

Accepted Manuscript

1-(1-Alkylsulfonic)-3-methylimidazolium chloride Brönsted acidic ionic liquid catalyzed Skraup synthesis of quinolines under microwave heating

Ananda S. Amarasekara, Muhammad A. Hasan

PII: S0040-4039(14)00659-5
DOI: <http://dx.doi.org/10.1016/j.tetlet.2014.04.047>
Reference: TETL 44509

To appear in: *Tetrahedron Letters*

Received Date: 18 March 2014
Revised Date: 10 April 2014
Accepted Date: 14 April 2014



Please cite this article as: Amarasekara, A.S., Hasan, M.A., 1-(1-Alkylsulfonic)-3-methylimidazolium chloride Brönsted acidic ionic liquid catalyzed Skraup synthesis of quinolines under microwave heating, *Tetrahedron Letters* (2014), doi: <http://dx.doi.org/10.1016/j.tetlet.2014.04.047>

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.

1-(1-Alkylsulfonic)-3-methylimidazolium chloride Brönsted acidic ionic liquid catalyzed Skraup synthesis of quinolines under microwave heating

Ananda S. Amarasekara*, Muhammad A. Hasan

Department of Chemistry, Prairie View A&M University, Prairie View, Texas 77446, USA

E-mail: asamarasekara@pvamu.edu Tel: +1 936 261 3107; fax: +1 936 261 3117

Abstract: 1-(1-alkylsulfonic)-3-methylimidazolium chloride Brönsted acidic ionic liquids are shown as excellent catalysts and reaction mediums for Skraup synthesis of quinolines under microwave conditions without the use of nitrobenzene as an oxidant and metal catalysts.

Keywords: Skraup synthesis, quinolines, acidic ionic liquid, microwave

1. Introduction

Quinolines are an important class of heterocyclic compounds as this ring system occurs in many natural products and biologically active compounds¹. There are several classical named reactions that can be used to assemble the quinoline structural core, such as; Skraup^{2,3,4,5}, Doebner–Miller^{6,5}, Friedlander⁷, Combes⁸, Conrad–Limpach⁹ and Pfitzinger¹⁰ reaction. Generally these reactions involve a cyclo-condensation of aniline or aniline derivative with a carbonyl compound, followed by an aromatization with dehydration/oxidation reactions. The only exception is the Skraup reaction where glycerol is used as one of the starting materials; in this process the carbonyl compound acrolein is believed to be generated in situ by the dehydration glycerol. The use of glycerol, which is the main byproduct in the rapidly developing biodiesel industry as one of the starting materials is an attractive feature in the Skraup reaction and is in align with current interest in developing technologies for the utilization of renewable feedstocks for the preparation of useful chemicals and intermediates. Classical quinoline synthesis involves a heating of a mixture of aniline, glycerol, and sulfuric acid with an oxidizing agent like nitrobenzene, arsenic acid, ferric oxide or vanadic acid to 120-130 °C for several hours^{11,12}. There are a number of drawbacks in the original method such as

Download English Version:

<https://daneshyari.com/en/article/5269865>

Download Persian Version:

<https://daneshyari.com/article/5269865>

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