

## **CURRICULUM VITAE**

### **ARCHANA SINGH**

Scientist-D

Arctic Ecology and Biogeochemistry

Arctic Operations

National Centre for Polar and Ocean Research, Ministry of Earth Sciences,

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**Field of research:** Chemistry, Biogeochemistry, Marine Organic Geochemistry, Carbohydrate Chemistry

### **Education:**

2018-2025 PhD in Chemistry at the Goa University

2011-2013 Masters in Science (M.Sc.)-Chemistry, University of Delhi, New Delhi, India

2008-2011 Bachelors in Science (Honours)-Chemistry, Hindu College, University of Delhi, New Delhi, India

### **Professional positions:**

2023-present Scientist-D, National Centre for Polar and Ocean Research (NCPOR), Goa, India

2019-2023 Scientist-C, National Centre for Polar and Ocean Research (NCPOR), Goa, India

2016-2018 Scientist-B, National Centre for Antarctic and Ocean Research (NCAOR), Goa, India

2015-2016 Project Scientist-B, National Centre for Antarctic and Ocean Research (NCAOR), Goa, India

2013-2015 Trainee Scientist at Centre for Advance Training (CAT) in ESSC, IITM, Pune, India

### **Grants and Awards:**

2025 Award of Excellence for Best Reverse Panel idea during SAGAA VIII 2025

2025 Grant from Norwegian Ministry of Foreign Affairs, Royal Norwegian Embassy in New Delhi for attending Arctic Frontiers Emerging Leaders 2025 in Norway

2022 DST-AWSAR 2021 award for popular science story under PhD category

2019 2<sup>nd</sup> runner up, Young polar scientist meet (YPSM), NCPS-2019

2019 1<sup>st</sup> Prize in Flash Presentation Competition, Antarctic Day-2019, NCPOR.

2018 International travel grant, DST-SERB ITS to attend POLAR2018 conference

2012 1<sup>st</sup> rank in M.Sc. (P) Chemistry, Hindu College, University of Delhi

### **Projects handled:**

2024-present PI of the project "*Investigating the Characteristics and the Fate of Terrestrial Organic Matter in the Marine Realms of High Arctic Fjords*", Indian Arctic Programme

2016-present Co-PI of the project "*Long Term Monitoring of Kongsfjorden to Study Climate Impacts*", Indian Arctic Programme

2017-present	Co-PI of the project “ <i>Bacterial community dynamics in Arctic ecosystem</i> ”, Indian Arctic Programme
2024-present	Co-PI of the project “Nitrogen cycle and associated microbiome in the glacio-marine ecosystem of Svalbard”, Indian Arctic Programme

**No. of dissertation (MSc/BSc) students guided: 10**

**Talks and webinars speaker:**

2025	Invited panellist for Reverse Panel during SAGAA VIII 2025 held at New Delhi
2025	Invited to moderate for a panel discussion during Arctic Circle India Forum 2025 held at New Delhi
2025	Invited talk on “Arctic and Carbon Dynamics” during MOOC Workshop on Indian Arctic Policy in held in Kochi, Kerala
2022	Invited talk on ' <i>Climate Change and Polar Regions</i> ' under the 'The Cold is getting Warmer' webinar series of IPRN-APECS
2019	Webinar talk on ' <i>India's Expeditions to the Arctic: Fusion of science and adventure</i> ', NCPOR webinar series 'Indian Polar and Ocean Mission', Azadi the Amrit Mahotsav.

**Professional association and memberships:**

2019-present	Nominated member, IASC-terrestrial working group
2019-present	Nominated member, SIOS-RICC working group
2021-present	Chair/Co-chair, SIOS-RICC working group
2018	Indian representative, ACAP (Arctic Council) meeting, Reykjavik, Iceland
2019	Indian representative, PAME (Arctic Council) meeting, Malmo, Sweden
2021	Indian representative, PAME (Arctic Council) meeting (online)
2021	Indian representative, AMAP (Arctic Council) meeting (online)

**Administrative and Management Experience:**

- Indian Arctic Programme-related logistics, proposal review meetings, team and cargo movements and coordination

**Research publications:**

- Singh, Archana**, Jagtap, A.S., Rajpurohit, K. and Singh, K.S., 2025. Chemical characteristics and bioactivity potential of polysaccharide extracts and purified fractions from Arctic brown macroalgae. *Carbohydrate Polymers*, 352, p.123222.
- Roy, B., **Singh, Archana** and Tiwari, M., 2025. Tracing macroalgal-induced changes in carbon dynamics of high-Arctic fjords using biomarker fingerprinting. *Journal of Geophysical Research: Oceans*, 130(4), p.e2024JC021900.
- Jagtap, A.S., **Singh, Archana** and Jain, A., 2025. Extraction, structural characterization, and bioactivity of laminarin and fucoidan from brown macroalgae *Chorda filum*. *Carbohydrate Research*, p.109551.
- Singh, Archana**, Jain, A., Singh, R., Singh, K.S., Roy, B., Tiwari, M., David, T.D. and Jagtap, A., 2024. Tracing marine and terrestrial biochemical signatures of particulate organic matter in an Arctic fjord (Kongsfjorden). *Marine Chemistry*, p.104468.

- v. **Singh, Archana**, Pal, B. and Singh, K.S., 2024. Carbohydrate and pigment composition of macroalgae in a kelp-dominated Arctic fjord. *Regional Studies in Marine Science*, 77, p.103644.
- vi. Mathew, J., **Singh, Archana** and Gopinath, A., 2021. Nutrient concentrations and distribution of phytoplankton pigments in recently deposited sediments of a positive tropical estuary. *Marine Pollution Bulletin*, 168, p.112454.
- vii. **Singh, Archana**, Divya David, Tripathy, S.C. and Naik, R.K., 2020. Interplay of regional oceanography and biogeochemistry on phytoplankton bloom development in an Arctic fjord. *Estuarine, Coastal and Shelf Science*, 243, p.106916.
- viii. Mishra, R.K., Naik, R.K., Venkataramana, V., Jena, B., AnilKumar, N., Soares, M.A., Sarkar, A. and **Singh, Archana**, 2020. Phytoplankton biomass and community composition in the frontal zones of Southern Ocean. *Deep Sea Research Part II: Topical Studies in Oceanography*, 178, p.104799.
- ix. Jain, A., Krishnan, K.P., Begum, N., **Singh, Archana**, Thomas, F.A. and Gopinath, A., 2020. Response of bacterial communities from Kongsfjorden (Svalbard, Arctic Ocean) to macroalgal polysaccharide amendments. *Marine Environmental Research*, 155, p.104874.
- x. **Singh, Archana** and Krishnan, K.P., 2019. The spatial distribution of phytoplankton pigments in the surface sediments of the Kongsfjorden and Krossfjorden ecosystem of Svalbard, Arctic. *Regional Studies in Marine Science*, 31, p.100815.
- xi. Jain, A., Krishnan, K.P., **Singh, Archana**, Thomas, F.A., Begum, N., Tiwari, M., Bhaskar, V.P. and Gopinath, A., 2019. Biochemical composition of particles shape particle-attached bacterial community structure in a high Arctic fjord. *Ecological Indicators*, 102, pp.581-592.
- xii. **Singh, Archana**, Krishnan, K.P., Prabakaran, D. and Sinha, R.K., 2017. Lipid membrane modulation and pigmentation: A cryoprotection mechanism in Arctic pigmented bacteria. *Journal of basic microbiology*, 57(9), pp.770-780.
- xiii. Sinha, R.K., Krishnan, K.P., **Singh, Archana**, Thomas, F.A., Jain, A. and Kurian, P.J., 2017. *Alteromonas pelagimontana* sp. nov., a marine exopolysaccharide-producing bacterium isolated from the Southwest Indian Ridge. *International journal of systematic and evolutionary microbiology*, 67(10), pp.4032-4038.

#### Review papers:

- i. **Singh, Archana**, and Keisham S. Singh. "Bioactive Compounds from Polar Regions: An Account of Chemical Ecology and Biotechnological Applications." *Current Organic Chemistry* 26, no. 11 (2022): 1055-1087.
- ii. Singh, Keisham S., and **Archana Singh**. "Chemical diversities, biological activities and chemical synthesis of marine diphenyl ether and their derivatives." *Journal of Molecular Structure* (2022): 133302.

#### Book chapters:

- i. **Archana Singh**, Divya David T., K.P. Krishnan. "Indian and International Research Coordination in the Arctic." *Advances in Remote Sensing Technology and The Three Poles (A multidisciplinary approach to the study of the Arctic, the Antarctic, and the Himalaya)*, John Wiley and Sons (2022): 420-426.

- ii. **Singh, Archana**, Supriya Tilvi, and Keisham S. Singh. "Quinolizidine Alkaloids from Marine Organisms: A Perspective on Chemical, Bioactivity and Synthesis." *Frontiers in Natural Product Chemistry: Volume 8* 8 (2021): 45-98.

**Conference presentation/poster:**

- i. Poster on '*Subsurface chlorophyll maximum and water column primary productivity in Kongsfjorden*' by Divya David T, **Archana Singh**, *et al.*, Arctic Science Summit Week (ASSW), 2022
- ii. Oral presentation on '*Five years of IndARC mooring science and technology*' by Divya David T, Subeesh M P, Kesavakumar B, **Archana Singh**, *et al.*, National Ocean Science Conference (OSICON-21), 2021 (online)
- iii. Oral presentation on '*Biogeochemistry of an Arctic fjord under high-resolution lens*' by **Archana Singh**, Divya David T and Subeesh MP, ASSW- 2021 (online)
- iv. Poster (2<sup>nd</sup> runner up in young polar scientist meet) on '*A year-round physicochemical observations from IndARC mooring in an Arctic fjord*' by Archana Singh *et al.* in NCPS- 2019, NCPOR, Goa (India)
- v. Poster on "*Indian Science at Polar Frontiers in the Era of Climate Change: An Emphasis on Women's Contribution*" by **Archana Singh**, KP Krishnan and M. Ravichandran, Women Scientists and Entrepreneurs Conclave (WSE), IISF-2018, Lucknow (India).
- vi. Poster on '*Sedimentary Pigments as Biomarkers of Benthic Communities in Kongs-Krossfjorden*' by **Archana Singh** and K. P. Krishnan in POLAR2018, Davos, Switzerland
- vii. Poster on '*Particle-associated and Free-living Bacterial Communities in Kongsfjorden*' by Anand Jain, Femi Anna Thomas, Rupesh Kumar Sinha, **Archana Singh** *et al.* in POLAR2018, Davos, Switzerland
- viii. Oral presentation on '*Spatial Distribution of Biomarker Pigments in Surface Sediments of Kongsfjorden and Krossfjorden, Arctic*' by **Archana Singh** *et. al.*, NCPS-2017, NCPOR, Goa (India)
- ix. Oral presentation on '*IndARC observations at Kongsfjorden: A high Arctic fjord*' by Divya David T, Subeesh M. P., **Archana Singh**, *et al.*, OSICON-2017, India
- x. Conference proceedings on '*Observed summer biomass variability and associated biophysical coupling in Kongsfjorden*' by Divya David T, **Archana Singh**, *et al.*, Ny-Ålesund Seminar-2015, Tromsø