

Design and Synthesis of Metallo-Supramolecular Polymer with an Electrochromic and Conformational Switch at a Junction

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Electrochromism recognized as one of the most thriving fields of research in recent years. Thus, there is always room for new materials to be introduced to achieve optimum electrochromic (EC) performances. In those aspects, Metallo-supramolecular polymers (MSPs) have emerged as the most efficient materials for electrochromic (EC) applications.¹ But the properties like colorless to color transition, near-infrared (NIR) switching are still to be explored by the MSPs due to the high industrial demand. Therefore, designing of the MSP backbone plays a crucial role. For example, not only variation of metal ions, but also it is important to design the ligand backbone to address the above requirements. In this regard, importance of a π -extended positively charge doped dihydrophenazine derivatives in electrochromic switching has been investigated recently.^{2,3} But, introduction of a hetero atom into the aromatic backbone has not been explored yet due to its synthetic difficulties. Therefore, in this work, I have designed and synthesized a class of π -extended dihydropyridophenazine ligand **L1** (Figure 1). The compound was characterized by ¹H, ¹³C NMR and mass spectrometry. Further, taking benefit of the presence of the coordinating phenanthroline moiety, the compound was utilized for the synthesis of Metallo-supramolecular polymer and later, its EC property was investigated.

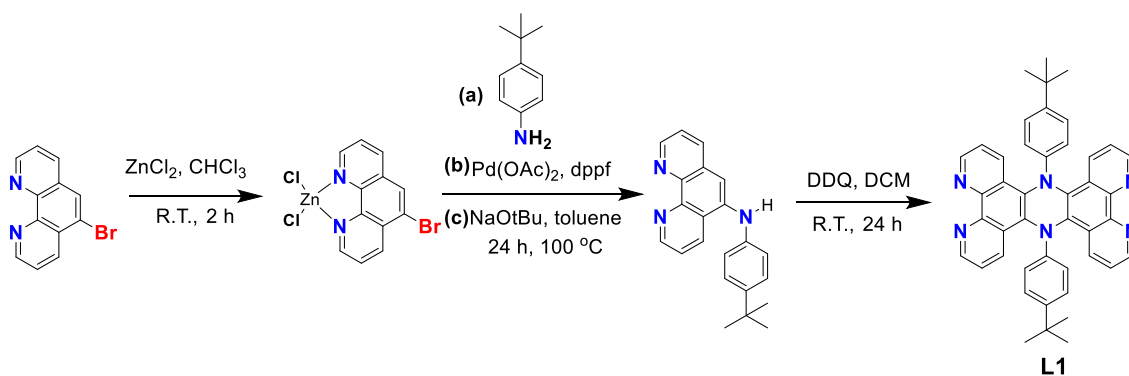


Figure 1. Reaction scheme for the synthesis of ligand **L1**.

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