



Dr. Arun Kumar
Sr. Scientist
(Genetics-Cytogenetics)
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1. Date of birth : 11-07-1968
2. Education Qualification : Ph.D. (Botany, Specialization: Plant Cytogenetics), J.N. Vyas University, Jodhpur (2002); M.Sc (Botany, Specialization: Genetics & Plant Breeding), Kanpur University (1993)
3. Joining Date in ICAR : 18th Jan. 2010
4. Joining Date in DRMR : 18th Jan. 2010
5. Discipline/Specialization : Genetics & Plant Breeding, Specialization: Plant Cytogenetics
6. Research Experience : 16 years
7. Training/advance exposure in the area of work :
 - Training programme on Molecular Cytogenetics at PAU, Ludhiana, Jan., 15-25, 2011
 - Training programme on “Management of Plant Genetic Resources” Organized by National Bureau of Plant Genetic Resources, New Delhi 16-25 September 2013
 - Refresher Course on Molecular Biology at Madurai Kamaraj University sponsored by Indian Academy of Sciences, Bangalore 7-21 Dec. 2004

8. Contribution to the Scientific advancement

- Wide hybridization of *Brassica* species and developed some interspecific crosses using wild relatives of *Brassica*
- Confirmation of inter-specific / inter-generic crosses at Cyto-morphological and molecular level in *Brassica* species.
- Evaluation of genomic homoeology through chromosome associations at diakinesis/metaphase I of meiosis
- Associated in the development of Indian mustard variety DRMR 150-35
- Associated in the development of genetic stock of Indian mustard(INGR 15066)
- Standardization of methodology for artificial induction of tetraploidy in inter-specific crosses between *B. rapa* x *B. nigra* obtained through sexual hybridization

9. Current Research Projects & Future planning of research

- Use of *Brassica*, and wild related species for developing introgressed and resynthesized lines of *Brassica juncea* with desirable attributes with respect to biotic (Aphid, *Alternaria*, Sclerotinia rot) and abiotic stresses (drought, heat tolerance).

- Development of genomic resources for the genetic improvement of Rapeseed-mustard.
- Marker assisted backcrossing to introgress desired chromosomal segments from the *Brassica* and allied genera.

10. Awards/ Recognitions

- Fellow Award (ISGBRD), 2016 in 2nd International Conference on New Challenges in Biotechnology and Molecular Biology in the Context of 21st Century, by Indian Society of Genetics, Biotechnology Research and Development, at St. John's College, Agra, during 27-29 Feb. 2016.
- Conferred with Best Scientist Award for Exhibitions laid in Kisan Melas and overall growth of ICAR-DRMR during the year 2015-16 on the occasion of 23rd Foundation Day, October 20, 2016.
- Conferred with Excellence in Research Award for outstanding contribution in the field of *Plant Cytogenetics* in International Conference on Global Research Initiatives for Sustainable Agriculture & Allied Science (GRISAAS-2017).

11. Publication (Research Paper best 10)

- Binay K. Singh, supriya ,Dwijesh Mishra, Prashant Yadav, Reema Rani, **Arun Kumar**, Vijay Veer Singh, P.K. Rai and Dhiraj Singh. 2016. Identification, characterization, validation and cross-species amplification of genic-SSRs in Indian Mustard (*Brassica juncea*). ***Journal of Plant Biochemistry and Biotechnology***. **25(4): 410-420 (Springer)**. DOI 10.1007/s13562-016-0353-y.
- Reema Rani, Prashant Yadav, Kalyani M. Barbadikar, Nikita Baliyan, Era Vaidya Malhotra, Binay Kumar Singh, **Arun Kumar**, Dhiraj Singh. 2016. CRISPR/Cas9: a promising way to exploit genetic variation in plants. ***Biotechnol. Lett.*** 38(12):1991-2006. **(Springer)**. DOI 10.1007/s10529-016-2195-z.
- **Kumar, Arun**, Singh, BK, Meena, HS, Singh, VV, Singh, YP and Singh, D. 2015. Cytomorphological and molecular characterization of F₁ hybrids between *B. tournefortii* and *B. rapa*. ***Cytologia***, 80(3): 317-326.
- **Kumar, Arun**, Singh, BK, Meena, HS, Ram, B, Singh, VV and Singh, D. 2015. Cytogenetic Investigations in Colchicine-induced Tetraploids of *Brassica fruticulosa*: An Important Wild Relative of Cultivated Brassicas. ***Cytologia***, 80(2): 223-230.
- Singh, BK, Nandan, D, Supriya, A, Ram, B, **Kumar, Arun**, Singh, T, Meena, HS, Kumar, V, Singh, VV, Rai, PK and Singh, D. 2015. Validation of molecular markers for marker assisted pyramiding of white rust resistance loci in Indian mustard (*Brassica juncea* L.). ***Canadian Journal of Plant Science***, 95(5): 939-945.
- **Kumar, A**, Binay K. Singh, Vijay V. Singh and J.S. Chauhan. 2013. Cytomorphological and molecular evidences of synthesis of interspecific hybrids between *Brassica rapa* and *B. fruticulosa* through hybridization. ***Australian Journal of Crop Science***. 7(6): 849-854.

- Hardev Ram., **Kumar, A.**, Sharma, S.K., Ojaha, A. and Rao, S.R. 2012. Male meiotic studies in Indian ginseng (*Withania somnifera* (L.) Dunal.): A threatened medicinal herb. **American Journal of Plant Sciences 3:185-189 (USA)**
- Sharma, S.K., **Kumar, A.**, Kumaria, S. and Rao, S.R. 2011. Genetic diversity and gene flow estimation in *Prosopis cineraria* (L.) Druce: A key stone tree species of Indian Thar Desert. **Biochemical Systematics and Ecology. 39: 9-13 (Elsevier)**
- Purohit, J., **Kumar, A.**, Hynniewta, M. and Rao, S.R. 2011. Karyomorphological studies in Guar(*Cyamopsis tetragonoloba* (Linn.)Taub. An important gum yielding plant of Rajasthan, India. **Cytologia 76: 163-169 (Japan)**
- Sharma, S.K., **Kumar, A.**, Kumaria, S. and Rao, S.R. 2010. Single primer amplification reaction (SPAR) reveals intra-specific natural variation in *Prosopis cineraria* (L.) Druce **Trees-Structure and Function. 24 : 855-864 (Springer)**

12. Other achievement if any

- Recognized as Resource Person in INSPIRE Programme sponsored by Department of Science and Technology, New Delhi at Aishwarya College, Udaipur, during 03-07 Oct. 2017.
- Associated in preparation of Biology Document under UNEP/GEF Phase II Capacity Building Project on Bio safety. Series of Crop Specific Biology Documents.

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