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Notice for the PhD Viva Voce Examination

Mr Jyothis Devasia (Registration Number: 1940081), PhD scholar at the School of Sciences, CHRIST (Deemed to be University), Bangalore will defend his PhD thesis at the public viva-voce examination on Friday, 3 November 2023 at 11.00 am in Room No. 044, Ground Floor, R & D Block, CHRIST (Deemed to be University), Bengaluru - 560029.

Title of the Thesis	:	**Divergent Synthesis of Azole Tailored Compounds and their Biological and Photoluminescence Applications**
Discipline	:	**Chemistry**
External Examiner (Outside Karnataka)	:	**Dr Keisham Sarjith Singh** Senior Scientist Bioorganic Chemistry Laboratory CSIR-National Institute of Oceanography Dona Paula, Goa
External Examiner (Within Karnataka)	:	**Dr Lalithamba H S** Associate Professor Department of Chemistry Siddaganga Institute of Technology B.H. Road, Tumkur, Karnataka - 572103
Supervisor	:	**Dr Aatika Nizam** 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.

Registrar

Place: Bengaluru
Date: 19 October 2023

ABSTRACT

Producing a library of diverse compounds with minor structural differences can provide valuable information related to the structure-activity relationship (SAR), which would not be possible by studying just one molecule. The main goal of the divergent synthesis approach is to efficiently create a collection of valuable compounds, which is different from the traditional methods of making compounds in a linear or convergent way. This approach, known as divergent synthesis, helps select the best compound from the group for its applications. In the current study, the focus is on synthesizing different types of azoles, such as Thiazole Schiff bases, fused tetrazoles, substituted imidazole, and 1*H*-tetrazoles, and exploring their potential uses in biological and photoluminescence studies. Several methods were utilized to synthesize the derivatives of azole compounds. The synthesized molecules were examined and identified using techniques like ^{1}HNMR, ^{13}CNMR, Mass spectrometry, and IR spectroscopy. After creating a library of molecules, they were evaluated for their potential applications in biology and photoluminescence. The most promising molecule was selected from each group of synthesized compounds after the preliminary evaluation and detailed investigation of the properties were carried out.

***Keywords**: Divergent Synthesis; Azoles; Antifungal; Photoluminescence*

Publications:

1. **Jyothis Devasia**, Sampath Chinnam, Kavita Khatana, Sonam Shakya, Francis Joy, Mithun Rudrapal, and Aatika Nizam. 2022. 'Synthesis, DFT and *In Silico* Anti-COVID Evaluation of Novel Tetrazole Analogues'. *Polycyclic Aromatic Compounds*, February, 1–16. doi:10.1080/10406638.2022.2036778.
2. **Jyothis Devasia**, Aatika Nizam, and Vasantha v. L. 2022. 'Azole-Based Antibacterial Agents: A Review on Multistep Synthesis Strategies and Biology'. *Polycyclic Aromatic Compounds* 42 (8): 5474–5495. doi:10.1080/10406638.2021.1938615.
3. **J. Devasia**, F. Joy, and A. Nizam, "A Selective Excited-State Intramolecular-Proton-Transfer (ESIPT) Sensor for Copper (II) Based on Chelation-Enhanced Quenching and 'Off-On' Detection of Amino Acids," *Chemistry – A European Journal*, Feb. 2023, doi: 10.1002/chem.202203652.
4. **J. Devasia**, A. Nizam, D. Muthukumar, R. S. Pillai, and F. Joy, "A concise route to fused tetrazolo scaffolds through 10-camphor sulfonic acid auto-tandem homogeneous catalysis and mechanistic investigation," *J Mol Liq*, p. 121510, Feb. 2023, doi: 10.1016/j.molliq.2023.121510.

Patent Publication:

1. **D. Jyothis**, N. Aatika, C. Sampath, S. Sonam, K. Kavita, N.S. Arin, A. Haritha, O. Amrutha Das, Title of the invention: Novel synthesis and DFT calculations of 3-phenyl-2-(1h-tetrazol-5-yl) acrylamides under catalyst-free, one-pot cascade reaction. Application number: 202141023459. Status of the patent: Patent published online on 11 June 2021