



1_3 NOV, 2023
UNIVERSITY OF QOM, IRAN

The Synthesis and Characterization of Sulfamic Acid Functionalized Graphene Oxide and its Catalytic Application in One-Pot Synthesis of Imidazol Derivatives

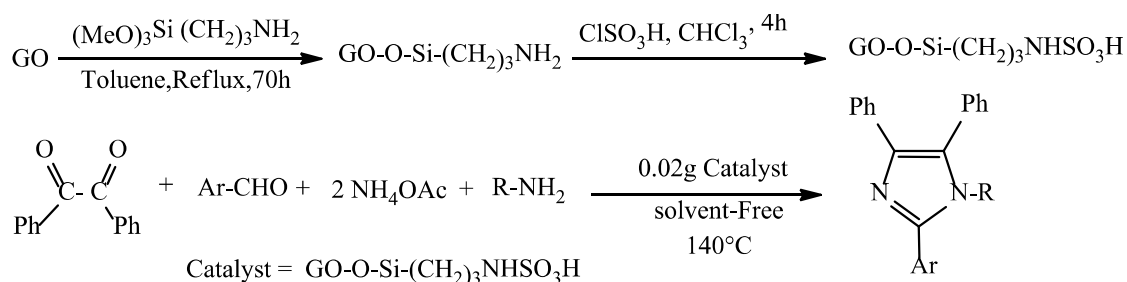
Nafisehsadat Sheikhan*, Kimia Yavari

Department of Chemistry, Najafabad Branch, Islamic Azad University, Najafabad, Iran, ns_sheikhan@yahoo.com

Keywords: One-pot, Graphene oxide, Imidazol, Solvent-free, sulfamic acid.

The oxidized graphene sheets, namely, graphene oxide (GO) contains high density of hydrophilic organic functional groups such as hydroxyl, carboxyl, and epoxy groups. Recently, GO have attracted significant attention for its extensive range of applications. Functionalization of graphene oxide can basically alteration graphene oxide's properties. There are many methods in which graphene oxide can be functionalized depending on the favorite application [1,2]. Regarding, sulfamic acid functionalized graphene oxide was prepared and characterized by FESEM, TEM and FT-IR.

Recently, one-pot multicomponent reactions have played an increasingly important role in organic and medicinal chemistry for decreasing a number of reaction steps, lower costs, high atom-economy, energy saving, the prevention of time consuming, waste consumption and expensive purification processes. Therefore, Multicomponent reactions are very important for the construction of many heterocyclic compounds such as imidazole derivatives. The synthesis of these compounds due to large number of biological and pharmacological properties has received a great deal of attention. The aims of this research were to synthesize and characterize the sulfamic acid functionalized graphene oxide. Its catalytic properties were also investigated in the synthesis of imidazole derivatives. (**Scheme**).



Scheme: The synthesis of sulfamic acid functionalized graphene oxide and its application

References

- [59] Wang, C.; Ge, H.; Zhao, Y.; Liu, Sh.; Zou, Y.; Zhang, W. Study on the adsorption of Cu(II) by folic acid functionalized magnetic graphene oxide. *J. Magn. Magn. Mater.* 2017, 423 421–43.
- [60] Kazemi Movahed, S.; Esmatpoursalmani, R., Bazgir, A. N-Heterocyclic carbene palladium complex supported on ionic liquid-modified graphene oxide as an efficient and recyclable catalyst for Suzuki reaction. *RSC Advances* 2014, 4, 14586-14591.