Dr. Sanjeev Kumar Singh
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Research Experience

- Twenty seven years experience in management of plant genetic resources including the germplasm exploration, collection, conservation and management of Field Gene Bank and Seed Gene Bank and exchange of germplasm for research in different crop improvement programmes at National and International level.
- Out of the above mentioned period, served nearly 13 years in North-eastern hill (NEH) regions of India for exploration, characterization and conservation of plant genetic resources of remote and un-explored areas of NEH regions.
- Conducted twelve (12) exploration and collection trips and augmented around 1800 valuable agri-horticultural plant germplasm including important landraces and medicinal plants and conserved in the National Genebank.
- Characterized more than 4000 different germplasm of various agri-horticultural crops (Rice, Maize, Buckwheat, *Perilla*, Rice bean, *Citrus*, Banana, Turmeric, Ginger, *Dioscorea*, *Colocasia* etc.) from NEH region and identified promising accessions.
- Contributed significantly towards selection from Indigenous maize germplasm collection of NEH region was characterized and evaluated by identifying and registering a *'multi-cob'* maize genotype (Registration No. INGR13054) in the year 2013.
- Worked in Division of Genomic Resources, ICAR-NBPGR, New Delhi and associated with two projects.

1. Development of unique identity system for cultivars and genetic stocks for IPR protection.

2. Establishment and maintenance of National Genomic Resources repository and bioinformatics facility.

In the above mentioned projects, I involved in the following activities:-

- Molecular and morphological characterization for maize, lentil, chickpea, linseed soybean and cotton crops and providing the DNA profiling services for different crop cultivars to protect breeders' rights.
- Management for conservation of the genomic resources (nearly 10,000 accessions) in -70°C and cryo-preservation for post genomic research in PGR characterization and molecular plant breeding.

Professional Memberships

Life member, Indian Society of Plant Genetic Resources (ISPGR), New Delhi.

Life member, Indian Association of Hill Farming, Umiam, Meghalaya.

Peer Recognitions

Award/ Honours

- Received best oral presentation award for the paper “Community based seed banks: A strategy for biodiversity conservation and sustainable agriculture in rural villages”. *In* the National Conference on Managing Agro-Biodiversity in North Eastern India (NCMAN), ICAR Research Complex for NEH Region, Umiam, Meghalaya, 23-25 October, 2024.
- Elected as Treasurer for Indian Society of Plant Genetic Resources (ISPGR), New Delhi for 2022-2024 duration.
- Received “Yashasvi Samman” by Royal Association for Science-led Socio-cultural Advancement (RASSA) for the distinguished services for science and society for the year 2020.
- Received “Best Oral Presentation Award” for the paper “Characterization of Rice bean [*Vigna umbellata* (Thumb.) Ohwi & Ohashi] Landraces from Northeast India” in “International Seminar on Sustainable Agricultural Development in Changing Global Scenario at Banaras Hindu University, Varanasi from 11th to 13th Oct. 2019.
- Received “Best Researcher Award” in “National Seminar on Smart Technologies to Boost Farm Profitability and Socio-Economic Status of Rural India" organized at Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu, from 19th to 20th Nov. 2018.
- Received "Best Oral Presentation Award" for the paper "Genetic diversity and population structure of *Perilla frutescens* (L.) Britt. landraces from Northeastern Hill (NEH) Region of India" in National Seminar on “Smart Farming for Enhancing Input Use efficiency, Income and Environmental Security”, organized by Indian Society of Hill Farming, at ICAR Research Complex for NEH Region, Umiam, Meghalaya from 19-21 September 2017.

Reviewer/Editor

- Physiology and molecular biology of plants
- Journal of essential oil bearing plants
- Frontier in genetics
- Saudi journal of biological Sciences

Personal Webpage

https://scholar.google.com/citations?user=IhKBmWAAAAAJ&hl=en

Research Publications

Research Papers (41)

Paper Presented in Seminar/Symposium (25)

Lecture/Talk Delivered (10)

Research Publications

1. Arya, L, G S Sandhia, S S Malik, **S K Singh** (2001) Inheritance of RAPD markers in Sorghum hybrids. *Indian Journal of Plant Genetics Resources,* 14(2): 229-230.
2. Arya, L, G S Sandhia, **S K Singh**, MK Rana and S S Malik (2006) Analysis of Indian Sorghum [*Sorghum bicolor* (L.) Moench] cultivars and lines using RAPD markers. *Journal of Plant Biochemistry and Biotechnology*, 15: 97-101.
3. Barua, U, **S K Singh**, A K Pal and D K Hore (2006) Collection of multicrop germplasm from pockets of Nagaland. *Environment and Ecology,* 24(4):704-709.
4. **Singh, S K**, D K Hore and P K Singh (2007) Survey and collections of multi-crop germplasm from southern parts of Mizoram, India. *Environment and Ecology,* 25S(2):280-286.
5. **Singh, S K**, U Barua, A Kar and D K Hore (2007) Collection of multicrop germplasm from West Kameng and Tawang district of Arunachal Pradesh. *Indian Journal of Hill Farming,* 20(1&2):10-17.
6. Arya, L, M Verma, G S Sandhia, **S K Singh** and S Lakhanpaul (2008) Pattern of genetic relationship as revealed by AFLP markers in Indian sorghum [*Sorghum bicolor* (L.) Moench]. *Indian Journal of Genetics and Plant Breeding*, 68(2):139-144.
7. Arya, L, M Verma, G S Sandhia, **S K Singh** and S Lakhanpaul (2008) The pattern of genetic variation as revealed by RAPD and AFLP markers in pearl millet [*Pennisetum glaucum* (L.)R. Br.]. *International Journal of Tropical Agriculture,* 26(3-4):463-469.
8. **Singh, S K**, U Barua, D K Hore and A K Misra (2009) Exploration and collection of crop germplasm from eastern parts of Arunachal Pradesh. *Journal of Plant Genetic Resources,* 22(3):199-205.
9. Misra, A K, **S K Singh** and Arvind Kumar (2010) Evaluation of rapeseed-mustard germplasm collected from northeastern region of India. *Cruciferae Newsletter*, 25:35-38.
10. Misra, A K, C Chattopadhyaya, A Kumar, S K Singh and S K Verma. 2010. Evaluation of exotic germplasm of Indian Mustard (*Brassica juncea*) for economic traits. *Indian Journal of Plant Genetic Resources,* 23(1) 10-14.
11. Sanwal, S K, **S K Singh**, P K Singh and A K Misra (2010) Characterization of chow-chow (*Sechium edule*) germplasm of Northeastern region of India for economic traits. *Indian Journal of Plant Genetic Resources,* 23(1) 19-21.
12. **Singh, S K**, Suresh B G, G R Lavanya, Jyotsna Subha, Akanksha Shrivastav, A K Misra and S K Verma (2010) Characterization of mutant lines of Mungbean [*Vigna radiata* (L) Wilczek]. *Indian Journal of Plant Genetic Resources,* 23(1) 40-43.

13. Kumar, N. Vinay, G R Lavanya, **S K Singh** and Praveen Pandey (2010) Genetic association and path coefficient analysis in mung bean *Vigna radiata* (L.) R. Wilczek. *Advances in Agriculture and Botanics,* 2(3) 251-257.

14. Misra, A K and **S K Singh** (2010) Characterization of *Brassica g*ermplasm collected from NEH region of India. *Indian Journal of Hill Farming,* 23(2):7-13.

15. Roy S, S K Verma, D K Hore, A K Misra, R S Rathi and **S K Singh** (2011) Agro-morphological diversity in turmeric (*Curcuma longa*) accessions collected from North-eastern India. *Indian Journal of Agricultural Sciences* 81(10): 898–902.

16. Pal, A K, **S K Singh**, R Srivastava, D K Hore and A K Misra (2011) Collection of multi-crop germplasm from lower and upper subansiri districts of Arunachal Pradesh, India and their range of diversity. *Indian Journal of Hill Farming,* 24(1):1-6.

17. Sanwal, S K, **S K Singh**, R K Yadav, P K Singh and A K Misra (2012) Yield and quality assessment of ginger (*Zingiber officinale* Rosc.) germplasm. *Indian Journal of Plant Genetic Resources,* 25(3): 281-286.

18. Rathi, R S, A. K. Misra, S. Roy, S. K. Verma and **S K Singh** (2012) Potential of a lesser known tree species *Parkia roxburghii* G. Don of North East India. *Indian Forester* 138(5):476-479.

19. Rathi, R S, S Roy, **S K Singh** and A K Misra (2012) Tung [A*leurites fordii* hemsl.]: an underutilized oil yielding tree in north east India. *Indian Forester* 138(6):1066-1068.

20. **Singh, S K**, G Roopa Lavanya, K V Bhat, G Suresh Babu, Lalit Arya, M Verma, Z Hussain, S Roy, R S Rathi and A K Misra (2012) Microsatellite markers revealed genetic diversity in mungbean mutant lines. *Indian Journal of Hill Farming* 25(1):38-43.

21. Kumar, N. Vinay, G R Lavanya and **S K Singh** (2013) Genetic association of characters and their effects in mung bean *Vigna radiata* (L.) R. Wilczek. *The Andhra Agricultural Journal* 60(1):54-58.

22. Rathi, R S, **S K Singh**, A K Misra and O P Dahiya (2013) Exploration and collection of germplasm from Mizoram state of Northeastern India. *Indian Journal of Agriculture Research.* 47(4):296-303.

23. Rathi, R S, S Roy, A K Misra and **S K Singh** (2013) Ethnobotanical notes on *Houttuynia cordata* Thunb. in North-eastern region of India. *Indian Journal of Natural Products and Resources*. 4(4):432-435.

24. Singh, S K, Suresh B G, G R Lavanya, K V Bhat, Lalit Arya, Z Hussain, M Verma and A K Misra. (2013) Assessment of genetic variability in mutant lines of mung bean [*Vigna radiata* (L) Wilczek] using ISSR markers. *Indian Journal of Agricultural Sciences* 84(4):99-104.

25. **Singh, S K** and A K Misra (2014) Characterization of germplasm collected from Nagaland and adjoining area of Northeastern India. *Indian Journal of Hill Farming* 27(1):1-18.

26. Roy, S, A Banerjee, B Mawkhlieng, A K Misra, A Pattanayak, G D Harish, **S K Singh**, S V Ngachan and K C Bansal (2015) Genetic diversity and population structure in aromatic and quality rice (*Oryza sativa* L.) landraces from North-Eastern India. *PLoS ONE* 10(6): e0129607.

27. Rathi, R S, K Pradheep, S Roy, **S K Singh** and A K Misra (2016) *Stahlianthus involucratus* (King ex Baker) Craib ex Loes.: a new record to the flora of Mizoram, India. *Journal of Threatened Taxa* 8(3): 8629–8631.

28. **Singh, S K**, PC Kole, A K Misra and S Roy. 2017. Collection and conservation of landraces of *Perilla frutescens* (L.) Britt. from Northeastern hill (NEH) region of India. *Indian Journal of Hill Farming* 30(1):23-27.

29. **Singh, S K**, P C Kole, A K Misra, Somnath Roy, Lalit Arya, Manjusha Verma, R. Bhardwaj, P. Suneja, Med Ram Verma, KV Bhat and Rakesh Singh. 2017. Characterization of Perilla *frutescens* (Linn.) Britt based on morphological, biochemical and STMS markers. *Industrial Crops & Products* 109: 773–785.

30. Rathi RS, **SK Singh** and AK Misra (2018) Collection and characterization of trait specific multi-crop germplasm from Sikkim, *Indian Journal of Hill Farming* 31(2):274-280.

31. Misra, AK, S Roy, **SK Singh**, RS Rathi and Harish GD (2019) Morphological diversity of buckwheat (*Fagopyrum* spp.) landraces from Northeast India, *Indian Journal of Plant Genetic Resources,* 32(1):11-17.

32. Arya, Lalit, Manjusha Verma, **SK Singh** and RPS Verma (2019) Spatio-temporal genetic diversity in Indian barley (*Hordeum vulgare* L.) varieties based on SSR markers, *Indian Journal of Experimental Biology*, 57(7): 545-552.

33. **Singh, S K** and A K Misra. 2019. Rice bean: an important and potential crop of Northeastern region of India. *RASSA Journal of Science for Society,* 1(1&2): 64-66.

34. Roy Somnath, A Banerjee, N Basak, TB Bagchi, NP Mandal, BC Patra, AK Misra, **SK Singh**, RS Rathi and A Pattanayak (2020) Genetic diversity analysis of specialty glutinous and low-amylose rice (*Oryza sativa* L.) landraces of Assam based on Wx locus and microsatellite diversity. *Journal of Biosciences* 45:86. DOI: 10.1007/s12038-020-00059-w

35. Shipra Deo, Anto James, **SK Singh**, C. B. Singh and Mukesh Kumar Rana (2020) Molecular Diversity Analysis and Cultivar Identification using Simple Sequence Repeat (SSR) Markers in Soybean [*Glycine max* (L.) Merrill]. *International Journal of Current Microbiology and Applied Sciences,* **9: 4** doi.org/10.20546/ijcmas.2020.904.xxx

36. Shipra Deo, Anto James, **SK Singh**, C. B. Singh and Mukesh Kumar Rana (2020) Development of multiplex microsatellite marker sets in Soybean [*Glycine max* (L.) Merr.] *International Journal of Current Microbiology and Applied Sciences* (Accepted) https://doi.org/10.20546/ijcmas.2020.910.xx

37. Marla SS, P Mishra, R Maurya, M Singh, DP Wankhade, AK Gupta, **SK Singh** and R Kumar (2020). Refinement of draft genome assemblies of Pigeonpea (*Cajanus cajan*). *Frontiers in Genetics*, 11: 607432

38. **Singh, S K**, Deo, S., Chaudhary, S.B., Singh, K., Rana, M.K. (2023). Genetic Relationships and Population Structure among Maize (*Zea mays* L.) Landraces as Revealed by Simple Sequence Repeat Markers. *Indian J. Plant Genetic Resources*. 36(2), 216-226.

DOI: 10.5958/0976-1926.2022.00036.2.03

39. **Singh S K**, RS Rathi, KC Bhatt, S Hajong and NA Singh. (2024) Multi-crop Exploration in Unexplored Areas of Garo Hills, Meghalaya. *Indian J. Plant Genetic Resources*. 37(1): 47-55. DOI: 10.61949/0976-1926.2024.v37i01.06

40. Kaur, S, K Seem, A Ali, S Jaiswal, P Gumachanamardi, G Kaur, N Singh, L Touthang, **S K Singh**, R Bhardwaj, B K Singh, V K Mishra, A Riar (2024) A comprehensive review on nutritional, nutraceutical, and industrial perspectives of perilla (*Perilla frutscens* L.) seeds – An orphan oilseed crop, Heliyon 10 e33281, https://doi.org/10.1016/j.heliyon.2024.e33281

41. Kaur, S, S Godara, N Singh, A. Kumar, R Pandey, S Adhikari, S. Jaiswal, **S K Singh**, J C Rana, R Bhardwaj, B K Singh and A Riar (2024) Multivariate data analysis assisted mining of nutri-rich genotypes from North Eastern Himalayan germplasm collection of Perilla (*Perilla frutescens* L.), *Plant Foods for Human Nutrition*, https://doi.org/10.1007/s11130-024-01220-8