

Name : Dr. Nishikant A. Raut

Designation: Adjunct Faculty

Director, Department of Lifelong Learning & Extension, RTM Nagpur University, Nagpur, India.

Qualification: M. Pharm, Ph.D.

Specialization: Pharmaceutical Chemistry

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Experience : 19 years

Professional Experience

4/2021-Current	Director , Department of Lifelong Learning & Extension, RTM Nagpur University, Nagpur, India.
4/2020-9/2020	Co-PI and Nodal Officer , Covid-19 Diagnostic Centre, RTM Nagpur University, Nagpur, India.
6/2019-current	Professor , (Pharmaceutical Sciences), Department of Pharmaceutical Sciences, RTM Nagpur University, Nagpur, India.
6/2016-6/2019	Associate Professor (Pharmaceutical Sciences), Department of Pharmaceutical Sciences, RTM Nagpur University, Nagpur, India.
6/2013-6/2016	Assistant Professor (Sel. Gr.) (Pharmaceutical Sciences), Department of Pharmaceutical Sciences, RTM Nagpur University, Nagpur, India.
6/2008-6/2013	Assistant Professor (Sr. Gr) (Pharmaceutical Sciences), Department of Pharmaceutical Sciences, RTM Nagpur University, Nagpur, India.
1/2006-6/2008	Assistant Professor (Pharmaceutical Sciences), Department of Pharmaceutical Sciences, RTM Nagpur University, Nagpur, India.
6/2003-12/2005	Lecturer (Pharmaceutical Sciences), Department of Pharmaceutical Sciences, RTM Nagpur University, Nagpur, India.

• Supervised **15 UG, 32 PG, and 6 Ph.D.** students till date.

Research areas:

- Natural Products
- Medicinal Plants and Phytopharmaceuticals
- Pharmaceutical analysis
- Solubility enhancement of pharmaceuticals

Research

- ✓ Shttps://scholar.google.com/citations?user=LUur9gMAAAAJ&hl=en
- https://www.researchgate.net/profile/Nishikant-Raut
- ✓ https://www.scopus.com/authid/detail.uri?authorId=15064788700
- Publications: (International: 36, National-06)
- Books: 03 (In Press, Elsevier)
- Book Chapters: 06

Patents

- Mishra P. and Raut NA. *Automated Section Cutting Machine*, Applied to Indian Patent Office, 2018 (Under evaluation).
- Ganjare AB, Satpute R, Raut NA. *Effective polyherbal formulation for the treatment of ulcerative colitis*. Applied to Indian Patent Office, 2019, (Published, Under evaluation).
- Raut NA, Bhanwase B, Kokare DM, Dhoble SJ. *A drone based disinfection device*. Applied to Indian Patent Office, April 2020 (Awarded)
- Raut NA, Bhanwase B, Kokare DM, Dhoble SJ. *Multifocal disinfection device*. Applied to Indian Patent Office, April 2020 (Published & Received First Evaluation Report with queries)
- Presentations: 51 (International: 27, National:24)

Research Projects

(i) Completed

- 1. **Co-Principal Investigator** in DBT (Department of Biotechnology, Govt. of India, New Delhi) sponsored research project (BT/PR14022/MED/30/324/2010) entitled "Role of cocaine- and amphetamine-regulated transcript peptide (CART) in tissue regeneration following spinal cord injury in mice" (2010-2013). The total fund sanctioned for this project was Rs. 44,00,000/- and provision for two JRF.
- 2. **Principal Investigator** in SERB (A statutory Body under Department of Science and Technology, Govt. of India, New Delhi) sponsored research project entitled "Studies on improvement of solubility and bioavailability of some agents targeting viral species" (2014-2017) (total cost of project is Rs. 24,50,000/-) with provision for one JRF. (Awarded under start up Research Grant for Young Scientist Scheme by Govt. of India)

3. Awarded with *Raman Post-Doctoral Research Fellowship* 2016 *for Research in USA* by University Grants Commission (UGC), Govt. of India, New Delhi (Total funds \$28,200/-) for "Osteogenic effects of dietary anthocyanins in transgenic medaka".

In Progress

1. Principal Investigator in RTM Nagpur University sponsored project entitled, "Development of polyherbal remedy for the treatment of irritable bowel disease" (2019-2022) (total cost of project is Rs. 3,00,000/-) (Awarded under University Research Promotion Scheme by RTMNU).

Research Guidance

Supervised 15 UG, 32 PG, and 6 Ph.D. students till date.

Conferences/Workshops/Seminars attended- 51

Awards

- ✓ Received **Best Researcher Award** for the **Year 2020** awarded by RTM Nagpur University, Nagpur.
- ✓ **Established COVID-19 Diagnosis Centre** (RT-PCR COVID Testing Laboratory) **at RTM Nagpur University** in the capacity of Co-PI (Research) and Nodal Officer. This ICMR approved lab has completed more than 1, 30,000 tests to support District Administration and Government to control COVID-19 Pandemic (2020).
- ✓ Felicitated by *Microbiologist Society, India* in recognition of services during *COVID-19 Pandemic* to *fight against COVID-19*.
- ✓ Awarded **International Travel Grant** from **AICTE** for attending 2019 "AAPS PharmSci 360 (International Conference of American Association of Pharmaceutical Scientists)" 3 6 November 2019 at Henry B. Gonzalez Convention Center, San Antonio, Texas, USA.
- ✓ Awarded **International Travel Grant** from **SERB** for attending 2019 "AAPS PharmSci 360 (International Conference of American Association of Pharmaceutical Scientists)" 3 6 November 2019 at Henry B. Gonzalez Convention Center, San Antonio, Texas, USA.
- ✓ Awarded **International Travel Grant** from **CSIR** for attending 2018 "AAPS PharmSci 360 (International Conference of American Association of Pharmaceutical Scientists)" 4 7 November 2018 at Washington Convention Center, Washington, DC, USA.
- ✓ Received **Best Poster Award** at 5th Convention of Society for Ethnopharmacology (India) held at Kolkata (Sept. 8, 2018)
- ✓ Received **Best Oral Presentation Award** at Zonal Scientific Conclave 'Nutricon 2018' organized by Nutrition Society of India, Nagpur Chapter (December 8, 2018).
- ✓ Awarded with *Raman Post-Doctoral Research Fellowship for Research in USA* by University Grants Commission (UGC), Govt. of India, New Delhi (2016)
- ✓ Awarded **International Travel Grant** from **UGC** (Unassigned grant scheme) for attending 1st International Conference on Pharmaceutical Sciences and Pharmacology, November 18-19, 2013 held at Singapore.

- ✓ Awarded **International Travel Grant** from **DBT** for attending 13th International Congress of the Society for Ethnopharmacology, September 2-6, 2012 held at University of Graz, Austria.
- ✓ Received **Best Poster Award** at International Conference on Drug Discovery and Nanotechnology held at Nanded.
- ✓ Awarded **Junior Research Fellowship** for Post-Graduation by University Grants Commission, Govt. of India, New Delhi (2000-2002).
- ✓ Qualified GATE-Pharmacy-2000 (Nationwide Graduate Aptitude Test) with 90.21 percentile.

Professional Memberships

- Life Member, Indian Hospital Pharmacists Association (IHPA)
- Member, American Association of Pharmaceutical Scientists (AAPS)
- Member Society for Ethnopharmacology (India) (SFE-India)
- Joint Coordinator Society for Ethnopharmacology (India) Nagpur Chapter
- Life Member, Indian Pharmaceutical Association (IPA)
- Life Member, Association of Pharmaceutical Teachers of India (APTI)
- Associate Life Member, Indian Hospital Pharmacists' Association (IHPA)
- Member, Sub-committee of Board of Research constituted by Hon'ble Vice Chancellor of RTM Nagpur University for the preparation of "Research Document' of the University.
- Member, University Scrutiny Committee constituted by Hon' ble Vice-Chancellor for the Proposals of Establishment of New Colleges and Courses in the jurisdiction of RTM Nagpur University, Nagpur.
- University Nodal Officer for "Rashtriya Avishkar Abhiyan" (A convergent framework of Ministry of Human Resource development, Govt. of India) (Since January 2016-Present).
- Member- Subject Evaluation Committee for M. Sc. (Medicinal Plants) and M. Sc. (Molecular Biology and Genetic Engineering).
- University Coordinator for Avishkar and Anveshan (State and National Level Students' Research Conventions) (Since October 2013- Present).
- Finance Secretary, 2nd International Congress of Society for Ethnopharmacology (India), Nagpur, February 2015.
- Chief Coordinator for Revision of syllabus of Biophysics and Molecular Biology (2007).
- Member, Admission Committee constituted by Hon 'ble Vice-Chancellor RTMNU & Teacher-incharge for Admissions of UG & PG courses (2010-2016).
- Member, Department level Purchase Committee, UDPS, RTM Nagpur University, Nagpur. (2003-2014).

- Coordinator for Application Receipt Centre for admission to First Year Postgraduate and Degree Course in Pharmacy conducted by DTE, Govt. of Maharashtra (2006-2016).
- Deputy Spot Valuation Chief for Spot Valuation center for Faculty of Medicine (Pharmacy and Medicine) (October 2006-July 2009).
- In-charge, Purchase and Stores, UDPS, Nagpur (July 2003- March 2009)

Recent Publications

- ✓ Saoji SD, Rarokar NR, Dhore PW, Dube S, Gurav NS, Gurav SS, **Raut NA (2022)** Phospholipid Based Colloidal Nanocarriers for Enhanced Solubility and Therapeutic Efficacy of Withanolides, Journal of Drug Delivery Science and Technology, 103251. https://doi.org/10.1016/j.iddst.2022.103251
- ✓ Bajaj KK, Chavhan V, **Raut NA**, Gurav, S. (2022) Panchgavya: A precious gift to humankind, Journal of Ayurveda and Integrative Medicine, 100525, https://doi.org/10.1016/j.jaim.2021.09.003
- ✓ Ren Z, **Raut NA**, Lawal TO, Patel S, Lee SM, Mahady GB. (2021) Peonidin-3-glucoside and cyanidin increase osteoblast differentiation and reduce RANKL-induced bone resorption in transgenic medaka. Phytotherapy Research, 35(11):6255-6269. doi: 10.1002/ptr.7271. Epub 2021 Oct 26. PMID: 34704297.
- ✓ Lawal TO, **Raut NA**, Patel S, Mahady G. (2021) Extracts of Anogeissus leiocarpus and Dillenia indica Inhibit the Growth of MCF-7 Breast Cancer and COV434 Granulosa Tumor Cells by Inducing Apoptosis and Autophagy, Current Bioactive Compounds. http://dx.doi.org/10.2174/1573407217666210215092955
- ✓ Mahady GB, **Raut N**, Ren Z, Lawal TO, Lee SM, (2020) Blackcurrant Extracts increase Myocyte Proliferation and reduce Apoptosis in L6 myocytes and improve Muscle Strength and Memory in Senescence Accelerated Mice. The FASEB J 34 (S1), 1-1. https://doi.org/10.1096/fasebj.2020.34.s1.08927
- ✓ Wicks S, Lawal TO, **Raut N**, Patel S, Mahady G. (2019) Combinations of vitamins A, D2 and D3 have synergistic effects in gastric and colon cancer cells. Functional Foods in Health and Disease 2019, 9(12), 749-771.
- ✓ Dave VS, Telange DR, Bhagat SB, Patil AT, Umekar, MJ, Pethe AM, **Raut NA.** (2019) Glucosamine HCl-based solid dispersions to enhance the biopharmaceutical properties of acyclovir, Journal of Excipients and Food Chemicals, 2019, 10 (3), 1-17.
- ✓ Rangari SG, **Raut NA**, Dhore PW (2019) Validated Stability Indicating HPTLC Method for Estimation of Amoxapine in Different Stress Conditions. Current Pharmaceutical Analysis 2019,15(3): 272 278.
- ✓ **Raut N**, Wicks SM, Lawal TO, Mahady GB, Epigenetic regulation of bone remodeling by natural compounds. Pharmacological Research, 2019, 147:104350. doi: 10.1016/j.phrs.2019.104350.
- ✓ Mahady GB, **Raut N**, Lawal TO, Patel S (2019) Epigenetic regulation of osteoblastogenesis by blackcurrant fruit extracts in vitro and in vivo. The FASEB J. 33 (1_supplement), 471.14-471.14.
- ✓ Rangari SG, Patil S, Mahajan R, Ahmad A, **Raut NA** (2018) Development of UV-Spectrophotometric Method for Analysis of Amoxapine in Pharmaceutical Dosage Form. *Asian I. Pharm. Clin. Res.*, 11(3), 269-271.

- ✓ **Raut NA** (2018) Enhancement of the Aqueous Solubility and Permeability of Poorly Water-Soluble Drugs. Pharma Focus Asia, Issue 29, Feb. 2018.
- ✓ Dhore PW, Dave VS, Saoji SD, Gupta D, **Raut NA**, *Influence of Carrier (Polymer) Type and Drug-Carrier Ratio in the Development of Amorphous Dispersions for Solubility and Permeability Enhancement of Ritonavir*. J. Excip. Food Chem., 2017 8(3), 75-92.
- ✓ Lawal TO, **Raut N**, Wicks SM, Mahady GB. (2017) Natural products and traditional medicines for the treatment of multidrug resistant bacteria. *Medical Research Archives*, 6(1), 1-22.
- ✓ Soni KK, Mahady GB, Lawal TO, **Raut NA**, Patel U. (2017) Purified Fraction of Ocimumtenuiflorum (L) Inhibit LTC4, LTA4 and COX-2, Down-Regulate mRNA Expression in HL-60 Cells and Reduce lung inflammation in OVA Induced Asthma Models of BALB/c Mice. *Immunology Endocrine & Metabolic Agents Medicinal Chemistry* (Formerly *Current Medicinal Chemistry Immunology Endocrine & Metabolic Agents*) 17(2), 115-126.
- ✓ Saoji SD, Dave VS, Dhore PW, Bobde YS, Mack C, Gupta D, **Raut NA**. (2017) *The role of phospholipid as a solubility- and permeability-enhancing excipient for the improved delivery of the bioactive phytoconstituents of Bacopa monnieri*. Eur. J. Pharm. Sci., 108:23-35. doi: 10.1016/j.ejps.2016.08.056.
- ✓ Dhore PW, Dave VS, Saoji SD, Bobde YS, Mack C, **Raut NA**. (2017) *Enhancement of the aqueous solubility and permeability of a poorly water soluble drug ritonavir via lyophilized milk-based solid dispersions*. Pharm. Dev. Technol., 22(1):90-102. doi: 10.1080/10837450.2016.1193193.
- ✓ Saoji SD, **Raut NA**, Dhore PW, Borkar CD, Popielarczyk M, Dave VS. (2016) *Preparation and Evaluation of Phospholipid-Based Complex of Standardized Centella Extract (SCE) for the Enhanced Delivery of Phytoconstituents.* AAPS J., 2016. 18(1): p. 102-14.
- ✓ Rarokar NR, Saoji SD, **Raut NA**, Taksande JB, Khedekar PB, Dave VS. (2016) *Nanostructured Cubosomes in a Thermoresponsive Depot System: An Alternative Approach for the Controlled Delivery of Docetaxel*. AAPS PharmSciTech, 17(2): p. 436-45.
- ✓ Saoji SD, Atram SC, Dhore PW, Deole PS, **Raut NA**, Dave VS. (2015) *Influence of the Component Excipients on the Quality and Functionality of a Transdermal Film Formulation*. AAPS PharmSciTech, 16(6): p. 1344-56.
- ✓ **Raut NA**, Kasliwal AR, Gaikwad NJ. (2014) Evaluation of Antidiabetic Potential of Ipomoea turpethum R.Br. and Ipomoea batata L. (Convolvulaceae) in Alloxan Induced Diabetes in Rats: A Comparative Study, *Res. J. Pharm., Biol. Chem. Sci.* 5(6), 137-141.
- ✓ **Raut NA**, Gaikwad NJ. (2013) Anti-diabetic Potential of fractions of hydro-ethanol extract of *Crataeva nurvala* Buch. Ham, *Int. J. Pharm. Phytopharm. Res.*, 3 (3), 2013.
- ✓ **Raut NA** and Gaikwad NJ. (2012) Antidiabetic Potential of Fractions of Hydro-Ethanol Extract of *Cyperus rotundus* L. (Cyperaceae), *Res. J. Pharm., Biol. Chem. Sci.*, 3(4), 1014-1019.
- ✓ Raut NA and Gaikwad NJ. (2006). Antidiabetic Activity of Hydro-Alcoholic Extract of Cyperus rotundus Linn. (Cyperaceae) in Alloxan-Induced Diabetes in Rats, Fitoterapia, 77, 585-588

Experience of establishing experimental set up of lab for teaching and developing research facilities

- 1. **During COVID-19 Pandemic**: Established COVID-19 Diagnosis Centre (RT-PCR COVID Testing Laboratory) at RTM Nagpur University in the capacity of Co-PI (Research) and Nodal Officer. Voluntarily undergone *RT-PCR Training for COVID-19 Testing* at AIIMS Nagpur. Worked as Nodal Officer of COVID-19 Diagnosis Centre, RTM Nagpur University. The laboratory received approval from ICMR and tested more than 1,30,000 samples till date to support District Administration and Government to control COVID-19 Pandemic.
- 2. **During post-doctoral research** set up complete facility for double and triple transgenic medaka fish at the Biological Research Laboratory of University of Illinois at Chicago (UIC) for UIC College of Pharmacy, Chicago, IL, USA.
- 3. **For the U.G. and P.G. course** designed and developed several experiment for Biophysics and Molecular Biology, Pharmaceutical Analysis, Pharmaceutical Organic Chemistry. Along with the pharmacology research scholar, I have also assisted them in designing and optimizing Perfusion Apparatus used for studying transport of drug across the biological membrane.
- 4. **During the DBT sponsored research project** on spinal cord injury, designed and developed experimental protocols for the biological activities. Specifically, optimized biophysical parameters for spinal cord injury.
- 5. **For SERB sponsored research project** on solubility and bioavailability enhancement, set up complete laboratory for the experimental protocol, procured Dissolution Test Apparatus with iDisso software and camera set up, also procured peristaltic pump and set up protocol for transport study.

Academic activities

Invited Peer Reviewer (Funding agencies)

- 1. Referee and evaluator for Science and Engineering Research Board, Department of Science and Technology. Govt. of India.
- 2. Referee and evaluator for Research Projects in RGSTC scheme of North Maharashtra University, Jalgaon, India.

Invited Peer Reviewer (scientific journals)

- Journal of Ethnopharmacology
- Phytotherapy Research
- Acta Tropica
- International Journal of Pharmacology

- Indian Journal of Pharmaceutical Sciences
- Indian Journal of Traditional Knowledge
- Journal of Pharmacology & Toxicology
- Iranian Journal of Pharmaceutical Technology

Editorial Advisory Board Member

- Guest Editor, <u>Methods Collection on Current Methods in Osteoporosis and Bone</u>
 Remodeling Research for Journal of Visualized Experiment (JoVE)
- Editor, RTMNU Science Journal
- Pharmaceutics, Drug Delivery & Safety
- Research Journal of Medicinal Plants
- Research Journal of Phytochemistry
- Journal of Pharmacology & Toxicology
- **Co-editor** of **MAHA-APTI e-Bulletin** of APTI Maharashtra State (2013-2016)

Book Chapters

- Kane GC, Wicks SM, Lawal TO, Raut N, Mahady GB. (2022) Drug Interactions with Food and Beverages. In: Nutrition Guide for Physicians and Related Healthcare Professions, T. Wilson et al. (eds.) Springer Nature, Switzerland AG 2022 283, 283-294, https://doi.org/10.1007/978-3-030-82515-7 26.
- 2. Awathale SN, Dhoble LR, Itankar PR, Raut NA, Kokare DM. (2021) Neuroactive herbal agents for cognitive dysfunction. In: *Natural products from plants: Potentials and Prospects for Human Health*. Eds. Goyal M.R. & Suleria H.A.R. Apple Academic Press (CRC Press- A Taylor & Francis Group, USA) **70**, 195-226.
- 3. Raut N.A., Kokare D. M. Mahady G.B. (2019) Therapeutic Potential of *Ocimum tenuiflorum* L. for Treatment and Prevention of Metabolic and Mental Disorders. In: *Natural products from plants: Potentials and Prospects for Human Health*. Eds. Panda S.K. & Goyal K. Apple Academic Press (CRC Press- A Taylor & Francis Group, USA).
- 4. Wicks, S.M., Lawal, T.O., Raut, N.A., Mahady, G.B. (2017) Interactions of Commonly Used Prescription Drugs With Food and Beverages, In: *Sustained Energy for Enhanced Human Functions and Activity*, pp. 465-477.
- 5. Raut N.A., Dhore P. W., Saoji S. D., Kokare D. M. (2015) Selected Bioactive Natural Products for Diabetes Mellitus, In: Studies in Natural Products Chemistry (Elsevier), 48, 287-318.
- 6. Raut N.A. and Gaikwad N.J. (2010) Crateva nurvala Buch. Ham. (Capparidaceae), In: *Recent Progress in Medicinal Plants- Drug Plants II*, Studium Press LLC, 28, 207-222.

Books

1. Photophysics and Nanophysics in Therapeutics, Eds. Mahajan NM, Saini A, **Raut NA**, Dhoble SJ. Elsevier Inc. Hampshire St., 5th Floor, Cambridge, MA 02139, USA. (In Press) https://www.elsevier.com/books/photophysics-and-nanophysics-in-therapeutics/mahajan/978-0-323-89839-3

- 2. "360° Waste Management: Fundamentals, agricultural, domestic waste and remediation" (Volume I) Eds. **Raut NA**, Kokare DM, Bhanvase BA, Randive KR, Dhoble SJ. Elsevier Inc. Hampshire St., 5th Floor, Cambridge, MA 02139, USA. (In Press)
- 3. "360° Waste Management: Biomedical, Pharmaceutical, Industrial Waste and Remediation" (Volume II) Eds. **Raut NA**, Kokare DM, Bhanvase BA, Randive KR, Dhoble SJ. Elsevier Inc. Hampshire St., 5th Floor, Cambridge, MA 02139, USA. (In Press)

Invited presentations:

- 1. "Overseas Fellowships for University & College Teachers" at eFDP on the topic "Research Methodology & Funding Opportunities" organized by Datta Meghe College of Pharmacy, Datta Meghe Institute of Medical Sciences, Sawangi (Meghe), Wardha (January 15, 2022).
- 2. "Student-Teacher Conflicts" FDP at SKB College of Pharmacy, New Kamptee (February 23, 2021).
- 3. "Drug Discovery and Development: Pre-clinical case study of Osteoporosis" at Hislop College, Nagpur (October 4, 2019).
- 4. "Trends in Drug Development: Evidence based Traditional Medicines" at SKB College of Pharmacy, Kamptee during AICTE sponsored Faculty development Program on 'Patent Oriented New Frontiers in Drug Design and Development' (Jun. 22, 2019).
- 5. "Novel approaches for bioavailability enhancement of drugs with poor aqueous solubility" at St. John Fisher College, Wegmans School of Pharmacy, Rochester, NY, USA. November 8, 2018.
- 6. "Recent Trends in Medicinal Plants Research: Evidence Based Traditional Medicines" at National Seminar on "Recent Advances in Medicinal Plants Research", organized by M. B. Patel College of Arts, Commerce & Science, Sakoli, Gondia Feb. 17, 2018.
- 7. "Drug Discovery: Past, Present & Future (?)" at International Seminar on Drug Discovery and Development: Present and Prospective Aspects held at SKB College of Pharmacy, Kamptee on July 14, 2017.
- 8. "Novel approaches for solubility enhancement of poorly aqueous soluble drugs" at St. Fisher College, Wegmans School of Pharmacy, Rochester, NY, USA (May 12, 2017).
- 9. "Stability Analysis of Finished Pharmaceutical products (FPPs)" at AICTE sponsored two week faculty development programme on Recent advances in Pharmaceutical analysis organized by School of Pharmacy SRTM University, Nanded (February 22 to March 08, 2014
- 10. "Drug Discovery: Past, Present & Future (?)", at UGC sponsored One Day Conference on Drug Discovery: Current and Emerging Opportunities organized by D. B. Science College (NAAC 'A' Grade), Gondia (Feb. 3, 2013).
- 11. "Current Strategies in Targeted Drug Delivery" at AICTE Sponsored Faculty Development Program Institute of Pharmaceutical Education and Research, Wardha and delivered seminar on topic entitled 65Targeted Drug Delivery: Stability Aspects" (16th October 2013)
- 12. "Present Status & Future Prospects of Pharmaceutical Sciences in shaping the Future of India", at two days conference for 100th Year Celebration of Indian Science Congress Association, November 7th, 2012 organized by Indian Science Congress Association Nagpur Chapter and RTM Nagpur University, Nagpur.
- 13. "Bio-availability and drug-excipient compatibility studies", at Workshop on Current Research Scenario in the University: Prospects for Industries, March 29th, 2012 organized by Technology Park and Industry-Institute Interaction Centre, RTM Nagpur University, Nagpur.
- 14. "Stability: A change perspective", at AICTE sponsored Staff Development Programme (June 29, 2009 to July 11, 2009).