

**Supplementary Data**

**Heteronuclear Cobalt(III)/Sodium complexes with salen type compartmental Schiff base ligands: Methylene spacer regulated variation in nuclearity and exploration of  $\sigma/\pi$ -hole carbon bonding interactions**

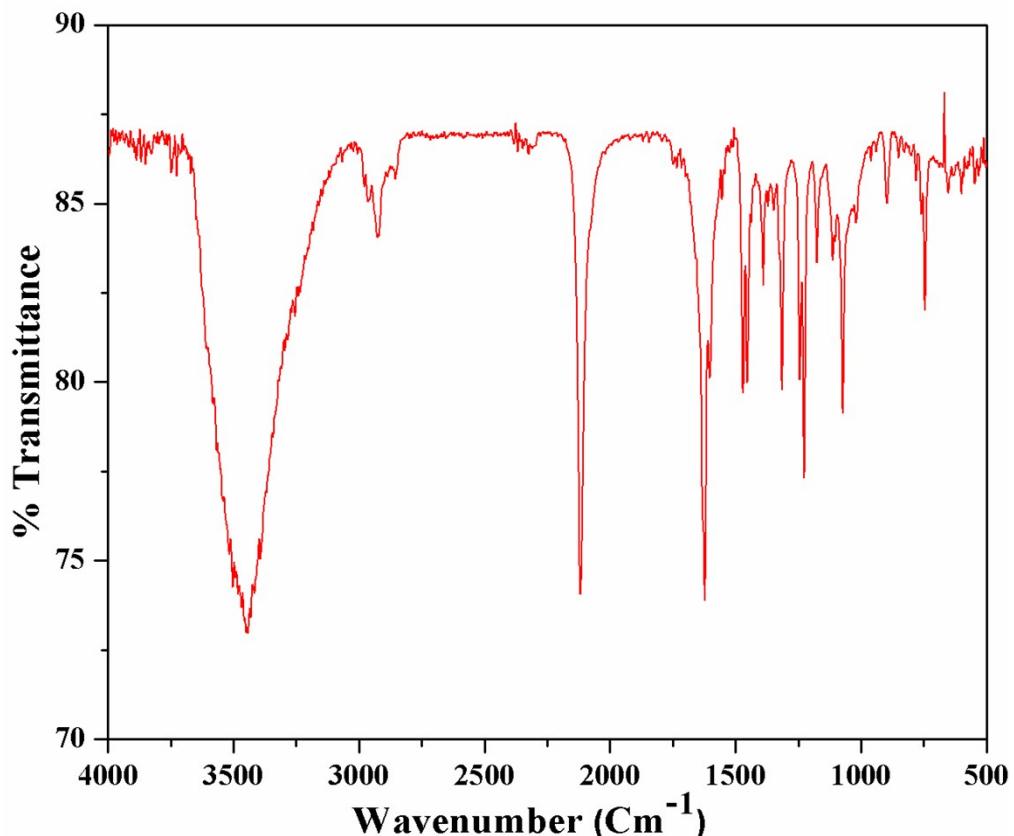
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+913324572147 e-mail: [shouvik.chem@gmail.com](mailto:shouvik.chem@gmail.com)*

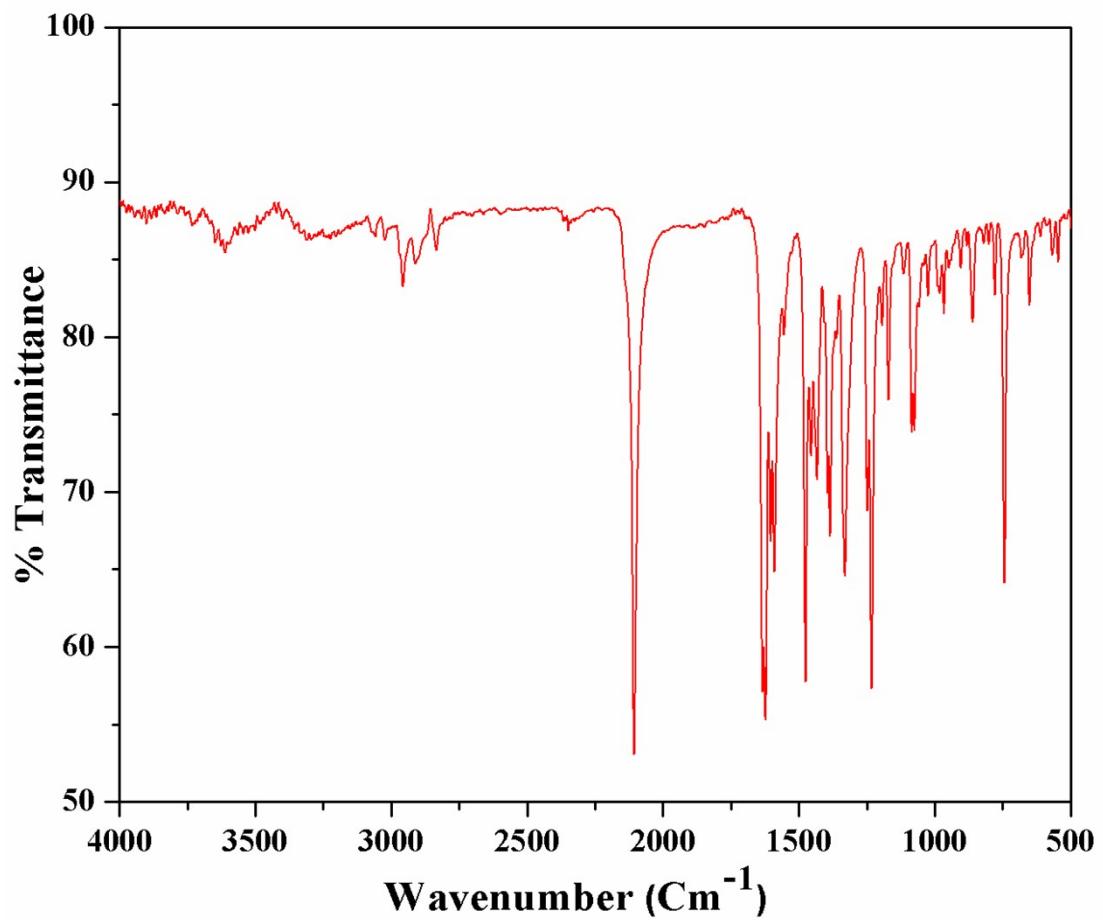
<sup>b</sup>*Fachbereich Chemie, Philipps-Universität Marburg, Hans-Meerwein-Strasse, D-35032 Marburg,  
Germany*

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(Baleares), Spain*

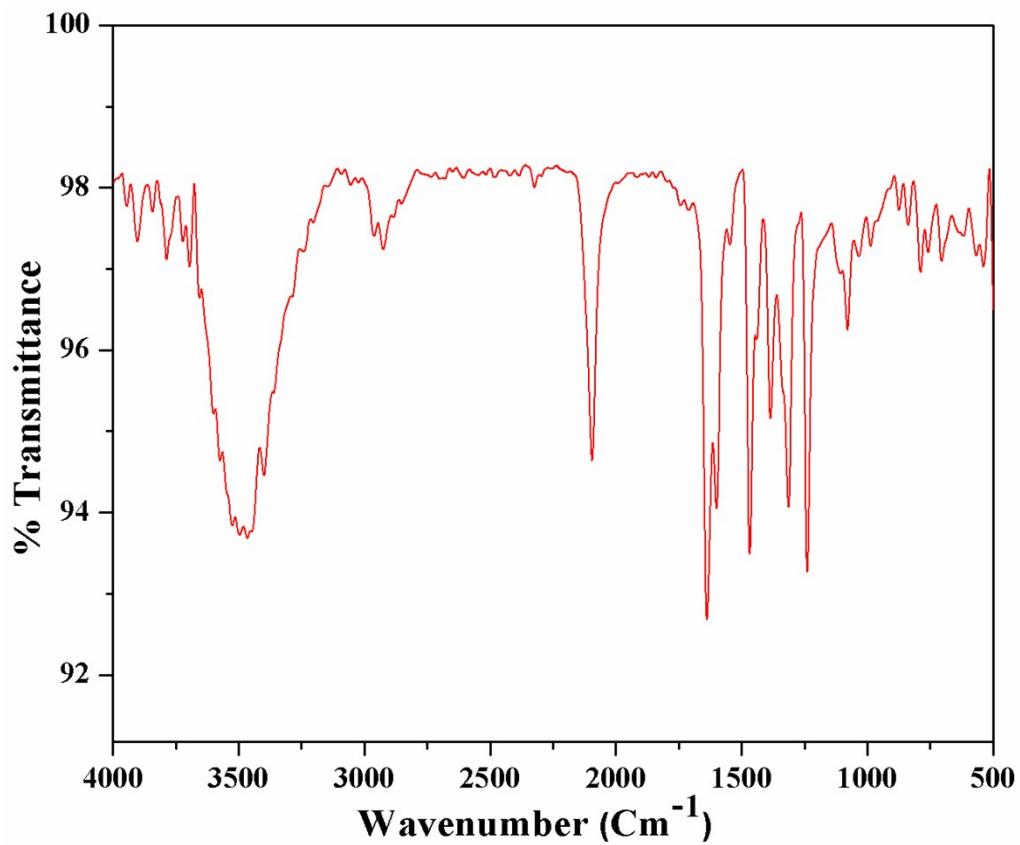
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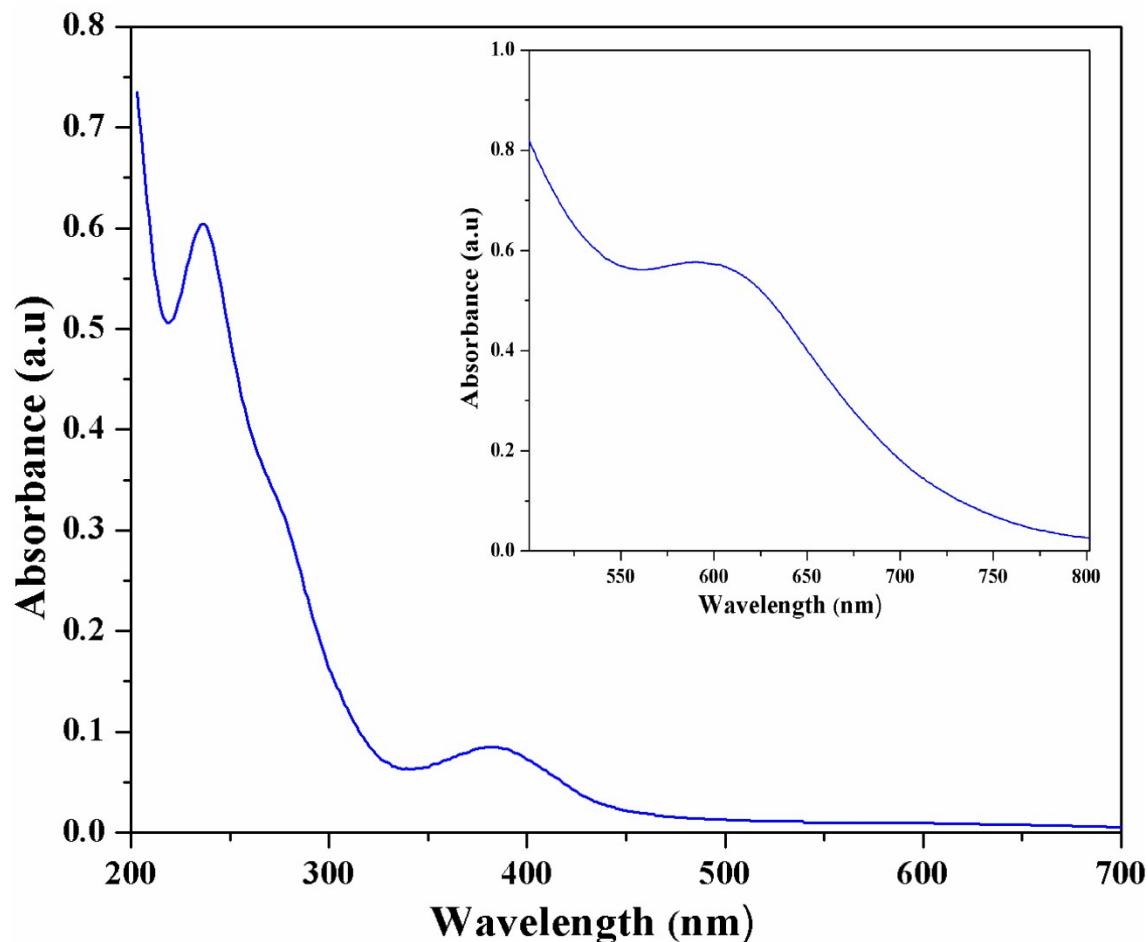
**Figure S1:** Infrared spectrum of complex **1**.



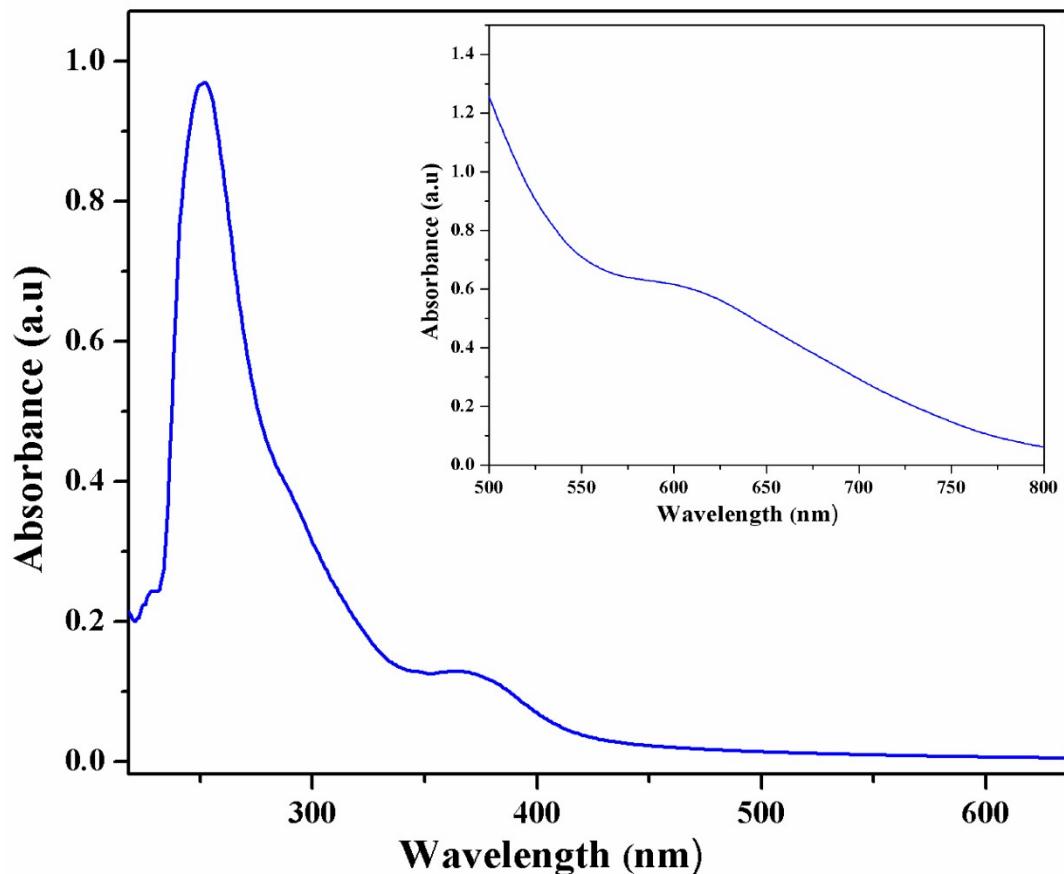
**Figure S2:** Infrared spectrum of complex 2.



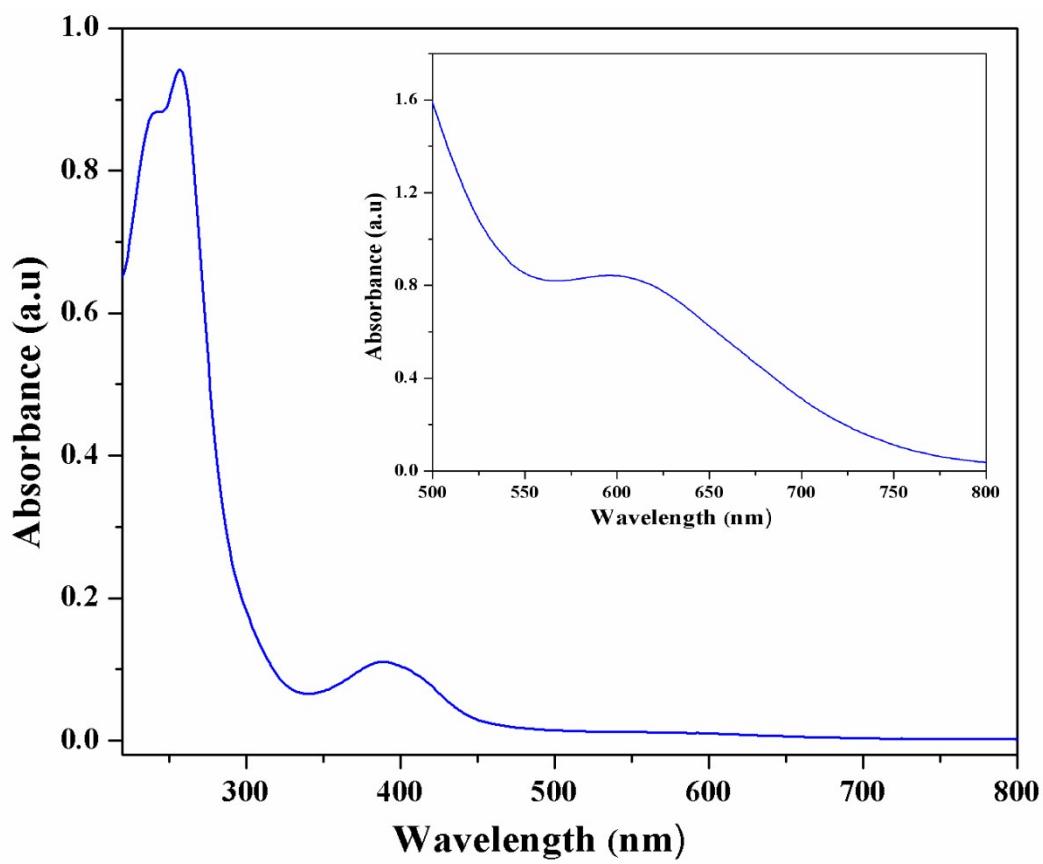
**Figure S3:** Infrared spectrum of complex 3.



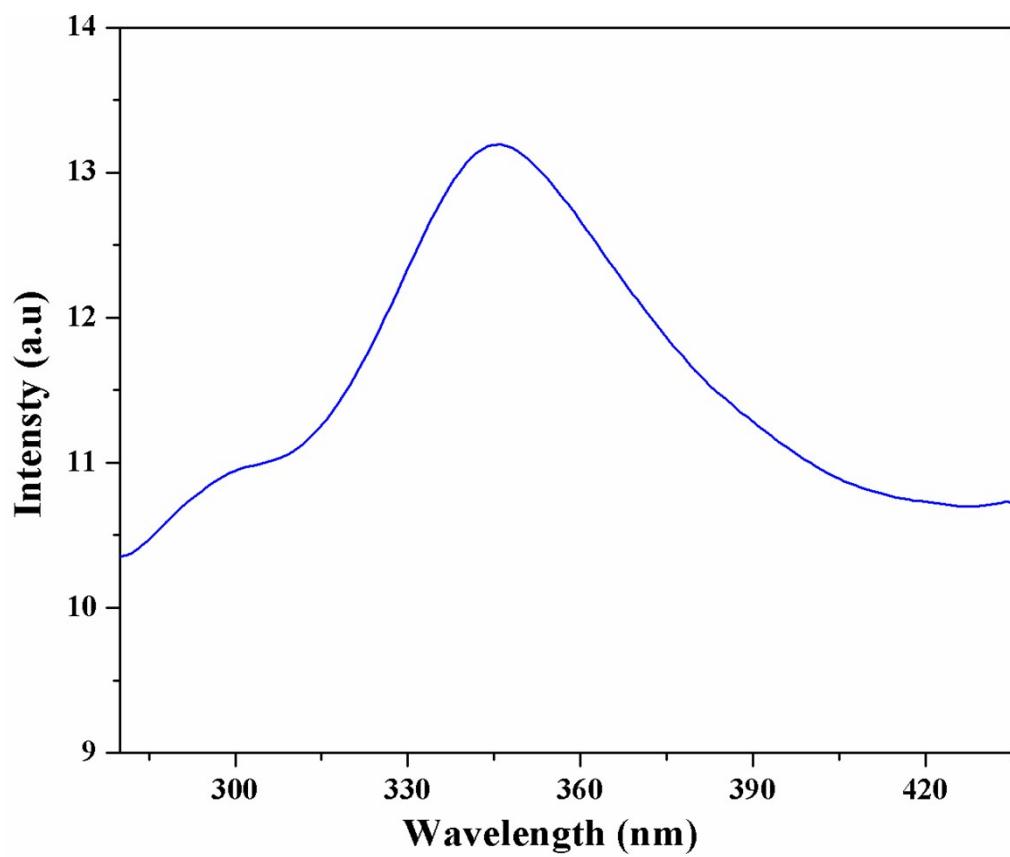
**Figure S4:** Electronic spectrum of complex **1** in acetonitrile medium.



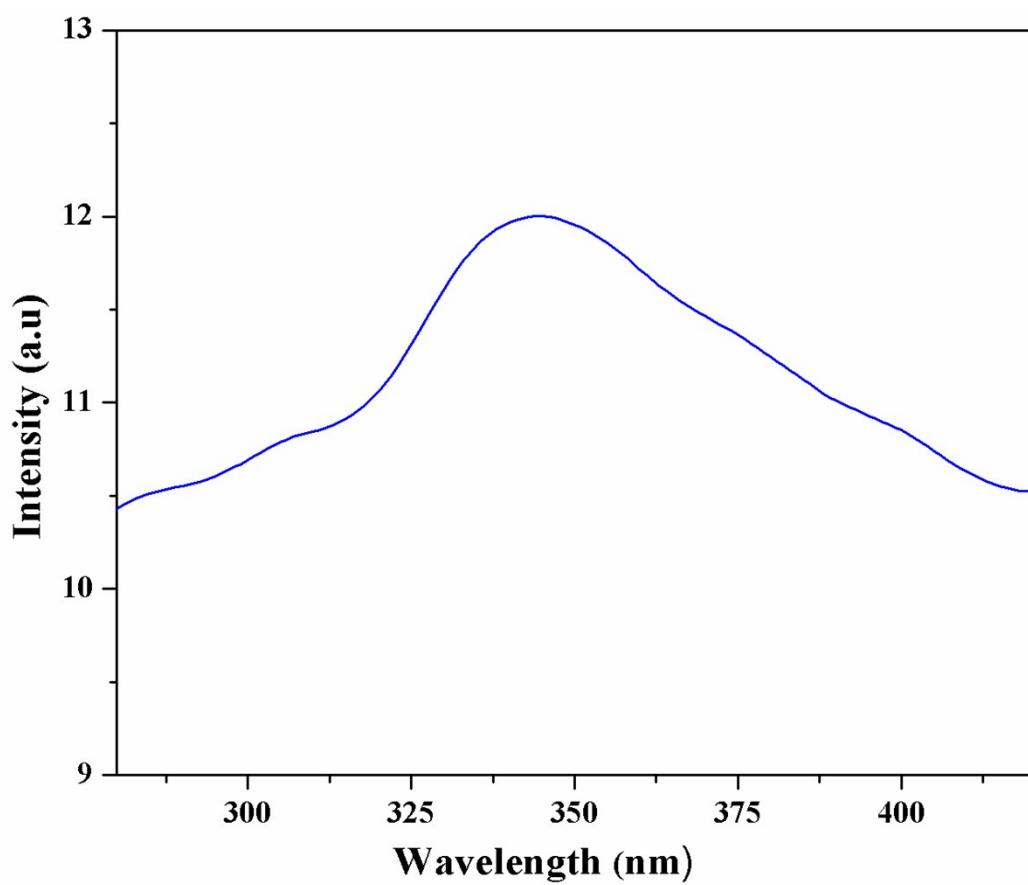
**Figure S5:** Electronic spectrum of complex **2** in acetonitrile medium.



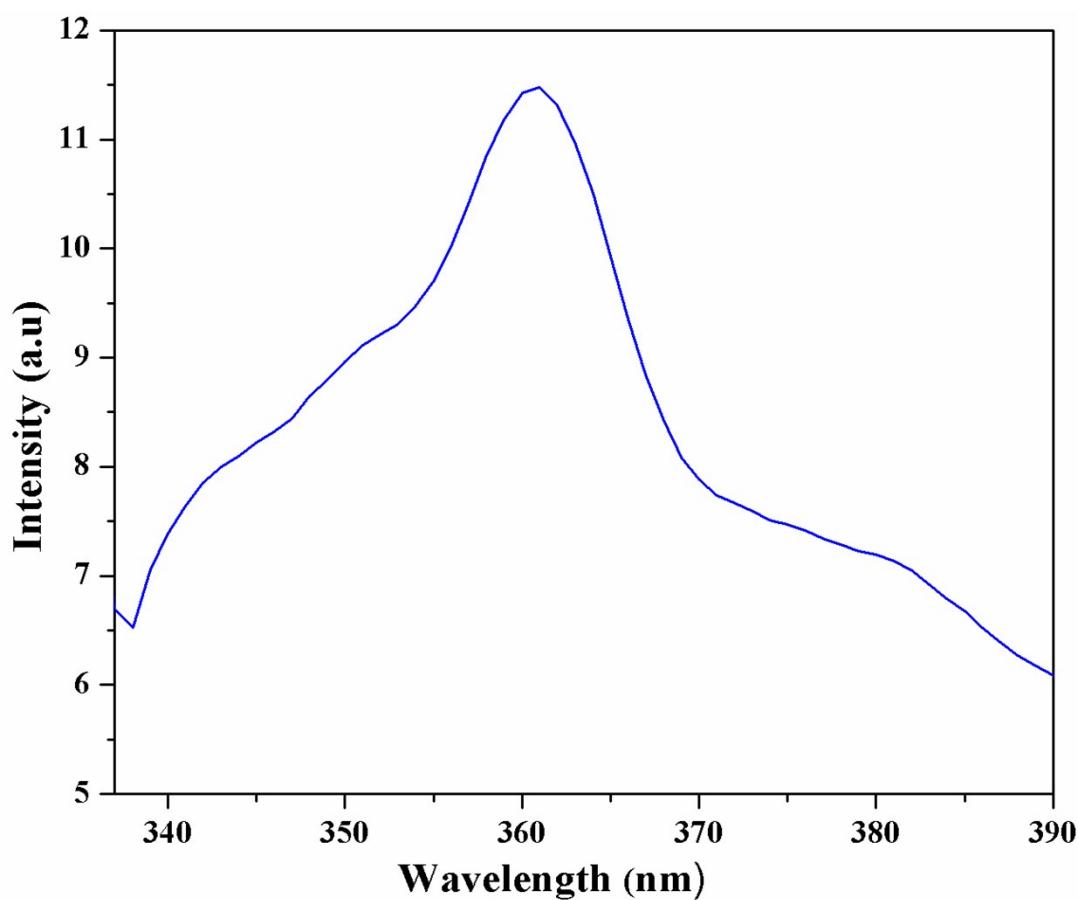
**Figure S6:** Electronic spectrum of complex **3** in acetonitrile medium.



**Figure S7:** Fluorescence spectrum of complex **1** in acetonitrile medium.



**Figure S8:** Fluorescence spectrum of complex **2** in acetonitrile medium.



**Figure S9:** Fluorescence spectrum of complex **3** in acetonitrile medium.