

# Uma RanjanLal

*M. Pharm. PhD.*

## Permanent Address

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**Date of Joining NIPER, S.A.S. NAGAR, Mohali, PUNJAB- 18<sup>th</sup> January, 2023**

Assistant Professor,  
Department of Natural Products,  
National Institute of Pharmaceutical Education and Research, S.A.S. Nagar, Mohali, Punjab-160067, India.

## Previous Experience

<b>Duration</b>	<b>Position/Affiliation</b>
May 2002 . July 2003	<b>Senior Research Fellow</b> , Indian Council of Medical Research, New Delhi, INDIA (At Dept. of Natural Products, NIPER, S.A.S. NAGAR, Mohali)
Aug 2003 . Mar 2007	<b>Senior Research Fellow</b> , Center Council for Research in Ayurveda and Siddha, New Delhi, INDIA ((At Dept. of Natural Products, NIPER, S.A.S. NAGAR, Mohali)
Dec 2007 . Mar 2009	<b>Lecturer</b> , Lovely Professional University, Phagwara, Punjab, INDIA
July 2010 . Jan 2012	<b>Assistant Professor</b> , Lovely Professional University, Phagwara, Punjab, INDIA
Feb 2012 . July 2017	<b>Assistant Professor</b> , Birla Institute of Technology, Mesra, Ranchi, INDIA
Aug 2017- Jan 2019	<b>Associate Professor</b> , School of Pharmaceutical Sciences, Shoolini University, Solan, INDIA
Feb 2019 . Jan 2020	<b>Assistant Professor</b> , National Institute of Pharmaceutical Education and Research, Ahmedabad, Gujarat, INDIA
Aug 2020 . Jan 2023	<b>Deputy Manager</b> , R & D; Head of Department, Phytochemistry Division, Ayurvet Ltd, Baddi.
18 <sup>th</sup> Januar 2023 - <b>Present</b>	<b>Assistant Professor</b> , Department of Natural Products, National Institute of Pharmaceutical Education and Research, S.A.S. Nagar, Mohali, Punjab-160067

## Education

<b>Course/ Examinaton</b>	<b>Duration</b>	<b>University/Board</b>	<b>Percentage/ CGPA</b>
Ph.D. (Natural Products)	2003-2010	National Institute of Pharmaceutical Education and Research (NIPER), S.A.S. Nagar, Mohali, Punjab	7.07(CG PA)
M. Pharm. (Pharmacognosy)	2000-2002	Birla Institute of Technology, Mesra, Ranchi	77.7
B. Pharm.	1996-2000	Birla Institute of Technology, Mesra, Ranchi	71.4
AISSCE	1993-1995	CBSE, New Delhi	69.4
AISSE	1992-1993	CBSE, New Delhi	71.4

## **Publications and other details**

### **Research papers**

- [1]. **Uma R. Lal**, Shailendra M. Tripathi, Sanjay M. Jachak, Kamlesh K. Bhutani, Inder P. Singh. HPLC analysis and Standardization of *Arjunarishta*. An Ayurvedic Cardioprotective Formulation, *Sci Pharm.* **2009**, 77, 605-616.
- [2]. **Uma R. Lal**, Shailendra M. Tripathi, Sanjay M. Jachak, Kamlesh K. Bhutani, Inder P. Singh. Chemical changes during fermentation in *Abhayarista* and its standardization by HPLC-DAD, *Natural Product Communications*, **2010**, 5(4), 575-579.
- [3]. **Uma R. Lal**, Shailendra M. Tripathi, Sanjay M. Jachak, Kamlesh K. Bhutani, Inder P. Singh. RP-HPLC-DAD analysis of *Jirakadyarishta* and chemical changes during fermentation. *Natural Product Communications*, **2010**, 5(11), 1767-1770.
- [4]. Rajesh Sachdeva, Sanjeev Duggal, **Uma R. Lal**, Pushpa Khanna, Monica Gulati, M. S. Umashankar. Preparation and characterization of aquasomes loaded with antidiabetic polypeptide from *Momordica charantia* seeds. In Polypeptide K and Biterin oil Eds. Khanna P. **2011**; Melrose Press Ltd, Cambridgeshire UK. p. 70-100. (EAN-9781907732218; ISBN- 1907732217).
- [5]. Atiya Akhtar Khan, Satyendra Prasad Bhatnagar, Barij Nayan Sinha and **Uma R. Lal**. Pharmacognostic specifications of eight cultivars of *Piper betle* from eastern region of India. *Pharmacognosy Journal*, **2013**, 5, 176-183.
- [6]. S Singh, NG Kotla, **Uma R. Lal**, Omnipresence of Probiotics in Diversified Clinical Practices. *J Prob Health* **2014**, 3:125. doi:10.4172/2329-8901.1000125.
- [7]. A Singh, **Uma R. Lal**, HM Mukhtar, PS Singh, G Shah, RK Dhawan, Phytochemical profile of sugarcane and its potential health aspects; *Pharmacognosy Reviews*, **2015**, 9 (17), 45-54.
- [8]. S Singh, **Uma R. Lal**, Curcumin loaded polysaccharide based micro particles for ulcerative colitis: Preparation, characterization, *in vitro/in vivo* evaluation, *Journal of Chemical and Pharmaceutical Research*, **2015**, 7(9), 275-283.
- [9]. S Singh, **Uma R. Lal**, *In vivo* evaluation of curcumin loaded granules using Eudragit FS30D and Guar-gum coating in the treatment of ulcerative colitis in albino rats, *Indian Journal of Traditional Knowledge*, **2016**, 15(3), 440-446.
- [10]. Akhtar Atiya, Barij Nayan Sinha, **Uma R. Lal**, Bioactive phenylpropanoid analogues from *P. betle* leaves, *Natural Product Research*, **2017**, 31(22), 2604-2611.
- [11]. Kamal Kant, **Uma R. Lal**, Manik Ghosh. Computational breakthrough of natural lead hits from genus *Artisaema* against human respiratory syncytial virus, *Pharmacognosy Magazine*, **2017**, 13 (52), 780-785.
- [12]. Kamal Kant, **Uma R. Lal**, Manik Ghosh. In Silico prediction and wet lab validation of *Artisaema tortuosum* (Wall.) Schott. extract as antioxidant and anti-breast cancer source: a comparative study, *Pharmacognosy Magazine*, **2017**, 13 (52), 786-790.
- [13]. Akhtar Atiya, Barij Nayan Sinha, **Uma R. Lal**. New Chemical constituents from the *Piper betle* Linn. (Piperaceae), *Natural Product Research*, **2018**, 32(9), 1080-1087.
- [14]. Rohit Goyal, Shashi Chauhan, Aditi Sharma, **Uma R. Lal**, Navneet Kumar Upadhyay, Gajender Singh, *In-vitro* osteoblast proliferation and *in-vivo* anti-osteoporotic activity of *Bombax ceiba* with quantification of lupeol, gallic acid and  $\beta$ -sitosterol by HPTLC and HPLC, *BMC Complementary and Alternative Medicine*, **2018**, 18 (233), 1-12.
- [15]. Gurpreet Kaur Gill, Amandeep Singh, **Uma R. Lal**, Hardeep Kaur, Meenu Mehta, Saurabh Satija, Sanchit Mahajan, Effect of fermentation on chemical changes in *Vitis vinifera* fruits used in alcoholic ayurvedic formulations, *International Journal of Green Pharmacy*, **2018**, Special Issue, 29-34.
- [16]. Akhtar Atiya, Barij Nayan Sinha, **Uma R. Lal**, (2018). The new ether derivative of phenyl propanoid and bioactivity was investigated from the leaves of *Piper betle* L. *Natural Product Research*, **2018**, 34 (5), 638 - 645.
- [17]. Singh S, Hussain A, **Lal UR**, Sayyad N, Karpoornath R, Nlooto M. (2018) *In vitro -In vivo - In silico* Simulation of Experimental Design Based Optimized Curcumin Loaded Multiparticulates System. *Current Pharmaceutical Design*, **2018**, 24, 1-11.
- [18]. Kant K, **Lal UR**, Kumar A, Ghosh M. A merged molecular docking, ADME-T and dynamics approaches towards the genus of *Arisaema* as herpes simplex virus type 1 and type 2 inhibitors. *Comput Biol Chem.* **2018**, 78: 217-226.
- [19]. Sima Singh, Afzal Hussain, Faiyaz Shakeel, Mohamed Jawed Ahsan, Sultan Alshehri, Thomas J Webster, **Uma Ranjan Lal**. Recent insights on nanomedicine for augmented infection control, *International Journal of Nanomedicine*, **2019**, 14: 2301-2325.

- [20]. C. Rathore, N.K. Upadhyay, A. Sharma, **Uma Ranjan Lal**, K. Raza, P. Negi. Phospholipid nanoformulation of thymoquinone with enhanced bioavailability: Development, characterization and anti-inflammatory activity, *Journal of Drug Delivery Science and Technology*, **2019**, 52, 316-324.
- [21]. Kamal Kant, Uma Ranjan Lal, Manik Ghosh (2019), Antibacterial Activity with Bacterial Growth Kinetics and GC-MS Studies on Leaf and Tuber Extracts of *Arisaema tortuosum* (Wall.) Schott, *Indian J of Pharmaceutical Education and Research*, **2019**, 53(3<sup>rd</sup> supplement):s280-287.
- [22]. Shagun Sheoran, Prakriti Nidhi, Vikas Kumar Gajender Singh **Uma Ranjan Lal**, Anuradha Sourirajan, Kamal Dev. Altitudinal variation in gallic acid content in fruits of *Phyllanthus emblica* L. and its correlation with antioxidant and antimicrobial activity, *Vegetos*, **2019**, 1-10.
- [23]. Poonam Negi, Gulshan Sharma, Chetna Verma, Prakrati Garg, Charul Rathore, Saurabh Kulshrestha, **Uma Ranjan Lal**, Bhuvanesh Gupta, Deepak Pathaniae. Novel thymoquinone loaded chitosan-lecithin micelles for effective wound healing: Development, characterization, and preclinical evaluation. *Carbohydrate Polymers*, **2020**, 230, 115659.
- [24]. Rittà M, Marengo A, Civra A, Lembo D, Cagliero C, Kant K, **Lal UR**, Rubiolo P, Ghosh M, Donalio M. Antiviral activity of *Artesaema tortuosum* leaf extract and some of its constituents against Herpes Simplex Virus Type 2. *Planta Medica*, **2020**, 86(04), 267-275.
- [25]. Kamal Kant, **Uma Ranjan Lal**, Ravi Rawat, Anoop Kumar, Manik Ghosh. Genus *Arisaema*: A review of traditional importance, chemistry and biological activities. *Comb Chem High Throughput Screen*, **2020**;
- [26]. Rajeev Kumar, Nitin Sharma, Rajan Rolta, **Uma Ranjan Lal**, Anuradha Sourirajan, Kamal Dev, Vikas Kumar. *Thalictrum foliolosum* DC. An unexplored medicinal herb from North-Western Himalayas with potential against fungal pathogens and scavenger of reactive oxygen species. *Biocatalysis and Agriculture Biotechnology*. **2020**; 26:101621.
- [27]. Atiya Akhtar Khan, **Uma Ranjan Lal**, B.N. Sinha. Two new anticancer phenolic derivatives from leaves of *Piper betle* Linn. *Natural Product Research*, **2020**, 35(1), 1-7
- [28]. Swati Pundir, Prakrati Garg, Ananya Dwiwedi, Aaliya Ali, V.K. Kapoor, Deepak Kapoor, Saurabh Kulshrestha, **Uma Ranjan Lal**, Poonam Negi Ethnomedicinal uses, phytochemistry and dermatological effects of *Hippophae rhamnoides* L.: A review, *Journal of Ethnopharmacology*, in press, 2020.
- [29]. Ravikanth Kotagiri, Anirudh Sharma, **Uma Ranjan Lal**, Pushap Lata. 6-Gingerol and physicochemical properties as monitoring parameter for a natural growth promoter NBIOTIC<sup>i</sup> PREMIX during feed pelletization stress. *International Journal of Advanced Research* **2021**, 9(02): 206-214.
- [30]. Anirudh Sharma, **Uma Ranjan Lal**, Pushap Lata and Deepak Thakur. RP-HPLC & HPTLC analyses and standardization of PAYAPRO<sup>i</sup> PREMIX- A polyherbal veterinary galactagogue. *International Journal of Current Research*, **2022**, 14(01), 20267-20270.
- [31]. Atiya Akhtar Khan, Taghreed A, Majrashi M, Yasmin Begum, **Uma Ranjan Lal**, B.N. Sinha, Shaik Fayazuddin Abdul Qadira. A Phenyl propanoid Dimer from the leaves of *Piper betle*. *Natural Product Research*, **2022**,
- [32]. Negi P, Gautam S, Sharma A, Rathore C, Sharma L, Upadhyay N, Tambuwala MM, Chellappan DK, Gupta G, Prasher P, Dua K, Agarwal S, **Lal UR**. Gastric ulcer healing by chebulinic acid solid dispersion-loaded gastroretentive raft systems: preclinical evidence. *Ther Deliv*. **2022**, 13(2), 81-93.
- [33]. Swati Pundir, Monu Kumar Shukla, Amardeep Singh, Raveen Chauhan, **Uma Ranjan Lal**, Aalia Ali, Deepak Kumar. A comprehensive review on angel's trumpet (*Brugmansia suaveolens*), *South African Journal of Botany*, **2022**, 151, Part B, 266-274.
- [34]. Rajan Rolta, Meghna Goyal, Saweta Sharma, Divya Bharaj, Deeksha Salaria, Navneet Kumar Upadhyay, **Uma Ranjan Lal**, Kamal Dev, Anuradha Sourirajan, Bioassay Guided Fractionation of Phytocompounds from *Bergenia ligulata*: A synergistic approach to treat drug resistant bacterial and fungal pathogens, *Pharmacological Research - Modern Chinese Medicine*, **2022**, 3, 100076.
- [35]. **Uma Ranjan Lal**, Monika, Ravikanth Kotagiri. Pharmacognostic Specifications of *Abroma augusta* stems and *Cissus quadrangularis* aerial part. *The Journal of Phytopharmacology*, **2022**, 11(2), 133-136.
- [36]. Ishita Guleria, Amita Kumari, Marie-Aleth Lacaille-Dubois, Adesh K.Saini, Vikas Kumar, **Uma Ranjan Lal**, Sonam Kumari, Amit Seth, Sohan Lal, *In-vitro* antimicrobial, antioxidant, anti-inflammatory, and cytotoxic activities of *Populus ciliata* bark and leaves: A comparative study. *South African Journal of Botany*, **2022**, 148, 238-250.
- [37]. Rana, R., Pundir, S., Lal, U.R. et al. Phytochemistry and biological activity of *Erigeron annuus* (L.) Pers. *Naunyn-Schmiedeberg's Arch Pharmacol* (**2023**). <https://doi.org/10.1007/s00210-023-02518-1>
- [38]. Thakur, D. **Lal U.R.**, Kapoor, D.N., Kumar, D. Identification and Quantification of Polyphenolic Secondary Metabolites in Stem Bark of *Ficus religiosa* (Moraceae) Using UPLC-HRMS and RP-HPLC-PDA *Separations*, **2023**, 10(6), 338; <https://doi.org/10.3390/separations10060338>

## Book Chapters

### Monographs (21 single plant + 11 compound formulations)

- [1]. *Caesalpinia bonducella* Linn., *Catharanthus roseus* Linn., *Cissus quadrangularis* Linn., *Convolvulus microphyllus* chois., *Hibiscus rosasinensis* Linn., *Hypericum perforatum* Linn., *Ocimum basilicum* Linn., *Ocimum gratissimum* Linn., *Sida rhombifolia* Linn. Quality Standards of Indian Medicinal Plants, Vol- II, ICMR, New Delhi, India, 2005. (ISSN-0972-7213)
- [2]. *Momordica charantia* Linn., *Berberis aristata* Linn. In Quality standards of Indian Medicinal Plants, Vol- III, ICMR, India, New Delhi, India, 2005. (ISSN-0972-7213) *Asparagus adscendens* Linn., *Chlorophytum arundinaceum* Baker, *Citrullus colocynthis* Schard., *Embelia ribes* Burm. F., *Evolvulus alsenoides* Linn., *Inula racemosa* Hook f., *Pluchea lanceolata* (D.C.) Clarke, *Trigonella foenum-graceum* Linn., *Symplocos racemosa* Linn. In Quality standars of Indian Medicinal Plants, Vol-IV, ICMR, New Delhi, India, 2006. (ISSN- 0972-7213)
- [3]. *Monographs on compound formulations: Abhayarishta, Parthadyarishta, Jirakadyarishta, Babbularishta, Rohitakarishtha, Amritarishta, Lohashava, Asokarishta, Dasmularishta* (In Ayurvedic Pharmacopoeia of India, Part - II, Volume II (Formulations, 2008; p. 1- 63). (ISBN-0-8190595209)

### Invited Book Chapters

- [1]. Inder Pal Singh, **U. R. Lal**, H. S. Bodiwala, R. C. Mahajan and K. K. Bhutani, Anti-leishmanial Natural Products, *In Recent Progress in Medicinal Plants*, Studium press, Houston, Texas, U.S.A. **2006**, 13: 115-149. ((ISBN-0-9761849-5-8)
- [2]. **Uma R. Lal**, Amrit Singh. Recent Developments in Natural Product Based Drug Discovery in Tropical Diseases. *In Studies in Natural Products Chemistry Volume 48, Eds Att-ur-Rahman*, Elsevier Amstredam. **2015**, (Print ISBN 978-0-444-63602-7; (Electronic ISBN 978-0-444-63610-2).
- [3]. **Uma R. Lal**, S. Singh, S. Banerjee, I. P. Singh. Nutraceuticals and Functional Foods- An Indian Prespective. *In Recent Progress in Medicinal Plants Vol-42, Nutraceuticals and Functional Foods*, Studium Press, LLC, Houston, Texas, U.S.A. **2016**. (ISBN-1626990794 EAN- 9781626990791).
- [4]. **Uma R. Lal**, Dharmik Joshi, S. Banerjee. Anticancer Agents: Plants used in Ayurveda. *In Herbal Medicine: Back to Future. Eds. F. Murad, Att-ur-Rehman, KaBian. Vol-2, Bentham Science Publishers, 2018*. (EAN- 9789811403743-19-2158).
- [5]. **Uma Ranjan Lal** and Inder Pal Singh. Review and Implications of Traditional Indian Medicine for Inflammatory Bowel Disease. *In Translational Studies on Inflammation* Ed. Ane C F Nunes. **2019**; ISBN 978-1-78984-358-3. doi: <http://dx.doi.org/10.5772/intechopen.89465>
- [6]. **Uma Ranjan Lal** and Snigdha Lal. Bioactive Molecules from Indian Medicinal Plants as Possible Candidates for the Management of Neurodegenerative Disorders. *In Natural Products - From Bioactive Molecules to Human Health*, ISBN 978-1-83962-155-0. **2020**; doi: <http://dx.doi.org/10.5772/intechopen.92043>.
- [7]. **Uma Ranjan Lal** and Snigdha Lal. Natural Products as a Source for Antimalarial Drug Development Process - An Overview. *In Drug Development for Malaria- Drug Development for Malaria - Novel Approaches for Prevention and Treatment. Eds Pravin Kendrekar, 2022*, ISBN 9783527348602.

### Completed Project

- [1]. **Trade chain, trade pattern and value chain of five RET medicinal plant namely *Aconitum hetrophyllum*, *Saussurea lappa*, *Inula racemosa*, *Picrorhiza kurroa*, *Pistacia integerrima*** sanctioned by HP state Biodiversity Board, Shimla (letter no. HPSBB/F(16)-01/14-3528). (PI-Dec, 2019 Onwards, Co-investigator: Before Dec, 2018, DR. Uma Ranjan Lal; Co-PI: Y.S. Negi, **Amount- 2.5 lakhs**)
- [2]. **Development of Analytical Profiles for *Amritarishta* and *Rohitakarishtha***, sanctioned by Birla Institute of Technology, Mesra, Ranchi, (Seed Money Grant). (PI-DR. Uma RanjanLal; **0.80Lakhs**)

### Patents filed

- [1]. **Improved wound healing topical composition of thymoquinone**. Application no. 201811043353. Inventors: Samar Vihal, Charul Rathore, **Uma RanjanLal**, Neeraj Mahindroo and Poonam Negi. Assignee: Shoolini University, Solan
- [2]. **Chebulinic acid formulations for gastric delivery and method thereof**. Application no. 201911051403. Inventors: Vihal Samar, Charul Rathore, **Uma Ranjan Lal**, Neeraj Mahindroo and Poonam Negi. Assignee: Shoolini University, Solan
- [3]. **Antipsoriatic formulations of *Nigella sativa* for topical delivery**. Application no. 202011006705. Inventors: Gulshan Sharma, Chetna Verma, **Uma RanjanLal**, Neeraj Mahindroo and Poonam Negi. Assignee: Shoolini University, Solan.

### Consultancy details

- [1]. [Development of HPLC method for Analysis of saponin rich fraction of *Trigonella foenum-graceum* at Lovely Professional University, Phagwara. **(2011)**
- [2]. HPTLC study and In-vitro anti-diabetic study of Himalayan Plants at Shoolini University, Solan. **(2019)** Amount (0.28 lakhs)
- [3]. *In-vitro* permeation and bio-marker study of *Kanaka-taila* and its face mask, at Shoolini University, Solan **(2019)** Amount. (0.45 lakhs)

### Conferences/Seminar organized

- [1]. [AICTE . Quality Improvement Programme at **BIT, Mesra**, Ranchi **(2012-2016)** - **Total No. 5**; Course coordinator-03, QIP Cell-02
- [2]. NIPER, Ahmedabad **(2019)** - Total no - 02; Facilitator-01, Poster Presentation Team - 01

### Industrial Experience (2.8 years)

- [1]. **Isolation and Characterization of phytochemical Markers**: Method development for more than 34 phytochemical markers for their isolation in small and large scale for in house usage.
- [2]. **Pharmacognostic Parameters**: Development of pharmacognostic parameters for identification of medicinal plants (36 no.) used in the industry.

## Students and their Dissertation work (Thesis)

### PhD

Sl. No.	Name of the Student(s)	Year of completion or in Progress	Name of Institution	Title of Thesis	Guide or Co-guide
1	ATIYA AKHTAR KHAN	2018	Birla Institute of Technology, Mesra, Ranchi	Pharmacognostical, Phytochemical and Pharmacological Studies on Commercial Varieties of <i>Piperbetle</i> Linn (Piperaceae)	Co-Guide
2	SIMA SINGH	2018	Birla Institute of Technology, Mesra, Ranchi	FORMULATION AND EVALUATION OF CURCUMIN LOADED MULTIPARTICULATE SYSTEM FOR ULCERATIVE COLITIS	Guide
3	KAMAL KANT	2019	Birla Institute of Technology, Mesra, Ranchi	PHYTOCHEMICAL AND BIOLOGICAL INVESTIGATIONS ON <i>ARISEMA TORTUOSUM</i> (WALL.) SCHOTT- FOLKLORE OF WESTERN HIMALAYAN REGION	Co-Guide
4.	Gajendra Singh	2021	Shoolini University, Solan	Studies to asses clinical variation in phytochemicalconstituents of <i>Pinusgerardiana</i> , <i>Inularacemose</i> , <i>Aconitumheterophyllum</i> North Western Himalayas	Co-Guide
5	Deepak Thakur	In-progress	Shoolini University, Solan	Formulation development from <i>Ficus religiosa</i> bark for skin related disorders	Co-Guide

### Masters Students

S.No.	Name of the Student(s)	Year of completion or in Progress	Name of Institution	Title of Thesis	Guide or Co-guide
1	Amandeep Singh	2011	Lovely Professional University, Phagwara	Chemical Investigations on <i>Jaggery</i> an Indian Medicinal Plant product	Guide
2	Pradeep Kaur	2011	Lovely Professional University, Phagwara	Development and Comparison of HPLC profile of selected <i>Prakshap Dravyas</i> used in preparation of <i>Asava</i> and <i>arisha</i>	Guide
3	Immy Anwar	2015	Birla Institute of Technology, Mesra	Phytopharmacological Studies on <i>C. bonducella</i> with reference to selective estrogenic receptor modulating activity	Guide
4	Palash Jain	2014	Birla Institute of Technology, Mesra	Studies on standardization of <i>Vitexnegundo</i>	Guide

5	Ankita Anu	2016	Birla Institute of Technology, Mesra	Bio-analytical method development of praziquantel by using LC-MS/MS in human Plasma and to perform a precision and accuracy batch analysis	Co-Guide
6	Anjali Bhargav	2017	Birla Institute of Technology Mesra	Bioequivalence study of Roflumilast in healthy adult human volunteers	Co-Guide
7	Vijay Anand	2018	Shoolini University, Solan	Development of polyherbal formulation for postmenopausal osteoporosis	Co-Guide
8	Amardeep Singh	2019	Shoolini University, Solan	Phytochemical Investigations on <i>Bragmansia suaveolens</i>	Co-Guide
9	Rupali	2019	Shoolini University, Solan	Phytochemical and Pharmacological investigation of the <i>Erigeron annuus</i> Linn.	Guide
10	Mohit Gautam	2018	Shoolini University, Solan	Formulation and evaluation of herbal Gel containing <i>Terminalia chebula</i> Retz xtract for antibacterial Activity	Guide
11	Avinash Thakur	2018	Shoolini University, Solan	Chemical Investigations on <i>Cinnamomum tamala</i>	Guide
12	Ayesha	2018	Shoolini University, Solan	Extraction of carnosol and carnosic acid from <i>Rosmarinus officinalis</i>	Guide
13	Manish	2018	Shoolini University, Solan		Guide
14	Sarika	2018	Shoolini University, Solan	Isolation and Characterization of punicalagin form <i>Punica granatum</i>	Guide
15	Satish	2018	Shoolini University, Solan		Guide
16	Srilekha Puli	2020	NIPER, Ahmedabad	Isolation and Characterization of Neuroprotective Constituents from <i>Aloe vera</i> and <i>Bacopa monnieri</i>	Guide
17	Pramendra	2020	NIPER, Ahmedabad	An Insight into Various Formulation Aspects of <i>Semecarpus anacardium</i> Linn. (Bhallataka) as per Ayurveda	Guide
18	Rohit Sejuel	2020	NIPER, Ahmedabad	Phytochemical Investigations on <i>Calotropis procera</i> Aiton.	Guide
19	Ankita Chopade	2020	NIPER, Ahmedabad	Chemical Investigations on Ayurvedic Formulations used for Type 2 Diabetes containing <i>Commiphora weightii</i>	Guide