

# CURRICULUM VITAE

## Dr.Krishnaveni R

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### Career objective

Seeking a challenging environment that encourages continuous learning and creativity

### Experience:

Experience	Specialization	University	Year
Assistant Professor	Microbiology	Vijayanagara sri Krishna Devaraya University, Bellary	04.10.2018-till date
DST WOS-A	Plant Biotechnology	University of Agricultural Sciences, Dharwad	07.09.18-03.10.18
UAS Post Doctoral Fellow	Plant Biotechnology	University of Agricultural sciences, Dharwad	2016-2018
ICAR senior research fellow	Microbiology and Biotechnology	University of Agricultural sciences, Dharwad.	2015-2016
Senior Scientist	Molecular biology	Navya biologicals Hubli.	Jan –march 2015
DBT Post Doctoral Fellow	Molecular Biophysics Unit	Indian Institute of Science, Bangalore.	2010-2014

### Education

Education	Subject	University	Percentage (%)	Year
PhD (UGC JRF)	Microbiology	Gulbarga University, Gulbarga.		2006-2010

<b>MSc</b>	Microbiology	Gulbarga University, Gulbarga.	75.54	2003-2005
<b>BSc</b>	Industrial Microbiology, Zoology, Chemistry	Kittel Science College, Dharwad.	79.16	1999-2002
<b>PUC</b>	Physics, Chemistry, Maths, Biology.	Kittel Science College, Dharwad.	53.66	1996-1999
<b>SSLC</b>	Karnataka State Syllabus	Sri Venkateshwara Public School Sindhanur.	70.08	1995-1996

### **Achievements**

- Qualified the KSET for lecturer and Assistant Professorship in 2013 Roll no: 10280606.
- Stood **first rank** with 3 gold medals (2 gold medals for getting 1<sup>st</sup> rank in MSc Microbiology for the year 2005 and 1 gold medal for securing highest amongst girl students)
- Received merit scholarship in M.Sc Microbiology of Rs1000/-.
- Got 1<sup>st</sup> prize for the presentation of the work i.e. antibacterial activity of the seed extract of *Mallotus philippinensis* (kamala) against multidrug strains of *pseudomonas* and *klebsiella spp*, in the Third National Conference of Indian Association of Applied Microbiologists (IAAM), held at Vellore, Tamilnadu, India on January 5-7, 2005.
- Received Merit student university Fellowship of Rs1600 pM and UGC-JRF of 10000 pM, for pursuing PhD.

### **Other research activities:**

- Team member with Dr.Mousimi Mondal in **Bench Scale Production of Snow Flake Cordyceps *Isaria tenuipes* and Production of Nutraceuticals** from the same Proposal No: BT/BIPP0971/38/16 and **A Novel Process to obtain high value metabolites from *Cordyceps militaris* with submerged fermentation.** Ref no:

BT/SBIRI1382/31/16 Mallipathra Nutraceuticals Pvt. Ltd. 1.5 crore was sanctioned by merging two projects under BIPP, Birac, Govt of India.

- Guided Soumya Sitaramshastri Kolachal, B.E (Biotechnology) for MSME 2016-17 Project on **production and optimization of VEGAN, a vegetable and fruit sanitizer.**

### **Teaching Experience**

- Worked as a Full time Lecturer in PES College, Hanumanth nagar, Bangalore from 2005 -2006. Classes taken for Bsc 1,2 and 3 rd year Microbiology. Theory and practical's were conducted in General Microbiology, Food microbiology, Agricultural microbiology and Molecular biology. Worked as Class teacher for Bsc 1<sup>st</sup> year Microbiology.
- Theory and practicals were conducted in General Microbiology, Ecology and Virology during PHD in the department of Microbiology, Gulbarga University, and Gulbarga for four years 2006-2010. Guided MSc Projects on to Msc students on screening and production of biopolymers (Poly hydroxy butyric acid) production from bacteria. Production and purification of protease and Laccase from fungi were carried out

### **Post doctoral research experience:**

- 1) Working as Post doctoral fellow, University of Agricultural Sciences, Dharwad from 11/4/2016 on **Development of heat resistant wheat variety and differential expression of pearl millet sHsp genes during inflorescence.** Independent research grant of 12.8 lakhs from University of Agricultural sciences Dharwad.(Ongoing project)

- 2) Worked as SRF on ICAR project entitled on **Niche area of excellence on exploitation of microbial and genomic resources for plant disease and management** for 11 months. (29<sup>th</sup> April 2015- 31<sup>st</sup> March 2016)
- 3) Worked as Senior Scientist in Navya Biologicals. (From Jan 2015-March 2015).
- 4) Six months Research associate under DBT –IISc Partnership programme on **Functional and Structural Characterization on SHSP20 of *Leishmania donovani***. in Molecular Biophysics unit, Indian institute of Science, Bangalore.
- 5) Four year DBT post doctoral research associate, on **Functional and Structural Characterization of Small Heat Shock Proteins (cytosolic, mitochondrial, Peroxisomal, plastid sHsps) from Rice** in Molecular Biophysics unit, Indian institute of Science, Bangalore with 25,000 pM fellowship+ 30%HRA with annual contingency of 50000.

### **Independent Research (2016-2018)**

**Title. Development of heat resistant wheat variety.** Study on the Callus induction and Regeneration capacity of the wheat. Genetic transformation of heat stress genes into wheat through *Agrobacterium tumefaciens* mediated method.

### **Senior Research Fellow Research work summary (2015-2016)**

**Title: Niche area of excellence on exploitation of microbial and genomic resources for plant disease and management**

Isolation of DNA from medicinal plant rhizosphere soil samples, cloning and library construction and screening against plant pathogens. Field assessment of *Streptomyces Parvas* and *Streptomyces shandoggenensis* in control of stem rot of groundnut (*Arachis hypogaea L.*) caused by *sclerotium rolfsii* sacc was taken up. Seven treatments in 3 replications in a sick plot (3mX3m) available at AICRP on oilseeds, University of agricultural science Dharwad

were taken up. The Treatments Actinomycetes *Streptomyces Parvas* (AUDT217) Actinomycetes *Streptomyces shandoggensis* (AUDT248), Consortia (AUDT 217+AUDT 248)Uninoculated control, Chemical control (vitavax 75 WP) (Fungal control) *Trichoderma* (Bacterial control)*Pseudomonas florescens* @2g/kg of seeds were used to assess the disease control.

### **DBT Post-doctoral research work summary (2010-2015)**

**Title: Functional and Structural Characterization of Small Heat Shock Proteins, (cytosolic, mitochondrial, Peroxisomal, plastid sHsps) from Rice and *Leishmania donovani*.**

Cloning and subcloning into different vectors, Expression, Purification of histag and tagless constructs of recombinant sHsps located in different organelles of rice by Nickel-NTA Chromatography, Ion exchange chromatography and FPLC was done. Functional characterization was done by SDS PAGE, NATIVE PAGE with tricine, tris acetate, and tris glycine gels, blue native PAGE, western Blotting, Thermo protection assay, Lysozyme assay, MALDI, LCMS, DLS, CD and SAXS. Crystallization by Micro batch and hanging drop technique using hampton kits and X-ray diffraction studies was done. In case of rice different deletions at N-terminal and C-terminal was done and crystallized by hanging drop techniques using MEDAS kits. Crystallization data was collected by home and synchrotron source.

### **PhD Research work summary (2006 to 2010)**

**Title: Production, Purification and Characterization of Cytosolic Tyrosinase and L-DOPA by a novel *Acremonium rutilum* under Submerged Fermentation and Studies on its Inhibitors**

Isolation, screening, characterization and identification of novel tyrosinase producer, *Acremonium rutilum*. Transformation of L-Tyrosine to L-Dopa by *Acremonium rutilum*:

Effect of incubation period, Temperature, pH, inoculum size, substrate concentration, carbon source, nitrogen source and copper sulphate concentration on L-dopa production by submerged fermentation. Identification of L- dopa by TLC. Production of cytosolic tyrosinase by *Acremonium rutilum*: Effect of incubation period, Temperature, pH, inoculum size, substrate concentration, carbon source, nitrogen source and copper sulphate concentration on cytosolic tyrosinase production by submerged fermentation. Purification studies by  $MnSO_4$  precipitation, Triton -X114, Fractional ammonium salt precipitation, Dialysis, DEAE-cellulose ion exchange and Gel filtration chromatography and activity staining. Characterization of cytosolic tyrosinase: Molecular weight determination by SDS-PAGE, Stability, inhibition and kinetic studies. Screening of potent tyrosinase inhibitors from microbial extracts by plate assay method and by inhibiting partially purified tyrosinase by *Acremonium rutilum* and an attempt in identification of the anti tyrosinase compound.

## **Msc Project work summary (2004-2005)**

### **Title: Phytochemical screening of *mallotus philippinensis* and *cocculus hirsutus* and antimicrobial activity against multidrug resistance pathogens**

Comparison of *antimicrobial activity* of the medicinally important plants *mallotus philippinensis* and *cocculus hirsutus*, both crude extract and the separated plant chemicals by TLC were checked by kirbey Bauers disk method and well method against MDR bacterial strains.

## **Skills learnt during Research and Development**

### **1. Microbiology**

1. Isolation techniques of microorganisms such as protozoa, bacteria, fungi and actinomycetes.

2. Taxonomic identification of microorganisms by Microscopic, biochemical and molecular level.
3. Evaluation of Multi drug resistance by determination of MIC of antimicrobial agents and also by evaluation of antimicrobial antibiotic sensitivity tests-paper disc plate method and well method.
4. Quality assessment of water, air, food products, dairy products etc
5. Isolation of Agriculture important microbes from soil and their exploitation for growth promoters, antibiotics, biocontrol agents etc
6. Study of plant and human pathogens.
7. Extraction and purification of secondary metabolites.

## **2. Molecular biology and protein engineering experiments.**

1. Using Bioinformatics tools NCBI, EMBL, UNIPORT, EXPASY tools, NEB cutter, ADD GENE, KOME DATABASE, SWISSPORT, PROTPARAM, Multiple alignment softwares such as ClustalW and signal prediction softwares PHOBIUs and Signal P, RCSB PDB protein data bank. Using Excel, RCGM statistical analysis, Origin 6.1 for graphs construction.
2. Isolation of DNA from soil, blood, plant and bacteria.
3. Primer designing using Oligo analyzer, primer primer and vector NTI
4. Hands on PCR amplification, Plasmid prep, DNA purification and precipitation, Agarose gel electrophoresis, Gel extraction of DNA, Pulse field electrophoresis.
5. Preparation of competent cells using CaCl<sub>2</sub> and MgCl<sub>2</sub> method. Transformation of DNA using heat shock method and electroporation method.
6. Cloning and sub cloning of genes into different bacterial and plant expression vectors. Screening of clones using blue white screening and antibiotic selection method
7. Construction and screening of libraries from soil DNA.

8. Expression and production of recombinant proteins.
9. Recombinant protein purification by Nickel NTA column, Ion exchange and size exclusion chromatography.
10. Bioprocess and fermentation studies.
11. Biophysical Characterization of proteins using Native page, SDS PAGE and western blotting ,Circular Dichroism, DLS Dynamic light scattering and Analysis of MALDI TOFF data.
12. Setting up crystallization and Handling X-ray diffraction machine.

### **3. Plant Biotechnology**

1. Plant tissue culture experiments: MS Media preparation and callus induction of wheat with high regeneration capacity.
2. Genetic transformation of desired gene through agro bacterium mediated transfer.
3. Preparation of biofertilizer using lignite and farm yard manure. Designing and evaluating the field trials.

### **4. Nanotechnology**

1. Silver nano particle production by microorganisms and characterization.
2. Encapsulation of nanoparticles.

## **Paper Publications**

- 1) **Krishnaveni R**, Vandana R, Rajashekhar Nagur, Prema kulkarni, Pramod desai.(2015) Role of Parametric Optimization on L-dopa and Cytosolic Tyrosinase production under *SmF* from *A. rutilum*: its Purification and characterization



*Int.J.Curr.Microbiol.App.Sci* **Int.J.Curr.Microbiol.App.Sci** (2015) **4(10): 350-367** (impact factor 2.01)

- 2) Nandini Mani, Krishnaveni Ramakrishna, kaza suguna. (2015) Characterization of rice small heat shock proteins targeted to different cellular organelles. Cell stress and Chaperons. (2015) 20:451–460 (**Impact factor.3.165, Springer publishers;both first and second authors equally contributed for the work**)
- 3) Vandana R, **Krishnaveni R** (2011) Transformation of L-Tyrosine to L-Dopa by *Acremonium rutilum* W.Gams: Effect of Nutritional Parameters. *Res. J. Biotech*, 6 (4), 7-11. (**Impact factor: 0.294 NAAS Rating: 6.2, E-journals, www.worldresearch.com**)
- 4) **Krishnaveni R**, Vandana R, Thakur M.S, Neelgund.Y.F “Transformation of L-Tyrosine to L-Dopa by a novel fungus *Acremonium rutilum* under submerged fermentation. (2009) *Cur. Microbiol*, 58:122-128.(**Impact factor:1.55, NAAS rating 7.6, Springer publishers**)
- 5) Vandana R, **Krishnaveni R**, Thakur M.S, Neelgund.Y.F (2009) Effect of physical parameters on the production of cytosolic tyrosinase by *Acremonium rutilum* under submerged fermentation. *j of Micr.world*, 11(2)196-203.
- 6) **Krishnaveni R**, Vandana R, Thakur M.S, Neelgund.Y.F (2008) “screening and characterization of a novel cytosolic tyrosinase producing fungus *Acremonium rutilum w.gams*. *Bios can*. (4)528. (**NAAS rating 5.1**).
- 7) Prema Kulkarni, Vandana Rathod\*, Jyothi Hiremath, Shivaraj Ningangouda, Dattu Singh, Ashish Kumar Singh, **Krishnaveni R**(2014)Biosynthesis and Characterization of Silver Nanoparticles from *Aspergillus Terreus* and its Antibacterial Efficacy against VRSA Strains. *International Journal of Engineering Research & Technology* (IJERT) ISSN: 2278-0181Vol. 3 Issue 6. (**Impact factor: 1.76**).

- 8) Prema Kulkarni, Vandana Rathod, Jyoti H, Shivraj Patil, Dattu S and **Krishnaveni R**(2014) PRODUCTION OF SILVER NANOPARTICLES USING *ASPERGILLUS TERREUS* AND ITS ANTIBACTERIAL ACTIVITY AGAINST METHICILLIN RESISTANT *STAPHYLOCOCCUS AUREUS* (MRSA) *International Journal of Latest Research in Science and Technology* ISSN (Online):2278-5299 Volume 3, Issue 4: Page No.144-148.
- 9) Manzoor-ul-haq, Vandana Rathod, Shivaraj Patil, Dattu Singh and **R.Krishnaveni** (2014)Isolation and Screening of Mushrooms for Potent Silver Nanoparticles Production from Bandipora District (Jammu and Kashmir) and their characterization, *Int.J.Curr.Microbiol.App.Sci* 3(9) 704-714.
- 10) Krishnaveni R, Prema Kulkarni, Rajashekhar N, Ashish Kumar Singh, Dattu Singh,Vandana Rathod ,Jasmine Mathews (2016) Rapid Screening and identification of fungal metabolites as Antityrosinase compounds. *journal of farm sciences*(accepted)
- 11) Prema Kulkarni, Dr. Rajeev Singh T· Krishnaveni R, Ashish Kumar Singh, Dattu Singh Vandana Rathod, Jasmine Mathews(2016)Antidermatophytic efficacy of Silver Nanoparticles Produced From the fungus *Aspergillus terreus*.(2016) 6(2),28-34.

## **Papers presented**

### **International**

1. Attended a conference presented poster on **“The effect of nutritional parameters on the production of cytosolic tyrosinase by *Acremonium rutilum* w gams under submerged fermentation** in 3<sup>rd</sup> international congress on ICBF and 5th BRSI held at Osmania University, Hyderabad on 6<sup>th</sup> to 8<sup>th</sup> November 2008.

2. Attended and presented poster on international; conference on **biomolecular forms and functions. A celebration of 50 years of Ramachandran map on functional characterization of small heat shock proteins in *Oryza sativa*** from 8-11 January 2013 in IISc Bangalore.
3. Attended and presented poster on Structural and functional studies on small heat shock proteins by Spraha Bhandari, Nandini Mani, Krishnaveni R. and Kaza Suguna, Molecular Biophysics Unit, Indian Institute of Science in the international workshop on for BioStruct-X Mediterranean Macromolecular Crystallography held at the Technion – Israel Institute of Technology from Monday 4 Jan-6<sup>th</sup> Jan 2016 .

### **National**

1. Attended a conference presented poster on “**Screening of novel cytosolic tyrosinase producing fungi *Acremonium spp***” in 48th Association of microbiologists of India (AMI) conference, held at IIT Madras from 18th-21st December 2007.
2. Attended a conference and presented oral a paper on “**Microbial transformation of L-tyrosine to L-dopa a high value added drug from a novel *Acremonium spp* by submerged fermentation**” for young scientist award competition in National conference on “Biotechnology for Rural and Industrial Development (NCBIRD-2008)” held at Department of Biotechnology, Gulbarga University from 17th -19th January 2008.
3. A poster on “**screening and production of biopolymers from bacteria**” in National conference on “Biotechnology for Rural and Industrial Development (NCBIRD-2008)” held at Department of Biotechnology, Gulbarga University from 17th -19th January 2008.

4. Attended and presented Antibacterial activity of the seed extract of *mallotus phillipinensis* (kamala) against multidrug strains of *pseudomonas* and *klebsiella* sps, by Naveen Vadkari, Krishnaveni in the Third National Conference of Indian Association of Applied microbiologists (IAAM), held at Vellore, Tamilnadu, India on January 5-7,2005. (Got 1st prize for the Presentation of the work).

### **Conferences, seminars and workshop attended**

1. Participated a National conference on “**Aromatic and medicinal plants**” held at Department of botany Gulbarga University from 15th -19th December 2007.
2. Participated a National conference on “Emerging trends and future challenges in Biotechnology” held at Department of biotechnology PESIT Bangalore from 22-23<sup>rd</sup> September 2006.
3. Attended Conference on **Karnataka vignana mattu tantragnayna dwithiya sammelana**, Gulbarga University from 23<sup>rd</sup> -24<sup>th</sup> September 2009.
4. Participated one day workshop entitled oppourtunities for exploring innovative ideas through incubation facilities on 18<sup>th</sup> November 2015, organizes at Department of biotechnology, college of agriculture, UAS, Dharwad.

### **Training programme**

1. Attended one day **Awareness training programme on biodiversity related issues and peoples biodiversity register** held at P.G .studies and research in biotechnology, Gulbarga University, Gulbarga on 21<sup>st</sup> September 2007.
2. Attended **UGC NRCM workshop on X-Ray diffraction methods**.Dept of material science engineering, IISC, Bangalore-12 from 26 -31<sup>st</sup> DEC 2011.
3. Assisted in conducting practical classes/exercises in ICAR Winter school conducted by Dr. Ishwarappa S Katageri, HOD University of Agricultural Sciences (UASD),

Dharwad, Karnataka on **Development and Utilization of Genetic and Genomic Resources through Biotechnology for biotic, abiotic stress management and quality improvement in field crops 21 days 01 Dec to 21 Dec 2016.**

### **Personal details**

Husbands name: Dr.Rajashekhar B Nagur

Date of birth : 04.02.1980

Sex : Female

Nationality : Indian

Marital status: Married

Langagues : Kannada, Telugu, English &Hindi.

### **Present address**

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### **DECLARATION:**

I certify that the above information is correct and complete to the truth of my knowledge and I bear the responsibility for the correctness of the above mentioned particulars.

PLACE: Hubli

DATE: 20.1.2018

(Signature)

## REFERENCES

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