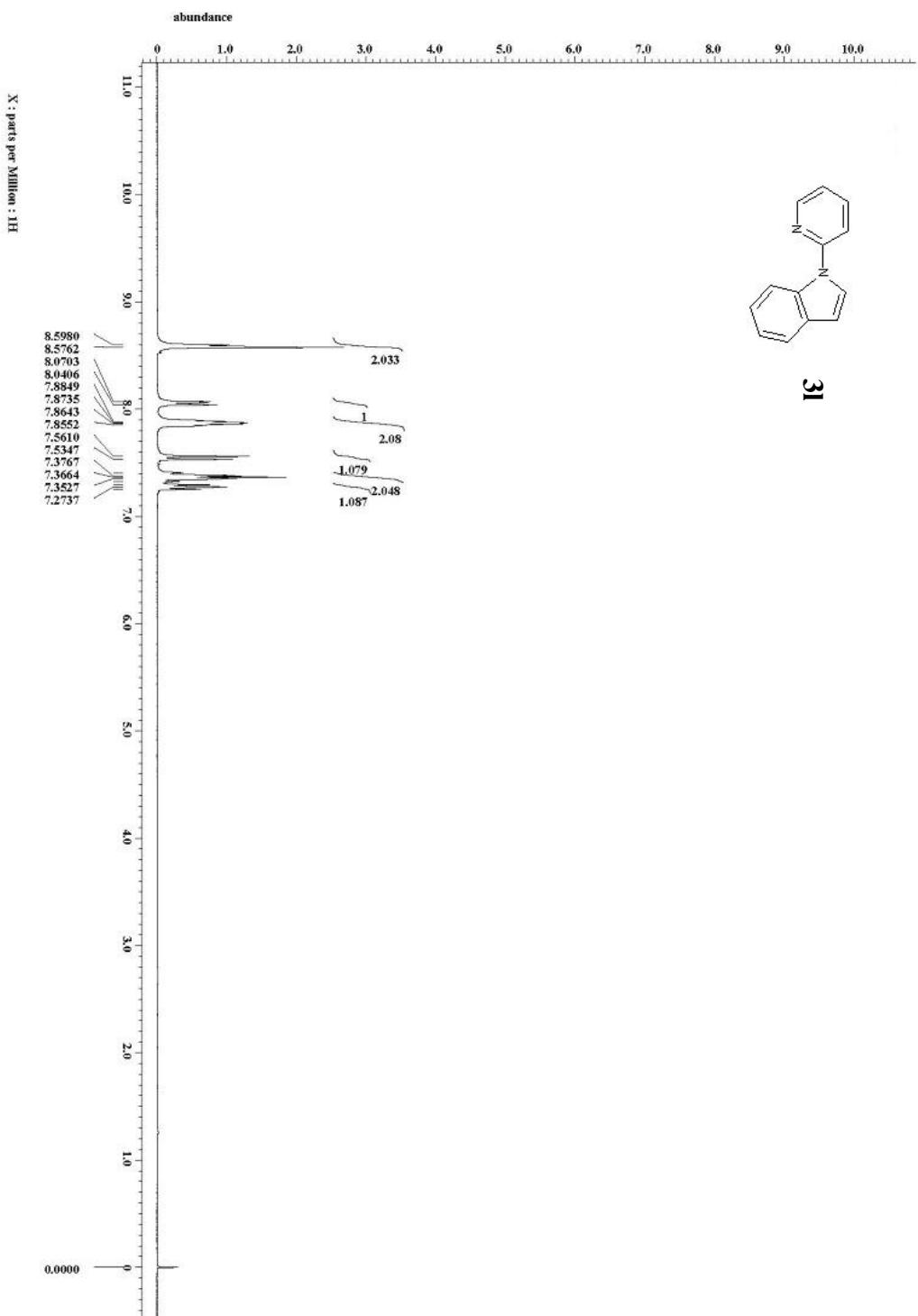


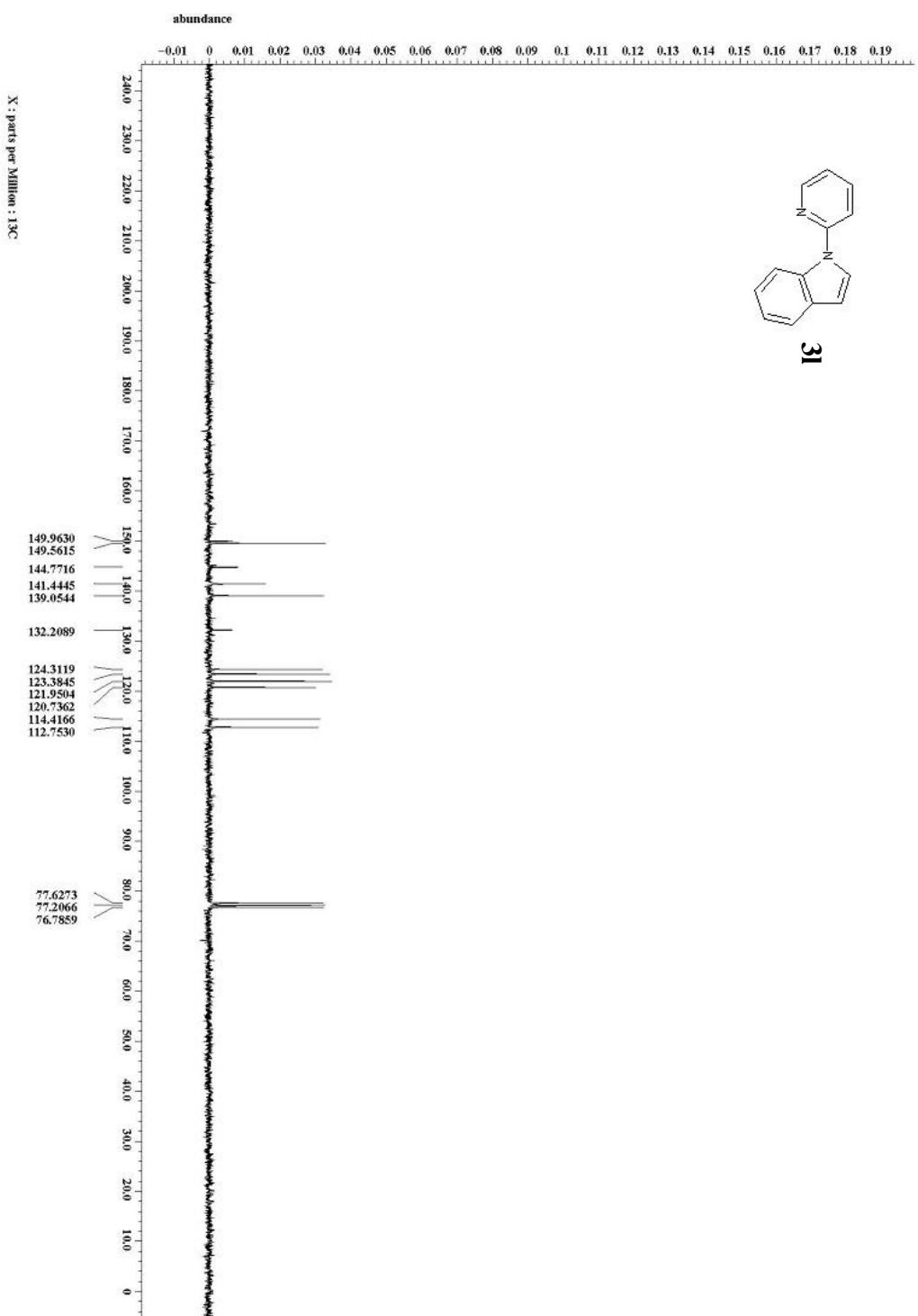


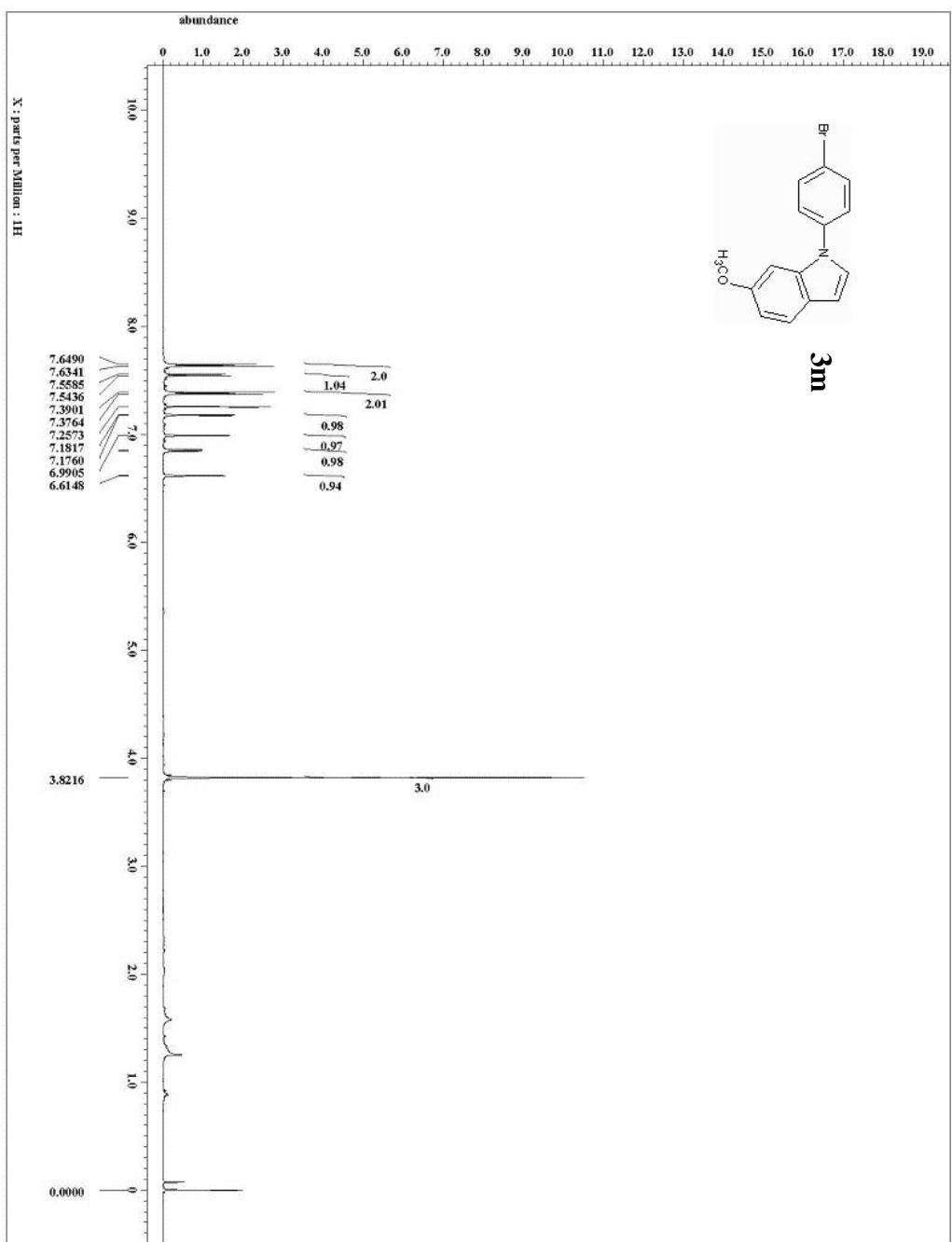


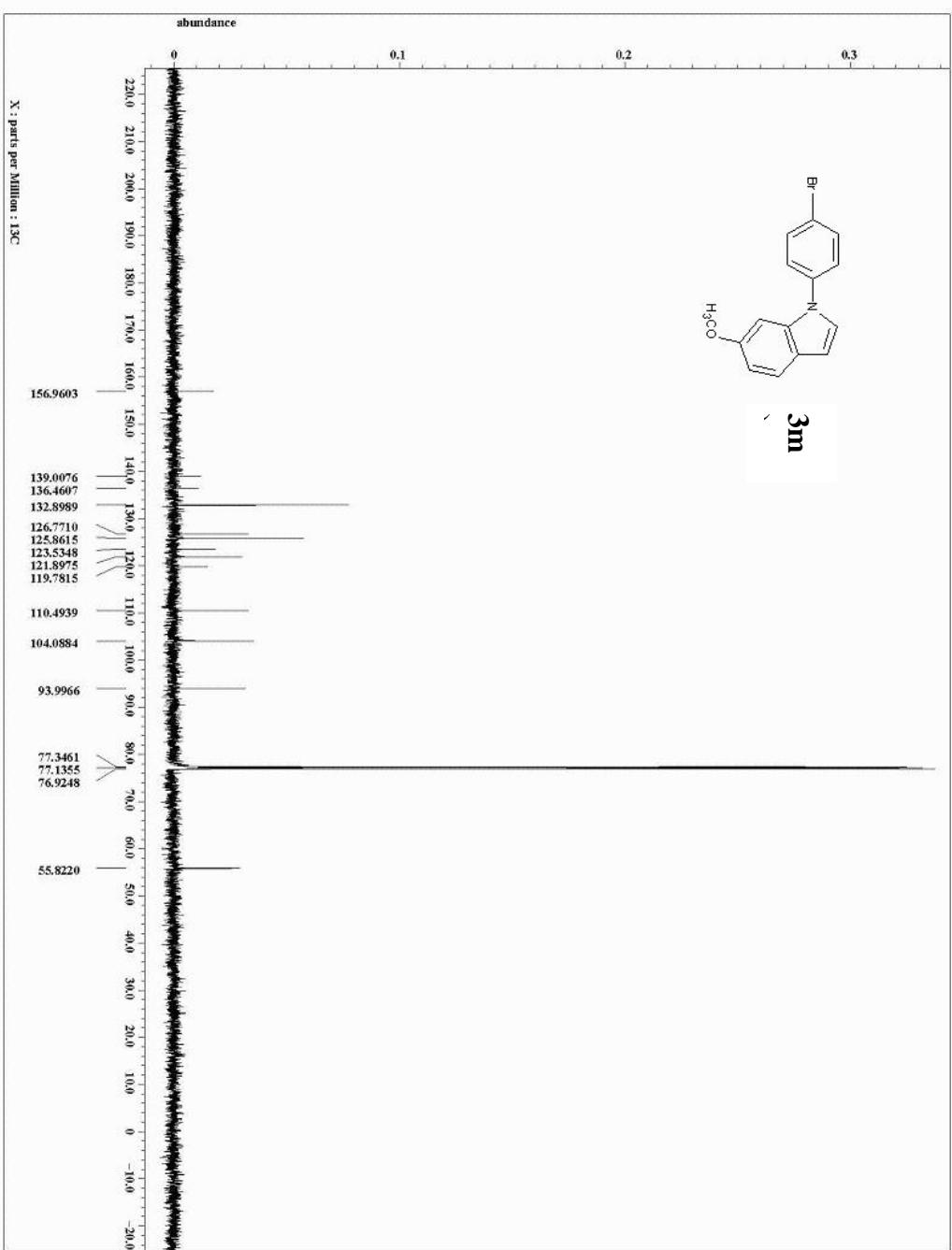
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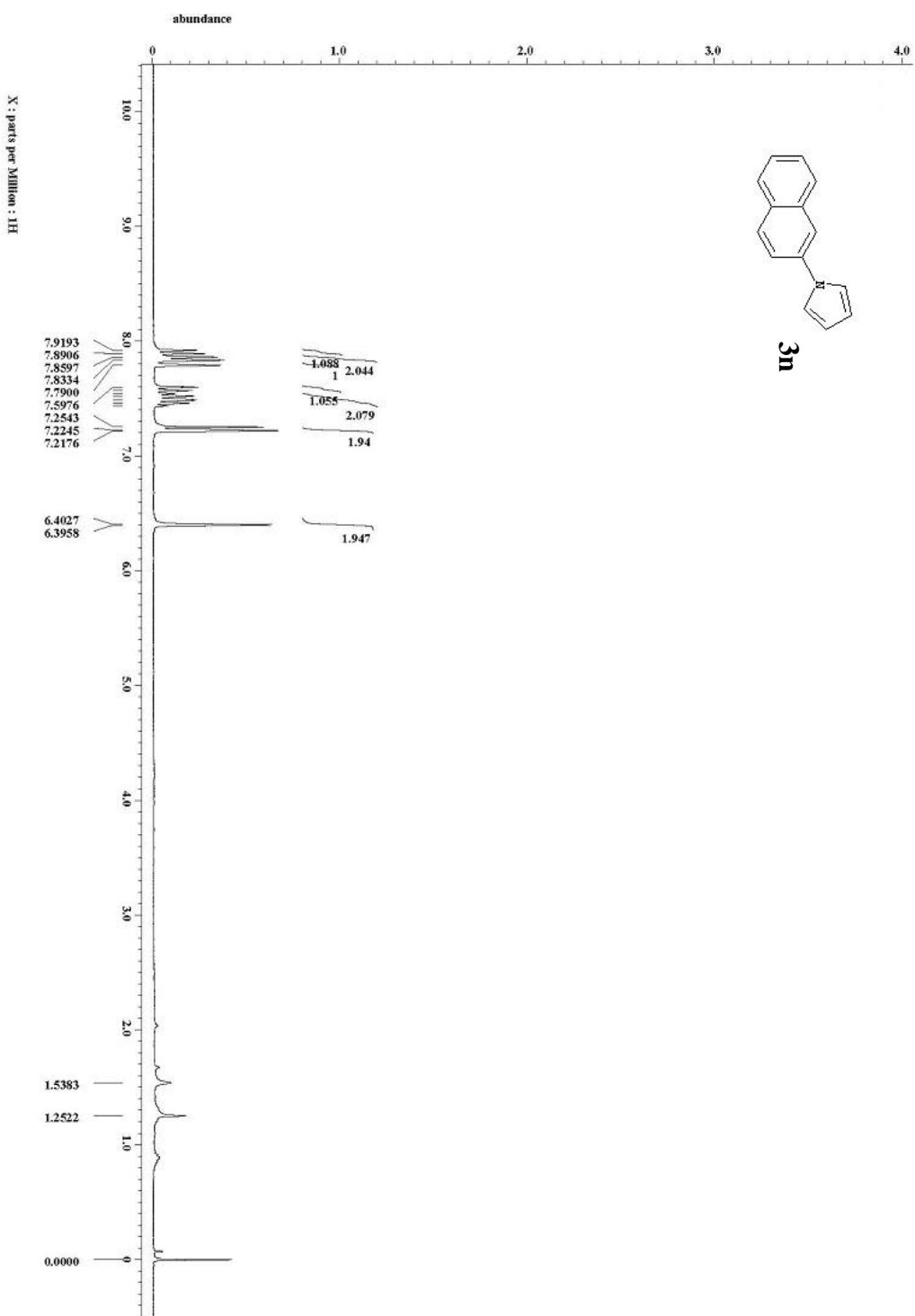


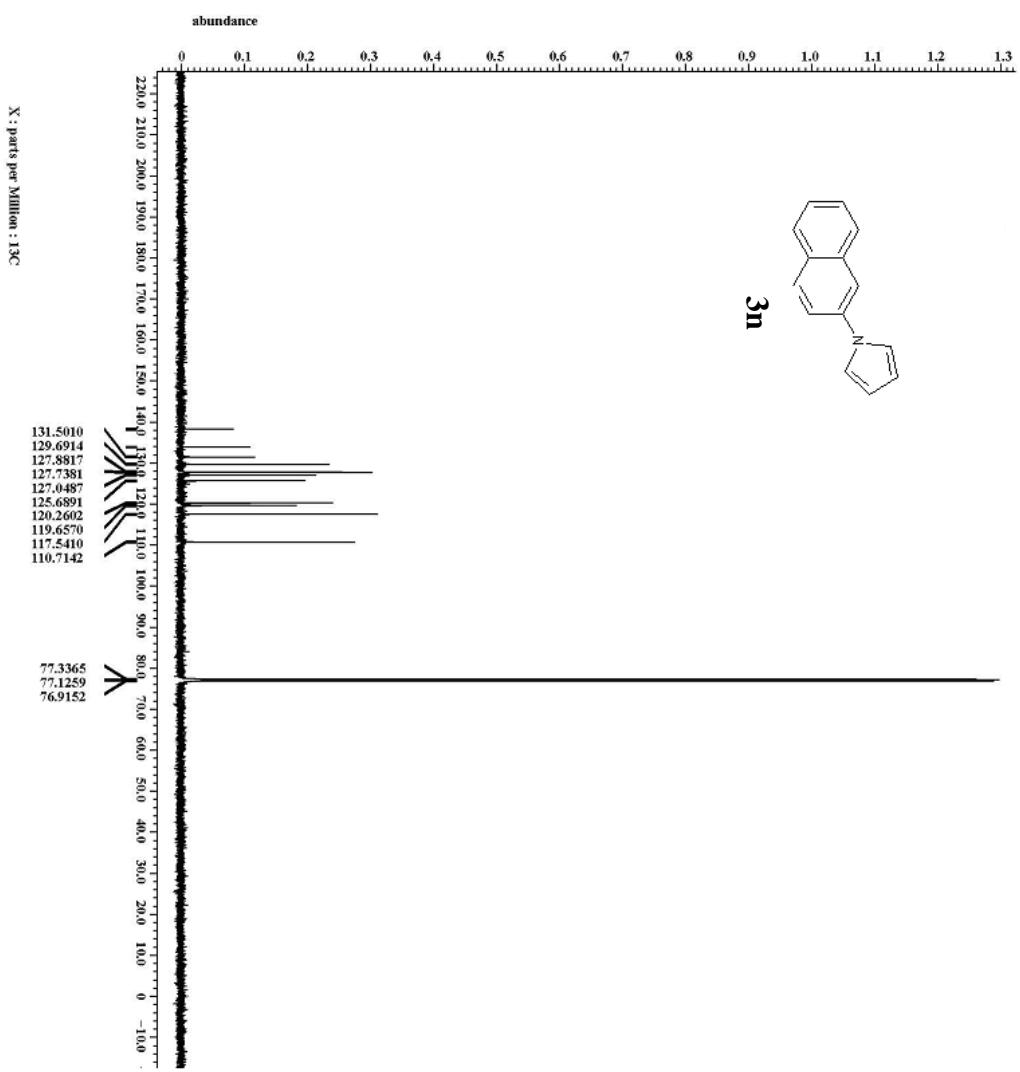


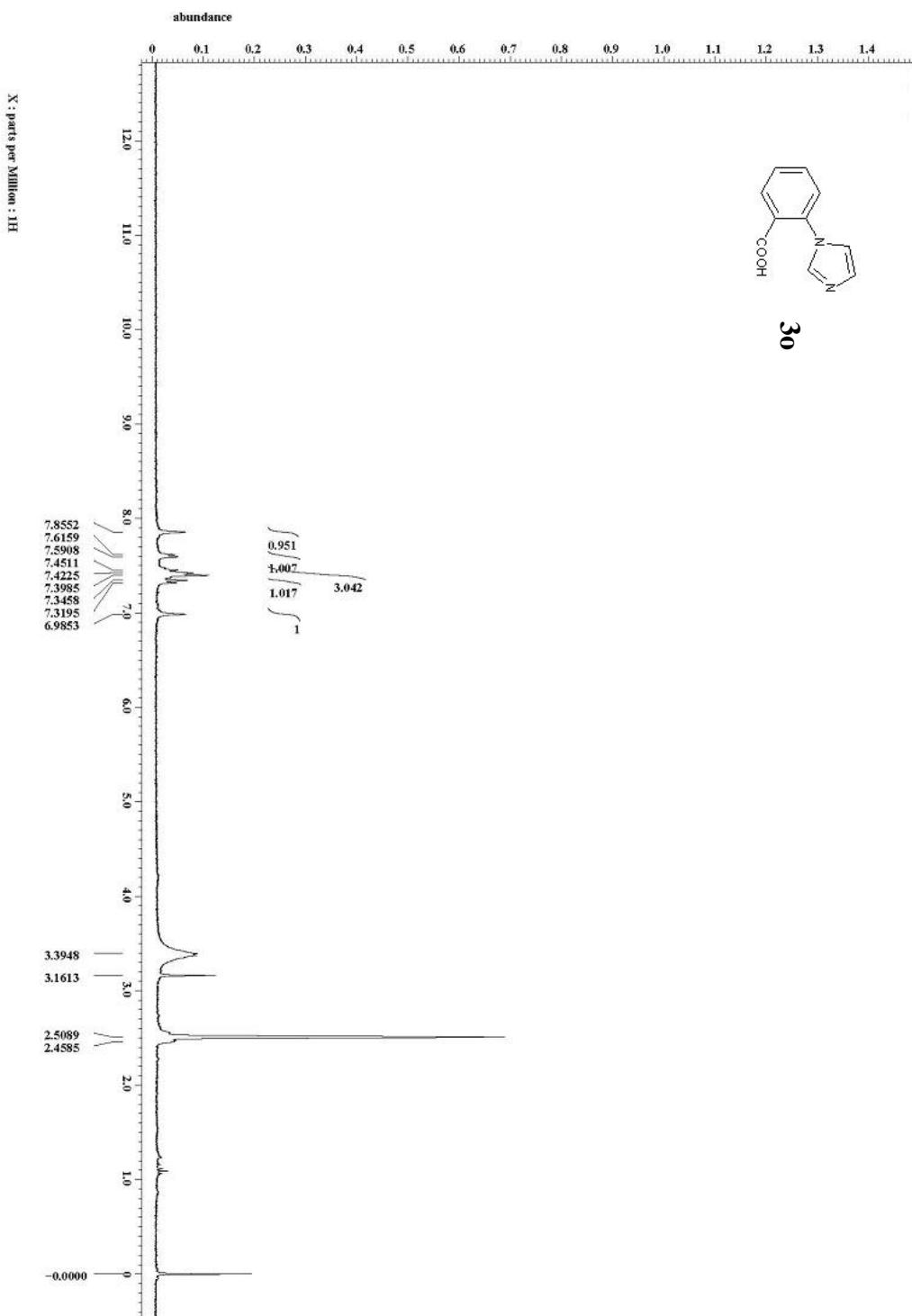


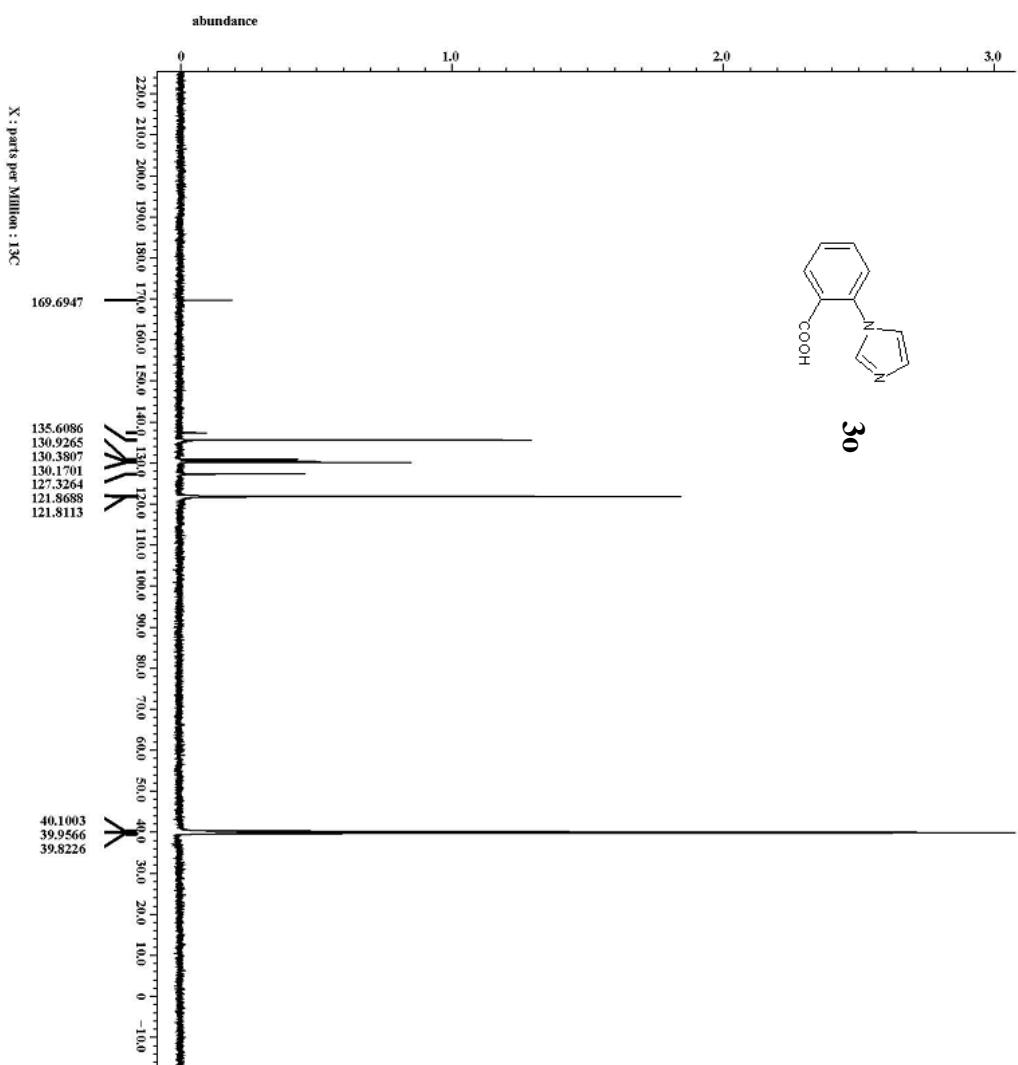


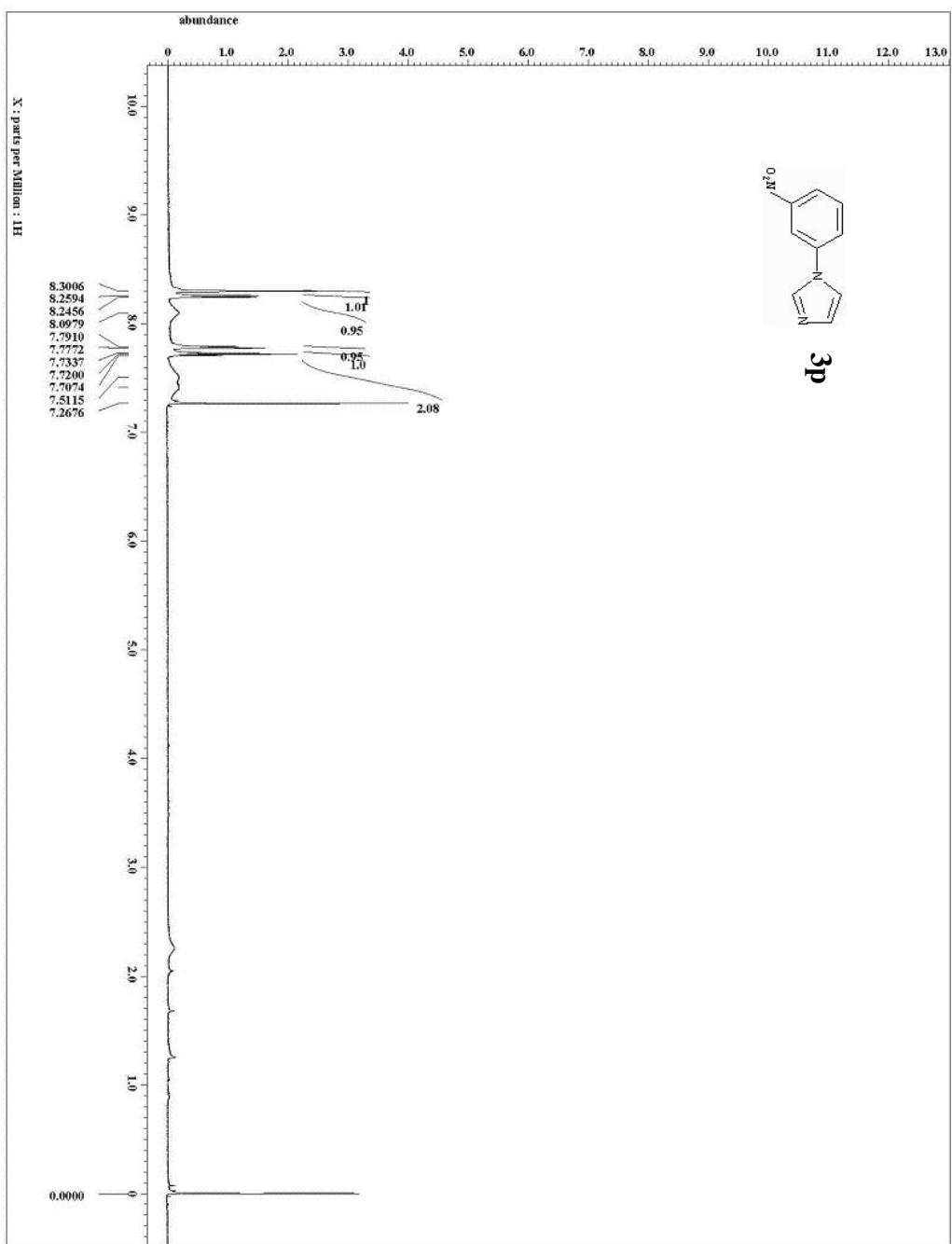


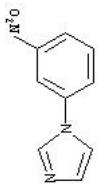




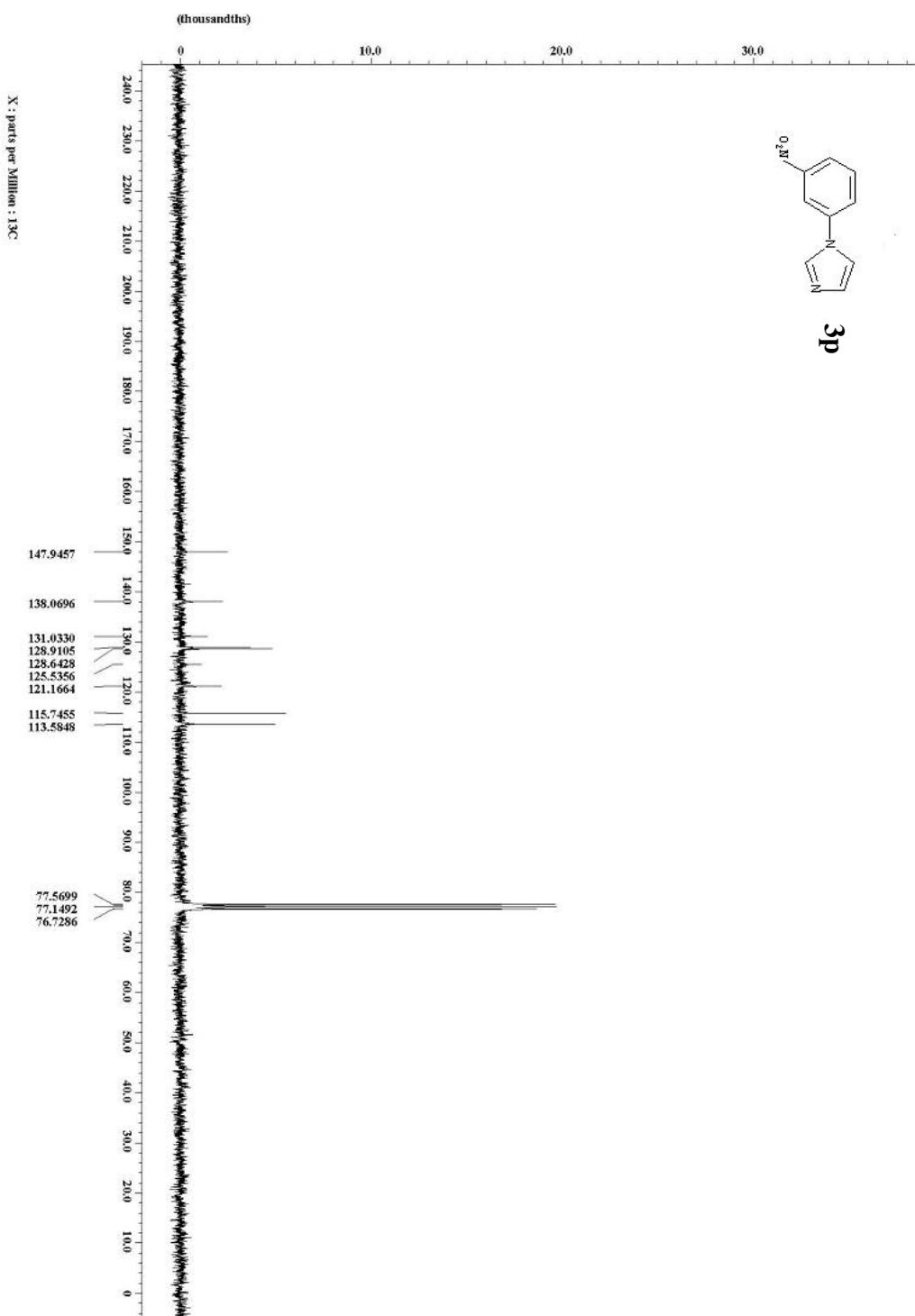


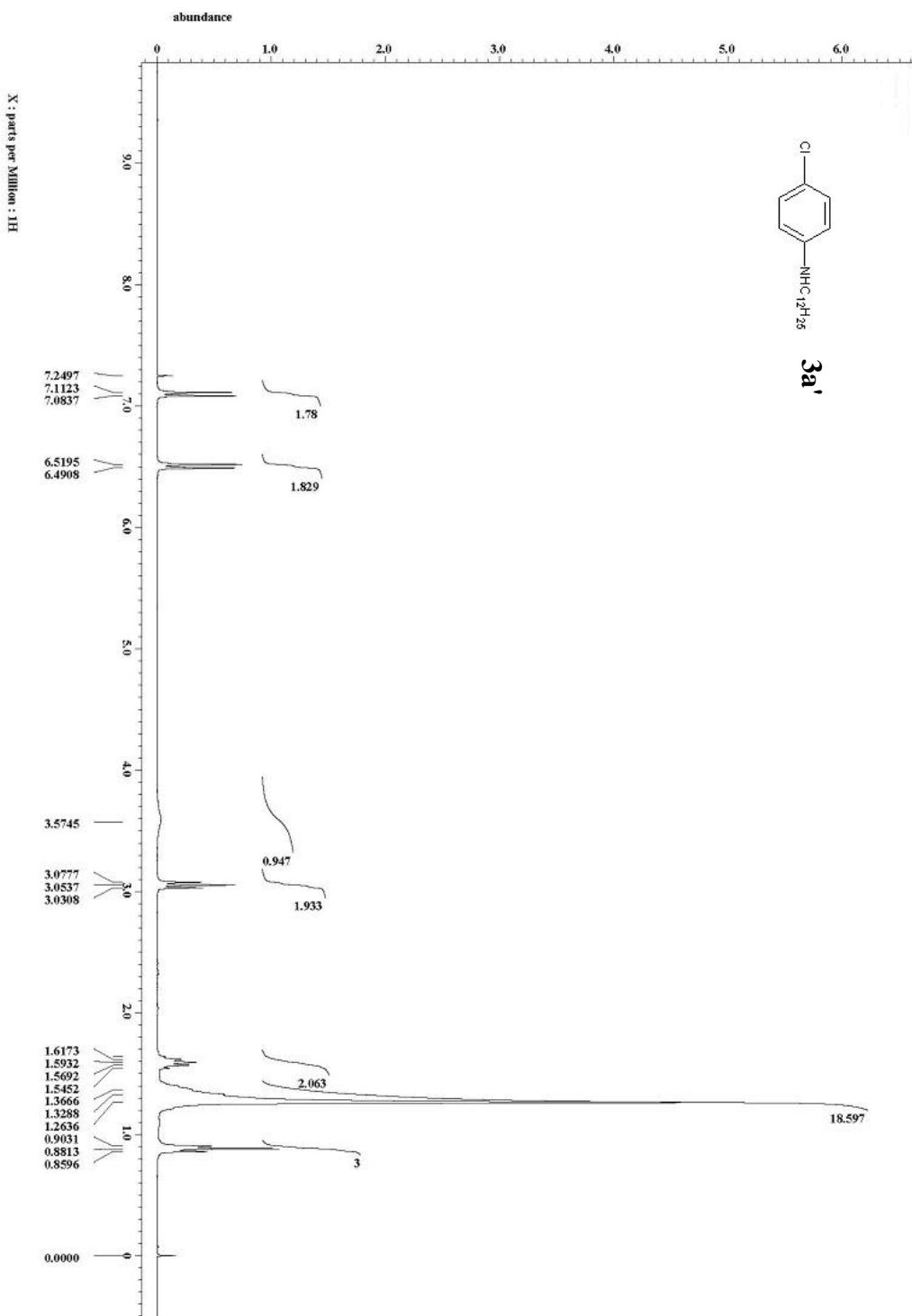


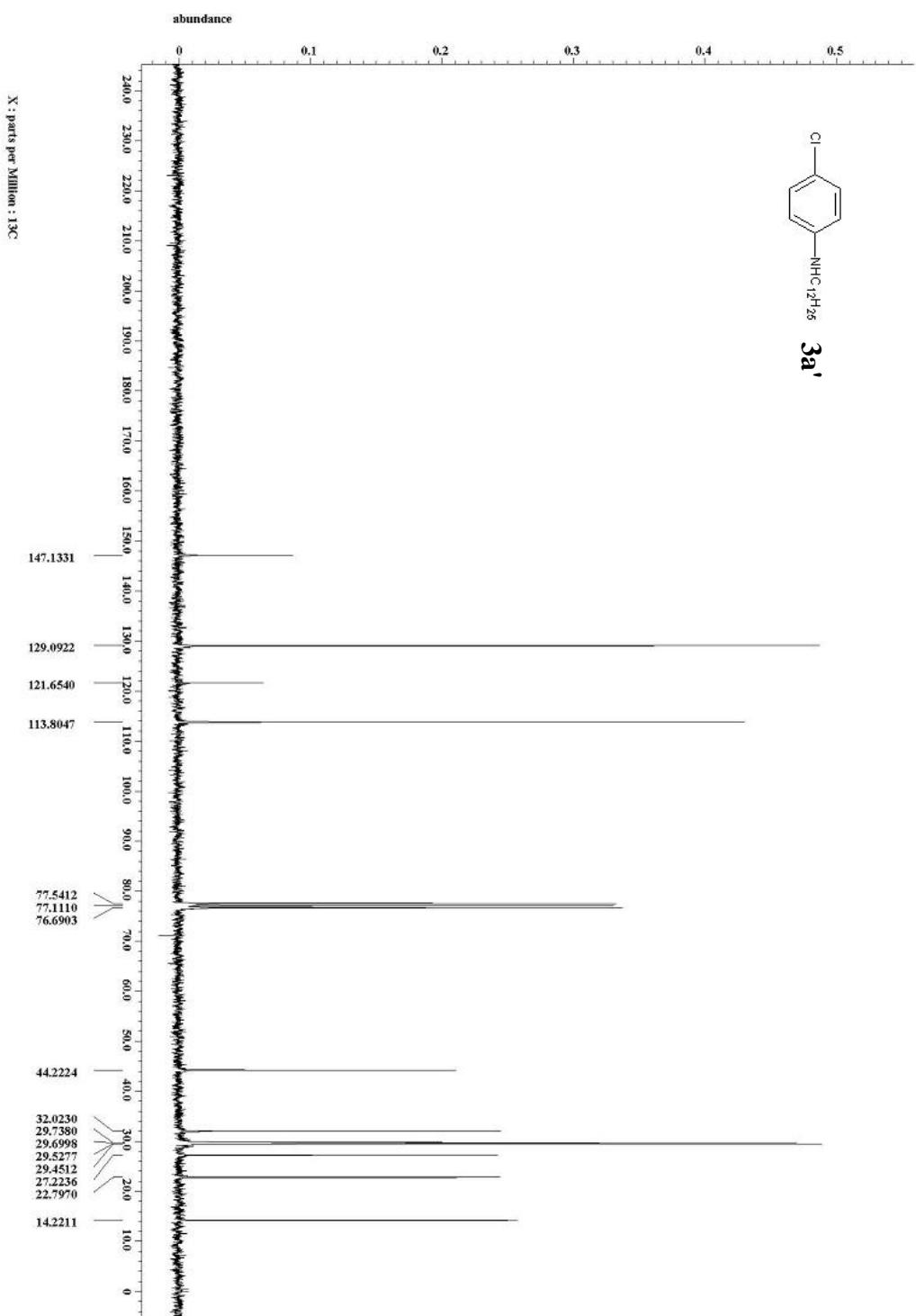
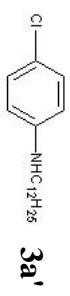


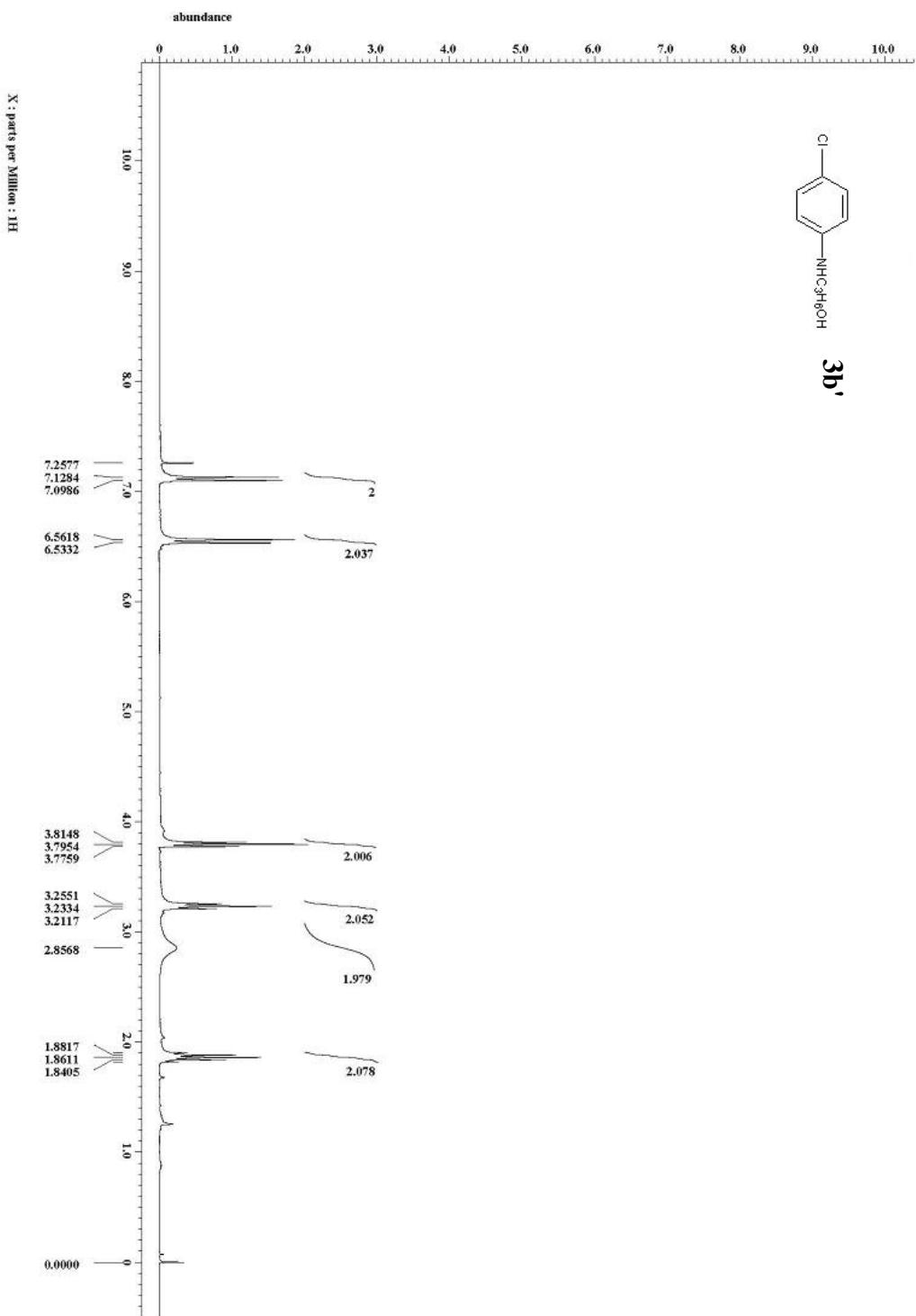


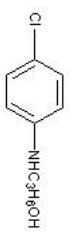
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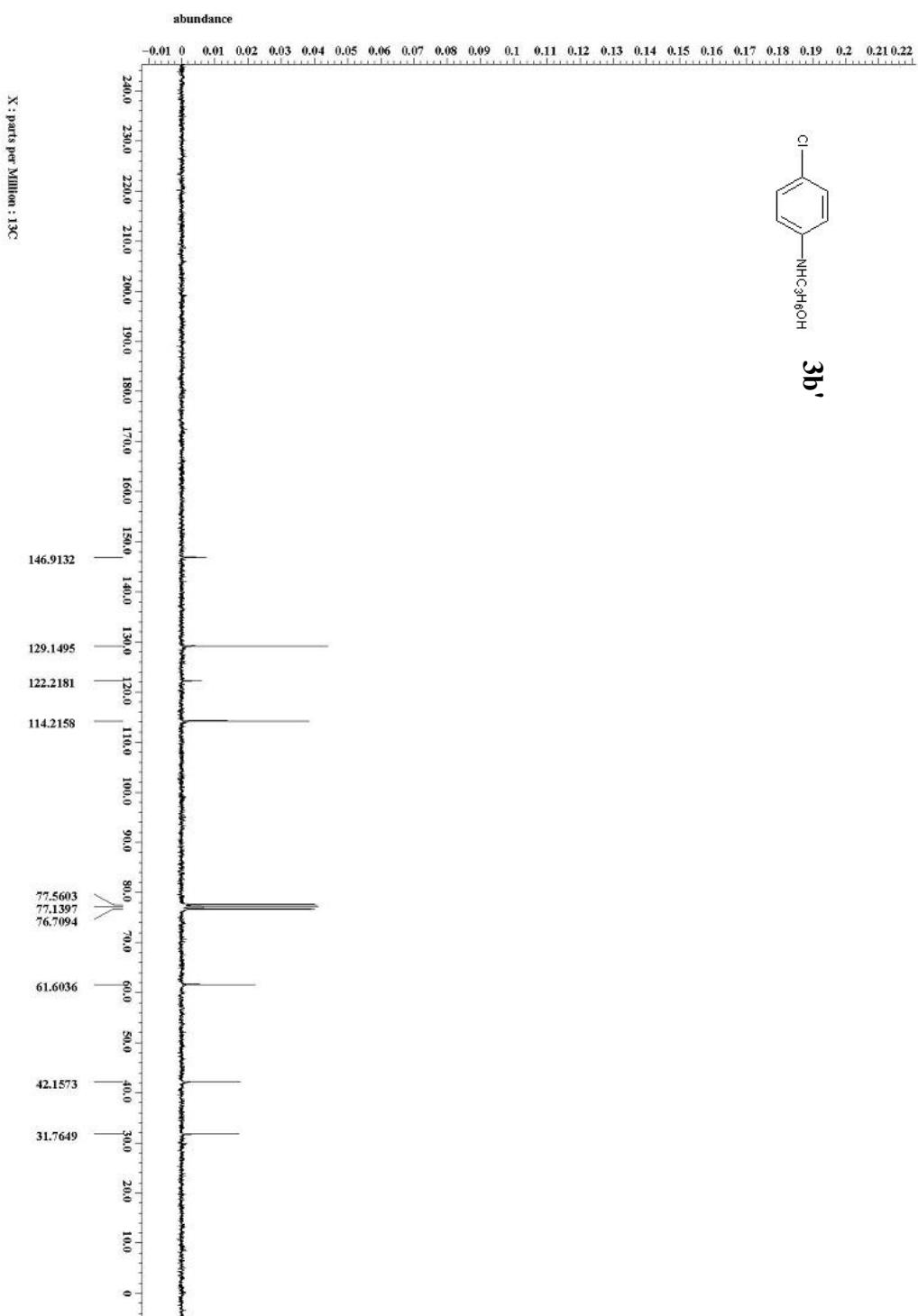


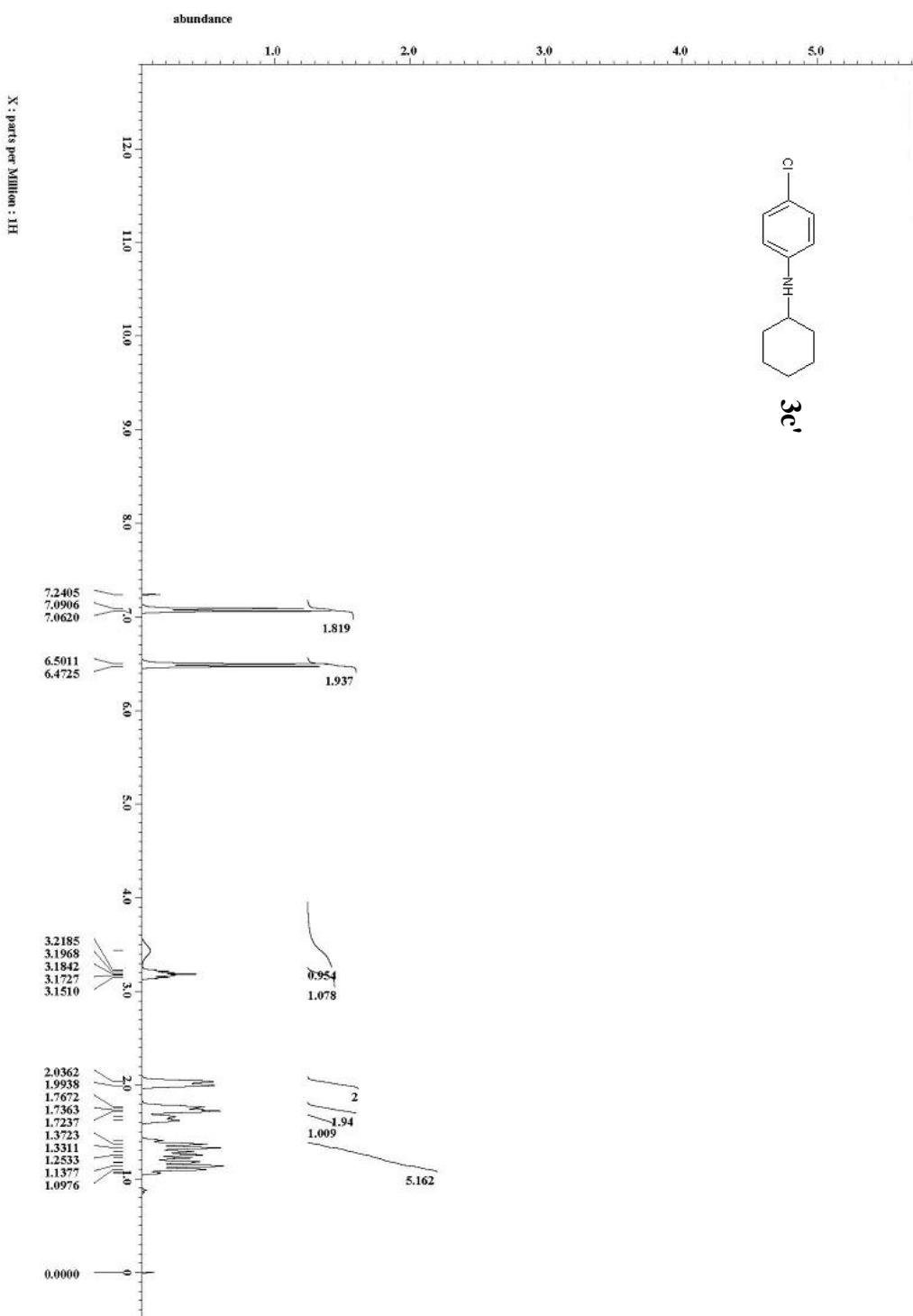


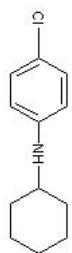




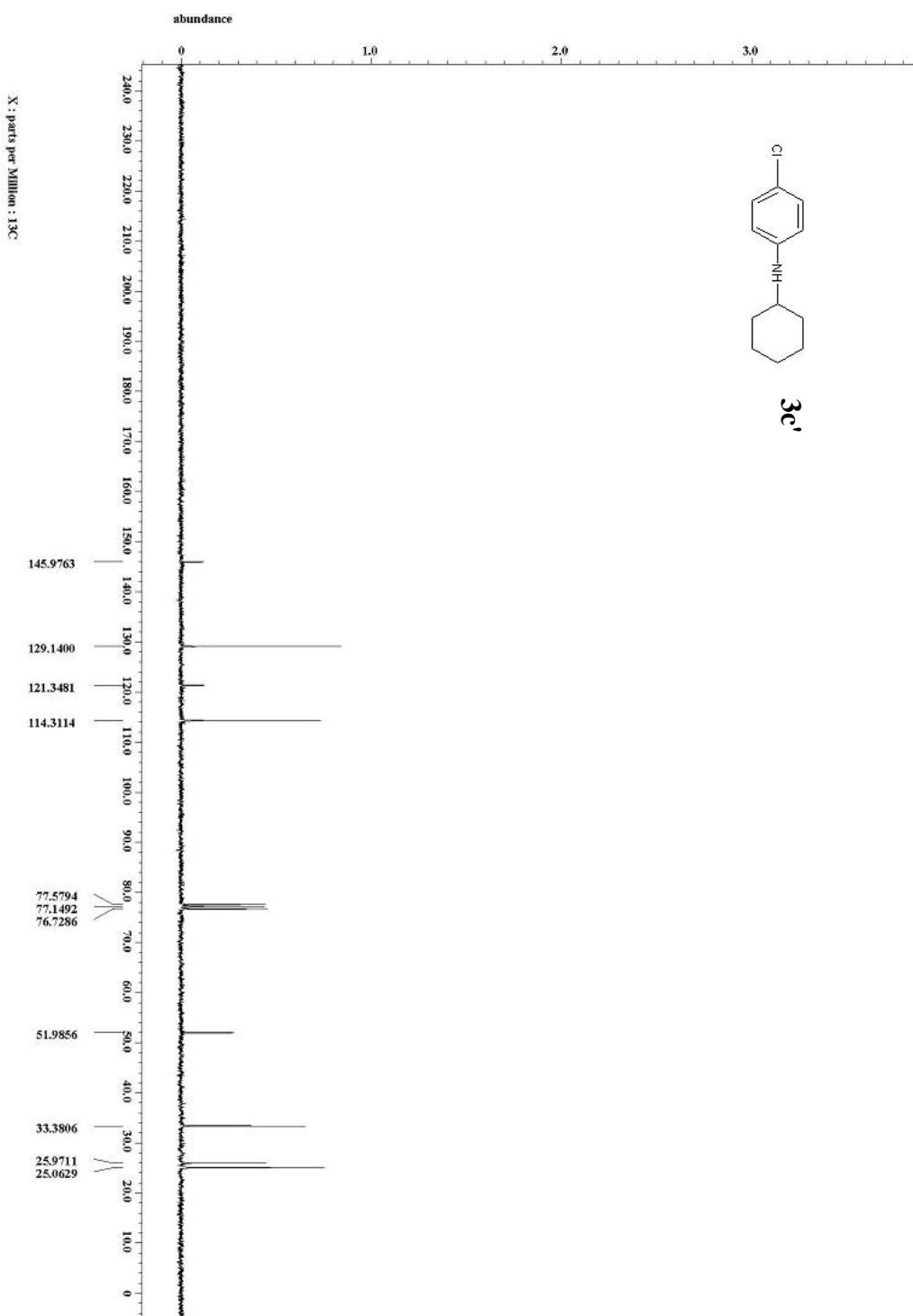
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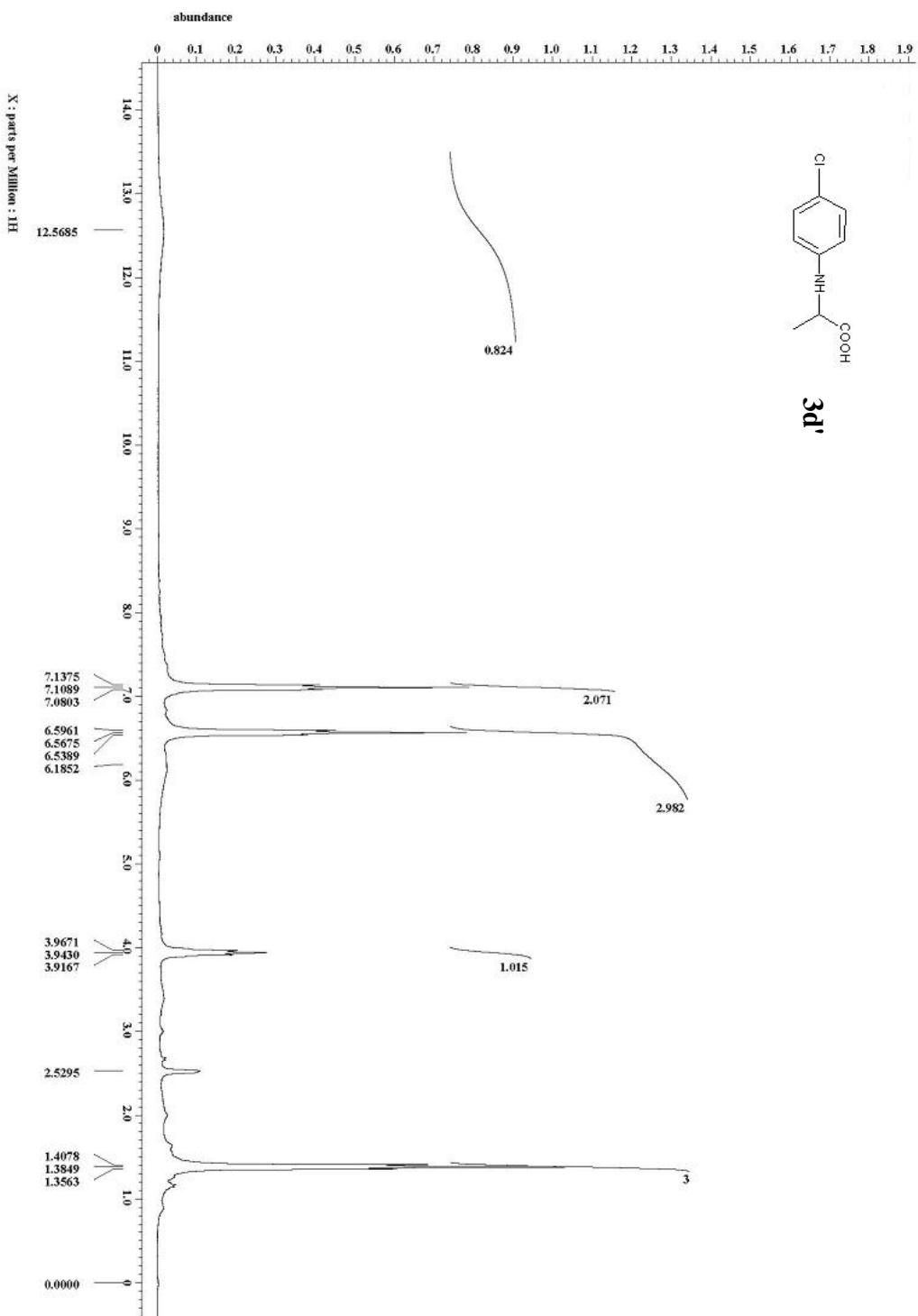


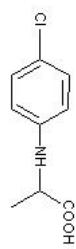




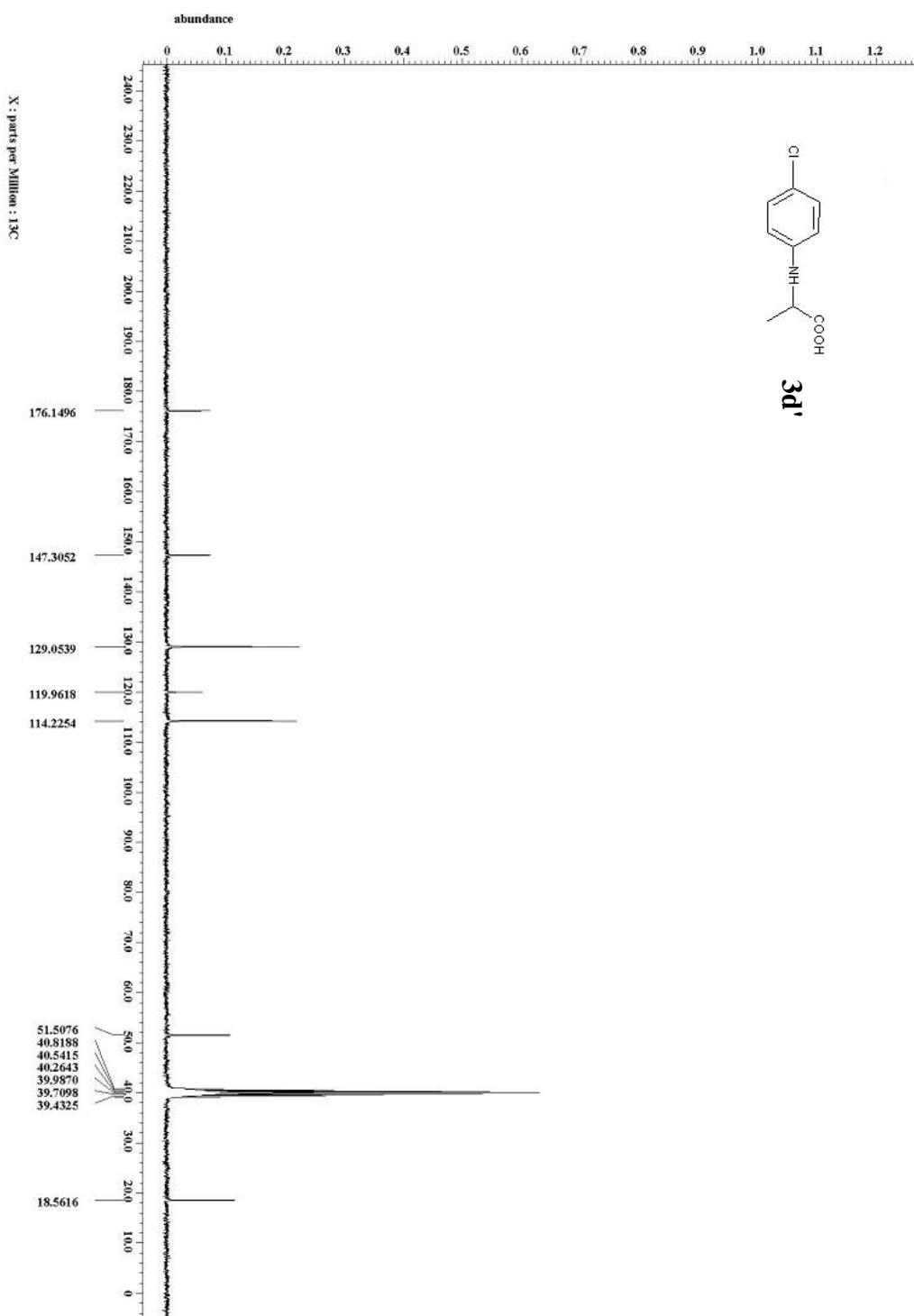
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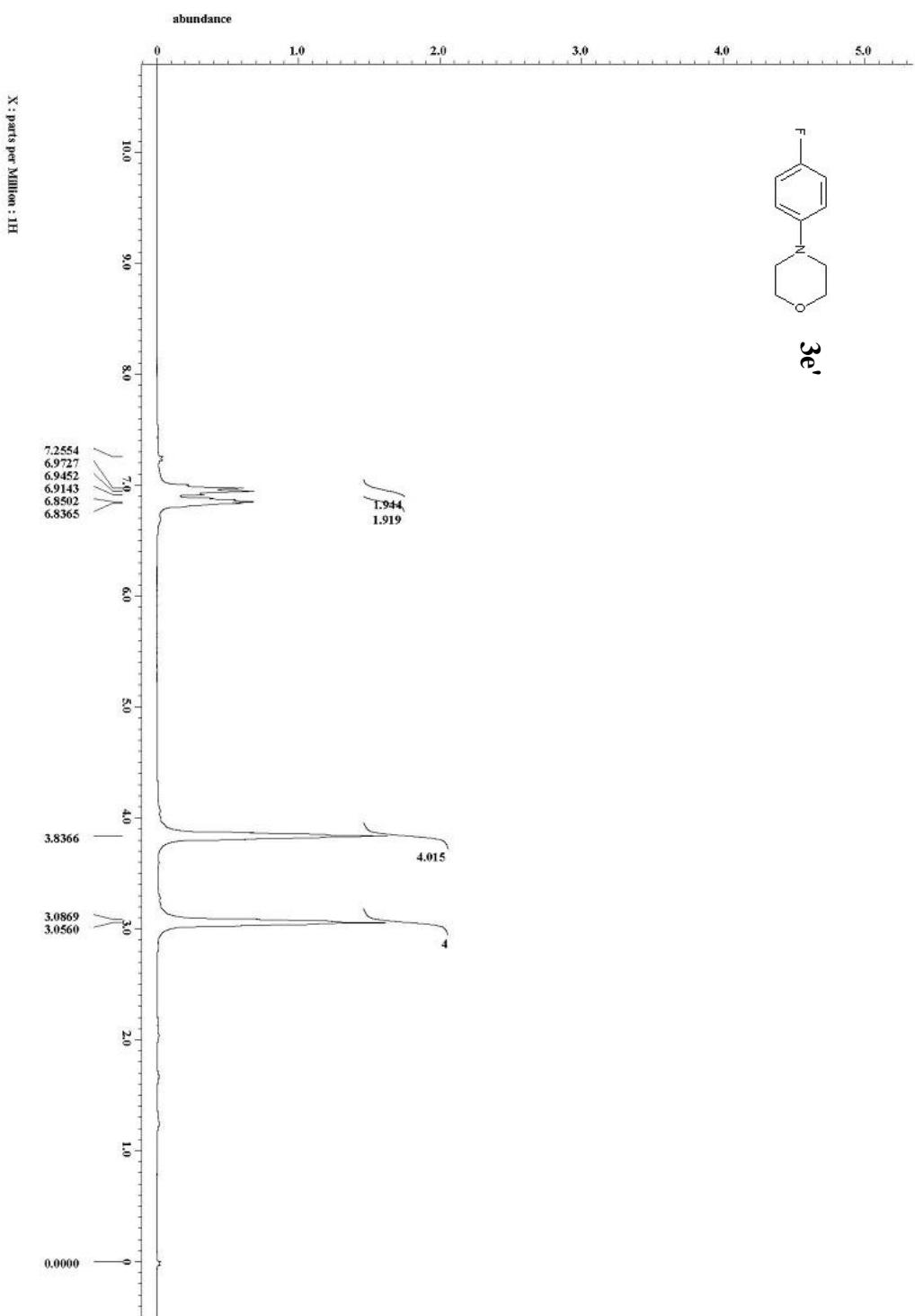


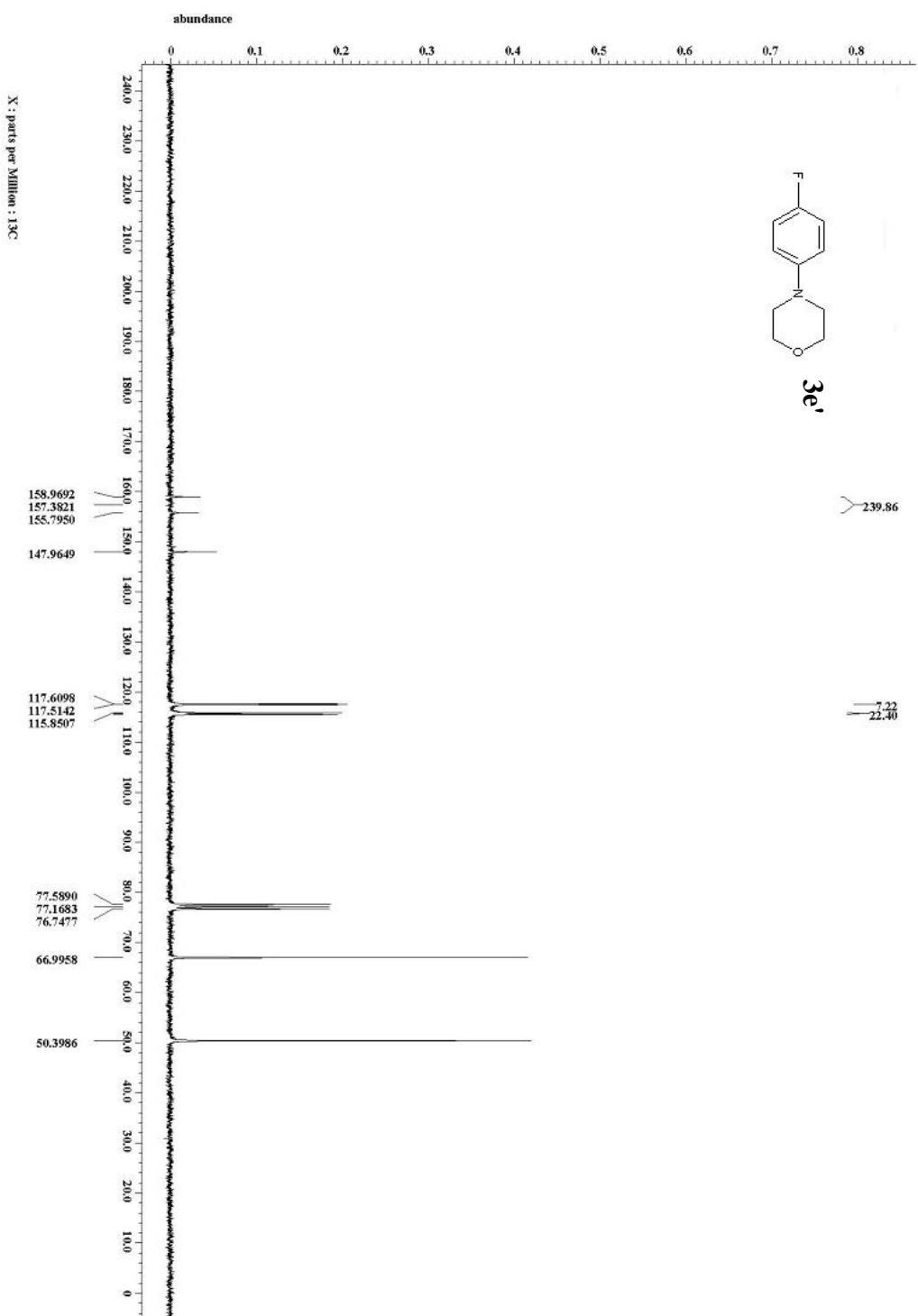


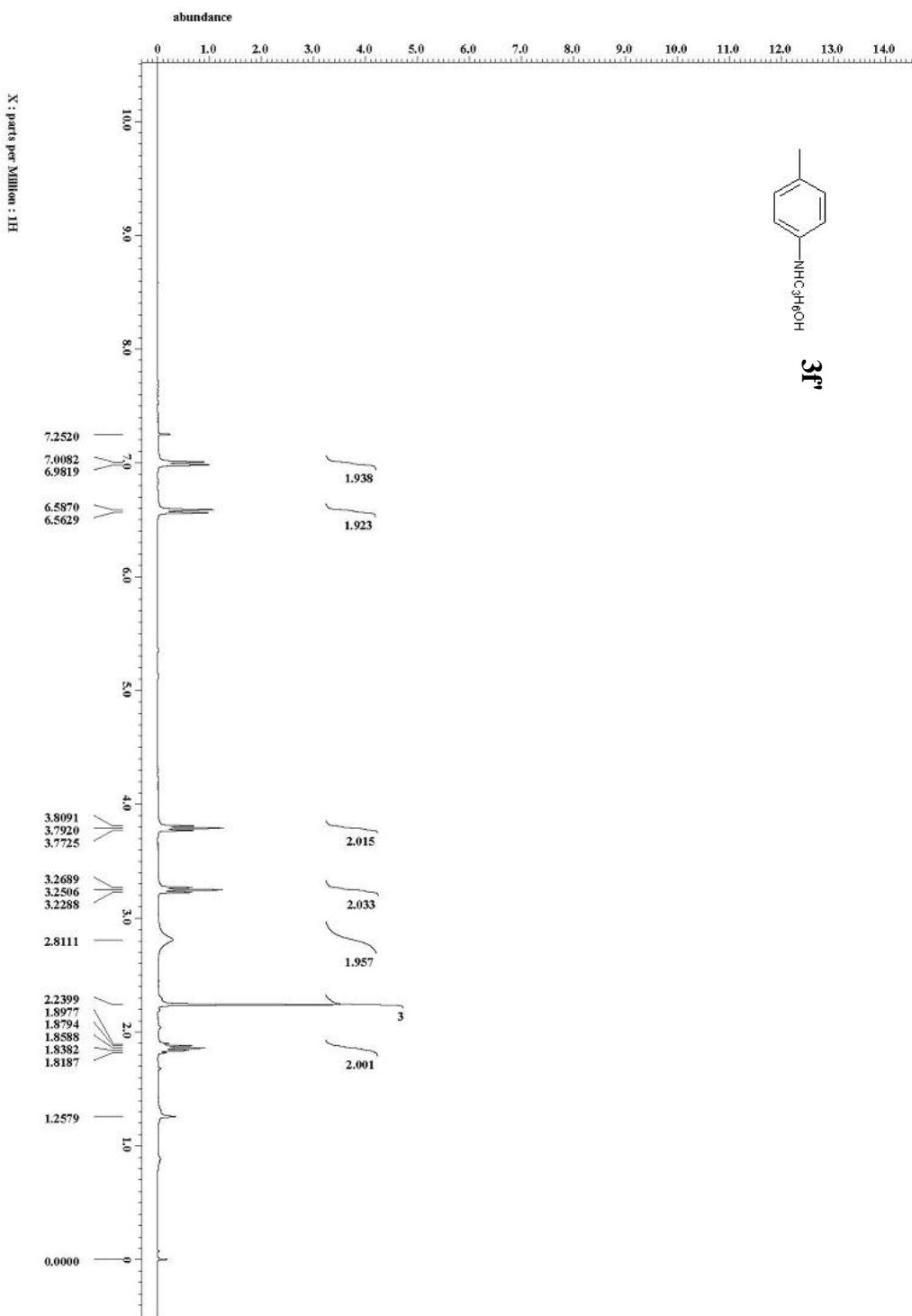


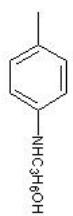
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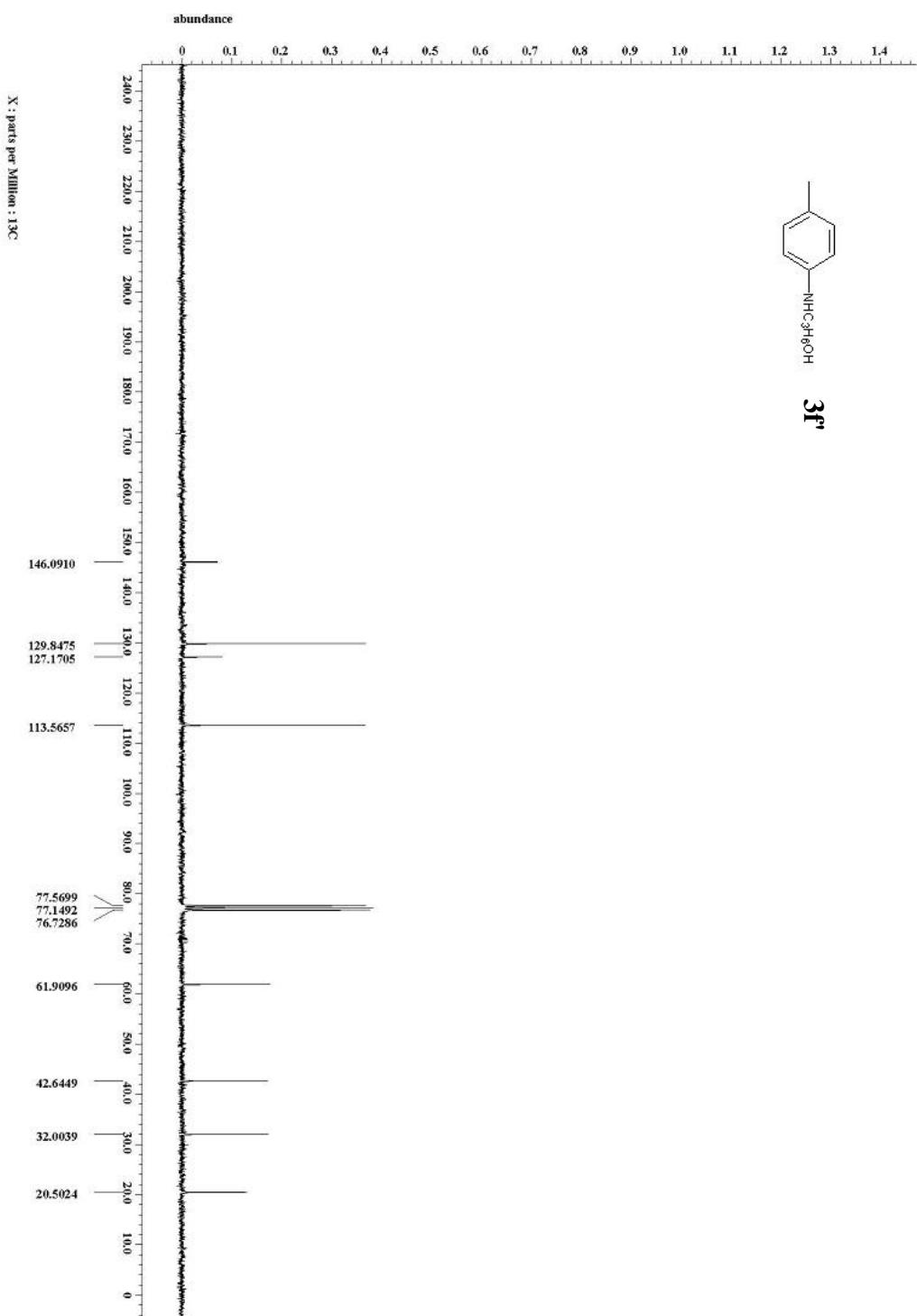


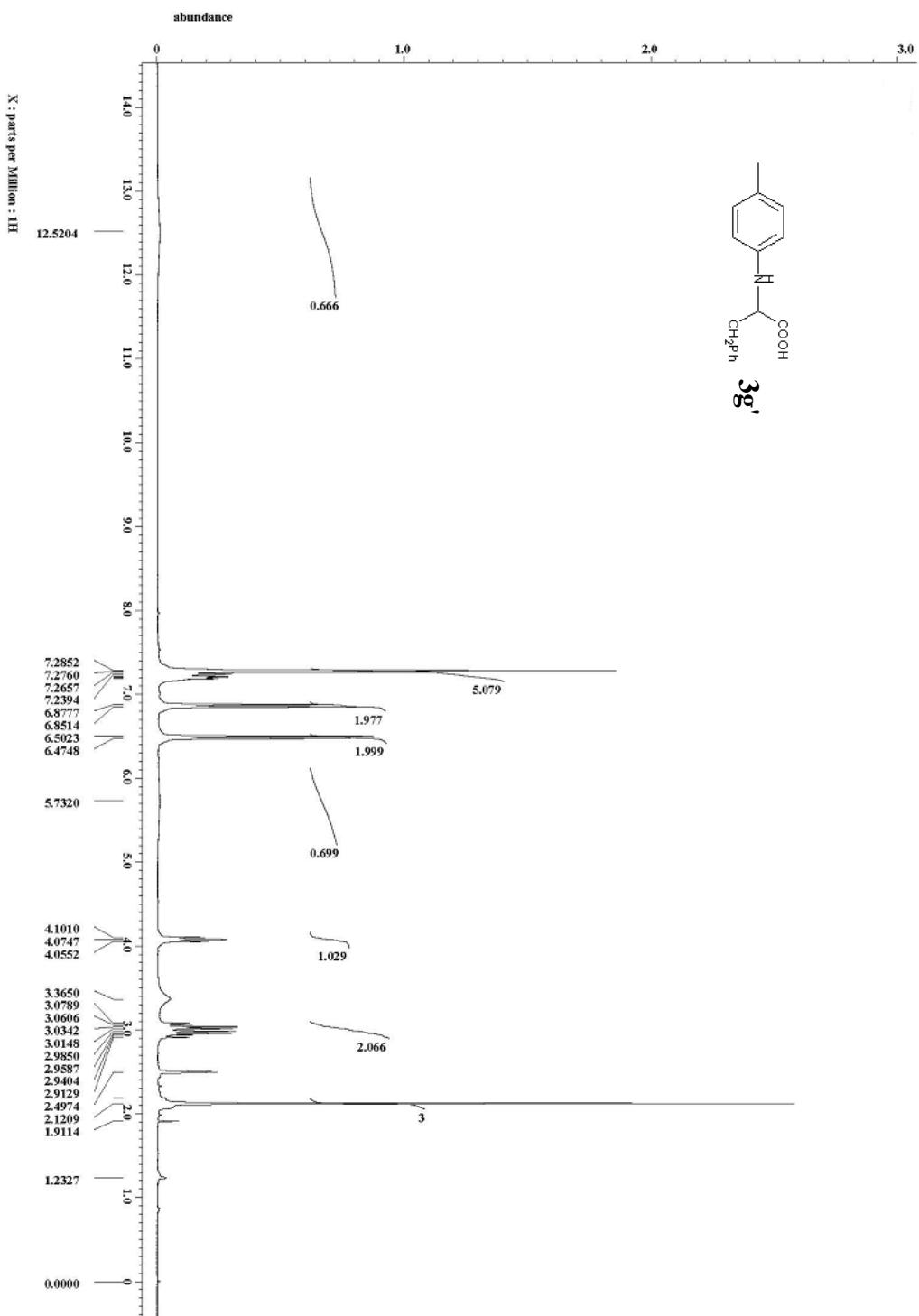


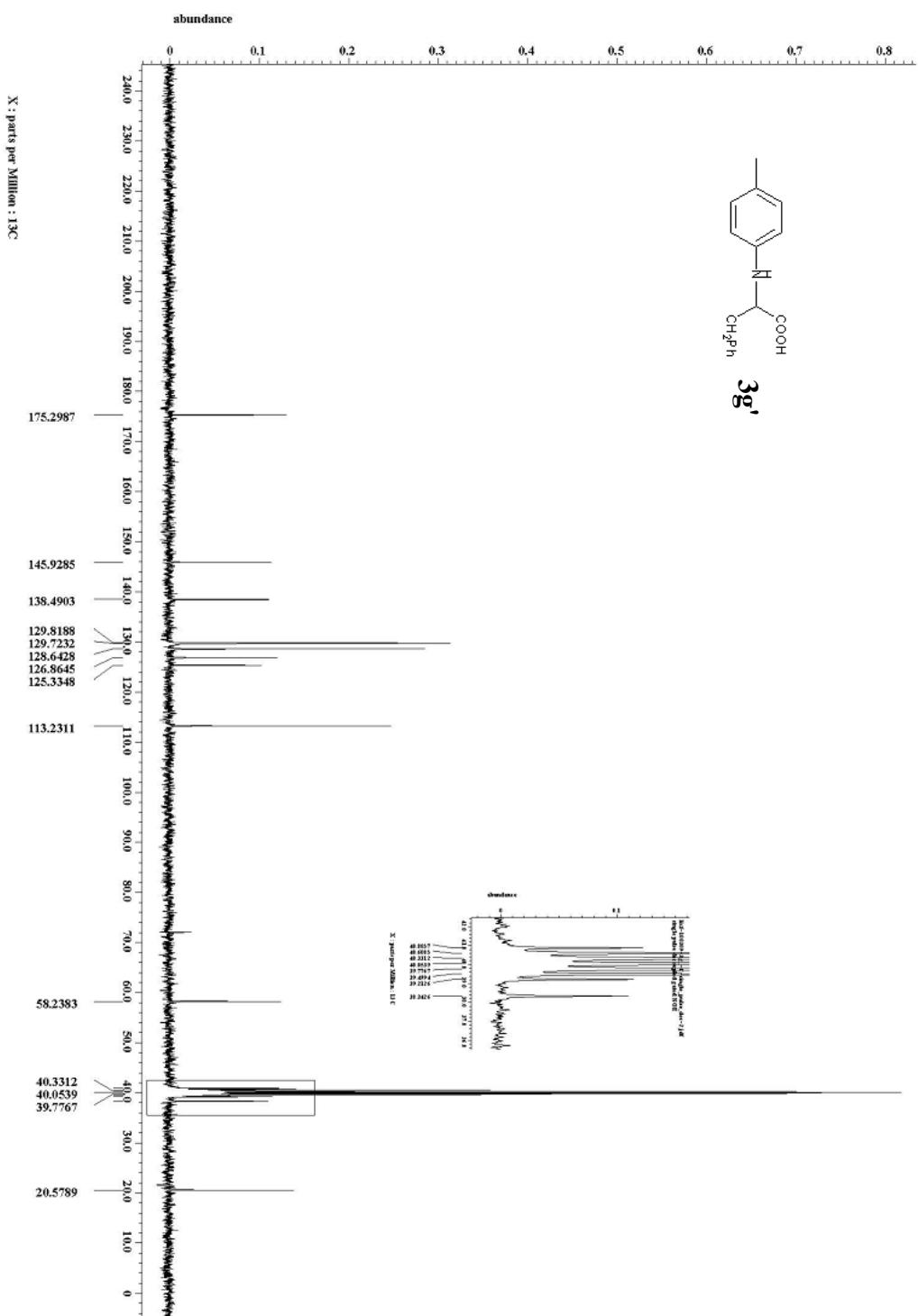


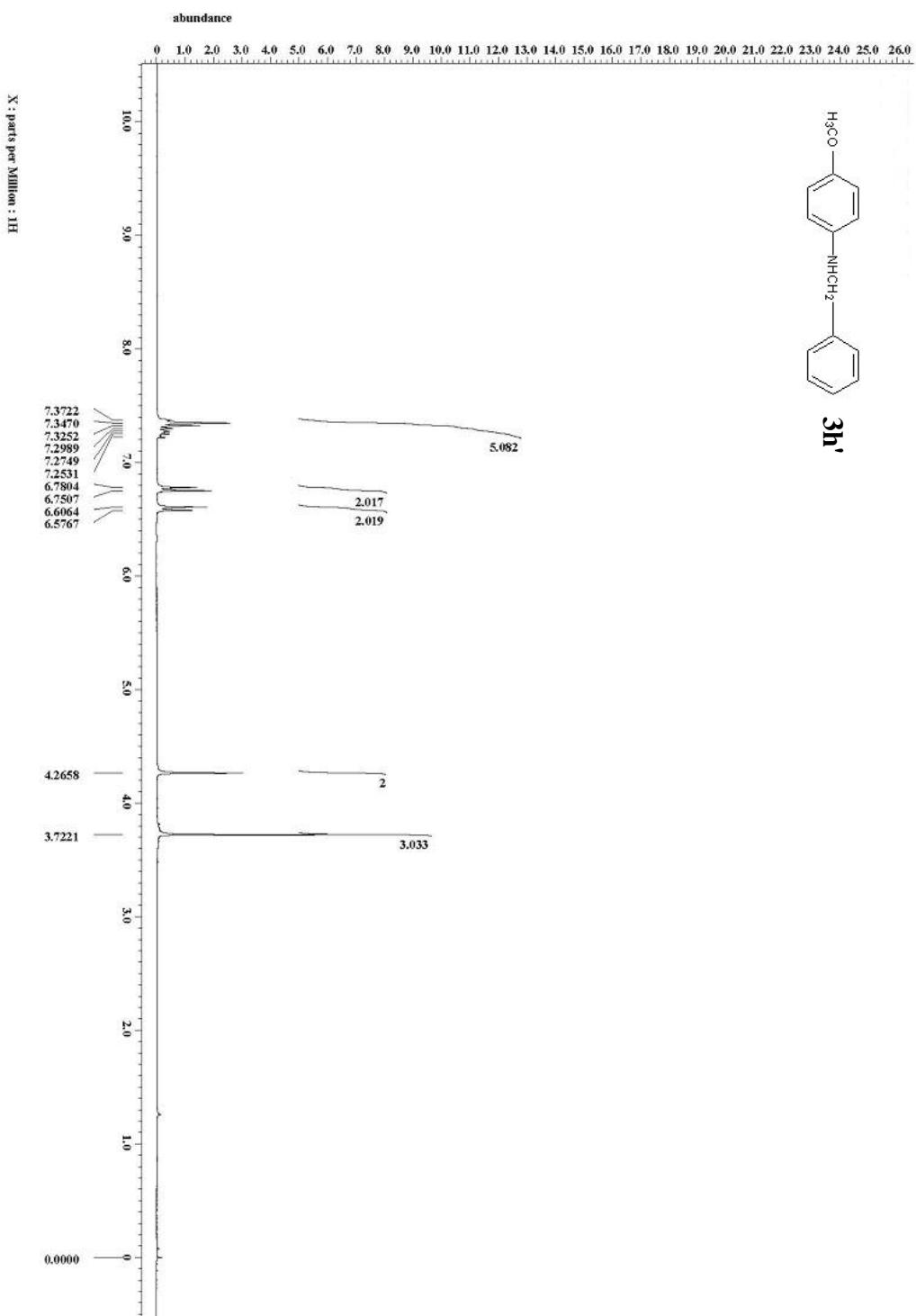


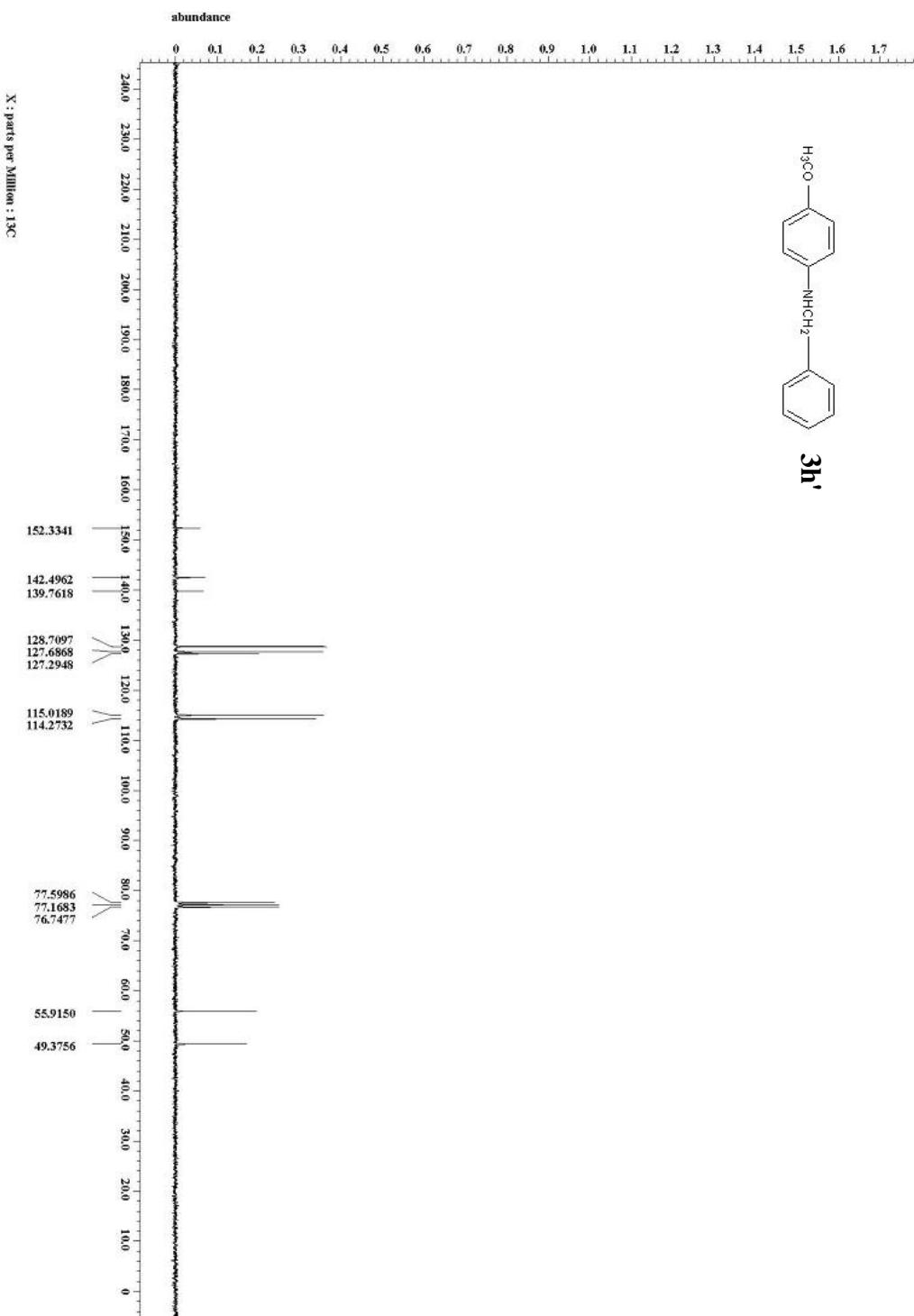
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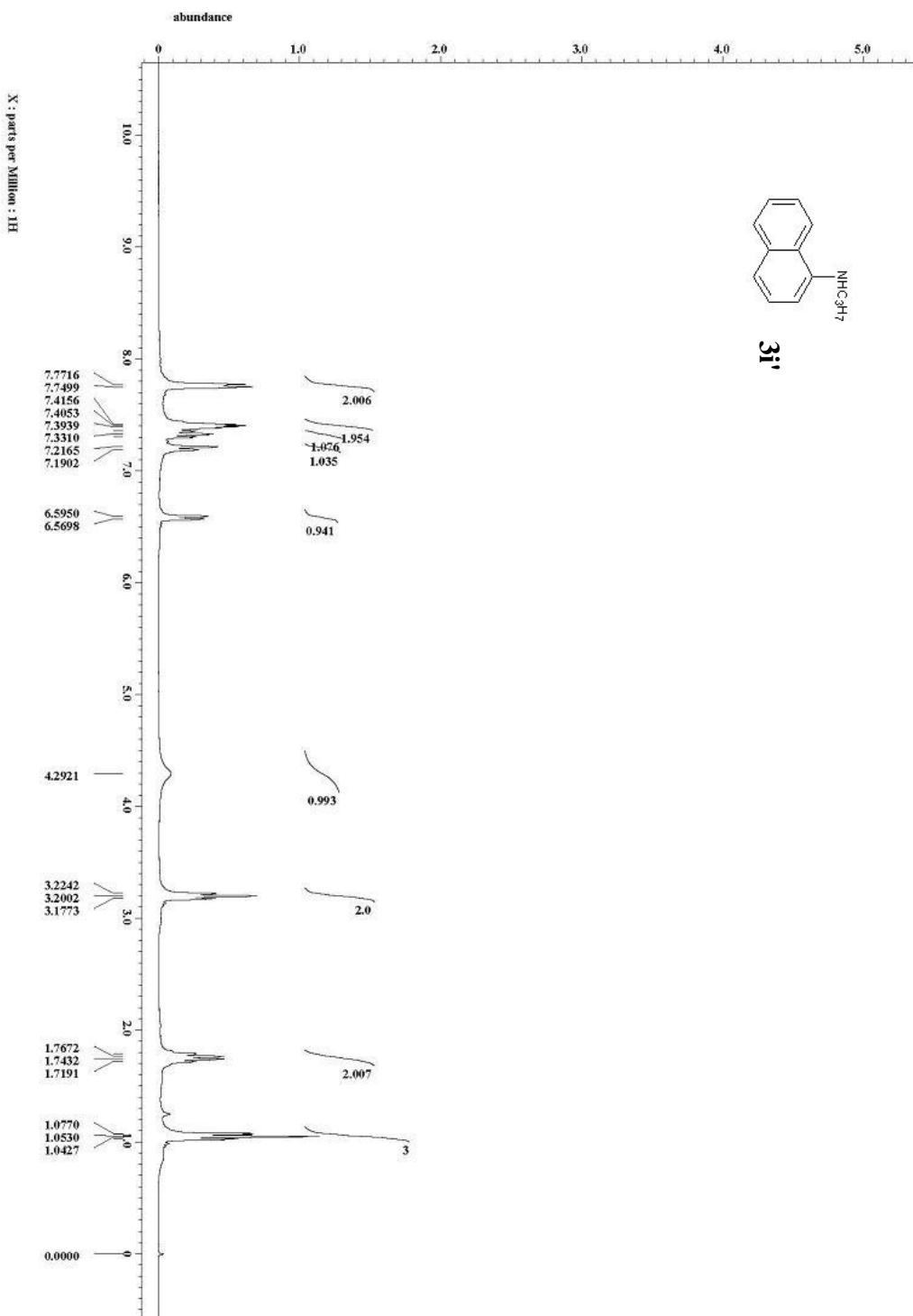


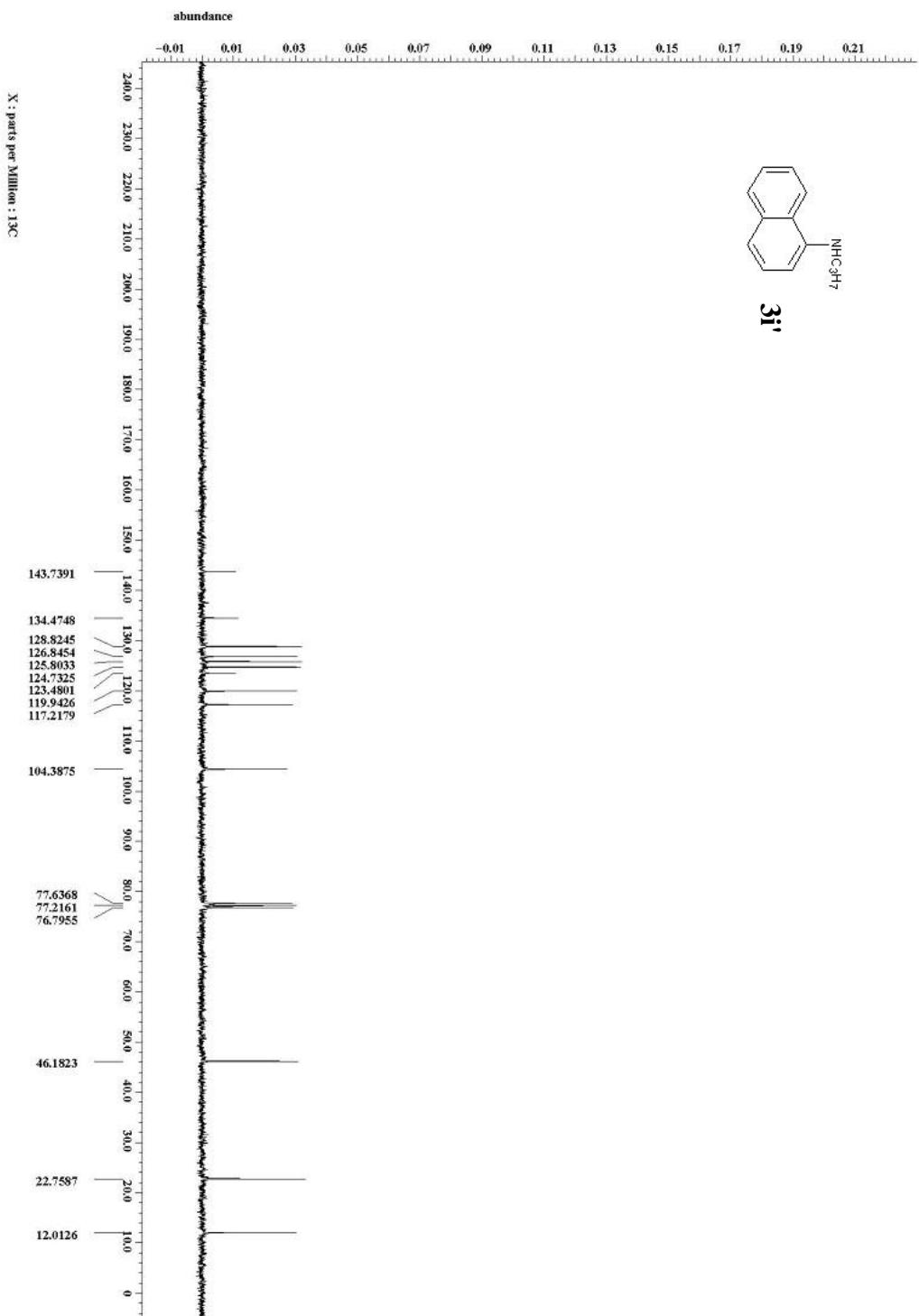


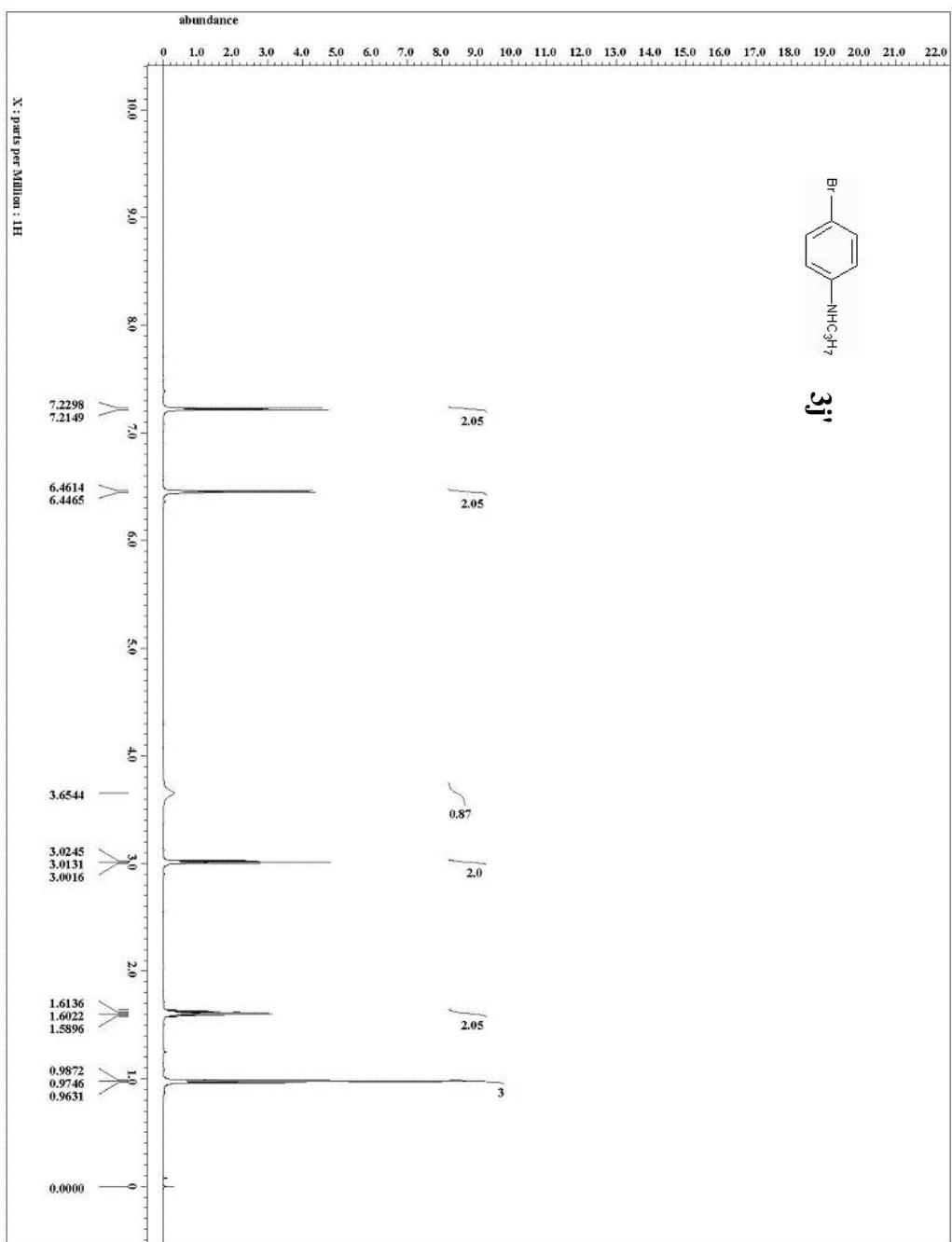


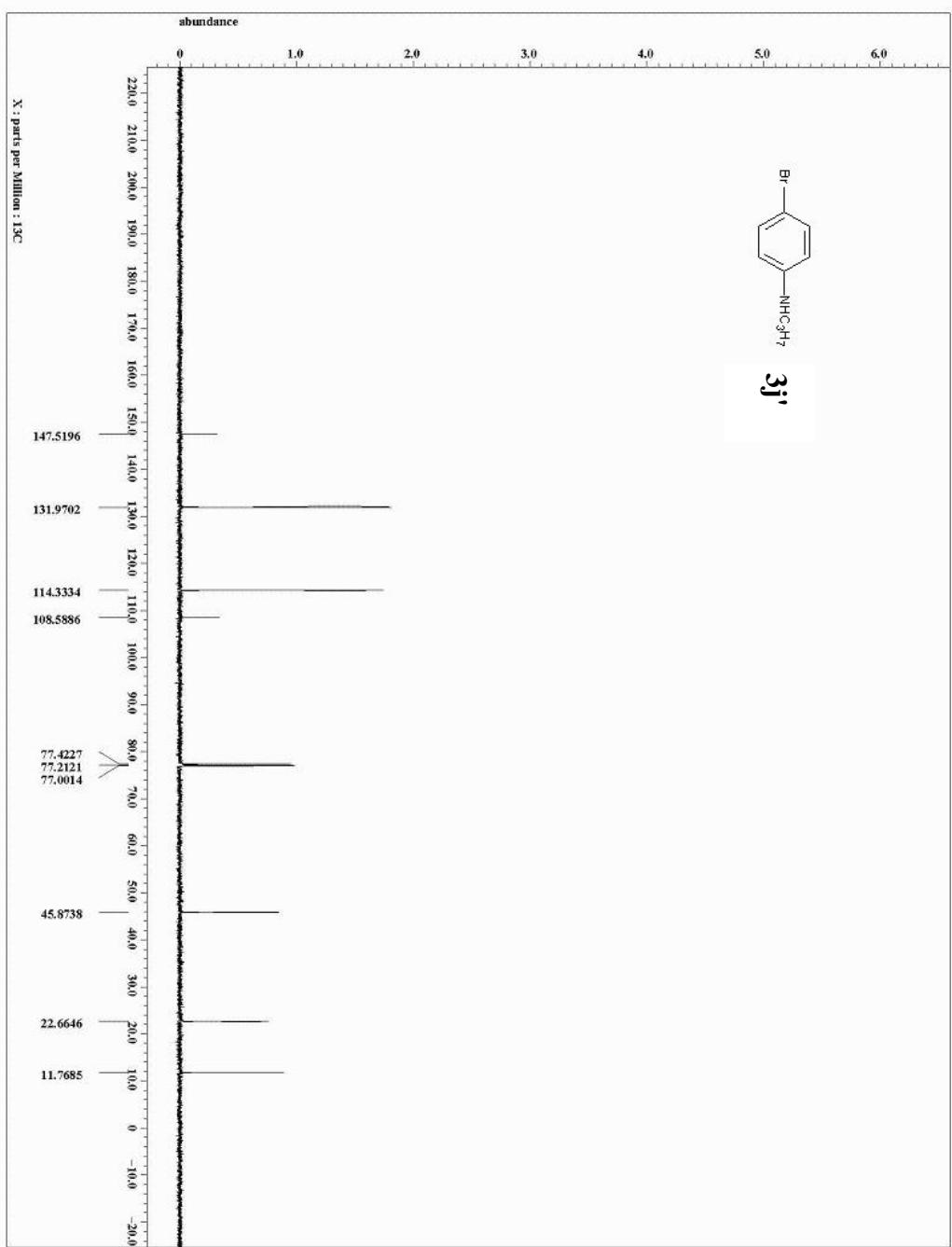


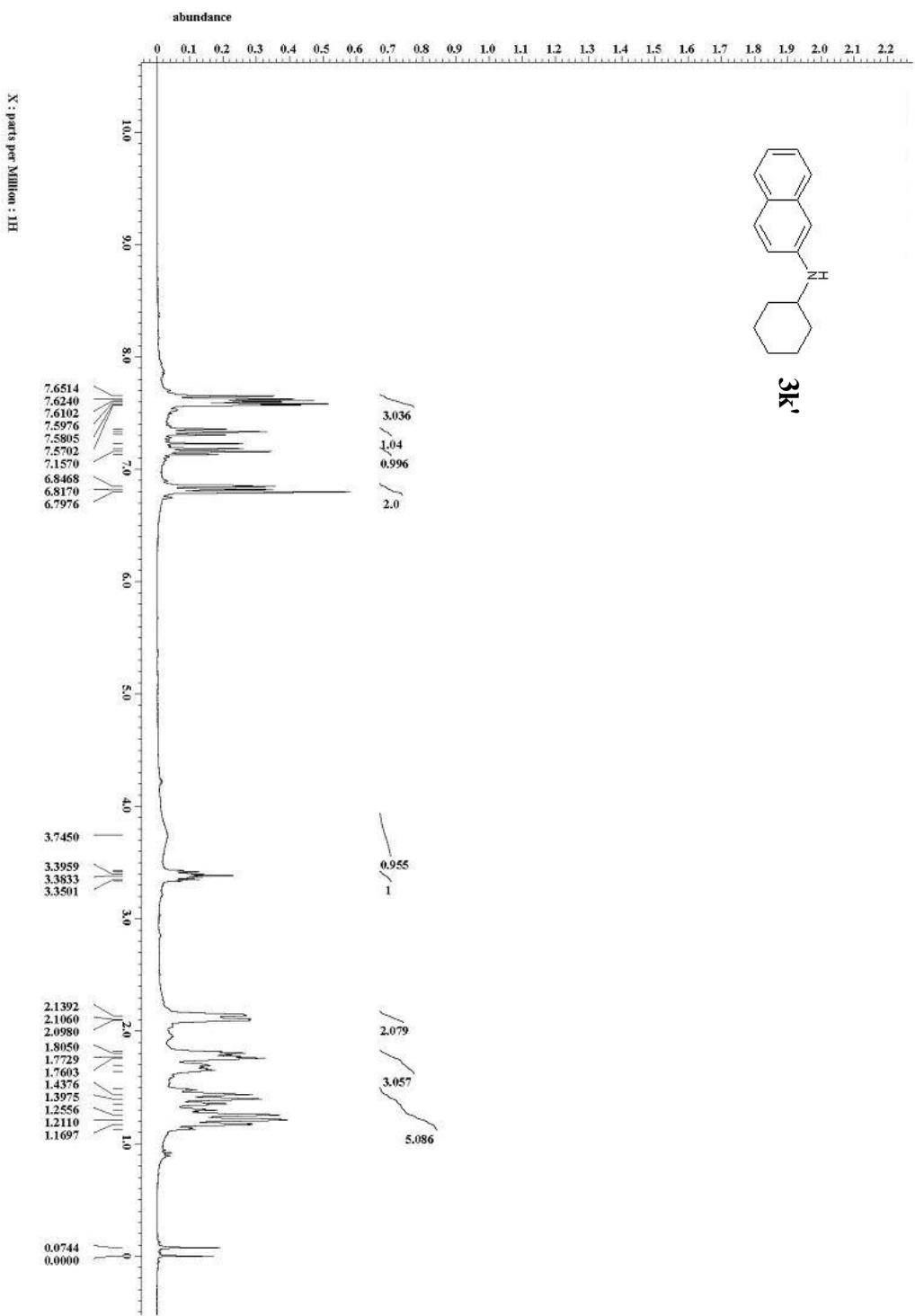


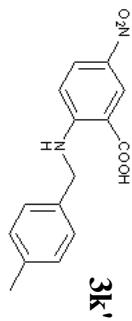




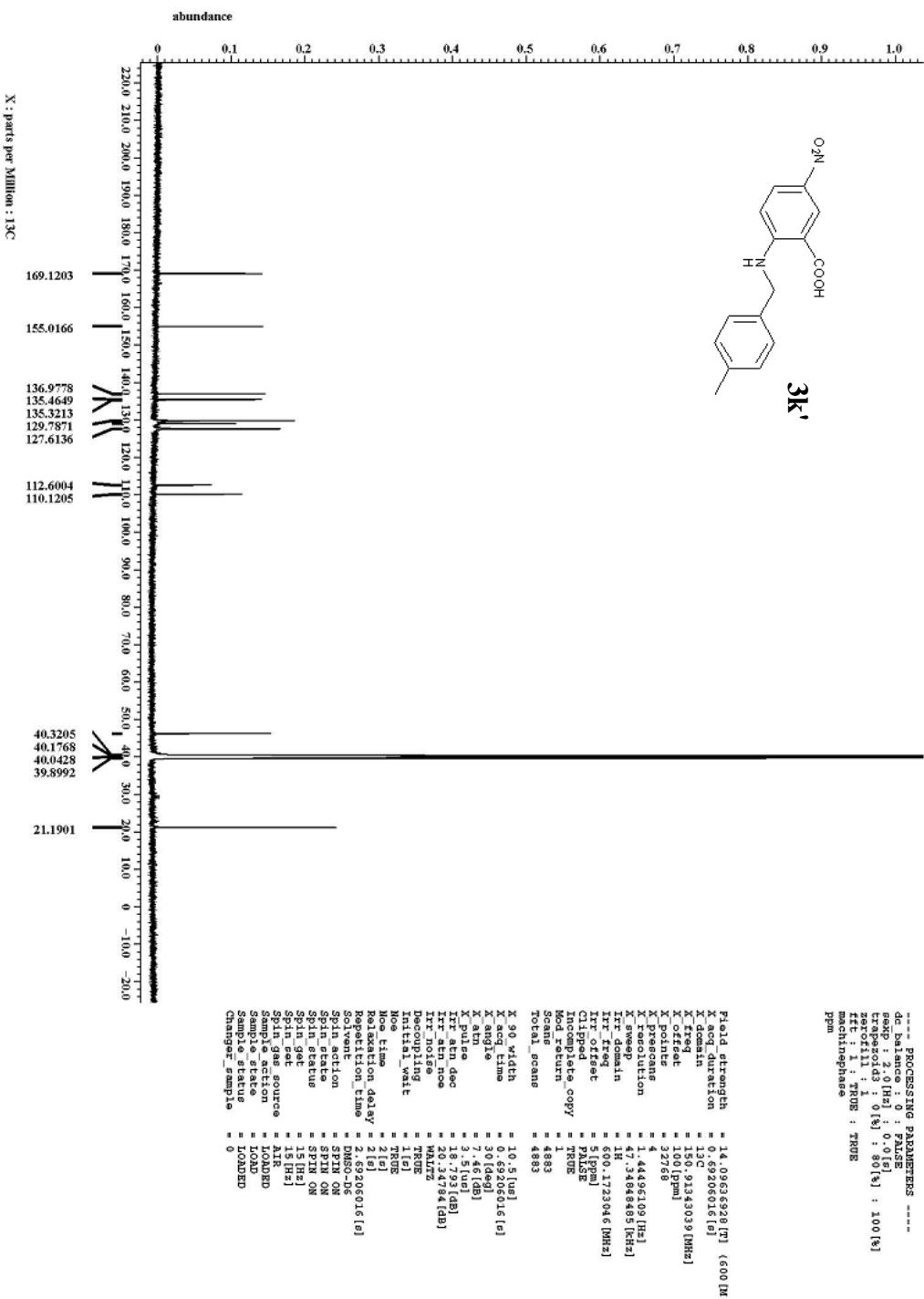




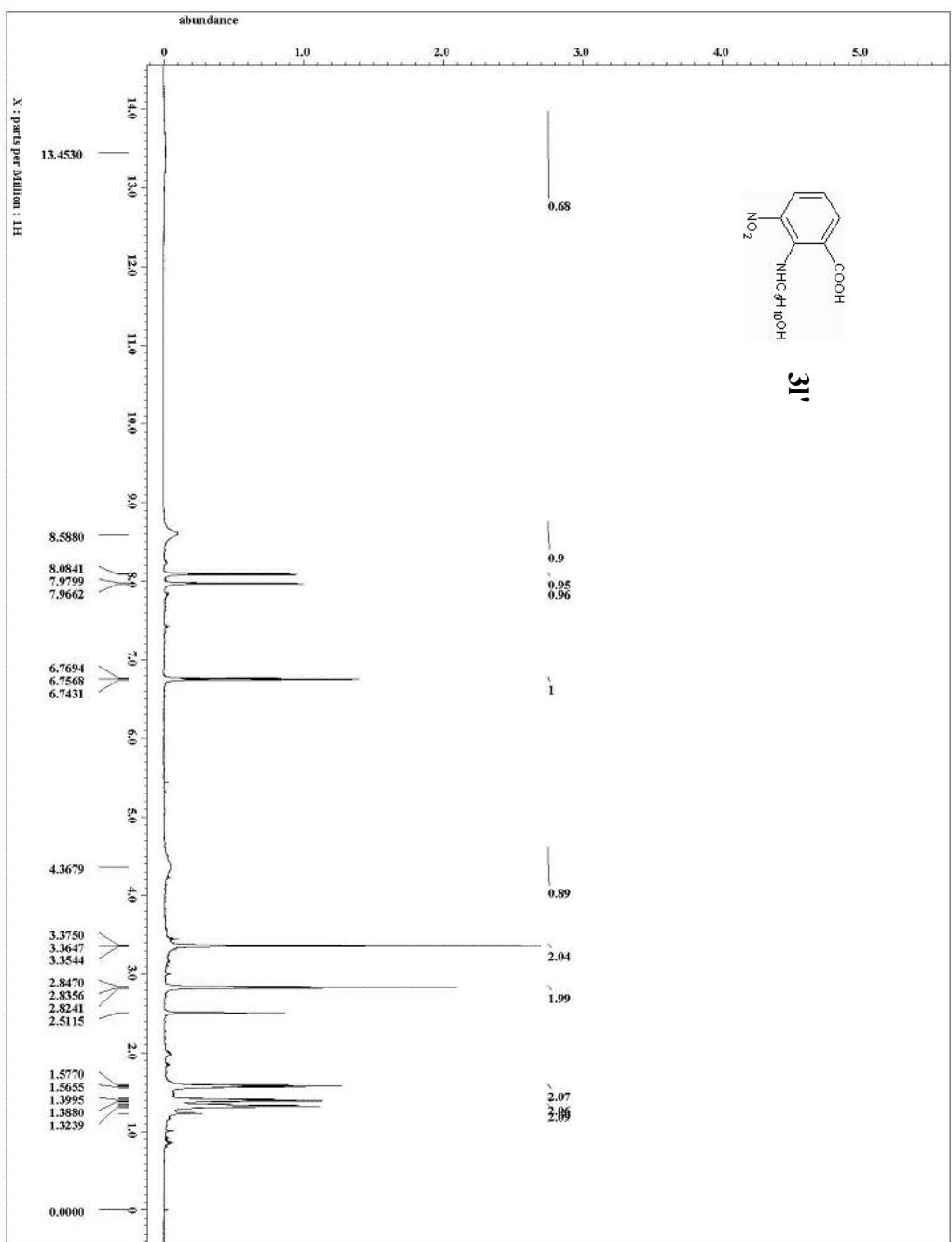


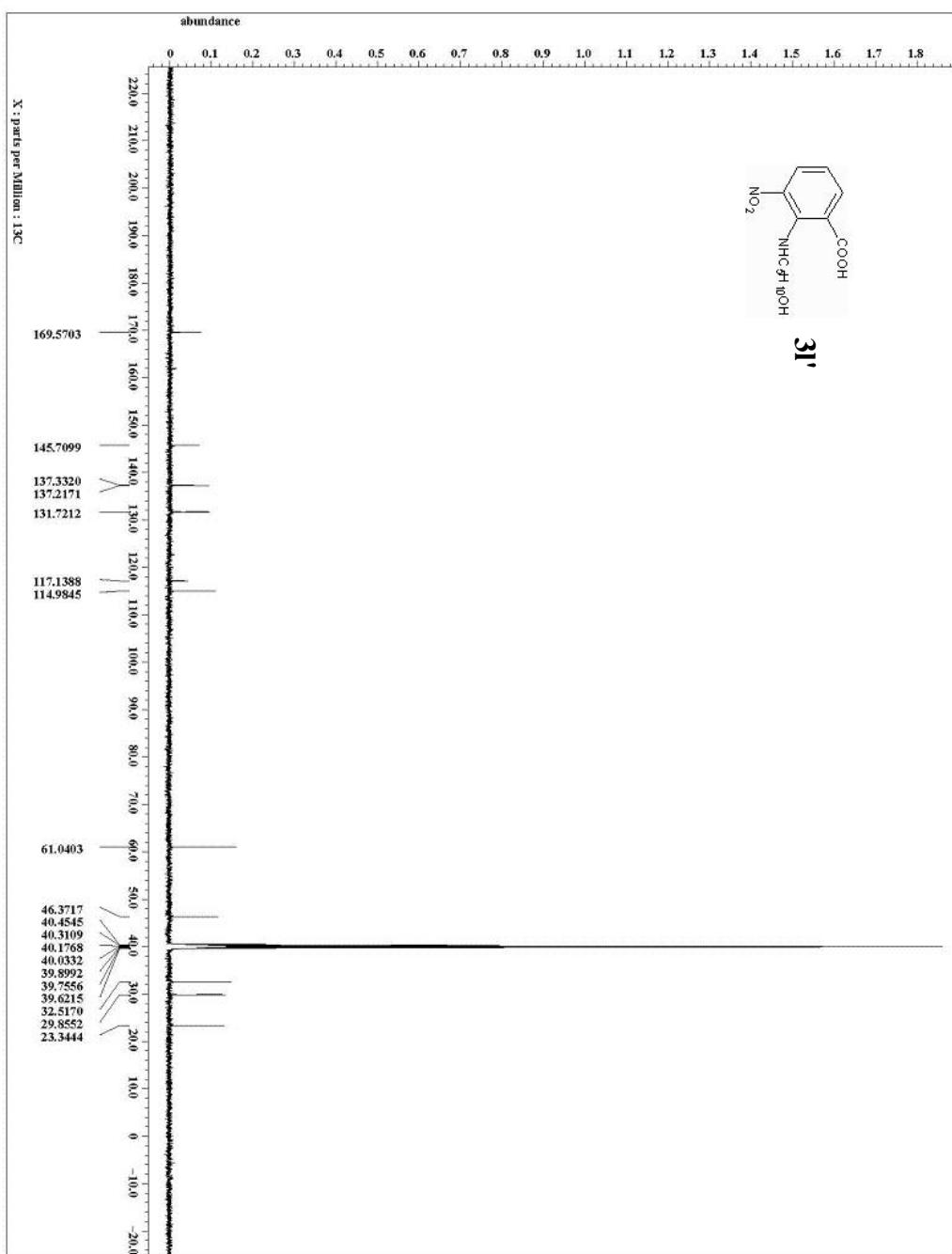


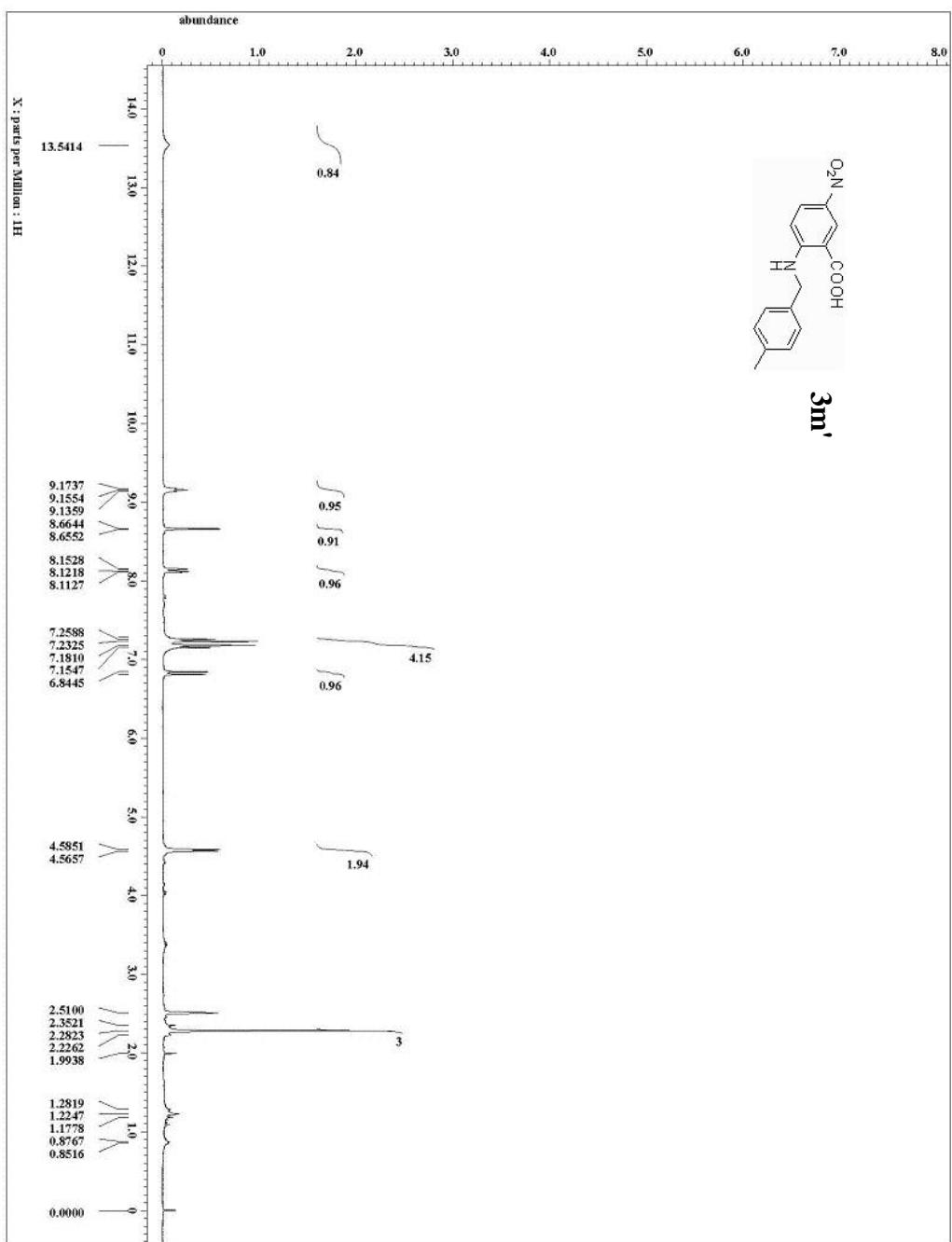
**3k'**

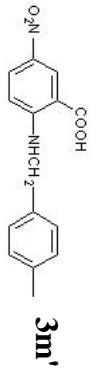


X : parts per Million :  $^{13}\text{C}$

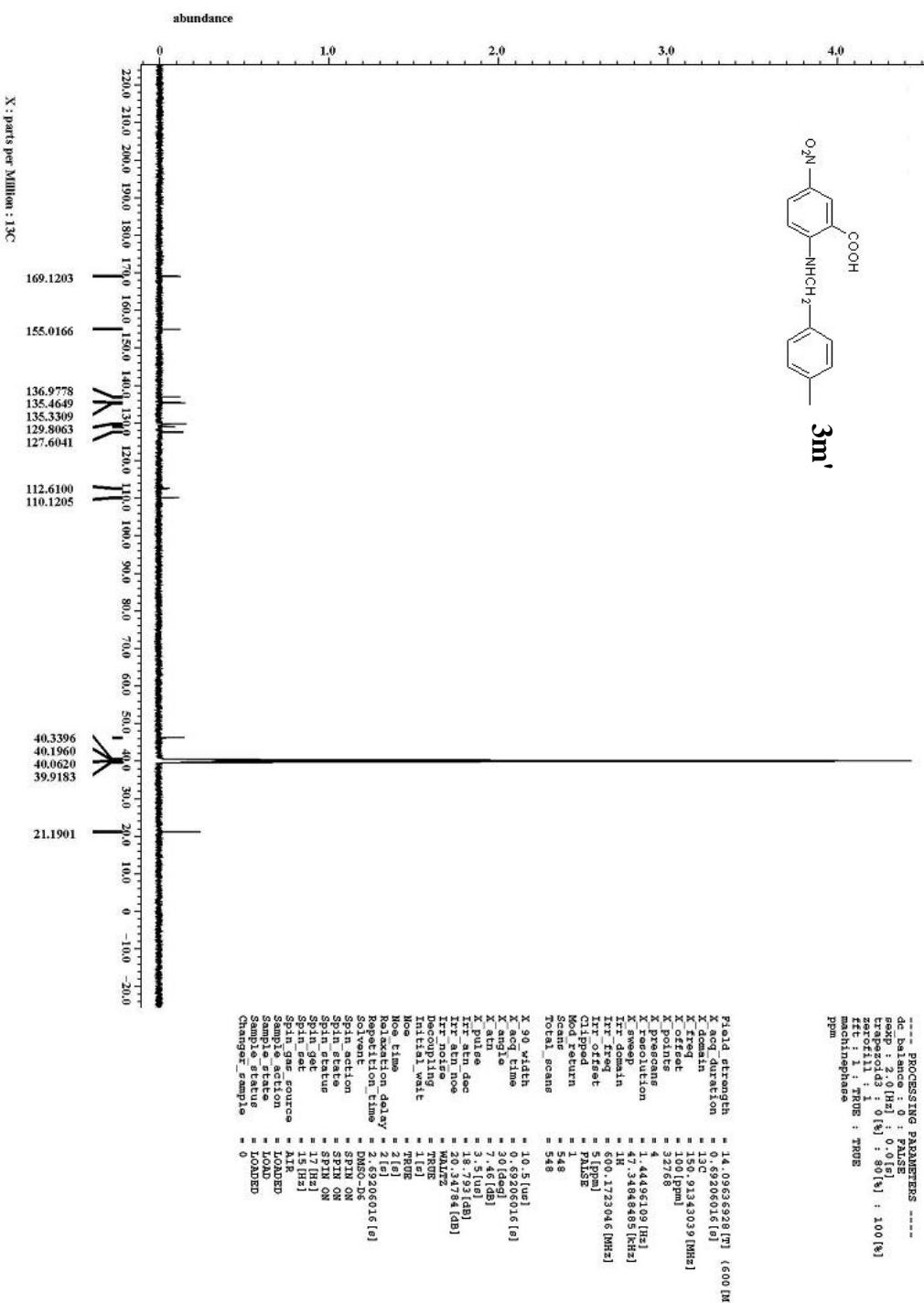








**3m'**



X : parts per Million : <sup>13</sup>C

