

Bio-Data of Dr. S. Anandhan

Name : S Anandhan
Designation : Senior Scientist (Biotechnology)
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Degree : Ph.D.

Birth Date : 15th May 1975

Research Interest : Gene regulation, Abiotic stress response in plants, Haploid induction & mutagenesis and molecular markers

Description of Research : ➤ Currently involved in development of inbreds in onion through haploid production. Haploid induction is achieved through gynogenesis. Research is underway to develop haploid inducer line based on CENH3 based genome elimination technique.

Projects : ➤ Haploid induction in onion (*Allium cepa* L.) through genome elimination

Service particulars : ➤ **National Fellow (Apr 2017 to be continued till Mar 2022)**: ICAR-Directorate of Onion and Garlic Research, Rajgurunagar, Maharashtra, India
Research work: Induction of haploid in onion (*Allium cepa* L.) through genome elimination
➤ **Senior Scientist (Jan 2011- Till date)**: ICAR-Directorate of Onion and Garlic Research, Rajgurunagar, Maharashtra, India
Research work: Haploid induction in onion for hybrid seed production and marker aided selection in onion
➤ **Scientist (Aug 2005 to Jan 2011)**: Defence Institute of Bio-Energy Research, Haldwani, Uttaranchal, India
Research Work: Isolation genes responsive to low temperature stress and development of transgenic vegetables tolerant to low temperature
➤ **Research Associate (Oct 2004-Mar 2005)**: International Centre for Genetic Engineering and Biotechnology (ICGEB), New Delhi, India
Research Work: Prediction of cyclins from protozoans and development of database

Publication :

Research Paper :
National : ➤ Murkute AA, **Anandhan S.** 2016. Onion quality affected by ethanol and ethephon during storage. *National Academy Science Letters*. **39(3)**:163–169.

- Anandhan S, Chavan AA, Gopal J, Mote SR, Shelke PV, Lawande KE. (2014) Variation in gynogenic potential for haploid induction in Indian short day onions. *Indian J. Genet.*, **74(4)**: 526-528
 - Singh S, **Anandhan S**, Goyary D, Singh NK, Arunkumar MB, Das SC. 2007. *In vitro* establishment of *Cicer microphyllum*, a wild relative of cultivated chick pea from cold desert of Ladakh. *Journal of arid legumes* **4(1)**: 66-68.
- International :
- Govindasamy V, George P, Aher L, Ramesh SV, Thangasamy A, Anandhan S, Raina SK, Kumar M, Rane J, Annapurna K, Minhas PS. 2017. Comparative conventional and phenomics approaches to assess symbiotic effectiveness of Bradyrhizobia strains in Soybean (*Glycine max* L. Merrill) to drought. *Sci. Rep.* 7: 6958.
 - Singh RK, Singh S, Anandhan S, Shannon LM, Quiroz-Figueroa LM, Ruiz-May E. 2017. First Insights into the biochemical and molecular response to cold stress in *Cicer microphyllum*, crop wild relative of chickpea (*Cicer arietinum*). *Russian Journal of Plant Physiology.* 64(5): 758–765.
 - Gawande SJ, Anandhan S, Ingle AA, Alana Jacobson and R. Asokan. 2017. Heteroplasmy due to coexistence of mtCOI haplotypes from different lineages of the Thrips tabaci cryptic species group. *Bulletins of Entomological Research.*31:1-9. (NAAS rating 7.91)
 - Anandhan S, Nair A, Kumkar DS, Gopal J. (2015). Retrotransposon based TRAP marker displays diversity among onion (*Allium cepa* L.) genotypes. *Scientia Horticulturae*, 190: 123–127.
 - Anandhan S, Mote SR, Gopal J. (2014) Evaluation of onion varietal identity using SSR markers. *Seed Sci. & Technol.* 42: 279-285
 - Kumar SR, Anandhan S, Dhivya S, Zakwan A, Sathishkumar R. 2013. Isolation and characterization of cold inducible genes in carrot by suppression subtractive hybridization. *Biologia plantarum* 57: 97-104.
 - Singh RK, Singh S, Pandey P, Anandhan S, Goyary D, Pande V, Ahmed Z. 2013. Construction of cold induced subtracted cDNA library from *Cicer microphyllum* and transcript characterization of identified novel wound induced gene. *Protoplasma* 250(2):459-469
 - Aslam, M., Grover, A., Sinha, V.B., Fakher, B., Pande, V., Yadav, P.V., Gupta, S.M., Anandhan, S., Ahmed, Z. 2012. Isolation and characterization of cold responsive NAC gene from *Lepidium latifolium*. *Mol Biol Rep.* 39(10): 9629-9638. (DOI 10.1007/s11033-012-1828-0)
 - Gupta N, Rathore M, Goyary D, Khare N, Anandhan S, Pande V, Ahmed, Z. 2012. Marker-free transgenic cucumber expressing Arabidopsis CBF1 gene confers chilling stress tolerance. *Biologia plantarum* 56 (1): 57-63.
 - [My paper]Singh S, Rathore M, Goyary D, Singh RK, Anandhan S, Sharma DK, Ahmed Z. 2011. Induced ectopic expression of At-CBF1 in marker-free transgenic tomatoes confers enhanced chilling tolerance. *Plant Cell Rep.* 30 (6):1019-28.
 - Singh RK, Anandhan S, Singh S, Patade VY, Ahmed Z, Pande V. 2011. Metallothionein-like gene from *Cicer microphyllum* is regulated by multiple abiotic stresses. *Protoplasma.* 248(4):839-47.
 - Aslam M, Sinha VB, Singh RK, Anandhan S, Pande V, Ahmed Z. 2010. Isolation of cold stress-responsive genes from *Lepidium latifolium* by suppressive subtraction hybridization. *Acta Physiol Plant.* 32: 205-210.
 - Anandhan S, Qureshi IA, Koundal KR. 2010. The Cowpea trypsin inhibitor promoter derives expression in response to cellular maturation in *Arabidopsis thaliana*. *Physiol. Mol. Biol. Plants* 16(1): 31-37.

- Khare N, Goyary D, Singh NK, Shah P, Rathore M, Anandhan S, Sharma D, Arif M, Ahmed Z. 2010. Transgenic tomato cv. Pusa Uphar expressing a bacterial mannitol-1-phosphate dehydrogenase gene confers abiotic stress tolerance. *Plant Cell, Tissue and Organ Culture* 103:267–277.
 - Aslam M, Singh R, Anandhan S, Pande V, Ahmed Z. 2009. Development of transformation protocol for *Tecomella undulate* (Smith) Seem from cotyledonary node explants *Scientia Horticulturae* 121: 119-121.
 - Kalita MK, Nandal UK, Pattnaik A, Anandhan S, Ramasamy G, Kumar M, Raghava GPS, Gupta D. 2008. CyclinPred: A SVM-Based Method for Predicting Cyclin Protein Sequences *PLoS One* 3 (7): e2605.
 - Shah P, Singh NK, Khare N, Rathore M, Anandhan S, Arif M, Singh RK, Das SC, Ahmed Z, Kumar N. 2008. Agrobacterium mediated genetic transformation of summer squash (*Cucurbita pepo* L. cv. Australian Green) with *cbf1* using a two vector system. *Plant Cell Tissue Organ Culture* 95:363-371.
- Popular Articles :
- Anandhan, S. 2012. Prospects of inbred development in onion (*Allium cepa* L.) through induction of haploids. *DOGR News Letter*: 16(1):2.
 - Gupta AJ, Mahajan V, Anandhan S, Gopal J. 2016 Multiplier onion DOGR-1549-Agg registered with ICAR-DOGR. *ICAR-DOGR News*. 20(2):3
- Books/Books Chapter :
- Reddy DCL, Anandhan S, Aswath C. 2015. Biotechnology. In: *The Onion* (Eds. Kumar NKK, Gopal J, Parthasarathy VA). ICAR-Directorate of Knowledge Management in Agriculture, Indian Council of Agricultural Research, New Delhi. 121-144.
 - Mishra GP, Murkute AA, Anandhan S, Kumar A and Radhakrishnan T. 2015. Antifreeze Proteins: Cold Tolerance and other Applications. In: *Modern Methods in Phytomedicine*. Edited by Parimelazhagan T. Daya publishing house, New Delhi. 1-15.
 - Anandhan S. 2014. Role of biotechnology in onion and garlic. In: *Compendium of Model Training course on 'Production Technology in onion and garlic'*. Edited by Jai Gopal and Gadge SS. DOGR, Rajgurunagar. 42-49pp.
 - Mythili, JB and Anandhan, S. 2014. Biotechnology: Achievements and its future role in onion improvement. In: *Proceedings of Brainstorming session on crop improvement and seed production of onion*. NHRDF, Nashik. 59-68.
 - Anandhan, S. 2010. Cold aird flora: Bio-Prospecting cold tolerant genes for development of transgenic crops for high altitude agriculture. In: *DRDO Science Spectrum 2010*. DESIDOC, DRDO, New Delhi. 165-169.

- Research Abstracts : ➤ Gawande SJ, Anandhan S, Ingle A Asokan R , Kudale S, Mahajan V. 2016. Assessment of Bacterial Diversity in onion infesting Thrips tabaci L. through Next generation sequencing. In souvenir and invited paper abstracts of 7th IHC 2016 held at IARI, New Delhi during Nov 15-18 2016. 287pp.
- Anandhan S, Dukare S, Ingle AA, Pingle PS, Mahajan V. 2016. Evaluation of genetic diversity among the Allium species using SRAP markers. . In proceedings of 2nd national Symposium on edible Alliums: Challenges and Future strategies for sustainable production held at Jalna Maharashtra during 7-9 Nov 2016.193pp.
- Asha Devi A, Anandhan S, Khar A, Mahajan V, Lawande KE. 2016. Application of haploidy as a technique in short day onion improvement program. In proceedings of 2nd national Symposium on edible Alliums: Challenges and Future strategies for sustainable production held at Jalna Maharashtra during 7-9 Nov 2016.71pp.
- Anandhan S, Nair A, Mahajan V. 2016. Development of SSAP marker for Onion (*Allium cepa*). In abstracts (poster papers) of 7th IHC 2016 held at IARI, New Delhi during Nov 15-18 2016.318pp.