Synthesis and Photophysical Characterization of an organic small molecule for solid state light-emitting electrochemical Cells

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Light-emitting electrochemical cells have been focusing for the future generation of display and solid state lighting sources to overcome the conventional organic light-emitting diode (OLED). Light-emitting electrochemical cell (LECs) have simple device structure and air stable electrodes makes LECs more impressive. Recently LECs are utilizing two types of organic small molecules, neutral and ionic small molecules. Neutral small molecule light-emitting electrochemical cells are tri-component blend containing emitting material, an ion-conducting polymer and an inorganic salts. On the other hand ionic small molecules are ionic in nature avoids the blend for LEC devices. Therefore, ionic molecules have great attentions in LECs. We designed and synthesized an ionic derivatives of small molecules in multi-step synthetic procedure. The structural, photophysical, electrochemical and electroluminescent properties were investigated.