

Accepted Manuscript

Optoelectronic performance comparison of new thiophene linked benzimidazole conjugates with diverse substitution patterns

Gözde Murat Saltan, Haluk Dinçalp, Eser Kırmacı, Merve Kıran, Ceylan Zafer



PII: S1386-1425(17)30562-0
DOI: doi: [10.1016/j.saa.2017.07.007](https://doi.org/10.1016/j.saa.2017.07.007)
Reference: SAA 15294

To appear in: *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*

Received date: 19 December 2016
Revised date: 24 June 2017
Accepted date: 11 July 2017

Please cite this article as: Gözde Murat Saltan, Haluk Dinçalp, Eser Kırmacı, Merve Kıran, Ceylan Zafer , Optoelectronic performance comparison of new thiophene linked benzimidazole conjugates with diverse substitution patterns, *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* (2017), doi: [10.1016/j.saa.2017.07.007](https://doi.org/10.1016/j.saa.2017.07.007)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Optoelectronic performance comparison of new thiophene linked benzimidazole conjugates with diverse substitution patterns

Gözde Murat Saltan ^a, Haluk Dinçalp ^{a,*}, Eser Kırmacı ^a, Merve Kıran ^b, Ceylan Zafer ^b

^a Department of Chemistry, Faculty of Arts and Science, Manisa Celal Bayar University, Yunus Emre, 45140 Manisa/Turkey

^b Solar Energy Institute, Ege University, Bornova, 35100 Izmir/Turkey

* Corresponding author e-mail: haluk.dincalp@cbu.edu.tr (H. Dinçalp); Tel: + 90-236-2013158; Fax: + 90-236-2412158

ABSTRACT

In an approach to develop efficient organic optoelectronic devices to be used in light-driven systems, a series of three thiophene linked benzimidazole conjugates were synthesized and characterized. The combination of two thiophene rings to a benzimidazole core decorated with different functional groups (such as -OCH₃, -N(CH₃)₂, -CF₃) resulted in donor-acceptor type molecular scaffold. The effect of the electronic behavior of the substituents on the optical, electrochemical, morphological and electron/hole transporting properties of the dyes were systematically investigated. **DTBI2** dye exhibited distinct absorption properties among the other studied dyes because N,N-dimethylamino group initiated intramolecular charge transfer (ICT) process in the studied solvents. In solid state, the dyes exhibit peaks extending up to 600 nm. Depending on the solvent polarities, dyes show significant wavelength changes

Download English Version:

<https://daneshyari.com/en/article/5139470>

Download Persian Version:

<https://daneshyari.com/article/5139470>

[Daneshyari.com](https://daneshyari.com)