Dr. Spurthi N. Nayak
Assistant Professor
Department of Biotechnology
College of Agriculture,
University of Agricultural Sciences, Dharwad, Karnataka- 580 005
nayaksn@uasd.in

Education

- B. Sc. (Agriculture) with Gold Medal at UAS, Dharwad (2003)
- M. Sc. (Agriculture, Plant Biotechnology) with Gold Medals at UAS, Dharwad (2005)
- Ph. D. (Genetics), ICRISAT, Hyderabad (2011)
- Post Doctorate Fellow at University of Florida, Gainesville, FL, USA (2011-2013)
- Special Project Scientist (Genomics and Molecular Breeding) at ICRISAT, Hyderabad (2014-2017)

Research and teaching experience

- Published more than 25 peer-reviewed papers in International journals and 4 book chapters for Humana and Springer publishers.
- Teaching of molecular biology and biotechnology courses to Diploma, UG and PG students
- Worked under several internationally funded projects like ADOC (Generation Challenge Program, CGIAR), TLI (funded by BMG Foundation), Breeding for aflatoxin resistance (funded by MARS Chocolate Inc.), Sugarcane diversity (Dept of Energy, US).
- Internship at Department of Plant Pathology, University of California-Davis, USA in the preparation and screening of bacterial artificial chromosome (BAC) libraries, data analysis and DNA sequencing (2008)
- Attended training course on “Improving the Water Use Efficiency in Mediterranean Agriculture (WUEMED)” on “Integrated approaches to improve drought tolerance in crops” held at Department of Agroenvironmental Sciences and Technology, University of Bologna, Italy (2006).

- Development of molecular markers, genetic mapping and QTL identification for drought tolerance in chickpea
- Allelic diversity of candidate genes for drought tolerance in important crop species
- Molecular diversity and construction of core collection in global sugarcane collection at Miami, Florida, US
- Functional genomics studies for aflatoxin resistance, late leaf spot disease and heat tolerance in groundnut and identification of functional markers for these traits.

- Diversity and functional genomics studies in fungal pathogens like aflatoxin producing fungus *Aspergillus flavus* (in groundnut), pearl millet blast fungus (*Pyricularia grisea*), *Fusaria* associated with sorghum grain mold complex.

Awards, fellowships and recognition

- Recipient of Merit Scholarships for B. Sc. (Agri.) and M. Sc. (Agri.) (1999-2003 & 2003-2005)
- Recipient of CSIR Junior Research Fellowship and SRF for Ph. D. (2006-2011)
- Best Poster presentation award at National Seminar on Frontiers in Biotechnology and Bioinformatics, Navi Mumbai (2007)
- DBT funded project for women scientists under BIOCARE scheme as PI (2017-2020) and USAID project (2015-2016)

Publications

Fountain, J. C., Koh, J., Yang, L., Pandey, M. K., Nayak, S. N., Bajaj, P., Zhuang, W. J., Chen, Z. Y., Kemerait, R. C., Lee, R. D. and Chen, S., 2018, Proteome analysis of *Aspergillus flavus* isolate-specific responses to oxidative stress in relationship to aflatoxin production capability. *Sci. Rep.*, 8(1), 3430.

Nayak, S. N., Agarwal, G., Pandey, M. K., Sudini, H. K., Jayale, A. S., Purohit, S., Desai, A., Wan, L., Guo, B., Liao, B. and Varshney, R. K., 2017, *Aspergillus flavus* infection triggered immune responses and host-pathogen cross-talks in groundnut during in-vitro seed colonization. *Sci. Rep.*, *7*(1), p.9659.

Nayak, S. N., Pandey, M. K., Jackson, S. A., Liang, X. and Varshney, R. K., 2017, Sequencing ancestor diploid genomes for enhanced genome understanding and peanut Improvement. In: *The Peanut Genome* (Ed. Varshney, R. K., Pandey, M. K., Puppala, N.), Springer International Publishing, Cham, Switzerland, pp. 135-147.

Nayak, S. N., Singh, V. K., Varshney, R. K., 2017, Marker-Assisted Selection. In: *Encyclopedia of Applied Plant Sciences, Vol 2*, (Ed. Thomas, B., Murray, B. G., Murphy D. J.), Academic Press, Waltham, MA, pp. 183–197.

Garg, V., Agarwal, G., Pazhamala, L. T., Nayak, S. N., Kudapa, H., Khan, A. W., Doddamani, D., Sharma, M., Kavi Kishor, P. B. and Varshney, R. K., 2017, Genome-wide identification, characterization, and expression analysis of small rna biogenesis purveyors reveal their role in regulation of biotic stress responses in three legume crops. *Front. Plant Sci.*, 8: 488.

Vishwakarma, M. K., Nayak, S. N., Guo, B., Wan, L., Liao, B., Varshney, R. K. and Pandey, M. K., 2017, Classical and molecular approaches for mapping of genes and quantitative trait loci in Peanut. In: *The Peanut Genome* (Ed. Varshney, R. K., Pandey, M. K., Puppala, N.). Springer International Publishing, Cham, Switzerland, pp. 135-147.

Fountain, J.C., Bajaj, P., Nayak, S. N., Yang, L., Pandey, M. K., Kumar, V., Jayale, A. S., Chitikineni, A., Lee, R. D., Kemerait, R. C. and Varshney, R. K., 2016, Responses of *Aspergillus flavus* to oxidative stress are related to fungal development regulator, antioxidant enzyme, and secondary metabolite biosynthetic gene expression. *Front. Microbiol.*, 7: 2048.

Nayak, S. N., Song, J., Villa, A., Pathak, B., Ayala-Silva, T., Yang, X., Todd, J., Glynn, N. C., Kuhn, D. N., Glaz, B. and Gilbert, R. A., 2014, Promoting utilization of Saccharum spp. genetic resources through genetic diversity analysis and core collection construction. *PLOS One*, 9(10): e110856.

Roorkiwal, M., Nayak, S. N., Thudi, M., Upadhyaya, H. D., Brunel, D., Mournet, P., This, D., Sharma, P. C. and Varshney, R. K., 2014, Allele diversity for abiotic stress responsive candidate genes in chickpea reference set using gene based SNP markers. *Front. Plant Sci.*, 5: 248.

Varshney, R. K., Thudi, M., Nayak, S. N., Gaur, P. M., Kashiwagi, J., Krishnamurthy, L., Jaganathan, D., Koppolu, J., Bohra, A. and Tripathi, S., 2014, Genetic dissection of drought tolerance in chickpea (*Cicer arietinum* L.). *Theor. Appl. Genet.*, 127(2): 445-462.

Nayak, S. N., Zhu, H., Varghese, N., Datta, S., Choi, H. K., Horres, R., Jngling, R., Singh, J., Kavi Kishor, P. B., Sivaramakrishnan, S. and Hoisington, D. A., 2010, Integration of novel SSR and gene-based SNP marker loci in the chickpea genetic map and establishment of new anchor points with Medicago truncatula genome. *Theor. Appl. Genet.*, 120(7): 1415-1441.

Varshney, R. K., Nayak, S. N., May, G. D. and Jackson, S. A., 2009, Next-generation sequencing technologies and their implications for crop genetics and breeding. *Trends Biotechnol.*, 27(9): 522-530.

Nayak, S. N., Balaji, J., Upadhyaya, H. D., Hash, C. T., Kavi Kishor, P. B., Chattopadhyay, D., Rodriquez, L. M., Blair, M. W., Baum, M., McNally, K. and This, D., 2009, Isolation and sequence analysis of *DREB2A* homologues in three cereal and two legume species. *Plant Sci.*, 177(5): 460-467.