Synthesis of an New Conjucated Ionic Polyacetylene with Aromatic Heterocycles

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A new ionic polyacetylene with two aromatic heterocycles (pyridyl and thienyl) was prepared by the activation polymerization of 2-ethynylpyridine by using 3-(6-bromohexyloxy)methylthiophene without any additional initiator or catalyst. The activated acetylenic triple bond of N-substituted-2-ethynylpyridinium bromide, formed at first quaternarization process, was susceptible to linear polymerization. The instrumental analysis data on the polymer structure revealed that the polymer have the conjugated polyene backbone structure with the designed two aromatic heterocycles. The photoluminescence peak is located at 510 nm corresponding to a photon energy of 2.43 eV. The electrochemical properties of this ionic polyacetylene were also measured and discussed.