Profile of Scientist

1. Name of the Scientist: M. Swapna

2. Personal Biodata:

a) Position/Designation: Principal Scientist

b) Contact Details:

i. ICAR Email ID: swapna.m@icar.gov.in

ii. Personal Email ID: sugarswapna@gmail.com

iii. Mobile No.: +91 94531 95305

c) Joining date in:

i. ICAR: 24-11-1998

ii. IISR: 24-11-1998

d) Discipline and Specialization: Genetics; Sugarcane molecular and classical genetics

e) Training/advance exposure in the area of work:

- DBT sponsored **National Workshop on Current Trends in Agri-bioinformatics** at NAARM Hyderabad from 15-17 February 2016
- **NAIP sponsored training on Data Analysis using SAS** under NAIP Consortium Strengthening Statistical Computing for NARS from January 31st to February 5th 2011 at IASRI New Delhi.
- **DBT sponsored training on Molecular Marker Applications in Crop Improvement at Centre of Excellence in Genomics at ICRISAT,** Patancheru from 18-29 May 2009
- **DBT sponsored training programme for 21 days on "Biotechnological and Bioinformatics Applications in Agriculture"** from 26 Sep. 2004- 16 Oct. 2004 at DISC,IISR, Calicut.
- **Four-month training programme on "Plant genetic Engineering and Molecular Breeding" under NATP (ToE**) at NRCPB, IARI, New Delhi on the application of molecular markers-for sugarcane diversity and fingerprinting studies
- Ten day short term course on **"Molecular Marker Applications in Plant Breeding"** atIARI, New Delhi, with a brief hands-on experience on the various molecular techniques and their utilization in breeding programmes.

f) Contribution to the scientific advancement:

- Was involved in development of two high sugar red rot resistant sugarcane varieties CoLk 9709 and CoLk 07201 for sub-tropical India.
- The probable point of trigger with respect to the temporal control for evocation in sugarcane was identified to be at 4-5 weeks before short blade stage, at the histological level.
- The utility of Single Strand Conformation Polymorphism (SSCP) analysis as a potential tool to assay polymorphism in the microsatellite-containing active genic regions of the complex polyploid sugarcane genome was demonstrated for the first time in sugarcane.

- Was involved in the development and application of a new marker system Conserved Intron Sequence Polymorphism (CISP) in sugarcane for diversity studies.
- Designed and validated a primer pair from Soluble Acid Invertase (SAI) gene sequence flanking a GC rich region. This exhibited polymorphism in sugarcane and other *Saccharum* species.
- Polymorphic primer pairs were identified for sugar content that are being validated.
- Mapping population for mapping of loci linked to sugar content were developed for
- Two high sugar elite clones were included as parental breeding stocks in
- National Hybridization Garden at Sugarcane Breeding Institute, Coimbatore.
- Three putative low sugar parental clones were identified for use in mapping population development.

3. Future Planning of research

- Mapping of sugar and red rot related loci in sugarcane.
- Functional genomics and expression studies with respect to quality traits in sugarcane.

4. Publications :

- Singh RK, Jena SN, Khan MS, Yadav S, Banarjee N, Raghuvanshi S, Bhardwaj V, Duttamajuder SK, Kapur R, Soloman S, **Swapna M**, Srivastava S, Tyagi AK. (2013) Development of cross-species/genera transferability of novel EST-SSR markers and their utility in revealing population structure and genetic diversit in sugarcane. **Gene**. doi:pii: S0378-1119(13)00420 4.10.1016/j.gene.2013.03.125.
- **Swapna, M** and Sangeeta Srivastava. 2012 Molecular marker applications for Sugar Content in Sugarcane. Springer Brief Series, Springer Heidelberg, ISBN 978-1-4614-2256-3
- **M.Swapna,** K. Sivaraju, R.K. Sharma, N.K. Singh, T.Mohapatra 2011. Single Strand Conformation Polymorphism: A potential tool for diversity analysis and varietal identification in sugarcane. Plant Molecular Biology Reporter 29 : 505-51.
- M. Suhail Khan, Sonia Yadav, Sangeeta Srivastava, **M. Swapna,** A. Chandra and Ram K. Singh 2011 Development and utilisation of conserved-intron scanning marker in sugarcane . Australian J. Bot. 59 (1) : 38-45
- Swapna, M and P.K.Singh. 2008 Shoot apex development at various stages of flowering in sugarcane (*Saccharum* spp. hybrid). Cytologia. 73 (2): 173-177

5. Other relevant activities of Scientist:

- Served as **resource person/supervisor for training of undergraduate and postgraduate students** for partial fulfillment of their course requirement.
- Member of Editorial board and referee for peer-reviewed journals