Anandita Singh, Professor

Department of Biotechnology, TERI School of Advanced Studies
Vasant Kunj, New Delhi- 110 067

Employment

Year	Position
2017 (April)-till date	Professor
2013 (November)- April 2017	Associate Professor, Department of Biotechnology, TERI-University; Adjunct Professional, TERI, New Delhi
2006-2013	Assistant Professor, TERI School of Advanced Studies; Adjunct Professional, TERI, New Delhi
2005 (August) - 2006 (January)	Associate Fellow, Bioresources and Biotechnology Division, TERI, New Delhi, Adjunct Faculty, TERI-University, New Delhi
2005 (January - June)	Associate, Lakshmikumaran and Sridharan (IPR firm), New Delhi
2002-2004	Post-Doctoral Fellow, Max Planck Institute for Developmental Biology, Tuebingen, Germany
2002 (January - June)	Research Associate, Plant Molecular Biology Division, TERI, New Delhi

Fellowships, Honors and Awards

- Fellowship by Max Planck Society, Germany for Post-doctoral research (2002-2004)
- Fellowship (JRF/SRF) by CSIR (Council of Scientific and Industrial Research), Govt. of India (1997-2002), UGC-NET qualified (1997)
- Post-graduate Scholarship by University Grants Commission for pursuing M.Sc. in Plant Molecular Biology at University of Delhi South Campus (1994-1996)
- Rank holder in M.Sc. entrance examination in Department of Plant Molecular Biology at University of Delhi, South Campus
- Fellowship by University of Delhi (1991-1994) in B.Sc. (Zoology), IInd Rank
- B.Sc. (H) Zoology, Ist Rank, 1991-1994, Zakir Hussain College, Delhi University

Education

Degree	Area	Institution	Year
Ph. D	Plant Molecular Biology, Title: DNA fingerprinting for assessment of genetic diversity in medicinal plant species	Department of Biotechnology, Hamdard University (Jamia Hamdard), New Delhi	2002
M. Sc.	Plant Molecular Biology	Department of Plant Molecular Biology, University of Delhi, South Campus, New Delhi	1996
B. Sc.	Zoology (Honours)	University of Delhi, Delhi	1994

Teaching Experience (Post Graduate and pre-Ph.D., TERI School of Advanced Studies)

Cumulative teaching experience of over 15 years
Courses Taught:

i. Molecular Markers and Breeding (2009-till data)
ii. Genetic Engineering and Recombinant DNA Techniques (2008-till date)
iii. Molecular Genomics and Genetics (2009 till date)
iv. Environmental Biotechnology and Societal Concerns (2005-2011)
v. Plant Biotechnology in Agriculture Sector (2007-2009)
vi. Principles of Genetic Engineering and Bio-analytical Techniques (2007-2009)
vii. Advances in Plant Genetic Transformation (2007-2008)

Designing Course Curricula

i. M.Sc. Plant Biotechnology (2006-2007): Received funding from DBT, Government of India under HRD programme
ii. Advanced Post-Graduate Diploma in Regulations in Agriculture Biotechnology (2006-2007): Received funding from DBT, Government of India under HRD programme

Guest Faculty

***All India Institute of Medical Sciences, New Delhi*, 2005-2019**, contributing faculty to course on Molecular Medicine and Biotechnology Seminars, MSc. Biotechnology, AIIMS.

Extra-mural Research Grants as Principal Investigator

Ongoing Research Projects

1) Isolation and comparative analysis of promoter homeologs of flowering time gene *SOC1*: Discovering novel promoters involved in floral transition in Indian Brassicas (DBT sponsored, 2018-2021, BT_PR24047BPA1183642017)

2) Understanding the role of *MIR160* and *AUXIN RESPONSE FACTORS* in establishment of root system architecture for improvement of crop Brassicas (DST sponsored, Scientific and Engineering Research Board, 2018-2021, EMR2016007813PS)

Completed Research

1) Molecular and morphological characterization of *Brassica* transgenic lines with augmented expression of *FT* & Generation of *Brassica* transgenic lines with reduced *FT* expression for delayed flowering (DBT sponsored project. 2011-2014, BT/PR15052/16/908/2011)

2) Development and stress-specific genomics of small non-coding RNAs: Trait manipulation in *Brassica* species (Department of Biotechnology, Government of India, 2012-2015), Phase 2, BT/PR628/36/674/2011)

3) Isolation of key regulatory elements controlling development of flowering traits in *Brassica* species (Department of Biotechnology, Government of India, 2007-2010, BT/PR8659/PBD/16/739/2006)

4) Development and stress-specific genomics of small non-coding RNAs: Trait manipulation in *Brassica* species (Department of Biotechnology, Government of India, 2007-2011, Phase 1, BT/PR10071/AGR/36/31/2007)

Research Projects and other partnering awards as Co-Investigator/Team member

1) Genetic diversity analysis of Indian sea-buckthorn (*Hippophae rhamnoides* L.) germplasm using AFLP markers, sponsored by Department of Biotechnology, Government of India, 2009-2012 (Principal Investigator, Dr. Shashi Bhushan Tripathi, Co-investigator, Anandita Singh)

2) Regeneration of plants from gametic and somatic tissues of sesame (*Sesamum indicum* L.), sponsored by Department of Biotechnology, Government of India, 2007-2010 (Principal Investigator, Dr. Nidhi P Chanana, Co-investigator, Anandita Singh)

3) UK-India Partnering for Enhancing Oilseed Crop Improvement through Genomic Approaches sponsored by BBSRC, UK, 2007-2010 (Principal Investigator, Dr. Graham King, Rothamsted Research, Rothamsted, UK)

Publications

Peer reviewed International Journals

i. Singh S and Singh A (2021) A prescient evolutionary model for genesis, duplication and differentiation of MIR160 homologs in Brassicaceae. Molecular Genetics and Genomics (DOI) 10.1007/s00438-021-01797-8

ii. Sri T, Gupta B, Tyagi S, **Singh A** (2020) Homeologs of *Brassica SOC1*, a central regulator of flowering time, are differentially regulated due to partitioning of evolutionarily conserved transcription factor binding sites in promoters. Molecular Phylogenetics and Evolution DOI 10.1016/j.ympev.2020.106777

iii. Tyagi S, Sri T, Singh A, Mayee, Shivaraj SM, Sharma P, **Singh A** (2019) SUPPRESSOR OF OVEREXPRESSION OF CONSTANS1 influences flowering time, lateral branching, oil quality, and seed yield in *Brassica juncea* cv. Varuna. Functional and Integrative Genomics 19: 43-60, DOI: 10.1007/s10142-018-0626-8

iv. Tyagi S, Mazumdar PA, Mayee P, Shivraj SM, Anand S, Singh A, Madhurantakam C, Sharma P, Das S, Kumar A, **Singh A** (2018) Natural variation in *Brassica* FT homeologs influences multiple agronomic traits including flowering time, silique shape, oil profile, stomatal morphology and plant height in *B. juncea*. Plant Science 277: 251-266, DOI: 10.1016/j.plantsci.2018.09.018

v. Shivraj SM, Jain A, **Singh A** (2018) Highly preserved roles of *Brassica MIR172* in polyploid Brassicas: Ectopic expression of variants of *Brassica MIR172* accelerates floral transition. Molecular Genomics and Genetics. 293: 1121-1138 DOI: 10.1007/s00438-018-1444-3

vi. Dhakate P, Tyagi S, Singh A, **Singh A (2017)** Functional characterization of a novel *Brassica LEAFY* homolog from Indian mustard: Expression pattern and gain-of-function studies. Plant Science 258: 29-44

vii. Dhakate P, Tyagi S, Singh A, **Singh A (2017)** Functional characterization of a novel *Brassica LEAFY* homolog from Indian mustard: Expression pattern and gain-of-function studies. Plant Sci 258: 29-44 (IF: 3.36)

viii. Negi MS, Sharma SS, Singh A , Chauhan S, Adholeya A, Tripathi SBT **(2017)** Analysis of Genetic Diversity of Indian Tea Accessions Using Two Modified Amplified Fragment Length Polymorphism Methods. Proceedings of National Academy of Science, India, Sect. B Biol. Sci. doi:10.1007/s40011-016-0798-8 (IF: 0.7)

ix. Shivraj SM, **Singh A (2016)** Sequence variation in *Brassica AP2* and analysis of interaction of AP2-miR172 regulatory module. Plant Cell, Tissue and Organ Culture (PCTOC) 125: 191–206 (IF: 2.4)

x. Mayee P, **Singh A (2016)** Natural genetic variation in *Brassica* homologs of *FLOWERING LOCUS T* and characterization of its expression domains. Journal of Plant Biochemistry and Biotechnology. 25: 270-277 (IF:1.35)

xi. Sri T, Mayee P, **Singh A (2015)** Sequence and expression variation in *SUPPESSOR of OVEREXPRESSION of CONSTANS 1 (SOC1)*: Homeolog evolution in Indian Brassicas. Development Genes and Evolution. 225: 287-303 (IF: 2.5)

xii. Dhakate P, Shiv SM, **Singh A (2014)** Design of artificial miRNA for redundant silencing of *Brassica SHP1* and *SHP2*: transient assay-based validation of transcript cleavage from polyploid Brassicas. Acta Physiol Plant 36: 2125-2135 (IF:1.7)

xiii. Shivraj SM, Dhakate P, Mayee P, Negi MS, **Singh A (2014)** Natural genetic variation in MIR172 isolated from *Brassica* species. Biologia Plantarum 58: 627-640, 2014 (IF:1.7)

xiv. Rosloski SM, **Singh A,** Jali SS, Balasubramanian S, Weigel D, Grbic V **(2013)** Functional analysis of splice variant expression of *MADS AFFECTING FLOWERING 2* of *Arabidopsis thaliana*. Plant Mol Biol 81: 57-69 (IF: 3.9)

xv. Balasubramaniaan S, Schwartz C, **Singh A,** Warthmann N, Kim MC, Maloof J, Loudet O, Trainer GT, Tsegaye Dabi, Borewitz, Chory J, Weigel D **(2009)** QTL mapping in new *Arabidopsis thaliana* advanced intercross recombinant inbred lines. PLoS One **4: e4318** (IF: 3.2)

xvi. **Singh A**, Das S, Wilson N **(2007)** Genomics and IP: An Overview. Journal of Intellectual Property Rights 12: 57-71 (IF: 0.3)

xvii. Lempe J, Balasubramanian S, Sureshkumar S, **Singh A,** Schmid M and Weigel D **(2005)** Diversity of Flowering Responses in Wild *Arabidopsis thaliana* Strains. PLoS Genet 1:109-18 **(IF: 8.7)**

xviii. **Singh A**, Chaudhury A, Srivastava PS, Lakshmikumaran M **(2003)** Comparison of AFLP and SAMPL markers for assessment of intra-population genetic variation in *Azadirachta indica* A Juss. Plant Science 162: 17-25 **(IF: 3.3)**

xix. **Singh A,** Negi MS, Moses VK, Venkateswarlu B, Lakshmikumaran M **(2002)** Utility of AFLP markers in ascertaining the clonal fidelity in tissue-culture raised neem plantlets. In Vitro Cellular and Developmental Biology-Plant *38*, 519-524 **(IF: 1.2)**

xx. Negi MS, **Singh A** and Lakshmikumaran M **(2000)** Genetic variation and relationship among and within *Withania* species as revealed by AFLP markers. Genome 43: 975-980 **(IF: 1.4)**

xxi. **Singh A**, Negi MS, Rajagopal J, Bhatia S, Tomar UK, Srivastava PS, Lakshmikumaran M **(1999)** Assessment of genetic diversity in *Azadirachta indica* using AFLP markers. Theoretical and Applied Genetics 99: 272-279 **(IF: 3.9)**

Book Chapters, Reviews and Proceedings

i. **Singh A**. and Das S (2021) Slicing Messengers by Artificial Designs: Artificial MicroRNA Induced Gene Silencing in Polyploid Plants for Functional Genomics and Trait Modification . In: G. Tang et al. (eds.), RNA-Based Technologies for Functional Genomics in Plants, Concepts and Strategies in Plant Sciences, . Springer Nature https://doi.org/10.1007/978-3-030-64994-4_6, ISBN 9783030649944

ii. Lakshmikumaran M**, Singh A** and Negi MS **(2005)** Mapping Genetic diversity of Medicinal Plants and its Implication in Conserving Genetic Resources. Biodiversity: Status and Prospects, Editors: Pramod Tandon, Manju Sharma and Renu Swarup, Narosa Publishing House, New Delhi, India, pp 112-118

iii. Lakshmikumaran M, **Singh A,** Negi MS, Srivastava PS **(2002)** Molecular Markers as Tools for Genome Analysis: Assessment of Genetic Diversity of Medicinal Plants, Case Studies on Ashwagandha (*Withania somnifera*) and Amla (*Phyllanthus emblica*) In: Biotechnological Interventions for Dryland Agriculture opportunities and Constraints, Biotechnology Unit Institute of Public Enterprise, Andhra Pradesh-Netherlands Biotechnology Programme, Hyderabad, pp.91-123

iv. Lakshmikumaran M, Srivastava PS and **Singh A (2001)** Applications of molecular marker technologies for genome analysis assessment of genetic diversity in forest tree species. In: Forest genetic resources: status, threats and conservation strategies (eds) Uma Shaanker R, Ganeshaiah KN, Bawa KS, Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi, pp 153-181

v. Rajagopal J, **Singh A**, Negi MS, Bhatia S, Srivasatava PS, Lakshmikumaran M **(1999)** Utility of molecular markers for assessment of genetic variation in Poplars and Neem. In: International Tree Biotechnology, NCL Pune, pp. 74-80

Abstracts and Posters

i. Tyagi S, Mazumdar PA, Mayee P, Shivaraj SM, Anand S, Singh A, Madhurantakam C, Sharma P, Das S, Singh A (2019) *FLOWERING LOCUS T* (*FT*) and *SUPPRESSOR OF OVEREXPRESSION OF CONSTANS* (*SOC1*): Prime targets for crop improvement in Indian Mustard (2019) International Conference on Trends in Plant Sciences and Agrobiotechnology (ICTPA2019) and 40th Meeting of Plant Tissue Culture Association-India (PTCA-I), Indian Institute of Technology Guwahati, Assam, India, February 14-16, 2019

ii. Sri T, Tyagi S, Shivaraj SM, **Singh A** (2017) Multiple paths for homeolog evolution: A case study on two interacting MADS box transcription factors SUPPRESSOR OF OVEREXPRESSION OF CONSTANS 1 and FLOWERING LOCUS C, Plant Genome Evolution 2017: Current Opinions in Plant Biology Conference, Sitges, Spain (1-3 October 2017)

iii. Singh A, Shivaraj SM, **Singh A** (2017) Isolation and Characterization of *MIR160::ARFs* from *Brassica* crop, National Symposium on Plant Biotechnology: Current perspectives

on medicinal and crop Plants, Plant Tissue Culture Association, Indian Institute of Chemical Biology Kolkata (3-5 March, 2017)

iv. Singh A, Shivaraj SM, **Singh A** (2016) Co-evolution of *MIR160* family and its target genes in Indian Brassicas, National Conference on Plant Physiology (NCPP), GKVK University of Agricultural Sciences, Bengaluru (8-10 Dec. 2016)

v. Mayee P, Sri T, Tyagi S, Atri A, SM Shivraj, **Singh A** (2016) Characterisation of *FLOWERING LOCUS T* (*FT*) and *SUPPRESSOR OF OVEREXPRESSION OF CONSTANS1* (*SOC1*) Homologs: Functional and Evolutionary Insights, International Plant and Animal Genome XXIV Conference, Town & Country Hotel, San Diego, USA. (January 9-13, 2016)

vi. Dhakate P, Shivaraj SM, **Singh A** (2014) Isolation and Functional Analysis of a *FLO/LFY* Ortholog *BjuLFY*, from *B. juncea* L. National Symposium on Advances in Plant Molecular Biology and Biotechnology, Plant Tissue Culture Association, IISER-Pune, Maharashtra, **Best Poster Award**

vii. Mayee P, Tyagi S, Dhakate P, Shivaraj SM, Sri T, Atri A, **Singh A** (2014) Molecular Characterization of Transcription Factors and miRNA Genes Regulating Floral Development in Brassicas, Plant Genomics Congress-Asia, Kuala Lumpur, Malaysia.

viii. Shivaraj SM, Dhakate P, Mayee P, **Singh A** (2014) Isolation and Characterization of *MIR172* and its target *AP2* from Brassicas presented, National Symposium on Advances in Plant Molecular Biology and Biotechnology, Plant Tissue Culture Association, IISER-Pune, Maharashtra

ix. Sri T, Mayee P, Tyagi S, Shivaraj SM, Atri A, **Singh A** (2014) Sequence diversification and functional characterisation of *SOC1* in Brassicas: Evolutionary fate of a MADS-box gene regulating floral transition, presented at National Conference on Science of Omics for Agricultural Productivity: Future Perspectives, GB Pant University, Pantnagar, Uttarakhand.

x. Sri T, Mayee P, Tyagi S, Shivaraj SM, Atri A and Singh A (2014) Evolutionary Fate of *Brassica SOC1*: Sequence Divergence and Functional Validation presented at National Symposium on Advances in Plant Molecular Biology and Biotechnology, Plant Tissue Culture Association, IISER-Pune, Maharashtra.

xi. Tyagi S, Mayee P, Atri A, Shivaraj SM, **Singh A** (2014) Morphological and Molecular Evidences for Pleiotropic Effects of *Brassica FLOWERING LOCUS T* (*FT*) presented at National Symposium on Advances in Plant Molecular Biology and Biotechnology, Plant Tissue Culture Association, IISER-Pune, Maharashtra.

xii. Tyagi S, Mayee P, Atri A, Shivaraj SM, **Singh A** (2014) Functional Characterization of *FLOWERING LOCUS T (FT)* Isolated from Brassicas presented at National Conference on Science of Omics for Agricultural Productivity: Future Perspectives, GB Pant University, Pantnagar, Uttarakhand.

xiii. Shivaraj SM, Mayee P, Srivastava P, Tyagi S, Negi MS, **Singh A** (2010) Functional characterization of transcription factors, activators and miRNA genes regulating flowering time control in Brassicas. Bangalore-BIO Conference (**Prize winner: "Walkway of discovery"**)

xiv. Shivaraj SM, Srivastava P, Mayee P, Negi MS, Tyagi S, **Singh A** (2009) Genomic analysis of floral determinants and miRNA 172 from oilseed Brassicas. Plant Tissue Culture Association, IHBT, Palampur

xv. Srivastava P, Shivaraj SM, Mayee P, Negi MS, Tripathi SB, **Singh A** (2009) Regulatory code underpinning morphogenesis: Genomic strategies for modulating fruit an flower development in Brassicas. Plant Tissue Culture Association, IHBT, Palampur

xvi. Mayee P, Srivastava P, Shivaraj SM, Dhawan V, Agnihotri A, **Singh A** (2009) Molecular and functional characterization of *FT* and *SOC1* for modulation of flowering in Brassica species. Plant Tissue Culture Association, IHBT, Palampur

xvii. **Singh A**, Kim MC, Lempe J, Balasubramaniam SB, Weigel D (2004) Functional characterization of *MAF2*: an *FLC* Paralogue. 15th International Conference on *Arabidopsis*. July 10-14, 2004. Berlin, Germany (T01-059)

xviii. Kim MC, Lempe J, **Singh A**, Weigel D (2004) Using dominant mutants to identify natural modifiers of flowering time 15th International Conference on *Arabidopsis*. July 10-14, 2004. Berlin, Germany (T01-010)

xix. Balasubramaniam SB, Lempe J, Sureshkumar S, **Singh A**, Weigel D (2004) Analysis of variation of flowering time among natural populations in *Arabidopsis thaliana*. Keystone Symposia in natural variation and quantitative genetics in model orgranisms (Colorado, US)

xx. **Singh A**, Chaudhury A, Chauhan N, Srivastava PS, Lakshmikumaran M (2001) AFLP: A DNA based marker for analyzing genetic diversity and phenetic relationships in *Azadirachta indica* A. Juss. Biotechnological innovations in conservation and analysis of plant diversity, Golden Jubilee Symposium (Delhi University Botanical Society, Department of Botany, University of Delhi, India), **Best Poster Award**

xxi. Lakshmikumaran M, Bhatia S, Das S, **Singh A**, Negi MS (2000) Transposon-Specific Amplified Loci (T-SAL) as an excellent tool for analyzing genetic relatedness, wide-hybrid screening and mapping. 6th International Conference of International Society for Plant Molecular Biology (ISPMB), Quebec, Canada

xxii. Lakshmikumaran M, Das S, Negi MS, **Singh A**, Bhatia S (2000) SAMPL: an excellent tool for assessment of genetic diversity in plant species. 6th International Conference of International Society for Plant Molecular Biology (ISPMB), Quebec, Canada

Training Programs/Workshops/Conferences Coordinated

i. Brainstorming Session on Sustainable Agriculture Practices for Food and Nutritional Security (Commemorating the Birth Anniversary of the Late Dr. B P Pal), New Delhi, **May 30th, 2011**

ii. Conference on "Food security and Agricultural Sustainability through advances in Plant Biotechnology", TERI University, Delhi, **November 13th, 2009**

iii. Department of Biotechnology, Govt. of India sponsored Training Workshop on 'Molecular Biology: Tools, Techniques and Technological Interventions', TERI, New Delhi, **February 5-17th , 2007**

iv. Department of Biotechnology, Govt. of India sponsored training workshop for under-graduate teachers involved in teaching Biotechnology courses entitled "Molecular Biology: Tools, Techniques and Technological Interventions", TERI, New Delhi, **December 4 - 23rd, 2006**

v. Department of Biotechnology, Govt. of India sponsored training workshop for post-graduate teachers involved in teaching Biotechnology courses entitled "Plant Tissue Culture, Genetic Transformation, and Genome Analysis with Molecular Markers and PCR Walking", TERI, New Delhi, **November 11-25th, 2006**

vi. Department of Biotechnology, Govt. of India sponsored training program entitled "Law and Biotechnology (Agriculture & Healthcare Biotechnology and Law)", TERI, New Delhi, **February 27 -March 10th , 2006**

vii. Ministry of Environment and Forest, Govt. of India, sponsored capacity building program entitled "Biosafety and Biotech Regulations", TERI, New Delhi, **February 6-11th, 2006**

viii. Ministry of Environment and Forest, Govt. of India, sponsored capacity building program entitled "Biosafety and Biotech Regulations", TERI, New Delhi, **April 3-7th , 2006**

ix. Ministry of Environment and Forest, Govt. of India, sponsored capacity building program entitled "Biosafety and Biotech Regulations", TERI, New Delhi, **5 – 9th June, 2006**

Invited Lectures/ Oral Presentations

i. "Genetic and Genomics strategies for decoding *Arabidopsis* biology: Insights from a weed for breeders of modern times", In: International conference on "Genetics and Genomics technologies for crop improvement " Organized by Hansraj College, Delhi University, India and CIMMYT, Mexico; 3rd August, 2021

ii. "Floral Development: From Arabidopsis to crop improvement", Centre for Professional Development in Higher Education, University Grants Commission (UGC)-HRDC, Refresher Course in Life Sciences for the University and College teachers, 3rd August, 2018, University of Delhi.

iii. "Molecular Markers and DNA Fingerprinting for Documentation of Plant Genetic Resources", 10th-Indian Technical Economic Cooperation (ITEC) Programme of the Ministry of External Affairs "Applications of Biotechnology and its Regulations", organized by TERI, India**, 23rd December, 2017**

iv. "Conservation of Genetic Resources: DNA profiling methodologies", 10th-Indian Technical Economic Cooperation (ITEC) Programme and Special Commonwealth African Assistance Plan (SCAAP) Programme of the Ministry of External Affairs "Applications of Biotechnology and its Regulations", organized by TERI, India**, 6th December, 2016**

v. "Supervising experimental research in natural sciences", Training programme on Research Supervision skills for delegation from Royal University of Bhutan, iGNHaS and affiliated colleges, sponspored by GDN, **24-28th August, 2015**

vi. "Organisation of teaching and research in Biotechnology", delegation from Royal University of Bhutan, iGNHaS and affiliated colleges, sponspored by GDN, **2nd March, 2015**

vii. "Shift in research methodologies in post-genomic era", in "Training Workshop on Augmentation of Technical Competence in North-East India for Large Scale Propagation of Disease Free Tissue Cultured Plants", sponsored by DBT, Government of India, Ministry of Science and Technology, **7th Dec 2015**

viii. "DNA typing for analysis of natural variation", 9th-Indian Technical Economic Cooperation (ITEC) Programme and Special Commonwealth African Assistance Plan (SCAAP) Programme of the Ministry of External Affairs "Applications of Biotechnology and its Regulations", TERI University, Haryana, India**, 16th December, 2015,**

ix. "Assessment of genetic diversity: DNA fingerprinting for conservation genetic resources", 8th-Indian Technical Economic Cooperation (ITEC) Programme and Special Commonwealth African Assistance Plan (SCAAP) Programme of the Ministry of External Affairs "Applications of Biotechnology and its Regulations", TERI University, Haryana, India**, 7th September, 2014**

x. "DNA fingerprinting for analysis of genetic variation", 7th-Indian Technical Economic Cooperation (ITEC) Programme and Special Commonwealth African Assistance Plan (SCAAP) Programme of the Ministry of External Affairs "Applications of Biotechnology and its Regulations", TERI University, Haryana, India, **17th Sepetember 2013**

xi. "Molecular Markers for Assessment of Genetic Diversity", 6th-Indian Technical Economic Cooperation (ITEC) Programme and Special Commonwealth African Assistance Plan (SCAAP) Programme of the Ministry of External Affairs "Applications of Biotechnology and its Regulations", TERI Gram, Haryana, India**, 22nd Aug, 2012**

xii. "Molecular Markers and Cataloguing of Plant genetic Resources", 5th-Indian Technical Economic Cooperation (ITEC) Programme and Special Commonwealth African Assistance Plan (SCAAP) Programme of the Ministry of External Affairs "Applications of Biotechnology and its Regulations", TERI Gram, Haryana, India, **1st Aug, 2011**

xiii. "Third Generation Molecular Marker Technologies", DST funded training programme for college teachers "Plant Tissue Culture and Biotechnology", TERI, India Habitat Centre, India, **18th July, 2011**

xiv. "Polymerase Chain Reaction and its Applications", DST funded training programme for college teachers from North eastern States "Plant Tissue Culture and Biotechnology", TERI, India Habitat Centre, India, **13th July, 2011**

xv. "DNA Fingerprinting and Marker Technologies for Genome Analysis", DST funded training programme for college teachers "Plant Tissue Culture and Biotechnology", TERI, India Habitat Centre, India, **4th Jan, 2011**

xvi. "Transcription factor, miRNAs and other regulatory factors: Development and adaptation in Brassicas" India Partnering for Enhancing Oilseed Crop Improvement through Genomic Approaches, TERI, India Habitat Centre, India**, 15-17th May, 2008**

xvii. "Regulatory elements underpinning life-history traits in Brassicas: Flowering, a case in point" At UK-India Partnering for Enhancing Oilseed Crop Improvement through Genomic Approaches, Rothamsted Research, Harpenden UK**. 21-22nd May, 2007**

xviii. "Microarrays and Genomics: Perspectives from Arabidopsis thaliana Development", At National Seminar: Biotechnology & Human Welfare, Jamia Hamdard University, Department of Biotechnology, New Delhi, **20th March, 2007**

Mentoring:

Ph. D Supervision (Awarded)

Title of Thesis	**Name**	**Student profile**
Molecular and functional characterization of key regulatory elements, *FT* and *SOC1*, controlling development of flowering traits in *Brassica* species	Dr. Pratiksha Mayee (2015)	Qualified ARS, NET Currently Deputy General Manager, Ankur Seeds, Nagpur
Analysis of regulatory genes involved in fruit development and flowering time in Brassicas	Dr. Priyanka Dhakate (2015)	Qualified CSIR-NET and recipient of Junior/Senior Research Fellowship from CSIR Awarded SERB N-PDF (currently at National Institure of Plant Genomic Research, Delhi)
Characterization of *MIRNA172* genes in *Brassica*	Dr. Shivraj SM (2015)	Qualified ARS, NET Awarded SERB NPDF, Post doc at University of Laval (Quebec, Canada)
Molecular and morphological phenotyping of *Brassica* transgenic lines with modified expression of key flowering time genes	Dr. Shikha Tyagi (2019)	Reasearch Associate at NBPGR (IARI, Pusa Institute)
Study of Promoter Evolution in SOC1 homologs from Polyploid Brassica genomes	Dr. Tanu Sri (2020)	Qualified UGC-NET and recipient of Junior/Senior Research Fellowship from UGC

Phd Scholars (current)

Title of doctoral work	Name	Status
Biochemical characterization and comparative functional analysis of the *SOC1* promoter homeologs from *Brassica juncea*	Ms. Simran Kaur	Qualified CSIR-NET and DBT-NET and recipient of Junior/Senior Research Fellowship from DBT
Role of MIR160 and ARFS in establishment of root system architecture (RSA) under N deprivation condition in *B. juncea*	Ms. Swetannita Chattopadhyay	
Characterization of *FAD2 homologs* in early and later flowering cultivars of Brassica	Mr. Soilihi Abdourahim	

Post Doctoral researchers:

-Dr. Aditi Jain, NPDF-SERB, DST Completed (March 2019)

Interns Trained

Supervision of Master's research and Internship

i. Internal supervisor for Master's students of TERI University
ii. Internship to about 20 students from various national universities including Jamia Hamdard, Delhi University, NIT Rourkela, Rajasthan University, Banasthali Vidyapeeth, Rajasthan University, Amity University, SRM University, Chennai etc. towards capacity building in the area of Biotechnology

Administrative and Academic responsibilities

i. Assessor, NAAC (National Assesssment and Accreditation Council, University Grants Commission (UGC), Government of India
ii. Member, Academic Council, TERI School of Advanced Studies (2011-continuing)
iii. Former Head, Department of Biotechnology, TERI School of Advanced Studies (2013-2016)
iv. Former Programme coordinator, MSc. Plant Biotechnology (2011-2013)
v. Former Member, Board of Management, TERI School of Advanced Studies (2016-2018)
vi. Former Resource Advisor to Bio-resources and Biotechnology Division, TERI, Delhi (2009-2013)
vii. Member IBSC, TERI University (2013-2019)
viii. Former Convener for Fund raising Committee, TERI University (2010-2011)
ix. Former Programme coordinator, Advanced Post Graduate Diploma in Regulations in Agricultural Biotechnology (2008-2009)

Research in News: Development of early flowering transgenic Indian Mustard: Identified as top 15 scientific contributions by Vigyan Prasar (DST, Govt. India)

"Scientists develop early flowering transgenic mustard, The Business Line (Online); 7 June 2018"

https://www.thehindubusinessline.com/news/science/scientists-develop-early-flowering-transgenic-mustard/article24104629.ece

http://www.downtoearth.org.in/news/scientists-develop-early-flowering-transgenic-mustard-60810

The research team led by Anandita Singh at TERI School of Advanced Studies (Vasant Kunj) developed an early flowering transgenic variety of Indian Mustard by genetic manipulation of flowering time genes. This work was recognized as among top 15 achievements of scientists in India (http://vigyanprasar.gov.in/isw/here-is-what-indian-scientists-achieved-in-2018-hindi.html; http://www.millenniumpost.in/opinion/2018-a-glimpse-of-achievements-333534). In the specific study co-authored by Shivraj SM and Aditi Jain (DOI: 10.1007/s00438-018-1444-3), the expression levels of a regulatory gene (micro RNA172) were augmented using molecular genetic methods resulting in reduction of flowering time. The work is important since recent decade have witnessed repeated episodes of early onset of summers. Higher ambient temperatures coinciding with seed maturation have adversely impacted seed yields in this important oil-seed crop of India. Early flowering and maturing varieties complete their life-cycle in relatively shorter period and thus avoid exposure to harsh climatic conditions.

The research group has been working on improving crop varieties by modifying plant genes to make them more adaptable to changing climate (Dhakate et al. 2017 and Tyagi et al. 2018). The team aims to generate a spectrum of mustard lines with modulated flowering time. This work was supported by the Department of Biotechnology (Government of India).