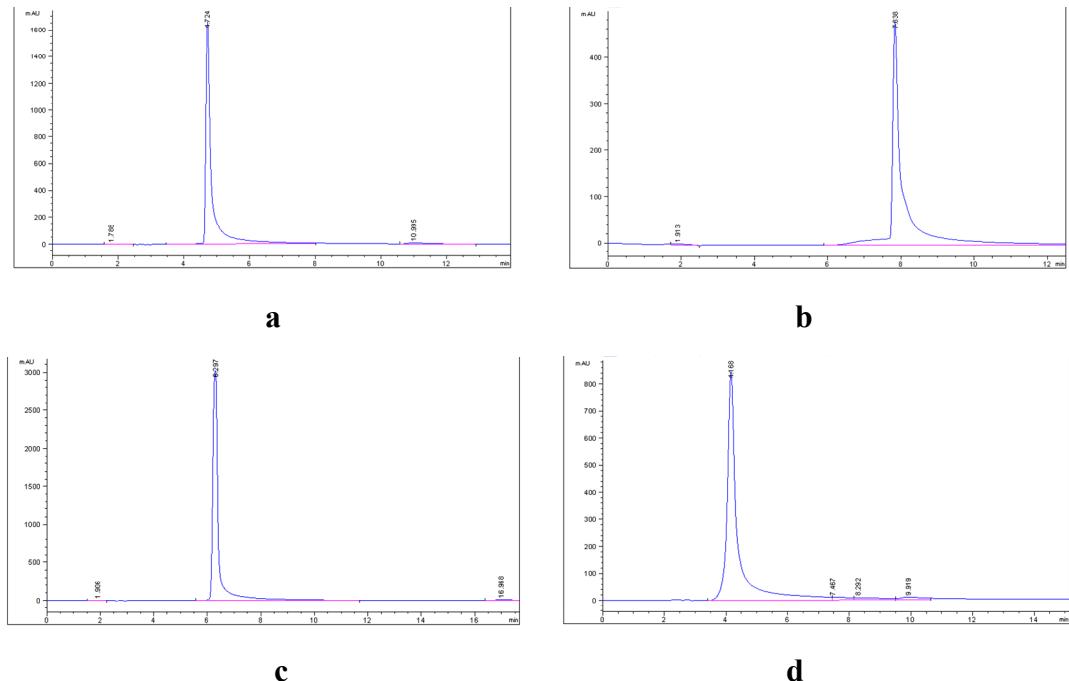


# Supporting Information for Microwave-assisted Synthesis of Imidazole [4,5-*f*][1,10]phenanthroline Derivatives as Apoptosis Inducers in Chemotherapy by Stabilizing Bcl-2 G-quadruplex DNA

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## 1. The HPLC analysis of phenanthroimidazole derivatives



**Figure S1.**The HPLC spectra (273 nm) of phenanthroimidazole derivatives **1-4(a-b)** in the mixed solution of CH<sub>3</sub>CN and H<sub>2</sub>O (the volume ratio is 1:1).

**Table S1.**The results of HPLC analysis of phenanthroimidazole derivatives **1-4**.

Comp.	tR	A	A%
<b>1</b>	4.724	19770.5	98.247
<b>2</b>	7.838	9797.7	99.268
<b>3</b>	6.297	43882.9	98.790
<b>4</b>	4.168	19837.1	93.232

## 2. The results of elemental analysis of phenanthroimidazole derivatives 1-4

DATE 10 01 16 TIME 15 56 18 OPERATOR ID 01  
RUN 1 ID 1 WEIGHT 3.740  
SIGNALS  
CARBON 61.66% ZR 24756  
HYDROGEN 3.69% NR 28576  
NITROGEN 18.72% CR 62540  
HR 65039

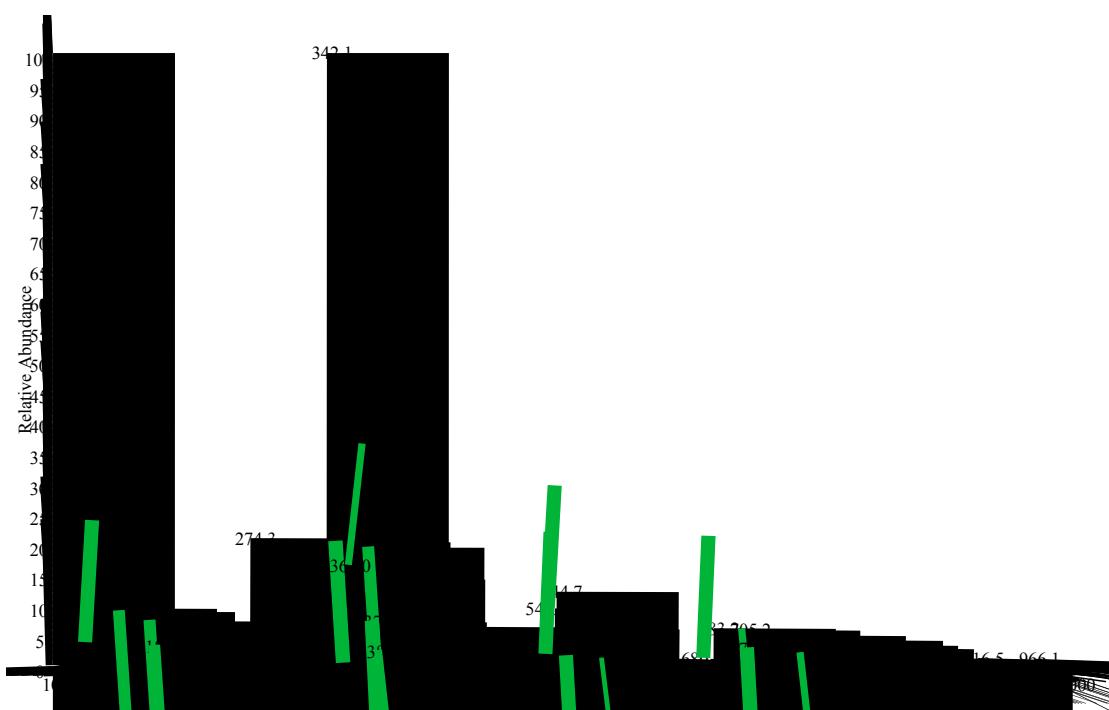
DATE 10 01 16 TIME 16 01 26 OPERATOR ID 01  
RUN 2 ID 2 WEIGHT 2.928  
SIGNALS  
CARBON 62.23% ZR 24764  
HYDROGEN 4.26% NR 27050  
NITROGEN 13.70% CR 53868  
HR 56166

DATE 10 01 16 TIME 16 06 35 OPERATOR ID 01  
RUN 3 ID 3 WEIGHT 2.999  
SIGNALS  
CARBON 61.62% ZR 24769  
HYDROGEN 3.95% NR 27170  
NITROGEN 14.13% CR 54371  
HR 56572

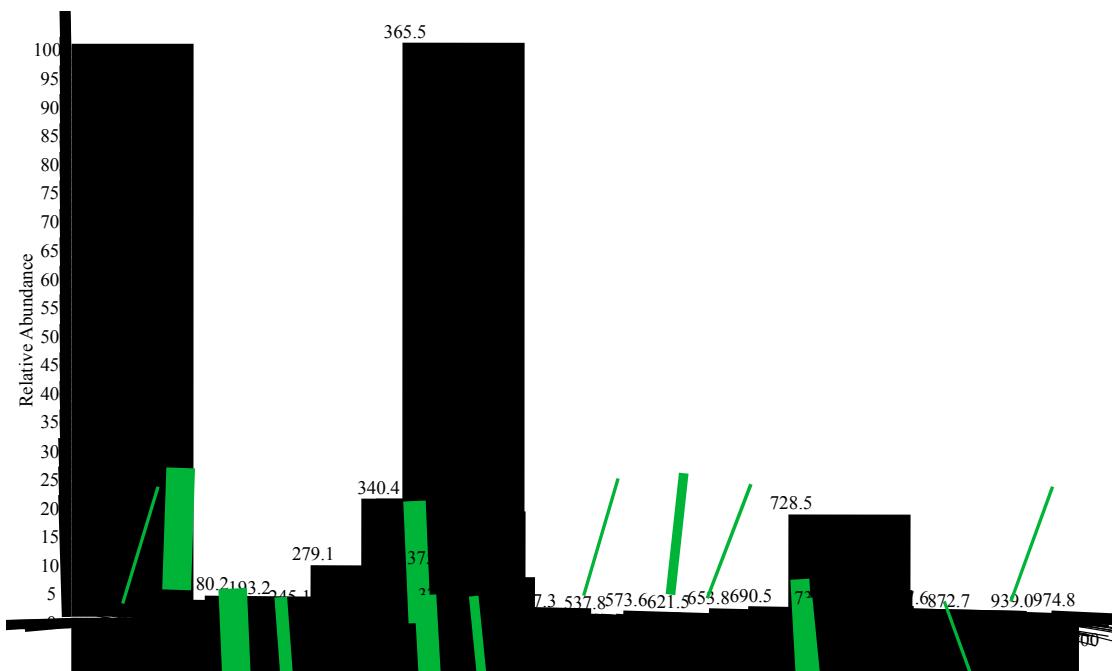
DATE 10 01 16 TIME 16 11 43 OPERATOR ID 01  
RUN 4 ID 4 WEIGHT 2.001  
SIGNALS  
CARBON 67.06% ZR 24772  
HYDROGEN 5.20% NR 26565  
NITROGEN 15.25% CR 46298  
HR 48283

**Figure S2.** The data of elemental analysis of phenanthroimidazole derivatives 1-4.

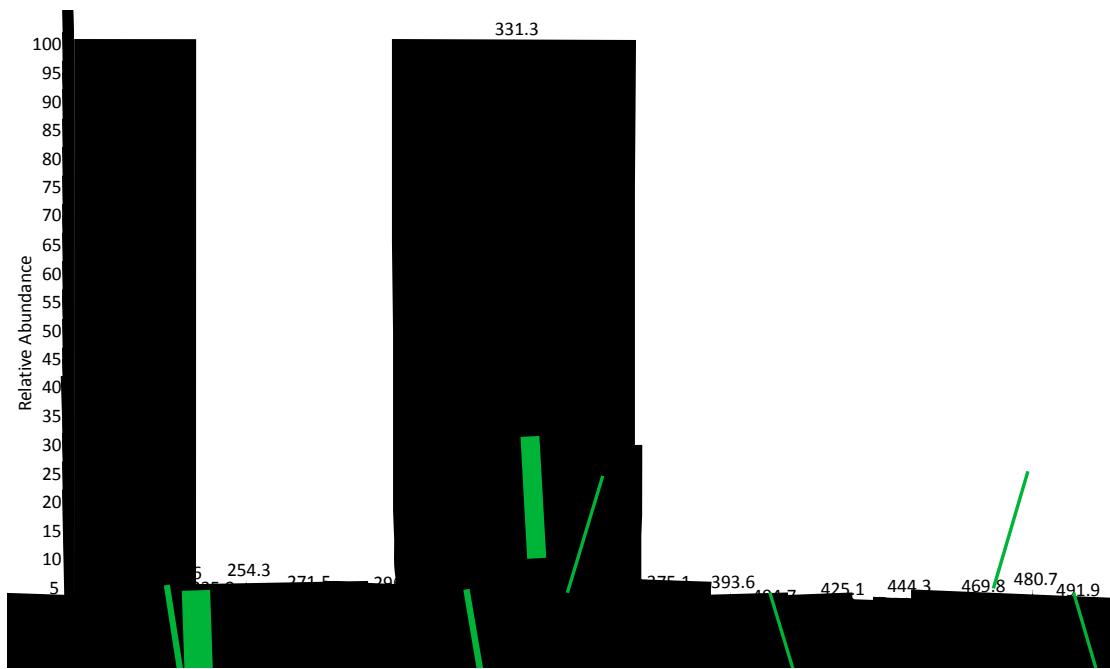
### 3. The ESI-MS spectra of phenanthroimidazole derivatives 1-4



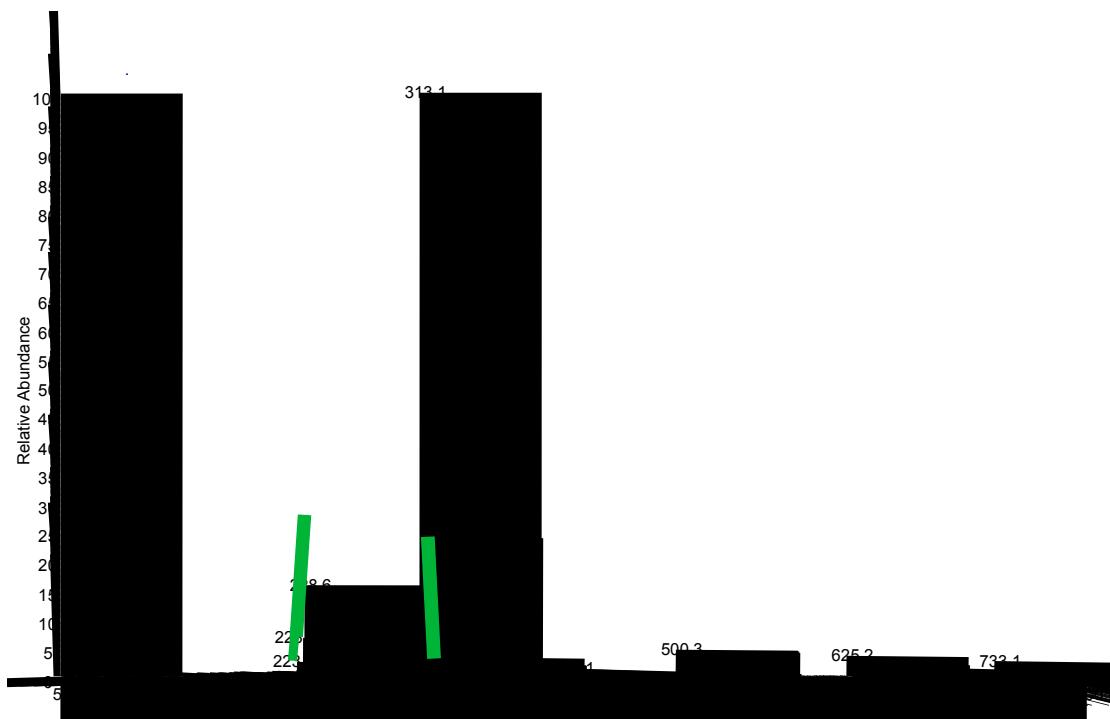
**Figure S3.** The ESI-MS spectra of phenanthroimidazole derivative 1.



**Figure S4.** The ESI-MS spectra of phenanthroimidazole derivative 2.

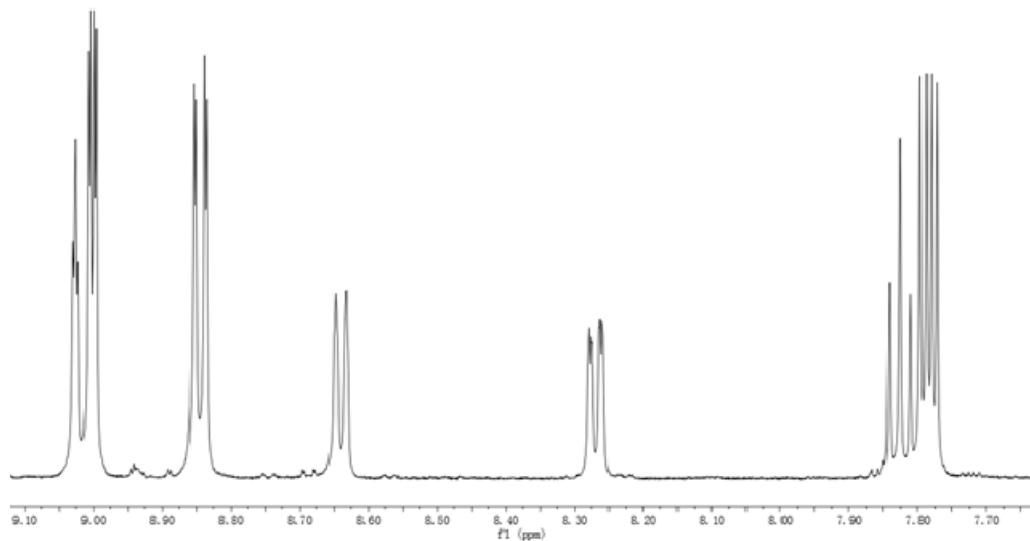


**Figure S5.** The ESI-MS spectra of phenanthroimidazole derivative **3**.

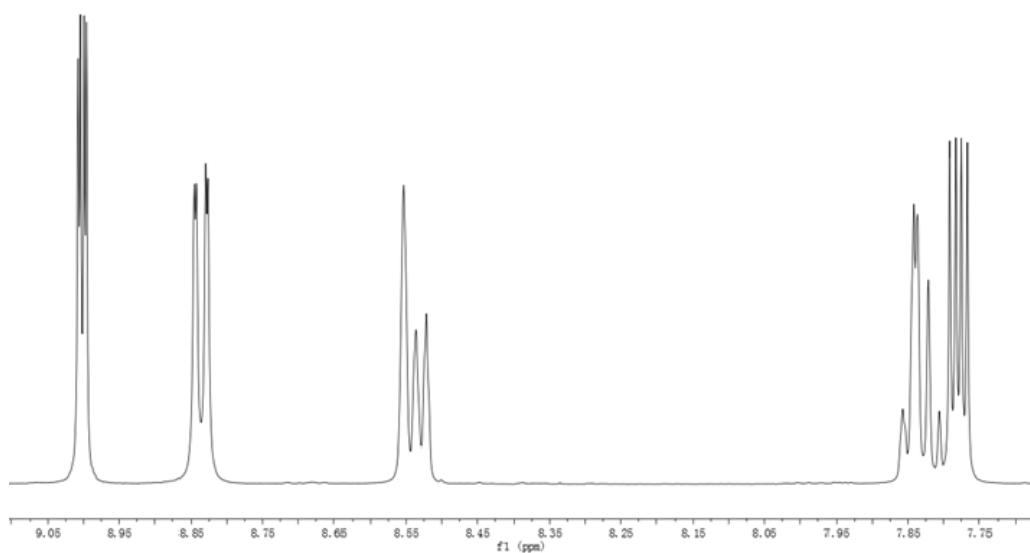


**Figure S6.** The ESI-MS spectra of phenanthroimidazole derivative **4**.

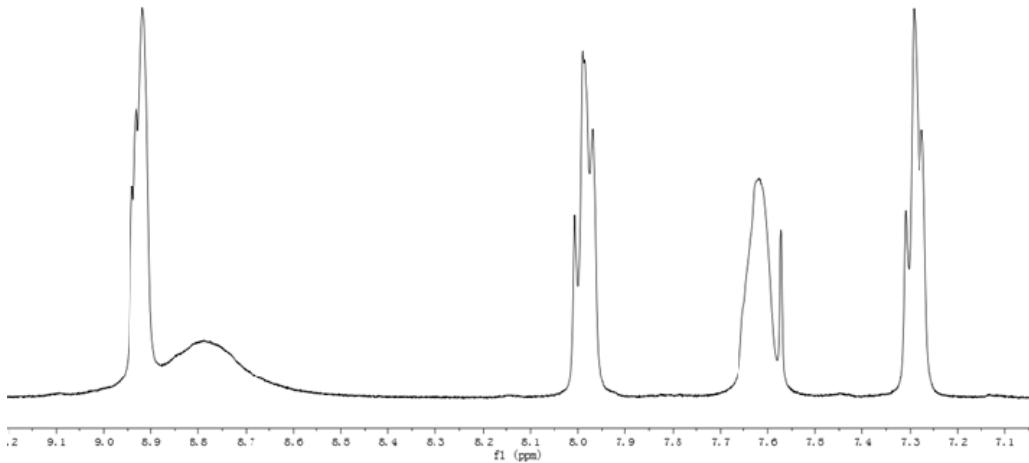
### 3. The $^1\text{H}$ NMR spectra of phenanthroimidazole derivatives



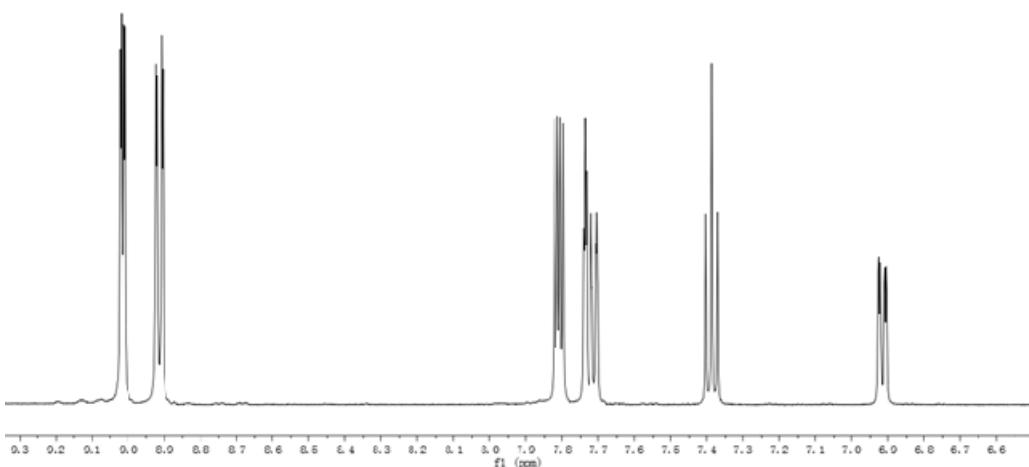
**Figure S7.** The  $^1\text{H}$  NMR spectra of phenanthroimidazole derivative 1.



**Figure S8.** The  $^1\text{H}$  NMR spectra of phenanthroimidazole derivative 2.

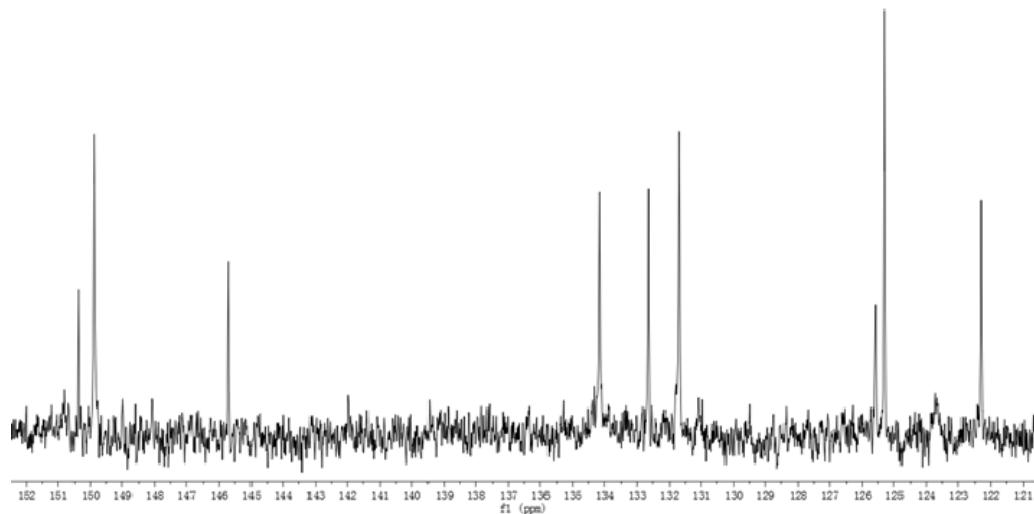


**Figure S9.** The <sup>1</sup>H NMR spectra of phenanthroimidazole derivative 3.

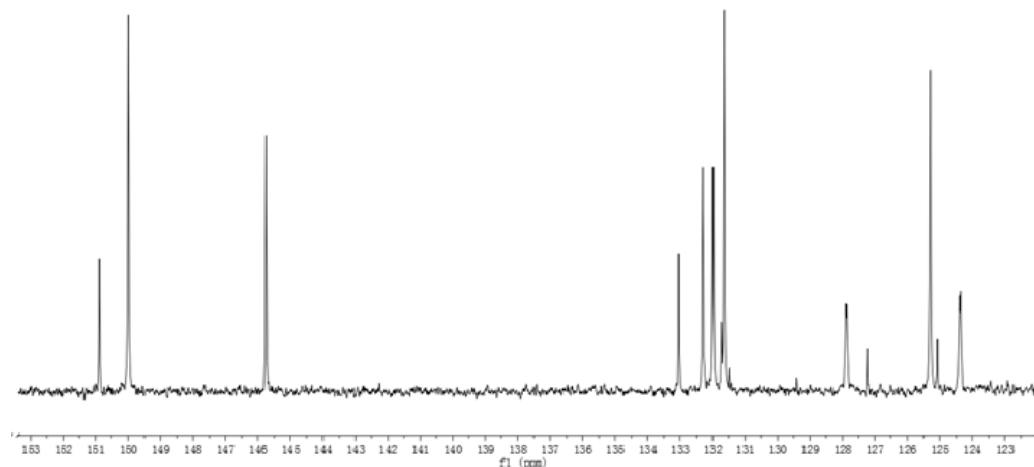


**Figure S10.** The <sup>1</sup>H NMR spectra of phenanthroimidazole derivative 4.

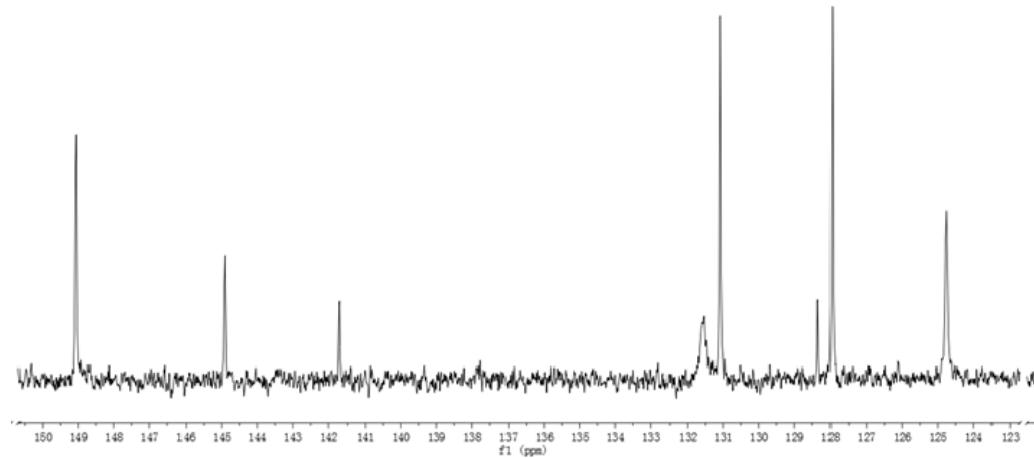
#### 4. The $^{13}\text{C}$ NMR spectra of phenanthroimidazole derivatives



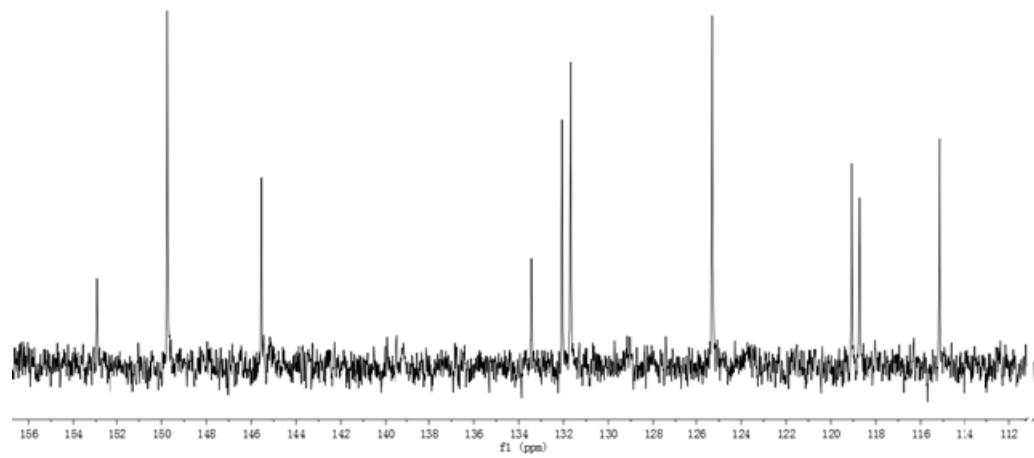
**Figure S11.** The  $^{13}\text{C}$  NMR spectra of phenanthroimidazole derivative **1**.



**Figure S12.** The  $^{13}\text{C}$  NMR spectra of phenanthroimidazole derivative **2**.



**Figure S13.** The  $^{13}\text{C}$  NMR spectra of phenanthroimidazole derivative **3**.



**Figure S14.** The  $^{13}\text{C}$  NMR spectra of phenanthroimidazole derivative **4**.