DR-10

BRØNSTED ACIDIC IONIC LIQUID-CATALYZED ONE-POT SYNTHESIS OF 4(3H)QUINAZOLINONES UNDER SOLVENT-FREE CONDITIONS

Subhankar Sarkar,¹ Rana Chatterjee,¹ Sougata Santra,² Grigory V. Zyryanov,^{2,3} Adinath Majee¹¹Department of Chemistry; Visva-Bharati (A Central University), Santiniketan 731235, India.²Ural Federal University, 19 Mira St., Yekaterinburg, 620002, Russian Federation.³Ya. Postovsky Institute of Organic Synthesis UB RAS, S. Kovalevskoy / Akademicheskaya St., 20/22, Yekaterinburg, 620990, Russian Federation. E-mail: sarkarsubhankar93@gmail.com

Abstract. 1-Butane sulfonic acid-3-methylimidazolium tosylate, [BSMIM]OTs, is found to be a remarkable catalyst for the synthesis of 4(3H)-quinazolinones under solvent-free conditions. This developed synthetic procedure is applicable for the construction of 4(3H)-quinazolinone and its derivatives. These 4(3H)-quinazolinone systems have a wide range of useful biological properties, such as anticancer, antiviral, anti-inflammatory, anti-microbial cholinesterase inhibitor, antifolate, antitumor, protein kinase inhibitor and many others.¹ Some of these quinazolinone derivatives also show potentially pharmacological activities.² That's way from long year, many methods have been developed for the synthesis of 4(3H)-quinazolinones using various catalytic reagents.³ Keeping in mind the applicability of BAILs we have developed a mild and green synthetic protocol which explore the synthesis of 4(3H)-quinazolinones compounds. The feasibility of catalyst recycling has also been demonstrated. Clean reaction, short reaction time, easily accessible reactants, and metal and solvent-free and environmentally friendly reaction conditions are the notable advantages of this procedure (Scheme 1).

Scheme 1. Synthesis of 4(3H)-quinazolinones using [BSMIM]OTs

References

1. Quinoline, quinazoline and acridone alkaloids / J. P. Michael // Nat. Prod. Rep. – 2004. – Vol.21. – P. 650-668.
2. Quinazolinone: an overview / R. Arora, A. Kapoor, N. S. Gill, A. C. Rana // Int. Res. J. Pharm. – 2011. – Vol. 2. – P. 22-28.
3. Bi(TFA)₃–[nbp]FeCl₄: a new, efficient and reusable promoter system for the synthesis of 4(3H)quinazolinone derivatives / A. R. Khosropour, I. Mohammadpour-Baltork, H. Ghorbankhani // Tetrahedron Lett. – 2006. – Vol. 47. – P. 3561-3564.

This work was developed by Russian Science Foundation (Ref. No. 18-73-00301).