

CURRICULUM VITAE

Dr. Shailesh Kumar Patidar



<u>Current Position</u>	Assistant Professor (August, 2019 onwards) School for Earth Science, Central University of Rajasthan, Ajmer (Rajasthan), India.
<u>Last Position held</u>	Research Fellow (Postdoctoral Position), University of Michigan
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<u>Nationality</u>	Indian

Education

- Ph.D. Microbiology, CSIR- CSMCRI, M.K. Bhavnagar University, 2011- 2015
- M.Sc. Environmental Science, Sardar Patel University, 2006-2008; First Class.
- B.Sc. Environmental Science, Sardar Patel University, 2003- 2006; First Class.

Research Interests

- Synthetic ecology and biology for bioremediation, biofuel and byproducts
- Microalgae-bacteria interactions, Quorum sensing and metabolomics
- Biogeochemistry and aquatic eco-physiology
- Toxicology and environmental cleanup

Award/ Fellowship/ Assistantship/ Qualifications

- University of Michigan–DoE funded Postdoc
- Brain Korea 21 -Postdoctoral fellowship (2016-2018)
- UGC-National Eligibility Test, 2009
- SRF (DST, India), 2009-2010
- Research fellow (CSIR-NMITLI-MoES, India), 2010-2013
- Project Assistant- III (CSIR), 2013-2015.
- Peking University Postdoctoral fellowship*
- FCT-PORTUGAL-CCMAR Postdoc fellowship*
*Selected, could not join

Research Experience

****Working as Assistant Professor at CURAJ since Aug., 2019**

<i>Tenure and position</i>	<i>Institute/ Agency</i>	<i>Theme of the Project</i>
April 2019 to July 2019 Research Fellow (Postdoc)	University of Michigan, Ann Arbor, Michigan, USA.	Biofuels from ecologically designed polycultures
May 2016 to April 2018 Postdoctoral fellow	Hanyang University, Seoul, South Korea.	Involved in 3 projects: Molecular ecology of harmful algal blooms Effects of DOM generated by <i>Tetraselmis</i> cultivation on microbial food web and, Phycospheric ecology for biofuel
June 2010- July 2015 Research scholar (Project JRF and Project SRF, PA III)	CSIR-CSMCRI, Bhavnagar, Gujarat, India.	Biofuel from marine microalgae (CSIR- MoES -NMITLI, INDIA). <i>Worked on environmental assessment of biofuel, effects of CO₂ on fatty acids, biorefinery and carbon sequestration.</i> Potash Technology to empower the nation (CSIR, INDIA). Worked on bioleaching of potassium from feldspar by halophilic microbes
Sept. 2009- June 2010 Senior Research Fellow	Anand Agricultural University, Gujarat, India.	Effects of air pollution on crop growth (DST, INDIA). <i>Worked on trace gas emission trends and their micrometeorological impacts on crop growth</i>

Research Project (As a Principal Investigator)

<i>Tenure and position</i>	<i>Institute/ Agency</i>	<i>Theme of the Project & Funding agency</i>
Principal Investigator (Assistant Professor, SES,CURAJ)	DST-SERB UGC- SRG	Theme- (Quorum sensing in synthetic ecology inspired models) - 28.60 Lack INR Theme- (Ecotoxicology of Lanthanides in Macrophytes and algae) – 10 Lakh INR

Research Guidance (at present)

Ph.D. – 1 (undergoing), Masters – 6 (6 accomplished), Undergraduate- 2 (2 accomplished)

Teaching Experience

July 2015- March 2016, Assistant Professor	N V Patel College of Pure and Applied Sciences affiliated to Sardar Patel University, Vallabh Vidyanagar, India.	Taught Environmental and Earth System Science Convener for the University Examination in the subject Environmental Science (2016) Co- ordinator for Carbon Footprint Club, NVPAS (2015-2016)
August 2019- Present, Assistant Professor	School of Earth Sciences, Central University of Rajasthan, Ajmer, India.	Teaching following courses: <ul style="list-style-type: none">• Ecology and Environment• Global Environmental Issues• Instrumentation for Environmental Monitoring and Analysis• Environmental Biotechnology and Microbiology Other duties: Lab In-charge, M.Sc., Programme admission and Examination

Patent

1. Mishra, S.C.P. et al. (Including **Patidar, S.K.**) 2014. Engine worthy fatty acid methyl ester (biodiesel) from naturally occurring marine microalgal mats and marine microalgae cultured in open salt pans together with value addition of co-products.
 - **European Patent EP2718453 B1 (Patent Granted), PCT/IN2012/000372.**
 - Spain Patent ES2530947T3 (Patent Granted).
 - Russia Patent RU2603748C2 (Patent Granted).
 - Chinese Patent CN103842514B (Patent Granted).
 - Japanese Patent JP6002756B2 (Patent Granted).
 - U.S. Patent Application 14/119,065. (Published).
2. Mishra, S., Bhattacharya, S., Jain, D., Bachani, P., **Patidar, S.K.**, Chatterjee S., 2016. A process for the preparation of a potassic ores using halophilic bacteria. **Indian Patent Application number 1445/DEL/2015, Published)**

Publications

- 1 **Patidar, S.K***, Kim S.H., Kim J.H., Park J.S., Park B.S., Han M.S* (2018). *Pelagibaca bermudensis* promotes biofuel competence of *Tetraselmis striata* in a broad range of abiotic stressors: dynamics of quorum sensing precursors and strategic improvement in lipid productivity. *Biotechnology for Biofuels*, 11, 102-117.
- 2 **Patidar, S.K.**, Mitra, M., George, B., Soundarya, R., & Mishra, S. (2014). Potential of *Monoraphidium minutum* for carbon sequestration and lipid production in response to varying growth mode. *Bioresource Technology*, 172, 32-40.
- 3 **Patidar, S.K.**, Mishra, S. K., Bhattacharya, S., Mitra, M., Goel, S., & Mishra, S. (2015). Naturally floating microalgal mat for insitu bioremediation and potential for biofuel production. *Algal Research*, 9, 275-282.
- 4 **Patidar, S.K.**, Chokshi, K., George, B., Bhattacharya, S. & Mishra, S. (2015). Dominance of cyanobacterial and cryptophytic assemblage correlated to CDOM at heavy metal contamination sites of Gujarat, India. *Environmental Monitoring and Assessment*, 187, 4118.
- 5 **Patidar, S.K.**, Mitra, M., Goel, S., & Mishra, S. (2016). Effect of carbon supply mode on biomass and lipid in CSMCRI's *Chlorella variabilis* (ATCC 12198). *Biomass and Bioenergy*, 86, 1-10.
- 6 Mitra, M., **Patidar, S.K.**, George B. & Mishra, S. (2015). A euryhaline *Nannochloropsis gaditana* with potential for nutraceuticals (EPA) and biodiesel. *Algal Research*, 8, 161-167
- 7 Mitra, M., **Patidar, S.K.**, & Mishra, S. (2015). Integrated process of two stage cultivation of *Nannochloropsis* sp. for nutraceutically valuable eicosapentaenoic acid and biodiesel. *Bioresource Technology*, 193, 363-369.
- 8 Mitra, M., Shah, F., Bharadwaj, S. V., **Patidar, S.K.**, & Mishra, S. (2016). Cultivation of *Nannochloropsis oceanica* biomass rich in eicosapentaenoic acid utilizing wastewater as nutrient resource. *Bioresource Technology*, 218, 1178-1186.
- 9 Pancha, I., Chokshi, K., Maurya, R., Trivedi, K., **Patidar, S.K.**, Ghosh, A., & Mishra, S. (2015). Salinity induced oxidative stress enhanced biofuel production potential of microalgae *Scenedesmus* sp. CCNM 1077. *Bioresource Technology*, 189, 341-348. I
- 10 Sahu, A., Pancha, I., Jain, D., Paliwal, C., Ghosh, T., **Patidar, S.**, Bhattacharya S. & Mishra, S. (2013). Fatty acids as biomarkers of microalgae. *Phytochemistry*, 89, 53-58.
- 11 Mishra, S.K., Shrivastav, A., Maurya, R.R., **Patidar, S.K.**, Haldar, S., & Mishra, S. (2012). Effect of light quality on the C-phycoerythrin production in marine cyanobacteria *Pseudanabaena* sp. isolated from Gujarat coast, India. *Protein Expression and Purification*, 81(1), 5-10.
- 12 Bhattacharya, S., Maurya, R., Mishra, S. K., Ghosh, T., **Patidar, S.K.**, Paliwal, C., Chokshi, K., Pancha I. & Mishra, S. (2016). Solar driven mass cultivation and the extraction of lipids

from *Chlorella variabilis*: A case study. *Algal Research*, 14, 137-142.

13. Bhattacharya, S., Bachani, P., Jain, D., **Patidar, S.K.**, & Mishra, S. (2016). Extraction of potassium from K-feldspar through potassium solubilization in the halophilic *Acinetobacter soli* (MTCC 5918) isolated from the experimental salt farm. *International Journal of Mineral Processing*, 152, 53-57.
14. Bachani, P., Bhattacharya, S., Jain, D., **Patidar, S.K.**, Soundarya, R., Tirkey, S. R., & Mishra, S. (2016). Bioprospecting of halotolerant bacterial isolates for potassium recovery from K - Feldspar. *Chemical Engineering & Technology*, 39(9), 1645-1652.
15. Karande, B.I., Pandey, V., Shekh, A.M., Guled, P.M., **Patidar, S.D.** (2012). Quantification of pollution level (PM10) using Sunphotometer AOT. *Journal of Agrometeorology* 14: special issue. 372-377
16. Karande, B.I., Shekh, A.M., Pandey, V., **Patidar, S.D.**, Guled, P.M., Kumar A. (2012). Trends of air pollutants in urban and rural agricultural area and their impact on crops growth. *Journal of Agrometeorology* 14: special issue. 80-86
17. Kim J.H., Park B.S., Wang P., **Patidar, S.K.**, Han, M. S. (2016). Development of a qPCR assay for tracking the ecological niches genetic sub-populations within *Pseudo-nitzschia pungens* (Bacillariophyceae). *Harmful algae*. 63, 68-78
18. Park J., Park B.S., Wang P., **Patidar, S.K.**, Kim S.H., Kim J.H., Han, M.S. (2017). Phycospheric native bacteria *Pelagibaca bermudensis* and *Stappia* sp. ameliorate biomass productivity of *Tetraselmis striata* (KCTC1432BP) in co-cultivation system through mutualistic interactions. *Frontiers in Plant Science*. 8, 289.
19. Joo, J., Kaung, Z., Wang, P., Park B.S., **Patidar, S.K.**, Han, M.S. (2017). Ecological assessment within a mesocosm of an algacidal naphthoquinone derivative for the mitigation of *Stephanodiscus*. *Environmental Pollution*. 229, 735-745.
20. Kim J.H., Park B.S., Wang P., **Patidar, S.K.**, Han, M.S. (2018). Revealing the distinct habitat ranges and hybrid zone of genetic sub-populations within *Pseudo-nitzschia pungens* (Bacillariophyceae) in the West Pacific area. *Harmful algae*. 73, 72-83.
21. Heon-woo Lee, Joo, J., Park B.S., Choi H. J, **Patidar, S.K.**, Han, M.S. (2018). Cyanobacteria-specific algicidal mechanism of bioinspired naphthoquinone derivative, NQ 2-0. *Scientific Reports*. 8:11595.

Book Chapter

2. **Patidar, S.K.**, Mishra S., (2017). Carbon Sequestration by Microalgae: A green approach for climate change mitigation. Reference Module in Earth systems and Environmental Science. Encyclopedia of sustainable energy, pp 477–483.

Conference papers

1. **Patidar, S.**, Pandey V, Shekh A.M., Karande B.I., and Guled P.M., 2010. Aerosol optical thickness, water vapour and particulate matter interrelationships in polluted and nonpolluted sites. International conference on “Global warming: Agriculture, sustainable development and public leadership”, Ahmedabad, India.
2. **Patidar, S.K.**, Mishra S, Han M.S., 2016. Isolation and screening of microalgae for carbon sequestration and its lipid content from polluted West coast of India. International conference on “Life science and Bioengineering (LSBE)”, Kyoto, Japan.
3. **Patidar, S.K.**, Kim S.H., Kim J.H., Park J.S., Park B.S., Han, M.S., 2017. *Pelagibaca bermudensis* promotes biofuel potential of *Tetraselmis striata* in broad range of abiotic stressors in addition to the release of the HHQ and PQS. “International phycological congress”, Szczecin, Poland.
4. **Patidar, S.K.**, Kim J.H., Kim S.H., Joo J.H., Kim J.H., Han M.S., 2018. Implications of quorum sensing precursors in the co-cultivation biofuel production systems. International conference on “Ecology and Resilience Infrastructure”, Kyung Hee University, South Korea.
5. **Patidar, S.K.**, Kim S.H., Kim J.H., Park B.S., Han, M.S. Development of robust co-cultivation model for *Tetraselmis striata* biomass feedstocks: Possible involvement of quinolones instead of lactones during interactions. International Seminar on “H-HABs”, KIOST, South Korea.
6. **Patidar, S.K.** Algae for food, energy, and sustainable environmental solutions. Invited lecture at Poornima University, Jaipur, India.

Membership of scientific societies

- Association of Agrometeorologists
- World Society of Sustainable Energy and Technology

Reviewer

- Environmental Science and Pollution Research (Springer)
- Journal of Basic Microbiology (Wiley)
- Bioresource Technology Reports (Elsevier)
- Plant Physiology and Biochemistry (Elsevier)
- Biotechnology for Biofuels (Springer-Nature)
- **Guest Editor:** Frontiers in Marine Science for special issue “Algae for energy, food and environmental solutions.

References

- **Dr. Sandhya Mishra**, Ph.D., *Emeritus Scientist*,
Former Head, Microalgae Group, Department of Biotechnology and Phycology, Central Salt & Marine Chemicals Research Institute (CSIR-CSMCRI), Gijubhai Badheka Marg, Bhavnagar, Gujarat 364002. Tel.: +91278-2567760 Ext. 6160. Email: smishra@csmcri.res.in
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