

## Dr . RAMA RAO SATYAWADA



**Date of Birth** : July 22, 1957

### Addresses:

<b>Office:</b>	<b>Home:</b>
Professor Department of Bio-Technology & Bio-Informatics. North-Eastern Hill University Permanent Campus, Mawkynroh-Umshing SHILLONG- 793 022 Meghalaya(India) Tel.: (0364) 272 2404 (Dept. Chamber) (0364) 272 2402 (Dept. Office) (0364) 255 0300 (Fax-Dept. Office) (0)-9436332760 (Mobile) Web : <a href="http://www.nehu.ac.in">www.nehu.ac.in</a> E-mail: <a href="mailto:srrao@nehu.ac.in">srrao@nehu.ac.in</a>	L-47, NEHU Staff Quarters North- Eastern Hill University Permanent Campus, Mawkynroh-Umshing SHILLONG- 793 022 Meghalaya(India) Tel.: (0364) 25550017 ( Home) E-mail: <a href="mailto:srrao22@yahoo.com">srrao22@yahoo.com</a>

**Current Areas Research Interests:** Plant Biotechnology; Cellular and Molecular Cytogenetics, Plant Genetic Diversity Analysis and Conservation Biology.

### Educational Qualifications :

<b>Degree</b>	<b>Year</b>	<b>University</b>	<b>Subject</b>
Ph.D. (Botany)	1991	University of Jodhpur, Jodhpur, India	<b>Title of the Ph.D. Thesis:</b> <b>Cytogenetics of <i>Phlox</i> and <i>Vigna</i></b>
Masters/M.Sc. (Botany)	1980	University of Jodhpur, Jodhpur, India	Botany

Bachelors/B.Sc.	1977	Andhra University, Visakhapatnam, India	Botany(Main), Zoology and Chemistry
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**Professional Experience: 28 Years approx.**

- **Professor**  
(*July 16, 2006 - .... present*)  
Department of Biotechnology and Bioinformatics  
North- Eastern Hill University  
Permanent Campus, Mawkynroh,  
SHILLONG – 793022 (Meghalaya)
- **Professor and Head of the Department**  
(*July 22, 2008 to Dec. 18, 2012; Feb. 19, 2015 to contd....*)  
Department of Biotechnology and Bioinformatics  
North- Eastern Hill University  
Permanent Campus, Umshing -Mawkynroh,  
SHILLONG – 793022 (Meghalaya)
- **Associate Professor**  
(*19<sup>th</sup> May, 2001 -15<sup>th</sup> July, 2006*)  
Department of Botany  
J.N.V. University of Jodhpur,  
Jodhpur, India
- **Assistant Professor (Selection Grade)**  
(*4<sup>th</sup> Nov. 2000 - 18<sup>th</sup> May 2001*)  
Department of Botany  
J.N.V. University of Jodhpur,  
Jodhpur, India
- **Assistant Professor (Senior Scale)**  
(*4<sup>th</sup> Nov. 1996 – 3<sup>rd</sup> Nov. 2000*)  
Department of Botany  
J.N.V. University of Jodhpur,  
Jodhpur, India
- **Assistant Professor**  
(*4<sup>th</sup> Nov 1991 - 3<sup>rd</sup> Nov 1996*)  
Department of Botany  
J.N.V. University of Jodhpur,  
Jodhpur, India
- **Research Associate**  
(*28<sup>th</sup> Aug 1988 - 3<sup>rd</sup> Nov 1991*)  
National Bureau of Plant Genetic Resources (NBPGR),  
New Delhi, India

## Teaching Experience:

- **Post Graduate Level: 26 years**
  - 1 year (1984-1985)- Genetics, Cytogenetics, Plant Breeding
  - 25 years (1991-present) - Plant Biotechnology, Molecular Biology, Genetics, Cytogenetics, Plant Breeding,
- **Graduate Level: 15 years**
  - 15 years (1991-2006) - Genetics, Cytogenetics, Plant Breeding, Biotechnology

## Honors and Awards:

- Awarded DBT National Associate-ship, 1998
- Awarded Visiting Scientist Fellowship to China by Indian National Science Academy (INSA), Under Indian National Science Academy –China Academy of Science (INSA-CAS) International Exchange Program, and availed from 2012 to 2013.
- Awarded DBT-CREST Fellowship, 2012 and availed from Jan.05; 2014-April 4; 2014.

## Academic Activities:

### 1. Scholars awarded Ph.D.: 12

SL.NO	NAME OF CANDIDATES	YEAR	TOPIC	REMARKS
1.	Mr. Animos Lamare	2016	Molecular Characterization of Different <i>Musa</i> Species With Special Emphasis on Section <i>Eumusa</i> from Meghalaya	North-Eastern Hill University
2.	Ms. Archana Ojha	2016	Host range Analysis and Genotypic Characterization of Rhizobia associated With Native Legume of Meghalaya.	North-Eastern Hill University
3.	Ms. Shamurailatpam Anju	2014	Molecular Cytogenetic Studies on Inter- and Intraspecific Variation in <i>Vigna</i> Species from North-East India	North-Eastern Hill University
4.	Ms. Keisham Merita Devi	2014	Analysis of inter- and intra-specific variation in cultivated and wild species of <i>Abelmoschus medik</i>	North-Eastern Hill University
5.	Ms. Marlykynti Hynniewta	2014	Cytogenetical studies in <i>Citrus</i> species of North-East India	North-Eastern Hill University
6.	Ms. Rajkumari Khedasana	2013	Studies on Genetic Basis of Variation in Genus <i>Cucumis</i>	North-Eastern Hill University
7.	Mr. Santosh Kumar Sharma	2011	Cellular and Molecular Characterization of Natural Genetic Variations in <i>Mantisia</i> and <i>Cymbidium</i> species	North-Eastern Hill University
8.	Mrs. Jigyasa Purohit	2009	Cellular and Molecular Characterization of <i>Cyamopsis tetragonoloba</i> (Linn.) Taub. and an Attempt for Its Genetic Improvement	JNV, University, Jodhpur

9.	<b>Ms. Sangeeta Bewal</b>	<b>2007</b>	Cellular and Molecular Analysis of Genetic Variation among Populations of Some Key Stone Species of Rajasthan	JNV, University, Jodhpur
10.	<b>Mrs. Deepika Rawat</b>	<b>2006</b>	Cytogenetical Studies in Some Economically Important Plants of Rajasthan	JNV, University, Jodhpur
11.	<b>Mr. Hardev Ram</b>	<b>2005</b>	Analysis of Genetic Variation among Natural Population of Some Threatened Plants of Rajasthan	JNV, University, Jodhpur
12.	<b>Mr. Arun Kumar</b>	<b>2000</b>	Cytological Investigations in Some Important Tree Species of Rajasthan	JNV, University, Jodhpur

• **Registered Students currently working for Ph.D. Degree: 3**

SL.N.	NAME OF CANDIDATE	YEAR	TOPIC	REMARKS
1.	<b>Ms. Judith Lamo</b>		Studies on Inter- and Intra-Genetic Diversity and Phylogeny in the Genus <i>Curcuma</i> L.	North-Eastern Hill University
2.	<b>Toshinungla Ao</b>		Studies on Documentation of Wild edible Mushrooms of Four Districts of Nagaland, Cultivation, Nutritional Assessment and DNA Profiling of Few Wild Species	Nagaland University
3.	<b>Daniel Regie Wahlang</b>		Cytogenetic and molecular analysis of genomic changes induced by colchicine in <i>Vigna radiata</i> (L.) Wilczek and <i>Vigna mungo</i> (L.) Hepper	North-Eastern Hill University

• **M. Sc. Dissertations supervised: 50**

SL.NO	NAME OF CANDIDATE	YEAR	TOPIC	REMARK
1.	Mr. Khraw Pyrkhat Nongrum	2016-2017	Molecular evidence for the occurrence of Citrus greening bacterium ' <i>Candidatus Liberibacter asiaticus</i> ' in Meghalaya	North-Eastern Hill University
2.	Ms. Mehzbin Rahman	2016-2017	An Attempt to understand the genetic diversity among populations of <i>Haematocarpus validus</i> Bakh.f. ex Forman from Meghalaya	North-Eastern Hill University
3.	Mr. David Wiseman Lamare	2015-2016	Single Primer Amplification to detect genetic diversity among the genotypes of <i>Allium sativum</i>	North-Eastern Hill University

4.	Ms. Jasmine Akhtar	2015-2016	Assessment of genetic variation in <i>Brassica</i> spp. Using Molecular Markers.	North-Eastern Hill University
5.	Mr. Tanborlang Lyngdoh	2015-2016	Genetic diversity analysis of <i>Trigonella foenum-braceum</i> accessions using single primer based DNA markers	North-Eastern Hill University
6.	Mr. Sunny Warjri	2014-2015	Assessment of genetic diversity among <i>Vigna (V.umbellata)</i> accessions using RAPD technique and an attempt to study callus induction in Capsicum and Carrot ( <i>D.carota</i> )L.	North-Eastern Hill University
7.	Ms. Nayanmoni Borah	2014-2015	Genetic diversity analysis with DNA based markers and heterochromatin study in <i>Musa</i> sp; and <i>In-vitro</i> studies for induction of callus in <i>Vigna unguiculata</i> (L.) Walp.	North-Eastern Hill University
8.	Ms. Indrani Baruah	2014-2015	DNA markers and heterochromatin distribution in aid to analyze genetic diversity among <i>Musa balbisiana</i> collections and <i>In-vitro</i> studies in <i>Vigna umbellata</i> (Thunb.) for induction of callus	North-Eastern Hill University
9.	Mr. Bishnu T. Sangma	2013-2014	Intra-specific genetic variation study in wild collections of <i>musa balbisiana</i> from Meghalaya as revealed by random amplified polymorphic DNA	North-Eastern Hill University
10.	Ms. Chinky M. Marak	2013-2014	Isolation and biochemical characterization of root nodulating bacteria associated with <i>Erosema chinense</i> L. from Shillong, Meghalaya	North-Eastern Hill University
11.	Mr. Bandapkupar Mawkhlieng	2012-2013	Assessment of inter-specific and intra-specific variation in <i>Cucumis</i> species through DNA polymorphic loci	North-Eastern Hill University
12.	Mr. Emanuel Khraw Swer	2012-2013	Genetic diversity analysis through DNA polymorphism by using RAPD and primer-pair array in <i>Curcuma caesia</i>	North-Eastern Hill University
13.	Ms. Juban Nylla Sunabi	2012-2013	Isolation, identification and characterization of Rhizobial strain associated with legumes of Shillong area	North-Eastern Hill University

14.	Ms. Babita Kumari	2011-2013	Genetic Diversity Analysis through DNA polymorphism in <i>Musa oronata</i> collection from Meghalaya	North-Eastern Hill University
15.	Ms. Ranjita Das	2011-2012	Genetic Diversity Analysis through DNA polymorphism in <i>Curcuma longa</i>	North-Eastern Hill University
16.	Ms. T. Christina	2011-2012	Assessment of Genetic Variation in two economically important <i>Citrus</i> species through polymorphic DNA Loci	North-Eastern Hill University
17.	Ms. C. Lalrindiki	2010-2011	Microsatellite-primed PCR-based DNA Fingerprinting reveals intra-specific natural genetic variation In <i>Musa balbisiana</i> collections from Meghalaya	North-Eastern Hill University
18.	Ms. Dorrylet Kharbuli	2010-2011	Utility of RAPD Fingerprinting to analyze genetic variation in <i>Musa balbisiana</i> collections from Meghalaya	North-Eastern Hill University
19.	Ms. Entibenhun Kharbuki	2010-2011	<i>In vitro</i> studies, cytological and molecular characterization of <i>V. umbellata</i>	North-Eastern Hill University
20.	Ms. Koel Biswas	2010-2011	Isolation and biochemical characterization of micro-symbiont associated with legumes of Shillong area	North-Eastern Hill University
21.	Ms. Lalzikpuii	2010-2011	<i>In vitro</i> regeneration studies, cytological and molecular Characterization of <i>Citrus macroptera</i>	North-Eastern Hill University
22.	Ms. Rihunlin H Nongsiang	2010-2011	Molecular characterization and <i>in vitro</i> studies of <i>Abelmoschus</i> species	North-Eastern Hill University
23.	Ms. Emica Gatpoh	2009-2010	Cytogenetical and molecular analysis of genetic variation in wild and cultivated species of <i>Cucumis</i> and an attempt for <i>in vitro</i> callus induction	North-Eastern Hill University
24.	Gratify Pale	2009-2010	Analysis on inter and intra-genetic variation of the genus <i>Vigna</i>	North-Eastern Hill University
25.	Ms. Onisha kharjana	2009-2010	<i>In vitro</i> studies and genetic diversity analysis in two varieties of <i>Cucurma longa</i> L. found in Meghalaya	North-Eastern Hill University

26.	Ms. Bhargavi Phukan	2009-2010	Meiotic analysis of cochicine treated <i>Pholx drummondii</i>	North-Eastern Hill University
27.	Ms. Patrisha Lyngkhoi	2008-2009	Cytogenetical analysis and in vitro regeneration studies in <i>Vigna aconitifolia</i>	North-Eastern Hill University
28.	Ms. Deepika Thapa	2008-2009	Analysis of genetic diversity in different accessions of cowpea using cytological methods	North-Eastern Hill University
29.	Mr. Nand Kishor Roy	2008-2009	Analysis of natural genetic variation in <i>Calligonum polygonoides</i> accessions using PCR-RAPD technique	North-Eastern Hill University
30.	Sangita Yadav	2008-2009	Analysis of genetic diversity in cowpea accessions using RAPD technique	North-Eastern Hill University
31.	Barilang L. Syiemiong	2007-2008	Characterization of genetic diversity among moth bean and cowpea accessions using RAPD techniques.	North-Eastern Hill University
32.	Grace Suiam	2006-2007	<i>In-vitro</i> regeneration and molecular characterization studies in <i>Begonia rurvenia</i> and <i>Allium cepa</i> . Memorieca	North-Eastern Hill University
33.	Ms. Budkynti, Kharपुरi	2006-2007	<i>In-vitro</i> regeneration and molecular characterization studies in <i>Clerodendrum</i> species	North-Eastern Hill University
34.	Ms. Manisha Tanwer	2005-2006	Molecular Markers in Plant genetic Improvement	JNV, University, Jodhpur
35.	Ms. Suman Parihar	2005-2006	Polymerase Chain reaction	JNV, University, Jodhpur
36.	Ms. Deepika Emmanuel	2004-2005	DNA Finger printing with special emphasis on repetitive sequences	JNV, University, Jodhpur
37.	Ms. Deepa Jindal	2003-2004	Artificial Chromosomes	JNV, University, Jodhpur
38.	Ms. Heena Belim	2003-2004	Site-directed mutagenesis	JNV, University, Jodhpur
39.	Ms. Bhavana Emmanuel	2002-2003	Structural and functional genomics of Yeast- A Review	JNV, University, Jodhpur
40.	Ms. Pankaj Rajpurohit	2002-2003	Antisense technologies and applications	JNV, University, Jodhpur
41.	Amitabh Mishra	2001-2002	Post-transcriptional and translational regulation of	JNV, University, Jodhpur

			gene expression of eukaryotes	
42.	Ms. Pooja Khurana	2000-2001	Chloroplast genome-Molecular organization and its expression	JNV, University, Jodhpur
43.	Ms. Meenakshi Mishra	2000-2001	Mitochondrial genome organization	JNV, University, Jodhpur
44.	Mr. Bihari Lal	1999-2000	Molecular marker assisted selection and breeding in cereal crops	JNV, University, Jodhpur
45.	Ms. Harpeet Kaur	1999-2000	RFLP- An important molecular technique to understand genome organization.	JNV, University, Jodhpur
46.	Ms. Neetu Poonar	1999-2000	Genetic status of <i>in vitro</i> raised plants	JNV, University, Jodhpur
47.	Ms. Bindu Bala Jindal	1996-1997	Biotechnological approaches for propagation and conservation of threatened plants	JNV, University, Jodhpur
48.	Ms. Sunita Gupta	1996-1997	Plant tissue culture based biotechnology for the propagation and improvement of tree legumes	JNV, University, Jodhpur
49.	Mr. Teja Ram	1993-1994	Micro-propagation of <i>Eucalyptus camaldulensis</i>	JNV, University, Jodhpur
50.	Ms. Deepa Rai	1993-1994	<i>In vitro</i> studies on Pearl Millet ( <i>Pennisetum americanum</i> ).	JNV, University, Jodhpur

• **Training(s) Supervised: 3**

Sl.No.	Name of the Student	Topic	Year	Duration	University
1.	Mr. Keshab Kemprai M.Sc. Biotechnology 2 <sup>nd</sup> Semester	Basic Molecular biology techniques	2016	1 month	Annamalai University
2.	Ms. Rosalyne Lyngdoh M.Sc Integrated. Biotechnology.1 <sup>st</sup> Semester	Basic Molecular biology techniques	2016	1 month	Annamalai University
3.	Mr. Komal Chutia B.tech. Biotechnology 6 <sup>th</sup> Semester	Basic Molecular Techniques & Genetic Diversity Studies in <i>Haematocarpus validus</i>	2016	Four weeks	Lovely Professional University



## List of Publications:

### (PRJ) Research Papers in peer reviewed journals:

1. Rao, S.R., Raina, S.N and Srivastav, P.K.1982. Induced autotetraploidy in *Phlox drummondii* Hook. **Journal of Cytology and Genetics**, **17**: 53-58. (*Impact factor: 0.25*)
2. Srivastav, P.K., Rao, S.R and Raina, S.N.1983. Translocation heterozygosity in *Phlox drummondii* Hook. **The Nucleus**, **26**: 131-134. (*Impact factor: 4, NAAS rating*)
3. Raina, S.N., Srivastav, P.K and Rao, S.R.1986. Nuclear DNA variation in *Tephrosia*. **Genetica**, **69**: 27-33. (*Impact factor: 1.68*)
4. Arya, I.D., Rao, S.R and Raina, S.N.1988. Cytomorphological studies of *Trigonella foenum-graecum* in autotetraploids in three (C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>) generations. **Cytologia**, **53**: 525-534. (*Impact factor: 6.9 NASS rating*)
5. Arya, I. D and Rao, S. R.1989. Colchicine in evolution of higher polyploids of Sunnhemp (*Crotolaria juncea* L.). **Journal Cytology and Genetics**, **24**: 173- 178.
6. Rao, S.R and Chandel, K.P.S.1991. Karyomorphological studies in the cultivated and wild *Vigna* species in Indian gene center. **Cytologia**, **56**: 47-57. (*Impact factor: 6.9 NASS rating*)
7. Pandey, R., Chandel, K.P.S and Rao, S.R.1992. *In vitro* propagation of *Allium tuberosum* Rottl. E.x Spreng. by shoot proliferation. **Plant Cell Repor**, **11**: 375-378. (*Impact factor: 2.82*)
8. Rao, S.R., Pandey, R. and Chandel, K.P.S.1992. Genetic stability studies in regenerated plants of *Allium tuberosum* Rottl. ex. Spreng.- A cytological approach. **Cytologia**, **57**:339-347. (*Impact factor: 6.9 NASS rating*)
9. Kaur, G., Rathore, T.S., Rao, S.R and Shekhawat, N.S.1992. *In vitro* micro-propagation of *Caralluma edulis* (Edgew.) Benth. & Hook.f. A rare edible plant species of Indian desert. **Indian Journal of Plant Genetic Resources**, **5**: 51-56. (*Impact factor: 3.3 NAAS rating*)
10. Shekhawat, N.S., Rathore, T.S., Singh, R.P., Deora, N.S and Rao, S.R.1993. Factors affecting *in vitro* clonal propagation of *Prosopis cineraria*. **Plant Growth Regulation**, **12**: 273-280. (*Impact factor: 1.67*)
11. Singh, A., Rao, S.R., Singh, R and Chacharkar, M.P.1998. Identification and dose estimation of irradiated onions by chromosomal studies. **Journal of Food Science and Technology**, **35**: 47-50. (*Impact factor:1.12*)
12. Choudhary, B.R., Joshi, P and Rao, S.R.2000. Interspecific hybridization between *Brassica carinata* and *Brassica rapa*. **Plant Breeding**, **119**: 417-420. (*Impact factor: 1.17*)
13. Rao, S. R and Kumar, A.2001. Mutagenic effects of NMU, MMS, EMS, NaZ,  $\gamma$ - rays and induced inversion heterozygosity in *Phlox drummondii* Hook. **The Nucleus**, **44**: 162-164. (*Impact factor: 4, NAAS rating*)
14. Choudhary, B.R., Joshi, P and Rao, S.R.2002. Cytogenetics of *Brassica juncea* x *Brasica rapa* hybrids and patterns of variation in the hybrid derivatives. **Plant Breeding**, **121**: 292-296. (*Impact factor: 1.17*)
15. Kumar, A and Rao, S.R.2002. Cytological investigations in some important tree species of Rajasthan I. Karyomorphological investigations in some species of *Anogeissus* (DC.) Guill, Perr. & A.Rich. **Silvae Genetica**, **51**: 100-104. (*Impact factor: 0.43*)
16. Kumar, A and Rao, S.R. 2002. Cytological investigations in some important tree species of Rajasthan II. Male meiosis studies in the genus *Anogeissus* (DC.)Guill, Perr. & A.Rich. **Caryologia**, **55**: 63-73. (*Impact factor: 0.42*)
17. Kumar, A and Rao, S.R. 2002. Cytological investigations in some important tree species of Rajasthan III. Karyomorphological studies in the genus *Salvadora* L. **Indian Journal of Forestry**, **25**: 326-330. (*Impact factor: 0.92*)

18. Kumar, A., Rao, S.R and Rathore, T.S.2002. Cytological investigations in some important tree species of Rajasthan IV. Male meiosis studies in the genus *Salvadora* L. **Cytologia**, **67**: 105-115. (**Impact factor: 6.9 NASS rating**)
19. Rao, S.R and Kumar, A.2003. Cytological investigations in a synaptic variant of *Anogeissus sericea* var. *sericea* Brandis (Combretaceae), an important hardwood tree of Rajasthan. **Botanical Journal of Linnaean Society**, **142**: 103-109. (**Impact factor: 2.59**)
20. Kumar, A., Rao, S.R and Shekhawat, N. S.2003. Cytological investigations in some important tree species of Rajasthan VI. Radiation induced chromosome aberrations in *Anogeissus pendula* and *A. latifolia*. **Journal of Cell and Molecular Biology**, **2**: 105- 111. (**Impact factor:0.357** )
21. Kumar, A and Rao, S.R.2003. Chromosome studies in *Capparis decidua*. **The Nucleus**, **46**:95-98. (**Impact factor: 4, NAAS rating**)
22. Kumar, A., Rao, S. R and Ram, H.2004. Morphological diversity in the genus *Anogeissus*:A multipurpose tree of Rajasthan. **The Botanica**, **54**: 1-6. (**Impact factor :** )
23. Devarumath, R.M., Hiremath, S.C. Rao, S.R and Kumar, A.2005. Genome interrelationship in genus *Eleusine* (*Poaceae*) as revealed through heteroploid crosses. **Caryologia**, **58**: 300-307. (**Impact factor:0.42**)
24. Devarumath, R.M., Hiremath, S. C., Rao, S.R., Kumar, A and Bewal, S.2005. Genome analysis of finger millet *E. coracana* by interspecific hybridization among diploid wild species of *Eleusine* (*Poaceae*). **Cytologia**, **70**: 427-434. (**Impact factor: 6.9 NASS rating**)
25. Rao, S.R and Raina, S.N.2005. Cytological evaluation of colchitetraploidy in moth bean (*Vigna aconitifolia*) and its allied species. **Journal of Arid Legumes**, **2**:389-396. (**Impact factor: 3.0 NAAS rating**)
26. Joshi, N., Kumar, A., Rao, S.R and Purohit, S.D.2006. Cytological characterization of a rare medicinal herb ‘Safed Musli’ (*Chlorophytum borivlianum* Sant. ET Fernand.). **Cytologia**, **71**(2): 153- 159. (**Impact factor: 6.9 NASS rating**)
27. Rawat, D., Kumar, A and Rao, S. R.2006. Meiotic chromosome studies in *Tribulus rajasthanensis*, an endemic and threatened medicinal herb of Rajasthan. **Cytologia**, **71**(4): 365-370. (**Impact factor: 6.9 NASS rating**)
28. Rawat, D., Kumar, A and Rao, S.R.2007. Studies on cytogenetical variation in *Prosopis cineraria* (Linn.) Druce- A key stone species of Indian desert.**Silvae Genetica**, **56**: 3-4.(**Impact factor: 0.43**)
29. Joshi, G., Rao, S.R., Sharma, S.K and Bhagobaty, R.K.2007.β chain of T-Cell receptor protein-Structure reduces total energy in simulation process. **Advanced Biotech**, **11**:17- 19.
30. Singh, A., Devarumath, R.M., Rao, S.R., Singh, V.P and Raina, S.N.2008. Assessment of genetic diversity, and phylogenetic relationships based on ribosomal DNA repeat unit length variation and Internal Transcribed Spacer (ITS) sequences in chickpea (*Cicer arietinum*) cultivars and its wild species. **Genetic Resources and Crop Evolution**, **55**: 65-79. (**Impact factor: 0.97**)
31. Ram, H., Kumar, A., Sharma, S. K and Rao, S. R.2008. Genetic variation and chromosomal mosaicism in the natural populations of *Balanites aegyptiaca* (L.) Del. from Rajasthan, India. **Journal of Sustainable Forestry**, **26**: 328- 343. (**Impact factor: 0.92**)
32. Kumar, A., Ram, H., Sharma, S. K and Rao, S. R.2008. Comparative meiotic chromosome studies in nine accessions of *Tecomella undulata* (Sm.) Seem, threatened tree of Indian desert. **Silvae Genetica**, **57**:301-306. (**Impact factor: 0.43**)
33. Bewal, S., Sharma, S. K and Rao, S. R.2008. Analysis of Intra-species genetic variation in *Calligonum polygonoides* L. (*Polygonanceae*) – A key stone species of Indian desert. **Cytologia**, **73**: 411-423. (**Impact factor: 6.9 NASS rating**)
34. Bewal, S., Sharma, S. K., Parida, A., Shivam, S., Rao,S.Rand Kumar, A.2009. Utilization of RAPD marker to analyze genetic variation in *Calligonum polygonoides* L. – A key stone species of Thar Desert. **International Journal of Integrative Biology**, **5**: 148-151.
35. Bhowmik, S. S. D., Kumaria, S., Rao, S. R and Tandon, P.2009. High frequency plantlet regeneration from rhizomatous buds in *Mantisiaspathulata* Schult and *Mantisia wengeri* Fisher and analysis of genetic uniformity using RAPD markers. **Indian Journal of Experimental Biology**, **47**: 140-146. (**Impact**

*factor: 1.19)*

36. Bewal, S., Purohit, J., Kumar, A., Khedasana, R and Rao, S. R.2009. Cytogenetical investigation in Colchitetraploids of *Cyamopsis tetragonoloba* L. **Czech Journal of Genetics and Plant Breeding**, **45: 143-154. (Impact factor:0.38)**
37. Dkhar, J., Kumaria, S., Rao, S. R and Tandon, P.2010. Molecular phylogenetics and taxonomic reassessment of four Indian representatives of the genus *Nymphaea*. **Aquatic Botany**, **93: 135-139, DOI: 10.1016/j. aquabot. 2010. 03. 010. (Impact factor: 2.25)**
38. Sharma, S. K., Khedasana, R., Kumaria, S., Tandon, P and Rao, S.R.2010. Karyo- morphological characterization of natural genetic variation in some threatened *Cymbidium* species of Northeast India. **Caryologia**, **63: 99-105. (Impact factor: 6.9 NASS rating)**
39. Sharma, S. K., Rawat, D., Kumar, S., 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**, **24(5): 855-864, DOI: 10.1007/s00468-010-0455-4. (Impact factor: 1.6)**
40. Gatpoh,E.M., Sharma, S. K., Rajkumari, K and Rao, S.R.2011. Efficacy of random primer-pair arrays in plant genome analysis: a case study of *Cucumis* for identification of wild and cultivated species. **Genetics and Molecular Research**, **10(3): 1416-1426. (Impact factor: 0.84).**
41. Sharma, S. K., Kumar, S., Rawat, D., Kumaria, S., Kumar, A 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.(Impact factor:1.367) (Impact factor:1.34 )**
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74. Tak, N., Ojha, A., Chouhan, B., Bissa, G., Rao, S.R., Barik, S.K. and Gehlot, H.S. 2016. Diversity and genome analysis of novel nitrogen fixing micro-symbionts associated with legumes of two contrasting climatic regions of India. **European Nitrogen Fixation Conference. Budapest, Hungary. 25<sup>th</sup> August 2016-28<sup>th</sup> August 2016.**
75. Gehlot, H.S., Tak, N., Tak, A., Meghwal, R.R., Rathi, S., Bissa, G., Chouhan, B., Gaur, S., Rao, S.R., Ojha, A. and Barik, S.K. 2016. Exploration and Characterization of Nitrogen Fixing Rhizobia associated with native/wild legumes of North Eastern Sub- Himalayan region of India. **Fourth Asian Conference on Plant-Microbe Symbiosis and Nitrogen Fixation. School of Biological Sciences, Universiti sains Malaysia. Penang, Malaysia. 16<sup>th</sup> October 2016-19<sup>th</sup> October 2016.**
76. Lamo, J.M. and Rao, S.R. 2016. Genetic diversity analysis and molecular phylogeny of the Genus *Curcuma*. **National Conference on Basic and Applied Researches in Plants and Microbes. Department of Botany, Punjab University, Patiala. November 03-05, 2016.**
77. Ojha A and Rao, S.R. 2016. Characterization and Identification of Rhizobial isolates of some legumes of Meghalaya. **National Conference on Basic and Applied Researches in Plants and Microbes. Department of Botany, Punjab University, Patiala. November 03-05, 2016.**
78. Rao, S.R. 2016. Chromosome analysis and DNA diagnostics for delineating the genetic diversity of some horticultural plants of North-East India. **National Conference on Basic and Applied Researches in Plants and Microbes. Department of Botany, Punjab University, Patiala. November 03-05, 2016.**
79. Rao, S. R., Anju, S., Keisham, M. D. and Lamo, J.M. 2016. Heterochromatin banding pattern and its evolutionary implications in horticultural plants of North-East India. **International Conference on the Green Planet: Past, Present and Future”. Department of Botany, University of Calcutta. December 21-23, 2016.**

**(PLM) Reports, Monographs and Chapters appeared in laboratory manuals:**

1. Rao, S. R.1989. Cytological techniques for monitoring genetic stability of conserved

- germplasm. In: Laboratory manual for techniques of in vitro and cryopreservation of germplasm, NBPGR, New Delhi.
2. Rao, S. R.1991. Cytological methods for assessing the genetic stability of in vitro conserved germplasm. In: Techniques of in vitro and cryopreservation of germplasm, NBPGR, New Delhi.
  3. Rao, S. R.1992. Role of polyploidy in evolution of plants. In: Hand Book for Refresher Course participants (University and College Teachers), Department of Botany, JNV University, Jodhpur.
  4. Rao, S. R.1996. Polyploidy and its relevance to plant evolution. In: Hand book for refresher course participants (University and College Teachers), Department of Botany, JNV University, Jodhpur.
  5. Rao, S. R.1996. Tools and techniques of Cytogenetics. In: Manual for fresher course participants (University and College Teachers), Department of Botany, JNV University, Jodhpur.
  6. Rao,S. R.2011. Plant species diversity and its genetic basis. National workshop on “A Holistic Approach to Identify Bioactive Molecules from Natural Origin”, held at Andhra University College of Pharmaceutical Science, Vishakhapatnam, India, (Nov. 21- Dec.3, 2011),pp:89-95.
  7. Rao, S.R.2011. Plant systematics-cellular and molecular cytogenetic approach. National workshop on “A Holistic Approach to Identify Bioactive Molecules from Natural Origin”, held at Andhra University College of Pharmaceutical Science, Vishakhapatnam, India, (Nov. 21- Dec.3, 2011), pp:96-102.
  8. Bhat, K.V., Yadav, S.R., Rao, S.R., John, K. J., Latha, M., Malik, S.K. and Negi, K.S. 2014. NAIP project report on Biosystematics of the genera *Vigna*, *Cucumis* and *Abelmoschus*. National Bureau of Plant Genetic Resources, Pusa Campus, New Delhi-110012.
  9. Yadav, S.R., Bhat, K.V., Latha, M., John, K. J., Malik, S.K., Aitwade, M., Rao, S.R., Scariah,S., Nisar, M., Umdale,S., Patil, P., Krishnan, G and Khedasana, R.2014. An illustrated guide for the identification of *Vigna Savi*, *Cucumis L.* and *Abelmoschus Medik.* Species in India, National Bureau of Plant Genetic Resources, Pusa Campus, New Delhi.
  10. Yadav, S.R., Bhat, K. V and Rao, S.R.2014. Genus *Cucumis L.* in India, an illustrated guide for species identification. National Bureau of Plant Genetic Resources, Pusa Campus, New Delhi.
  11. Yadav, S.R., Bhat, K.V and Rao, S.R.2014. Genus *Abelmoschus Medik.* in India, an illustrated guide for species identification. National Bureau of Plant Genetic Resources, Pusa Campus, New Delhi.

### **(PKE) Workshops/ Knowledge Enrichment Programs Attended:**

1. Participated in Indo-US workshop on Genes and Development Organized by National Institute of Immunology, New Delhi, India. (December,11-21; 1988).
2. Attended UGC-Refresher Course in Department of Botany Organized at Jai Narain Vyas University, Jodhpur, India.(November, 7- 27; 1994).
3. Attended UGC Orientation Programme Organized by Academic Staff College, Jai Narain Vyas University, Jodhpur, India.(June, 12-July 8;1995).
4. Attended Short term course on Test, Maintenance & Calibration of Optical and Analytical Instruments Organized by Western Regional Instrumentation Centre, University of Bombay, Bombay and USIC, Jai Narain Vyas University, Jodhpur, India.(July, 24-29; 1995).
5. Participated in workshop on Tools & Techniques of Microscopy Organized at Jai Narain Vyas

University, Jodhpur, India.(July, 25- 28;1995).

Participated and Co-authored an abstract on Morphometric based genetic diversity of germplasm resources in moth bean (*Vigna aconitifolia* Jacq) for Plant Genetic Diversity: Evaluation and conservation Organized by Department of Botany, Punjab University, Chandigarh, India.(February,22-23; 1999).

6. Attended the UGC-Refresher course Organized by Department of Botany, H.P. University, Shimla, India.(September, 25- October, 14; 2000).
7. Attended the UGC-Refresher Course in Department of Botany at Organized by Jai Narain Vyas University, Jodhpur, India. (July, 23-August, 11: 2001).
8. Attended INSA sponsored Refresher Course in Genetics and Evolution at University of Mysore, Mysore, India. (September, 10-22; 2001).
9. Attended and delivered a lecture on Cytomorphological studies in some arid-zone tree species in National Symposium on Environmental Biotechnology and Biodiversity Conservation Organized by Dept. of Biosciences, Sardar Patel University, Vallabh Vidyanagar, India. (January, 31- February, 1; 2003).
10. Attended Indo-US Work shop on Grantsmanship in India Organized by Department of Biotechnology, Government of India, at All India Institute of Medical Sciences, New Delhi, India.(September, 6-7; 2004).
11. Participated in UGC sponsored National Seminar on Quality Education for All Young People: Challenges, Trends& Priorities; Organized by JNV University, Jodhpur, Jodhpur, India. (November, 1-3; 2004).
12. Delivered invited lecture on Analysis of Genetic variation in *M. emarginatus*.InNational Symposium on Plant Biotechnology: In vitro Regeneration & Cloning Techniques at Forest Research Institute, Dehradun, India. (October, 12-14;2006).
13. Delivered invited lecture on Phylogenetic studies based on ITS sequence variation of rDNA in National Conference on Emerging Trends in Microbiology and Biotechnology at Dr. Tanveer Malawat College of Biosciences, Bikaner University, Bikaner, India. (January, 29-30; 2007).
14. Participated and Co-authored an abstract on Meiotic chromosome analysis in *Tecomella undulata* (Sm.) Seem. - Teak of Indian desert - for 16th International Chromosome Conference at RAI conference centre, Amsterdam, Netherlands. (August, 25-29; 2007).
15. Participated and Co-authored an abstract on Meiotic chromosome studies in *Dipcadi erythraeum* Webb. and Berth, a bulbous medicinal plant of Rajasthan, India- for 16th International Chromosome Conference at RAI conference center, Amsterdam, Netherlands. (August, 25-29; 2007).
16. Participated and Co-authored an abstract on Analysis of natural genetic variations in *Calligonum polygonoides* Linn. Using Cytogenetical and RAPD analyses- for 77th annual session and National Symposium on 'Novel approaches for food and nutritional security, held at Central Food Technological Research Institute (CFTRI), Mysore, India. (December, 6-8; 2007).
17. Attended and authored an abstract on Dosimetry Studies Through Analysis of  $\Gamma$ -Ray Induced Chromosome Aberrations in Root-Tip Cells of *Anogeissus*, An Important Indian Desert Plant- for International conference on Bioinformatics and Drug discovery (Bioconvene 2007) atUniversity of Hyderabad, Hyderabad, India. (December, 16-22; 2007).
18. Participated and Co-authored an abstract on Cytological evaluation of Colchitetraploidy in different accessions of Guar (*Cyamopsis tetragonaloba*) – An important arid legume for National Symposium on Plant Biotechnology for Conservation, Characterization and Crop Improvement & 29<sup>th</sup> Annual Meeting of Plant Tissue Culture Association (India) at Department of Biotechnology, Mohanlal Sukhadia University, Udaipur, India. (February, 8-10; 2009).
19. Attended and Co-authored an abstract on Analysis of genetic variation among natural populations of two threatened plants of Indian Thar Desert for 17th International Chromosome Conference, Appalachian State University, Boone (NC),USA. (June, 23-27; 2009).
20. Attended and Co-authored an abstract on Cytological analysis of Indian Squill to detect intra-specific variation for 17th International Chromosome Conference, Appalachian State University, Boone (NC),



USA.(June, 23-27; 2009).

21. Participated and Co-authored an abstract on Indian Perspective Of The Phylogenetic Position Of *Nymphaea* for 97<sup>th</sup> Indian Science Congress, Thiruvananthapuram, India. (January, 3-7; 2010). Delivered invited lecture on Emerging Trends in Biotechnology, SKBR College, Amalapuram, India.(February, 1-2; 2010).
22. Participated and Co-authored an abstract at International Conference on Advances in Electron Microscopy and Related Techniques, at Bhabha Atomic Research Center, Mumbai.(March, 8-10; 2010).
23. Delivered invited lecture at National Conference on Orchids-Systematic and Diversity Analysis for Conservation and Sustainable Utilization conducted by The Orchid Society of India (TOSI) held at GB Pant Institute of Himalayan Environment, Almora, India. (March, 19-21; 2010).
24. Attended NRDC sponsored Regional Seminar on IPR and Innovation Management in Knowledge Era at Indian Institute of Technology, Guwahati, India. (May, 5-6; 2010).
25. Attended the Training Workshop of FAO on Establishment of National Information Sharing Mechanism on the Implementation and Monitoring of Global Plan Action (GPA) for Conservation and Sustainable Utilization of Plant Genetic resources for Food and Agriculture, Organized by National Bureau of Plant Genetic Resources, Barapani, Shillong, India. (June, 11; 2010).
26. Delivered invited lecture on “Opportunities in Biotechnology Research and Education in North Eastern India with focus on NEHU, Shillong” at Lachoo Memorial College, Jodhpur, India. (June, 27-29; 2010).
27. Delivered invited lecture in Workshop on Bioinformatics Organized by Department of Biotechnology, St.Edmund’s College, Shillong, India.(July, 27-29; 2010).
28. Delivered four Lectures during 11<sup>th</sup> Refresher Course at Department of Zoology, Jai Narain Vyas University, Jodhpur. (October, 7-8; 2010).
29. Delivered two Lectures during 14<sup>th</sup> Refresher Course at Department of Botany, Jai Narain Vyas, Jodhpur, India. (October, 25-26; 2010).
30. Attended and Chaired session of Indo-Taiwan joint workshop on Bamboo Flowering and Rodent Control- I- Bamboo Resources, Guwahati, India.(November, 11-13; 2010).
31. Attended and Chaired Two Sessions of National workshop on Microbial Diversity and Functions: From Genes to Omics, Organized by Department of Biotechnology and Bioinformatics, North Eastern Hill University, Shillong, India. (November, 25-26; 2010).
32. Attended and Chaired session on 2<sup>nd</sup> day as Nominated Subject Expert at the 12<sup>th</sup> Research Advisory Group meeting, Rain Forest Research Institute (ICFRE), Jorhat, India. (December, 6-7; 2010).
33. Delivered invited lecture in National Work Shop on Hands on Training on Techniques used in Biotechnological research Organized by Department of Biotechnology and Bioinformatics, North-Eastern Hill University, Shillong, India. (February, 28- March, 12; 2011).
34. Delivered invited lecture in Thematic Annual Workshop on Basic and Strategic Research in Frontier Areas of Plant Science held at Indian Institute of Horticulture Research, Bengaluru, Organized by NAIP, Indian Council of Agricultural research, New Delhi, India.(March, 7-8; 2011).
35. Attended the XII National Research Policy Committee annual meeting of ICFRE as Nominated Subject Expert held at Van Vigyan Bhavan, New Delhi, India.(March, 8-9; 2011).
36. Participated in National Symposium on Biodiversity Assessment, Conservation and Value Addition, Co-Chaired one session, Organized by School of Life Sciences (UPE-Biosciences) North-Eastern Hill University, Shillong, India.(March, 17-19; 2011).
37. Delivered invited lecture on “Analysis of Genetic variation in Cymbidiums of North-eastern India National Conference on “*Medicinal Orchids: Sustainable use and Benefit sharing for Rural and Tribal Communities*”. Organized by The Orchid Society of India, Department of Botany, Punjab University, Chandigarh, India.(March, 29-30; 2011).
38. Delivered invited lecture on “Plant species diversity and its genetic basis” at National workshop on A Holistic Approach to Identify Bioactive Molecules from Natural Origin”, held at Andhra University College of Pharmaceutical Science, Vishakhapatnam, India. (November, 21- December, 3; 2011).
39. Delivered invited lecture on “Plant Systematics-Cellular and molecular cytogenetic approach” at National

- workshop on “A Holistic Approach to Identify Bioactive Molecules from Natural Origin”, held at Andhra University College of Pharmaceutical Science, Vishakhapatnam, India. (November, 21-December, 3; 2011).
40. Delivered invited lecture on “Genetic minutiae of some threatened medicinal herbs of Indian Thar desert. National Conference on Current Status and Opportunities in Medicinal Plants of Thar Desert, JNV University, Jodhpur, India. (December, 17-18; 2011).
  41. Delivered invited lecture on “Characterization of genetic diversity between and within populations/species using modern tools and techniques of Biotechnology. National Symposium on Assessment and Conservation of Forest Genetic Resources through Biotechnological Interventions, held at the Institute of Forest Productivity (IFP), Ranchi, India. (December, 19-20; 2011)
  42. Delivered invited lecture on “Cellular and molecular cytogenetical analysis of orchids from north-east India – A case study of Cymbidiums. National Conference on “Orchids in India: Diversity, Characterization and Resource Development for Community Livelihood” held at National Academy of Sciences, Allahabad, India. (December, 21-23; 2011).
  43. Attended 17th Research Policy Committee meeting of Indian Council of Forestry Research and Education, Dehradun as a Subject Expert, held at FRI, Dehradun, India. (February, 14-17; 2012).
  44. Participated and coauthored an abstract on “Characterization of some rhizobial and non-rhizobial occupants from root nodules of a few wild legumes of Meghalaya”. National Conference on Biology and Bioinformatics of Economically Important Plants and Microbe, held at University of North Bengal, Siliguri, India. (February, 17-19; 2012).
  45. Participated and co-authored an abstract on topic “Genetic Diversity Analysis of *Musabalbisiana* collections from Meghalaya Using DNA markers. National Conference on Biology and Bioinformatics of Economically Important Plants and Microbe, held at University of North Bengal, Siliguri, India. (February, 17-19; 2012).
  46. Participated in UGC-UPE Lecture series on Biodiversity: prospects and concerns, held at NEHU, Shillong, India. (March, 14-15; 2012).
  47. Delivered invited lecture on “Differential climatic conditions influences plant genome diversity: Implications and future challenges” at National Conference on Climate Change and Sustainable Management of Water Resources, held at GITAM University, Visakhapatnam, India. (March, 17-18; 2012)
  48. Attended “First Regional Meeting of the State Bio-diversity Boards of North-Eastern India” organized by the Department Environment and Forest, Government of Meghalaya held at Pinewood Hotel, Shillong, India. (May, 4-5; 2012).
  49. Delivered an invited lecture on “Biotechnological Innovations” at Academic Staff College in 21<sup>st</sup> Orientation programme, North-Eastern Hill University, Shillong, India. (February, 19; 2013).
  50. Delivered an invited lecture on “Biotechnological Innovations” at Academic Staff College in 22<sup>nd</sup> Orientation programme, North-Eastern Hill University, Shillong, India. (March, 1; 2013).
  51. Delivered to invited lecture on “Genetic Fidelity” at Center for Advanced Study, Department of Botany, North-Eastern Hill University, Shillong, India. (March, 7; 2013).
  52. Delivered an invited lecture on “C-DNA SYNTHESIS” at Center for Advanced Studies- Department of Botany, North-Eastern Hill University, Shillong, India. (May, 30; 2013).
  53. Delivered extension lectures on Plant Cell Tissue and Organ Culture to M.Sc. (Bioscience and Bioinformatics) students as Visiting Scientist at Department of Molecular Biology and Biotechnology of Tejpur University (A Central University), Tejpur, Assam. (October, 2 - Oct. 06 2013).
  54. Delivered two invited lectures on Genetics and Biotechnology in ten day “Autumn School in Plant Science “ organized under DBT State Level Biotech HUB programme at Center for advance study, Department of Botany, North-Eastern Hill University, Shillong, India. (18, October, 18-31; 2013).
  55. Delivered an invited lecture on “Biotechnological Innovations- Impact on modern civil societies I” at Academic Staff College, in 25<sup>th</sup> Orientation programme, North-Eastern Hill University, Shillong, India. (November, 6; 2013).
  56. Delivered an invited lecture on “Biotechnological Innovations- Impact on modern civil societies II” at Academic Staff College, in 25<sup>th</sup> Orientation programme, North-Eastern Hill University, Shillong,

- India.(November, 7; 2013).
57. Delivered an invited lecture on “Biotechnological Innovations- Impact on modern civil societies II” at Academic Staff College, in 28<sup>th</sup> Orientation programme, North-Eastern Hill University, Shillong, India.(May, 20; 2014).
  58. Delivered an invited lecture on “Biotechnological Innovations- Impact on modern civil societies II” at Academic Staff College, in 28<sup>th</sup> Orientation programme, North-Eastern Hill University, Shillong, India.(May, 21; 2014).
  59. Attended and Chaired a Session at 4<sup>th</sup> Review meeting of Coordinators of Biotech Hubs in the North Eastern Region National Seminar on “Metabolomics- A new frontier in natural products research” organized by Department of Biotechnology and Bioinformatics, North-Eastern Hill University, Shillong, India.(May, 23-24; 2014).
  60. Attended and Co-Chaired a Session at DBT-HUB Co-ordinators meeting organized by Department of Biotechnology, Government of India, New Delhi held at Department of Botany, North-Eastern Hill University, Shillong, India.
  61. Attended workshop on “Effective management of intellectual property rights in biotechnology by universities and research institutes in north east Region” organized by Department of Biotechnology, Government of India, New Delhi and M/s. Biotech Consortium India Limited (BCIL), New Delhi; held at St. Anthony’s College, Shillong, India. (July, 18-19; 2014).
  62. Delivered an Invited Lecture as a Resource Person on the topic “Techniques in Scientific Research Paper Writing” at National Workshop on Scientific Writing, Research Communication and IPR Issues” held at Department of Botany, Nagaland University, Lumami, India. (August, 28-29; 2014).
  63. Delivered two invited lectures on “Biotechnological Innovations- Impact on modern civil societies I&II” at Academic Staff College, in 28<sup>th</sup> Orientation programme, North-Eastern Hill University, Shillong, India.(September, 4 -10; 2014).
  64. Attended two workshops on “Effective management of intellectual property rights in biotechnology by universities and research institutions in Meghalaya, held at St.Anthony’s College, Shillong, India.(September, 22-23; 2014).
  65. Delivered invited lecture on “Advances of Bioinformatics and Computational Biology in Applied Biotechnology” National Seminar on Application of Bioinformatics tools in understanding of plant diversity and inter-species relationships held at Department of RDAP, North- Eastern Hill University, Tura Campus, Tura, Meghalaya , India. (October, 5; 2015).
  66. Delivered an invited lecture on “Cellular and molecular genetic approaches to understand the species diversity in *Curcuma*. International Conference on Emerging Biotechnologies. Kakatiya University, Warangal (28<sup>th</sup> -30<sup>th</sup> January 2016).
  67. Delivered series of lectures on topics related to “Plant Biotechnology and Biotechnology” at Annamalai University, 3<sup>rd</sup> -5<sup>th</sup> February.2016
  68. Delivered an invited lecture on “Cellular and Molecular Genetic approaches for Characterization of Horticultural Resources of North East India” at the Department of Biotechnology, School of Life Sciences, Pondicherry University on 5<sup>th</sup>.February.2016.
  69. Delivered an invited lecture on “Heterochromatin distribution and its distribution pattern in the Genus *Curcuma* L”. National Seminar on inventory, sustainable utilization and conservation of Bio resources, held at the Department of Botany, Nagaland University, India on 26-27, February.2016.
  70. Delivered a lecture on “Genetic fidelity of Plant Tissue and Organ Cultures”. Seven days training programme on “Techniques in Plant tissue Culture” being organized under the DBT State Level Biotech Hub Project, Department of Botany, North Eastern Hill University, Shillong. March 15-21, 2016.

71. Delivered a lecture on “Role of Molecular Cytogenetics in Understanding Functional Biology of Plants” being organized under the Centre for Advances Studies in Botany, Department of Botany, North Eastern Hill University, Shillong. June 23, 2016.
72. Delivered a lecture on “Recent Advances in Cancer Research” being organized under the Short Training Programme, Institute of Pharmacy, Nirma University, Ahmedabad, Gujarat. July 4-16, 2016.
73. Delivered a Plenary Lecture on “Chromosome analysis and DNA diagnostics for delineating the genetic diversity of some horticultural plants of North-East India” at the **National Conference on Basic and Applied Researches in Plants and Microbes. Department of Botany, Punjab University, Patiala. November 03-05, 2016.**
74. Participated in the Science Academies Lecture Workshop on “**Tropical resources and their conservation in India**” organized by **Department of Botany, North-Eastern Hill university, Shillong**, held on 27-28 June 2017.

### **Seminars Organized:**

- Commemorative function to celebrate “International Day of Biodiversity” on 24<sup>th</sup> May, 2013 at Department of Biotechnology and Bioinformatics, North-Hill University, Shillong.

### **Research Projects Undertaken (Completed):**

1. Department of Science and Technology, Govt. of India funded Research Project: “Cytogenetical studies and conservation of novel variations in some important tree species of Rajasthan.” 1995-1999.

**(Cost of the project - approx.: Rs.11. 83 Lakhs)**

Prof. S. Rama Rao..... Principal Investigator (PI)

2. Department of Biotechnology, Govt. of India funded Research Project: “Setting up unit for micropropagation and conservation of some important tree species of Rajasthan.” **1993-1999**

**(Cost of the project - approx.: Rs. 90.30 Lakhs)**

Prof. S. Rama Rao..... Co-Principal Investigator (PI)

3. Indian Council of Agricultural Research (ICAR), Govt. of India funded Consortium Research Project: “Biosystematics of the Genera *Vigna*, *Cucumis* and *Abelmoschus*.”

**(Cost of the project - approx.: Rs. 181.6 Lakhs).** 2008-2014

Prof. S.Rama Rao..... Consortium Co-Principal Investigator (CCPI)

4. University Grants Commission, Govt. of India funded Research Project: “Exploration and germplasm collection of Citrus from the North Eastern India and Characterization of Genetic Variability using Cellular and Molecular Approaches”

**(Cost of the project - approx.: Rs. 11.01 Lakhs).** 2011- 2014

Prof. S. Rama Rao..... Principal Investigator (PI)

5. Department of Biotechnology, Govt. of India funded Research Project: “Characterization of Rhizobia associated with Native and Wild Legumes of North East India with special emphasis on Meghalaya”

**(Cost of the project - approx.: Rs. 36.86 Lakhs).** 2011- 2014

Prof. S.Rama Rao..... Principal Investigator (PI)

6. Department of Biotechnology, Govt. of India funded NE-Twininig Research Project entitled “Whole genome and transcriptome changes as a consequence of allo and auto polyploidy in *Vigna L*”.

**(Cost of the project - approx.: Rs. 222.03 Lakhs).** 2012- 2015

Prof. S.Rama Rao..... Principal Investigator (PI)

### **Research Projects (Ongoing):**

7. Department of Biotechnology, Govt. of India funded Network project entitled “Network Programme for Enrichment and Update of Plant Chromosome Database for Spermatophytes and Archegoniate”

### **Membership of Scientific Societies/Professional Bodies:**

- Member of Society of Cytologists and Geneticists, Bangalore (1981 to 1985).
- Life Member of Orchid Society of India, Chandigarh.
- Life Member of Delhi University, Botanical Society, New Delhi.
- Life Member of Indian Society of Plant Genetic Resources, New Delhi.
- Faculty Member of North- Eastern Hill University, Shillong (Meghalaya) (2006...contd).
- Board of Post Graduate studies in Biotechnology (BPGS), NEHU, Shillong (2006...contd).
- Board of under graduate Studies in Biotechnology (BUGS), NEHU, Shillong (2006...contd).
- School Board of Life Sciences (SBLs) NEHU, Shillong (2006...contd).
- Member of Academic Council, NEHU, Shillong (2006...contd).
- University Court, NEHU, Shillong (2006...contd...).
- Research Advisory Group, Rain Forest Research Institute (ICFRE), Jorhat (2009-2011).
- Member, National Research Policy Council (RPC), ICFRE, Dehradun, (2010-12).
- Invited Member of State Biodiversity Board, Government of Meghalaya, Shillong (June 2013...contd..).
- Member Secretary, Institutional Ethics Committee for human samples/ participants (June, 2014.... Contd.)
- School Board of Life Sciences (SBLs) Nagaland University, Lumami (2014...contd).
- School Board of Life Sciences (SBLs) Punjab University, Patiala, Punjab (2016)
- School Board of Life Sciences (SBLs) Assam University, Silchar, Assam (2016)
- Nodal Officer for Department of Science and Technology (Govt. of India) at North-Eastern Hill University (2016).

### **Visits Aboard:**

- Presented a research paper at International symposium on population genetics held at **University of California, Davis (U.S.A.)** from **August 9-11, 1988**.
- Visited Cytogenetics Laboratory of Prof. Kozo Nishikawa of Faculty of Agriculture, **University of Gifu, Gifu (Japan)** for a brief informal training in **1988**.
- Presented a research paper at 25th Annual west Coast chromatin and Chromosome Meeting held at **Asilomar Convention Grounds, Pacific Grove, California, USA**; from December **11-14, 2003**.
- Presented a research paper at XVII International Chromosome conference held at **University of Appalachian, Boone, North Carolina, USA**; from **June 23-27, 2009**.
- Presented a research paper at The 2<sup>nd</sup> Asian Conference on Plant- Microbe Symbiosis and Nitrogen Fixation **organized by Surararee University of Technology, Nakhon, Ratchasima** held at **Phuket, Thailand**, from 28<sup>th</sup> – 31<sup>st</sup> October 2012.
- Visited **Wuhan Botanical Garden, Wuhan, Hubei China**, as a visiting Scientist under the bilateral exchange programme of **Indian National Science Academy-Chinese Academy of Sciences** from **January 01, 2013 to January 27, 2013**.
- Visited **Department of Soil and Crop Sciences, Texas A&M University, College Station, USA** as DBT-CREST Fellow from **Jan05; 2014 to April, 04; 2014**.

## References:

- Prof. Probodh Sukhla  
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- Prof. Pramod Tandon (former Vice-Chancellor, NEHU),  
Member, National Advisory Council  
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[soomr@yahoo.com](mailto:soomr@yahoo.com)