

Dr. Ravibabu A Tayade

M.Sc. Ph.D. SET. B.Ed

Associate Professor and H.O.D. Chemistry



Research areas /Research Interest:

Photochromism and computational study:

Photochromism is defined as reversible transformation in chemical species between into forms having different absorption spectra by photoirradiation, this reversible physical phenomenon makes them applicable in the field of optoelectric materials and devices. For example, high-density optical memory devices, switches etc. For this purpose organic photochromic compounds often incorporated in polymer, liquid crystalline materials or other materials. Properties like bond length, bond angle, dipole moments, Homo-Lumo gap and vibrational frequencies were also studied by using DFT at B3LYP/6-311++G* level. Shift in λ_{\max} after irradiation, and Homo-Lumo gap in the molecule decides the best photochromic material to study various optical & magnetic applications

Publication yearwise:

1. Microwave Assisted Solvent free Stobbe condensation . A green Approach. International journal of Chemistry. Vol2(2) 2013, pp 262-264
2. Green sunthesis of acid Esterification from Furfural via Stobbe condensation. Hinew. Publication corporation Journal of chemistry vol 2013, Article ID, 52370, June 2012,
3. Solution combustion synthesis of calcium Ziconate using mixed fuel. International Modern Physics vol 24, No31 (2010) 6107-6113.
4. Solvent free Stobbe condensation A green approach. Indian journal of chemistry vol48 B, June 2009, pp 882-885.
5. A facile and efficient conversion of aldehyde into 1,1- Deacetates (Acylals) using Iron (III) fluorine as Novel catalyst. Aust. J Chem, 2007,60,590-594

Paper presented in National and International conferences:

1. Presented paper entitled “facile synthesis of chalcone derevites by Stobbe condensatation” in 49th Annual convention of chemist 2012, held at Natational Institute of technical Trends Training and Research Bhopal.
2. Presented paper entitled “DFT study on nanoboride and monocarbide” in the national conference held at. Shri shivaji Science college Amravati 2013.

3. Presented paper entitled "Girls Education Rights –Reasons and Realities" Interdisciplinary International conference Amravati 2014
4. Presented poster entitled "DFT study on substituted fulgide" International conference held at K.V. Pendharkar college ,Dombivali 2015.
5. Presented poster entitled "Green synthesis of substituted fulgenic Acid" national workshop held at Elphinstone college ,Mumbai 2015.
6. Participated in one day workshop organized by Royal Society of chemistry in partnership with the chemical Research society of India and ICT Mumbai.

Activities:

1. Life member of Indian chemical society.
2. Life member of Indian Thermodynamic Society.
3. L.A.C. member of Institute of science Mumbai,2009-2014.
4. C.D.C member in capacity of NAAC coordinator ,Institute of Science , Mumbai.
5. Board of studies member for forensic chemistry ,University of Mumbai, 2015.
6. Elected as Board of Study member for Chemistry, University of Mumbai, 2018-2023.

Topic taught:

- Thermodynamics.
- Statistical mechanics and Irreversible Thermodynamics.
- Quantum chemistry and Spectroscopy.