IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 5, June 2023

Synthesis of Quinozoline-4-(3H)-one and Quinolone Derivatives Via Organic Clay as a Catalyst

S. P. Babar[1] and V. M. Kamble[2]
Assistant Professor, Department of Chemistry, Veer Wajekar College, Panvel[1],
Professor, Department of Chemistry, The Institute of Science, Dr. Homi Bhabha State University, Mumbai[2]

Abstract: *In this we have carried out Frielander synthesis (modified Niementowski reaction) and Niementowski reaction for synthesis of quinozoline 4-(3H)-one derivatives and quinoline derivatives. The reaction of anthranillic acid, amides, diketones (Cyclisation) have been performed over organic clays as the catalyst, under solvent-less conditions using microwave irradiation as the energy source, obtaining the corresponding quinozoline derivatives. Reaction of anthranilic acid with acetyl acetone and ethyl acetoacetate (1:1) yields new compounds 3-methyl-6H-benzo[c][1,5]oxazocin-6-one and 3-methyl-3H-benzo[c][1,5]oxazocine-4,6-dione respectively. These reactions represent some examples of efficient microwave irradiation promoted organic condensation and cyclisation in which the reaction can be carried out in the open vessels by using organic clay as a catalyst and provides products with satisfactory yields and simple work up as greener approach.*

Keywords: Organic Clay, Quinoline, Microwave Irradiation, Catalyst.

REFERENCES

[1] J. P. Michael, "Quinoline, quinazoline and acridone alkaloids," Nat. Prod. Rep., vol22, pp. 627, 2005.
[2] W. L. F. Armarego, Fused Pyrimidines, Part 1: Quinazolines; Interscience: New York, 1967.
[3] K. Undheim, T. Benneche, In Comprehensive Heterocyclic Chemistry II, 6; Pergamon: Oxford, 1998.
[4] T. L. J. Gilchrist, "Synthesis of aromatic heterocycles," Chem. Soc., Perkin Trans., vol 1, pp.2491-2515, 2001.
[5] T.L. J. Gilchrist, "Synthesis of aromatic heterocycles," Chem. Soc., Perkin Trans., vol 1, pp. 2849-2866, 1999.
[6] J.E. Baldwin and P.D. Magnus, Tetrahedron organic chemistry series, pergamon press, Oxford, 1994, pp. 275, vol 11.
[7] H. Tiedtke, "The reaction of anthranilic acid with cyclohexanone under thermal activation afforded acridinone 5 in 40% yield," Chem. Ber., vol 42, pp. 621, 1909.
[8] K.R. Desai, "Green Chemistry Microwave Synthesis," First Ed., Himalaya Publication House, India, 2005.
[9] R.S. Varma and R. Dahiya, "Sodium borohydride on wet clay: Solvent-free reductive amination of carbonyl compounds using microwaves," Tetrahedron, vol 54, pp. 6293-6298, 1998.
[10] R.S. Varma and R. Dahiya, "Microwave-assisted facile synthesis of imines and enamines using envirocat EPZGTM as a catalyst,"Synlett., pp. 1245-1246, 1997.
[11] R.S. Varma and R. Dahiya, "An Expeditious and Solvent-Free Synthesis of 2-Amino-Substituted Isoflav-3-enes Using Microwave Irradiation," J. Org. Chem., vol 63, pp. 8038-8041,1998.
[12] T.S. Li, L. J. Li, B. Lu and F. Yang, "Montmorillionite clay catalysis. A facile synthesis of 2-substituted and 2,2-disubstituted 1,3-benzodioxoles," J. Chem. Soc., Perkin Trans., vol 1, pp. 3561-3564, 1998.
[13] T.S. Jin, X. Sun and T. S. Li, J. Chem. Res. (S), 2000, 128.
[14] C.H. Zhou, "An overview on strategies towards *clay*-based designer catalysts for green. and sustainable catalysis," Appl. Clay Sci., vol 53, pp. 87-96, 2011.
[15] M. Butters, "Zeolite Assisted Organic Synthesis, A Survey in Solid Supports and Catalysts in Organic Synthesis," ed. K. Smith, Ellis Horwood PTR, Prentice Hall, New York, 1992, 310.
[16] J.M. Clark and D.J. Macquarrie, "Environmentally friendly catalytic methods," Chem. Soc. Rev., vol 25, pp. 303-310, 1996.

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 5, June 2023

[17] S. P Babar and V. M. Kamble, "Solvent-free one pot multi-component synthesis of 3,4-dihydropyrimidone derivatives catalyzed by organic white clay as an cheap and environmentally friendly catalyst," IJRASET, vol 9, pp. 467-472, 2021.
[18] S. P. Babar, "Oxidation of p-anisaldehyde to p-anisic acid by organic clay as novel method,"Eur. J. Mol. Clin. Med., vol 8, pp. 1358-1366, 2021.