Faculty Details proforma for DU Web-site

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Title	**Dr.**	First Name	**Arun**	Last Name	**Jagannath**	Photograph
Designation		**Associate Professor**				
Address		**Department of Botany University of Delhi Delhi – 110007.**				
Phone No Office		**011-27662609**				
Residence						
Mobile						
Email		**jagannatharun@yahoo.co.in**				
Web-Page						

Educational Qualifications

Degree	Institution	Year
Ph.D.	**Ph.D. – Genetics Department of Genetics (South Campus), University of Delhi**	**1999**
M.Phil. / M.Tech.	--------	----------
PG	**M.Sc. – Biotechnology, Madurai Kamaraj University, Madurai, Tamil Nadu**	**1994**
UG	**B.Sc. (Hons) – Botany Hansraj College, University of Delhi**	**1992**
Any other qualification	**Certificate Program in Bioinformatics and Computational Biology** (**Jun - Dec 2004**) from **IIT, Delhi** (Supercomputing Facility for Bioinformatics and Computational Biology) and NIIT.	**2004**

Career Profile

Organization/Institution	***Designation***	***Duration***	***Role***
Department of Botany University of Delhi	**Associate Professor**	**Dec 2010 - till date**	**Teaching & research**
Department of Botany University of Delhi	**Reader**	**Dec 2007 – Dec 2010**	**Teaching & research**
Centre for Genetic Manipulation of Crop Plants (CGMCP), Delhi University South Campus	**Senior Research Scientist**	**Mar 2007 – Dec 2007**	**Research**
-do-	**Research Scientist**	**Oct 2000 – Mar 2007**	**Research**
Department of Genetics, Delhi University South Campus	**Research Scientist**	**Mar 2000 – Sep 2000**	**Research**
Department of Genetics, Delhi University South Campus	**Research Associate**	**Aug 1999 – Feb 2000**	**Research**

Administrative Assignments

(a) University committees

1. Member, Computer Centre Management Committee, University of Delhi (2012 onwards).
2. Member, Governing Body, Delhi University Library System (July 2009 onwards).
3. Subject Expert – Reviewing Committee, B.Sc. – Life Sciences program, Institute of Life-Long Learning (ILLL), University of Delhi (2008).

(b) Departmental committees

4. Member, Web Page Committee, Department of Botany, University of Delhi (2011 onwards).
5. Member, Construction, Restoration and Renovation Committee, Department of Botany, University of Delhi (2009 - 2011).
6. Member, Committee of Courses and Studies for Honours, Post-Graduate and Research Studies in Botany, University of Delhi (August 2009 – August 2011).
7. Member, Purchase Committee for up-gradation of teaching infrastructure and instrumentation facilities at the Department of Botany, University of Delhi (2008 – 2011).
8. Staff Advisor, Delhi University Botanical Society (2008 - 2011).

Research Interests / Specialization

Crop Biotechnology, Genetics and Genomics, Bioinformatics

Our laboratory uses a combination of genetic, genomic and transgenic technologies to dissect the molecular basis of important agronomic traits in two different oilseed crops, *Brassica juncea* (Indian mustard) and *Carthamus tinctorius* (Safflower). In mustard, our group works on identification of genes influencing traits of economic value viz., seed size, seed number and oil content using a comparative genomics approach. We are also working on transgenic approaches for introducing resistance to aphid pests (*Lipaphis erysimi*) of mustard using a combination of lectin genes and RNAi strategies. Our research on safflower is in collaboration with four other faculty members of the Department of Botany. Current thrust areas of safflower research in our lab include analysis of genetic diversity and phenotypic variability (for traits of agronomic value) in a global germplasm collection (~2800 lines) of the crop, development of molecular markers and generation of mapping populations for genetic dissection of important traits.

Teaching Experience (Subjects/Courses Taught)

1. **Department of Botany, University of Delhi**:
   - **M.Sc. – Semester system (July 2009 onwards):**
     - Cell and Molecular Biology (2009)
     - Recombinant DNA Technology and Proteomics (2009)
     - Plant Biotechnology and Resource Utilization (2009 onwards)
     - Bioinformatics, Computational Biology and Biostatistics (2009 onwards)
     - Genomics and Proteomics (Supporting Faculty - 2009 onwards)
   - **M.Sc. – Annual system (January 2008 – June 2010):**
     - Plant Biotechnology
     - Plant Resource Utilization
     - Genetics and Biotechnology of Crop Plants (Special Paper – 2008-09)
     - Genomics and Proteomics (Special paper – 2009-10)
   - **M. Phil. (2011-12)**:
     - Basics of Molecular Biology and Genetics
   - **Ph.D. Course Work**:
     - Effective communication, writing and biostatistics (GR1) (2012 onwards)
     - Instrumentation (2012)
2. **Sri Venkateswara College, University of Delhi** (2008 onwards) - Guest Faculty for Bioinformatics.
3. **MMV, Banaras Hindu University (BHU), Varanasi** (2008 onwards) - Guest Faculty for Bioinformatics.
4. **Department of Genetics, Delhi University South Campus** (2005 – 2008) - Guest Faculty for Computer Applications in Biology.

Research Guidance

List against each head (If applicable)

1. *Supervision of awarded Doctoral Thesis* : nil
2. *Supervision of Doctoral Thesis, under progress* : **4**

3. *Supervision of awarded M.Phil dissertations :* **1**
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)

(1) **Jagannath A**, Bandyopadhyay P, Mehra S, Arumugam N, Burma PK and Pental D. **2003**. *Agrobacterium*-mediated genetic transformation of *Brassica juncea*. *In Plant Genetic Engineering Vol. 2: Improvement of Food Crops*, (Eds.) Pawan K. Jaiwal and Rana P.Singh, Sci-Tech. Pub. LLC, Texas, USA. pp 349-360.

(2) Pental D, Pradhan AK, Mukhopadhyay A, Gupta V, Arumugam N, Sodhi YS, Burma PK, Verma J, **Jagannath A**, Bandyopadhyay P, Phogat S, Mehra S and Srivastava A. **2000**. Breeding of oilseed *Brassica* species by a combination of conventional breeding and genetic engineering. *In Rapeseed-Mustard : At the doorstep of the new millennium,* (Eds.) A.K. Bhatnagar, R.K. Shukla and H.B. Singh, Mustard Research and Promotion Consortium, New Delhi, India.

2. Research papers published in Refereed/Peer Reviewed Journals

(1) **Jagannath A**, Sodhi YS, Gupta V, Mukhopadhyay A, Arumugam N, Singh I, Rohatgi S, Burma PK, Pradhan AK and Pental D. **2011**. Eliminating expression of erucic acid-encoding loci allows the identification of "hidden" QTL contributing to oil quality fractions and oil content in *Brassica juncea* (Indian mustard). **Theoretical and Applied Genetics** 122:1091-1103.

(2) Panjabi P, **Jagannath A**, Bisht NC, Padmaja KL, Sharma S, Gupta V, Pradhan AK and Pental D. **2008**. Comparative mapping of *Brassica juncea* and *Arabidopsis thaliana* using Intron Polymorphism (IP) markers: homeologous relationships, diversification and evolution of the A, B and C Brassica genomes. **BMC Genomics** 9:113.

(3) Arumugam N, Gupta V, **Jagannath A**, Mukhopadhyay A, Pradhan AK, Burma PK and Pental D. **2007**. A passage through *in vitro* culture is essential for efficient production of true marker-free transgenic plants using the *cre-loxP* system. **Transgenic Research** 16:703-712.

(4) Bisht NC, **Jagannath A**, Burma, PK, Pradhan AK and Pental D. **2007**. Retransformation of a male sterile *barnase* line with the *barstar* gene as an efficient alternative method to identify male sterile-restorer combinations for heterosis breeding. **Plant Cell Reports** 26:727-733.

(5) Bisht NC, **Jagannath A**, Gupta V, Burma PK and Pental D. **2004**. A two gene – two promoter system for enhanced expression of a restorer gene (*barstar*) and development of improved fertility restorer lines for hybrid seed production in crop plants. **Molecular Breeding.** 14:129-144.

(6) Krishna Ray, **Jagannath A**, Suveena Arora Gangwani, Burma PK and Pental D. **2004**. Mutant *acetolactate synthase* gene is an efficient *in vitro* selection marker for the genetic transformation of *Brassica juncea* (oilseed mustard). **Journal of Plant Physiology**. 161:1079-1083.

(7) **Jagannath A**, Arumugam N, Gupta V, Pradhan AK, Burma PK and Pental D. **2002**. Development of transgenic *barstar* lines and identification of a male sterile (*barnase*)/restorer (*barstar*) combination for heterosis breeding in Indian oilseed mustard (*Brassica juncea*). **Current Science***.* 32:46-51.

(8) **Jagannath A**, Bandyopadhyay P, Arumugam N, Gupta V, Burma PK and Pental D. **2001**. The use of a Spacer DNA fragment insulates the tissue-specific expression of a cytotoxic gene (*barnase*) and allows high-frequency generation of transgenic male sterile lines in *Brassica juncea* L. **Molecular Breeding.** 8:11-23.

3.

a) Research papers published in Academic Journals other than Refereed/Peer Reviewed Journals : Nil

b) Research papers published in Refereed/Peer Reviewed Conferences

(1) Heisnam D. Singh, Gopal Joshi, Ankur R. Bhardwaj, Surekha Katiyar-Agarwal, Manu Agarwal , **Arun**

Jagannath, Peggy Ozias-Akins ,Wayne W. Hanna, Shailendra Goel. **2012**. Profiling of smRNAs unique to apomictic addition lines in *Pennisetum glaucum*. International Plant and Animal Genome Conference XX, 14-18 January, San Diego, CA, USA.

(2) Arumugam N, Gupta V, **Jagannath A**, Mukhopadhyay A and Pental D. **2005**. Removal of marker gene in *Brassica juncea* using lox/Cre site-specific recombination. National Symposium on Plant Biotechnology: New Frontiers, November 18-20; Central Institute of Medicinal and Aromatic Plants, Lucknow. Abstract: p23.

(3) Bisht NC, **Jagannath A**, Burma PK, Gupta V, Pradhan AK and Pental D. **2005**. Retransformation of *barnase* lines with constructs containing *barstar* gene(s) in various combinations as a method for developing restorer lines. National Symposium on Plant Biotechnology: New Frontiers, November 18-20; Central Institute of Medicinal and Aromatic Plants, Lucknow. Abstract: p175.

(4) Bisht NC, **Jagannath A**, Burma PK and Pental D. **2003**. Modifications of *barnase* and *barstar* gene expression systems for the development of efficient male sterile and restorer lines for hybrid seed production in crop plants. 10th FAOBMB Congress, December 7-11; Indian Institute of Science, Bangalore. Abstract: p67.

(5) **Jagannath A**, Arumugam N, Gupta V, Pradhan AK, Burma PK and Pental D. **2001**. Development of a male sterility/restorer system for heterosis breeding in *Brassica juncea* (L.) Czern and Coss. National Symposium on Plant Biotechnology and Molecular Biology and the 24th Annual Meeting of Plant Tissue Culture Association (India), October 12–14; University of Delhi South Campus, New Delhi. Abstract: p72.

(6) **Jagannath A**, Bandyopadhyay P, Arumugam N, Gupta V, Burma PK and Pental D. **2000**. The use of an insulator DNA fragment to protect tissue-specific expression of a cytotoxic gene (*barnase*) allows high frequency generation of transgenic male sterile lines in *Brassica juncea* L. XXIV All India Cell Biology Conference, November 24–26; Jawaharlal Nehru University, New Delhi. Abstract (Poster): p139.

(7) **Jagannath A**, Arumugam N, Gupta V, Burma PK and Pental D. **2000**. Tissue-specific expression of a lethal gene (*barnase*) by the use of an Insulator DNA allows high frequency generation of transgenic male sterile lines in *Brassica juncea* L. 70th Annual Session of The National Academy of Sciences, India. November 3 – 6; Allahabad. Abstract: p6.

(8) **Jagannath A**, Chakravarthy S, Burma PK and Pental D. **1996**. Strategies for avoiding homology-based transgene silencing. 65th Annual Meeting of the Society of Biological Chemists (India), November 20–23; Indian Institute of Science, Bangalore. Abstract: p55.

c) Research papers published in Conferences/Seminar other than Refereed/Peer Reviewed Conferences

(1) **Jagannath A. 2006**. (*Invited Lecture*) Improvement of oil quality in mustard. Symposium on "Emerging Trends in Biochemistry", February 9-10; Panjab University, Chandigarh. Abstract: p6.

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

5. ***<u>Patents</u>***

1. "Regulation of lethal gene expression in plants".

- **European patent** WO 01/92544 A1 **2000** Status: **Cleared for Novelty & Industrial Applicability**
- **US patent** No. 6,833,494 B1 **2004** Status: **Granted**
- National Phase applications filed in Canada, Europe and Australia **(2003)**

2. "Method for producing Insulator construct".

- **Indian patent** No. 199542 **2006** Status: **Granted**

3. "A method for obtaining improved fertility restorer lines for transgenic male sterile crop plants and a DNA construct for use in said method".

- **European patent** No. 1644506 **2009** Status: **Granted**
- **US patent** US 7,741,541 B2 **2010** Status: **Granted**
- **Indian patent** No**.** 238973 **2010** Status: **Granted**
- National phase applications filed in Europe, Canada and India.

4. "An insulator construct for controlling leaky expression of a lethal gene".

- **Indian patent** No. 244002 **2010** Status: **Granted**

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 : nil*

Research Projects (Major Grants/Research Collaboration)

1. PI in DST-PURSE grant on "Genetic and Genomic approaches for improvement of the oilseed crop, *Carthamus tinctorius* (Safflower)".
2. PI in DBT project on "Transgenic approaches for resistance to mustard aphids", Satellite Project under 'Centre of Excellence on Genome Mapping and Molecular Breeding of *Brassicas'* awarded to University of Delhi South Campus and University of Delhi, Delhi.
3. PI in DBT project on "Identification, characterization and validation of candidate genes influencing seed size and seed number in the oilseed crop, *Brassica juncea* (Indian mustard)".

Awards and Distinctions

- **CSIR (NET) Fellowship** by Council of Scientific and Industrial Research, Ministry of Human Resource Development, Government of India (**1994-1999**).
- **Prof. E.R.B. Shanmugasundaram Endowment Medal** by Madurai Kamaraj University for securing 1st position in the University in M.Sc. Biotechnology (**1994**).
- **K. Ayyamperumal Pillai Endowment Medal** by Madurai Kamaraj University for securing 1st position in the University in M.Sc. Biotechnology (**1994**).
- **Prof. S. Krishnaswamy Memorial Endowment Prize** by Madurai Kamaraj University for securing 1st position in the University in M.Sc. Biotechnology (**1994**).
- **Department of Biotechnology Fellowship** by Government of India for pursuing studies leading to M.Sc. Biotechnology (**1992-1994**).
- **University of Delhi Merit Award** for securing meritorious position in B.Sc. (Hons) – Botany examination (**1991**).
- **Central Board of Secondary Education Merit Scholarship** for securing meritorious position in Delhi Secondary School Examination, 1987 (**1987-1989**).n
- **Certificate of Merit** by **Delhi Administration** in lieu of scholarship for securing meritorious position in Delhi Secondary School Examination (**1987**).
- **Certificate of Merit** by **Central Board of Secondary Education** for outstanding academic performance and for being among the top 1% of successful candidates of the Delhi Secondary School Examination (**1987**).
- **Parthasarathy Memorial Scholarship** and **P.V. Chakravarthy Memorial Scholarship** by Delhi Tamil Education Association for securing 1st position among all successful candidates of DTEA Senior Secondary Schools, New Delhi in the Delhi Secondary School Examination (**1987**).

Association With Professional Bodies

1. *Editing*
2. *Reviewing*
3. *Advisory*
4. *Committees and Boards*
5. *Memberships*
   Life Member, International Society of Plant Morphologists, Department of Botany, University of Delhi, Delhi – 110007.
6. *Office Bearer*

Other Details

(1) Invited Lectures

1. **2012.** DBT Star College Lecture, MMV, Banaras Hindu University (BHU), Varanasi.

2. **2012.** *Science, Technology and Education***.** CPDHE, University of Delhi.

3. **2011**. *Integrative Plant Biology – Basics and Applications.* UGC-sponsored Teachers' Training Workshop, February 15; Department of Zoology, University of Delhi, Delhi.

4. **2011**. *Genetics and Biotechnology of Crop Plants*. National Symposium on "Frontiers and Avenues in Plant Sciences", January 20-21; Shivaji College, University of Delhi, Delhi.

(2) Development of Teaching Material/Tools

1. **UGC-INFLIBNET e-PG Pathshala program** - Content Writer, Molecular Biology (2012 – till date)

2. **Institute of Life-Long Learning (ILLL), University of Delhi** – Reviewer and Content Writer, Bioinformatics (2012 – till date).

Signature of Faculty Member

Signature and Stamp of
Head of Department