



Abstract

Energy plays a vital role in human life and their well-being. Production of electricity demands the use of traditional energy sources such as fossil fuels but they also have environmental and health effect on human being. There is a need to develop environment friendly, energy efficient and cost-effective materials to be used in photovoltaic devices. π -Conjugated polymers are the energy materials used in organic electronics for efficient production of energy. PBDB-T is a π -conjugated polymer achieving high efficiency and power out when paired with non-fullerene acceptors. It undergoes degradation in light and heat; hence a vast study has been carried out to understand its properties and behavior under these conditions. Its optical properties were analyzed by using spectroscopic techniques such as UV-Vis spectrophotometer and Photoluminescence spectrophotometer. A vast discussion has also been given in order to understand the polymer properties in solution and thin films. Moreover, blend studies were also carried out by using O-IDTBR acceptor, in solution state as well as thin films.
