



## Supporting Information

for

### **Efficient one-step synthesis of diarylacetic acids by electrochemical direct carboxylation of diarylmethanol compounds in DMSO**

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## NMR spectra

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

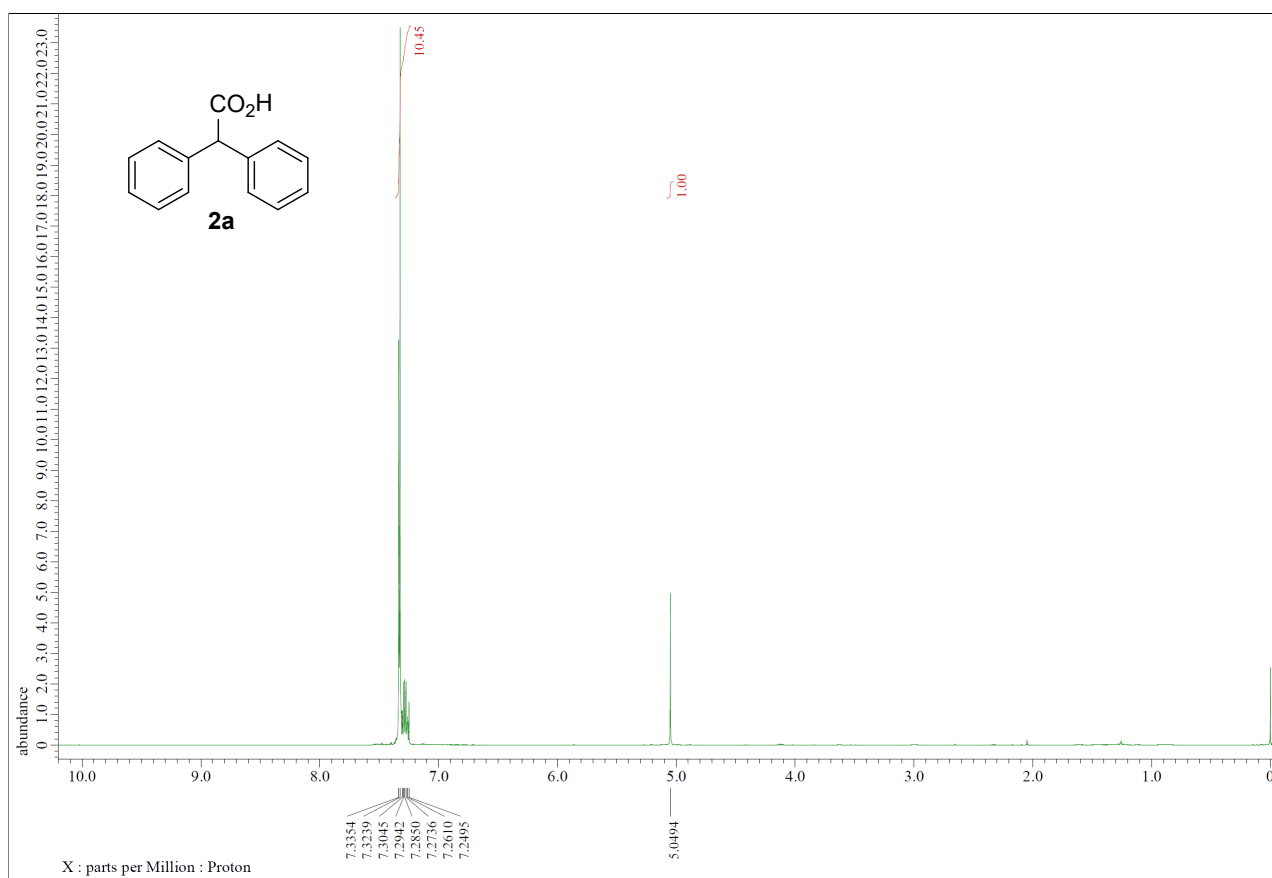


Fig. 1.  $^1\text{H}$  NMR (400 MHz;  $\text{CDCl}_3$ ) spectrum of diphenylacetic acid (2a).

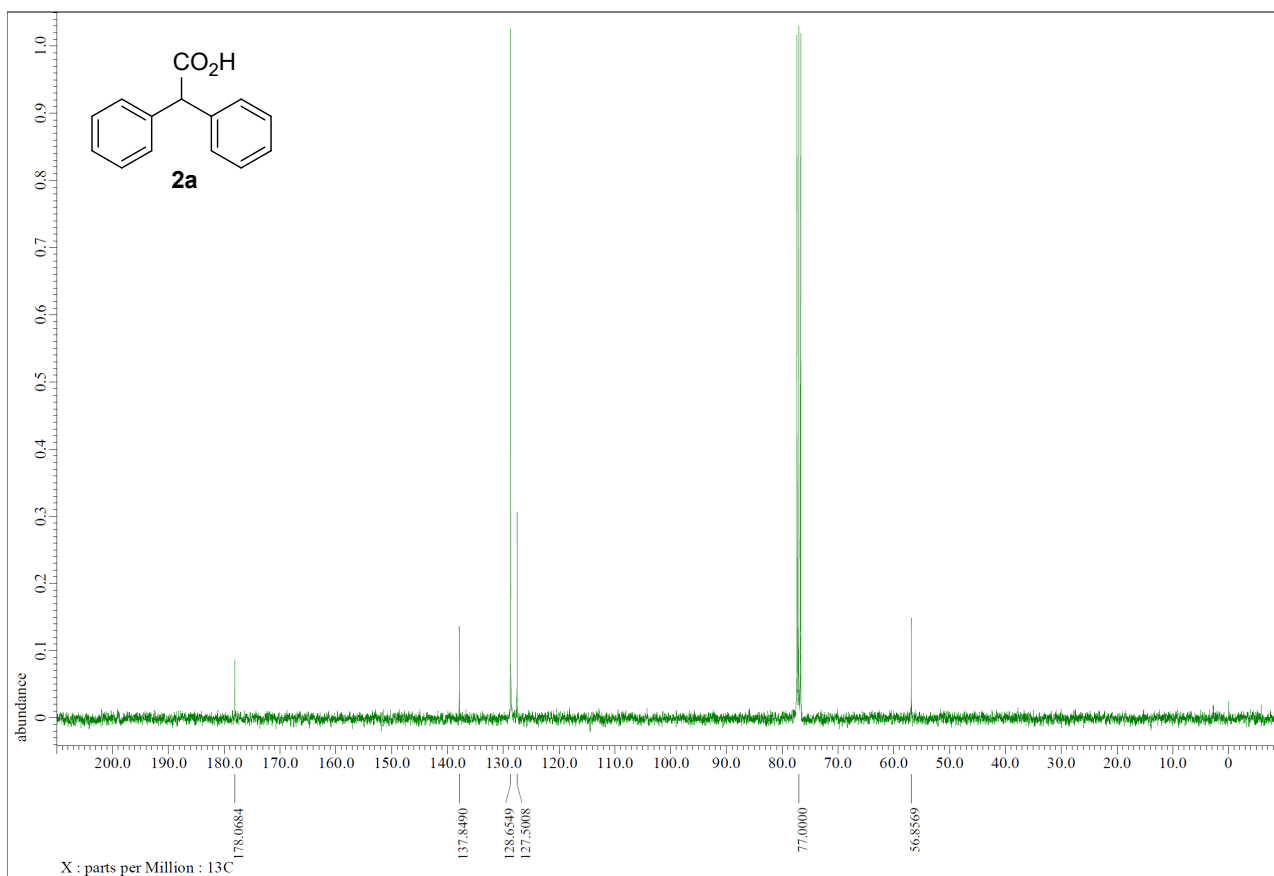


Fig. 2.  $^{13}\text{C}$  NMR (100 MHz;  $\text{CDCl}_3$ ) spectrum of diphenylacetic acid (**2a**).

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

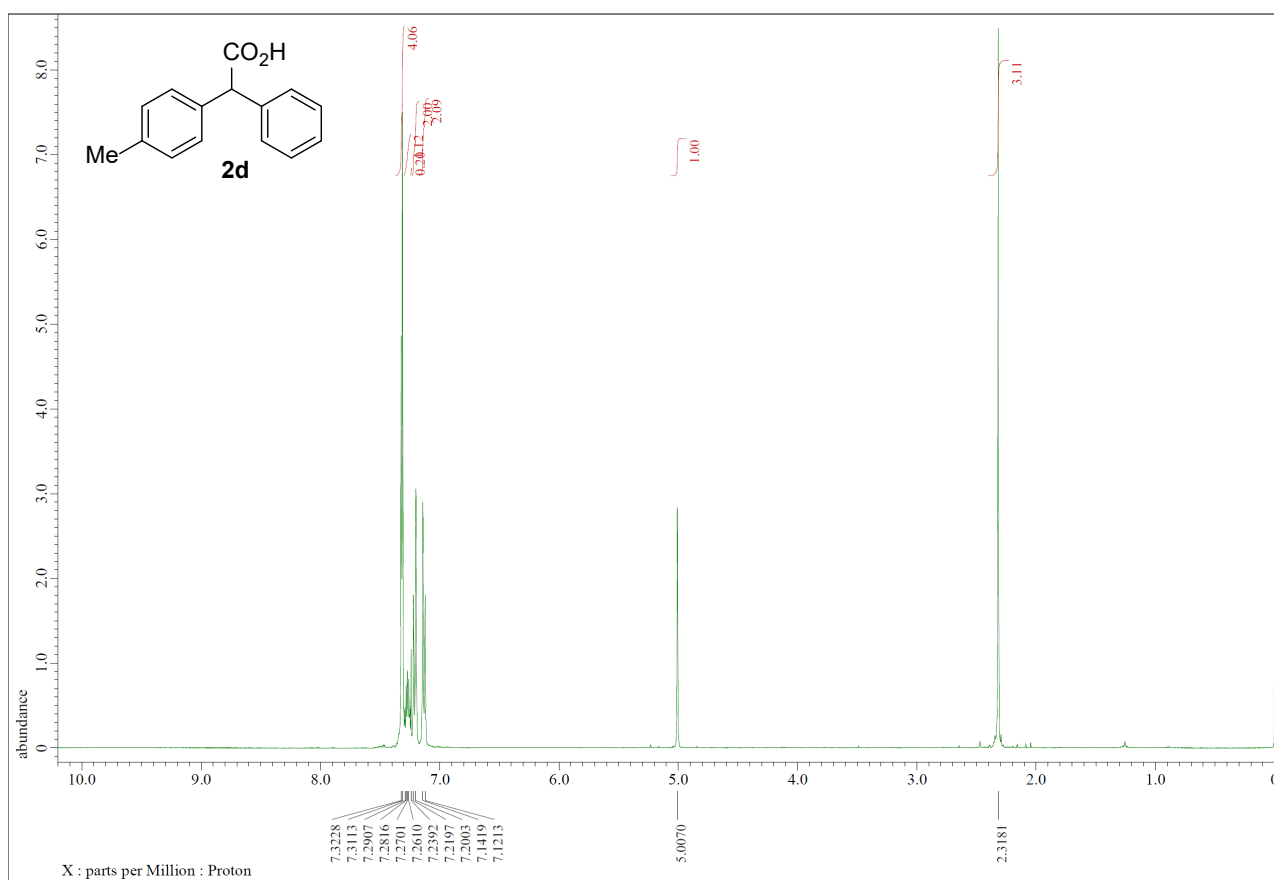


Fig. 3.  $^1\text{H}$  NMR (400 MHz;  $\text{CDCl}_3$ ) spectrum of (4-methylphenyl)phenylacetic acid (**2d**).

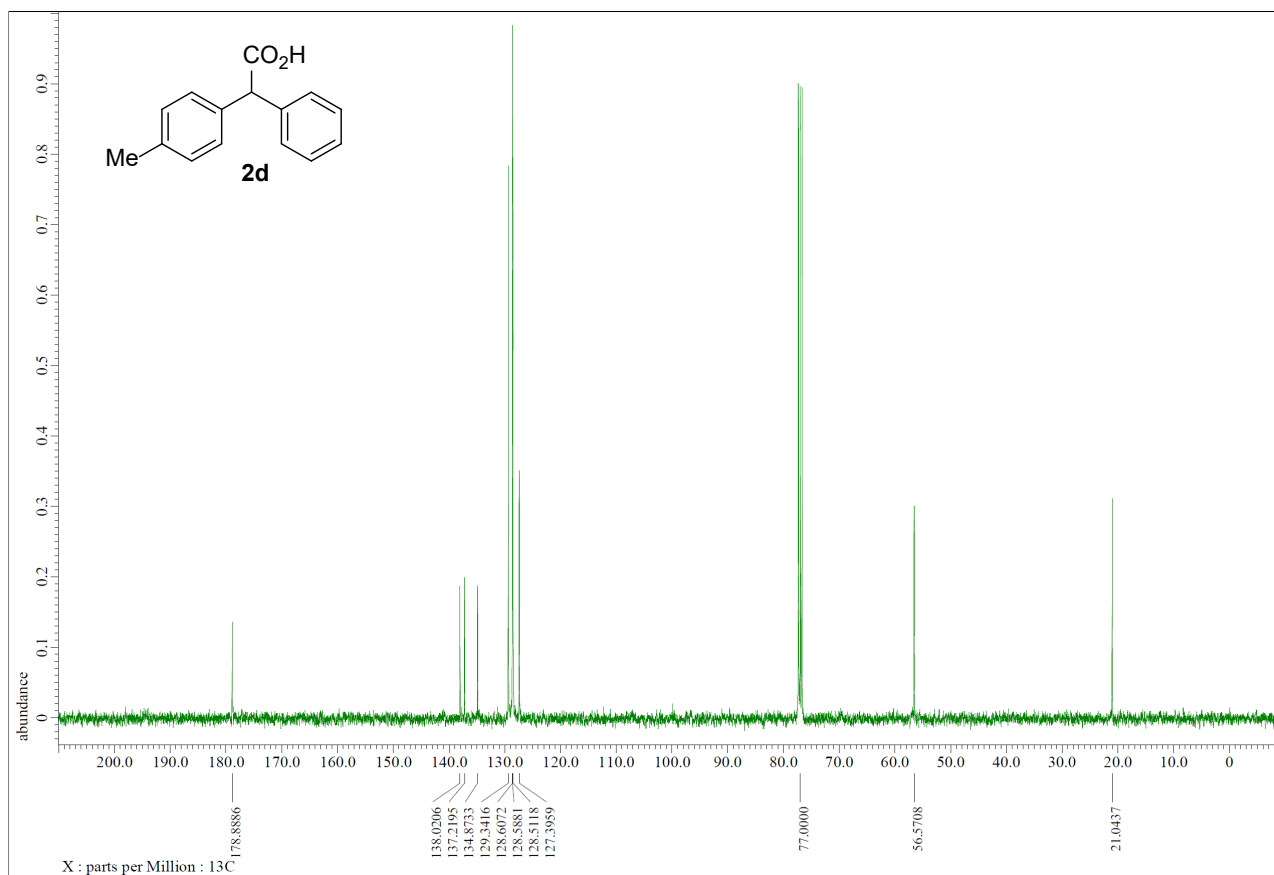


Fig. 4.  $^{13}\text{C}$  NMR (100 MHz;  $\text{CDCl}_3$ ) spectrum of (4-methylphenyl)phenylacetic acid (**2d**).

### 3. $^1\text{H}$ and $^{13}\text{C}$ spectra of compound **2e**.

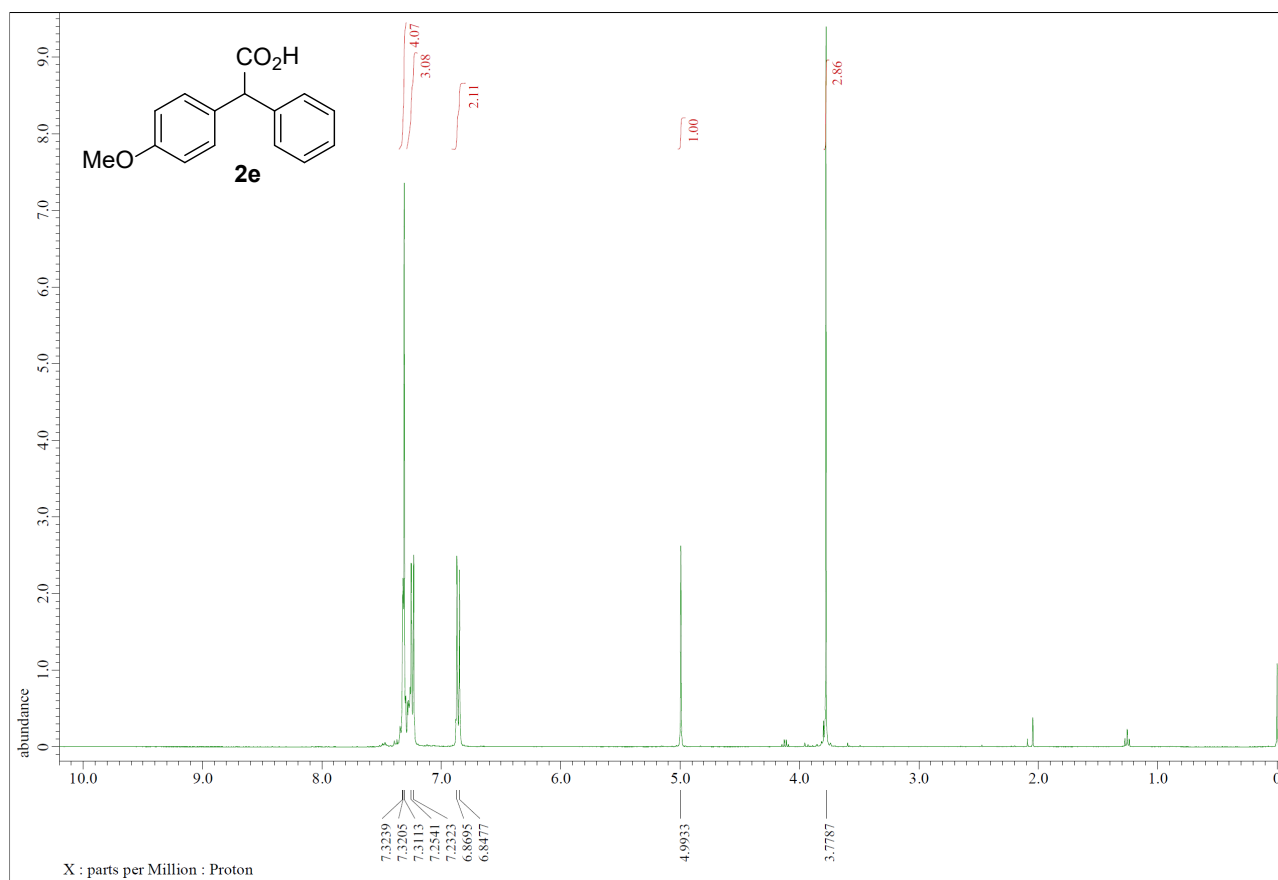


Fig. 5.  $^1\text{H}$  NMR (400 MHz;  $\text{CDCl}_3$ ) spectrum of (4-methoxyphenyl)phenylacetic acid (**2e**).

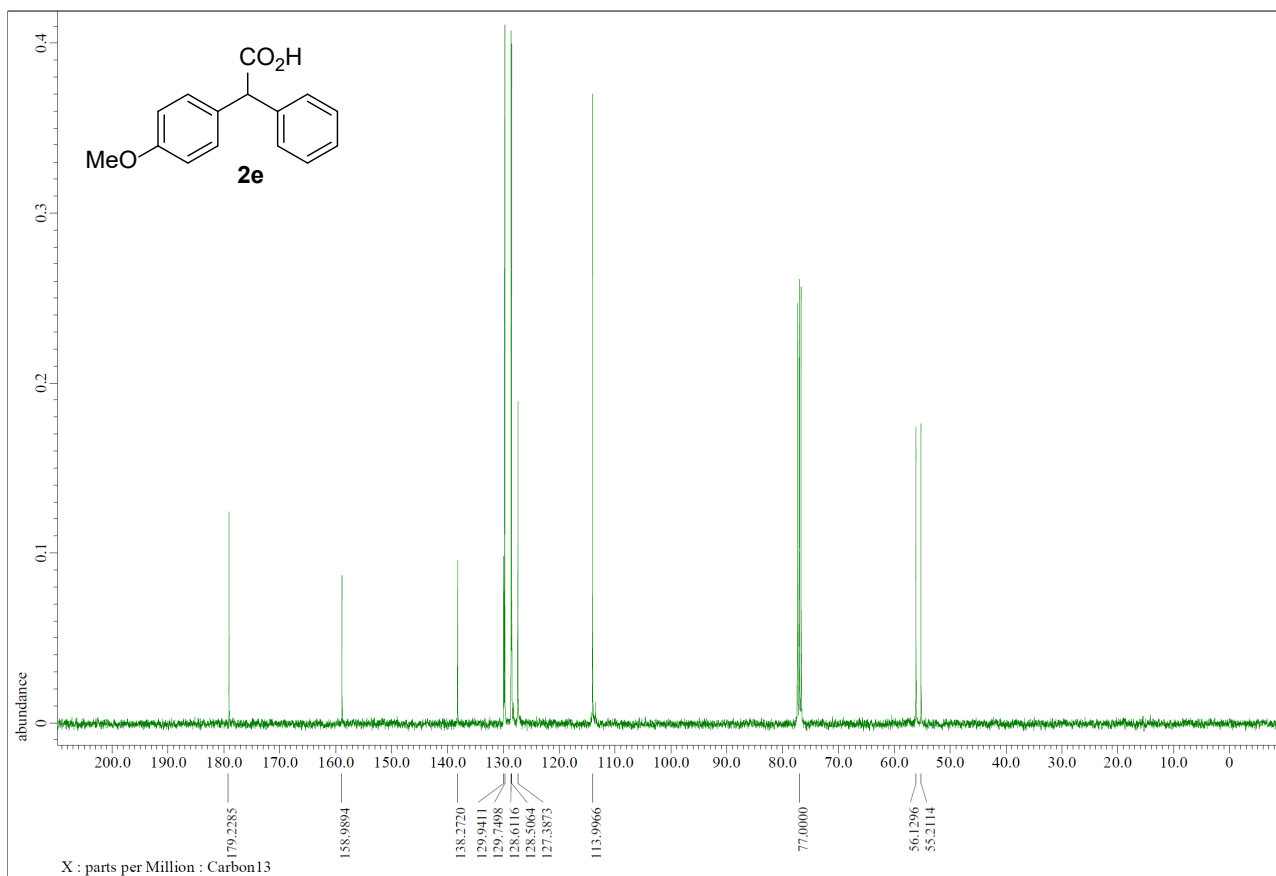


Fig. 6.  $^{13}\text{C}$  NMR (100 MHz;  $\text{CDCl}_3$ ) spectrum of (4-methoxyphenyl)phenylacetic acid (**2e**).



#### 4. $^1\text{H}$ and $^{13}\text{C}$ spectra of compound **2f**.

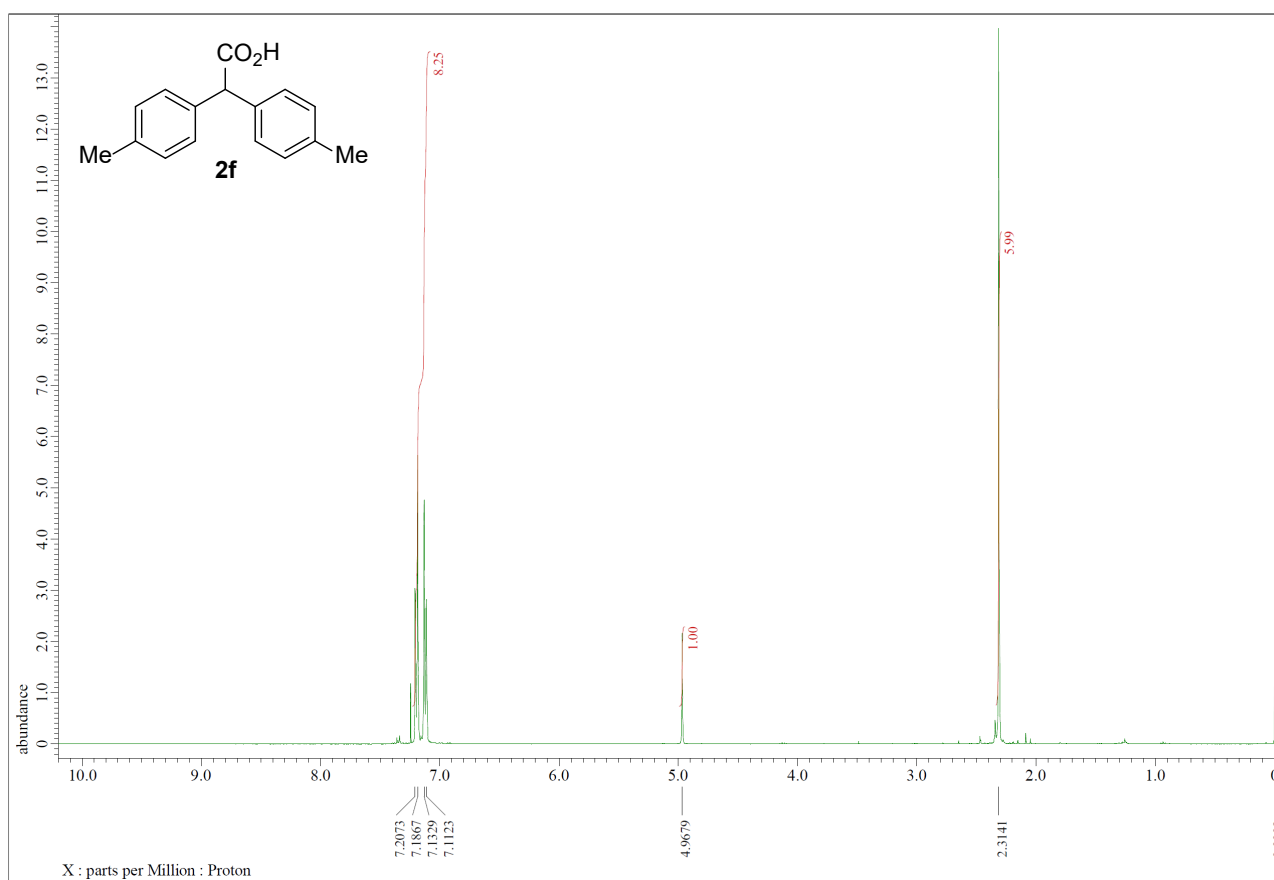


Fig. 7.  $^1\text{H}$  NMR (400 MHz;  $\text{CDCl}_3$ ) spectrum of bis(4-methylphenyl)acetic acid (**2f**).

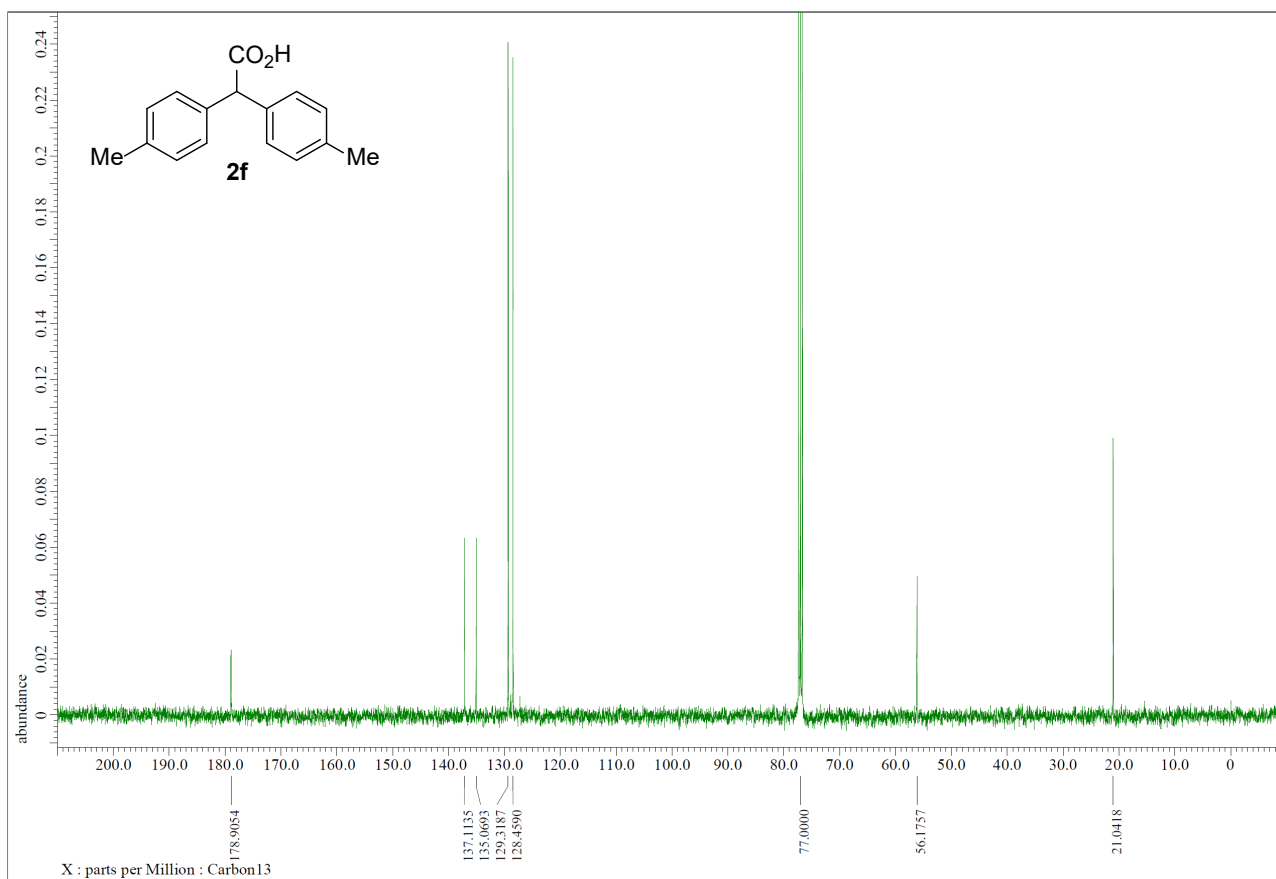


Fig. 8. <sup>13</sup>C NMR (100 MHz; CDCl<sub>3</sub>) spectrum of bis(4-methylphenyl)acetic acid (**2f**).

## 5. $^1\text{H}$ and $^{13}\text{C}$ spectra of compound **2g**.

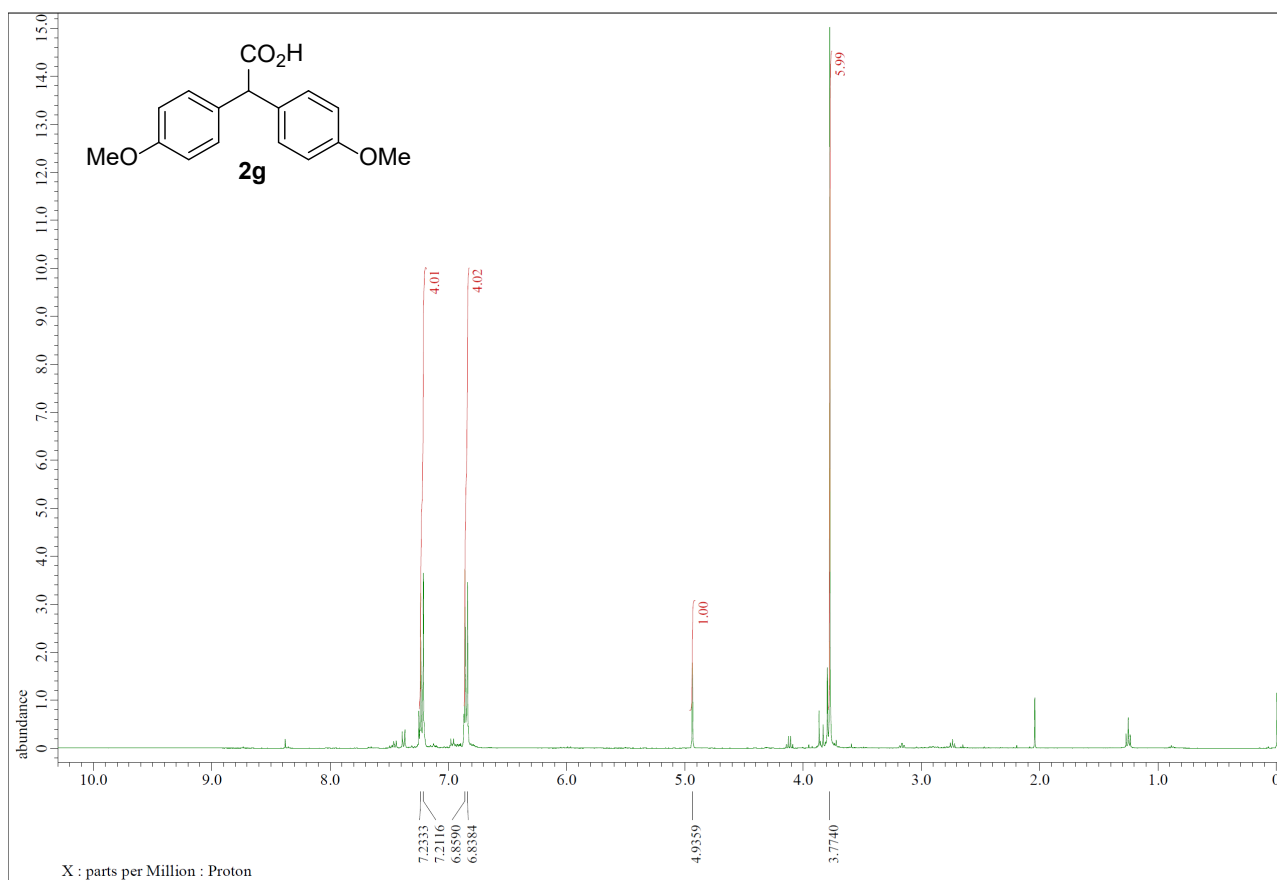


Fig. 9.  $^1\text{H}$  NMR (400 MHz;  $\text{CDCl}_3$ ) spectrum of bis(4-methoxyphenyl)acetic acid (**2g**).

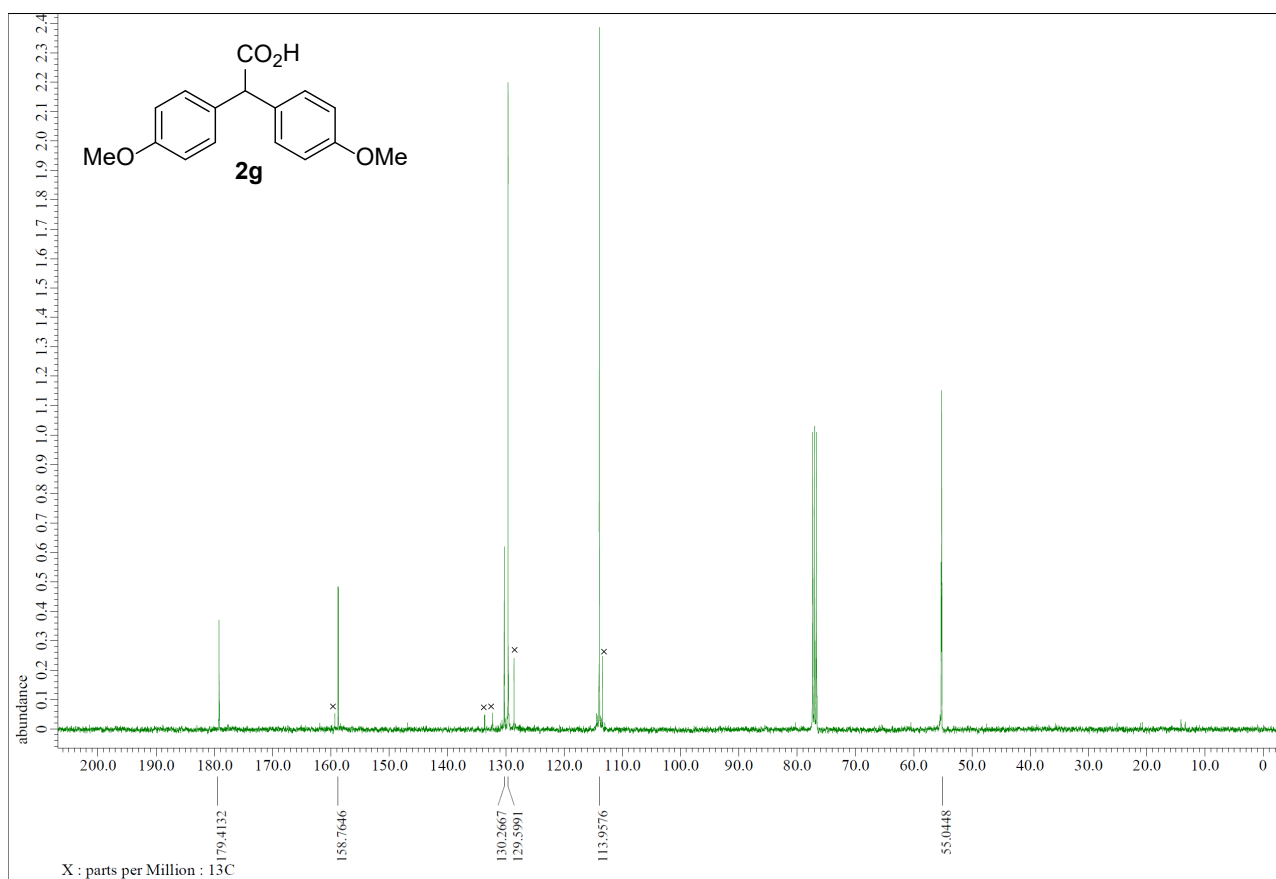


Fig. 10.  $^{13}\text{C}$  NMR (100 MHz;  $\text{CDCl}_3$ ) spectrum of bis(4-methoxyphenyl)acetic acid (**2g**).

## 6. $^1\text{H}$ and $^{13}\text{C}$ spectra of compound **2h**.

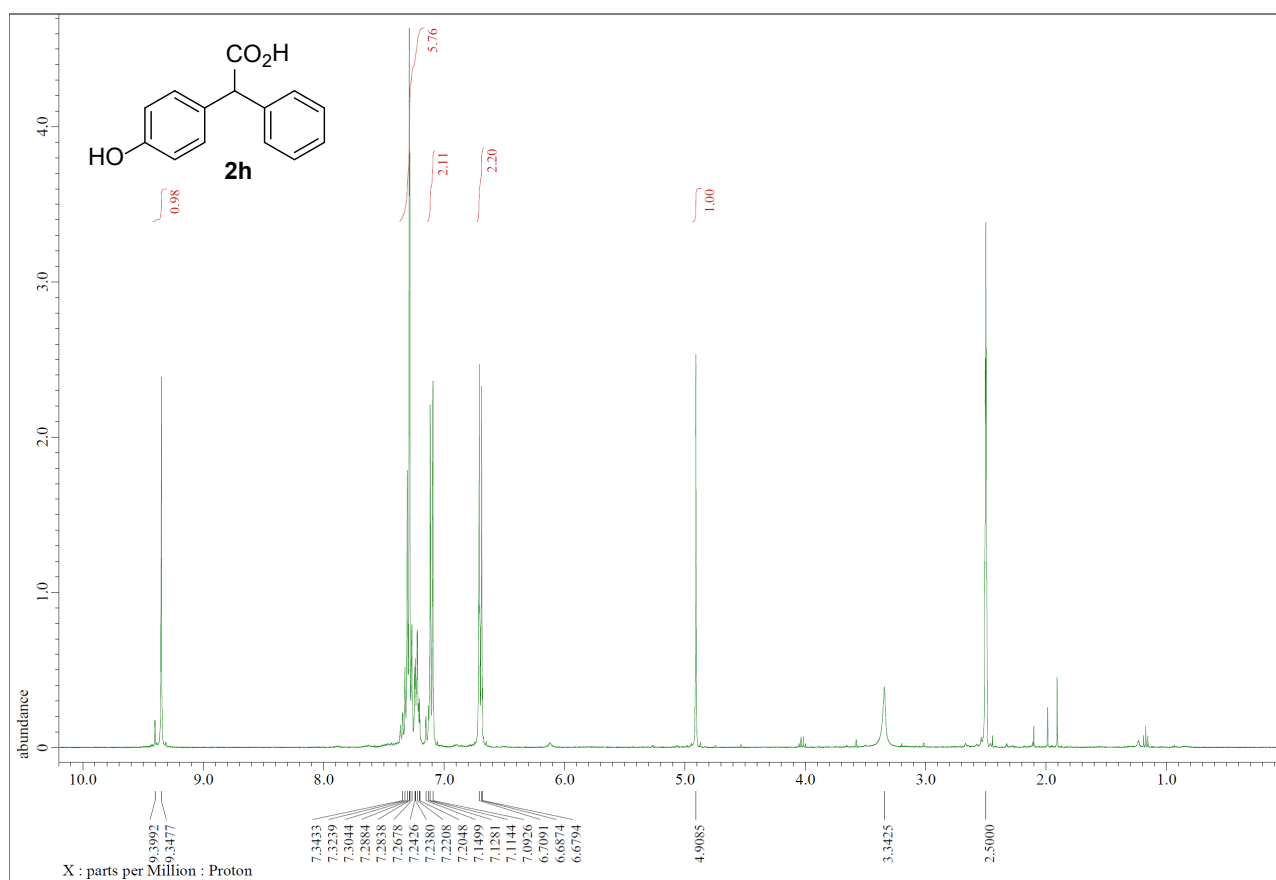


Fig. 11.  $^1\text{H}$  NMR (400 MHz; DMSO- $d_6$ ) spectrum of (4-hydroxyphenyl)phenylacetic acid (**2h**).

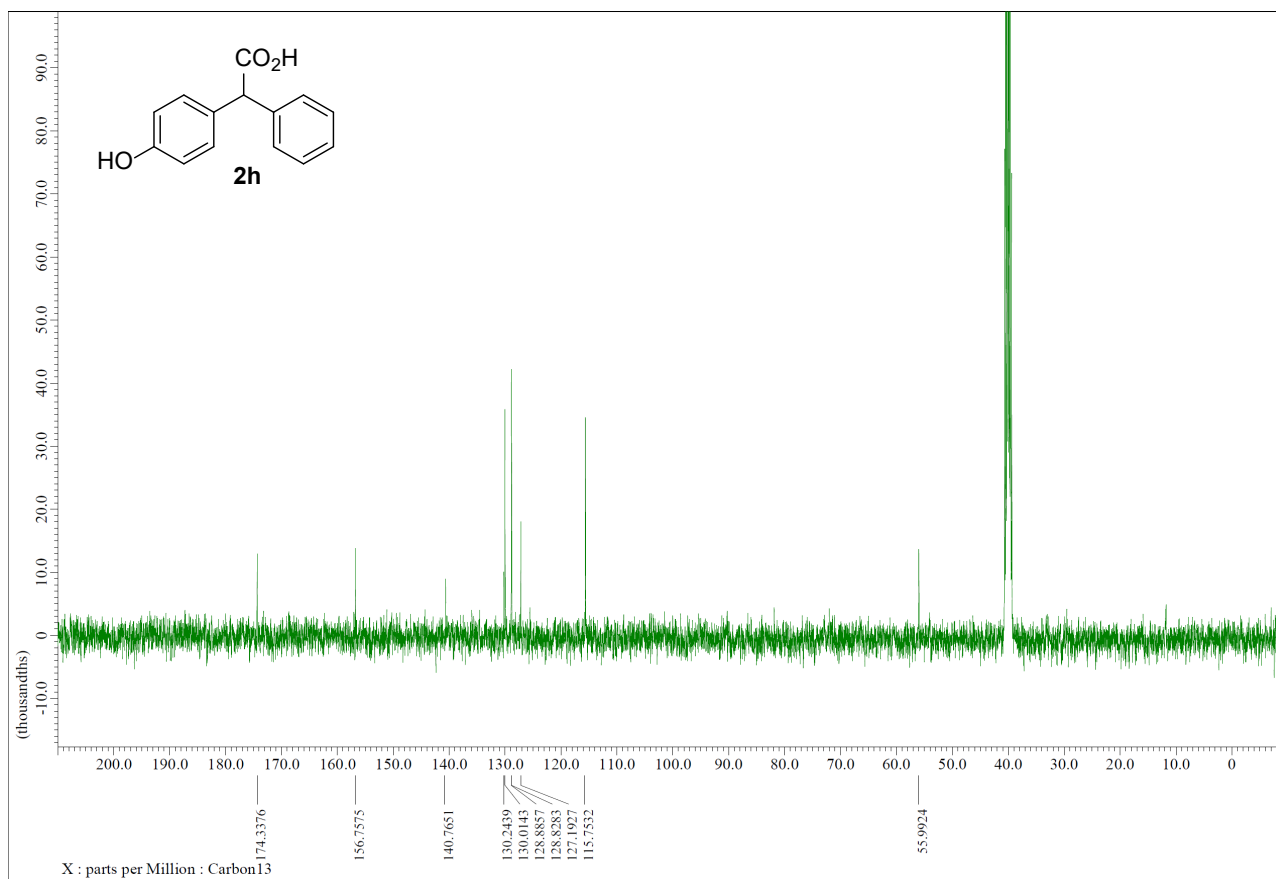


Fig. 12.  $^{13}\text{C}$  NMR (100 MHz; DMSO- $d_6$ ) spectrum of (4-hydroxyphenyl)phenylacetic acid (**2h**).

## 7. $^1\text{H}$ and $^{13}\text{C}$ spectra of compound **2i**.

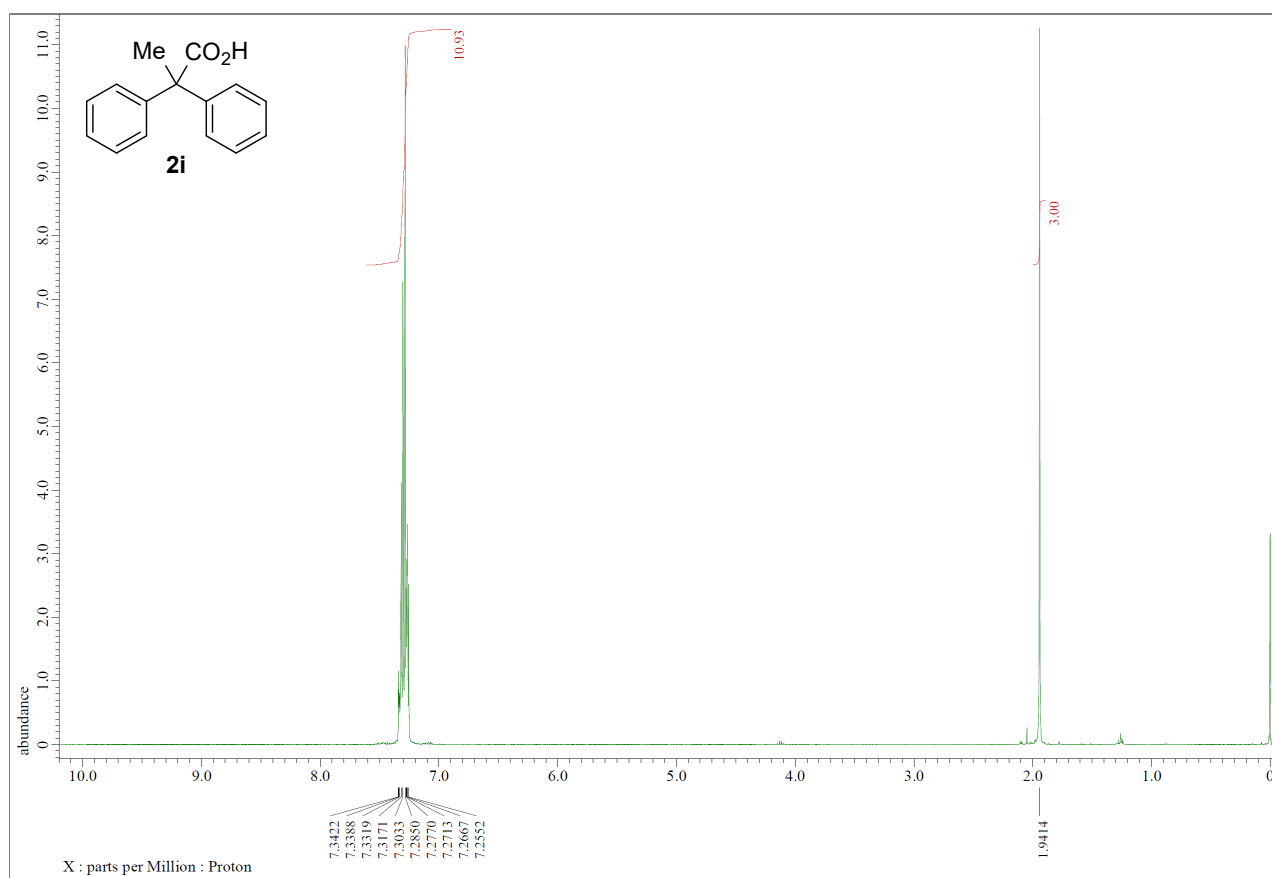


Fig. 13.  $^1\text{H}$  NMR (400 MHz;  $\text{CDCl}_3$ ) spectrum of 2,2-diphenylpropanoic acid (**2i**).

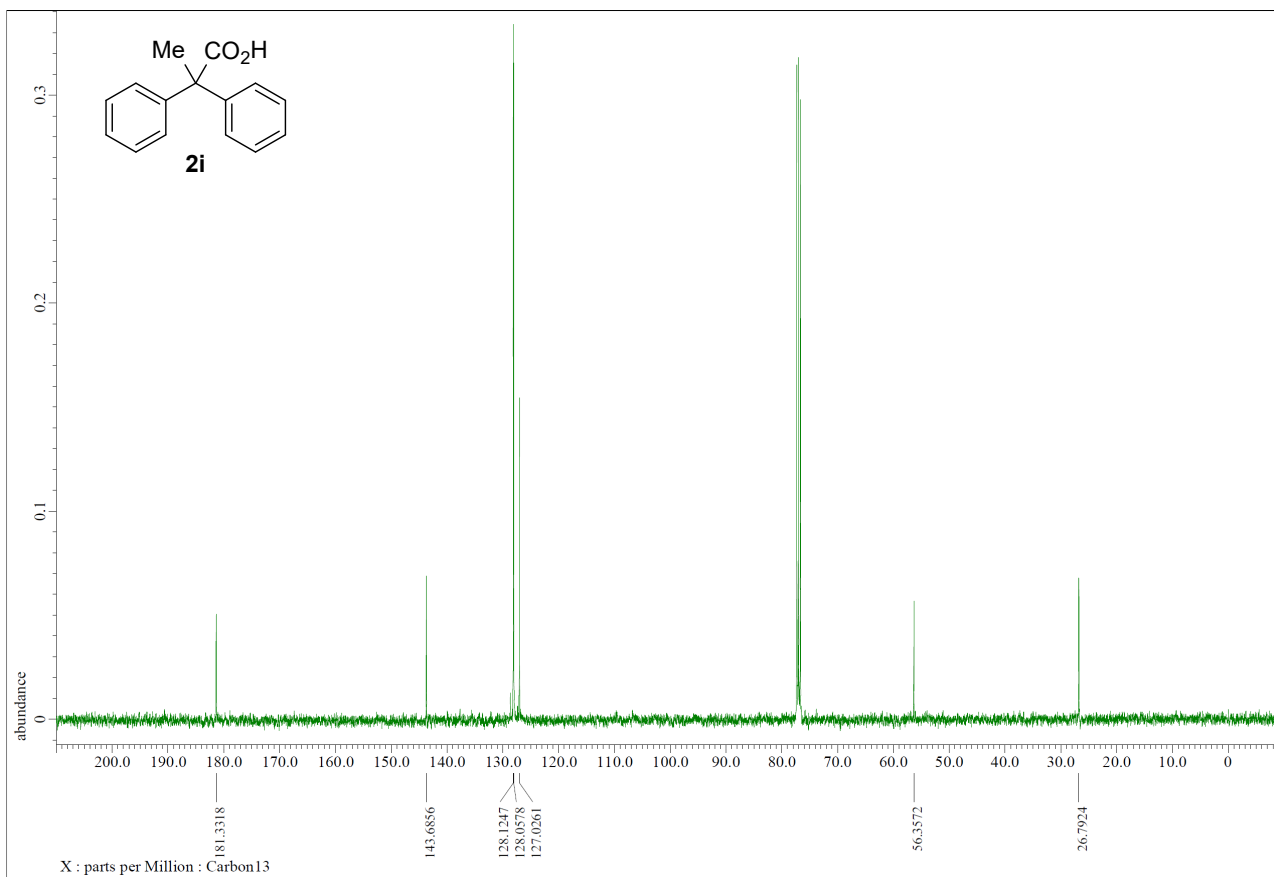


Fig. 14.  $^{13}\text{C}$  NMR (100 MHz;  $\text{CDCl}_3$ ) spectrum of 2,2-diphenylpropanoic acid (**2i**).



## 8. $^1\text{H}$ and $^{13}\text{C}$ spectra of compound **2j**.

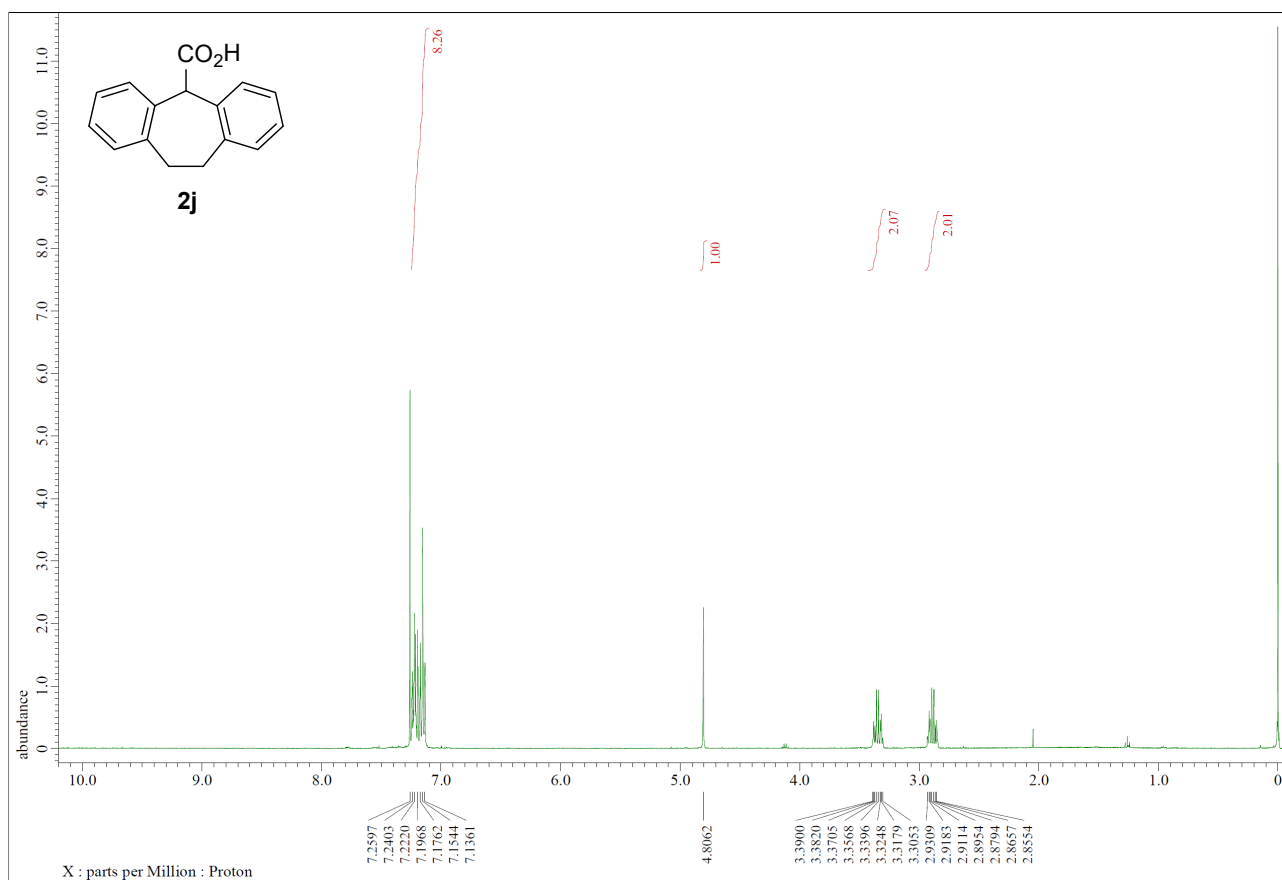


Fig. 15.  $^1\text{H}$  NMR (400 MHz;  $\text{CDCl}_3$ ) spectrum of 10,11-dihydro-5H-dibenzo[a,d]cycloheptene-5-carboxylic acid (**2j**).

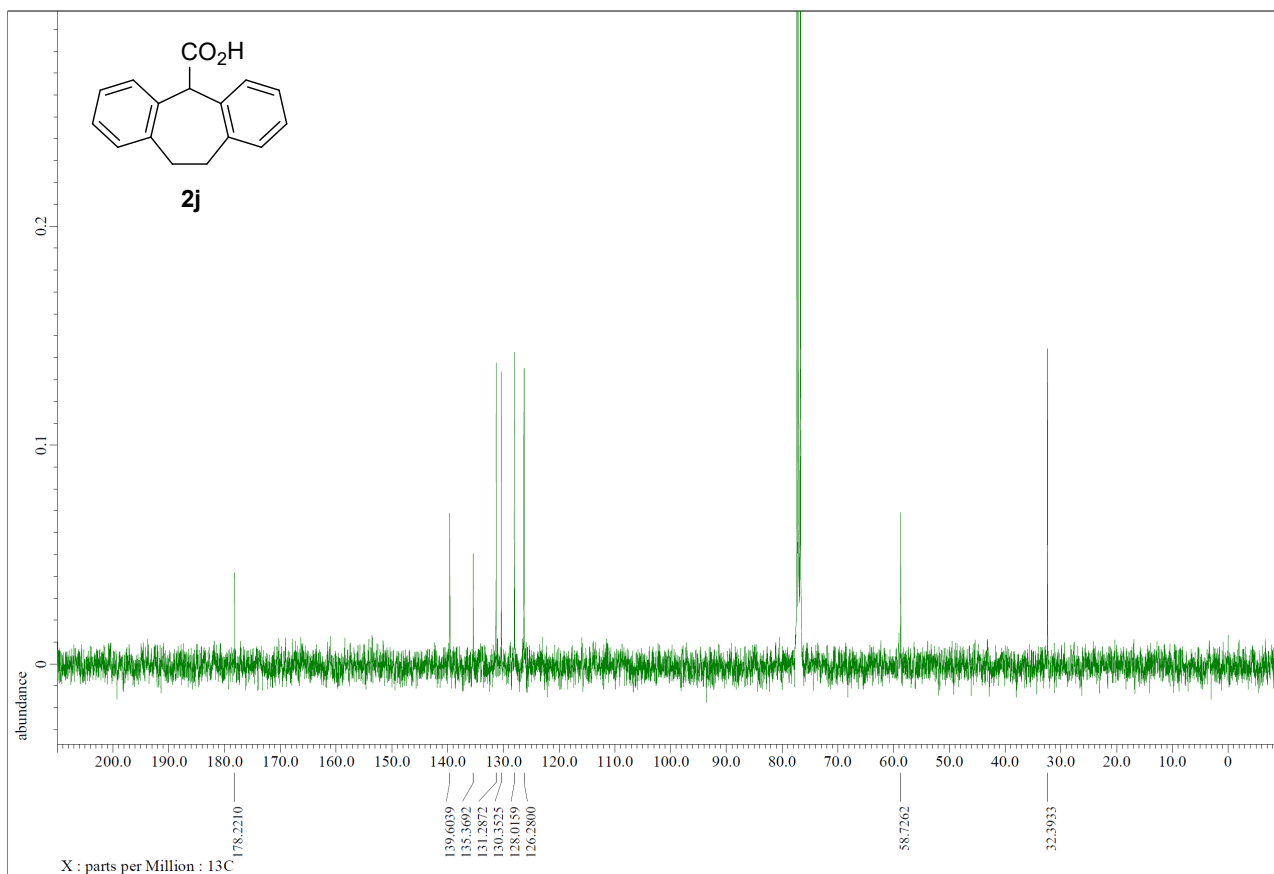


Fig. 16. <sup>13</sup>C NMR (100 MHz; CDCl<sub>3</sub>) spectrum of 10,11-dihydro-5H-dibenzo[a,d]cycloheptene-5-carboxylic acid (**2j**).

## 9. $^1\text{H}$ and $^{13}\text{C}$ spectra of compound **2k**.

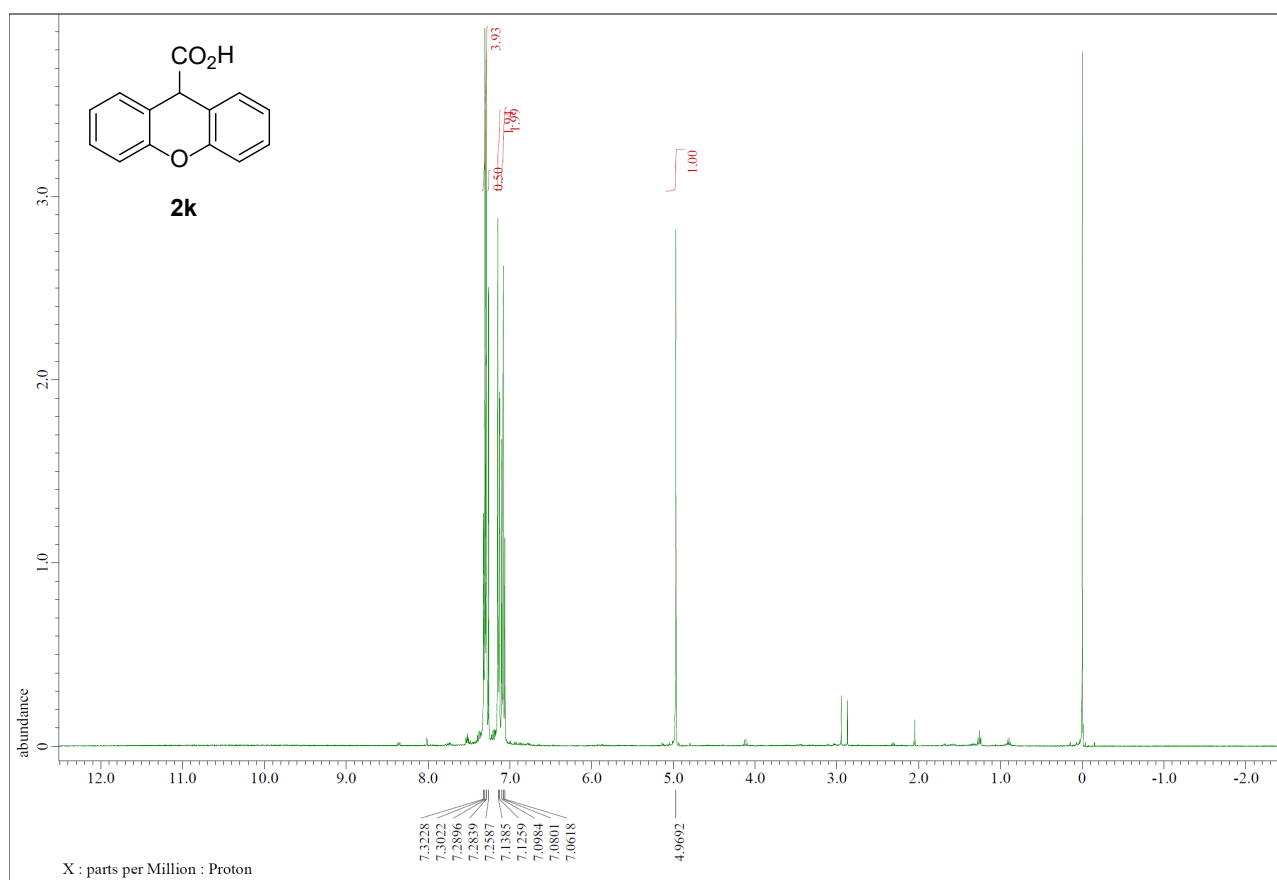


Fig. 17.  $^1\text{H}$  NMR (400 MHz;  $\text{CDCl}_3$ ) spectrum of 9H-xanthene-9-carboxylic acid (**2k**).

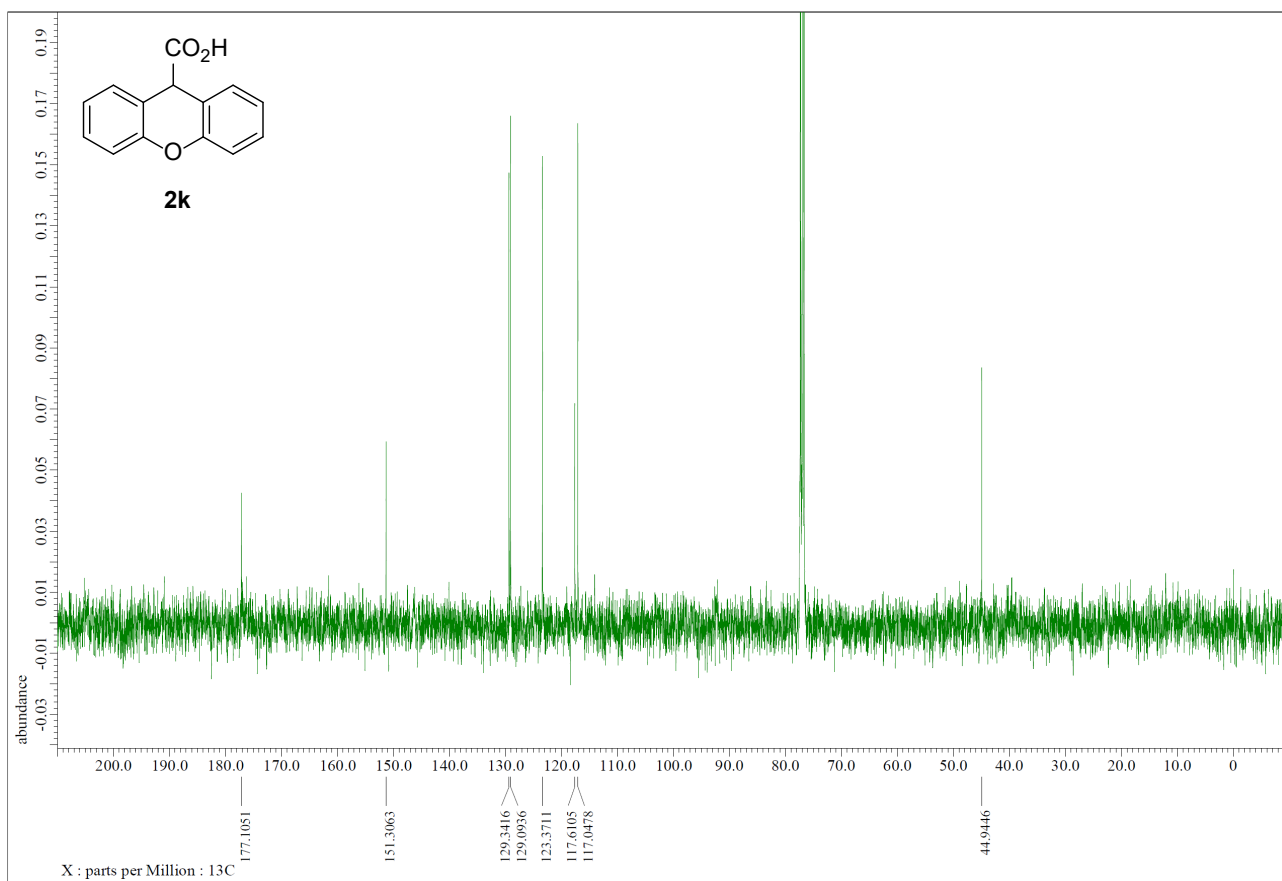


Fig. 18. <sup>13</sup>C NMR (100 MHz; CDCl<sub>3</sub>) spectrum of 9H-xanthene-9-carboxylic acid (**2k**).

10.  $^1\text{H}$  and  $^{13}\text{C}$  spectra of compound **21**.

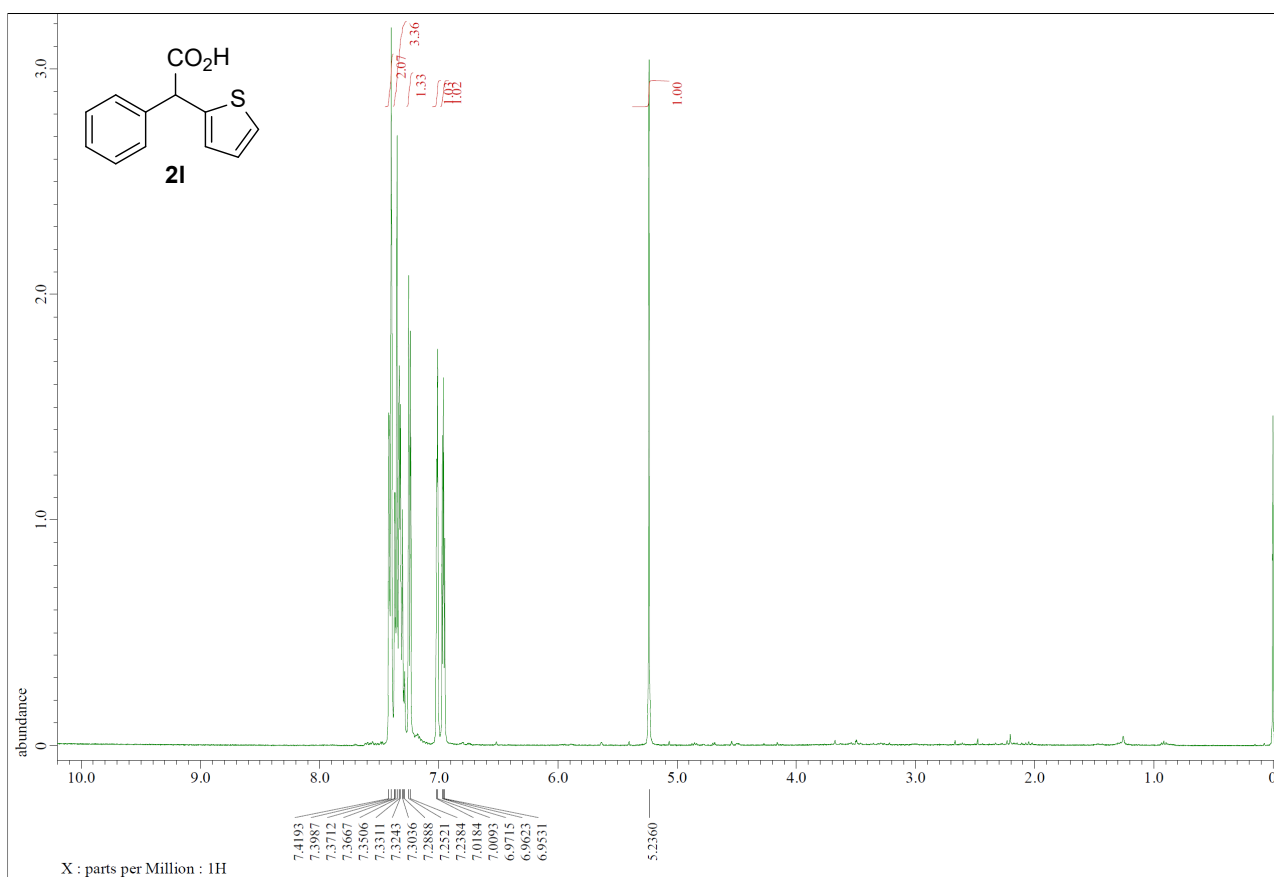


Fig. 19.  $^1\text{H}$  NMR (400 MHz;  $\text{CDCl}_3$ ) spectrum of phenyl(thiophen-2-yl)acetic acid (**21**).

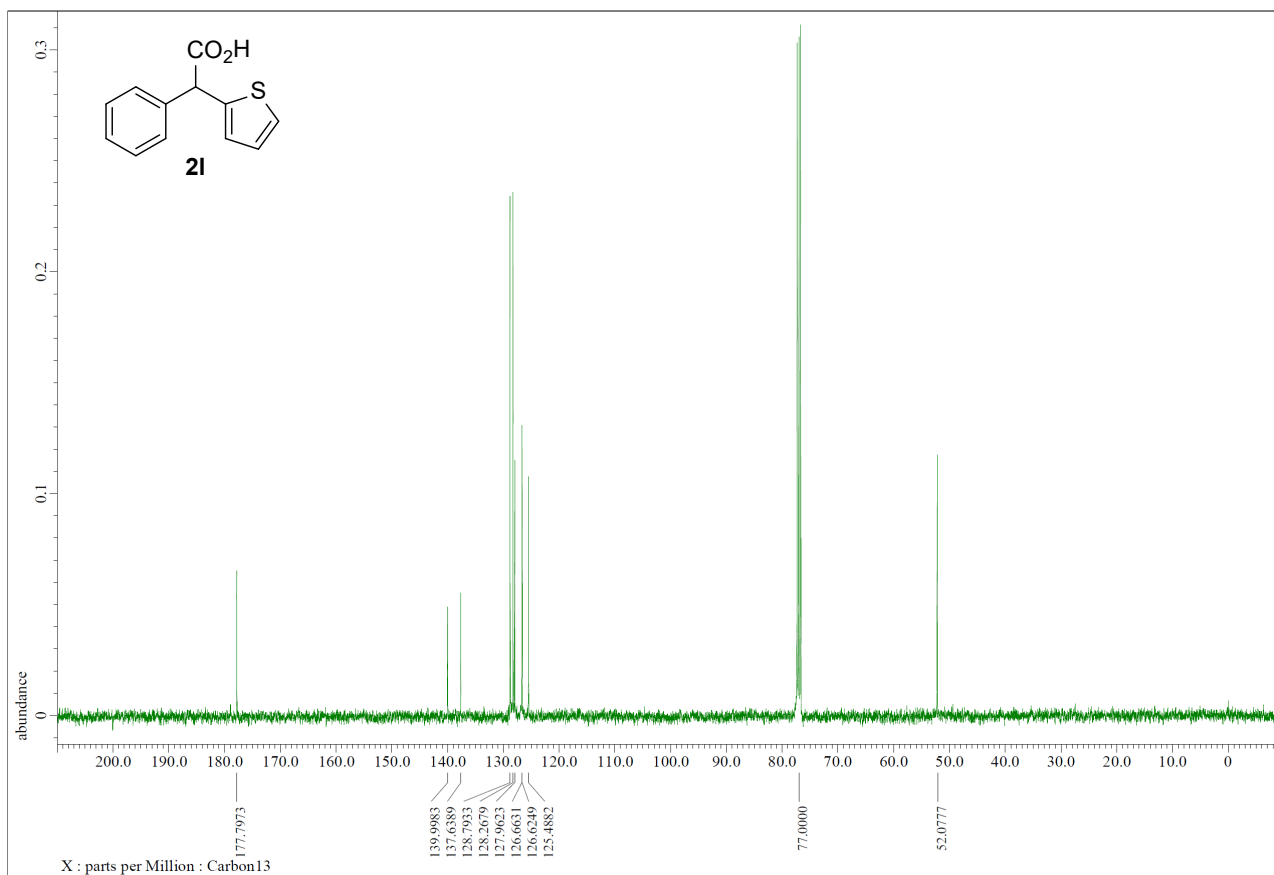


Fig. 20.  $^{13}\text{C}$  NMR (100 MHz;  $\text{CDCl}_3$ ) spectrum of phenyl(thiophen-2-yl)acetic acid (**21**).