

Accepted Manuscript

Dithieno[3,2-*b*:2',3'-*d*]furan as a new building block for fused conjugated systems

Václav Kozmík, Michal Pozník, Jiří Svoboda, Pierre Frère

PII: S0040-4039(15)30149-0
DOI: <http://dx.doi.org/10.1016/j.tetlet.2015.09.107>
Reference: TETL 46779

To appear in: *Tetrahedron Letters*

Received Date: 17 June 2015
Revised Date: 8 September 2015
Accepted Date: 24 September 2015



Please cite this article as: Kozmík, V., Pozník, M., Svoboda, J., Frère, P., Dithieno[3,2-*b*:2',3'-*d*]furan as a new building block for fused conjugated systems, *Tetrahedron Letters* (2015), doi: <http://dx.doi.org/10.1016/j.tetlet.2015.09.107>

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.

Dithieno[3,2-*b*:2',3'-*d*]furan as a new building block for fused conjugated systemsVáclav Kozmík^a, Michal Poznák^a, Jiří Svoboda^{a*}, Pierre Frère^b^a Department of Organic Chemistry, University of Chemistry and Technology, Technická 5, 166 28 Prague 6, Czech Republic^b Université d'Angers, MOLTECH-Anjou CNRS UMR 6200, SCL Group, 2 Boulevard Lavoisier, 49045 Angers cedex, France

*Corresponding author

E-mail address: jiri.svoboda@vscht.cz.

Phone number: ++420-2220444182; Fax number: ++420220444288.

Abstract

The first synthesis of dithieno[3,2-*b*:2',3'-*d*]furan (**1**) from 3,4-dibromofuran is presented. The stability and reactivity of **1** was investigated in selected substitution and coupling reactions.

Keywords: dithieno[3,2-*b*:2',3'-*d*]furan; fused heterocycle; electrophilic substitution; coupling reaction

Introduction

Over the past number of years, the application of electron-rich heterocyclic compounds to the fields of organic field effect transistors (OFETs), organic light emitting diodes (OLEDs) and organic photovoltaics (OPVs) has been a subject of considerable interest.¹⁻³ The most extensively studied materials involve conjugated systems, polymers⁴ or small molecules, based mostly on oligothiophene⁵⁻¹² and fused thiophene^{5,7,8,10,13,14} (thienoacene) units whose band gaps and electronic properties are able to be tuned by structural changes. Synthetic approaches aimed at the rigidification and planarization of the conjugated backbone have been developed in order to enhance π -electronic delocalization by limiting the rotational disorder between thiophene rings.^{13,15} In this context, 3,3'-linked 2,2'-bithiophene building blocks of the general formula **A** (X = CH₂, CR₂, C=O),^{5,6,16-18} dithienothiophene (X = S),^{5,7,10,13} dithienopyrrole (X = NH and NR),^{5,19} dithienosilole (X = SiR₂),⁵ dithienophosphole (X = PR₃),^{20,21} and others,^{20,21} have been broadly studied and the strong influence of the bridging group on the electron affinity and electronic properties of the designed materials have been demonstrated (Figure 1). Theoretical studies,²¹ including unknown dithienofuran (X = O),²² that have been corroborated by experimental data have

Download English Version:

<https://daneshyari.com/en/article/5261649>

Download Persian Version:

<https://daneshyari.com/article/5261649>

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