Synthesis and Electropolymerization of Furan End-capped Dibenzothiophene/Dibenzofuran and Electrochromic Properties of Their Polymers

Hua Gu^{1,†}, Kaiwen Lin^{2,†}, Hongtao Liu³, Nannan Jian³, Kai Qu³, Huimin Yu³, Jun Wei³,
Shuai Chen^{1,4,*} and Jingkun Xu^{1,4,*}

¹School of Pharmacy, Jiangxi Science & Technology Normal University, Nanchang 330013, PR China

²School of Materials Science and Engineering, South China University of Technology, Guangzhou 510641, PR China

³School of Chemistry & Chemical Engineering, Jiangxi Science & Technology Normal University, Nanchang 330013, PR China;

⁴Jiangxi Engineering Laboratory of Waterborne Coatings, Nanchang 330013, PR China

*E-mail: chenshuai@ms.xjb.ac.cn, xujingkun@jxstnu.edu.cn

† These authors contributed equally to this work.

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Two furan end-capped dibenzo five-membered ring monomers, 2,8-bis-(furan-2-yl)-dibenzothiophene (DBT-Fu) and 2,8-bis-(furan-2-yl)-dibenzofuran (DBF-Fu) were successfully synthesized via Stille couple reaction. Corresponding polymers, P(DBT-Fu) and P(DBF-Fu), were obtained by employed the electropolymerization. The surface morphology, electrochemical and optical properties of monomers and polymers were researched by cyclic voltammetry (CV), scanning electron microscopy (SEM), and UV-vis spectra method. Both polymers exhibited obvious color changes from neutral state to oxidation state (from green-yellow to dark grey for P(DBT-Fu) and from beige to celadon for P(DBF-Fu)).

Keywords: conducting polymers, furan, dibenzothiophene/furan, electropolymerization, electrochromism

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