

Ref: 589/Expe. Cert/2016

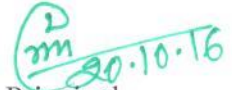
Experience Certificate



This is to certify that **Dr. Rakesh Kumar Sharma** S/O Shri Vijay Sharma has been working in this institute and duties performed by him are as under:

Name of post held	From	To	Total period	Nature of appointment- Permanent, Regular, Temporary, Part-time, Contract, Guest, Honorary etc.	Department/Field of experience
(1)	(2)	(3)	(4)	(5)	(6)
Assistant professor	02/09/2015	Continuing	One year and one month 13 Month	Regular	Microbiology and Biotechnology
Pay scale and last salary drawn	Duties performed/experience gained in brief (Please give details, if needed be, in Attached sheet)			Place of posting	Worked at supervisor level/ middle management level/ Head of branch
(7)	(8)			(9)	(10)
20,000 (Fixed)	One year teaching and research experience in Microbiology and Biotechnology. Taught postgraduate and graduate students of Microbiology and Biotechnology. Conducted practical experiments of microbiology. Supervised the Dissertation and project work of postgraduate and graduate students.			Indira Priyadarshini College, Chhindwara (M.P.)	Teaching and research

It is certified that above facts and figures are true and based on service records available in our institute.


Principal
Principal
Dr. K. Jaimini
Indira Priyadarshini College
Chhindwara



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Department of Biotechnology

Dr. Pratima Gupta M.Sc, PhD (Microbiology),
Assistant Professor, Department of Biotechnology
Email: prati_biotech@yahoo.co.in

Experience certificate

To whom so ever it may concern

It is my pleasure to provide this certificate for Dr. Rakesh Kumar Sharma. He worked as Research Associate –II under the MNRE sponsored project entitled “Design of Microbial Electrolytic cells for Economic and Energy Efficient Biohydrogen Production from leafy Biomass by Electrohydrogenesis” from July 2017 to October 2017. He explored the exoelectrogenic property of bacteria for using in microbial fuel cell (MFC) and has successfully designed and operated a single chambered membrane less microbial fuel cell. He has further expanding this study to upgrade this MFC into microbial electrolytic cell (MEC) for hydrogen production.

Dr. Pratima Gupta
Assistant Professor
Department of Biotechnology
National Institute of Technology,
Raipur (C.G.)

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Dr. Archana G., Professor

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To whomsoever it may concern

It is my pleasure to introduce Dr. Rakesh Sharma, has worked in my lab. as a Dr. D.S. Kothari UGC-Post Doctoral fellow. I was happy to be his mentor for the Post doctoral fellowship as he had very good credentials and publications from his Ph.D. at Guru Nanak Dev University, Amritsar. Dr. Sharma joined my group in September 2012 to work on "Molecular profiling of metal induced rhizospheric bacterial community shift and its relevance to plant growth promotion by bioinoculants" and continued up to August 2015

Rakesh's work in my lab dealt with an important environmental problem, that of heavy metal pollution in agricultural fields. Of particular interest is the toxic, nonessential metal cadmium which is readily taken up by crop plants and can enter into the food chain. Dr. Sharma's objective was to understand the effect of heavy metal on microbial diversity in plant rhizosphere and also to apply specific metal tolerant rhizobacteria for as bioinoculants for the alleviation of the metal toxicity to plants. Rakesh's work involved the application denaturing gradient gel electrophoresis (DGGE) for studying microbial diversity using 16S rRNA gene specific and functional group specific primers. He is also studying plant microbe interaction by using the plant growth promoting bacterium *Enterobacter* sp. CID isolated previously in our lab. For this he has tagged the bacterium with GFP and has been monitoring its colonization by microscopy. Overall, his work has led to significant findings and he is in the process of publishing them. Dr. Rakesh Sharma has been to several national and international conferences for poster presentations of his work. Part of his work has been accepted for publication and couple of manuscripts are under preparation which I am confident will get published in good journals.

As a researcher, I found Dr. Sharma to be very organized and systematic, did good reading of the background and carried out experiments in well-planned manner. He has a good understanding of basics in Microbiology, Biochemistry and enzyme studies. Working in my lab. has given him additionally hands-on experience in Molecular biology particularly *in vitro* DNA manipulations, heterologous expression and PCR-DGGE along with con-focal microscopy. He is good in spoken as well as written English. Rakesh has helped in the training of M.Sc. dissertation students working on the area related to his Ph.D. topic and was able to motivate them into developing research skills.

Dr. Rakesh Sharma has several qualities that will help him succeed as a researcher such as research aptitude, analytical thinking, organizational ability, and presentation skills. He will be able to positively contribute to the team.

Archana
31-8-2015

Dr. Archana G.

