

International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

Volume 3, Issue 3, January 2023

# The Green Synthesis of 6-amino-5-cyano-4-phenyl-2-Hydroxy and Mercapto Pyrimidine Derivatives

Mahesh Walle

Department of Chemistry, Sundarrao More College, Poladpur, Raigad, Maharashtra, India mahesh.walle@gmail.com

**Abstract:** The simple, quick, green and efficient method for the synthesis of 6-amino-5-cyano-4-phenyl-2mercapto pyrimidine and its hydroxyl derivatives using  $CdFe_2(C_4H_4O_6)_35H_2O$ . This new procedure is much more efficient, apart from its simplicity; the important advantage of the present procedure is the ability to tolerate variation in all the three components reactions. To the best of our knowledge, this is one of the quickest, economical, and simple alternatives towards the synthesis of 6-amino-5-cyano-4-phenyl-2mercapto pyrimidine. Ease of separation of pure product, selectively and in high yields in comparison to the two-step strategies, are a few of the unique features of this method.

**Keywords:** Cadmium Doped Iron Tartrate, 6-Amino-5-Cyano-4-Phenyl-2-Hydroxy and Mercapto Derivatives of Pyrimidine.

### REFERENCES

- [1]. Wikipedia contributors. "Pyrimidine." *Wikipedia, The Free Encyclopedia.* Wikipedia, The Free Encyclopedia, 16 Aug. 2021. Web. 11 Oct. 2021.
- [2]. Rathwa, Sanjay K., et al. "Recent advances in the synthesis of C-5-substituted analogs of 3, 4dihydropyrimidin-2-ones: a review." *Synthetic Communications* 48.9 (2018): 963-994.
- [3]. Chitra, S., D. Devanathan, and K. Pandiarajan. "Synthesis and in vitro microbiological evaluation of novel 4aryl-5-isopropoxycarbonyl-6-methyl-3, 4-dihydropyrimidinones." *European journal of medicinal Chemistry* 45.1 (2010): 367-371.
- [4]. Deshmukh, M. B., et al. "A novel and efficient one step synthesis of 2-amino-5-cyano-6-hydroxy-4-aryl pyrimidines and their anti-bacterial activity." *European journal of medicinal chemistry* 44.6 (2009): 2651-2654.
- [5]. Kappe, C. Oliver. "Biologically active dihydropyrimidones of the Biginelli-type—a literature survey." *European journal of medicinal chemistry* 35.12 (2000): 1043-1052.
- [6]. Sondhi, Sham M., et al. "One pot synthesis of pyrimidine and bispyrimidine derivatives and their evaluation for anti-inflammatory and analgesic activities." *Bioorganic & medicinal chemistry* 15.10 (2007): 3334-3344.
- [7]. Chikhale, R. V., et al. "Synthesis and pharmacological investigation of 3-(substituted 1-phenylethanone)-4-(substituted phenyl)-1, 2, 3, 4-tetrahydropyrimidine-5-carboxylates." *European journal of medicinal chemistry* 44.9 (2009): 3645-3653.
- [8]. Sawant, Ramesh, and VarshaSarode. "Synthesis, spectral characterization and analgesic activity of 2methylthio-1, 4-dihydropyrimidines." *Iranian Journal of Pharmaceutical Research: IJPR* 10.4 (2011): 733.
- [9]. Balkan, Ayla, MevlütErtan, and Thomas Burgemeister. "Synthesis and Structural Evaluations of Thiazolo [3, 2-a] pyrimidine Derivatives." *Archiv der Pharmazie* 325.8 (1992): 499-501.
- [10]. Zorkun, InciSelin, et al. "Synthesis of 4-aryl-3, 4-dihydropyrimidin-2 (1H)-thione derivatives as potential calcium channel blockers." *Bioorganic & medicinal chemistry* 14.24 (2006): 8582-8589.
- [11]. Rovnyak, George C., et al. "Dihydropyrimidine calcium channel blockers. 4. Basic 3-substituted-4-aryl-1, 4dihydropyrimidine-5-carboxylic acid esters. Potent antihypertensive agents." *Journal of medicinal chemistry* 35.17 (1992): 3254-3263.
- **[12].** Ismaili, Lhassane, et al. "Synthesis and antioxidant activity evaluation of new hexahydropyrimido [5, 4-c] quinoline-2, 5-diones and 2-thioxohexahydropyrimido [5, 4-c] quinoline-5-ones obtained by Biginelli reaction in two steps." *European journal of medicinal chemistry* 43.6 (2008): 1270-1275.

## IJARSCT



## International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

#### Volume 3, Issue 3, January 2023

- [13]. Sondhi, Sham M., et al. "Synthesis, anti-inflammatory and analgesic activity evaluation of some pyrimidine derivatives." (2009).
- [14]. Mohamed, MosaadSayed, et al. "New theopyrimidine derivatives of expected antiinflammatory activity." *Pharmacophore* 3.1 (2012): 62-75.
- [15]. Amir, Mohammad, Sadique Javed, and Harish Kumar. "Synthesis and biological evaluation of some 4-(1H-indol-3-yl)-6-phenyl-1, 2, 3, 4-tetrahydropyrimidin-2-ones/thiones as potent anti-inflammatory agents." *Acta Pharmaceutica* 58.4 (2008): 467.
- [16]. Bose, D. Subhas, Madapa Sudharshan, and Sanjay W. Chavhan. "New protocol for Biginelli reaction-a practical synthesis of Monastrol." *Arkivoc* 228 (2005): 236p.
- [17]. Walle, Mahesh, et al. "One-Pot Three-Component Synthesis of 2-Amino-5-oxo-4, 5-dihydropyrano [3, 2-c] chromene-3-carbonitrile Derivatives Catalyzed by Cobalt Doped Iron (III) Tartrate Complex." (2021).
- **[18].** Walle, Mahesh, Rajita Ingle, and Rajendra Pawar. "Efficient and One-pot Synthesis of Tetrahydro [b] Pyran Derivatives Catalyzed by Copper Doped Iron Tartrate." *Journal of Scientific Research* 65.6 (2021).
- [19]. Patil, Dipti R., et al. "One step synthesis of 6-amino-5-cyano-4-phenyl-2-mercapto pyrimidine using phosphorus pentoxide." *The Open Catalysis Journal* 3.1 (2010).
- **[20].** Mohamad Pour, Farzaneh, et al. "Oxalic acid dihydrate catalyzed synthesis of 3, 4-dihydropyrimidin-2-(1H)one derivatives under thermal and solvent-free conditions." *Iranian Journal of Catalysis* 6.2 (2016): 127-131.
- [21]. Deshmukh, M. B., et al. "A novel and efficient one step synthesis of 2-amino-5-cyano-6-hydroxy-4-aryl pyrimidines and their anti-bacterial activity." *European journal of medicinal chemistry* 44.6 (2009): 2651-2654.