

## Statement of Purpose

---

Since the initial grooming stage I willingly made the love and fondness for science grow within me. Chemistry, among others, grabbed my interest the most owing to its unique vibrant experiments performed, the magical fun as demonstrated in school. I felt it to be the most connecting scientific subject ever. Comprehending such interests, I pursued my Bachelors (Honors) in Chemistry from University of Calcutta. It flourished me with a handful of knowledge, experiences, skills and learnings. Thereafter, I decided to proceed with Medicinal Chemistry as my specialization for Masters from Savitribai Phule Pune University, Pune, India.

The latter mentioned program turned out to be a life-renovating decision for me. My masters' coursework flourished me with a depth of Organic, Medicinal, Physical, Inorganic fields. I received a prestigious scholarship from CSIR-NCL (Central Scientific Institute of Research- National Chemical Laboratory) for topping the merit list of Medicinal Chemistry. I later found myself resonating highly with the applications of nanomaterials in diversified fields. Unfortunately due to pandemic scenario all lab works got paused for a while. Alongside I worked as a teacher in several private institutes for five years and also was a subject matter expert at Chegg India.

With the advent of not missing out on any of the opportunities, I invested myself into attending some online workshops, webinars and internships and attended the summer internship organized by CSIR NEIST-Jorhat on membrane science and technology, online 1 week internship organized by CSIR-CERI, Tamil Nadu on fabrication models of nanoparticles for generating energy at 2021. As soon as few laboratories starting re-opening with the declining number of covid cases, I immediately made my way to Central Scientific Institute of Research-Central Drug Research Institute (CSIR-CDRI), Lucknow to pursue my Master's Project under the supervision of Dr. Namrata Rastogi (Principal Scientist) and worked on "Synthesis of azirrenes and n-tosylimines for the visible light mediated preparation of n-heterocycles"-compounds possessing medicinal values, for 4 months. Since then I realized how dynamic research can be, its culture, opportunities, applications and the hard work and resilience that every researcher pour into it. I practiced multi-tasking, managing multiple reactions procedures together at a pace, being skilled at purification techniques like crystallization, column chromatography, thin layer chromatography, etc. All my products were characterized by Melting Point, ESMS,  $^1\text{H}$  NMR,  $^{13}\text{C}$  NMR. Weekly reports in the form of oral and powerpoint presentations were also submitted. I prepared the work report of this project myself and submitted to my university. Unfortunately, the second wave of COVID set in immediately limiting my working scope once again. Simultaneously I also worked at a virtual project on applications of gold nanoparticles organized by my university. Thereafter I worked on biosynthesis of ZnO and its anti-cancer activities- a work whose **manuscript is published** from Savitribai Phule Pune University.

I tried and utilized every bits of time available to me. Having read a lot about different applications of nanomaterials and its diversified applications in varied fields and its multidisciplinary approach, I opted for the another project under Prof.(Dr.) Balaprasad G. Ankamwar, professor at Department of Chemistry, Savitribai Phule Pune University. There

I learnt different techniques and concepts regarding biosynthesis of copper nanoparticles and its applications. I managed to venture through several characterization techniques such as UV-Vis, FT-IR, ATR-IR, GCMS, FESEM, XRD, Raman, HRMS, etc.

Simultaneously, I invested myself into writing a **book chapter** on Morphology based Biosensing of Metallic Nanoparticles- already submitted for publication. The immense theoretical knowledge and priceless practical experiences boosted my dedication to work further and hence pursuing an internship on the same might help me cultivate more. As per my findings, research at this collaboration will be an ideal place for exploring my research perspectives. I, no wonder, find this as an extra-ordinary opportunity towards my future. They highly resonate with my interests of research.

I believe, through this internship, I would not only result in my growth but also be able to contribute immensely to academia, research and mostly to the laboratory for shaping me. I promise to set in all my dedications and hard work into this process. My background knowledge and practice might also be helpful enough to pave this path with excellence. With the advanced infrastructure, my guidance at the university will have no bound. Consequently, I feel overwhelmed to say that this will be the exactly perfect opportunity for me as per my research interests are concerned. Hoping for a positive reply from your end at the earliest possible conveniences.