




Faculty Details proforma for DU Web-site

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cc: director@ducc.du.ac.in)

Title	Dr.	First Name	Vishnu	Last Name	Bhat	Photograph
Designation		Associate Professor				
Address		Department of Botany, University of Delhi, Delhi-110007.				
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Residence		27662141				
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Email		bhatv64@rediffmail.com; vbhat@botany.du.ac.in				
Web-Page						
Educational Qualifications						
Degree		Institution			Year	
Ph.D.		Forest Research Institute, Dehradun-6			1998	
M. Phil. / M. Tech.						
PG		University of Agricultural Sciences, Bangalore-65			1990	
UG		University of Agricultural Sciences, Bangalore-65			1986	
Any other qualification		Certificate on Bioinformatics from S-Star Alliance, Singapore			2003	
Career Profile						
<p>July, 2006 – till date: Associate Professor, Department of Botany, University of Delhi. August, 2003 – July, 2006: Reader, Department of Botany, University of Delhi. February, 1999 - August, 2003: Scientist (Sr. Scale), Indian Grassland and Fodder Research Institute, Jhansi. February, 1995 – 1999: Scientist, Indian Grassland and Fodder Research Institute, Jhansi.</p>						
Administrative Assignments						
2007- 2010: Coordinator (Botany), College Affairs, University of Delhi.						
Areas of Interest / Specialization						
Genetic and molecular mechanisms controlling apomixis in plants Somatic embryogenesis and genetic transformation of apomictic taxa Plant developmental biology						
Subjects Taught						
Developmental Biology Reproductive Biology of Flowering Plants Current Trends in Angiosperm Embryology						
Research Guidance						
<i>List against each head (If applicable)</i> 1. <i>Supervision of awarded Doctoral Thesis</i> 1. Dwivedi, Krishna Kumar. 2005. Isolation, cloning and characterization of genes associated with apomixis in <i>C. ciliaris</i> . 2. Upadhyay, Chandrama Prakash. 2008. Studies on genetic transformation of <i>Vigna mungo</i> (blackgram) for abiotic stress tolerance. 3. Sharma, Roopam. 2010. Embryological and molecular investigation of apomixis in F2 individuals of <i>C. ciliaris</i> . 4. Chaurasia, Anjana Rustagi nee Chaurasia. 2010. Investigations on genetic manipulation of <i>Musa</i>						

species.

5. Mahalakshmi, C. 2011. Elucidation of reproductive pathways in selected angiosperm taxa, and study of differential expressions of orthologues of meiotic regulatory gene DYAD at key developmental stages in an Apo- and a diplosporous taxa.
6. Jha, Pooja. 2011. *In-vitro* genetic manipulation of *Pennisetum glaucum*
7. Yadav, Chandrabhan. 2011. Genetic linkage and linkage disequilibrium mapping of apomixis specific genomic region in *Cenchrus ciliaris* using molecular markers.

2. Supervision of Doctoral Thesis, under progress

1. Shashi. Study of role of somatic embryogenesis receptor kinase gene in apomictic development.
2. Anuj. Molecular characterization of apomixis associated genes in *Cenchrus ciliaris*.
3. Pankaj Kumar Agnihotri. Isolation and characterization of ovule specific promoter.
4. Sazda Abdi. Fine mapping of apomixis locus by genetic linkage & linkage disequilibrium mapping in *Cenchrus ciliaris*.

3. Supervision of awarded M. Phil dissertations

1. Jha, Pooja. 2005. *In vitro* plant regeneration through somatic embryogenesis and direct shoot organogenesis in *Pennisetum glaucum*.
2. Yadav, Chandrabhan. 2005. *In vitro* plant regeneration through somatic embryogenesis and direct shoot organogenesis in *Cenchrus ciliaris*.
3. Shashi. 2008. *In vitro* plant regeneration through somatic embryogenesis and direct organogenesis in apomictic *Dichanthium annulatum* and *Pennisetum pedicellatum*.
4. Arun, Alok. 2009. Isolation and characterization of a Polycomb group gene, *CCEZ1* from apomictic *C. ciliaris*.
5. Pandey, Indresh Kumar. 2010. Isolation, cloning and expression analysis of a Polycomb group gene, *CceZ1* from apomictic *C. ciliaris*.
6. Mamgain, Akshay. 2010. Development of a genetic linkage map for drought tolerance using RAPD based markers in tea.
7. Krati Vikram. 2013. Development of RNAi vectors for CCSMC and CCEZ1 genes isolated from apomictic *Cenchrus ciliaris* L.
8. Saxena, Ramit. 2013. Female gametophyte development and fertilization

4. Supervision of M. Phil dissertations, under progress

Nil

Publications Profile

List against each head (If applicable) (as Illustrated with examples)

1. Books/Monographs (Authored/Edited): Nil
2. Research papers published in Refereed/Peer Reviewed Journals

Bali, S., Raina, SN, Bhat, V., Aggarwal, RK, Goel, S., 2013. Development of a set of genomic microsatellite markers in tea (*Camellia* L.) (Camelliaceae). *Mol. Breed.* (DOI 10.1007/s11032-013-9902-4).

Dwivedi, KK, Bhat, V, Bhat, BV, Gupta, MG, 2013. Identification of ovule specific proteins associated with apomixis and sexuality in *Cenchrus ciliaris*. *Range Mgmt. & Agroforestry* (In press).

Kumar S, Bhat, V., 2012. High frequency direct plant regeneration *via* multiple shoot induction in an apomictic forage grass *Cenchrus ciliaris* L. *In vitro cell and dev. biol.-Plant*, 48: 241-48.

Raina, SN,.....Bhat, V.,.....Mandi, SS (31 authors), 2012. Genetic structure and diversity of India hybrid tea. *Genet Resour Crop Evol*, 59: 1527-41.

Yadav, CB, Anuj, Kumar, S., Gupta, M.G., Bhat, V., 2012. Genetic linkage maps of the chromosomal regions associated with apomictic and sexual modes of reproduction in *Cenchrus ciliaris*, *Mol. Breed.* 30: 239-250.

Raina SN, Jain S, Sehgal D, Kumar A, Dar TU, Bhat V, Pandey V, Vaishnavi S, Bhargav A, Singh V, Rani V, Tandon R, Tewari M, Mahmoudi A 2012. Diversity and relationships of multipurpose seabuckthorn (*Hippophae* L.) germplasm from the Indian Himalayas as assessed by AFLP and SAMPL markers. *Genet Resour and Crop Evol*, 59: 1033-53.

Srivastava, MK, Yadav, CB, Bhat, V., Kumar, S., 2011. Cloning and characterization of cDNA encoding xyloglucan endotransglucosylase in *Pennisetum glaucum* L. *African Journal of Biotechnology*, Vol. 10(46), pp. 9242-9252.

Jha, P., Shashi, Rustagi, A., Agnihotri, PK, Kulkarni, VM, Bhat, V., 2011. Efficient *Agrobacterium*-mediated transformation of *Pennisetum glaucum* (L.) R. Br. using shoot apices as explant source. *Plant Cell Tiss Organ Cult*, 107(3):501-512.

Yadav, C B, P Jha, C Mahalakshmi, A Vanamala and V Bhat. 2009. Somatic embryogenesis and regeneration in apomictic and sexual genotypes of *Cenchrus ciliaris* from immature inflorescence explants. *Biologia plantarum*. 53(4): 603-609.

Jha, P, C B Yadav, A Vanamala and V Bhat. 2009. In- vitro plant regeneration through somatic embryogenesis and direct shoot organogenesis in *Pennisetum glaucum*. *In vitro cell and dev. biol.-Plant*. 45(2):145-154.

Bhat, B V, V Bhat, M G Gupta and S Gupta. 2007. Isozyme based genetic similarity in *Cenchrus* (Poaceae). *Range Mgmt. & Agroforestry*. 28(2): 285-286.

Dwivedi, K K, S R Bhat, V Bhat, B V Bhat and M G Gupta. 2007. Identification of a SCAR marker linked to apomixis in buffelgrass (*Cenchrus ciliaris*). *Plant Science*. 172(4): 788-795.

Chandra, Atika, Mukesh Jain, Vishnu Bhat, Jyoti Vora, Sanjay Ghawna and Paramvir S Ahuja. 2007. Frontiers of plant biology research, Meeting Report. *Current Science*. 92(11): 1131-1135.

Gupta, S, S Gupta, V Bhat and M G Gupta. 2006. Somatic embryogenesis and *Agrobacterium* mediated genetic transformation in Indian accessions of Lucerne (*Medicago sativa*). *Indian J. Biotechnology*. 5(3): 269-275.

Kumar, J, S M Shukla, V Bhat, S Gupta and M G Gupta. 2005. In-vitro plant regeneration and genetic transformation of *Dichanthium annulatum*. *DNA and Cell Biology*. 24(11): 270-279.

Jha, G, V Bhat and A Vanamala. 2005. Plant growth-promoting activity of rhizobacterial strains, *Bacillus* and fluorescent *Pseudomonas*, on tomato plants. *Indian Phytopathology*. 58(4): 462-465.

Bhat, V, K K Dwivedi, J P Khurana and S K Sopory. 2005. Apomixis: An enigma with potential applications. *Current Science*. 89(11): 1879-1893.

Dalton, S, A Bettany, V Bhat, M G Gupta, Catharine, E Timms and P Morris. 2003. Genetic transformation of *Dichanthium annulatum*- an apomictic forage grass. *Plant Cell Rep*. 21(10): 974-980.

Gupta, M G, V Bhat, B V Bhat, C N Neeraja and S Gupta. 2003. Phylogenetic relationships in tetraploid agamospecies of *Dichanthium* complex based on isozyme phenotypes. *J. Pl. Biol.* 30(1): 61-64.

Mojumdar, A, G P Shukla, V Bhat and K S Kohli. 2003. Variability for quality traits in forage alfalfa (*M. sativa*). *Range Mgmt. & Agroforestry.* 24(2): 164-166.

Thakur, J K, M R Malik, V Bhat, M K Reddy, S K Sopory, A K Tyagi and J P Khurana. 2003. A POLYCOMB group gene of rice, OsEZ1, codes for a nucleolocalised protein expressed preferentially in young seedlings and during reproductive development. *Gene.* 314(18th September): 1-13.

Kumar, S, V Bhat, B V Bhat and M G Gupta. 2002. *Agrobacterium* mediated transformation of Lucerne (*Medicago sativa* Linn.): Optimizing biological and physical parameters. *Ind. J. Biotech.* 1(3): 298-300.

Ortiz, J P A, S C Pessino, V Bhat, N Hayward and C L Quarin. 2001. A genetic map of diploid *Paspalum notatum*, an apomictic forage grass. *Crop Sci.* 41(3): 823-830.

Gupta, S, M G Gupta, B V Bhat and V Bhat. 2001. Status of apomixis and sexuality in four species of *Cenchrus*. *J. Plant Biol.* 28(2): 153-159.

Kumar, S, M G Gupta, V Bhat and B V Bhat. 2001. *Agrobacterium* mediated transformation of Lucerne. *Crop Improv.* 28(2): 163-166.

Bhat, V, S Dalton, S Kumar, B V Bhat, M G Gupta and P Morris. 2001. Particle in flow gun mediated genetic transformation of buffel grass (*Cenchrus ciliaris*): Optimizing biological and physical parameters. *J. Appl. Genet.* 42(4): 405-412.

Gupta, M G, B V Bhat and V Bhat. 2000. Effect of chemical mutagens on *Sesbania sesban*. *Range Mgmt. & Agroforestry.* 21(2): 145-152.

Mishra, U S, V Bhat and D S Katiyar. 1999. Strategies for utilization of the germplasm of a tropical apomictic buffel grass. *Indian J. Pl. Genet. Resources.* 12(1): 81-85.

Gupta, S, B V Bhat, V Bhat, M G Gupta and S T Ahmed. 1998. Estimation of facultative apomixis in the somaclones of *Dichanthium annulatum*. *Range Mgmt. & Agroforestry.* 19(2): 149-153.

Gupta, S, B V Bhat, V Bhat, M G Gupta and BhagMal. 1998. Somaclonal variation for facultative apomixis in Marvel Grass (*Dichanthium annulatum*, Forssk. Stapf.). *Forage Research.* 24(2): 111-114.

Gupta, M G, S Gupta, B V Bhat and V Bhat. 1997. *In-vitro* regeneration and somaclonal variation in a tropical pasture grass, *Dichanthium annulatum*. *Range Mgmt. & Agroforestry.* 18(1): 25-30.

3.

- a) *Research papers published in Academic Journals other than Refereed/Peer Reviewed Journals*
- b) *Research papers published in Refereed/Peer Reviewed Conferences*
- c) *Research papers Published in Conferences/Seminar other than Refereed/Peer Reviewed Conferences*

4. *Other publications (Edited works, Book reviews, Festschrift volumes, etc.)*

a) *Book Chapters*

Sehgal D, Bhat V and Raina SN (2008) DNA markers for genome diagnostics in grain legumes. In: "Handbook of new technologies for genetic improvement of legumes". Edited by P.B. Kirti, CRC Press, pp 477-496.

Sehgal D, Bhat V and Raina SN (2008) Advent of diverse DNA markers to decipher genome sequence polymorphism. In: "Handbook of new technologies for genetic improvement of legumes". Edited by P.B. Kirti, CRC Press, pp 497-558.

Sharma R and Bhat V (2009) Double Fertilization and seed development. In: "Seed Science and Technology". Edited by NC Singhal, Kalyani Publishers, pp 25-52.

Bhat V, C.Mahalakshmi, Shashi, Sunil Saran and Soom Nath Raina (2011) *Dichanthium*. In: "Wild Crop Relatives: Genomic and Breeding Resources, Millets and Grasses", Edited by Chittaranjan Kole, Springer-Verlag, Berlin, pp. 89-112

Chrungoo NK, Sangma SC, Bhat V and Raina SN (2011) *Fagopyrum* In: Wild Crop Relatives: Genomics and Breeding, Cereals Edited by Chittaranjan Kole, Springer-Verlag, Berlin, pp. 293-308.

Conference Organization/ Presentations (in the last three years)

List against each head(If applicable)

1. *Organization of a Conference: Nil*
2. *Participation as Paper/Poster Presenter*

Arun, A, R Sharma and V Bhat. 2009. Isolation and characterization of *CcEZI*, a homologue of *E(z)*(component of PRC2 multimeric complex) from *Cenchrus ciliaris*. Paper presented at the *13th ADNAT Convention, International symposium on Epigenetic modifications of the genome: mechanisms and implications*, February 23-24, 2009, Centre for Cellular and Molecular Biology (CCMB), Hyderabad.

Mahalakshmi, C, R Sharma, I Siddiqi, S R Yadav, S N Raina and V Bhat. 2009. Isolation of *DYAD* orthologues from *Cenchrus ciliaris* and *Aponogeton decaryi*. Paper presented at the *13th ADNAT Convention, International symposium on Epigenetic modifications of the genome: mechanisms and implications*, February 23-24, 2009, Centre for Cellular and Molecular Biology (CCMB), Hyderabad.

C. Mahalakshmi, Siddiqi I, Yadav SR, Raina SN and Bhat V 2010. Isolation and characterization of *Dyad* orthologues from aposporous and diplosporous taxa. Proceedings of 33rd Conference of Indian Botanical Society and International Symposium on "The New Horizons of Botany", November 10th – 12th 2010, 176p.

C. Mahalakshmi, Yadav SR, Kaushal P, Raina SN and Bhat V 2010. Reproductive pathways of embryo-sac and seed development in *Aponogeton decaryi* using confocal microscopy and flow cytometric seed screen. Proceedings of 20th Annual Conference of Indian Association for Angiosperm Taxonomy and International Symposium on "Taxonomy, Plant Diversity and Conservation", November 26th – 28th 2010, 243p.

Yadav C. B. and Bhat, V., 2011, "Mapping of apospory specific genomic region and semi-quantitative expression analysis of retrotransposons associated with apomixis in *Cenchrus ciliaris*" proceeding of International symposium for on plant biotechnology towards tolerance to stresses and enhancing crop yield (Poster Presentation in ISPB-2011) held at Birla Institute of Technology, Mesra, Ranchi, Jharkhand, India from September 28, to October 01, 2011, pp. 115-116.

Yadav C. B., Anuj, Suresh Kumar and Bhat, V., (25 February 2011) "Genetic linkage mapping of apomixis and sexuality in *Cenchrus ciliaris*" oral presentation at Centre for Cellular and Molecular

<p>Biology (CCMB) Hyderabad, India from February 23-25 2011, pp O-6.</p> <p>Yadav C. B., Pankaj Kumar Agnihotri, Suresh Kumar and Bhat, V., (11 September 2011) “Development of intron spanning gene based markers in <i>Cenchrus ciliaris</i> L.” oral presentation at Indian Grassland and Fodder Research Institute, Jhansi, India, from September 10-11 2011, pp. 30.</p> <p>Yadav C. B., Mahender Thudi, Suresh Kumar and Bhat, V., 2012, “Linkage disequilibrium mapping of apomixis in <i>Cenchrus ciliaris</i> using AFLP markers” proceeding of an international conference on “Plant Biotechnology for Food Security: New Frontiers” (Poster presentation in ICPBFS 2012) at National Agricultural Science Centre, Pusa, New Delhi, India from February 21-24, 2012, pp. 52.</p>
Research Projects (Major Grants/Research Collaboration)
<p>Name of Project: Biology of Podostemaceae Position in Project: Investigator Period: 2009-2012 Funding agency: DU/DST- PURSE GRANT Grant: Rs. 13.00lakhs</p> <p>Name of Project: Study of role of a meiotic gene DYAD in aposporous and diplosporous apomicts. Position in Project: Dr. Vishnu Bhat Period: 01.07.2012 to 30.06.2015 Funding agency: UGC Grant: Rs. 13,01,300/-</p>
Awards and Distinctions
<p>Award of best research paper published from Indian Grassland and Fodder Research Institute, Jhansi during 2001. Member of Editorial Board, Journal of Genetics, 2008-2009.</p>
Association With Professional Bodies
<ol style="list-style-type: none"> 1. <i>Editing</i> Member of Editorial Board, Journal of Genetics, 2008-2009. 2. <i>Reviewing</i> Journal of Plant Biochemistry and Biotechnology, New Delhi 3. <i>Advisory</i> 4. <i>Committees and Boards</i> 5. <i>Memberships</i> Member, Delhi university botanical society, Delhi. Member, Range management society of India, Jhansi. Member, Indian society of plant genetic resources, New Delhi. Member, Society of plant biochemistry and biotechnology, New Delhi. 6. <i>Office Bearer</i>
Other Activities
<p>Nil</p>

Signature of Faculty Member

