

## Supplementary Material

### Synthesis of *meso*-tetraarylthienylporphyrins by Suzuki-Miyaura cross-coupling reaction and studying their UV-Vis absorption spectra

**Ibrahim Elghamry\*, Mamdouh Abdelsalam, Yasair Al-Faiyz, Meshail Al-Gadry, and Norah Al-Taysan**

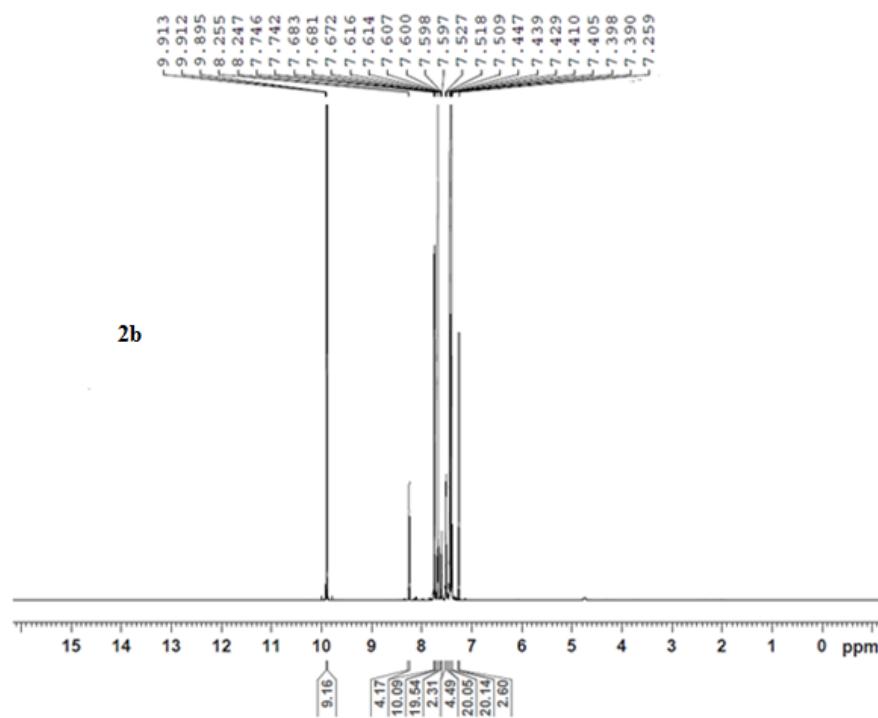
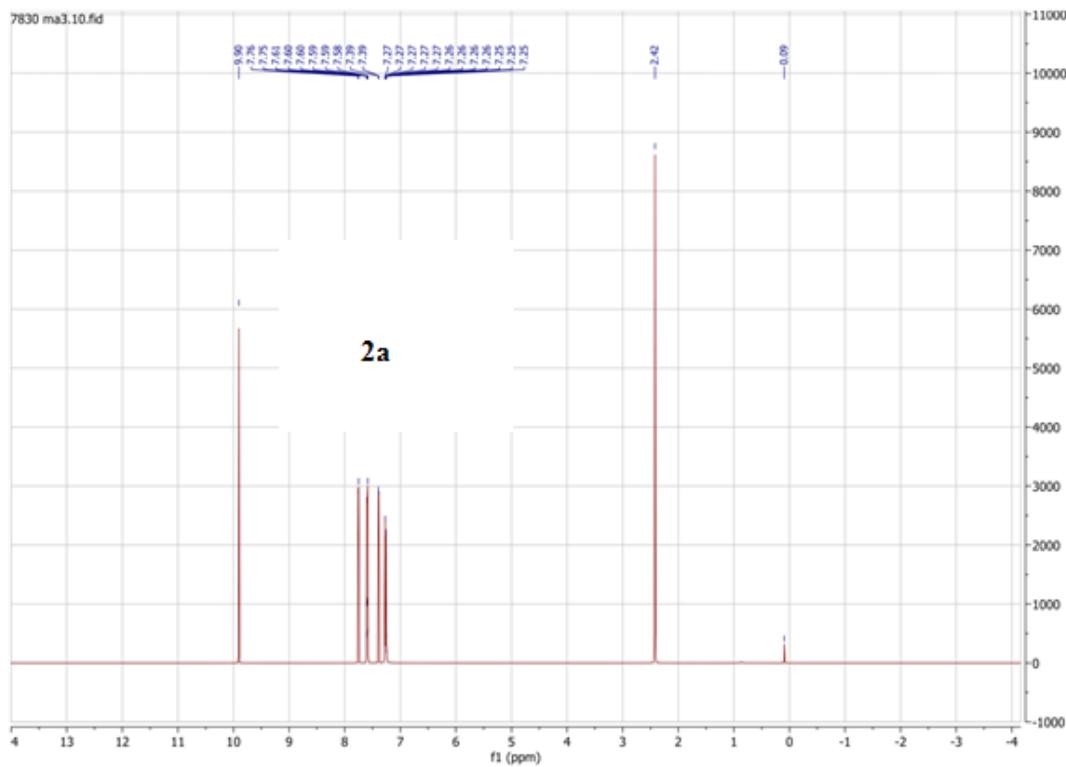
*Department of Chemistry, King Faisal University, P. O. Box 380 Al-Hofuf, 31982 Al-Ahsa, Saudi Arabia*

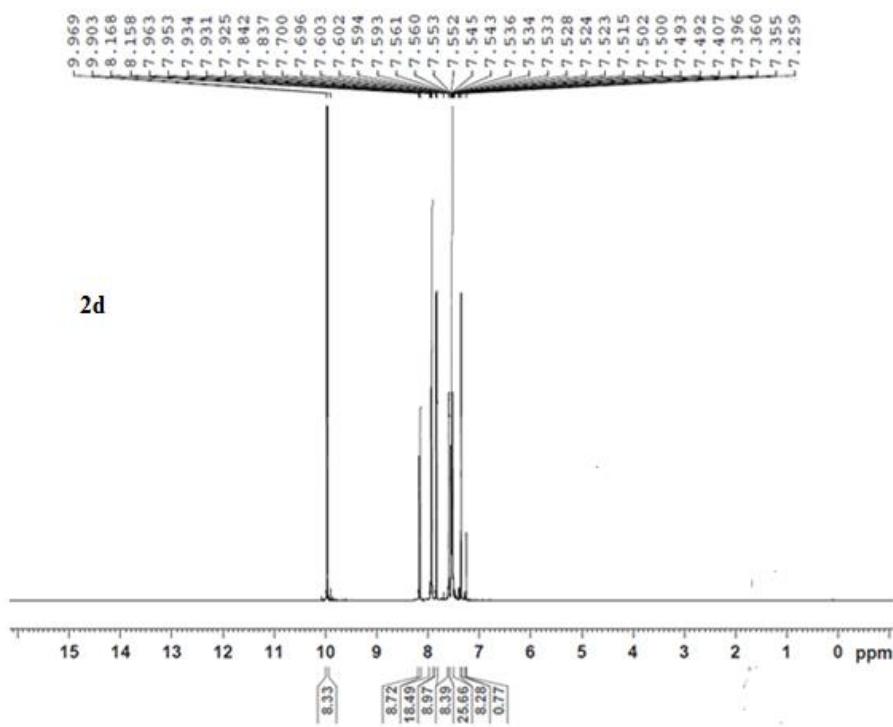
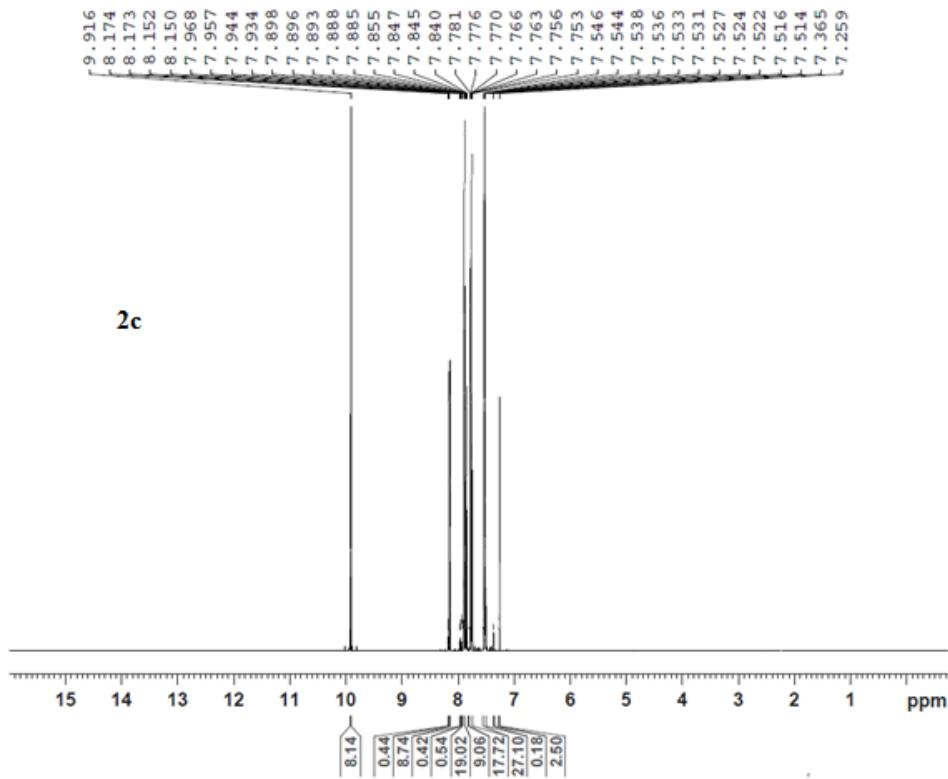
*Email: [ielghamry@kfu.edu.sa](mailto:ielghamry@kfu.edu.sa) & [elghamry@hotmail.com](mailto:elghamry@hotmail.com)*

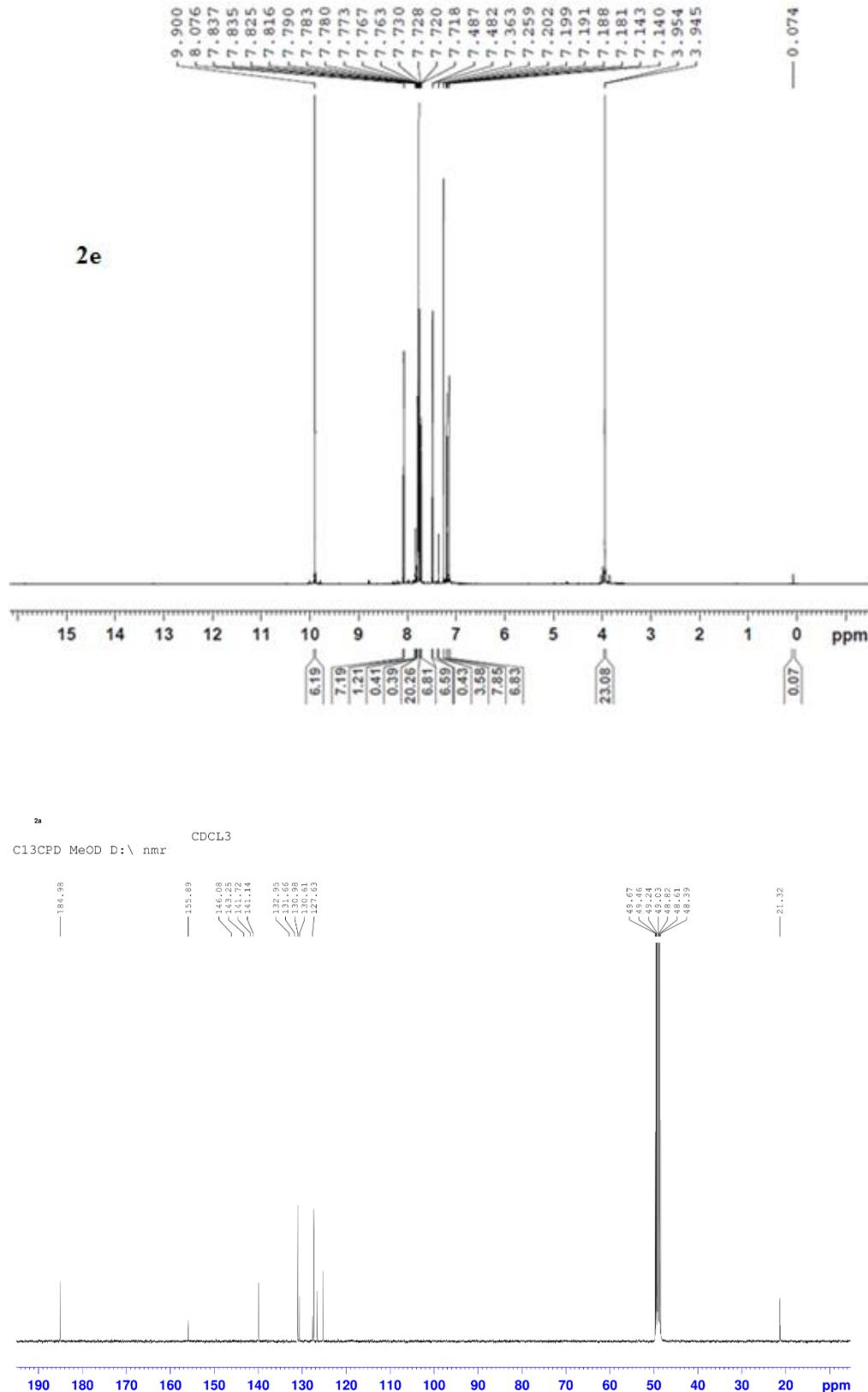
### **Table of Contents**

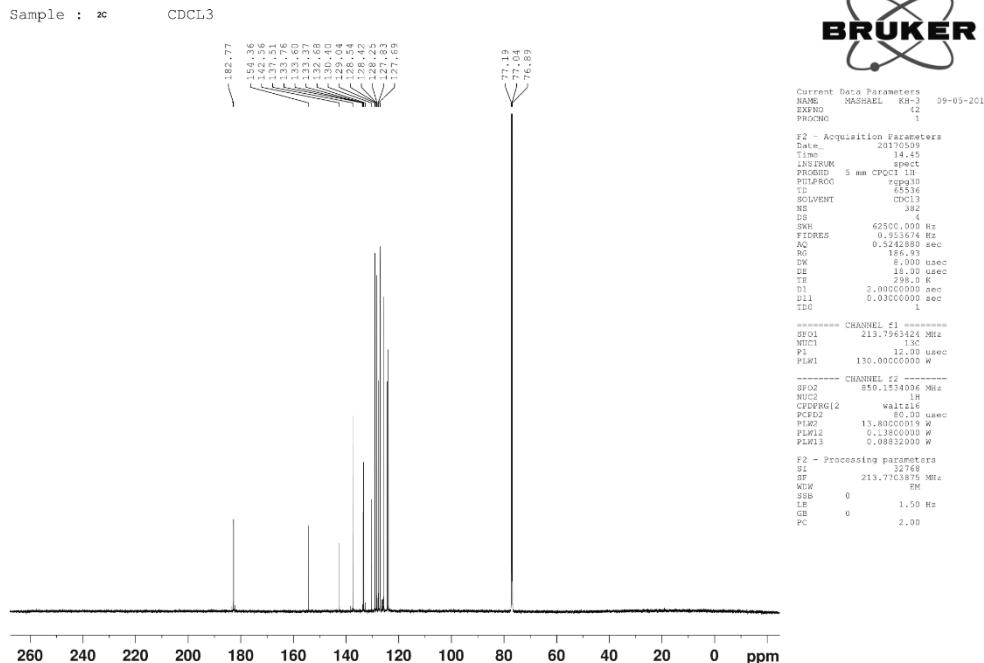
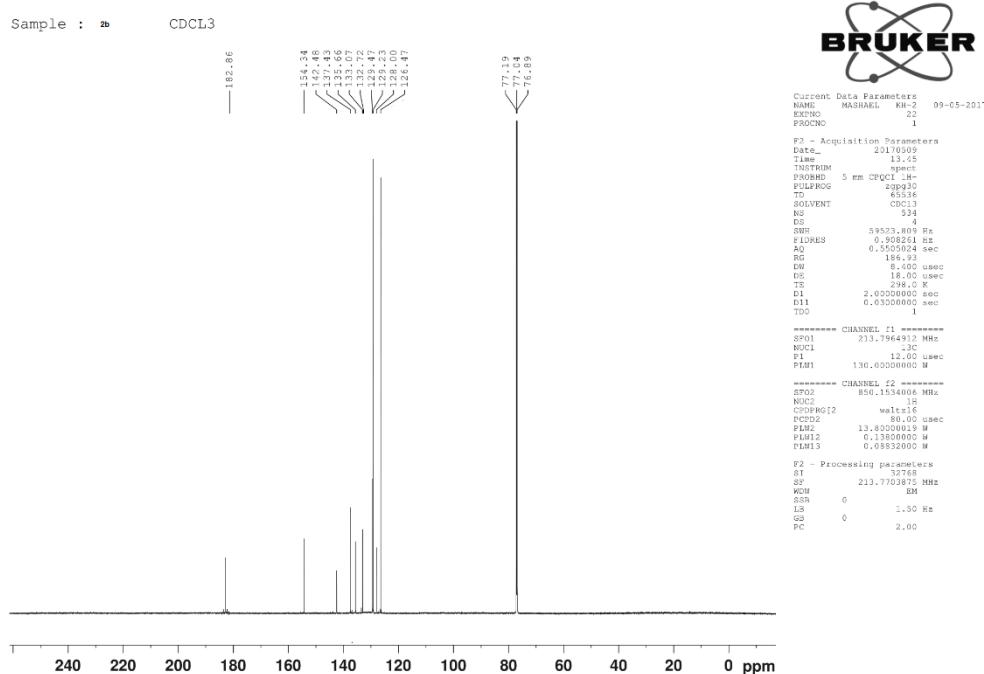
<sup>1</sup> H NMR of 5-(4-methylphenyl)thiophene-2-carbaldehyde ( <b>2a</b> ) .....	S3
<sup>1</sup> H NMR of 5-Phenylthienyl-2-carbaldehyde ( <b>2b</b> ) .....	S3
<sup>1</sup> H NMR of 5-(Naphth-2-yl)thienyl-2-carbaldehyde ( <b>2c</b> ) .....	S4
<sup>1</sup> H NMR of 5-(Naphth-1-yl) thienyl-2-carbaldehyde ( <b>2d</b> ) .....	S4
<sup>1</sup> H NMR of 5-(6-Methoxynaphth-2-yl) thienyl-2-carbaldehyde ( <b>2e</b> ) .....	S5
<sup>13</sup> C NMR of 5-(4-methylphenyl)thiophene-2-carbaldehyde ( <b>2a</b> ) .....	S5
<sup>13</sup> C NMR of 5-Phenylthienyl-2-carbaldehyde ( <b>2b</b> ) .....	S6
<sup>13</sup> C NMR of 5-(Naphth-2-yl)thienyl-2-carbaldehyde ( <b>2c</b> ) .....	S6
<sup>13</sup> C NMR of 5-(Naphth-1-yl) thienyl-2-carbaldehyde ( <b>2d</b> ) .....	S7
<sup>13</sup> C NMR of 5-(6-Methoxynaphth-2-yl) thienyl-2-carbaldehyde ( <b>2e</b> ) .....	S7
IR spectra of 5-(4-methylphenyl)thiophene-2-carbaldehyde ( <b>2a</b> ) .....	S8
IR spectra of 5-Phenylthienyl-2-carbaldehyde ( <b>2b</b> ) .....	S8
IR spectra of 5-(Naphth-2-yl)thienyl-2-carbaldehyde ( <b>2c</b> ) .....	S9
IR spectra of 5-(Naphth-1-yl) thienyl-2-carbaldehyde ( <b>2d</b> ) .....	S9
IR spectra of 5-(6-Methoxynaphth-2-yl) thienyl-2-carbaldehyde ( <b>2e</b> ) .....	S10
The HPLC Chromatogram of the products ( <b>2a, c, d, e</b> ) .....	S10
<sup>1</sup> H NMR of porphyrin <b>3a</b> (M = H) .....	S11
<sup>1</sup> H NMR of porphyrin <b>3b</b> (M = H) .....	S11
<sup>1</sup> H NMR of porphyrin <b>3c</b> (M = H) .....	S12
<sup>1</sup> H NMR of porphyrin <b>3d</b> (M = H) .....	S12
<sup>1</sup> H NMR of porphyrin <b>3e</b> (M = H) .....	S13
<sup>1</sup> H NMR of porphyrin <b>3a</b> (M = Cu) .....	S13
<sup>1</sup> H NMR of porphyrin <b>3b</b> (M = Cu) .....	S14
<sup>1</sup> H NMR of porphyrin <b>3c</b> (M = Cu) .....	S14
<sup>1</sup> H NMR of porphyrin <b>3d</b> (M = Cu) .....	S15
<sup>1</sup> H NMR of porphyrin <b>3e</b> (M = Cu) .....	S15
<sup>1</sup> H NMR of porphyrin <b>4</b> (M = H) .....	S16
<sup>1</sup> H NMR of porphyrin <b>4</b> (M = Cu) .....	S16
Aggregation study of porphyrin <b>3a</b> (M = Cu) .....	S17

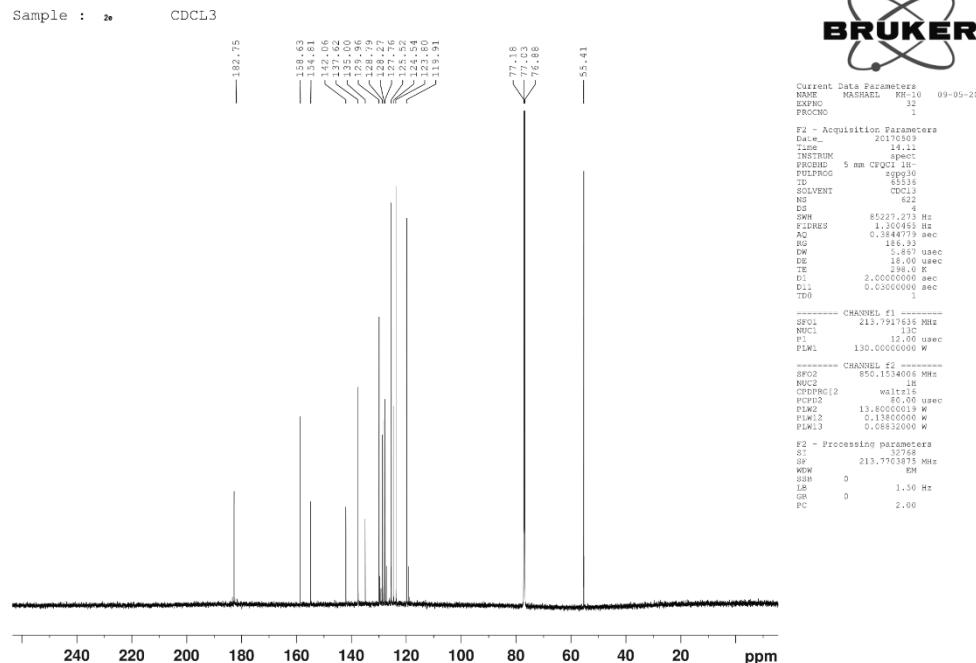
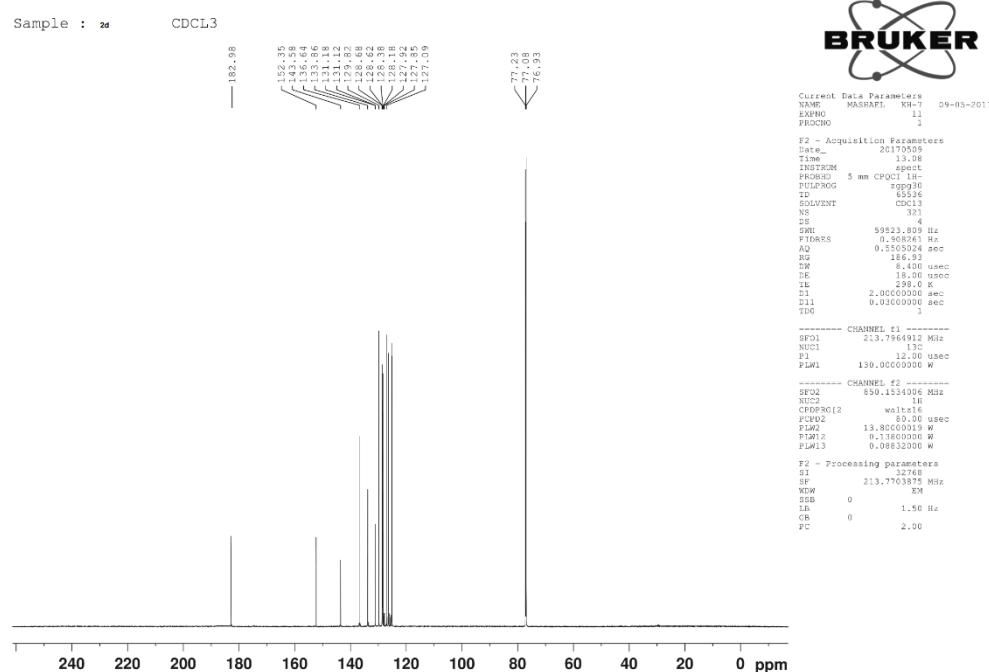
UV-Vis absorption spectra of porphyrins <b>3a</b> (M = H &Cu).....	S18
Aggregation study of porphyrin <b>3c</b> (M = H) .....	S19
Aggregation study of porphyrin <b>3c</b> (M = Cu) .....	S20
UV-Vis absorption spectra of porphyrins <b>3c</b> (M = H &Cu) .....	S21
Aggregation study of porphyrin <b>3d</b> (M = H).....	S22
Aggregation study of porphyrin <b>3d</b> (M = Cu).....	S23
UV-Vis absorption spectra of porphyrins <b>3d</b> (M = H &Cu).....	S24
Aggregation study of porphyrin <b>3e</b> (M = H).....	S25
Aggregation study of porphyrin <b>3e</b> (M = Cu) .....	S26
UV-Vis absorption spectra of porphyrins <b>3e</b> (M = H &Cu).....	S27

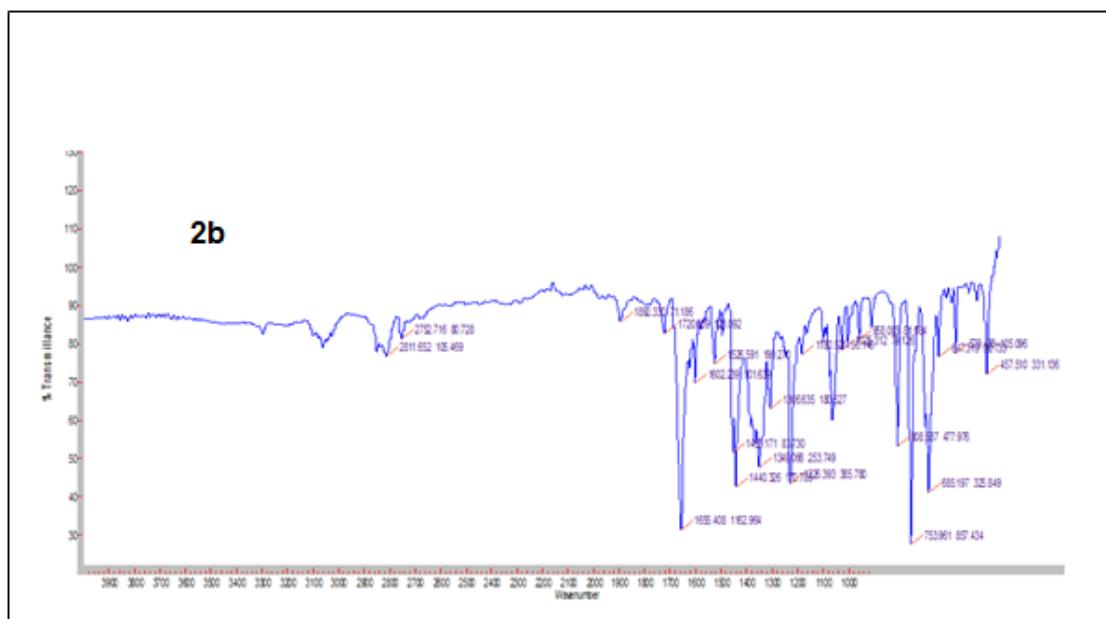
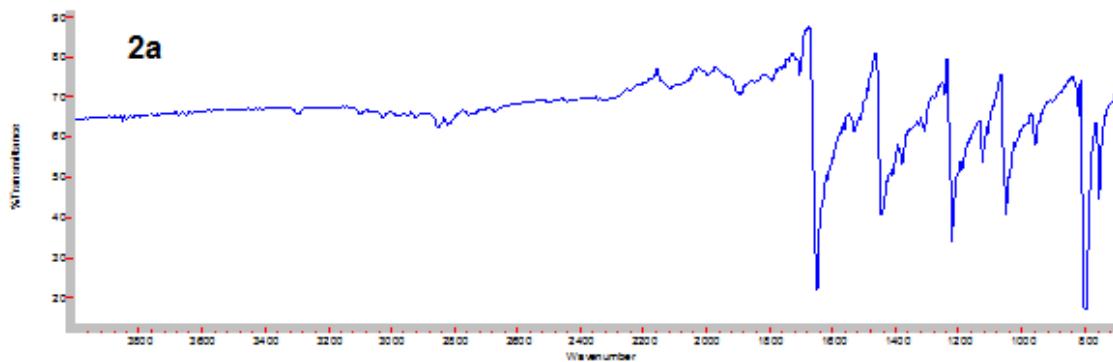


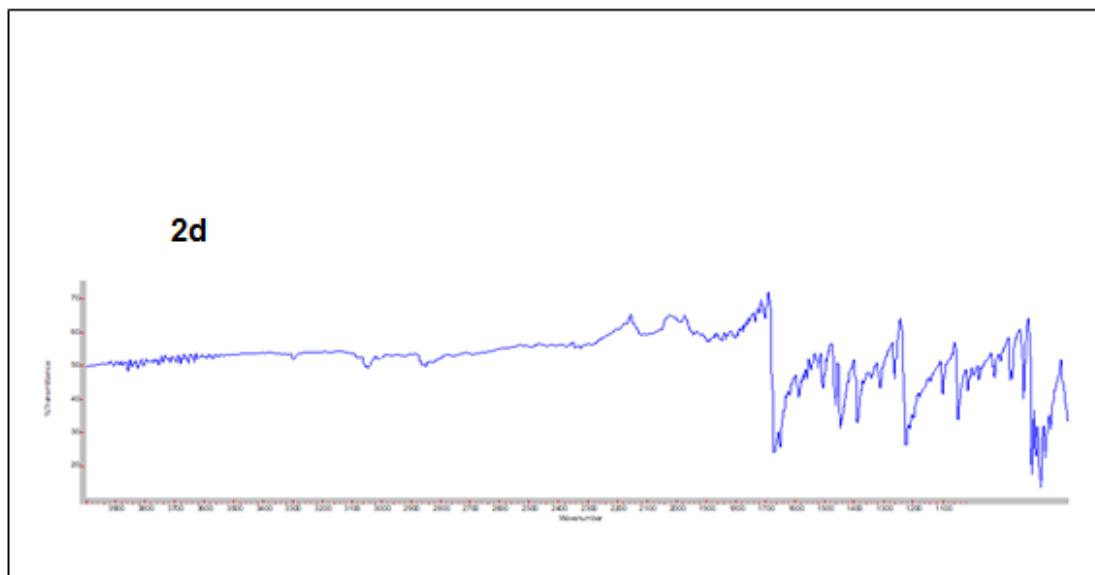
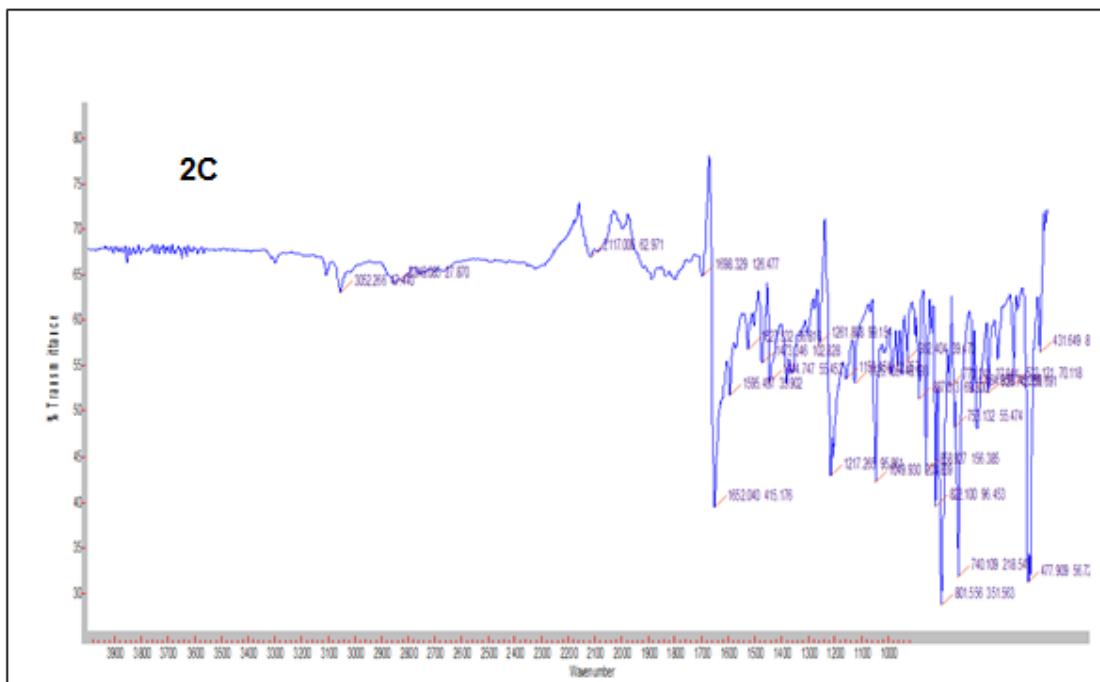


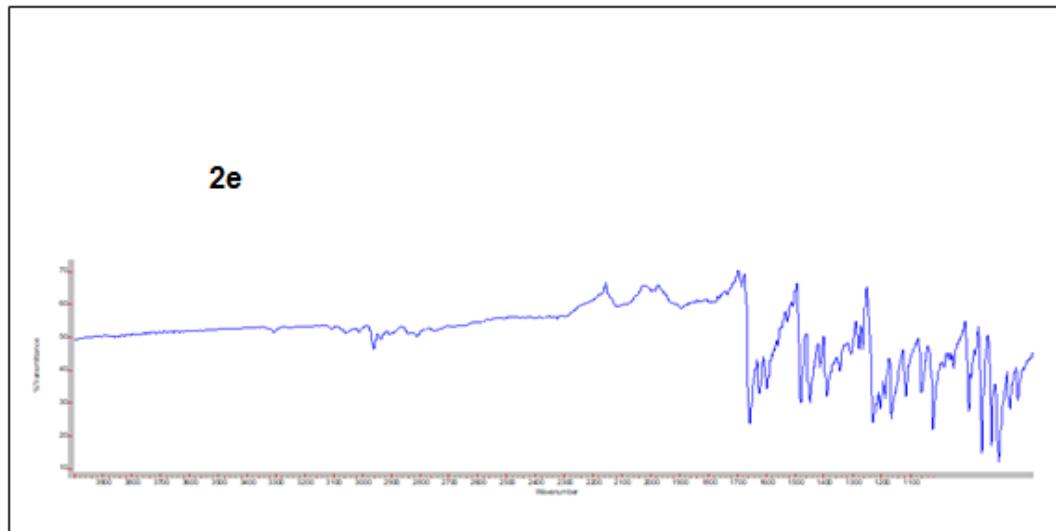




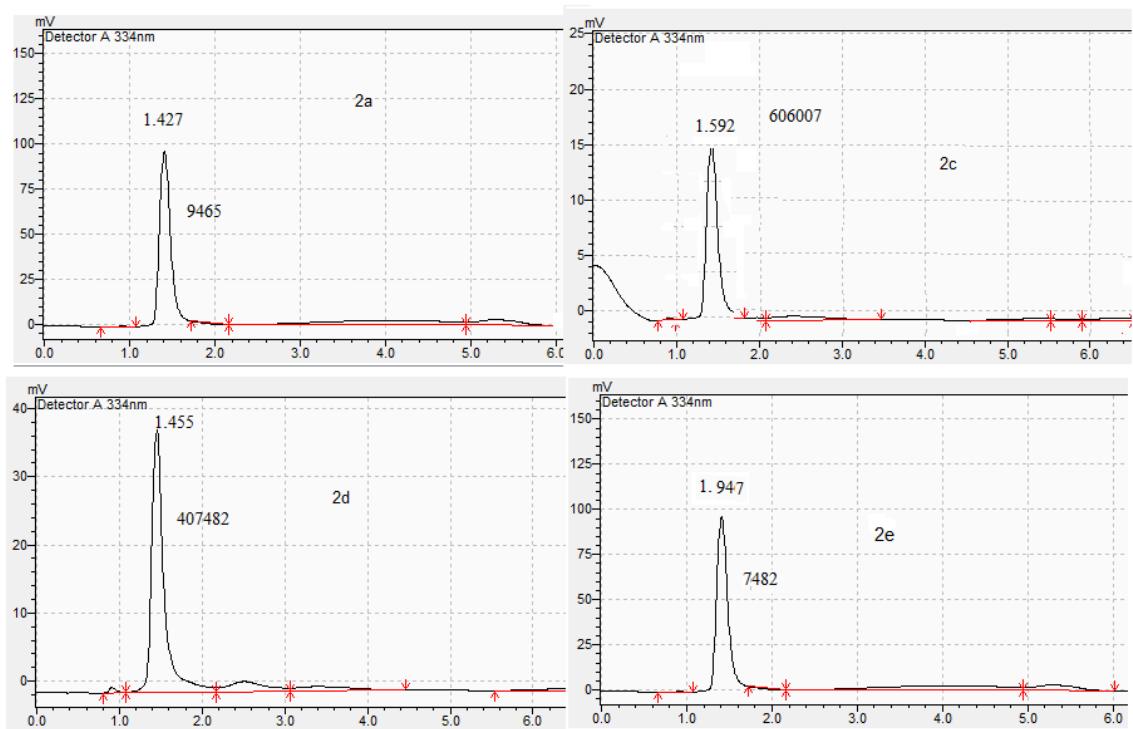


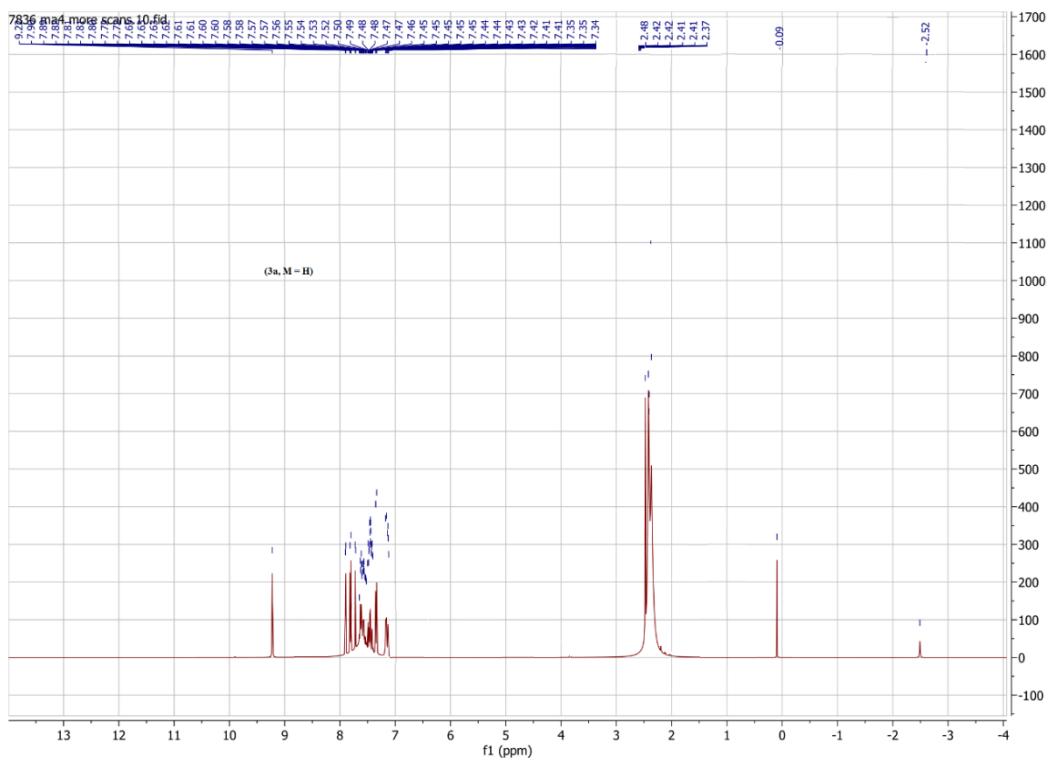
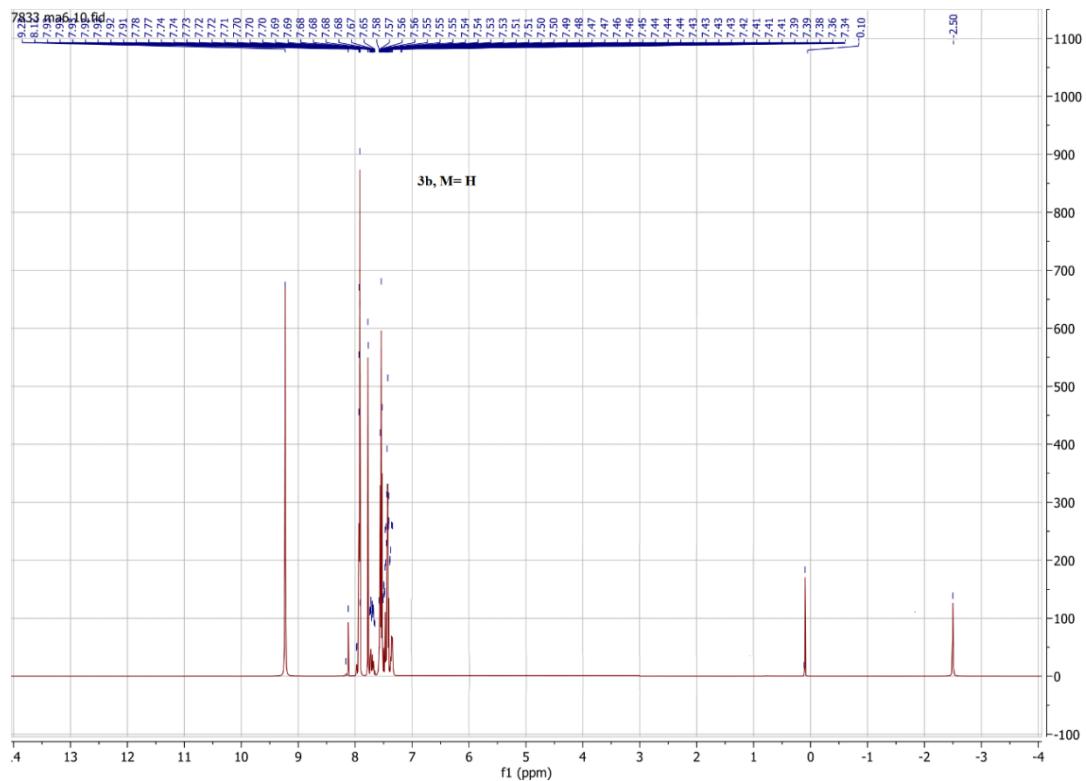


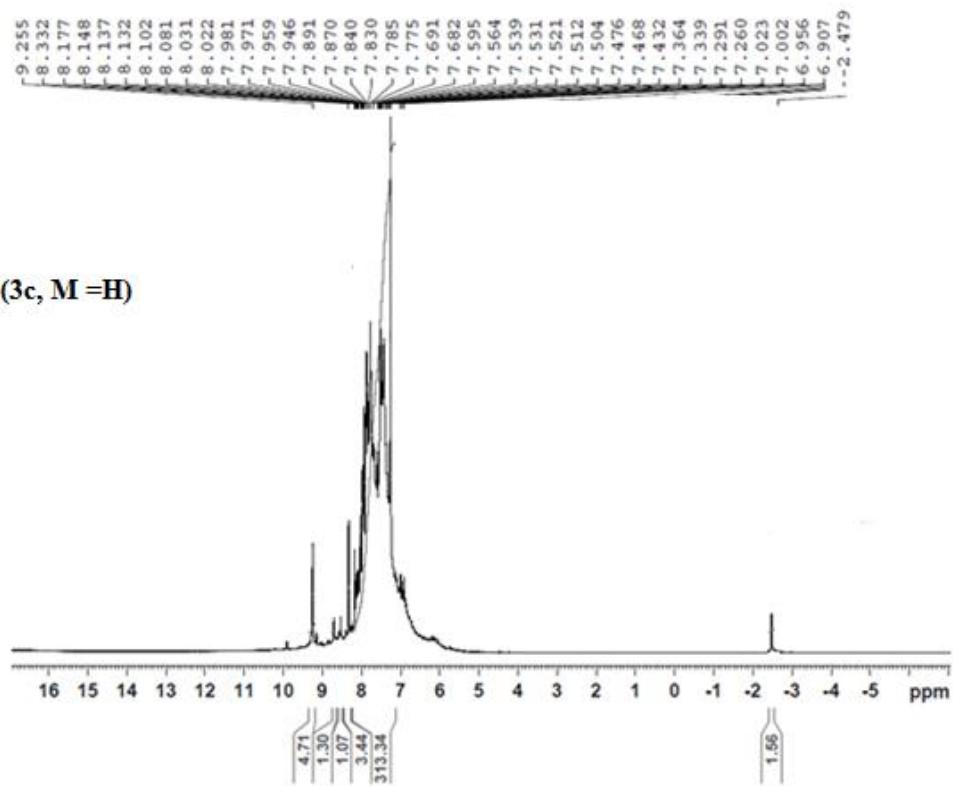
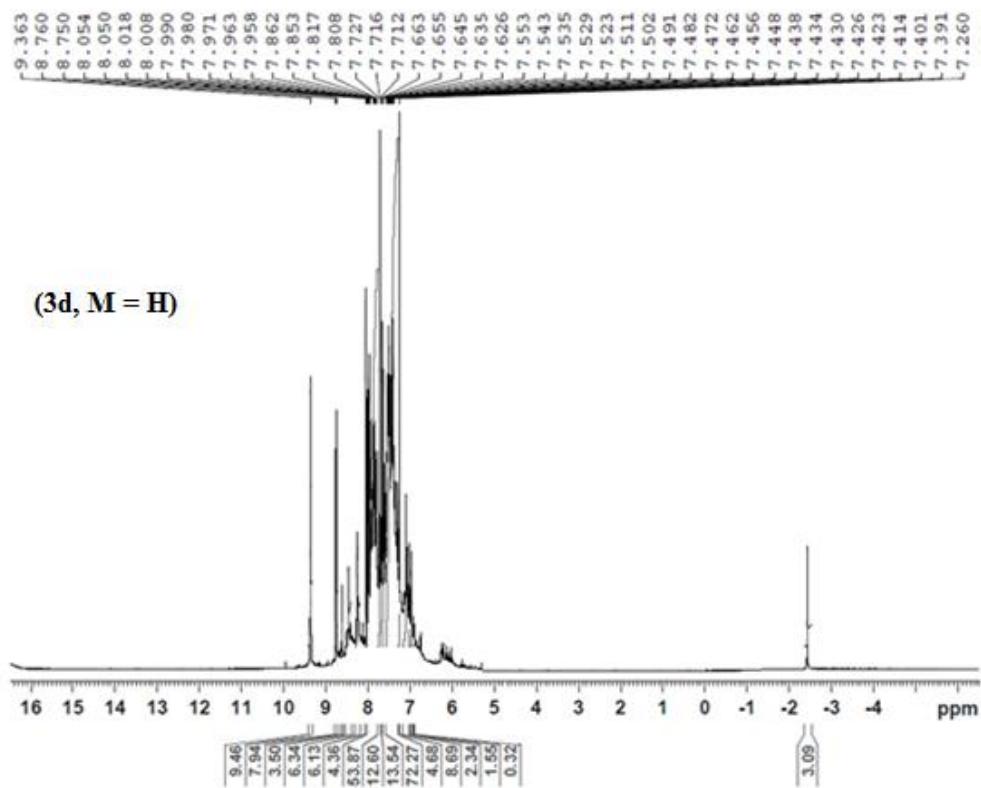


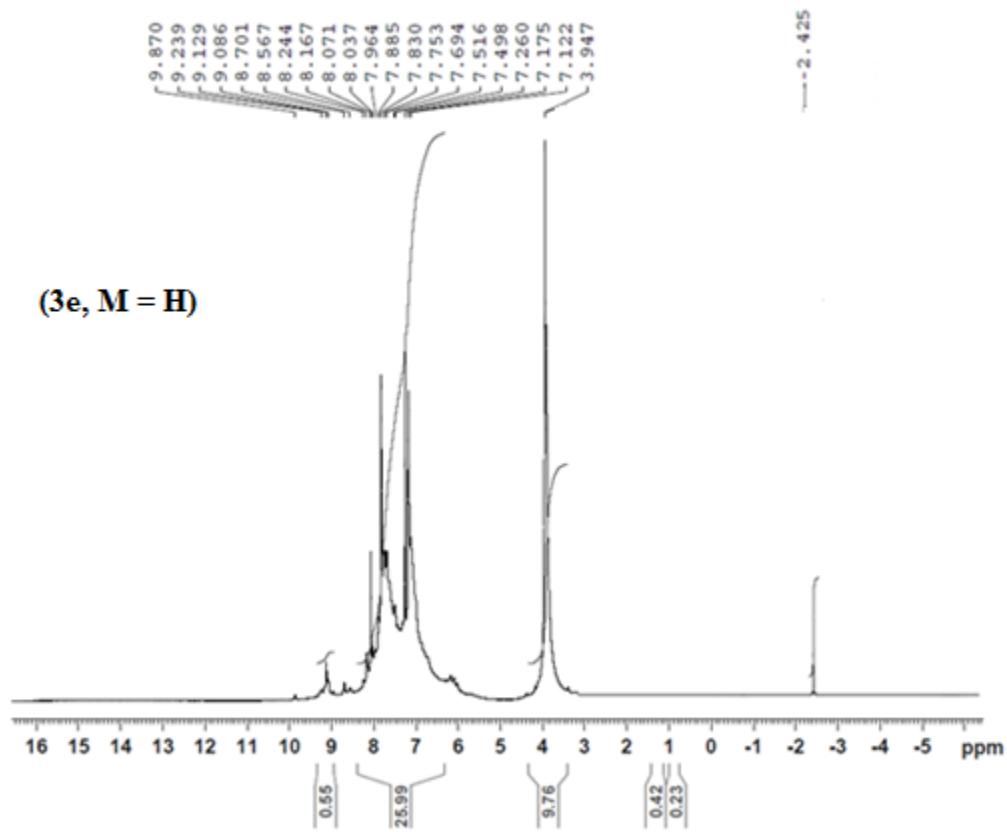
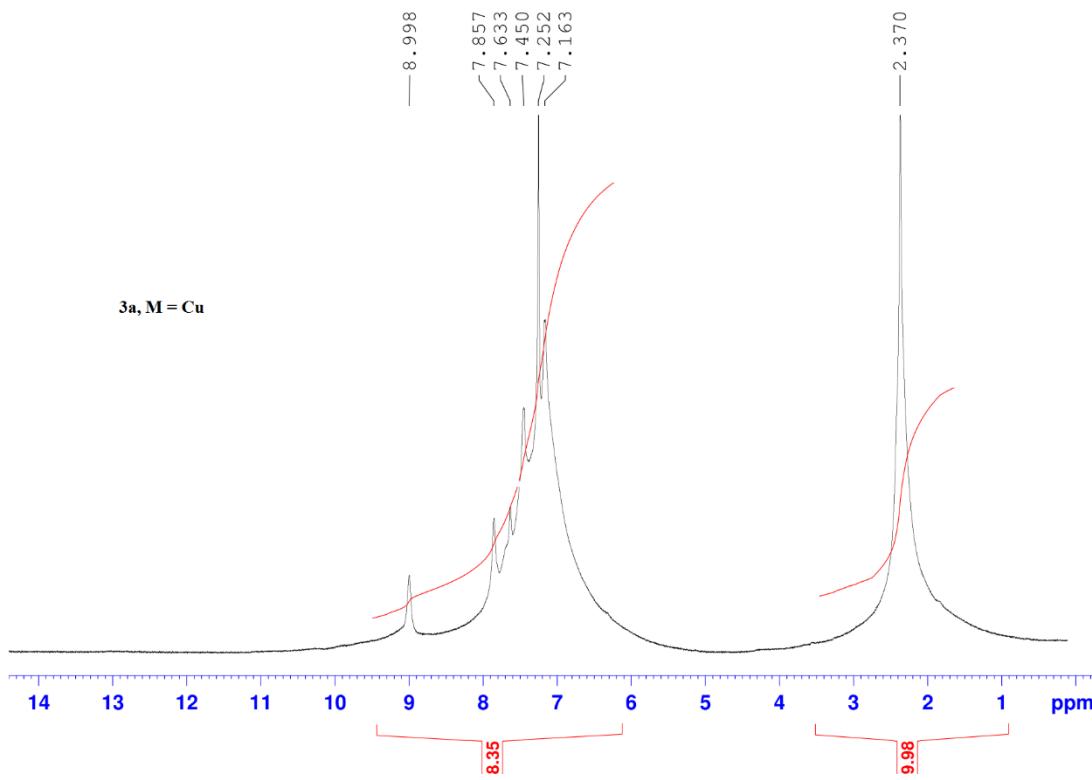


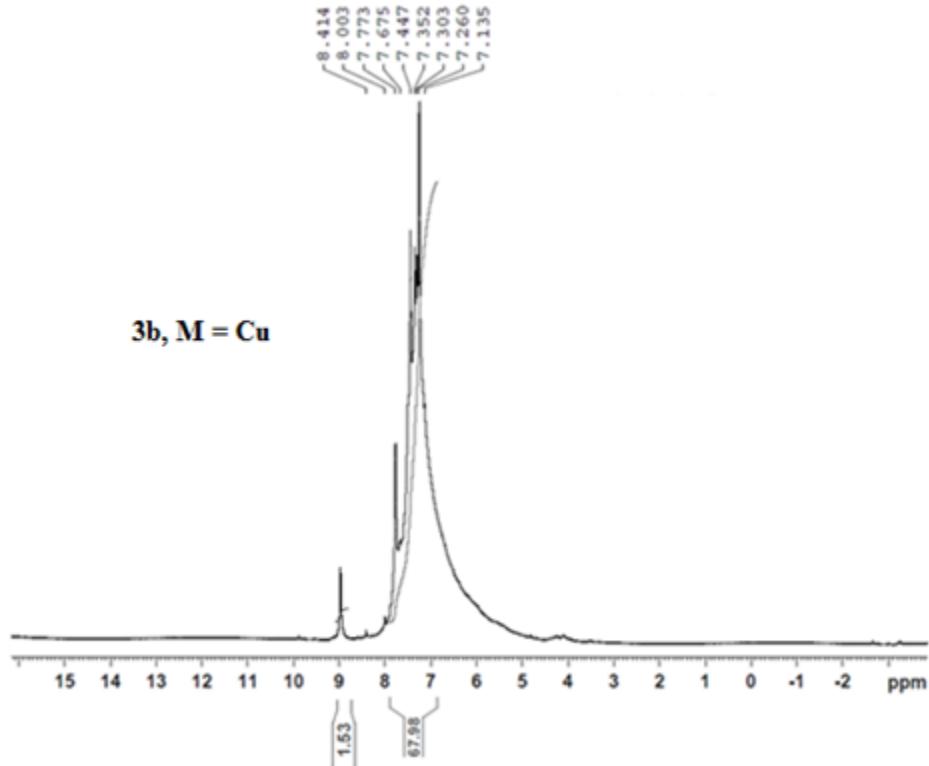
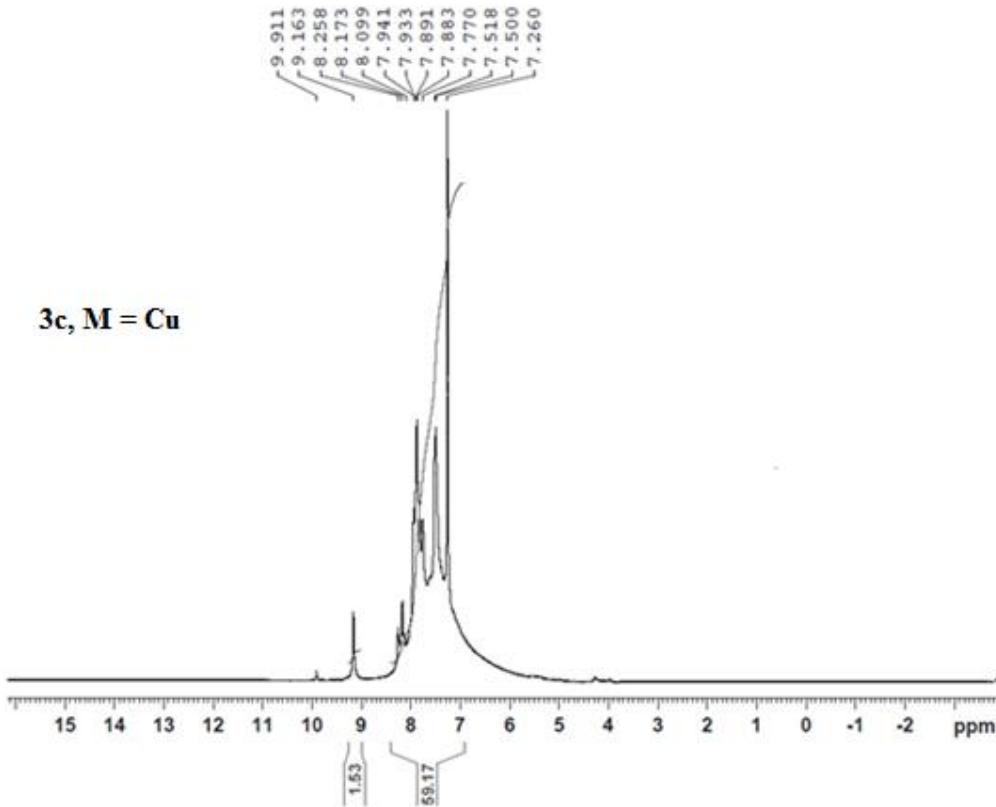
### The HPLC Chromatogram of the products (2a, c, d, e)

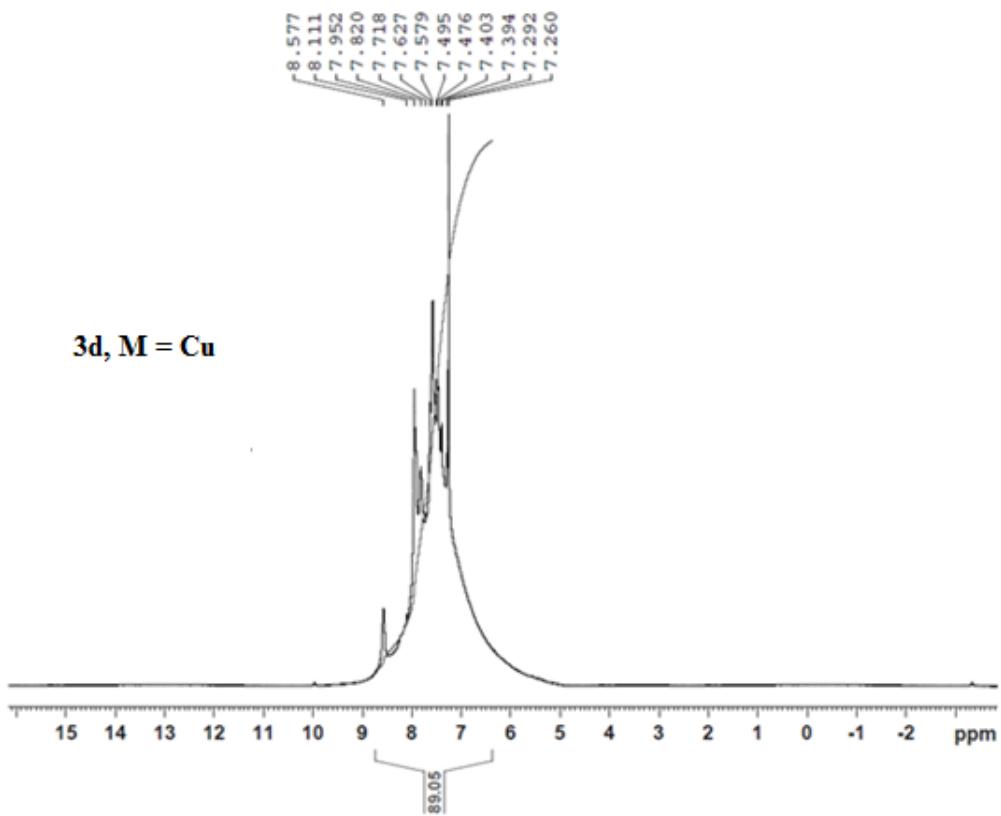
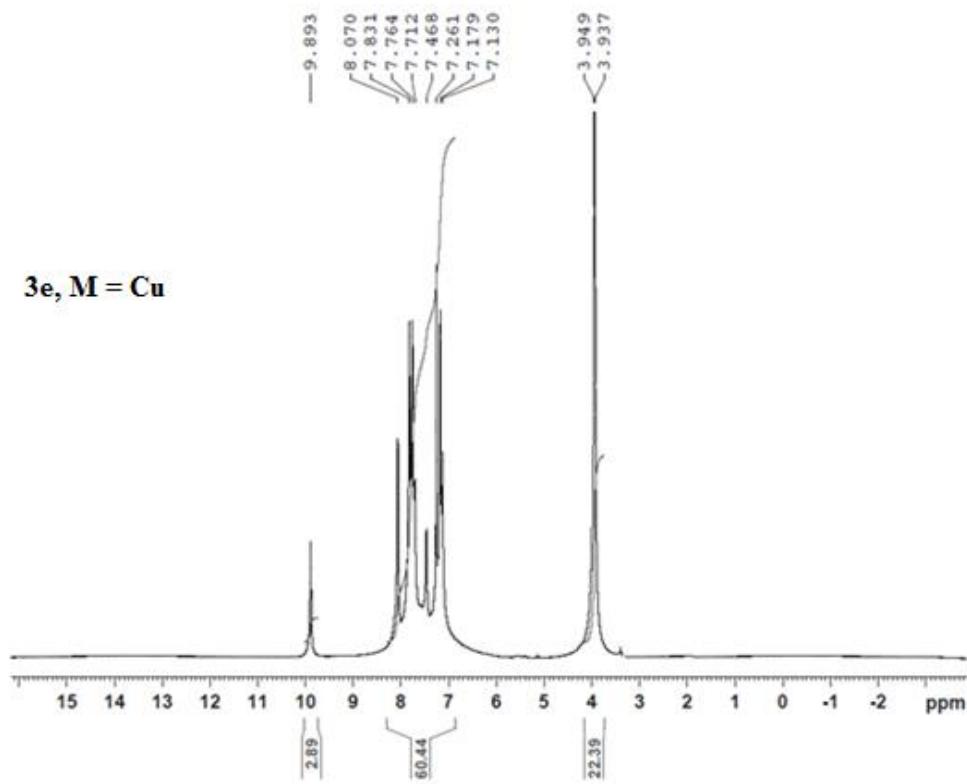


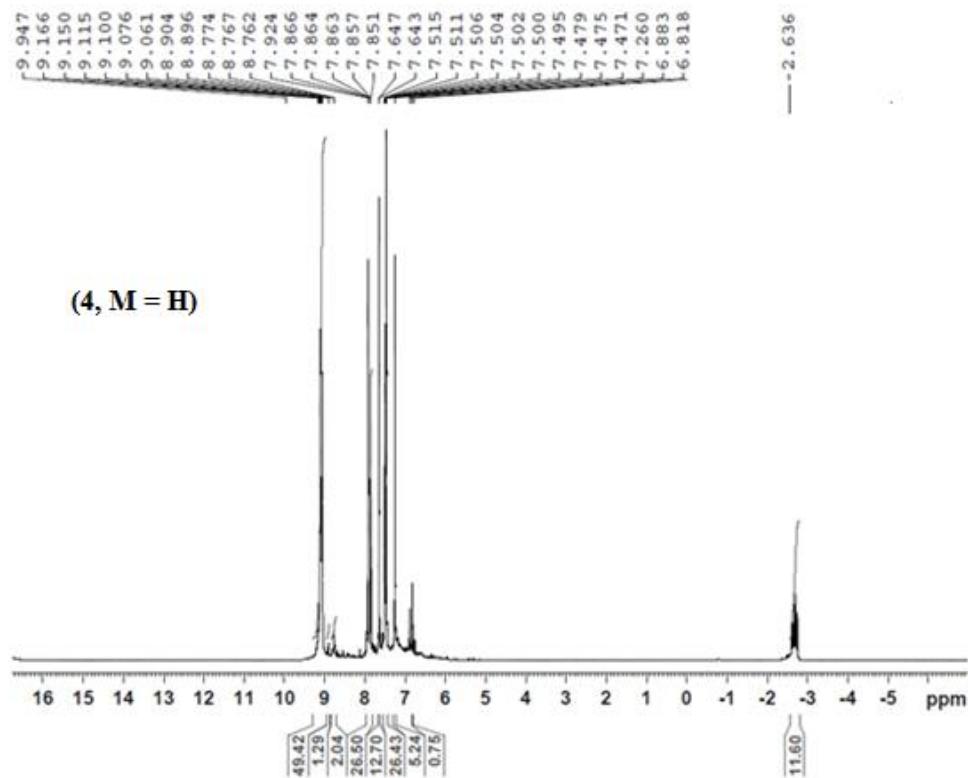
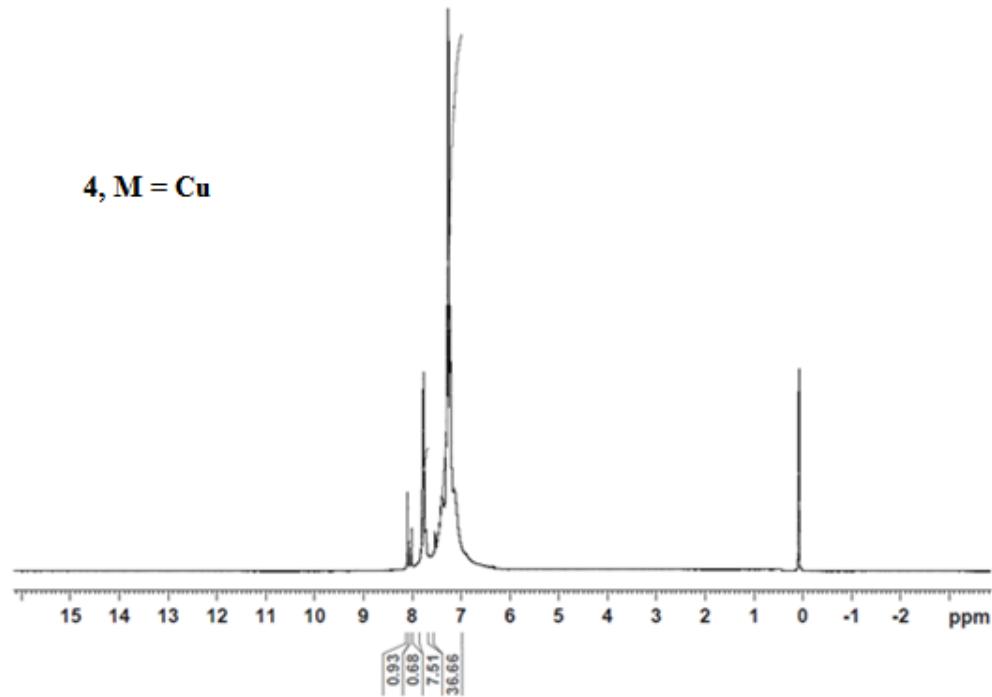
<sup>1</sup>H-NMR Spectra of porphyrin 3a (M=H)<sup>1</sup>H-NMR Spectra of porphyrin 3b (M=H)

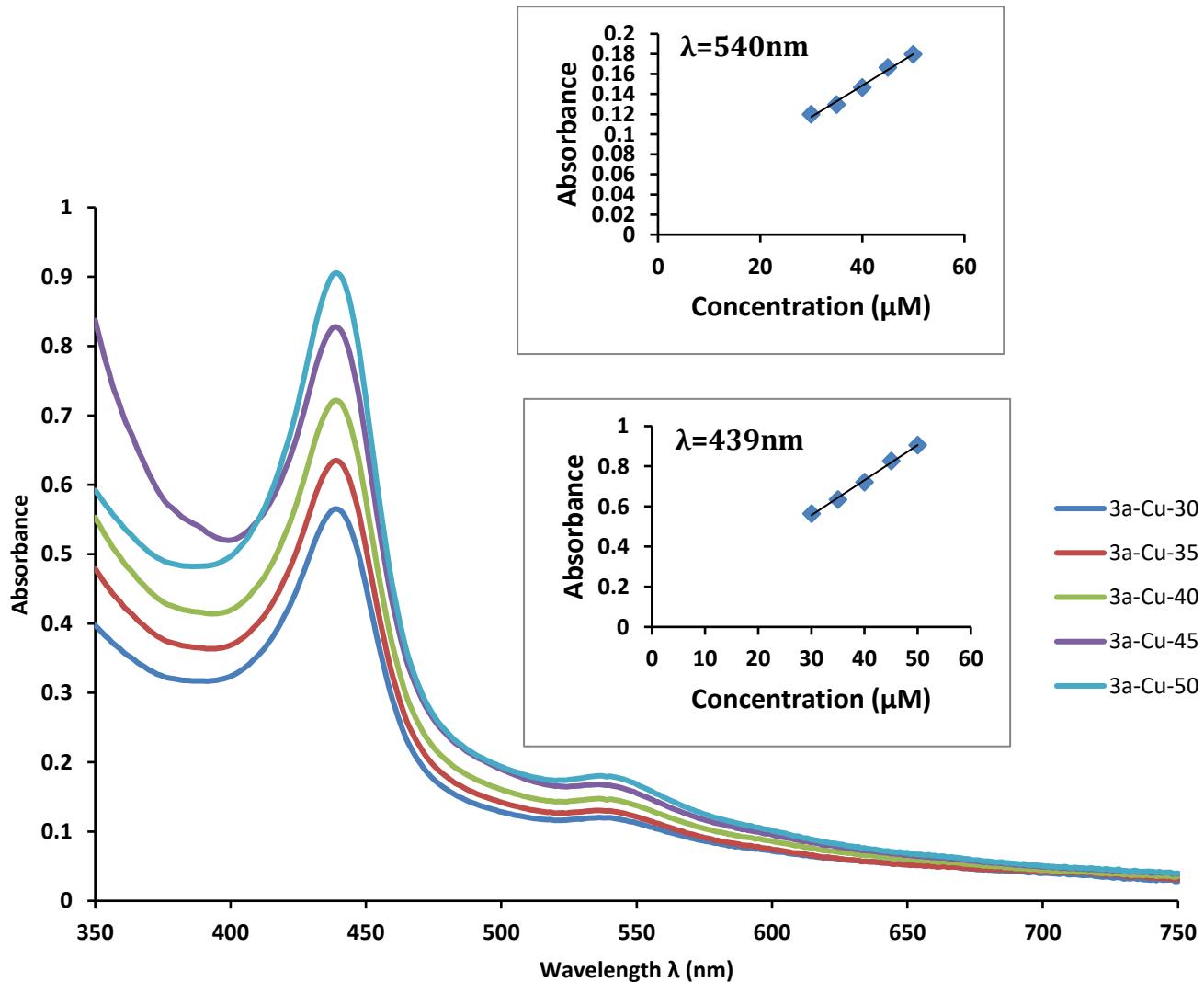
<sup>1</sup>H-NMR Spectra of porphyrin **3c** (M=H)<sup>1</sup>H-NMR Spectra of porphyrin **3d** (M=H)

<sup>1</sup>H-NMR Spectra of porphyrin 3e (M=H)<sup>1</sup>H-NMR Spectra of porphyrin 3a (M=Cu)

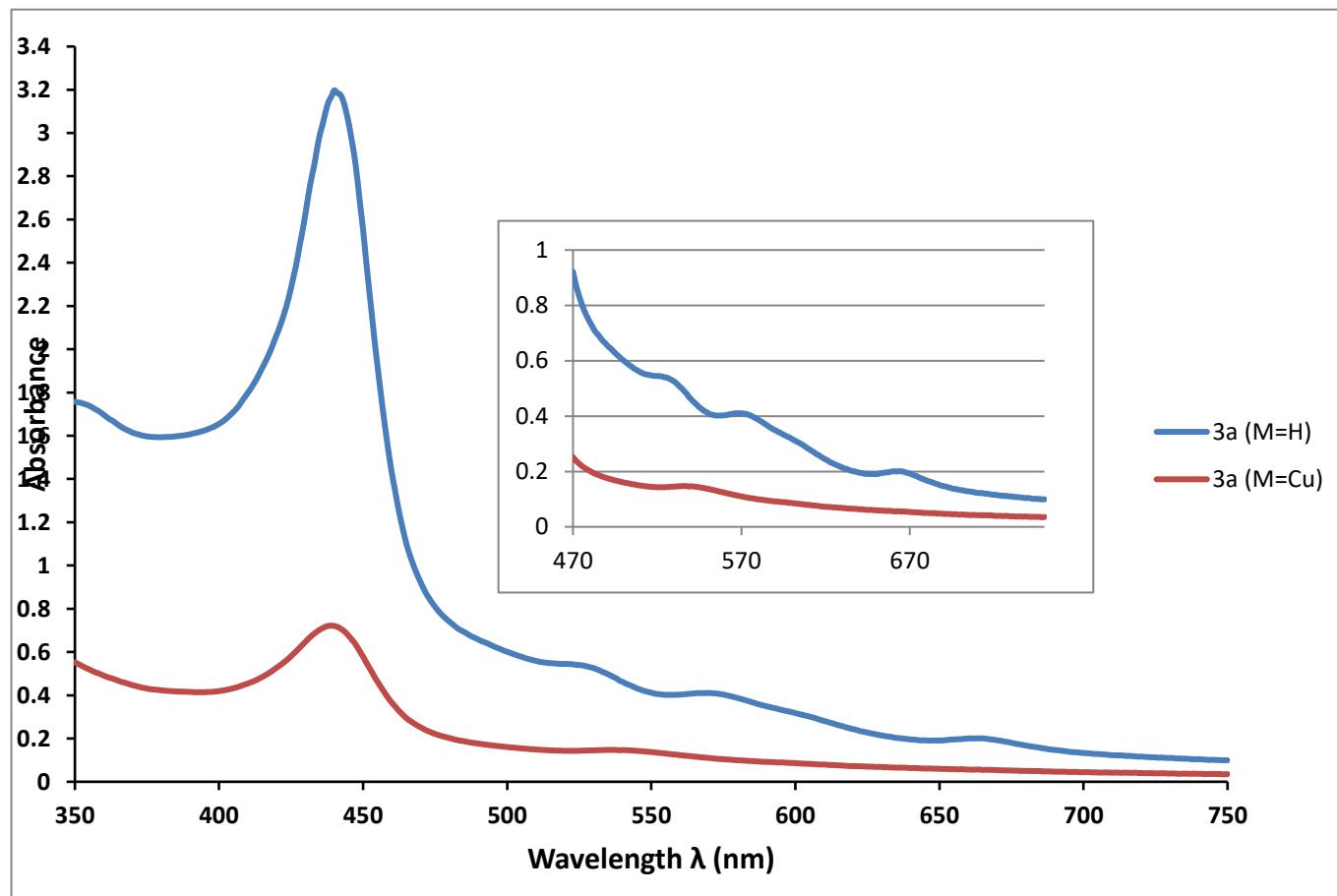
<sup>1</sup>H-NMR Spectra of porphyrin **3b** (M=Cu)<sup>1</sup>H-NMR Spectra of porphyrin **3c** (M=Cu)

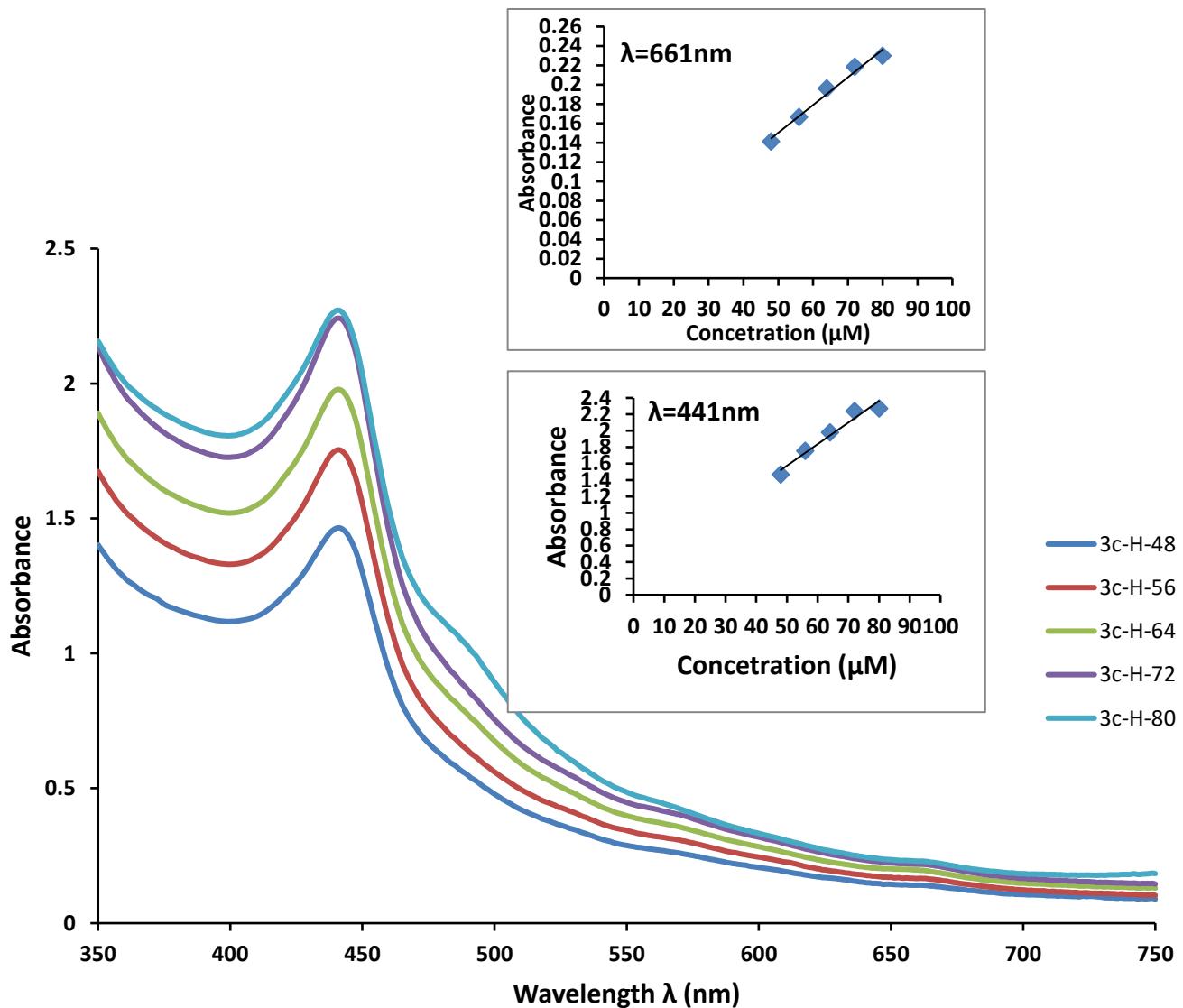
<sup>1</sup>H-NMR Spectra of porphyrin **3d** (M=Cu)<sup>1</sup>H-NMR Spectra of porphyrin **3e** (M=Cu)

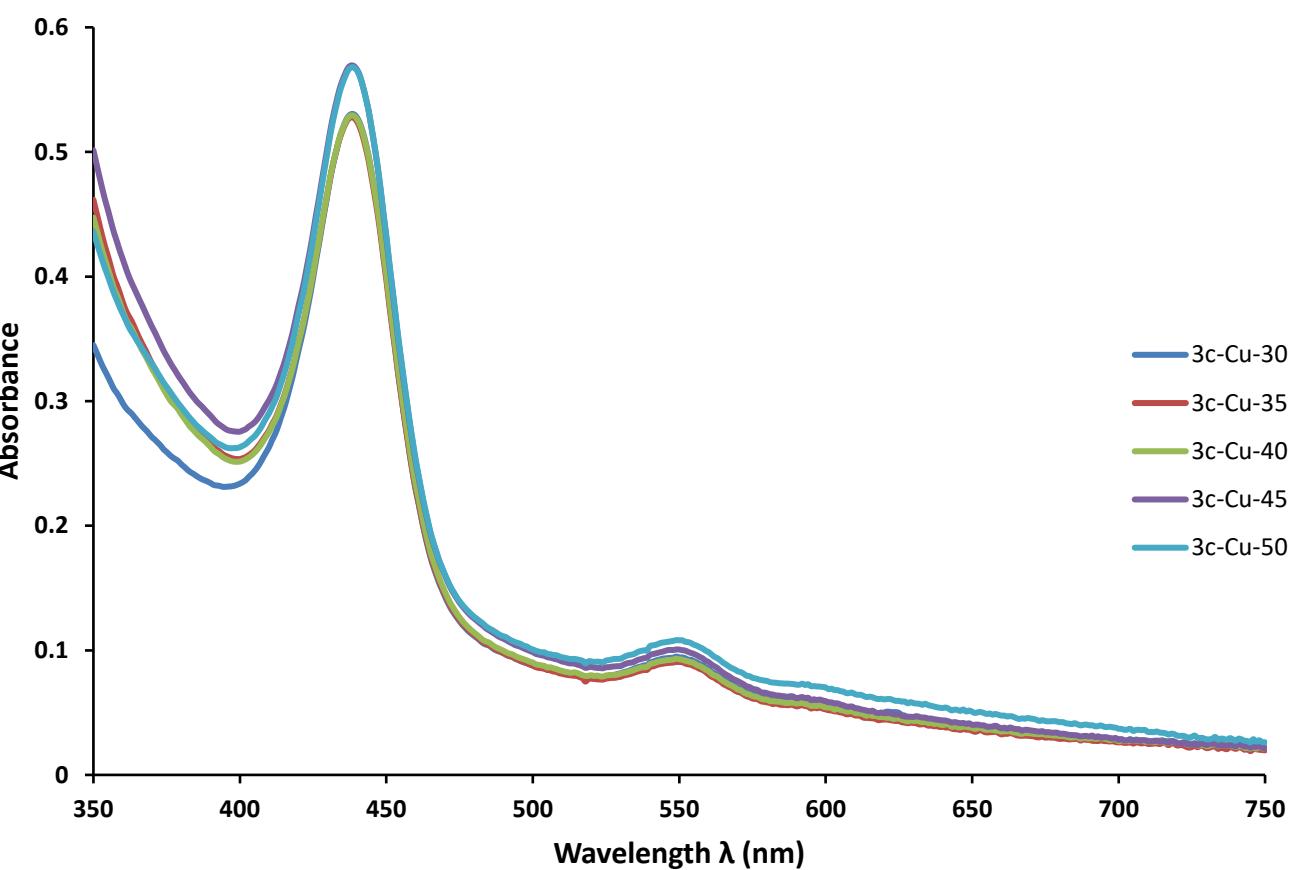
<sup>1</sup>H-NMR Spectra of porphyrin 4 (M=H)<sup>1</sup>H-NMR Spectra of porphyrin 4 (M=Cu)

Aggregation study of compound **3a** (M = Cu) in dichloromethane

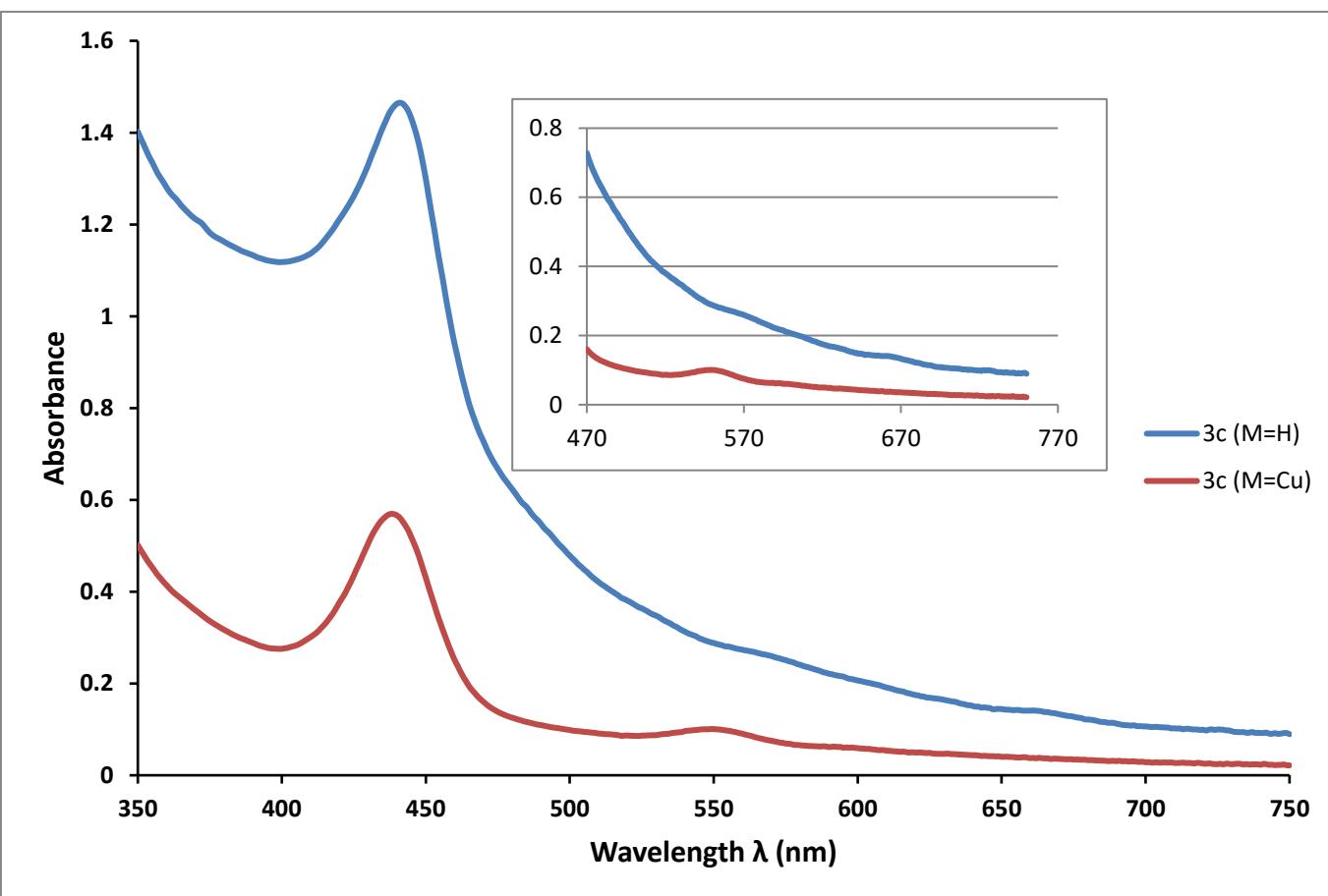
UV-Vis spectra for **3a** (M=H) and **3a** (M=Cu) in dichloromethane.

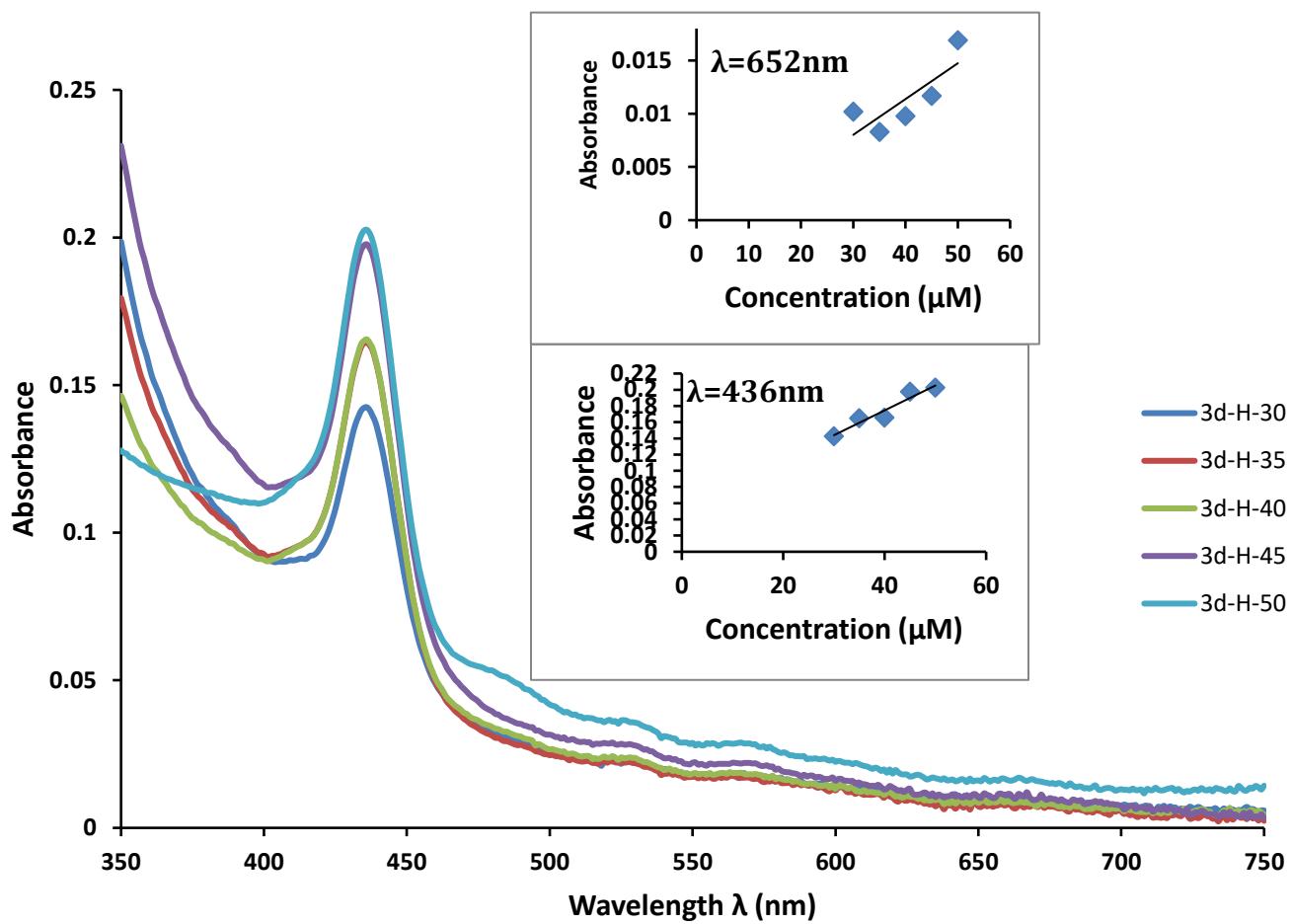


Aggregation study of compound **3c** (M = H) in dichloromethane.

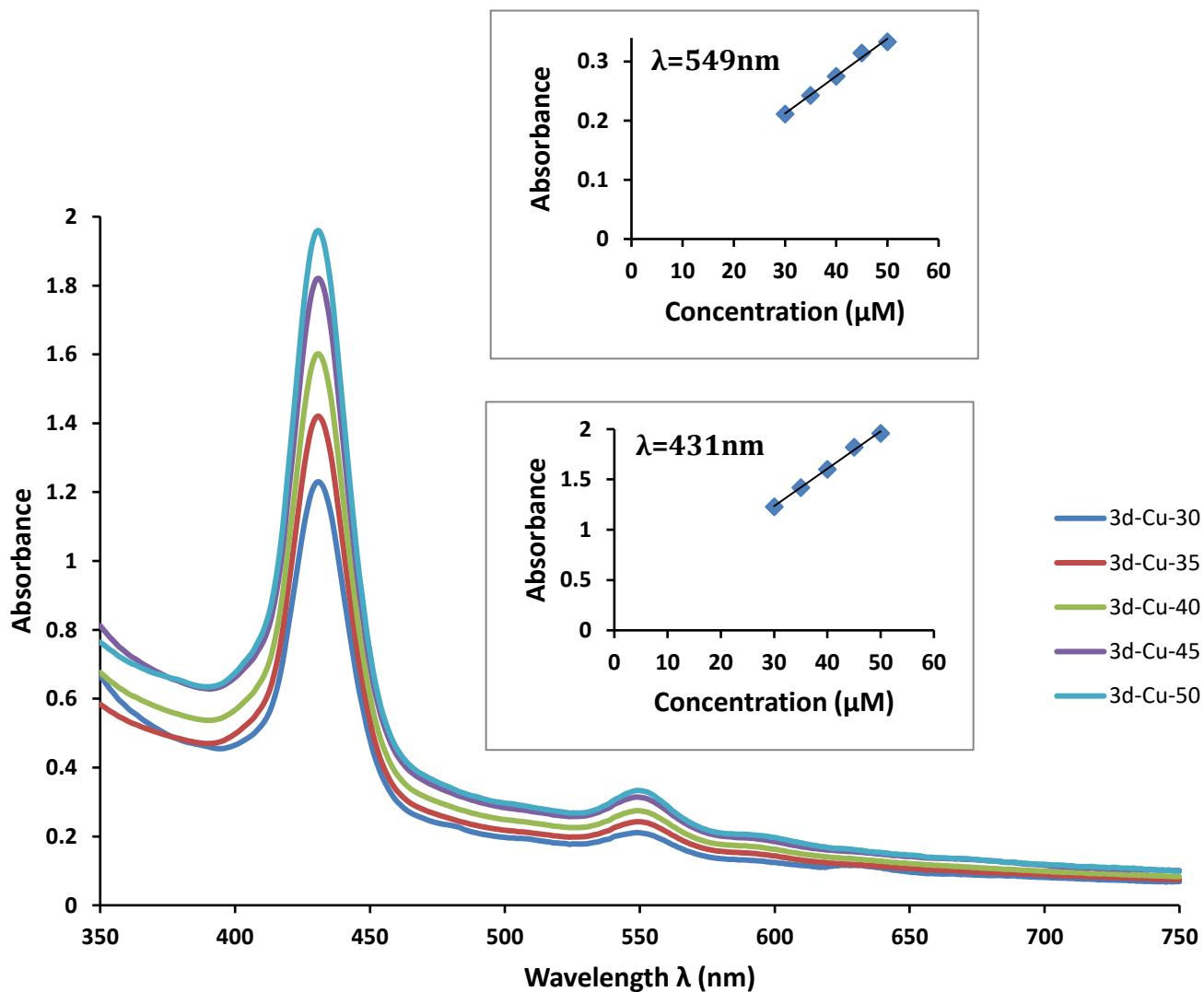
Aggregation study of compound **3c** (M = Cu) in dichloromethane.

UV-Vis spectra for **3c** (M=H) and **3c** (M=Cu) in dichloromethane.

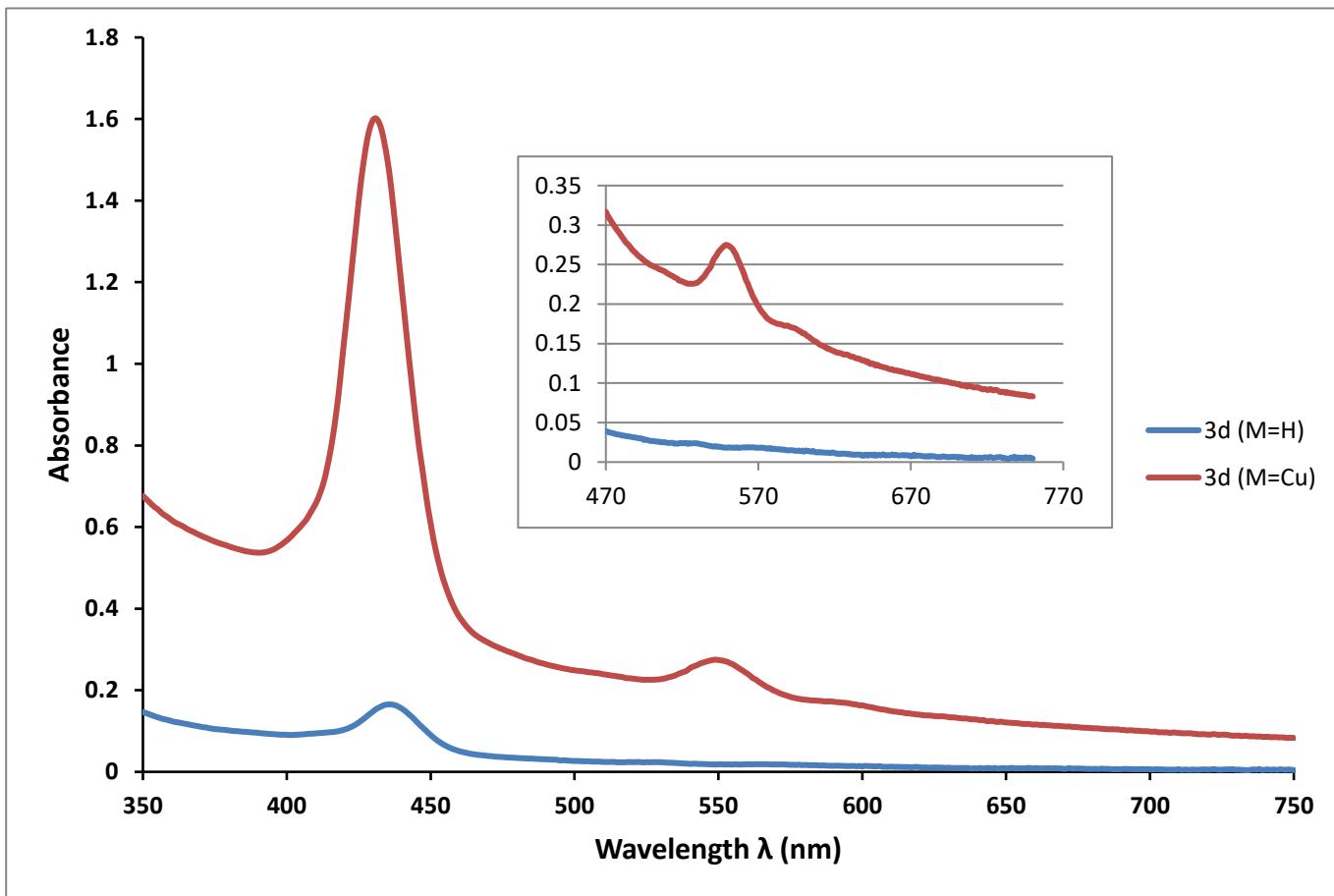


Aggregation study of compound **3d** ( $M = H$ ) in dichloromethane.

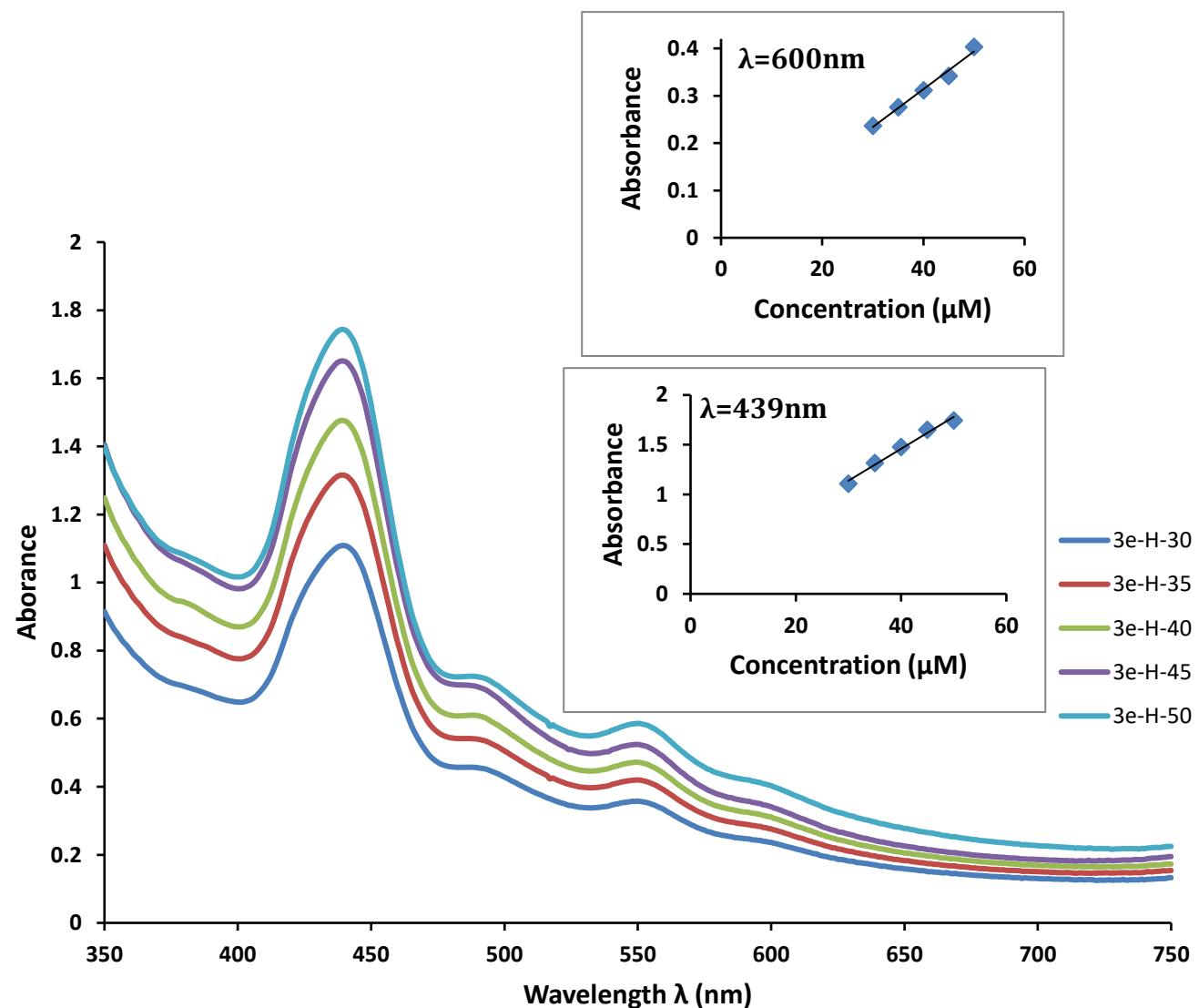
Aggregation study of compound **3d** (M = Cu) in dichloromethane.

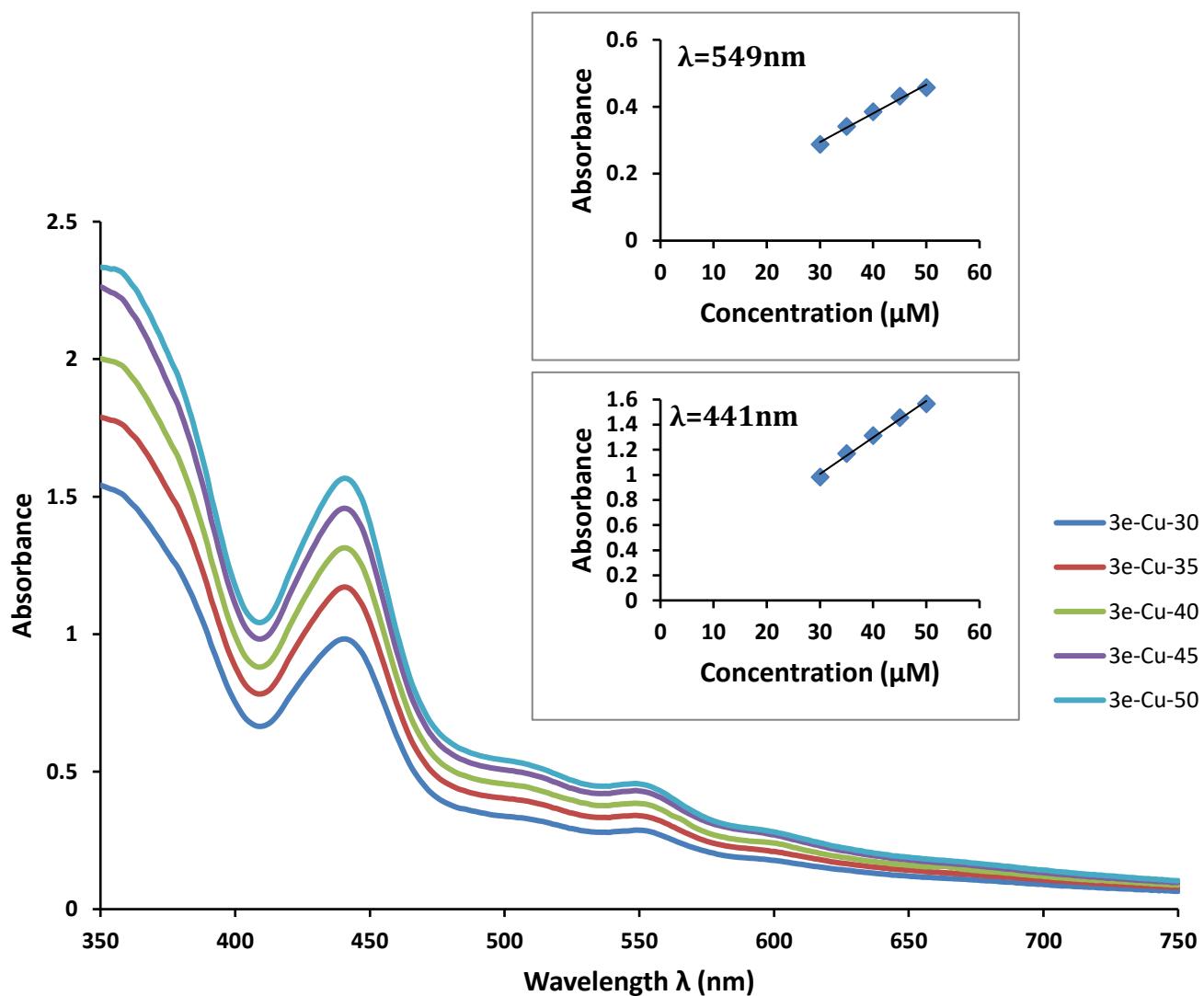


UV-Vis spectra for **3d** (M=H) and **3d** (M=Cu) in dichloromethane.



Aggregation study of compound **3e** ( $M = H$ ) in dichloromethane.



Aggregation study of compound **3e** (M = Cu) in dichloromethane.

UV-Vis spectra for **3e** ( $M=H$ ) and **3e** ( $M=Cu$ ) in dichloromethane.

