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Howrah (India)

To: IIT KGP- University of Manchester Dual Doctoral Degree Program |

Pune, India, 02/03/2022

Subject: Application for PhD Position

To whom it may concern,

Comprehending my interests in chemical science since an early age, I pursued a B. Sc. (Honors) in Chemistry from reputed Bethune College, University of Calcutta followed by Masters (Sp. Medicinal) from Savitribai Phule Pune University, Pune, India.

The latter mentioned program turned out to be life-renovating. 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 at M.Sc. I found myself resonating highly with research. Alongside I worked as a teacher in several institutes for five years and was a subject matter expert for chemistry.

During lockdown, I invested myself into attending some online workshops, webinars and summer internships, CSIR-NEIST and CSIR-CECRI, to name a few. As soon as laboratories starting re-opening, I joined 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) on "**Visible Light Mediated Formal 1,3- Dipolar Cycloaddition of 2H-Azirines with N- Tosylimines and Chalcones**"

Since then I realized how dynamic research is, its opportunities, applications and the hard work and resilience that every researcher pour into it. I practiced multi-tasking and excelled at purification techniques like crystallization, column chromatography, thin layer chromatography, etc. All my products were characterized by Melting Point, ESMS, ^1H NMR, ^{13}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 it to my university. I am quick to learn, hard-working, determined and adaptable.

Simultaneously, I contributed to a virtual project on applications of gold nanoparticles organized by my university. Thereafter, I worked on **Bioactive properties of ZnO nanoparticles synthesized using Cocos nucifera leaves- manuscript is published** from Savitribai Phule Pune University. There I managed to venture through several characterization techniques such as UV-Vis, FESEM, XRD, HRMS, etc. I am currently working on copper nanoparticles' synthesis and its anti-bacterial and catalytic applications.

I invested myself into writing a **book chapter** on "Morphology based Biosensing of Metallic Nanoparticles"- already submitted for publication and am currently writing another entitled "Characterization of polymers based on biomedical applications" The priceless theoretical knowledge and practical experiences boosted my dedication to work further. Research at this dual doctoral degree program will be the most ideal place for exploring my research perspectives. I, no wonder, find this as an extra-ordinary opportunity towards my future. The versatility and expertise of work practiced in Dr. Cinzia Casiraghi and Dr. Gorachand Dutta's laboratory deeply motivate me and hugely resonate with my interests. Shall be grateful for a kind consideration and would work upto my level best.

Yours sincerely,



Barnika Chakraborty