

## Utilization of Newly Configured Carbazole-Cyanopyridone Structural Hybrids towards Achieving High-Performance Cyan Fluorescent Organic Light-Emitting Diodes

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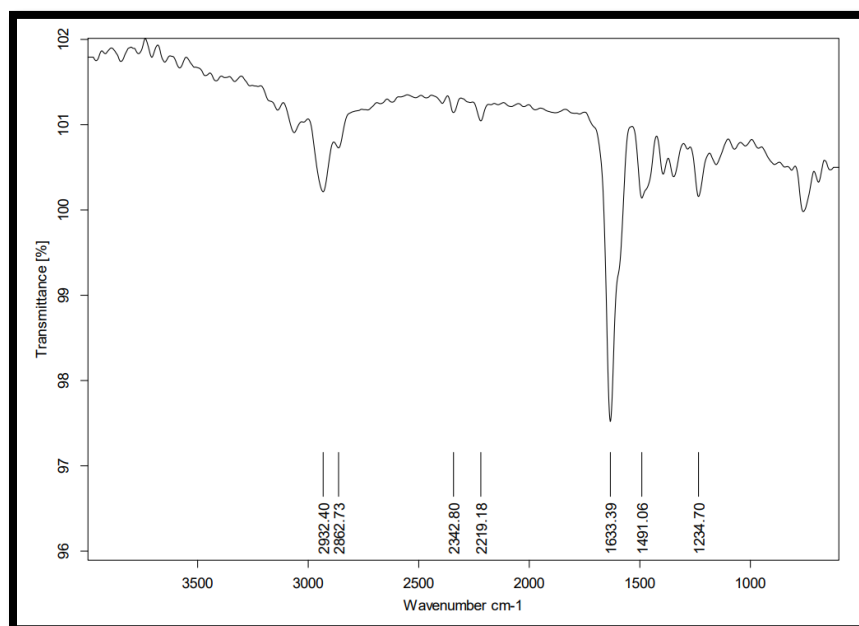
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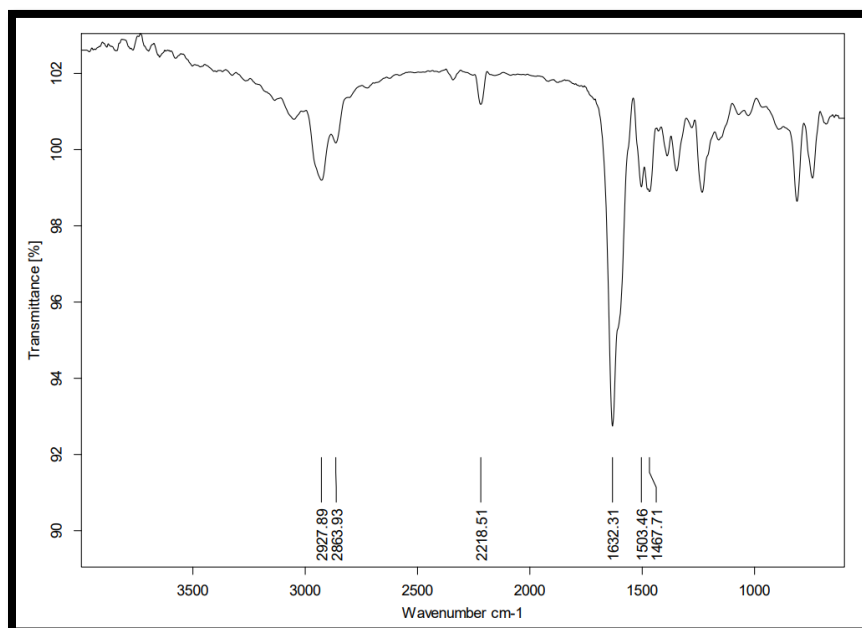
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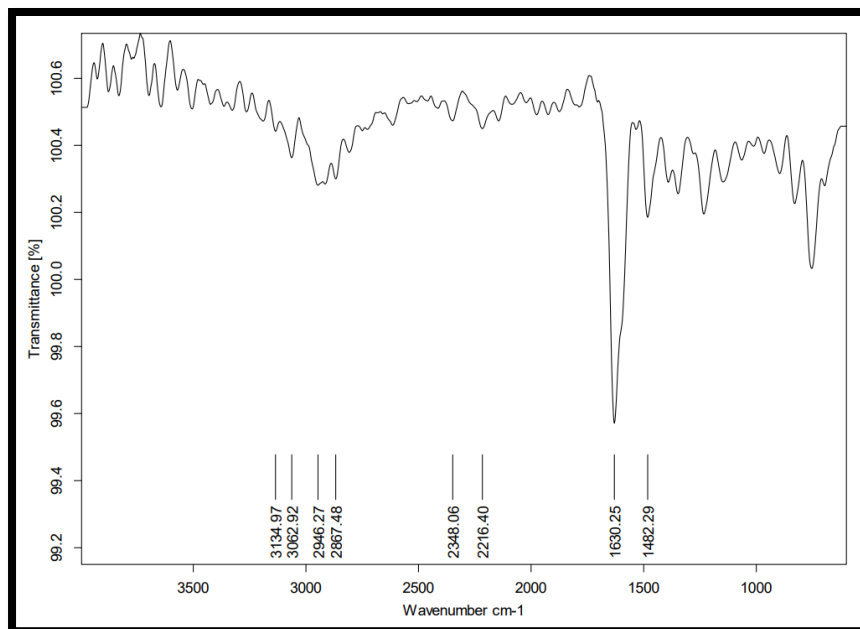
## 1. FTIR spectral characterization



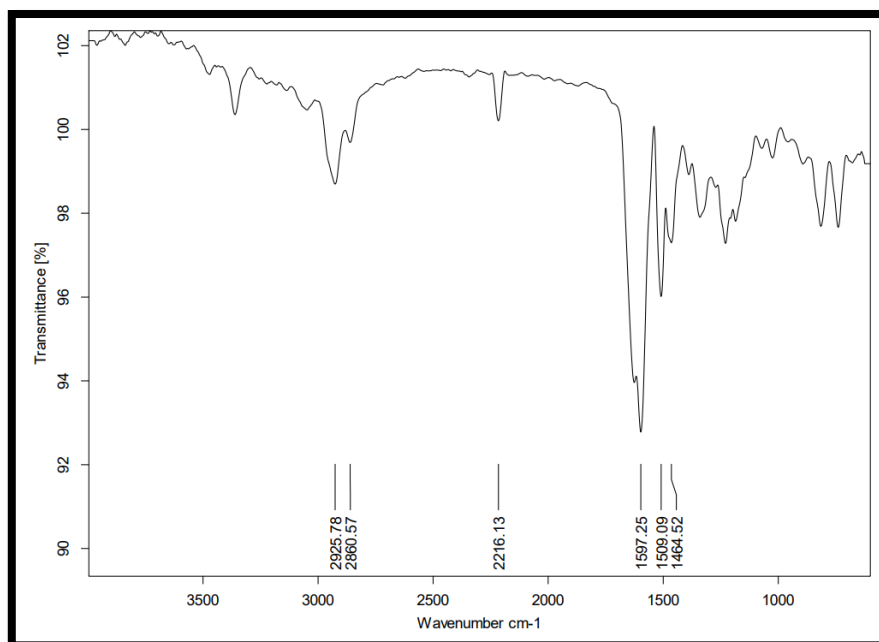
**Figure S1.** FTIR spectrum of Cz-CyP<sub>1</sub>



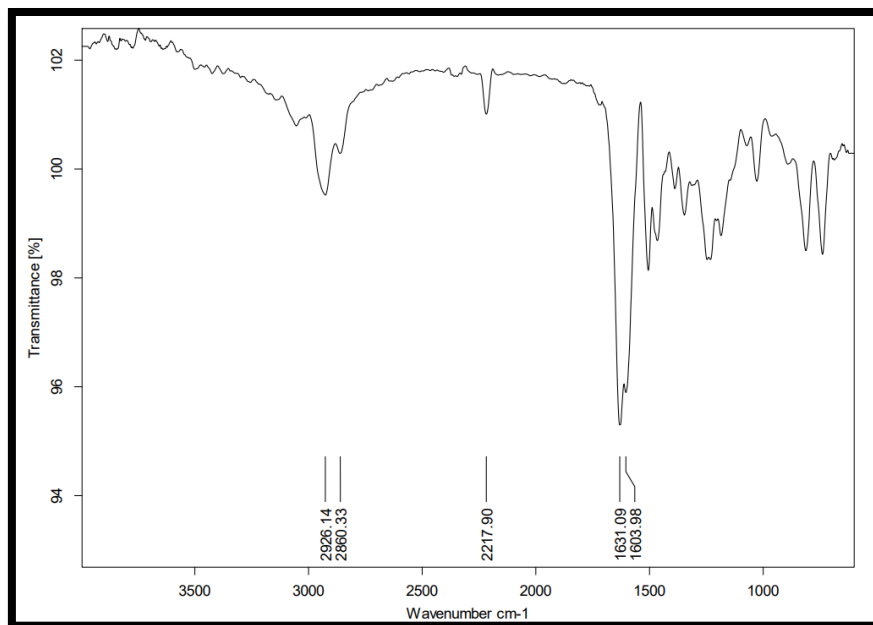
**Figure S2.** FTIR spectrum of Cz-CyP<sub>2</sub>



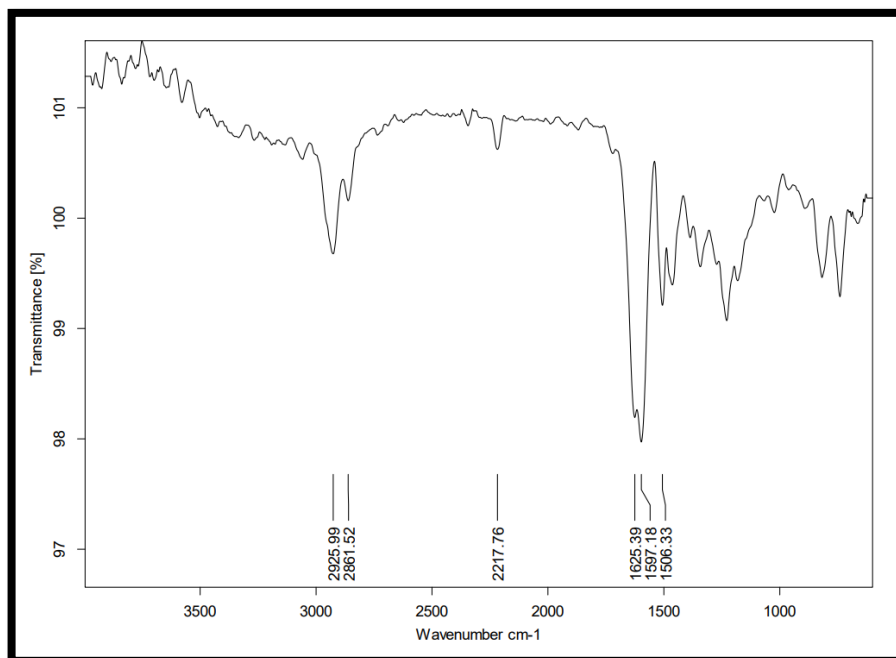
**Figure S3.** FTIR spectrum of Cz-CyP<sub>3</sub>



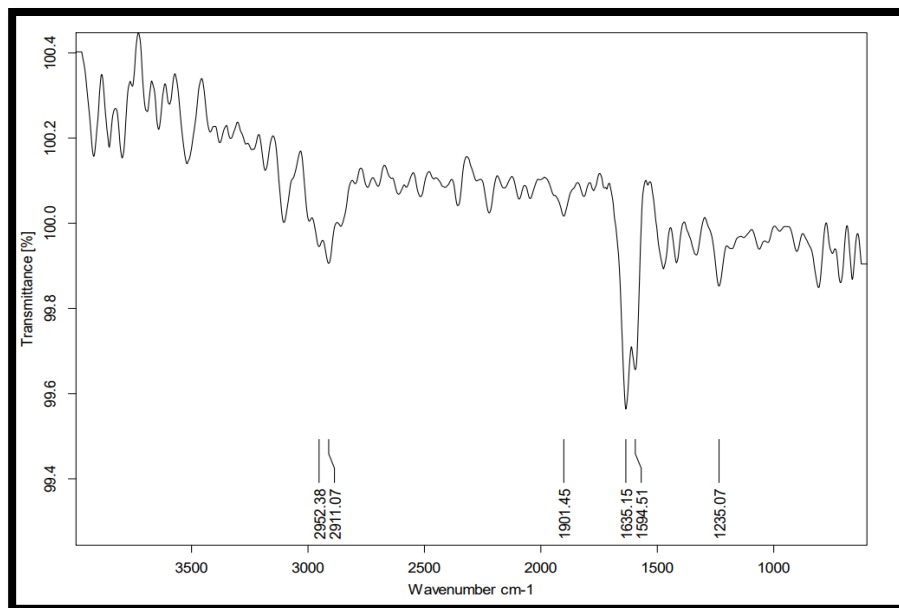
**Figure S4.** FTIR spectrum of Cz-CyP<sub>4</sub>



**Figure S5.** FTIR spectrum **Cz-CyP<sub>5</sub>**

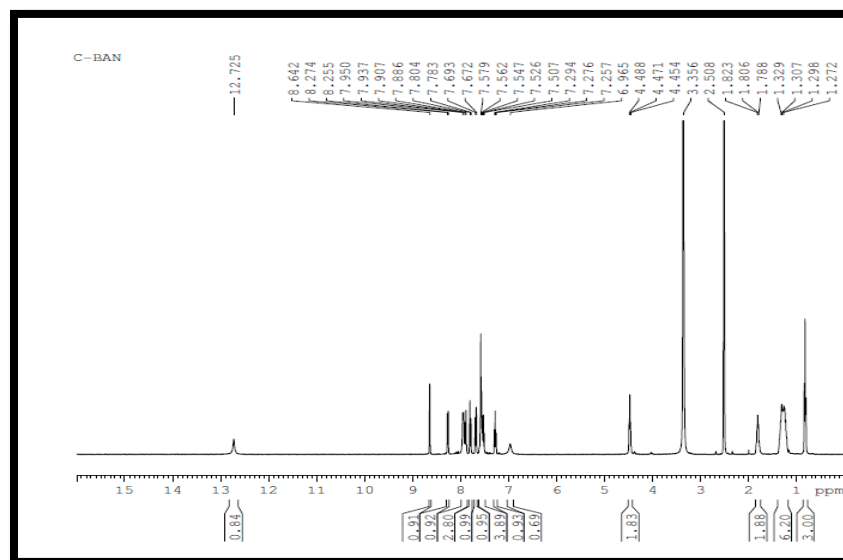


**Figure S6.** FTIR spectrum of **Cz-CyP<sub>6</sub>**



**Figure S7.** FTIR spectrum of Cz-CyP<sub>7</sub>

### <sup>1</sup>HNMR spectral characterization



**Figure S8.** <sup>1</sup>H NMR spectrum of Cz-CyP<sub>1</sub>



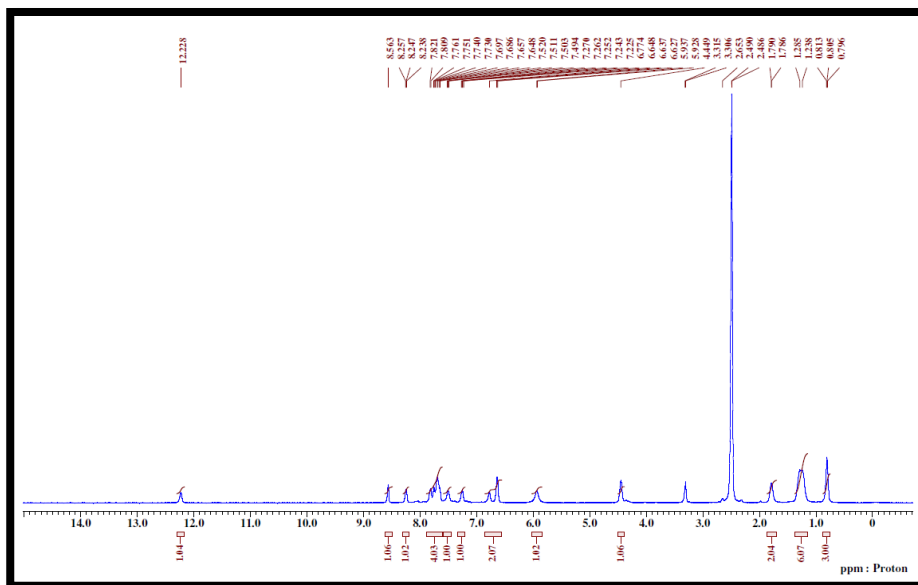


Figure S11. <sup>1</sup>H NMR spectrum of Cz-CyP<sub>4</sub>

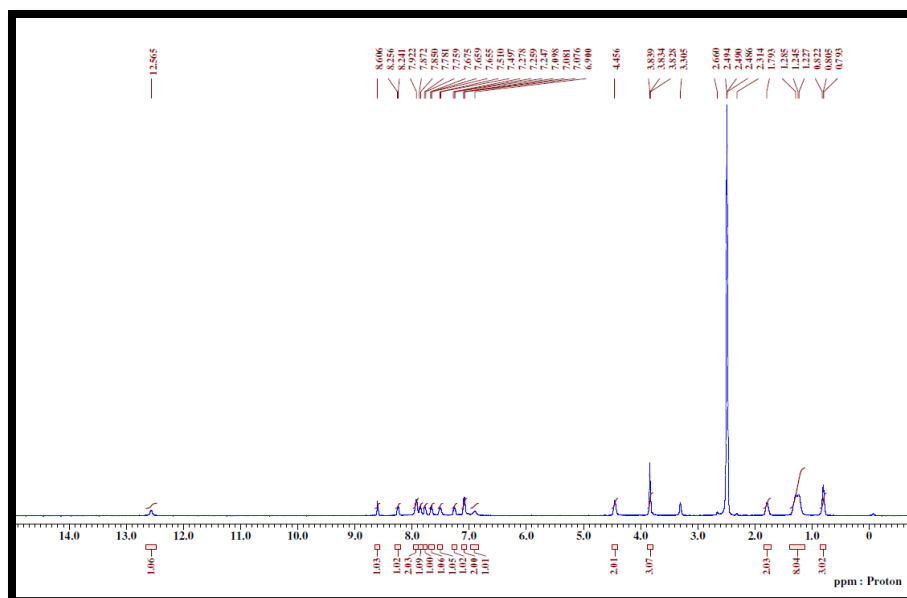


Figure S12. <sup>1</sup>H NMR spectrum of Cz-CyP<sub>5</sub>

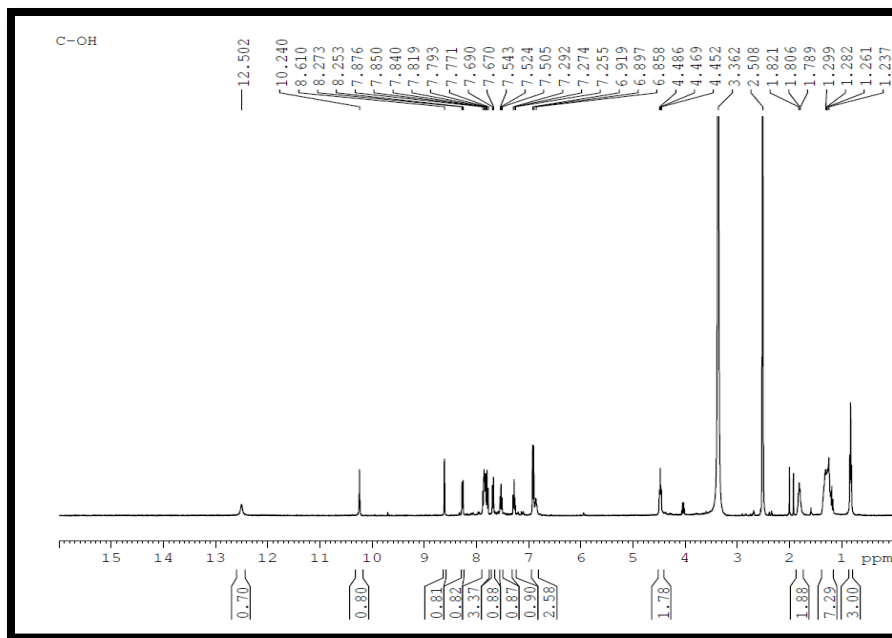


Figure S13.  $^1\text{H}$ NMR spectrum of Cz-CyP<sub>6</sub>

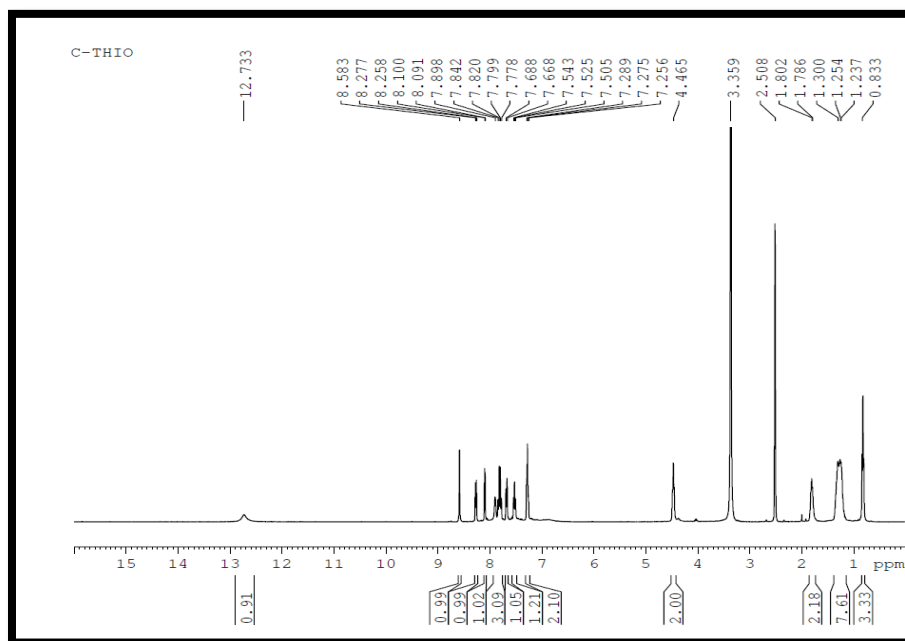


Figure S14.  $^1\text{H}$ NMR spectrum of Cz-CyP<sub>7</sub>



# $^{13}\text{C}$ NMR spectral characterization

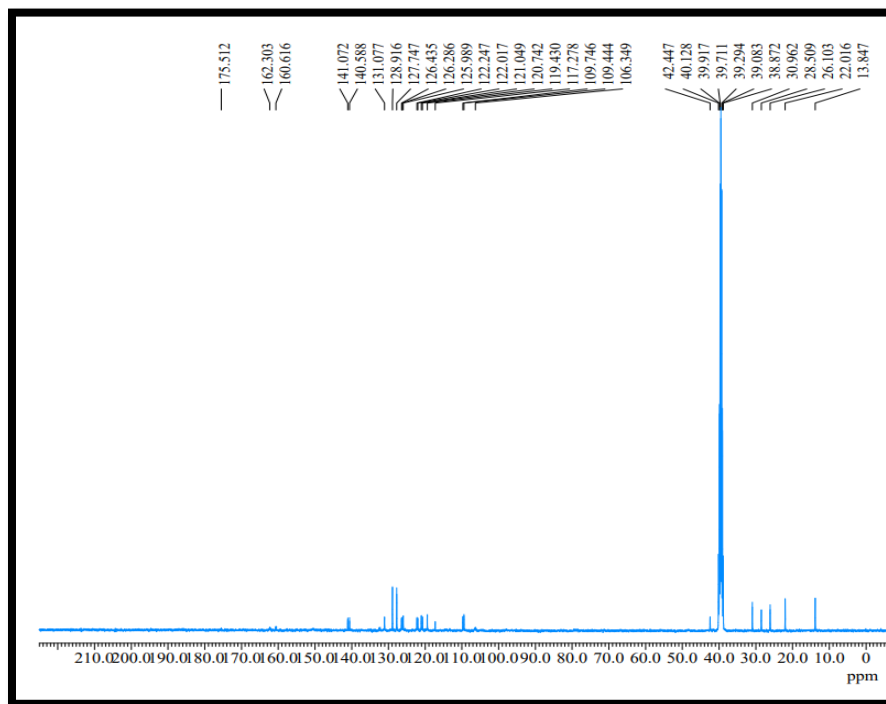


Figure S15.  $^{13}\text{C}$  NMR spectrum Cz-CyP<sub>1</sub>

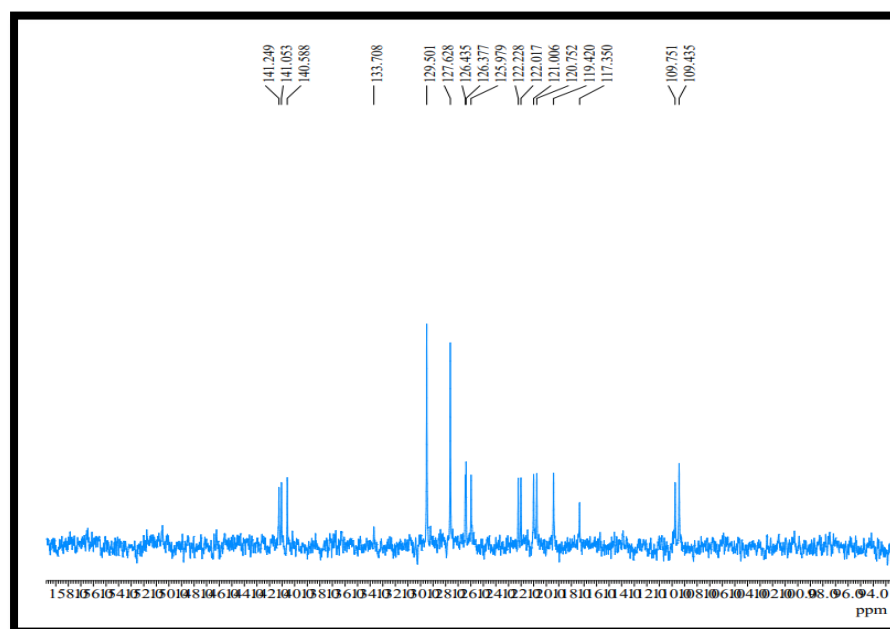


Figure S16.  $^{13}\text{C}$  NMR spectrum Cz-CyP<sub>2</sub>

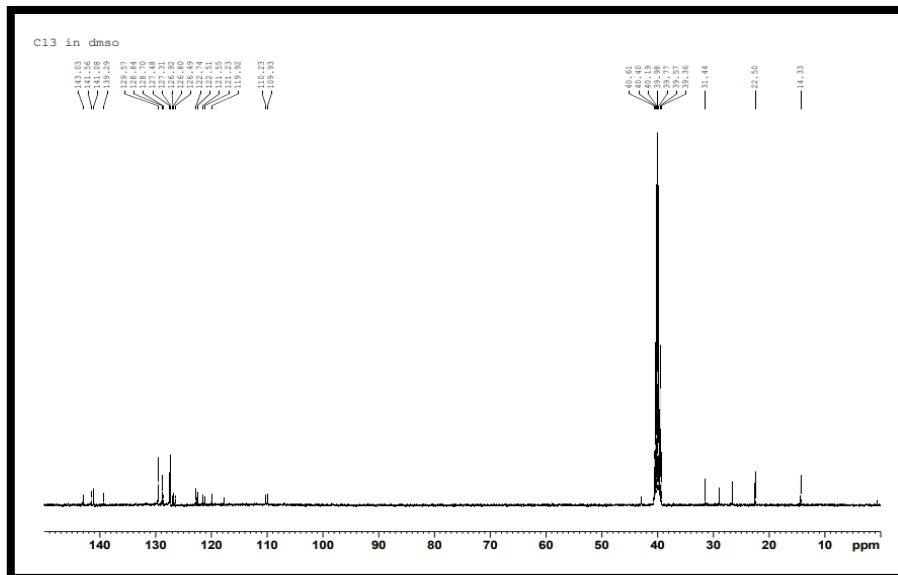


Figure S17.  $^{13}\text{C}$ NMR spectrum Cz-CyP<sub>3</sub>

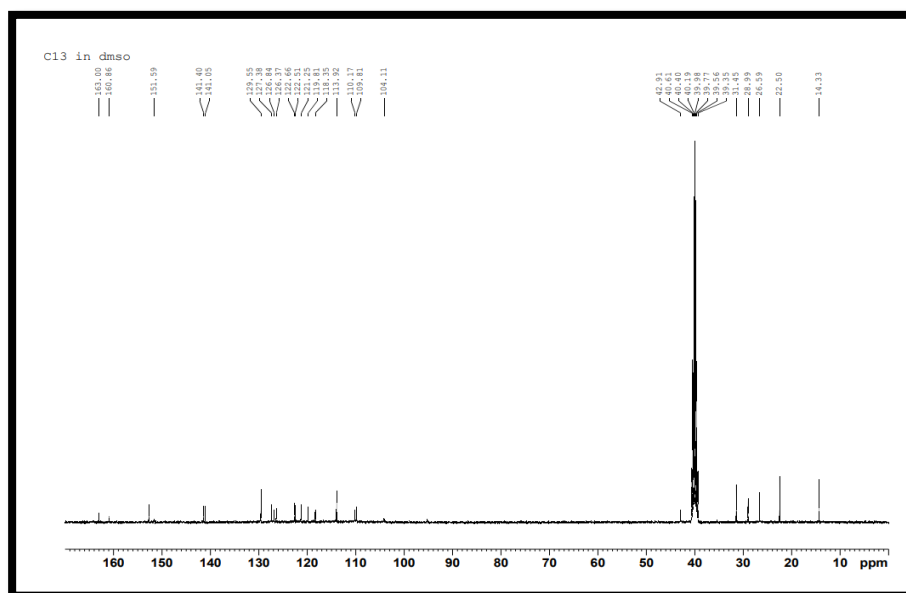


Figure S18  $^{13}\text{C}$ NMR spectrum Cz-CyP<sub>4</sub>

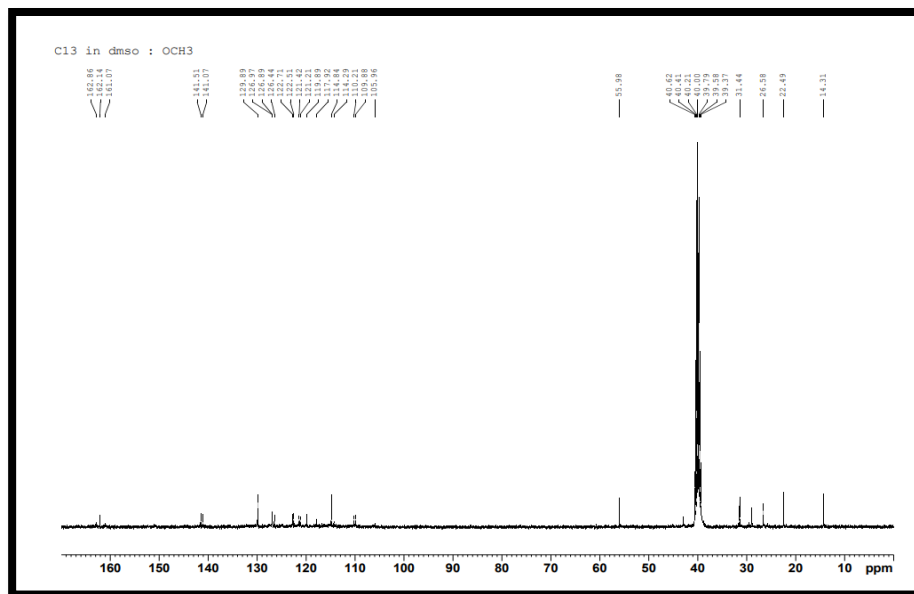


Figure S19.  $^{13}\text{C}$ NMR spectrum Cz-CyP<sub>5</sub>

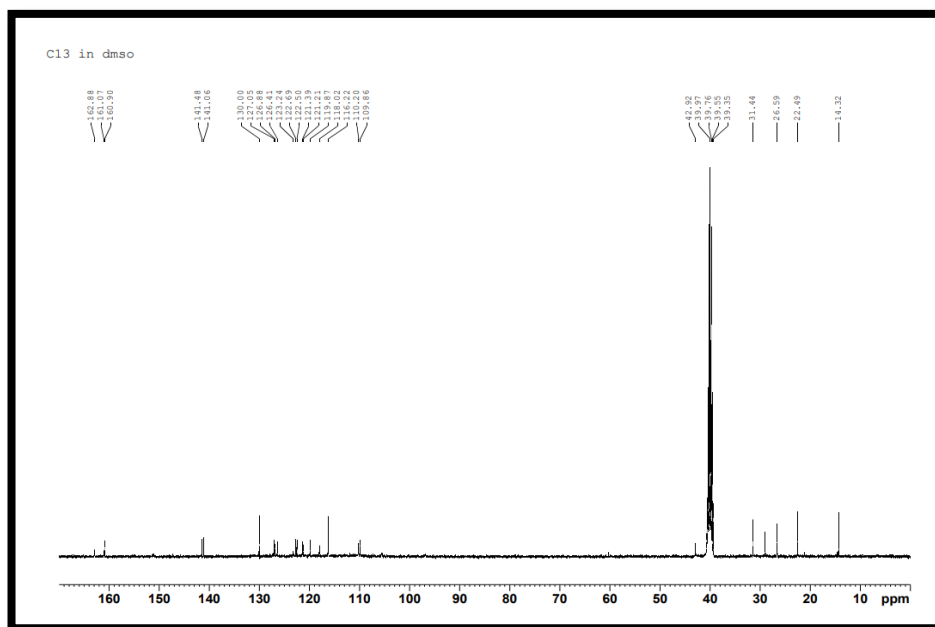


Figure S20.  $^{13}\text{C}$ NMR spectrum Cz-CyP<sub>6</sub>

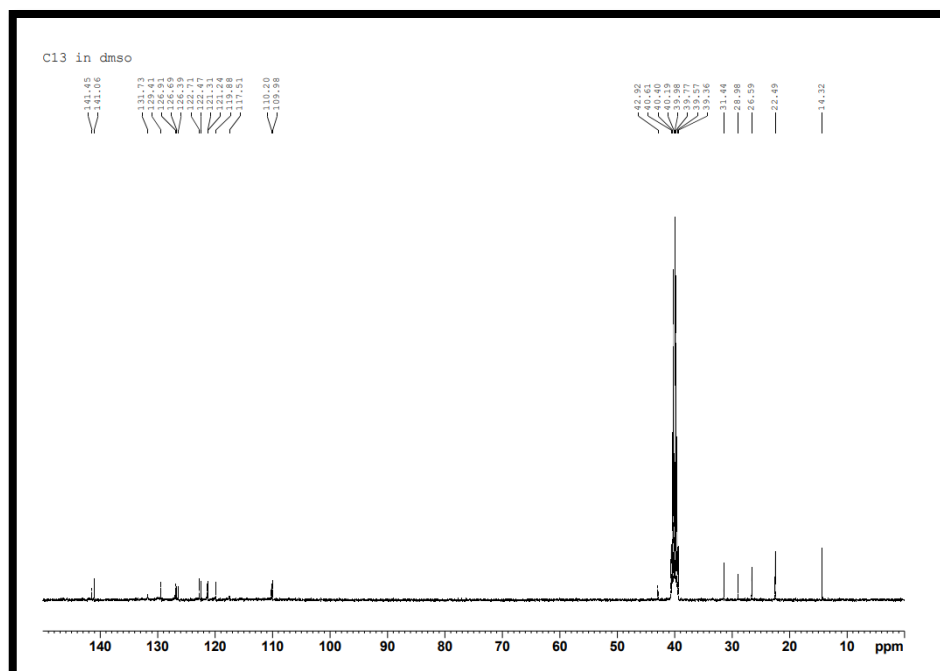


Figure S21.  $^{13}\text{C}$ NMR spectrum Cz-CyP<sub>7</sub>

### Mass spectral characterization

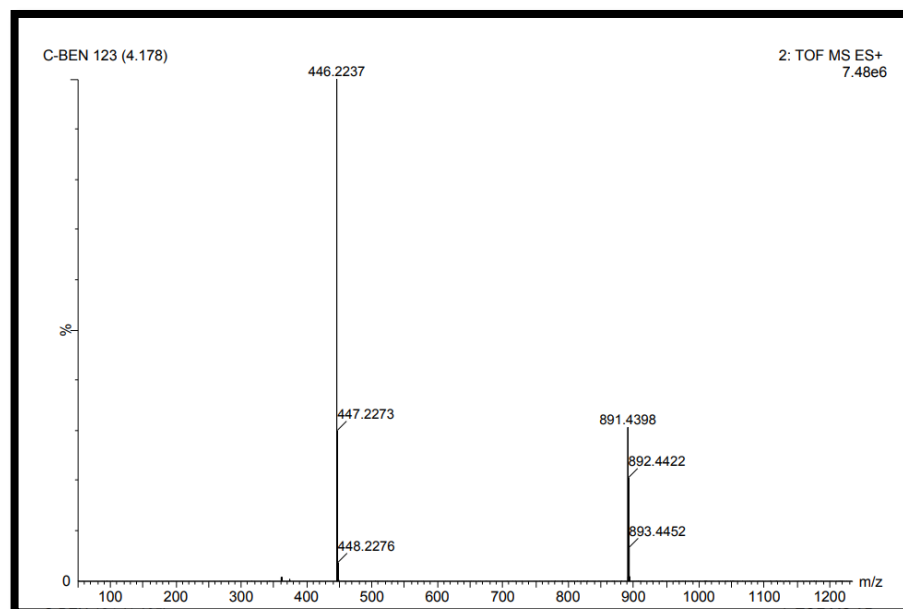


Figure S22. Mass spectrum of Cz-CyP<sub>1</sub>

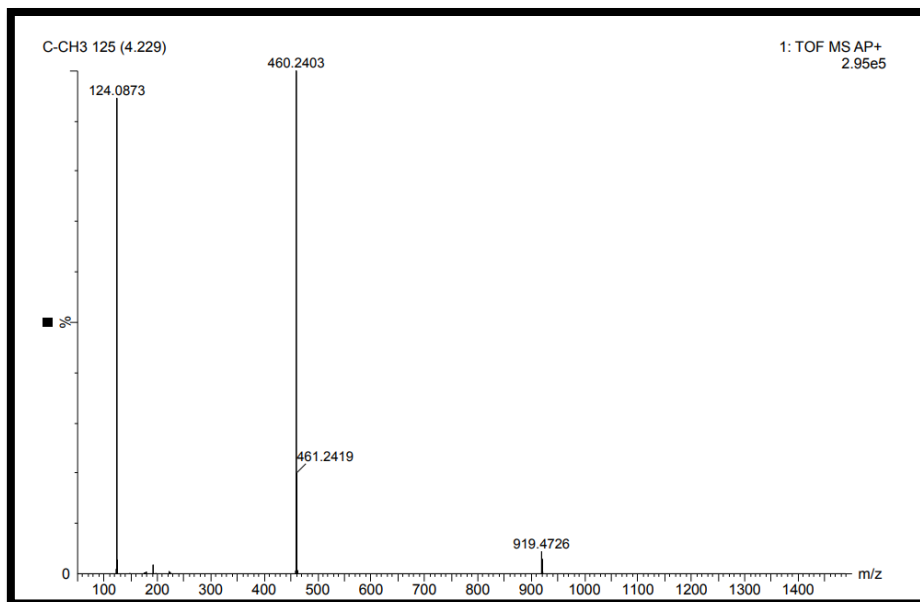


Figure S23. Mass spectrum of Cz-CyP<sub>2</sub>

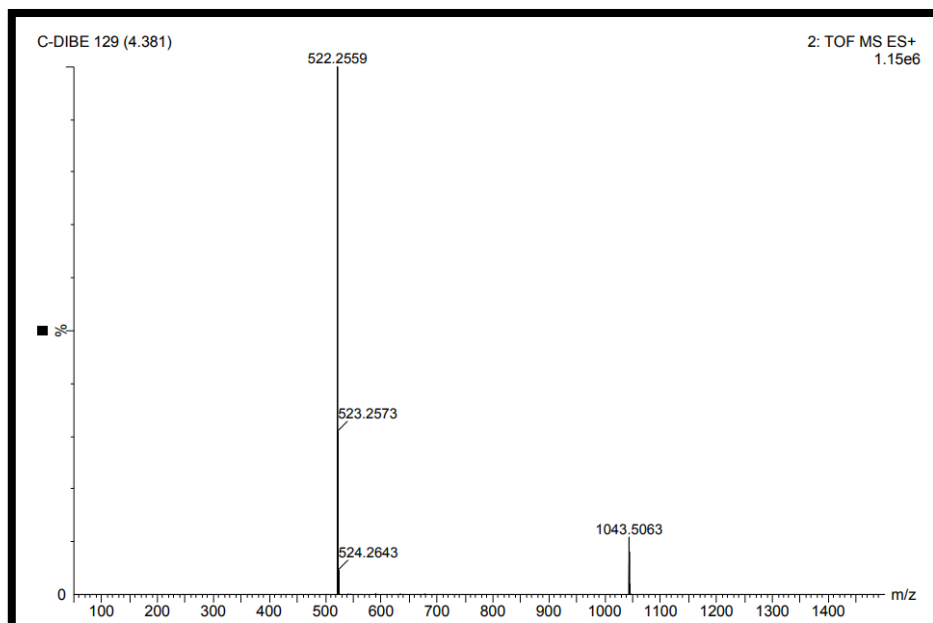


Figure S24. Mass spectrum of Cz-CyP<sub>3</sub>

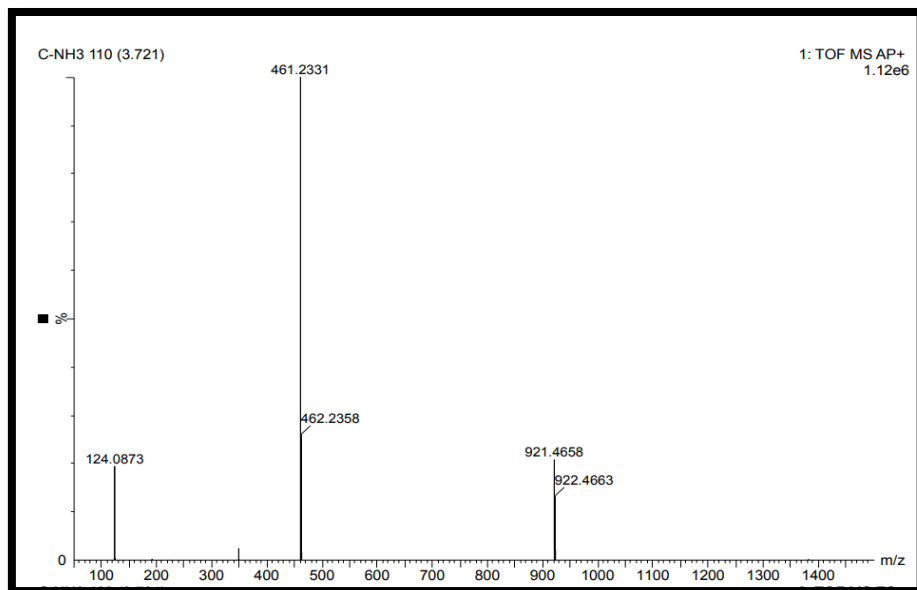


Figure S25. Mass spectrum of Cz-CyP<sub>4</sub>

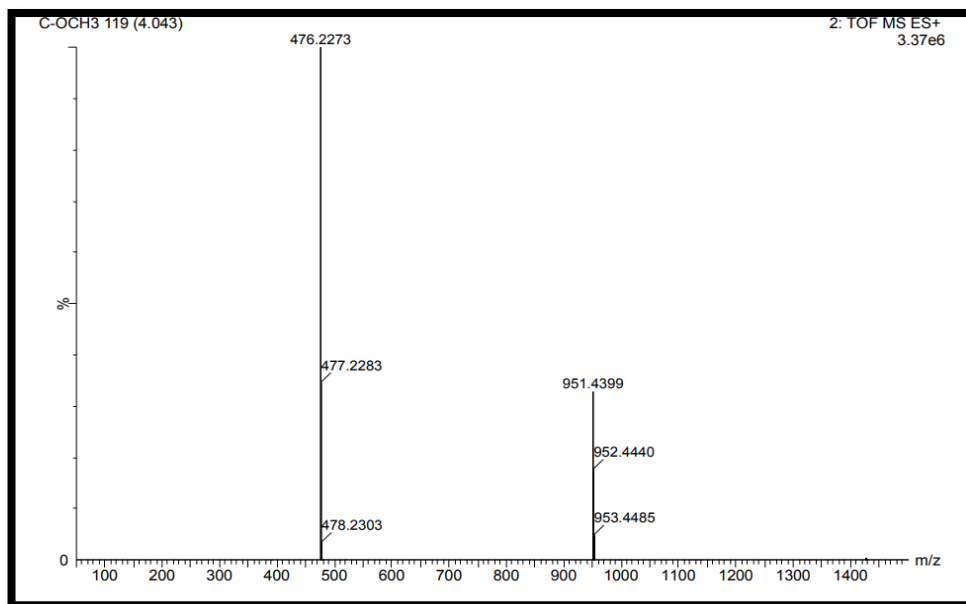


Figure S26. Mass spectrum of Cz-CyP<sub>5</sub>

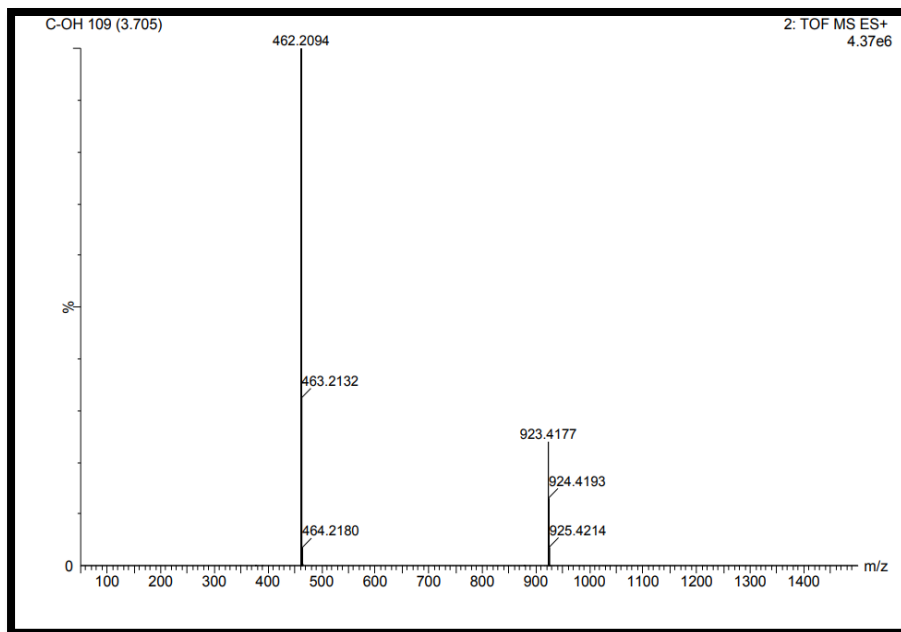


Figure S27. Mass spectrum of Cz-CyP<sub>6</sub>

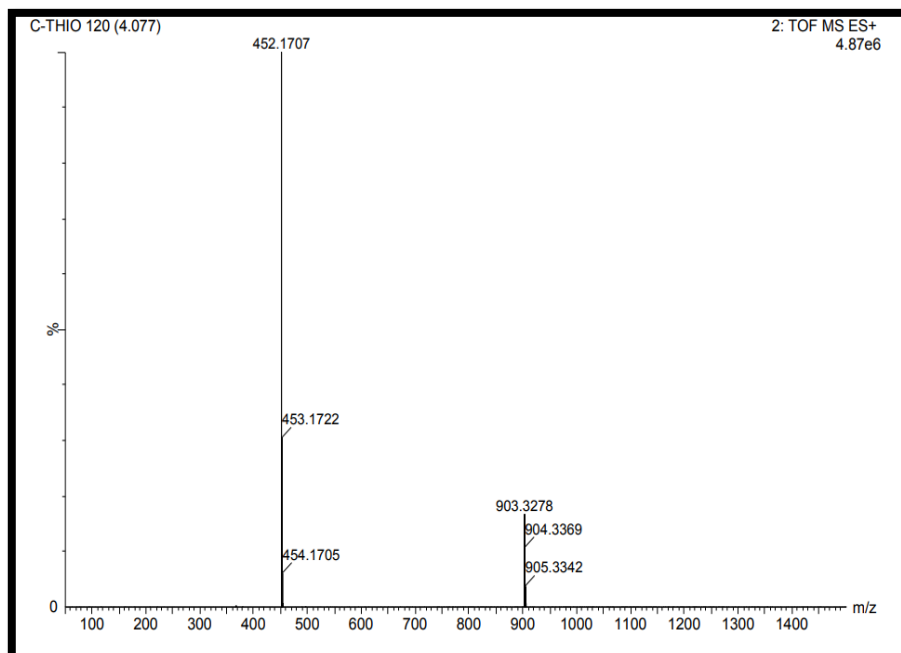
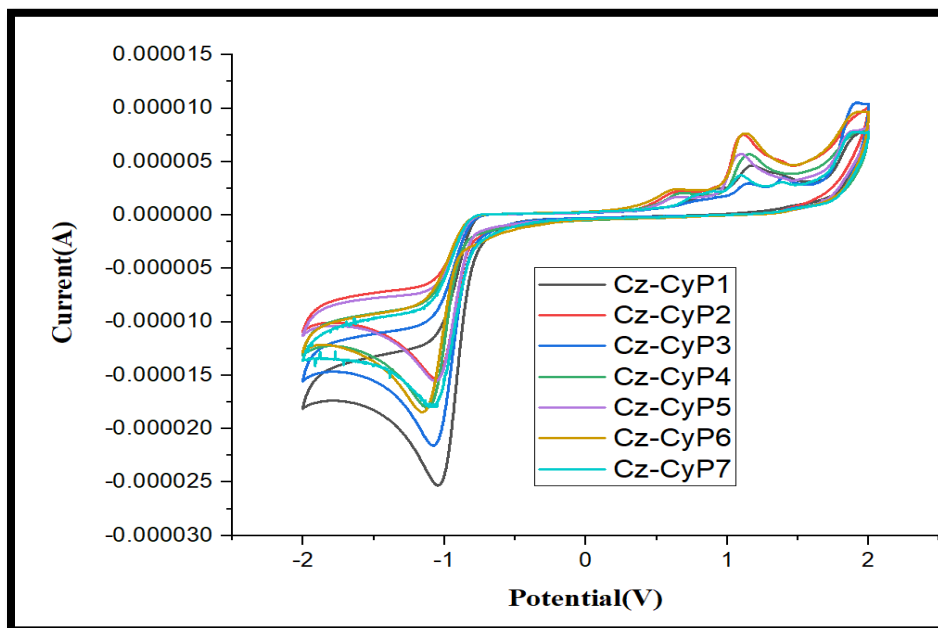


Figure S28. Mass spectrum of Cz-CyP<sub>7</sub>

## 2. Cyclic voltammograms of Cz-CyP<sub>1-7</sub>



**Figure S29.** Cyclic voltammograms of Cz-CyP<sub>1-7</sub>



### 3. Solvatochromic behaviour

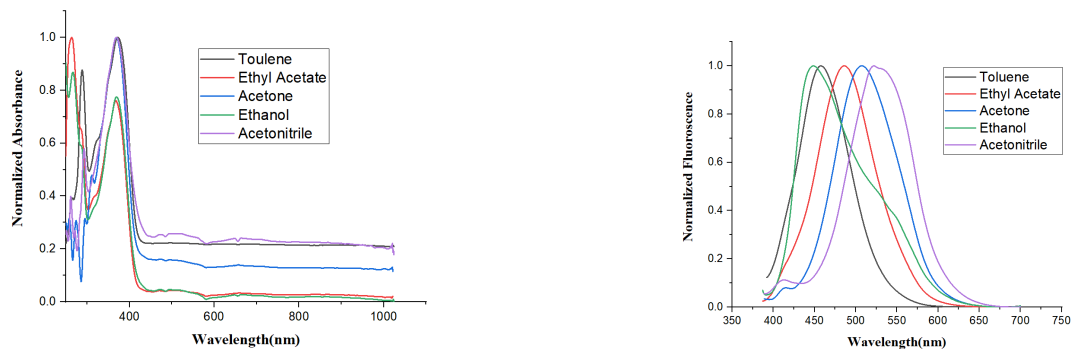


Figure S30. UV and PL spectra of Cz-CyP<sub>1</sub>

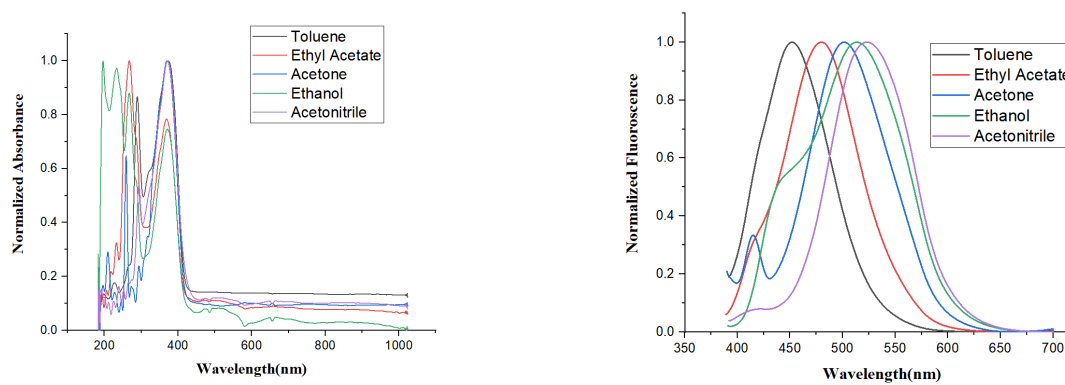
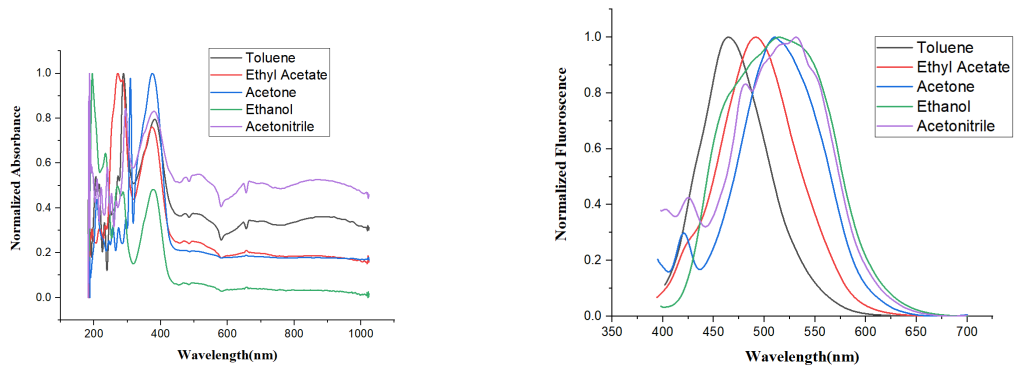
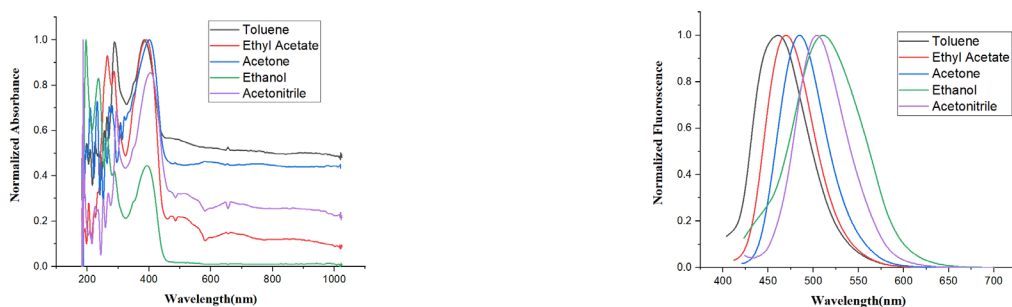


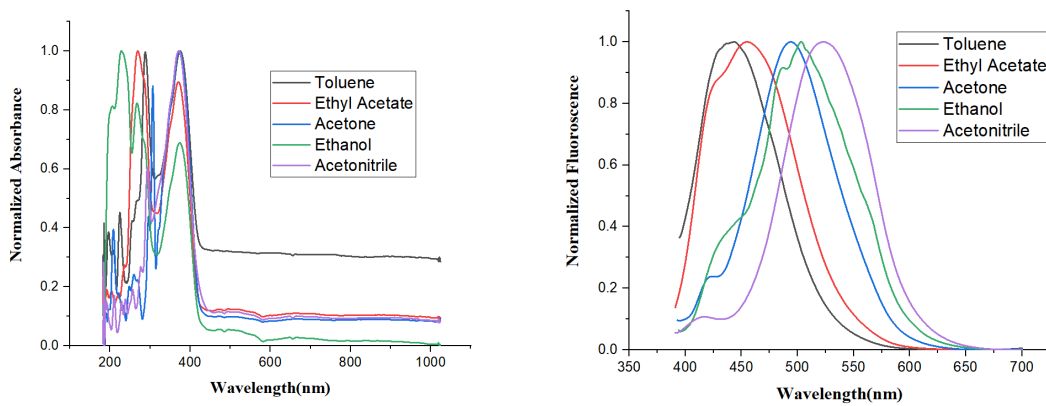
Figure S31. UV and PL spectra of Cz-CyP<sub>2</sub>



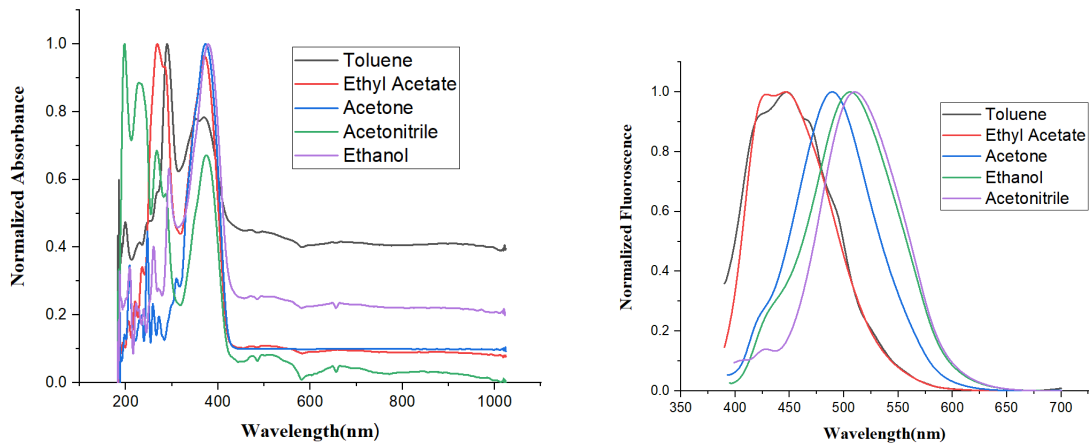
**Figure S32.** UV and PL spectra of Cz-CyP<sub>3</sub>



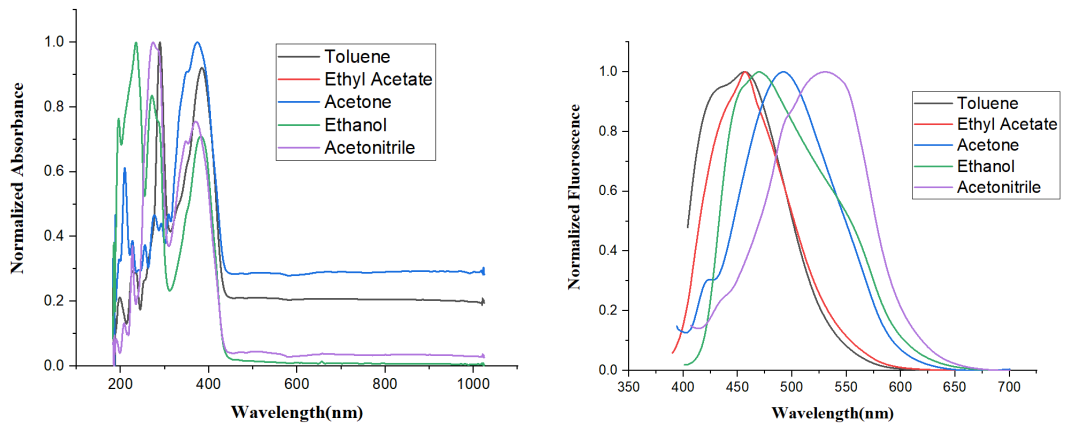
**Figure S33.** UV and PL spectra of Cz-CyP<sub>4</sub>



**Figure S34.** UV and PL spectra of Cz-CyP<sub>5</sub>

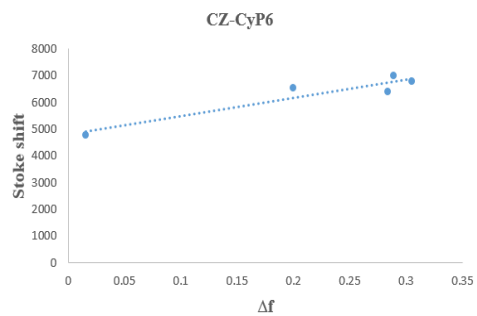
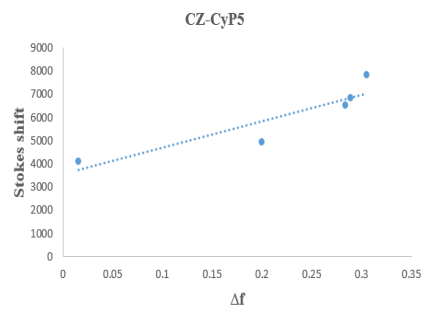
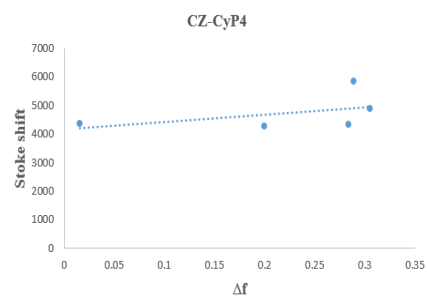
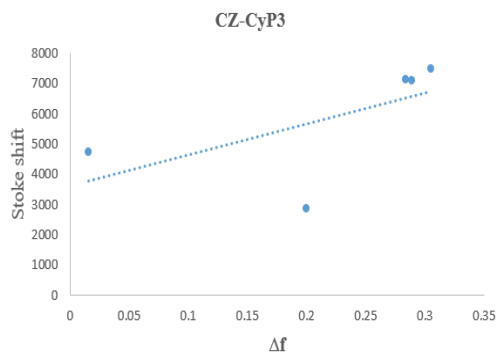
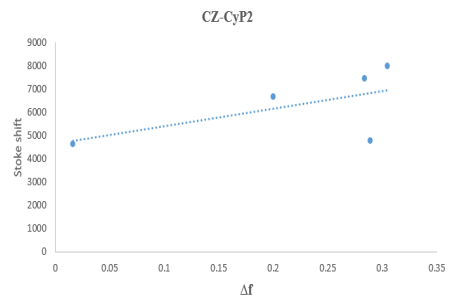
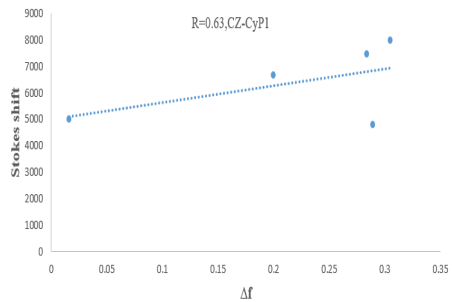


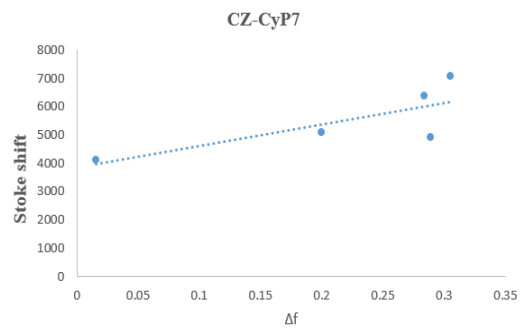
**Figure S35.** UV and PL spectra of Cz-CyP<sub>6</sub>



**Figure S36.** UV and PL spectra of Cz-CyP<sub>7</sub>

#### 4. Lippert-Mataga graphs





**Figure S37:** Lippert-Mataga plots for Cz-CyP<sub>1-7</sub>