ROSHAN RAJAN KULKARNI

Reviewer for Archives of Pharmacal Research, Natural Product Research

Skills:

1. Extraction and analysis of essential oil using GC-MS and GC-FID.
2. Extraction and isolation of secondary metabolites from plants, insects and microbes using normal column chromatography, MPLC, preparative TLC, semiprep-HPLC, etc.
3. Structure elucidation of isolated compounds using 1D and 2D NMR techniques as well as other spectral methods such as UV, IR and X-ray crystallography.
4. Skilled in operation of Bruker AV200, 400, 500, 600 and Jeol ECX 400 NMR instrument.
5. Operation of and method development using LC-MS, HPLC instruments.
6. Computer aided drug design using AutoDock.

Work experience:

1. Worked as a Postdoctoral fellow in the lab of Professor MinKyu Na, college of pharmacy, Chungnam National Laboratory, Daejeon, South Korea from November 2013 till June 2015.

-Brief description of work:
Isolation and characterization of secondary metabolites from marine sponges, insects and plants. The work involved extensive use of MPLC and semiprep-HPLC as well as advanced spectroscopic characterization.

2. Past Experiences:

-Research Associate on project titled “Natural Products as Affordable Healthcare Agents” in Division of Organic Chemistry, National Chemical Laboratory, Pune, India from 1-03-2013 to 31-10-2013.

-Brief description of work:

Isolation and characterization of secondary metabolites with anti-diabetic potential from plants..

-Project Associate in Central NMR Facility, National Chemical Laboratory, Pune, India from 15-03-2012 to 28-02-2013.

Brief description of work:

During my stay as PA in NMR facility, I gained very good hand in carrying out various NMR experiments. As PA, I independently set up experiments which were not available previously. I am very well trained on Bruker AV 200/400/500 as well as on JEOL ECX 400 spectrometer.

Phd work:

During my PhD, I worked on **five plant** species from family Lamiaceae. This work has resulted in total of **six publications**, and **one** is **under revision**. This has also resulted in filing of **four US patents.**

Research work:

[1] PhD thesis:
Title: "Phytochemical investigation of family Lamiaceae genera such as *Leucas*, *Lavandula*, *Plectranthus* from Western Ghats.

[2] M. Pharm. Thesis:
Title: "Evaluation of anti-oxidant activity of the leaves of *Vitex negundo* L."

[3] Other research works:

A. phytochemical analysis of anti-inflammatory extracts of bark of *Cinnamomum zeylanicum*:

B. Isolation of Isobutrin: For testing its potential in dye sensitized solar cells.

C. Phytochemical investigations on *Ailanthus excelsa*:
Quassinoids have been isolated from stems of *Ailanthus excelsa* (unpublished).

D. Phytochemical investigations on *Piper betle*:
A new pregnane type of steroid was been isolated from ethanolic extract of leaves of *P. betle* (unpublished).

E. Phytochemical investigations on *Enicostema axillare*: Isolation of 5-Formyl-2,3-Dihydroisocoumarin and its antimicrobial properties

F. Evaluation of *Byttneria* spp. Against *M. tuberculosis*:

G. Isolation of Phenazine-1-carboxamide from *Pseudomonas* bacteria: For testing its apoptosis induction properties.

H. Phytochemical investigation of *Mallotus phillipinnensis.*

I: Project work:

1. DBT sponsored project "Development of Microbicides from natural sources"- worked on collection, processing and chromatographic separation of plants. Also developed in-house protocol for sterile filtering, drying and packing of extracts for submission to testing.
2. CSIR co-ordinated project- "Discovery and pre-clinical studies of new bioactive molecules (natural and semi-synthetic) and traditional preparations"-worked on identification, collection and processing of plants

J. In-plant training in Pfizer Ltd., Mumbai in June, 2000.

Academic:

1. Received various prizes in school during S.S.C. for scoring high marks in various subjects.
2. Dr. Rajadhyaksha scholarship (Hindustan Liver Ltd), from 1996-98.
3. Junior research fellow (UGC) from 2007-09.
4. Senior research fellow (UGC) from 2010-11.

Other achievements:

1. 3rd prize in state level intercollegiate quiz contest in 3rd year B. Pharm. sci.
2. 2nd prize in intracollegeate doubles table tennis tournament during M. Pharm. Sci.
3. Attended IPCA held at Pune 2002.
4. Participated in three day workshop on HPLC organized by Western region Instrument Centre, Mumbai in June, 2006.
5. Participated in two weeks workshop on GC organized by Chemito Industries, Nasik in November, 2006.
6. Short term experience in teaching Science to school children (standard 8 and 9).

Hobbies:

1. Life member of Bombay Natural History Society.
2. An avid trekker.
3. Interested in table tennis and badminton.
4. Singing.
5. Part of numerous plant taxonomic field trips in the Sahyadri during years 2003 to 2007.

Table of Marks:

Degree/standard	University	Institute/school	Subject	%	Year
Ph. D.	Pune	National Chemical Laboratory, Pune	Organic chemistry	-	2011
M. Pharm. sci.	Mumbai	Prin. K. M. Kundnani College of Pharmacy, Mumbai	Pharmacognosy	60.5 with 'A' grade in thesis	2004
B. Pharm. sci.	Mumbai	Mumbai Educational Trust's college of Pharmacy, Mumbai	Pharmacy	60.0	2001
12^{th}	H.S.C.	Ramnivas Ruia College, Mumbai	-	84.50	1997
10^{th}	S.S.C.	Balmohan Vidyamandir, Mumbai	-	89.00	1995

Birth Date: 30th December 1979

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Mahim, Mumbai, 400016,
Maharashtra State. India
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References:

1. Dr. (Mrs.) Swati P. Joshi
   Email: swatijoshincl@gmail.com

2. Dr. P. Tetali
   Email: tetalip@gmail.com

3. Dr. (Mrs.) P. M. D'mello
   Email: dmellopm@rediffmail.com

Publications:

Patents:

1. Inventors: S. P. Joshi, **R. R. Kulkarni**, D. Sarkar, S. Sarkar, K. Shurpali. Antitubercular corsolic acid and 5-hydroxy-6,7,3',4'-tetramethoxyflavone. PCT Int. Appl. (2013), WO 2013021258 A1 20130214.

2. Inventors: S. P. Joshi, **R. R. Kulkarni**, D. Sarkar, S. Sarkar, K. Shurpali. Phyllocladane diterpene and phenylethyl glycoside compounds from *Anisomeles heynaeana* with anti-mycobacterial or antiproliferative activity. PCT Int. Appl. (2013), WO 2013021260 A2 20130214.

3. S. P. Joshi, **R. R. Kulkarni**, D. Sarkar, S. Sarkar, K. Shurpali. C-9 functionalized labdane derivatives. PCT Int. Appl. (2013), WO 2013024493 A1 20130221.

4. S. P. Joshi, **R. R. Kulkarni**. Pimarane diterpenes from *Anisochilus verticillatus*. US patent number 9024043 B2.

5. Inventors: D. Sarkar, S. P. Joshi., U. Singh, K. Shurpali., **R. Kulkarni**. Antituberculosis compositions of Byttneria species. Publication no (2011) WO/2011/117708.

Papers.

1. **R. R. Kulkarni**, A. D. Virkar, and Priscilla D'mello. Antioxidant and Antiinflammatory Activity of *Vitex negundo*. *Indian J Pharm Sci*., 2008, **70** (6), 838.

2. R. Gupta, S. Walunj, S. Awte, **R. Kulkarni**, S. Joshi, S. Sabharwal, A. S. Padalkar and K. Joshi. Ethanolic extract of cinnamon potentiates *in vitro* pparγ reporter activity in presence of pgc1α and src1 and improves glucose tolerance in mice. *International Res. J. Biotechnol.*, 2011, **2** (2), 47.

3. S. A. Agarkar, **R. R. Kulkarni**, V. V. Dhas, A. A. Chinchansure, P. Hazra, S. P. Joshi and S. B. Ogale. "Isobutrin from *Butea Monosperma* (Flame of the Forest): A Promising New Natural Sensitizer Belonging to Chalcone Class". *ACS Appl. Mater. Interfaces*, 2011, **3** (7), 2440.

4. A. Jain, S. S. Katewa, S. P. Joshi, **R. Kulkarni** and M. Choudhary. Isolation of 5-formyl-2, 3-dihydroisocoumarin From Leaves of *Enicostema axillare* (Lam.) Raynal. *International J. Biotechnol. Biosci.*, 2011, **1**(2), 181.

5. **Roshan R. Kulkarni**, Ketaki Shurpali, Rupesh L. Gawde, Dhiman Sarkar, Vedavati G. Puranik and Swati P. Joshi. Phyllocladane diterpenes from *Anisomeles heyneana*. *Asian. J. Nat. Prod. Res.*, iFirst article, 2012, 1–7.

6. **Roshan R. Kulkarni** and Swati P. Joshi. 2,2-Diphenylpropane and ethoxylated aromatic monoterpenes from *Lavandula gibsoni* (Lamiaceae). *Nat. Prod. Res.*, 2012, 1–7, iFirst.

7. **Roshan R. Kulkarni**, Ketaki Shurpali, Rupesh L. Gawde, Dhiman Sarkar, Vedavati G. Puranik and Swati P. Joshi. Chemical investigation of *Plectranthus mollis. J. Med. Aromat. Plant Sci.* **34** (3-4) (2012), 125-131.

8. **Roshan R. Kulkarni**, Pushpa V. Pawar, Mary P. Joseph, Ambadas K. Akulwad, Avalokiteswar Sen and Swati P. Joshi. *Lavandula gibsoni* and *Plectranthus mollis* essential oil: Chemical Analysis and Insect Control Activities against *Aedes aegypti*, *Culex quinquefasciatus* and *Anopheles stephensi*. *J. Pest Sci.* doi:10.1007/s10340-013-0502-1.

9. **Roshan R. Kulkarni**, Santosh G. Tupe, Suwarna P. Gample, Macchindra G. Chandgude, Dhiman Sarkar, Mukund V. Deshpande and Swati P. Joshi. Antifungal dimeric chalcone derivative Kamalachalcone E from *Mallotus philippinensis. Nat. Prod. Res.* doi: 10.1080/14786419.2013.843178

10. **Roshan R. Kulkarni**, Ketaki Shurpali, Vedavati G. Puranik, Dhiman Sarkar and Swati P.Joshi. Labdane Diterpenes with Anti-mycobacterial Activity from *Leucas stelligera. J. Nat. Prod.* Doi:10.1021/np400002p

11. Navinchandra Pathare, **Roshan Kulkarni**, Rupali Joshi, Sunyana Shelar,, Megha Pawar, Nutan Jadhav, Nandini Makwana, Swati Joshi & Smita Kulkarni. Evaluation of anti-HIV1 activity of extracts and fractions of the fruits of *Terminalia paniculata* Roth and *Terminalia crenulata* Roth. Manuscriot under preparation.

12. Tupe, Santosh; **Kulkarni, Roshan**; Shirazi, Fazal; Sant, Duhita; Joshi, Swati; Deshpande, Mukund. Possible mechanism of antifungal phenazine-1-carboxamide from *Pseudomonas sp.* against dimorphic fungi *Benjaminiella poitrasii* and human pathogen *Candida albicans. J. Appl. Microbiol*. doi:10.1111/jam.12675

13. **Roshan R. Kulkarni**, Vijay Khedkar, Ketakai Shurpali, Dhiman Sarkar and Swati P. Joshi. New pimarane diterpenes and other antimycobacterial metabolites from *Anisochilus verticillatus Nat. Prod. Res*. doi:10.1080/14786419.2015.1040990

14. Ashish A. Chinchansure, **Roshan R. Kulkarni**, Sagar B. More, Laxman Nawale, Ekta Sangtani,[#] Rajesh G. Gonnade, Dhiman Sarkar, and Swati P. Joshi. Eudesmane sesquiterpenoids and other compounds with antimycobacterial activity from *Pogostemon parviflorus*-Manuscript **submitted** in *Planta Medica*..

15. In Hyun Hwang, **Roshan Kulkarni**, Soo Jin Choo, Sang Myung Lee, Tae Su Jang, Gil-Saeng Jeong, Hyeun Wook Chang, and MinKyun Na. Complete NMR

assignments of undegraded asterosaponins from *Asterias amurensis*- accepted in *Archives of Pharmacal Research*. doi: 10.1007/s12272-014-0374-9

16. Kang, ChuHyun; Han, Joo-Hui; Oh, Joonseok; **Kulkarni, Roshan**; Zhou, Wei; Ferreira, Daneel; Jang, Tae; Myung, Chang-Seon; Na, MinKyun. Steroidal Alkaloids from *Veratrum nigrum* Enhance Glucose Uptake in Skeletal Muscle Cells. *J. Nat. Prod.* doi: 10.1021/np501049g

17. **Roshan R. Kulkarni**, Joonseok Oh, Jang Hoon Kim, Jungeum Bae, Daneel Farreira, Mark T. Hamann, Young Ho KimMinKyun Na. Secondary metabolites from florida sponges and kinetic studies of soluble epoxide hydrolase inhibition. Manuscript submitted to *J. Nat. Prod.*

18. Jadhav, Nutan; Kulkarni, Sangeeta; Mane Arti; **Kulkarni, Roshan**; Palshetkar Aparna; Singh Kamlinder, Joshi Swati; Risbud, Arun; Kulkarni, Smita. Antimicrobial Activity of Plant Extracts against Sexually Transmitted Pathogens. *Nat. Prod. Res*. doi: 10.1080/14786419.2014.983919

19. **Roshan R. Kulkarni**, MinKyun Na. Isolation and Structure Determination of an Imidazo-pyrimidine, 5-Chlorocavernicolin, Maleimide oximes and Nucleosides from a Marine Sponge Extract. *Nat. Prod. Sci.* **2015**, *21*, 25-29.

20. **Roshan R Kulkarni**, Wonhwa Lee, Tae Su Jang, JungIn Lee, Soyoung Kwak, Mi Seon Park, Hyun-Shik Lee, Jong-Sup Bae. Caffeoyl Glucosides from *Nandina domestica* Inhibit LPS-induced Endothelial Inflammatory Responses. *Bioorg. Med. Chem. Lett.* doi: 10.1016/j.bmcl.2015.09.031.

21. Wonhwa Lee, JungIn Lee, **Roshan Kulkarni**, Hyejin Kang, Byeongjin Jung, Mi-Ae Kim, Jae Sam Hwang, MinKyun Na and Jong-Sup Bae. Antithrombotic and antiplatelet activities of small molecule alkaloids from *Scolopendra subspinipes*. **Under revision** in *Sci.Rep.*

22. **Roshan R. Kulkarni**, A Reum Jo, Young Ho Kim, MinKyun Na. Epi-Leptosphaerin: A New L-Isoascorbic Acid Derivative from Marine Sponges *Nat. Prod. Sci.* doi:10.20307/nps.2015.21.4.1

23. Tuan, Nguyen; Lee, Wonhwa; Oh, Joonseok; **Roshan R. Kulkarni**; Gény, Charlotte; Jung, Byeongjin; Kang, Hyejin; Bae, Jong-Sup; Na, MinKyun. Flavanones and Chromones from *Salicornia herbacea* Mitigate Septic Lethality via Restoring Vascular Barrier Integrity". *J. Agri. Food Chem.* doi:10.1021/acs.jafc.5b04069

Posters.

1. **Roshan Kulkarni**, Ketaki Shurpali, Dhiman Sarkar and Swati Joshi. Anti-tubercular compounds from *Plectranthus mollis.* National science day, National Chemical laboratory, Pune, 2012

2. **Roshan Kulkarni**, Ambadas Akkulwad, Pushpa Pawar, Mary Joseph, A. Sen and Swati Joshi. Essential oil from *Lavandula gibsoni* for mosquito control. National science day, National Chemical laboratory, Pune, 2012

3. **Roshan Kulkarni**, Yashashree Apte, Pushpa Pawar, Mary Joseph, A. Sen and Swati Joshi. Essential oil from *Plectranthus mollis* for mosquito control. National science day, National Chemical laboratory, Pune, 2012

4. Swati Joshi, Navin Pathare, Nutan Jadhav, Macchindra Chandgude, **Roshan Kulkarni** and Smita Kulkarni. Anti-HIV activity of Indian medicinal plants. National science day, National Chemical laboratory, Pune, 2012

5. Navin Pathare, Swati Joshi, Nutan Jadhav, Sunayna Shelar, Arati Mane, **Roshan Kulkarni**, Arun Risbud and Smita Kulkarni. Screening of indigenous plant products as potential candidate microbicides.M2010: Microbicides: Building bridges in HIV prevention, May 2010, Pittsburgh, USA.

6. Shruti Agarkar, **Roshan Kulkarni**, Vivek Dhas, Ashish Chinchansure, Swati Joshi and Satishchandra Ogale.Isobutrin a new Natural Sensitizer for Dye Sensitized Solar Cells. National science day, National Chemical laboratory, Pune, 2010

7. Upasana Singh, Ketaki Shurpali, **Roshan Kulkarni**, Swati P. Joshi, Dhiman Sarkar.Novel approaches for identification of anti-tubercular drugs. National science day, National Chemical laboratory, Pune, 2010

8. Ashish A. Chinchansure, **Roshan R. Kulkarni**, Santosh G. Tupe, Macchindra G. Chandgude, Mukund V. Deshpande and Swati P. Joshi. *Mallotus philippinensis* fruits: Secondary metabolites with antifungal activity. National science day, National Chemical laboratory, Pune, 2013.

9. Ashish A. Chinchansure, **Roshan R. Kulkarni** and Swati P. Joshi. *Mallotus philippinensis*: A source of bioactive chalcones for the development of antifungal agents. International conference and exhibition on Pharmacognosy, Phytochemistry and natural products, 21-23 October, 2013, Radisson Blue Hotel, Hyderabad.

10. **Roshan R. Kulkarni**, Ashish A. Chinchansure, Aboli Girme and Swati P. Joshi. Chemical investigation of selected Lamiaceae speciesfrom Western ghats for their therapeutic potential. International conference and exhibition on Pharmacognosy, Phytochemistry and natural products, 21-23 October, 2013, Radisson Blue Hotel, Hyderabad.

11. **Roshan R. Kulkarni** and MinKyun Na. Chemical constituents from marine sponges. Fall Internation convention of the Pharmaceutical Society of Korea, 23-24 October, 2014, Hotel Hyundae, Gyeongju, S. Korea.

12. **Roshan R. Kulkarni** and MinKyun Na. sEH inhibitors from marine sponges, at Pharmaceutical Society of Korea, April, 2015.

Oral.

1. "Anti-Oxidant studies on the leaves of *Vitex negundo*", at '4th International Seminar on Ayurvedic Education, Research and Drug Standardization-A global Perspective', Gujarat Ayurved University, Jamnagar, January, 2003.

2. sEH inhibitors from marine sponges, at Pharmaceutical Society of Korea, April, 2015. (Received best poster award)