

Nishikant A. Raut, Ph.D.

Plot No. 20, Chikhali Gruh Nirman Sanstha,
Airforce Civilians' Society, Dabha
Nagpur-440033, Maharashtra, INDIA

Phone: +91 94228 03768
E-mail: nishikantraut29@gmail.com
nishikantraut29@nagpuruniversity.nic.in

Professional Experience

| | |
|----------------|---|
| 4/2021-Current | Director , Department of Lifelong Learning & Extension, 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 **12 UG, 25 PG, and 6 Ph.D.** students till date.

Education

Ph. D., 2010, (Pharmaceutical Chemistry), RTM Nagpur University, Nagpur, India.

M. Pharm., 2002, (Pharmaceutical Sciences), RTM Nagpur University, Nagpur, India.

B. Pharm., 2000, (Pharmacy), RTM Nagpur University, Nagpur, India.

Professional Achievements

1. Received **Best Researcher Award** for the **Year 2020** awarded by RTM Nagpur University, Nagpur.
2. **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 33,000 tests till date to support District Administration and Government to control COVID-19 Pandemic (2020).

3. Felicitated by *Microbiologist Society, India* in recognition of services during *COVID-19 Pandemic to fight against COVID-19*.
4. 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.
5. 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.
6. 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.
7. Received **Best Poster Award** at 5th Convention of Society for Ethnopharmacology (India) held at Kolkata (Sept. 8, 2018)
8. Received **Best Oral Presentation Award** at Zonal Scientific Conclave 'Nutricon 2018' organized by Nutrition Society of India, Nagpur Chapter (December 8, 2018).
9. Awarded with **Raman Post-Doctoral Research Fellowship for Research in USA** by University Grants Commission (UGC), Govt. of India, New Delhi (2016)
10. 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.
11. Awarded **International Travel Grant** from **DBT** for attending 13th International Congress of the Society for Ethnopharmacology, September 6-9, 2012 held at University of Graz, Austria.
12. Received **Best Poster Award** at International Conference on Drug Discovery and Nanotechnology held at Nanded.
13. Awarded **Junior Research Fellowship** for Post-Graduation by University Grants Commission, Govt. of India, New Delhi (2000-2002).
14. Qualified GATE-Pharmacy-2000 (Nationwide Graduate Aptitude Test) with **90.21** percentile.

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

- 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)

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-in-charge 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)

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. Hon'ble Vice Chancellor of RTMNU has appointed me as Nodal Officer of COVID-19 Diagnosis Centre, RTM Nagpur University. The laboratory received approval from ICMR and tested more than 35000 samples till date to support District Administration and Government to control COVID-19 Pandemic.
2. **During my post-doctoral research,** I have 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,** I have 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, we have designed and developed experimental protocols for the biological activities. Specifically, I have optimized biophysical parameters for spinal cord injury.
5. **For SERB sponsored research project** on solubility and bioavailability enhancement, we have 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.

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/-)

In Progress

1. Principal Investigator in RTM Nagpur University sponsored project entitled, “Development of polyherbal remedy for the treatment of irritable bowel disease” (2019-2021) (total cost of project is Rs. 3,00,000/-) (Awarded under University Research Promotion Scheme by RTMNU).

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, (Under evaluation).
- Bhanwase B, Raut NA, Kokare DM, Dhoble SJ. *A drone based disinfection device*. Applied to Indian Patent Office, April 2020 (**Published & Submitted First Evaluation Queries**)
- Raut NA, Bhanwase B, Kokare DM, Dhoble SJ. *Multifocal disinfection device*. Applied to Indian Patent Office, April 2020 (**Published**)

Publications

1. **Raut NA**, Ren Z, 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*, (Accepted Manuscript).
2. 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>
3. Mahady GB, **Raut N**, Ren Z, Lawal TO, Lee SM, Salamon I (2020) Elderberry Extracts increase Rat L6 Myocyte proliferation, reduce Apoptosis and act as HDAC1/SIRT1 Agonists in vitro. *The FASEB J* 34 (S1), 1-1. <https://doi.org/10.1096/fasebj.2020.34.s1.08928>
4. 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>
5. 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.
6. 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.
7. 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.
8. **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.
9. 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.
10. 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 J. Pharm. Clin. Res.*, 11(3), 269-271.
11. **Raut NA** (2018) Enhancement of the Aqueous Solubility and Permeability of Poorly Water-Soluble Drugs. *Pharma Focus Asia*, Issue 29, Feb. 2018.
12. 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.
13. 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.

14. Soni KK, Mahady GB, Lawal TO, **Raut NA**, Patel U. (2017) Purified Fraction of *Ocimum tenuiflorum* (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.
15. 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.
16. 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.
17. 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.
18. 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.
19. 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.
20. **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.
21. **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.
22. **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.
23. **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

Book Chapters

1. Awathale S.N., Dhoble L.R., Itankar P.R., Raut N.A., Kokare D.M. (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.
2. 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).

3. 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.
4. 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.
5. 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. "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.
2. "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.
3. Photophysics and Nanophysics in Therapeutics, Eds. Mahajan NM, Saini A, **Raut NA**, Dhoble SJ. Elsevier Inc. Hampshire St., 5th Floor, Cambridge, MA 02139, USA.

Invited presentations:

1. "Drug Discovery and Development: Pre-clinical case study of Osteoporosis" at Hislop College, Nagpur (October 4, 2019).
2. "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).
3. "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.
4. "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.
5. "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.
6. "Novel approaches for solubility enhancement of poorly aqueous soluble drugs" at St. Fisher College, Wegmans School of Pharmacy, Rochester, NY, USA (May 12, 2017).
7. "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)
8. "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).
9. "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 "Targeted Drug Delivery: Stability Aspects" (16th October 2013)

10. "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.
11. "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.
12. "Stability: A change perspective", at AICTE sponsored Staff Development Programme (June 29, 2009 to July 11, 2009).

Abstracts/Posters

1. **Raut NA**, Patel S, TO Lawal, GB Mahady (2019) 'Nymphaea odorata Extracts and Methyl-gallate Inhibit the Growth of Colon Cancer Cell Lines HCT-116 by Acting as HDAC Inhibitors', AAPS Annual Meeting and Exposition, San Antonio, TX, November 3-6, 2019.
2. S. V. Khamale, R. A. Mahajan, P. W. Dhore, N. A. Raut, V. S. Dave, 'Captisol® improves the aqueous solubility of a poorly water soluble drug elvitegravir', AAPS Annual Meeting and Exposition, San Antonio, TX, November 3-6, 2019.
3. Ghode RG, Patil JA, **Raut NA (2019)** "Development of nutritional animal food products with lathodil (*Lathyrus sativus*)" during 6th International Congress of Society for Ethnopharmacology (SFEC 2019) at Manipal, India. February 8-10, 2019.
4. **Raut NA**, Ganjare A. (2019) "Effect of ethanol extract of *Cinnamomum cassia* bark in acetic acid-induced ulcerative colitis in mice" during 6th International Congress of Society for Ethnopharmacology (SFEC 2019) at Manipal, India. February 8-10, 2019.
5. **Raut NA**, Ren A, Lee, S, Winkler, C., Mahady GB. (2018) "Osteogenic and anti-osteoporotic effect of resveratrol and dietary anthocyanins in human osteoblasts and transgenic medaka". December 8, 2018 Zonal Scientific Conclave 'Nutricon 2018' Nutrition Society of India, Nagpur Chapter.
6. **Raut NA**, Tingsheng, Y, Winkler C, Ren Z, Lee SM, Mahady GB (2018) "Resveratrol and dietary anthocyanins reduce osteoblast apoptosis, increase osteoblast proliferation, and reduce osteoclastogenesis in human osteoblasts and transgenic medaka". AAPS PharmSci 360 (International Conference of American Association of Pharmaceutical Scientists) Washington Convention Center, Washington, DC, USA. November 4 – 7, 2018.
7. **Raut NA**, Patil SS, Mahajan RA, Ahmad AI, Dave VS (2018) "Enhancement of aqueous solubility, dissolution and permeability of Lurasidone hydrochloride via phospholipid complexation". AAPS PharmSci 360 (International Conference of American Association of Pharmaceutical Scientists) Washington Convention Center, Washington, DC, USA. November 4 – 7, 2018.
8. **Raut NA**, Ren A, Lee, S, Winkler, C., Mahady GB. (2018) "Osteogenic effects of *Ribes nigrum* extracts and anthocyanins in transgenic medaka" at 18th ISE-5th SFEC joint meeting held at Dhaka, Bangladesh during January 13 to 15, 2018.
9. **Raut NA**, Patel S, TO Lawal, GB Mahady (2017) *Nymphaea odorata* suppresses growth of *Helicobacter pylori* and Gastric Cancer Cell Lines AGS and NCI-N87. 4th National Convention of Society for Ethnopharmacology, Kolkata, India (September 9-10, 2017)
10. Kokare DM, **Raut NA**, Patel S, TO Lawal, GB Mahady (2017) *Nymphaea odorata* Aiton (Nymphaeaceae) root extracts inhibit the growth of the Breast Cancer Cell Line MCF-7 cell by inducing apoptosis. 4th National Convention of Society for Ethnopharmacology, Kolkata, India (September 9-10, 2017)

11. **Raut NA**, Patel S, TO Lawal, GB Mahady (2017) *Nymphaeaodorata* extracts are cytotoxic to the Gastric Cancer Cell Lines AGS and NCI-N87: Correlation to *Helicobacter pylori* Infection. American Society of Pharmacognosy Annual Meeting 2017, Portland, OR, USA (July 29-August 2, 2017).
12. **Raut NA**, Patel S, TO Lawal, GB Mahady. Black cohosh and 23-epi-26-deoxyactein modulate histone deacetylase (hdac1) and have biphasic effects on granulosa cells. American Society of Pharmacognosy Annual Meeting 2017, Portland, OR, USA (July 29-August 2, 2017).
13. **Raut NA**, Ren A, Lawal T, Mahady GB. (2017) Osteogenic effects of natural products in transgenic medaka. American Society of Pharmacognosy Annual Meeting 2017, Portland, OR, USA (July 29-August 2, 2017).
14. Lawal TO, S Patel, **NA Raut**, GB Mahady. (2017) Ergocalciferol induces apoptosis in breast and colon cancer cell lines via caspase 3/7 and 8 and has synergistic effects with cholecalciferol and all-trans-retinoic acid (2017), ICSB Annual Meeting, Oxford, MS (April 3-6, 2017).
15. Patel S, TO Lawal, **NA Raut**, GB Mahady. (2017) Novel mechanisms of action for black cohosh (*Actaearacemosa* L.) extracts. (2017), ICSB Annual Meeting, Oxford, MI (April 3-6, 2017).
16. Patel S, TO Lawal, **NA Raut**, GB Mahady. (2017) *Ribesnigrum* L. (Grossulariaceae) and *Sambusnigra* L. (Adoxaceae) extracts enhance growth and inhibit apoptosis in rat L6 muscle cells. ICSB Annual Meeting, Oxford, MI (April 3-6, 2017).
17. **Raut NA**, Lawal TO, Patel S, Mahady GB. (2017) Methanol extracts of *Nymphaeaodorata* Aiton (Nymphaeaceae) roots are cytotoxic in MCF-7 cell lines and induce apoptosis. ICSB Annual Meeting, Oxford, MS (April 3-6, 2017).
18. **Raut NA**, Patel S, TO Lawal, GB Mahady (2017) *Nymphaeaodorata* extracts are cytotoxic to the Gastric Cancer Cell Lines AGS and NCI-N87: Correlation to *Helicobacter pylori* Infection. April 3-6, 2017, ICSB Annual Meeting, Oxford, MS (April 3-6, 2017).
19. **Raut N. A.**, Dhore P. W., Saoji S. D., Dave V.S. (2016) "Assessing the enhancement of aqueous solubility of efavirenz via lyophilized milk based solid dispersion formulations" at *AAPS Annual Meeting and Exposition* held on November 13-17, 2016 at Colorado Convention Center, Denver, USA.
20. **Raut N. A.** and Ganjare A. (2016) "Effects of *Berberisaristata* extract on inflammatory mediators in acetic acid induced colitis in mice" *3rd International Congress of Society for Ethnopharmacology, India* held on February 19-21, 2016 at National Center for Natural Resources, Pt. Ravishankar Shukla University, Raipur, India.
21. **Raut N. A.**, Dhore P. W., Saoji S. D., Bobde Y. S. (2015) Enhancement of the aqueous solubility of a poorly water soluble drug ritonavir in lyophilized milk-based solid dispersions" at "*National Conference on Nanotechnology in Drug Delivery Research: Innovations, Challenges & opportunities (NCNDDR) -2015*" held on October 16-17, 2015 at SVKM's NMIMS, Mumbai.
22. **Raut N.A.**, Itankar P. R., Tauqeer M. Shanware A.S., Thakre N.A. (2015) Cytotoxicity Study of Organic and Non-Organic Medicinal Plants Using Bioluminescent Bacteria" at "*The 15th International Congress of the International Society for Ethnopharmacology (ISE-2015)*" May 5-8, 2015 held at Petra, Jordan.
23. **Raut N.A.**, Ganjare A. (2014). Standardization and phytochemical investigations of *Crataevanurvala* Buch. Ham. at 1st International Congress of the Society for Ethnopharmacology (ICSE 2014), jointly organized by Sri Ramachandra University, Chennai and School of Natural Product Studies, Jadavpur University, Kolkata at Sri Ramachandra University, Chennai (March 7-9, 2014).
24. **Raut N.A.**, Gaikwad N.J. (2013) *Evaluation of Antidiabetic Potential of Ipomoea turpethum R.Br. and Ipomoea batata* L. (Convolvulaceae) in Alloxan Induced Diabetes in Rats: A Comparative Study at 1st International Conference on Pharmaceutical Sciences and Pharmacology, November 18-19, 2013 held at Singapore.
25. **Gedam V. K., Shrivastav S. R., Raut N.A.** (2012) Development of UV-Spectrophotometric Method of Dronedarone Hydrochloride in Bulk and Pharmaceutical Formulation at One Day National Conference

on Pharmaceutical Sciences for shaping the future of India, October 20, 2012 held at Dept. of Pharm. Sci. RTM Nagpur University, Nagpur.

26. **Raut N.A.**, Gaikwad N.J. (2012). Antidiabetic potential of fractions of hydro-ethanol extract of *Crataevanurvalaat* 13th International Congress of the Society for Ethnopharmacology, September 6-9, 2012 held at University of Graz, Austria.
27. **Raut N.A.** and Khokale A. P. (2011). Effect of atazanavir and tablet excipients on transport of darunavir across everted rat intestine. APTI-16th Annual National Convention 2011, October 7th-9th, 2011, ISF College of Pharmacy, Moga, Punjab.
28. Shrivastava S. and **Raut N.A.** (2011). A validated stability indicating hptlc method for determination of Ranolazine in bulk and tablet dosage forms. 63rd Indian Pharmaceutical Congress (IPC) 2011, THEME – Pharma Vision 2020: India-The Pharma Powerhouse, Bengaluru.
29. **Raut N.A.**, Gaikwad N.J. (2012). Antidiabetic potential of fractions of hydro-ethanol extract of *Cyperusrotundus*. "Traditional medicines and globalization- the future of ancient systems of medicine", 12th International Congress of Ethnopharmacology, School of Natural Product Studies, Jadavpur University, Kolkata
30. Bhagwate S.Y., **Raut N.A.**, Gaikwad N.J. (2009). Stability-Indicating HPTLC Determination of Alfuzocin Hydrochloride, 1st National Convention on *Recent Advances in Pharmaceutical Sciences & Drug Discovery*, Butibori, Nagpur, PHB-19.
31. Bidawai R.G., A. R. Pawar, **Raut N.A.**, Gaikwad N.J. (2009) Place of Advanced Chromatographic Techniques in Herbal Drug Research, *National Symposium on Chromatography- An Important Tool for Herbal Pharmaceutical Industry*, Wardha.
32. Bidawai R.G., **Raut N.A.**, Wankhede D.K., Gaikwad N.J. (2008). Validated Stability Indicating HPTLC Method for the Estimation of Olmesartan Medoximil in Bulk and Pharmaceutical Dosage Form, 60th IPC, New Delhi, Pp PA226.
33. Wankhede D.K., Bawane N.N., Wattamwar A.B., **Raut N.A.**, Gaikwad N.J. (2008). Various Analytical Methods for Determination of Peptides, *International Structural Neuroscience Conference on Peptides*, Nagpur, Pp60.
34. Wankhede D.K., Bhagwate S.Y., **Raut N.A.**, Gaikwad N.J. (2008). Compatibility Studies Between Alfuzocin Hydrochloride and Tablet Excipients by Differential Scanning Calorimetry (DSC), *International Conference on Drug Discovery and Nanotechnology*, Nanded, DDPP164.
35. Wankhede D.K., **Raut N.A.**, Gaikwad N.J. (2007). UV-spectrophotometric Determination of Olmesartan Medoximil in Bulk and its Formulation with Stability Profile, 59th IPC, Varanasi, Pp F68.
36. Bagade S.B., Wankhede D.K., Meshram D.B., **Raut N.A.**, Tajne M.R., Gaikwad N.J. (2007). Estimation of Rofecoxib from Single Dose Tablets by HPTLC, *National Seminar on Academia-Industry Collaboration: Hitherto & Challenges*, Kamptee, Nagpur, Pp PH-S-214.
37. Shewale B.D., Sapkal N.P., **Raut N.A.**, Gaikwad N.J., Fursule R.A. (2007). Drug Excipient Compatibility of Gliclazide using Thermal and Non-thermal Methods, 2nd International Conference and Indo-Canadian Satellite Symposium on Pharmaceutical Science, Technology, Practice and Natural Products, Pp DDS85.
38. Shewale B.D., Sapkal N.P., **Raut N.A.**, Gaikwad N.J. (2005). Effect of Hydroxypropyl- β -cyclodextrin and pH on the Solubility of Carvedilol". 10th APTI National Convention 2005, Nagpur. Pp PC-74, 83.
39. Kasliwal A., **Raut N.**, Gaikwad N. (2005). Antidiabetic Activity of Hydro-alcoholic Extract of *Crataevanurvala* Buch. In Alloxan Induced Diabetes in Rats. *International Conference on "Antioxidants & Free Radicals in Health-Nutrition & Radio-protectors" and IV Annual Conference of Society for Free radical Research in India (SFRR)*, Bangalore Pp: 112
40. **Raut N.A.***, Mallurwar V.R., Kotagale N.R., Duragkar N.J., Waikar S.B. (2001). Preliminary Phytochemical Screening and Pharmacological Investigation of Immunomodulatory Activity of *Mucunapruriens* (Fabaceae). 53rd IPC, New Delhi. Pp: 209.

41. Pethe A.M., Shende M.V., Tighare M., Girhepunje R., **Raut N.** (1999). Deleterious Effects due to Self-Medication of OTC Products, *49th IPC, Indore*, Pp IP23, 125.

Other contribution as a researcher (Development of need based Product)

During the COVID-19 Pandemic, my Research Group has developed two disinfection devices and filed the patents for the same.

1. **Multifocal Disinfection Device:** There are several methods to disinfect the surfaces but none of the methods is 100% efficient, however, combination of two or more methods of disinfection using individual methods has already been proven. Although, combining two or more disinfection techniques in a single device to achieve 100% efficiency in the shadow of COVID-19 pandemic is need of the hour. Considering this, my research group aimed the designing and fabrication of multifocal disinfection device including UV, chemical and heat disinfection methods.
2. **Drone based Disinfection Device:** With Drone based UV disinfection device, selected area or broader area can be disinfected. The chemical disinfectants can harm to the personnel disinfecting the hospital or required area by manual disinfection methods using chemical disinfectants. With Drone based chemical disinfection device, selected area or broader area can be disinfected. The drone-based disinfection device will be un-touch and un-manned being controlled from considerably long-distance using control system. It reduces the risk of exposure of the personnel disinfecting the infected area as it can be controlled from far distance.