

**CHRIST**(DEEMED TO BE UNIVERSITY)
BANGALORE - INDIA

Notice for the PhD Viva Voce Examination

Mr Pendyala Satya Kishore (Registration Number: 2090194), PhD Scholar at the School of Sciences, CHRIST (Deemed to be University), Bangalore Central Campus will defend his PhD thesis at the public viva-voce examination on Thursday, 03 April 2025 at 2.30 pm in Room No. 044, Ground Floor, R & D Block, CHRIST (Deemed to be University), Bengaluru - 560029, Karnataka, India.

Title of the Thesis	:	Synthesis of Quinolines, Tetrahydroacridines and Related <i>N</i>-Heterocycles via Novel Synthetic Methods
Discipline	:	Chemistry
External Examiner - I	:	Dr M Muthukrishnan Professor Senior Principal Scientist Organic Chemistry Division CSIR-National Chemical Laboratory Dr Homi Bhabha Road Pune – 411008, Maharashtra
External Examiner - II	:	Dr Ravi Shankar Lankalapalli Principal Scientist Room 117, Sir C V Raman Block National Institute for Interdisciplinary Science and Technology, Thiruvananthapuram – 695019 Kerala
Supervisor	:	Dr Prasad Pralhad Pujar Associate Professor Department of Chemistry School of Sciences CHRIST (Deemed to be University) Bengaluru- 560029, Karnataka

The members of the Research Advisory Committee of the Scholar, the faculty members of the Department and the School, interested experts and research scholars of all the branches of research are cordially invited to attend this open viva-voce examination.

Place: Bengaluru
Date: 26 March 2025


Registrar (Academics)

ABSTRACT

Quinolines are a class of *N*-heterocycles which are recognized as paramount motifs in the fields of pharmaceuticals, agrochemicals and functional materials owing to their extensive applications. These scaffolds were well known for their medicinal properties such as antitumor, antimalarial, antiplasmodial, etc. On that account, the construction of these molecules has seized considerable attention of chemists associated with organic synthesis and drug discovery research. As per the literature review, synthesis of these motifs were done using multi step and harsh conditions which limited the substrate scope. In this thesis we described our studies on development of one pot, mild condition for synthesis of 2-amino quinolines, 2-alkyl/aryl substituted quinolines, tetrahydroacridines and related scaffolds. We developed a KO^tBu mediates the reaction between 2-amino arylcarbaldehydes and benzyl/alkyl cyanides toward the expeditious formation of 2-aminoquinolines under transition-metal-free conditions. The described transformation proceeds through *in-situ* generated enamine intermediate from benzyl/alkyl cyanides under KO^tBu-mediated reaction conditions. The substituted 2-aminoquinolines were realized in excellent yields at room temperature and shorter reaction time. The designed process exhibits operational simplicity and broad functional group tolerance in delivering the products of high significance.

We had developed an expeditious strategy for the synthesis of diverse quinolines, indenoquinolines and acridines using KO^tBu-mediated reaction conditions. The designed process utilizes 2-amino aryl carbaldehydes/ 2-amino aryl ketones and methyl/methylene group containing ketones as readily available feedstocks. The chemical transformation was affected at room temperature within a short duration of time to obtain diverse *N*-heterocycles in good yield. The established process also exhibits considerable functional group tolerance with an operational simplicity.

Keywords: 2-amino quinolines; 2-amino arylcarbaldehydes; benzyl/alkyl cyanides; KO^tBu mediated; 2-alkyl/aryl substituted quinolines; quinolines; indenoquinolines; acridines; methyl/methylene group containing ketones; *N*-heterocycles

Publications:

1. **Pendyala Satya Kishore**, Raghuram Gujjarappa, VP Rama Kishore Putta, Saibabu Polina, Virender Singh, Chandi C. Malakar, and **Prasad Pralhad Pujar**. "Potassium tert-Butoxide-Mediated Synthesis of 2-Aminoquinolines from Alkyl nitriles and 2-Aminobenzaldehyde Derivatives." *ChemistrySelect* 7, no. 46 (2022). doi.org/10.1002/slct.202204238
2. **Pendyala Satya Kishore**, Raghuram Gujjarappa, Mayur Jagdishbhai Patel, Saibabu Polina, V. P. Rama Kishore Putta, Virender Singh, Chandi C. Malakar and **Prasad Pralhad Pujar**. "A Metal-Free KO^tBu-Mediated Protocol towards the Synthesis of Quinolines, Indenoquinolines and Acridines." *ChemistrySelect* 2024, 9, e202304897. doi.org/10.1002/slct.202304897
3. Rama Kishore Putta, V. P., Saibabu Polina, Raghuram Gujjarappa, **Pendyala Satya Kishore**, Chandi C. Malakar, and **Prasad Pralhad Pujar**. "Synthesis of 4 H-3, 1-Benzothiazin-4-Ones via CN/CS Bond Forming Reactions." *Polycyclic Aromatic Compounds* 43, no. 8 (2023): 7416-7425. doi.org/10.6084/m9.figshare.21509819.v1