



TO MAGNIFICO RETTORE OF UNIVERSITA' DEGLI STUDI DI MILANO

ID CODE 6865

I the undersigned asks to participate in the public selection, for qualifications and examinations, for the awarding of a type B fellowship at **Dipartimento di Scienze Farmacologiche e Biomolecolari**.

Scientist- in - charge: **Prof. Gardoni Fabrizio**

Arunava Poddar

CURRICULUM VITAE

PERSONAL INFORMATION

Surname	Poddar
Name	Arunava

PRESENT OCCUPATION

Appointment	Structure
Visiting Scholar	Blue Marble Space Institute of Science

EDUCATION AND TRAINING

Degree	Course of studies	University	year of achievement of the degree
Master	Erasmus Mundus Joint Master Degree in Environmental Contamination and Toxicology (ECT+ EMJMD)	Semester 1: University of Pau and Pays de l'Adour (UPPA), France Semester 2: University Centre in Svalbard (UNIS), in coordination with Norwegian University of Science and Technology (NTNU), Norway <u>Semester 3: University of Basque Country (UPV/EHU), Spain (Program Coordinating University)</u> Semester 4: Uppsala University, Sweden	2024
Other (Bachelor of Technology (B.Tech))	Biotechnology	SRM Institute of Science and Technology, Chennai,	2022



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FOREIGN LANGUAGES

Languages	level of knowledge
Bengali (Native language)	C2
Hindi	C1
English	C2

AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award
2022	Fully funded Erasmus Mundus scholarship received to conduct my master's degree studies (received a monthly allowance; tuition, insurance, and travel costs were waived off).
2021	AXIOM Science Technology Art and Research in Space (STARS) scholarship received for developing a research concept as a team to investigate the biomining ability of polyextremophiles subjected to the extreme conditions of space (e.g., microgravity) aboard the International Space Station (ISS).
2020	Performance-based scholarship received based on my performance in the second year of my bachelor's degree (B. Tech) in Biotechnology.

TRAINING OR RESEARCH ACTIVITY

1. Professional Practice: *In vitro* toxicity assessment of hemocytes of mussels (*Mytilus galloprovincialis*) exposed to hydrogen peroxide and polystyrene nanoparticles (nanoplastics) under Dr. Miren P. Cajaraville at Plentzia Marine Station, University of Basque Country (UPV/EHU), Spain.

Training and experience:

Maintaining algae cultures, maintaining and feeding a batch of mussels in a controlled environment, dissection and observation of internal organs of mussels, extraction of mussel hemocytes and exposing them to hydrogen peroxide and nanoplastics, conducting *in vitro* toxicity assays of mussel hemocytes like MTT and ROS.

2. Analysis of organic pollutants in the Arctic, conducted for the partial fulfillment of the course/subject 'Techniques for Detection of Organo-Chemical Pollutants in the Arctic Environment' at the University Centre in Svalbard (UNIS).

Training and experience:

Sampling of air, snow, ice, sediment, biota and soil samples from different locations in Svalbard, analytical sample preparation of soil samples and analysis of 16 common polycyclic aromatic hydrocarbons (PAHs) using gas chromatography-mass spectrometry (GC-MS) present in the soil samples.

3. Water quality assessment of Port d'Albert, an artificial marine lake, conducted for the partial fulfillment of the course/subject 'Metrology of Aquatic Ecosystems' at the University of Pau and Pays de l'Adour (UPPA), France.

Training and experience:

Fieldwork and water sampling, assessment of physicochemical parameters (pH, dissolved oxygen, turbidity, etc.) and nutrients (phosphate, sulphate, etc.) of water samples *in situ*, analysis of total hardness, alkalinity, chloride, sulphate, and suspended particulate matter of water samples in the



laboratory.

PROJECT ACTIVITY

Year	Project
2024	<p>Master's thesis: Bioweathering of basalt using a microbial consortium to enhance carbon sequestration with a focus on microbial phosphate utilization and phosphate dissolution capacity. The project was conducted at Uppsala University, Sweden under the supervision of Dr. Anna Neubeck & Dr. Abhijeet Singh.</p> <p>Training and experience:</p> <ol style="list-style-type: none">1. Culturing of bacteria and fungi2. Analysis of physicochemical parameters (pH, electrical conductivity, total dissolved solids, alkalinity) of liquid samples3. Analysis of dissolved organic and inorganic carbon in liquid samples (using carbon analyzer)1. Analysis of solid organic and inorganic carbon in solid samples (using elemental analyzer)2. Analysis of ions and organic acids in liquid samples (using ion chromatography)
2023-2024	<p>Exploration of reactions driven by primitive non-biological polyesters. The project was conducted at the Blue Marble Space Institute of Science under the supervision of Dr. Tony Z. Jia.</p> <p>Training and experience:</p> <p>Writing of a review manuscript and its publication in a journal (Accounts of Chemical Research)</p>
2022-2023	<p>Comparative compositional study of modern biological condensates and primitive phase-separated compartments. The project was conducted at the Blue Marble Space Institute of Science under the supervision of Dr. Tony Z. Jia.</p> <p>Training and experience:</p> <p>Writing of a review manuscript and its publication in a journal (Peptide Science)</p>
2021	<p>Conceptualization of a payload system capable of investigating the biomineralization ability of polyextremophiles subjected to the extreme conditions of space (e.g., microgravity) aboard the International Space Station (ISS) as a team. We received the AXIOM STARS Scholarship for our idea and an invitation to submit a full proposal for evaluation for a potential spaceflight to test our concept in a future mission.</p>
2021	<p>Bachelor's thesis: Preparation and characterization of emulsomes co-encapsulating curcumin and piperine. The project was conducted at the SRM Institute of Science and Technology under the supervision of Dr. Nageswaran Sivalingam.</p> <p>Training and experience:</p> <ol style="list-style-type: none">1. Synthesis of emulsome nanoparticles containing drugs (curcumin and piperine)2. Analysis of size, zeta potential, and polydispersity index of the nanoparticles (using zetasizer)3. Determination of particle morphology (using Scanning Electron microscopy (SEM) and Transmission Electron microscopy (TEM))4. Analysis of drug-polymer interactions (using Fourier Transform Infrared (FTIR) spectroscopy)



CONGRESSES AND SEMINARS

Date	Title	Place
4-6 June 2024	European Astrobiology Institute (EAI) General Assembly 2024	Frankfurt, Germany
2-4 December 2022	Life and Space Conference by Polish Astrobiology Society	Online
23-25 February 2022	International Conference on Recent Advances in Bioscience and Bioengineering (ICRABB) hosted by SRM Institute of Science and Technology	Chennai, India
17-21 May 2021	European Astrobiology Network Association (EANA) International Spring School on Hydrothermal Vents	Online

PUBLICATIONS

Articles in peer-reviewed journals
Poddar, A., Satthiyasilan, N., Wang, P.-H., Chen, C., Yi, R., Chandru, K., & Jia, T. Z. (2024). Reactions Driven by Primitive Nonbiological Polyesters. <i>Accounts of Chemical Research</i> , 57(15), 2048-2057. doi:10.1021/acs.accounts.4c00167
Cannelli, S. M. C., Gupta, R., Nguyen, T., Poddar, A., Sharma, S., Vithole, P. V., & Jia, T. Z. (2023). A compositional view comparing modern biological condensates and primitive phase-separated compartments. <i>Peptide Science</i> , 115(6), e24331. doi:10.1002/pep2.24331

OTHER INFORMATION

<ol style="list-style-type: none">1. Research highlight of the article titled 'A compositional view comparing modern biological condensates and primitive phase-separated compartments' published on the Earth-Life Science Institute (ELSI) webpage (https://www.elsi.jp/en/news_events/highlights/2023/liquid_liquid_phase_separation/).2. Science Blogs:<ul style="list-style-type: none">• https://tinyurl.com/Alternative-meat-in-Space• https://tinyurl.com/human-microbiome-in-Space• https://edgeofspace.in/mars-welcomes-the-dark-lady-of-dna/• https://edgeofspace.in/dragonfly-mission-to-explore-titan/
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Declarations given in the present curriculum must be considered released according to art. 46 and 47 of DPR n. 445/2000.

The present curriculum does not contain confidential and legal information according to art. 4, paragraph 1, points d) and e) of D.Lgs. 30.06.2003 n. 196.

Please note that CV WILL BE PUBLISHED on the University website and It is recommended that personal and sensitive data should not be included. This template is realized to satisfy the need of publication without



personal and sensitive data.

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Place and date: Serampore, West Bengal, India, 28/09/2024