CHRIST
(DEEMED TO BE UNIVERSITY)
BANGALORE | DELHI NCR | PUNE

Notice for the PhD Viva Voce Examination

Ms Nikita Varghese, Registration Number: 2270131, PhD Scholar at the Department of Chemistry, School of Sciences, CHRIST (Deemed to be University) will defend her PhD thesis at the public viva-voce examination on Monday, 11 May 2026 at 11.30 am in Room No. 044, Ground Floor, R&D Block, CHRIST (Deemed to be University), Bengaluru - 560029, Karnataka, India.

Title of the Thesis	:	**Schiff Base-Derived Fluorescent Molecular Probes for Effective Sensing of Molecules and Ions of Environmental and Biological Significance**
Discipline	:	**Chemistry**
External Examiner - I	:	**Dr R Nandhakumar** Associate Professor Department of Applied Chemistry Karunya Institute of Technology and Sciences (Deemed to be University), Karunya Nagar Coimbatore - 641114 Tamil Nadu
External Examiner - II	:	**Dr Vanish Kumar** Scientist C National Agri-Food and Biomanufacturing Institute Sector 81, Sahibzada Ajit Singh Nagar Punjab - 140306
Supervisor	:	**Dr Yamuna Nair** 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 (Academics)

Place: Bengaluru
Date: 17 April 2026

ABSTRACT

A series of Schiff base sensors were synthesized through simple solution- phase condensation, yielding Schiff base derivatives with promising analytical applications. Their structures were confirmed using 1H NMR, FTIR, LC-MS, and elemental analysis. These sensors exhibited pronounced fluorescence, enabling selective and sensitive detection of diverse analytes. Fluorescence titration studies revealed a distinct selectivity pattern: ADHB towards picric acid and ammonium, DBSA towards Cobalt and permanganate, H2L towards Zinc, and its Zinc complex towards Cysteine, DBST showed selective response to Pb2+ and H2PO4-. In addition, the sensors' practical applicability in complex environmental matrices was validated through real sample analysis. These findings highlight the sensors suitability for trace-level monitoring of analytes with environmental and biological relevance. Overall, this study indicates that rational molecular design and functionalization of the molecular framework can yield highly sensitive fluorescence-based sensors with significant potential for environmental monitoring and analytical applications.

Keywords: *Schiff base sensors, Selective detection, Environmental monitoring, Fluorescence sensing.*

Publications:

1. **N. Varghese**, C. K. P., V. L. John, F. P. M., and Y. Nair, "An ESIPT/AIE active Schiff Base for the selective detection of Picric acid, Ammonia, and its potential applications in anticounterfeiting and latent fingerprinting," *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, vol. 346, p. 126910, Feb. 2026, doi: 10.1016/j.saa.2025.126910.
2. **N. Varghese**, J. M. Thomas, A. M. John, B. C. P. S., and Y. Nair, "ESIPT active Schiff base fluorescent sensor for selective and sensitive detection of Co(II) ions: Experimental, DFT optimization studies and real sample analysis," Journal of Fluorescence, 2026, doi: 10.1007/s10895-025-04679-z.