



AMRUTA DESAI, Ph.D.

Galaxy View, Near Pavan Party Plot. | Ankur Char
asta, Naranpura Ahmedabad Gujarat 380013
-9537893039 | amruta.desai2009@gmail.com

seeking assignments in Research & Development with a growth-oriented organization

SYNOPSIS

- A Ph.D. degree holder having experience of in the field of Plant breeding, biotechnology and pathology.
- Currently working as an Assistant Professor, School of Sciences, Pimpri Chinchwad University with an additional charge as the University Research Coordinator.
- Worked as an **Assistant Professor** in the field of Biotechnology (Dept. of Life Sciences) at Ganpat University, Mehsana from 16th August, 2021 to 31st January 2023.
- Worked as a **visiting faculty** for B.Voc (Bachelor of Vocation) programme at Central University of Gujarat, Gandhinagar from 19th November 2018 till 6th June 2021.
- Worked as a Research Fellow under the DST Schemed Project “**Transcriptome based discovery of pathways and genes related to resistance against downy mildew disease in Isabgol (*Plantago ovata* F.)**” at Dept. of Plant Breeding, ICAR-Directorate of Medicinal and Aromatic Plant Research (DMAPR), Boriavi, Gujarat since from 22nd August 2016 till 31st March, 2017.
- Research proficiency mainly include: **Plant Breeding, Biotechnology, Plant Physiology, Genetics and pathology.**
- Worked as a Research Fellow under the ICAR Schemed project of “**Semen sexing in cattle**” in Department of Animal Biotechnology, College of Veterinary science and animal Husbandry, Anand Agricultural University, Anand-388 110 from 5th November 2015 to 27th June 2016.
- Worked as a **Visiting Faculty** in the field of Science at D.L.Raval Primary School, Ankur crossroads, Naranpura, Ahmedabad 380013 from 1st June, 2014 till 31st October, 2015.
- A total of 17 publications under credit.
- A self-motivated team player with strong communication and problem-solving skills.
- An analytical mind with the ability to think clearly and logically.

RESEARCH EXPERIENCE

Contributing the agricultural sector in the selection and utilization of a high yielding variety.

Conducted MSc. Thesis on “**Molecular Characterization of Red Rice Genotypes (*Oryza sativa* L.)**” under the guidance of Dr. Subhash N. Plant Tissue Culture Laboratory, Anand Agricultural University, Anand.

M.Sc. Research Summary

Recognizing the importance of a better utilization of features associated with red rice in breeding programs, my M.Sc. research dealt with the characterization of genes responsible for colour and zinc and Iron enhancement in red rice genotypes using molecular markers with the aim of assessing the genetic variability at molecular level among 24 genotypes of red rice and eight genotypes of white rice through DNA fingerprinting by SSR and InDel markers. I validated SSR and InDel markers which successfully characterize coloured rice genotypes from white rice genotypes. I also carried out Biochemical analysis (SDS-PAGE, Proximate analysis for zinc and iron content from rice seeds using Atomic Absorption Spectrophotometer.)

Conducted Ph.D. Thesis on **“Transcriptome based identification of genes imparting Bacterial leaf blight (*xanthomonas oryzae*) resistance in rice. (*Oryza sativa* L.)”** under the guidance of Dr. Subhash N. Plant Tissue Culture Laboratory, Anand Agricultural University, Anand

Ph.D. Research Summary

During my doctorate study I attempted to identify genes responsible for disease resistance for bacterial leaf blight in rice. I had conducted transcriptome analysis using NGS MiSeq Illumina. In the process I had evaluated diseased rice fields and had also conducted physiological analysis for the progression of disease using physiological parameters and to design models for inter relationships of different physiological parameters using SPSS software.

EDUCATION

	Examination Passed	University/ Board	Year Of Passing	Subjects/ Discipline	% Marks/ of CGPA	Division
1	Ph. D.	A. A. U., Anand	2017	Molecular Biology and Biotechnology	79.3	FIRST
2	M.Sc.	A. A. U., Anand	2012	Plant Biotechnology	78.5	FIRST
3	B.Sc.	Saurashtra University	2009	Biotechnology	69.2	FIRST
4	NET	ICAR	2014	Agriculture Biotechnology	66.0	Qualified

5	Computer course	IIMA	2009	Computer	----	S
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JOB EXPERIENCE

1. Total Job Experience of 11 years

2. Currently working as an Assistant Professor, School of Sciences, Pimpri Chinchwad University with an additional charge as the University Research Coordinator.
3. Worked as an **Assistant Professor** in the field of Biotechnology (Dept. of Life Sciences) at Ganpat University, Mehsana from **16th August, 2021** till 31st January, 2023.
4. Worked as a **visiting faculty** for B.Voc (Bachelor of Vocation) programme at Central University of Gujarat, Gandhinagar from **19th November 2018** till **6th June 2021**.
5. Worked as a Research Fellow at Dept. of Plant Breeding, ICAR-DMAPR, Boriavi from **22nd August 2016** till **31st March, 2017**.
6. Worked as a Senior Research Fellow under the ICAR Schemed project of "Semen sexing in cattle" in Department of Animal Biotechnology, College of Veterinary science and animal Husbandry, Anand Agricultural University, Anand-388 110 from **5th November 2015** to **27th June 2016**.
7. Worked as a Visiting Faculty in the field of Science at D.L.Raval Primary School, Ankur crossroads, Naranpura, Ahmedabad 380013 from **1st June, 2014** till **31st October, 2015**.

Research experiments conducted

Conducting CRD experiment for control and infected rice genotypes.

- a. Transcriptome based identification of pathways and genes imparting Bacterial leaf blight resistance in rice using Illumina Miseq NGS.
- b. Validation of differentially expressed genes for BLB resistance using Real Time PCR
- c. 2-D Proteomic study to identify X and Y Chromosome specific markers in cattle sperm
 - Immunoblotting and western blotting experiments for X/Y specific sperm capturing
 - X/Y specific Sperm capturing using Nanobeads and dynabeads.
 - Cloning of SRY (Y specific gene) from eluted PCR product
 - Cloning of eluted RAPD products for SCAR marker development in Isabgol
 - Mining of genes and pathways for Downy Mildew resistance in Isabgol
 - Construction of CDPK gene map for Isabgol (NCBI submission pending)
 - Molecular Characterization of Ashwagandha and Isabgol Genotypes using different molecular markers.

- Designing of Real time PCR for Differential expression studies

8. Field Experiments

1. Disease scoring of downy Mildew disease in Isabgol (*Plantago ovata*).
2. Disease evaluation of Bacterial leaf blight (*Xanthomonas oryzae*) disease in Rice (*Oryza sativa* L.).
3. Survey for the progression of BLB in rice using physiological parameters. DUS Characterization in Ashwagandha (*Withania somnifera*)

SEMINAR PRESENTED

- Energy balance and its photosynthetic efficiency in cereals.
- Manipulation of Meiosis for crop improvement in cereals.
- Molecular and Biochemical characterization of coloured Rice genotypes from different regions of India.
- Biosafety issues and environment risk assessment strategies for GM crops.
- Cell cycle- The holy grail of life.
- Cellular signalling and signal transduction pathways.
- Expert Session on Eradication of Microplastics on World Environmental Day 2025, PCU

EXPERT SESSIONS CONDUCTED

- Acted as a resource person for a 5 day workshop on Next generation sequencing and Bioinformatic analysis at Department of Animal Biotechnology, College of Veterinary science, Anand Agricultural university.
- Invited as a speaker In an induction program on the basic concepts in Biology as a part of Pre University Bridge course conducted on 12th to 18th August, 2022 at Ganpat university, Gujarat.
- Invited as a research team member for Hands on training Program on Basic Molecular Biology Techniques- a workshop coordinated by GBRC and Ganpat University Conducted on 19th to 23rd September, 2022 at Ganpat University, Gujarat.
- Conducted two practical experiments in the training Program on Basic Molecular Biology Techniques
- Part of the organizing committee for NBTCBC- a workshop for students of north Gujarat universities and guiding them for entrance exams like CSIR and ICAR NET.
- Conducted two lectures for NBTCBC program.
- Acted as a Judge for Research Advancements in MBA, Department of Management, PCU.
- Invited as a Guest Speaker for Career Guidance Lokmat. 2024.
- Part of the organizing Committee for GEC, 2025.

TEACHING RESPONSIBILITIES

- Worked as a Visiting Faculty for Secondary and Higher secondary academics in the field of Science at D.L. Raval Primary and Secondary School, Ankur crossroads, Naranpura, Ahmedabad 380013.

- I have cleared an Indian council of Agricultural Research (ICAR) National entrance Test (NET) with first division which qualifies me as a lecturer.

- Subjects for Lectures mainly included: **Biology, Biochemistry, Molecular Biology, Cell Biology and Biotechnology Biochemistry, Research**

My teaching Responsibility included:

- Planning, preparing and delivering lessons to all students in the class. My objective was to complete the course efficiently in given time interval.
- Communicating, consulting and co-operating with other members of the school staff, including those having posts of special responsibility and parents/guardians to ensure the best interest of students.
- Maintaining good order and discipline amongst students.
- Making use of audiovisual technological devices/aides (such as radio aids; projectors, PowerPoint presentations) and other adaptations during the delivery of the lessons.
- Worked as a **visiting faculty** for B.Voc (Bachelor of Vocation) programme at Central University of Gujarat, Gandhinagar from 19th November 2018 till 6th June 2021.

COURSES UNDERTAKEN:

Sr.no	Course title
1.	Introduction to Biochemistry
2.	Human Anatomy and physiology
3.	Cell Biology
4.	Indian Drugs Regulatory Guidelines
5.	Introduction to Microbiology
6.	Advanced Analytical Chemistry-II
7.	Pharmacology-I
8.	Introduction to drug delivery systems
9.	Introduction to cosmetic products
10.	Pharmacology-II
11.	Green chemistry
12.	Instrumentation and Analytical techniques

- Currently working as an Assistant professor in the field of Biotechnology at Acting as a member of RPC/Guide to evaluate the progressive work of MSc and Ph. D Scholars. I am currently serving as a Ph.D. Guide, Co-Guide and expert for three Ph.d Candidates.
- Served as mentor for MSc students in different scientific workshops like Shodh, Scitech workshops.
- Serving as an in charge of ATC laboratory. Involved in developing the animal tissue culture laboratory at Ganpat University.

- Also serving as a core member of the NAAC Committee, Newsletter committee and Departmental research committee.
- Served as a visiting faculty for B.Voc (Bachelor of Vocation) program at Central University of Gujarat, Gandhinagar from 19th November 2018 to 3rd June, 2021

TEACHING PHILOSOPHY

It is my belief that teaching is one of the most important services to the society. I chose to be a Lecturer because I believe I can help to educate the future generation, and my commitment is to train high-standard students for the benefit of our society. There is no perfect formula of teaching, but rather teaching is about identifying the best approach that will work for a specific student as every person is gifted in its own way. Although I think my teaching has been successful, I believe that I have much to learn from my peers (colleagues) and students. I am eager to continue searching for new ways to improve my teaching and mentoring skills in my classroom and beyond.

TECHNIQUES

Methods in molecular biology:

- DNA extraction and purification of leaf and seed samples
- Gel electrophoresis (Agarose & PAGE)
- Cloning
- Cycle sequencing/ Sanger sequencing.
- Capable of using molecular analysis software like SAS, GENALEX, NTYSIS, POPGENE and EXCELSTAT.
- Next generation sequencing using MiSeq Illumina
- SCAR marker development
- Gene mining of sequenced products.
- Immunostaining and western blotting/ Immunoblotting.
- Physiological data for progression of disease and deriving its mathematical interpretation using SPSS software

EQUIPMENT HANDLING

Methods in molecular biology:

- Gel electrophoresis (Agarose & PAGE)
- Polymerase Chain Reaction
- Sanger sequencing.
- Next generation sequencing using MiSeq Illumina Molecular marker techniques and its data interpretation
- Biochemical parameters (SDS PAGE and Isozyme) and its data analysis
- Digital PCR
- Real time PCR
- Atomic absorption spectrophotometer
- Whole genome sequencing using Sanger Based Cycle Sequencing

- Potable photosynthetic system data collection and mathematical model generation.
- Chlorophyll meter
- Cell counter
- Microscope

MEDALS AND AWARD

Sr.no	Particulars	Position
1.	Participated in National science symposium held at Virani college Rajkot, 2006	2 nd position in model presentation
2.	Participated in National science symposium held at Christ college Rajkot, 2008	1 st position in poster presentation
3	Young Woman Researcher Award	women researcher award Venus International Women Association, 2024 for outstanding research in Plant stress physiology
4	Global Inspirational Award	women leaders in Education and Research- Research contribution in the field of Plant Molecular Biology and pathology

SEMINARS AND CONFERENCE

Sr.no	Particulars	
1.	Seminars	05
2.	Conference	05
3.	Certificate/short course	03
	Workshop:	03
5.	Symposium	03
6.	Member of Scientific body/Committee	01

RESEARCH PAPERS

1. **Amruta Desai.**, Bhushan Aher. and Subhash N. (2017). Genetic Characterization of coloured rice genotypes (*Oryza sativa* L.) from different regions of India using molecular markers. International Journal of Creative Research Thoughts. **5(4)**: 3234–3245. Impact factor 5.94.

2. Aher, B. M., Pithia, M.S., **Desai, A.S.** and Patel, J.N. (2017). Stability analysis for yield and its contributing characters in kabuli chickpea (*Cicer arietinum* L.). International Journal of Chemical Studies. **5(5)**: 252–254. NAAS Rating: 5.31.
3. A.K. Pawar., B. M. Aher., C. S. Desale., A. S. Desai. and B. A. Monpara. (2016). Heterosis and Combining Ability in Sesame (*Sesamum Indicum* L.) Advances in Life Sciences 5(4): 1279–1284. NAAS Rating 4.94.
4. Patel,A.A., Jadeja, G. C., Patel, T. R., **Desai, A. S.** and Zaman, M. (2016). Molecular study of bacterial leaf blight resistant Pyramided lines of rice using SSR markers. Journal of Cell and Tissue Research. **16(1)**. NAAS Rating: 4.38.
5. **Amruta Desai.**, Bhushan Aher. and Subhash N. (2014). Biochemical Characterization of Red Rice Genotypes (*Oryza sativa* L.) Trends in Biosciences **7(23)**: 4016–4021. NAAS Rating 4.94
6. Aher. B. M., **Amruta, Desai.**, Pithia, M. S. And Kalyanrao. (2014). Genetic Variability of Yield and Its Contributing Characters in Kabuli Chickpea (*Cicer arietinum* L.). Trends in Biosciences 7(23): 4026–4033. NAAS Rating 4.94.
7. P.N. Kore., M.J. Patel., **A.S. Desai.**, A.A. Sakure., D.A. Patel. and R.R. Acharya. Genetic Divergence Analysis in Papaya (*Carica papaya* L.) Genotypes using Molecular Markers. (2018). International Journal of Agriculture, Environment and Biotechnology. 11(1): 01–04. NAAS Rating: 4.38

Review Articles

1. **Amruta Desai** and B.M Aher. (2017). Legislation for seed laws in India. International Journal of Creative Research Thoughts. **5(4)**: 3219–3233. Impact factor 5.94.
2. **Amruta Desai** and B.M Aher. (2017). Marker free transgenics. International Journal of Creative Research Thoughts. **5(4)**: 2195–2199. Impact factor 5.94.
3. B. M. Aher and **Amruta Desai.** (2017). Problems, prospects & breeding Strategies for important fruit & Seed spices. International Journal of Creative Research Thoughts. **5(4)**: 2200–2203. Impact factor 5.94.
4. **Amruta D; Begari E, and Prakash Chandra J.** (2021). Chlorophyll fluorescence imaging: an investigative tool for plant abiotic stress. International Journal of Bio- Technology and Research (IJBTR) 11(1):**15–22**. Impact factor 6.65.
5. **Amruta D; Begari E, and Prakash Chandra J.** (2021). Genetic engineering of meiosis related genes for crop improvement in cereals. International Journal of Bio-Technology and Research (IJBTR) 11(1):**23–30**. Impact factor 6.65.
6. **Amruta Desai.** (2023) Control of germination– an impact of seed dormancy. International Journal of Botany and Research (IJBR) 13 (2): **1–14**. ISSN (P): 2277–4815; ISSN (E): 2319–4456. Impact factor (JCC): 6.7

Book Chapter

1. Sasidharan N., **Amruta Desai**, and Bhushan M. Aher. (2014). Bio safety issues and Environmental risk assessment strategies for GM crops. New frontiers in hybrid seed production and genetic purity testing. ICAR, New Delhi, India.
2. Bhupendra G. Prajapati, **Amruta Desai**, Pooja Desai, Aaroahi Deshpande, Aaroahi Cherkar, Manas Joshi, and Shama Mujawar. (2023). Nanozymes: A Potent and Powerful Peroxidase Substitute to Treat Tumour Hypoxia. Smart Nanomaterials Technology. Springer Nature Singapore. ISBN 978-981-99-1717-4 ISBN 978-981-99-1718-1. <https://doi.org/10.1007/978-981-99-1718-1>

Abstracts

1. Jincy Mathew, **Amruta Desai**, Parul M Purohit, P.Manivel, Jitendra Kumar, and R. Nagaraja Reddy. (2017). Molecular Characterization of AWS-1: A new cultivar of Ashwagandha (*Withania Somnifera* (L.) Dunal). "International congress of the society for ethnopharmacology and medicinal plant research"
2. **Amruta Desai**, Jincy Mathew, R. Nagaraja Reddy and P.Manivel. (2017). Mining of pathways and genes conferring resistance to downy mildew disease in Isabgol (*Plantago ovate*. Forsk). "International congress of the society for ethnopharmacology and medicinal plant research"
3. B. M. Aher, N. Sasidharan, **A. S. Desai**, S. R. Patel and Kalyanrao. (2016). Biosafety issues and environment risk assessment strategies for GM crops. International Conference on Nutraceuticals and Functional Foods – The Challenges and Opportunities, December 6-8, 2016, Anand (Gujarat), India

REFERENCES

Dr. Eeshwariah Begari
Assistant professor,
School of applied material sciences,
Central university of Gujarat, Gandhinagar, 382030.
(M): 9623171225
Email ID: eshwariict@gmail.com

Dr. Narendra Gajbhaye.
Senior Scientist,
ICAR-DMAPR,
Boriavi, Gujarat. 387310
(M): 8141098842
Email Id: gajbhiye_narendra@yahoo.com

Dr. Prakash Chandra Jha
Associate Professor,
School of applied material sciences,
Central university of Gujarat, Gandhinagar, 382030.
(M): 8866822510
Email ID: prakashcjhaindia@gmail.com

Dr. Geetha K.A.
Principal Scientist,
ICAR-DMAPR,
Boriavi, Gujarat. 387310
Email ID: geethaka99@yahoo.com
(M):9428153336

Dr. Subhash N.
(Retd.) Professor and Head,
Plant Tissue Culture Laboratory,
Anand Agricultural University, Anand. 388001
Email ID: subhu53@gmail.com
(M): 9825790796

Dr. N. Sasidharan
Professor and Head,
Dept. of Seed Science and Technology,
Anand Agricultural University, Anand. 388001
Email ID: sasi@aaau.in
(M): 917386069

PERSONAL INFORMATION

Name	:	Desai Amruta S.
Father's Name	:	Mr. Shrinivas A Desai
Date of Birth	:	21st June 1988
Sex	:	Female
Nationality	:	Indian
Mother Tongue	:	Marathi
Languages Known	:	English, Hindi, Marathi and Gujarati
State of Domicile	:	Maharashtra and Gujarat
Mobile	:	+91-9537893039
Email	:	amruta.desai2009@gmail.com