

CURRICULUM VITAE

Dr. Umakant Bharat Patil

Mobile No: +919730315864 / 8208071956

Email: umakantp777@gmail.com

B-102, Rajratna society, prabhat colony, Mahad, India



Career Objective:

- ✓ To contribute at least in some ways towards the development of *Science* is the prime goal of my research.
- ✓ To secure a challenging position where I can contribute my competent in chemistry with continuous improvement in my knowledge.

Title of Thesis:

- ✓ Novel methodologies for C-O and C-N bond formation reactions in the synthesis of amides, nitriles and tetrazoles.

Educational Qualification:

Ph.D. (Doctor of Philosophy)

Institute of Chemical Technology (formerly UDCT), Matunga, Mumbai.

Research Supervisor: Dr. (Mrs.) J. M. Nagarkar

March 2011- March 2014

Master of Science (M.Sc.) (Organic Chemistry)

Pratap College Amalner, North Maharashtra University Jalgaon

First Class (64.20 %),

June 2006 - April 2008

Bachelor of Science (B.Sc.) (Chemistry)

Pratap College Amalner, North Maharashtra University Jalgaon

First Class (68.00 %)

June 2003 - June 2006

Awards / Fellowships:

- ✓ Article Selected in 'The Renewable Energy Award 2014'
- ✓ Article Published **Renewable energy Global Innovations**
- ✓ Awarded with Senior Research Fellowship under UGC, Govt. of India by 2013-2014.
- ✓ Awarded with Junior Research Fellowship under UGC, Govt. of India by 2011-2013.

Industrial Experience:

- ✓ Working with as *Scientist* in R&D Department at *Novartis Technical Operation' Sandoz Ltd, Mahad (India)'* from September 2015 to till this Date.
- ✓ Worked as an *Executive* in R&D Department at '*Mac-Chem. Products Pvt Ltd, Miraroad, Mumbai (India)'* from April 2014 to September 2015.
- ✓ Worked as a *Scientific Officer* in R&D Department at '*Wanbury Limited, Turbhe Navi Mumbai (India)'* from May 2010 to November 2010.
- ✓ Worked as a *Trainee Chemist* in R&D Department at '*Life Line Ltd, Taloja Navi Mumbai (India)'* from October 2008 to May 2010.

PROJECT WORK ON: RIFAXIMIN, TIGECYCLINE.HCl, FOSAPREPITANT
DIMUGLAMINE, GABAPANTINE, IRBISARTAN, LOSARTAN, ACECLOPHENAC, APREPITANT,
FEBUXOSTAT, TEMOZOLOMIDE, RHODANINE, CHX.

Academic Experiences:

- ✓ As a *Visiting Faculty* at Institute of Chemical Technology (*ICT*), Matunga, Mumbai to conduct inorganic chemistry laboratory experiments for B. Tech. and B. Chem. Eng students since June 2011- till date.
- ✓ Completed six months project work from November 2007 to April 2008 in *Pratap College Amalner, Department of Chemistry, Jalgaon*
Title: Synthesis of Derivatives of Lignocaine & their Microbial Studies.

Doctoral Research –

- ✓ Copper acetate catalyzed synthesis of 5-substituted 1H-tetrazole from oxime.
- ✓ Preparation of nano ceria by using CTAB method.

- ✓ N-formylation of aniline with formic acid using nano CeO₂ as catalyst under neat conditions.
- ✓ Synthesis of N-phenylacetamide from aniline and acetic acid using nano CeO₂ as catalyst under solvent free conditions.
- ✓ **Kinetic study** and mechanistic investigation for the reactions N-formylation of amines.
- ✓ Milder and greener route for the synthesis of cyanide free cyanation.
- ✓ Deep eutectic solvent (DES) can be efficiently used for the various organic transformations under microwave irradiation and by conventional methods.
- ✓ Synthesis of primary Amides from aldehydes and from Nitriles also amides are prepared from ketone.
- ✓ **Kinetic study** and mechanistic investigation of the reactions.
- ✓ Use of non-conventional techniques like **ultrasound** and **microwave**.

Professional Skills –

- ✓ Handling of **FT-IR, HPLC, GC, GC-MS, UV** spectrometer.
- ✓ **Characterization of materials** by various techniques viz. XRD, DSC-TGA, FT-IR, EDAX, SEM, BET surface area analysis and NH₃/CO₂-TPD analysis.

Technical Skills:

- ✓ Synthesis of multi-step API with Commercial and Cost effective Process.
- ✓ Review & analyse process flow operations at synthetic lab as well as on pilot scale.
- ✓ Trouble shooting & process optimization.
- ✓ Modification of processes According to Plant requirement.
- ✓ Worked for new synthetic routes from mg to gm scale synthesis of various organic compounds.
- ✓ Yield improvement & Waste reduction
- ✓ Purification of organic compounds by distillation, vacuum distillation, crystallization and chromatographic techniques.

- ✓ Expertise in preparation and review of Technology Transfer Documents as per ICH guidelines.
- ✓ Expertise in handling software's such as ISIS Draw, Chem. Draw etc.
- ✓ Literature and patent search for scouting the non-infringing process for the proposed target molecule or API. Commonly used search engines - Scifinder, Reaxys, Google etc.
- ✓ Interpretation of spectral data using NMR, IR, HPLC, LCMS, HRMS.

Research Highlights:

- ✓ Experienced in handling Organometallic reactions like hydrogenation, Suzuki coupling and Heck reaction.
- ✓ Worked on miscellaneous oxidation reactions like Jones oxidation.
- ✓ Experienced in halogenations, esterification, acid hydrolysis, base hydrolysis, protection and de-protection type of reactions.
- ✓ Carried out catalytic reaction using Pd/C, Pd-hydroxide, and Raney Nickel etc.
- ✓ "Handling of hazardous reactions independently" Skilled in handling hazardous pyrophoric chemicals like LiAlH₄, NaH, *n*-BuLi, Palladium on carbon, Sodium metal etc.
- ✓ Reactions like metal hydride reductions, catalytic hydrogenation, Grignard Reaction, Hoffman Rearrangements, Bromination, Chlorination, and Nitration, Fredal Craft Acylation alkylation such as *n*-alkylation, *o*-alkylation and *c*-alkylation reactions.

Workshop and Seminars attended :

- ✓ "Laboratory Safety" course conducted by Department of Chemistry under the auspices of TEQIP, Institute of Chemical Technology, Mumbai.
- ✓ Event Coordinator in "Chem. Careers India" at Institute of Chemical Technology, Mumbai. (October 20, 2012).
- ✓ Orientation Programme in Catalysis Research' (16thNov.- 8th Dec. 2011), organized by National Centre for Catalysis Research at IIT Madras, Chennai.

Research Publications:

- A novel method for the synthesis of 5-substituted 1H-tetrazole from oxime and sodium azide.
Umakant B. Patil, Kedar R. Kumthekar and Jayashree M. Nagarkar*
Tetrahedron Letters 2012, 54, 3706-3709.
- Nanoceria-catalyzed highly efficient procedure for N-formylation of amines at room temperature under solvent-free conditions
Umakant B. Patil, Abhilash S. Singh and Jayashree M. Nagarkar*
Chemistry Letters 2013, 42, 524-526.
- Dehydrative N-Acylation of Amines with Nano-CeO₂
Umakant B. Patil and Jayashree M. Nagarkar*
Synfacts 2013, 9 (08), 907 (Highlights in Synthetic Organic Chemistry).
- One-Pot Synthesis of Nitriles from Aldehydes Catalyzed by Deep Eutectic Solvent
Umakant B. Patil, Suresh S. Shendage and Jayashree M. Nagarkar*
Synthesis (Germany) 2013, 45, 23, 3295–3299.
- Choline chloride based eutectic solvent: an efficient and reusable solvent system for the synthesis of primary amides from aldehydes and from nitriles.
Umakant B. Patil, Abhilash S. Singh and Jayashree M. Nagarkar*
RSC Advances 2014, 4, 3, 1102–1106.
- Palladium supported on zinc ferrite: A highly active, magnetically separable catalyst for ligand free Suzuki and Heck coupling.
Abhilash S. Singh **Umakant B. Patil** and Jayashree M. Nagarkar*
Catalysis Communication 2013, 35, 11-16.
- Electrochemical deposition of highly dispersed palladium nanoparticles on Nafion-graphene film in presence of ferrous ions for ethanol electrooxidation.
Suresh S. Shendage, **Umakant B. Patil** and Jayashree M. Nagarkar*
Fuel Cells 2013, 13, 364-370.
- Electrochemical synthesis and characterization of palladium nanoparticles on nafion-graphene support and its application for Suzuki coupling reaction.

Suresh S. Shendage, **Umakant B. Patil** and Jayashree M. Nagarkar*

Tetrahedron Letters 2013, 54, 3457-3461.

- Microwave irradiated deep eutectic solvent catalysed green, rapid and efficient synthesis of amide.

Umakant B. Patil, Suresh S. Shendage and Jayashree M. Nagarkar*

International Journal of Engineering Science Invention 2017, 6, 72-76

- Tert-butyl hydroperoxide (TBHP): A versatile oxidizing agent for the oxidation of benzyl amine, and benzyl alcohol under solvent free condition. (Manuscript Submitted)

Umakant B. Patil and Jayashree M. Nagarkar*

Conference and Presentations:

- Attended 12th orientation programme in catalysis at National Centre for Catalysis research (NCCR) Indian Institute of Technology, Madras (Chennai) India. (16th November-2011 to 6th December-2011)
- A novel method for the synthesis of 5-substituted 1H-tetrazole from oxime and sodium azide. **Umakant B. Patil** and Jayashree M. Nagarkar*
Presented poster in **2nd Indo-German International Conference** organised by Institute of chemical Technology and Leibniz Institute for Catalysis, Rostock, Germany on 28th-31st October 2012, Mumbai India
- One-Pot Synthesis of Nitriles from Aldehydes Catalyzed by Deep Eutectic Solvent conditions. **Umakant B. Patil** and Jayashree M. Nagarkar*
Presented poster in **15th CRSI-7th RSC International Symposium** in Chemistry at BHU (Banaras Hindu University, Varanasi) 28th February-3rd March-2013.
- Nanoceria-catalyzed highly efficient procedure for N-formylation of amines at room temperature under solvent-free conditions. **Umakant B. Patil** and Jayashree M. Nagarkar*
Presented poster in **Indo-Japan International Conference** organised by Institute of chemical Technology on 10th-11st May 2012, Mumbai India.

PERSONAL PROFILE

Marital Status : Married
Date of Birth : 22nd May 1985
Languages Known : English, Marathi, Hindi
Sex : Male
Nationality : Indian.

Name and Addresses of three Referees:

- 1) Dr. Mrs. J. M. Nagarkar
Associate Professor of Inorganic Chemistry
Department of Chemistry,
Institute of Chemical Technology (Formerly UDCT),
Matunga, Mumbai, INDIA
Tel.: +91-22-3361 2608 fax: +91-22-33611020
Mob. No. 9867462616
Email: jm.nagarkar@ictmumbai.edu.in
- 2) Prof. Bhalchandra M. Bhanage
Professor of Industrial Chemistry
Head, Department of Chemistry,
Institute of Chemical Technology (Formerly UDCT),
Matunga, Mumbai, INDIA
Tel.: +91-22-3361 2601 fax: +91-22-3361 1020
Email: bm.bhanage@gmail.com

I hereby declare that all the details mentioned above are authentic and correct.

Date:

Place: Mumbai (Maharashtra)

Umakant B. Patil