

CURRICULUM VITAE

RAMESH KATAM

Education

B.Sc. (Botany, Chemistry and Zoology) 1983, S.V. University, Tirupati-517502, INDIA

M.Sc. Ph.D. (Botany - Specialization in Plant Tissue culture and biotechnology) 1993. M. S.

University, Baroda-390002 INDIA (*Thesis: Tissue Culture Studies of Medicinally Important Plants*)

Post Doctoral Associate (1990-1992): Central Research Institute for Dryland Agriculture

(ICAR), Hyderabad INDIA

Awards and Honors

i) Secretary, University Post Graduate Botanical Society, 1985

ii) University IV Rank at M.Sc.

iii) Research Fellowship from Department of Science and Technology, New Delhi

iv) Young Scientist Award, 1987, for the research work “Lupeol in tissue culture of *Crateva nurvala* Buch Ham. Indian Botanical Society

v) Certificate of Appreciation Graduate Research Association, Mississippi State University, MS

vi) Member in American Society for Cell Biology, 2001.

vii) Approved for open peer review for a Journal “Nature” (*Impact Factor: 29.27)

viii) Registered member of Molecular Biology Forums.

ix) Member in American society of Plant Biology 2006-2007.

x) Member in International Association for Plant tissue culture.

**Source ISI Web of Science*

Grants awarded

1. Functional genomics of Fruit Quality and Architecture awarded amount \$ 50,000 for the year 2007-2010.
2. Qualitative and Quantitative Analysis of Potential Anticancer Fractions from Grape Extracts Viticulture Advisory Committee, Florida. Awarded amount \$ 40,000.00 2007-2008.
2. Biochemical and molecular analysis of grape in response to water stress. Mississippi State University, MS. Awarded amount \$5,000 for the year 2007-2008.
3. Identification and Characterization of Biochemical and Molecular Components Associated with Drought Tolerance in Grape. Awarded amount \$5,000 for the year 2006-2007.
4. Isolation and Characterization of Potential Anti-cancer Biomolecules from Grape. Awarded amount \$5,000 for the year 2005-2006.
5. Syntenic Analysis of Cucurbit cultivar Complex for widening Genetic diversity and

Sequences submitted to Public Database

1. Ramesh Katam, Vasanthaiah HKN, Basha SM and McClung S (2007). Water Stress induced Proteins in Florida Hybrid Bunch Grape cv. Suwannee. UniProtKB Accn. No. P85111 (Ribulose biphosphate carboxylase/oxygenase activase) and P85112 (Phosphoribulokinase).
2. Ramesh Katam, Vasanthaiah HKN, Basha SM and McClung S (2006). Water Stress induced Proteins in Peanut. UniProtKB Accn. No. P85086 (Ribulose 1-5 biphosphate carbosylase in leaf), Q647G9 (Conglutin precursor in seed), 2S Protein 1 (Q6PSU2), Arachin Ahy-3 (Q647H2) and Allergen Ara h 1 (P43238).
3. Vasanthaiah HKN, Katam R. and Basha S M (2007). Biochemical Approach to Identify Differentially Expressed Protein in Anthracnose infected Florida Hybrid Grapes. UniProtKB Accn. No. P85085 (Ribulose 1-5 biphosphate carboxylase), P85087 (Mitochondrial ATPase beta subunit) and P85088 (Glutmine Synthetase).

Expertise through Training

1. Chromatography for separation and isolation of secondary plant products at Natural Products Division, Regional Research Laboratory (CSIR), Jammu India.
2. Karyograms and staining G band techniques for chromosomes at cyto genetics laboratory,

Government Medical College, Baroda India.

3. Use of DNA markers for marker assisted selection program by Rockefeller foundation, Hyderabad India.
4. ISO 9000 Audit and Training, Mahyco Ltd., India
4. Radioactive material safety training, Florida A and M University. Tallahassee FL
5. Beckman Coulter CEQ 8000 Training in Sequencing and Genotyping, Florida A and M University. Tallahassee FL
6. “UCSC Genome Browser” OpenHelix, Seattle, Bellevue, WA

Research Goals:

My specific objectives of research at Florida A and M University are to: a) promote the marketability of grapes and its value-added products with emphasis on nutraceuticals, b) isolate and characterize genes induced differentially in response to water stress and diseases, c) identify and develop drought and disease tolerant cultivars in peanut, grape, and small fruits, raspberry, d) Investigate metabolite profiles in grape berries with emphasis on proteins expressed during water stress and disease, e) develop peanut with low aflatoxin contamination and) improve of raspberry cultivation using biotech and genomics research tools. In addition, I am actively engaged in evaluating various extraction procedures and developing ideal protocols for recovering maximum amount of bioactive compounds from grape and evaluate the grape cultivars for possible anticancer activities using human cancer cell lines.

Professional Experience

I. May 2004 till Date: Researcher

Plant biotechnology Laboratory, Center for Viticulture and Small Fruit Research, CESTA, Florida A and M University, Tallahassee, FL.

Current Project Description: 1. Identification of transcripts induced in response to diseases and determine interrelationship between water stress, disease tolerance and nutraceutical components in grape, 2. Evaluation of grape extracts for anti cancer activity, 3. Identification of drought tolerant cultivars and reduce aflatoxin contamination in peanuts and 4. Identification of temperature induced transcripts in Raspberry.

Responsibilities: Identifying and isolating mRNA markers (transcripts) from plant tissues, cloning cDNAs and constructing cDNA libraries using probes, sequencing, characterizing cloned transcripts, and determining the expression of genes. Identifying genes through subtractive hybridization, differential display RT PCR, utilize multiple databases for homology search to annotate the function of the sequences and identifying candidate genes. Identify and characterize disease and drought resistant genes in grape, peanut and raspberry. Develop various molecular markers such as AFLP, and SSRs to identify genes.

Achievements:

1. Identified several drought responsive cDNA transcripts in peanut, identified differential expression of proteins in various peanut cultivars
2. Identified several disease responsive transcripts and proteins in grape and differential expression of proteins in different grape genotypes.

II. June 2002-May 2004: Researcher

Department of Plant and Soil Science, Mississippi State University, Mississippi State, MS

Development molecular markers for physical map in cotton, identification of chromosome location, Screening of genomic library using DNA probe, purification, cloning and sequencing of positive clones, Vector preparation, transformation, PCR, RT-PCR, Construction of cDNA library, Development of genome wide physical map using high through put and Bacterial Artificial Chromosome library construction.

III. April 2001– December 2001 Principal Investigator

Laxmi Agro Corporation, Buldhana, India

Genome mapping, gene identification high through put DNA marker technology, Gene discovery construction of cDNA library subtraction analysis high through put EST sequencing analysis, blast search, Development of various molecular markers like AFLP, RFLP, RAPD and use of various electrophoresis methods including metaphor, PAGE using silver staining, radio labeling.

IV. January 1993-April 2001, Research Scientist, Plant tissue culture facility, Mahyco Ltd., Jalna, India

Standardization of regeneration protocols in rose, banana for large scale multiplication, Production of homozygous plants of inbred lines in mustard, cauliflower through another culture for selecting desirable genetic recombinants, Development of high frequency regeneration and multiplication in pigeon pea, Genetic transformation studies *via* agro bacterium and particle bombardment In pigeon pea , *In vitro* propagation, plant regeneration and embryo rescue in cotton and Sunflower to accelerate breeding program, DNA fingerprinting for marker assisted selection in breeding program of rice, sorghum, High frequency regeneration and genetic transformation at commercial scale through agro bacterium mediated transformation and particle bombardment for developing increased resistance for yellow stem borer in rice, and shoofly in sorghum, vegetables like egg plants, and tomato using Bt gene, Greenhouse management and maintenance of transgenic plants

V. November 1990-June 1992, Research Associate, Central Research Institute for Dry land Agriculture (ICAR), Hyderabad, India

Project: Germplasm enhancement of groundnut for drought tolerance

In vitro culture studies in groundnut for better understanding their response to stress, Standardization of nutrient media for cell suspension cultures and monitoring the growth under PEG-induced water stress and temperature stress, Biochemical characterization and cell membrane stability of adapted and non-adapted cultures, as a measure of drought tolerance at cellular and whole plant level, Selection of PEG resistant cell line

VI. February 1986- October 1990, Teaching Assistant and Research Fellow, Department of Botany, M.S. University, Baroda-390 002

Teaching General Botany at Graduate and Post -graduate level

Project: *In vitro* clonal propagation and regeneration of high-yielding plantlets in *Crataeva nurvala* Buch-Ham and *Azadirachta indica* (A.Juss), Screening of natural products from the plant parts and cell cultures, Establishment of cell culture system and precursor feeding for

biotransformation, Selection of high yielding cell lines for secondary metabolites; Induction of regeneration potential in callus culture, Standardization of *in vitro* culture parameters for high frequency multiplication of plantlets

VII. June 1985-January 1986

Research Fellow, School of Studies in Botany, Vikram University, Ujjain

Project: Effect of heavy metal toxicity in rhizosphere micorflora of *Cucurbita pepo* L. Isolation, qualitative and quantitative estimation of bacteria and fungal population.

List of Scholarly Articles Published in Internationally Circulated Journals, Proceedings and Book chapter

1. Ramesh K and Padhya MA (1987) Prospects of tissue culture studies on neem: IARI Neem Newsletter 25-27.
2. Ramesh K and Padhya MA (1988) Isolation of nimbin from *Azadiracta indica* leaves and its callus cultures: Indian drugs 25:526-527.
3. Ramesh K and Padhya MA (1990) *In vitro* propagation of neem, *Azadirachta indica* (A.Juss) from leaf discs: Ind. J. Exptl.Biol.28: 932-935.
4. Ramesh K, Vandana Sharma and Padhya MA (1987) Lupeol in tissue cultures of *Crataeva murvala*: In Expanding Horizons in Botanical Research. Arihant Publishers, India
5. Vandana Sharma, Ramesh K and Padhya MA (1989) Isolation of steroid from *Crataeva murvala* Buch-Ham. Indigenous medicinal plants. p 229-232.
6. Padhya MA, Vandana Sharma and Ramesh K (1990) Technical report of the project “*In vitro* clonal propagation and regeneration of high yielding plants *Crataeva nurvala* Buch-Ham Department of Science and technology, New Delhi, India.
7. Venkateswarlu B and Ramesh K (1991) Biotechnology for enhancement of stress tolerance in plants: Prospects and limitations. Proceedings of National Symposium on Genetics and Biotechnology in Crop improvement, University of Hyderabad, Hyderabad, India.
8. Venkateswarlu B and Ramesh K (1992) Cell membrane stability and biochemical response of cultured cells of groundnut under polyethylene glycol induced water stress. Plant Science 90: 179-185.
9. Murli PM, Lakshmi Subramaniam, Thiagarajan M, Sreenivasan A, Ramesh K and Sreeganesan T (1992) Advances in tissue culture of nationally important plants: National conference on Biotech India, Bangalore, India.
10. Venkateswarlu B Mukhopadhyay K and Ramesh K (1993) Effect of PEG induced water stress on cell cultures of groundnut in relation to the response of whole plants. Oleagineux, 48:463-468.

11. Ramesh K and Padhya MA (1993) *De novo* synthesis of secondary metabolites in cultured cells of neem: *Neem and Environment* Vol. I (Eds.) RP Singh, MS Chari, AK Raheja, W Kraus. Oxford and IBH Publishing Co. Pvt.Ltd., New Delhi p.173-184.
12. Ramesh K (1995) All India Symposium on Recent Advances in Biotechnological Applications in Plant Tissue and Cell culture and XVII meeting of Plant Tissue culture Association of India, CFTRI, Mysore, India.
13. Ramesh K (1997) National symposium in Emerging trends in Plant Tissue culture and Molecular biology and XX meeting of Plant Tissue culture Association, Osmania University, Hyderabad, India.
14. SM Basha, Ramesh Katam, Naik KSS (2005). Variation in Drought induced protein Expression among peanut genotypes. Proceeding of The American Peanut Research and Education Society Inc. Meeting, Portsmouth, Virginia. Ed. James R. Sholar.
15. Ramesh Katam, SM Basha, and HKN Vasanthaiah (2005). Genetic Variation in Molecular and cellular expression of Peanut genotypes in response to water stress. Proceeding of The American Peanut Research and Education Society Inc Meeting, Portsmouth, Virginia. Ed. James R. Sholar.
16. Vasanthaiah HKN Ramesh Katam, and Sheikh M Basha (2006). Water Stress Induced Differential Gene Expression in Peanut. Proceedings of American Peanut Research and Education Society, Savannah, GA. Record 2392.
17. Sheikh M Basha, Ramesh Katam, and Naik KSS. Identification of Drought Responsive Proteins in Peanut. *Peanut Science* (In Review).
18. Vasanthaiah H KN, Ramesh Katam, and Sheikh M Basha. Efficient Protocol for Isolation of Functional RNA from Different Grape Tissue Rich in Polyphenols and Polysaccharides for Gene Expression Studies. *Electronic J. Biotechnology* (In Review).
19. Vasanthaiah H KN, Sheikh M Basha and Ramesh Katam. Biochemical Approach and Molecular approach to Identify Differentially Expressed gene/s in Anthracnose-tolerant grape genotype. *Southern Association of Agricultural Scientists, Bulletin* 20 (In Press).
20. Ramesh Katam, Vasanthaiah HKN and Sheikh M Basha Water stress induced changes in Leaf protein expression of various peanut genotypes. *Peanut Science* (In Review).
21. Vasanthaiah HKN, Ramesh Katam and Sheikh M Basha. Biochemical approach to identify differentially expressed protein in anthracnose infected Florida hybrid grapes. *Australian Journal of Grape and Wine Research* (In Review).
22. Vasanthaiah HKN, Ramesh Katam, and Sheikh M Basha (2007). A new stilbene synthase gene from muscadine (*Vitis rotundifolia*). In: *Frontiers in the Convergence of Bioscience and Information Technologies* (Submitted).
23. Ramesh Katam and Sheikh M Basha. Drought stress and Aflatoxin contamination in peanut. *American-Eurasian Journal of Agricultural and Environmental Science* (In Review).
24. Ramesh Katam, Vasanthaiah HKN and Sheikh M Basha. Identification of Drought Tolerant Peanut Genotypes Employing Proteomics Approach. *International Arachis News letter* (In Review).
25. Ramesh Katam, Vasanthaiah HKN and Sheikh M Basha (2007). Proteomic Approach to Screen Peanut Genotypes with Enhanced Nutritional Qualities. In: *Frontiers in the Convergence of Bioscience and Information Technologies 2007, Korea*.

List of Invited Speaker Lectures, Presentations and Poster exhibitions in National and International Conferences, Participations in Professional Meetings, and submitted Technical Reports

26. Ramesh Katam (1987) Lupeol in tissue cultures of *Crataeva nurvala* Buch-Ham. All India Seminar on Advances in Botanical Research in India during last ten years (1976-1986). Page 138-139.
27. Vandana Sharma, Ramesh K and Padhya MA (1987). Screening of stem bark of *Crataeva nurvala* for its chemical constituents. D28. 39th Indian Pharmaceutical Congress, Madras, India.
28. Padhya MA, Ramesh K and Vandana Sharma (1988). Isolation flavonoids from flowers and its tissue cultures of *Crataeva nurvala* Buch-Ham: First Asian conference on Pharmaceutical education, research and drug Industry, Singapore S-33, Page 38.
29. Ramesh K and Padhya MA (1988). Plant regeneration form leaflets of *Azadirachta indica* A. Juss: National symposium on new trends in Biotechnology, Trivandrum, India Page 56.
30. Ramesh K and Padhya MA (1989) Selection of cell lines for high yielding kaempferol and quercetin from flower callus of *Crataeva nurvala* Buch-Ham: National symposium on Recent Advances in plant cell research, Trivandrum, India. V20, Page 66.
31. Ramesh K and Padhya MA (1989) Selection for high yielding secondary metabolites in *Crataeva nurvala*. National Tissue culture Conference, Goa, India.
32. Ramesh K and Padhya MA (1990) Propagation of neem, *Azadirachta indica* (A. Juss) through *in vitro* culture: National seminar on Biotechnological approaches for up gradation of agricultural and horticultural crops, Coimbatore, India. P 50-51.
33. Ramesh K and Padhya MA (1990) Selection of high yielding cell lines of flower callus *Azadirachta indica*: International Seminar on New frontiers in Horticulture, Bangalore, India.
34. Venkateswarlu B, Maheswari B, Subba Reddy G and Ramesh K (1991) Germplasm enhancement for drought tolerance Annual report 1990-91, Central Research Institute for Dryland Agriculture (ICAR), India INAE83: CS/CP/BT/01: p71-72.
35. Venkateswarlu B, Neelam Saharan, Maheswari B and Ramesh K (1991) Cell and tissue culture studies in selected dry land crops for understanding their response to biotic and biotic stresses. Annual Report 1990-91: Central Research Institute for Dryland Agriculture (ICAR), India. CS/CP/BT/01:49-50.
36. Lakshmi Subramaniam S, Ramesh K and Murli PM (1993) Shoot meristem culture of commercial cultivar of cotton: International conference on Biotechnology in Agriculture and Forestry, New Delhi, India.
37. Ramesh K and Padhya MA (1993) Biotechnology of Neem, A tropical wonder tree In: Towards enhancement and Sustainable agricultural productivity in the 2000s: Breeding researches and Biotechnology, The 7th International Congress of SABRAD Taipei, Taiwan.
38. Venkateswarlu B, Ramesh K and Mukhopadhyay K (1993) Enhancement of stress tolerance in groundnut using tissue culture approaches: National Seminar on Oilseeds Research and Development in India: Status and Strategies ISOR, Hyderabad, India. Page 44-45.
39. Ramesh K (1994) Commercialization in tissue culture: Exposition and Workshop on micro propagated Commercial plants, Calcutta, India.

40. Ramesh K and Padhya MA (1995) Biotransformation in plant cell culture: National Symposium on Tissue culture of medicinal plants, Calcutta, India.
41. Ramesh Katam (1998) Plant Tissue culture and its relevance in Seed Industry September 8, 1998. Mahyco Life Sciences Research Centre, Dawalvadi, Jalna.
42. Ramesh Katam (1998) Application of molecular markers in Molecular breeding. Nov 4, 1998. Mahyco Research Foundation.
43. Ramesh K (1998) National Symposium on Trends in plant Biotechnology, Department of Genetics, Osmania University, Hyderabad, India.
44. Ramesh Katam (2001) Post transcriptional Gene silencing-An Overview October 5, 2001.
45. Ramesh K, Panchbhai SD, Subramanyan V and Bharat RC (2001) Generation of transgenic indica rice plants resistant to bacterial leaf blight. National Rice Biotechnology Network, Aurangabad, India.
46. Ramesh K, Jha UC and Patil GT (2001) Methods to eliminate redundancies from EMBL Database. 41st Annual meeting of American Society for cell biology, Washington DC. L-196.
47. Katam Ramesh UC Jha, GT Patel (2002). The Era of Genomics- Review. Midwestern sectional society, Miami University.
48. Ramesh K, Wu J, Reddy UK, Jenkins JN, McCarthy J and Zhu J (2003) A molecular map of QTLs and DNA markers in upland cotton using recombinant inbred lines. Beltwide Cotton Conference, Nashville, TN. p 884.
49. Padmavathi N, Reddy UK, Ramesh K, Besong S, Bates GT.(2003) Genetic linkage map of *Sesamum* using AFLP markers. Plant and Animal genome conference, San Diego, CA, 2. P 705.
50. Reddy UK, Padmavathi N, Saha S, Besong S, Bates GT, Ramesh K, Saha S, Jenkins JN, Claude T, Levi A. (2003). Di and tri nucleotide repeat motifs for marker development in watermelon Plant and Animal genome conference, San Diego, CA.
51. Reddy, U.K., Saha, S., Nimmakayala, P., Katam, R., Levi, A. (2004). Identification of polymorphisms using rna5h-ltr regions of the ty1-copia retrotransposons in watermelon accessions. Plant and Animal Genome XII Conference Proceedings.
52. Ramesh Katam (2004) Development of useful molecular markers in cotton. Department of Plant and soil science, MS University, Mississippi State, MS, April, 5, 2004.
53. Ramesh Katam, Sonia Chahal, Sukumar Saha, Ramesh Kantety and Johnie Jenkins (2004). EST-SSR markers in upland cotton (*Gossypium hirsutum* L.). Graduate Student association Conference, Mississippi State University, Mississippi State, MS.
54. Sheikh M. Basha, Ramesh Katam, Hifza Mazhar and KSS Naik. (2005). Differential Response of Peanut Genotypes to Water Stress. In International Peanut Conference on “Prospects and Emerging Opportunities for peanut Quality and Utilization Technology”, Kasetsart University, Bangkok, Thailand.
55. Ramesh Katam, SM Basha and HKN Vasanthaiah (2005). Genetic Variation in Molecular and cellular expression of Peanut genotypes in response to water stress. 37th Annual Meeting of American Peanut research and Education Society, Portsmouth, Virginia, July 11-15, 2005.
56. Ramesh Katam, HKN Vasanthaiah and SM Basha (2006).Differential expression of mRNA transcripts and proteins in leaf tissues of peanut genotypes to water stress. Plant and Animal Genomes XIV Conference, Jan 14-18, 2006 San Diego, CA.

57. Mehboob S Basha, Ramesh Katam, and KSS Naik (2006) Differential expression of mRNA transcripts and proteins in leaf tissues of peanut genotypes to water stress. Plant and Animal Genomes XIV Conference, Jan 14-18, 2006 San Diego, CA.
58. Sheikh M Basha, Ramesh Katam, and Naik, KSS (2006). Identification of Drought responsive proteins in peanut. Association of Research Directors, Inc. 14th Biennial Research Symposium April 1-4, 2006, Atlanta GA. p 82.
59. Ramesh Katam, Hemanth KNV and Sheikh M Basha (2006). Water Stress Induced compositional changes in peanut leaf. Association of Research Directors, Inc. 14th Biennial Research Symposium April 1-4, 2006, Atlanta GA. p 83.
60. Hemanth KNV, Ramesh Katam, and Sheikh M Basha (2006). Identification of Differentially expressed gene/s in Anthracnose-tolerant grape genotype. Association of Research Directors, Inc. 14th Biennial Research Symposium April 1-4, 2006. Atlanta GA. p. 84-85.
61. Ramesh Katam, Hemanth KNV and Sheikh M Basha (2006). Differential Response of Grape genotypes to water stress Association of Research Directors, Inc. 14th Biennial Research Symposium April 1-4, 2006, Atlanta GA p. 237.
62. Ramesh Katam, Hemanth KNV and Sheikh M Basha (2006). Differences in Leaf Protein Expression among Peanut Genotypes in Response to Water Stress. Annual Meeting of American Peanut research and Education Society, Savannah, GA Record 2465.
63. Hemanth KNV, Ramesh Katam, and Sheikh M Basha (2006). Differences in Leaf Protein Expression among Peanut Genotypes in Response to Water Stress. Annual Meeting of American Peanut research and Education Society, Savannah, GA Record 2465.
64. Ramesh Katam, Hemanth KNV and Sheikh M Basha (2007). Identification of water deficit responsive polypeptides in Florida Hybrid Grapes. Southern section American Society of Plant Biologists March 3-5, University of South Alabama, Daphne Islands, Mobile, AL, 2007.
65. Hemanth KNV Ramesh Katam and Sheikh M Basha (2007). Molecular analysis of Anthracnose in Florida hybrid grapes. Southern section American Society of Plant Biologists March 3-5, University of South Alabama, Daphne Islands, Mobile, AL, 2007.
66. Ramesh Katam, Hemanth KNV and Sheikh M Basha. Proteomic and transcript analysis of grapevine responses to water stress. American Society for Plant Biology, Chicago, 2007. Poster 44005.
67. Hemanth KNV, Ramesh Katam, and Sheikh M Basha (2007). Application of functional genomics approach to analyze Pierce's disease in grapes. American Society for Plant Biology, Chicago, 2007.
68. Ramesh Katam, Hemanth KNV and Sheikh M Basha (2007). Differential expressed cDNA transcripts and proteins in peanut leaf. Proceedings of American Peanut Research and Education Society, Birmingham, AL.
69. Florida Grape Growers Association Conference (2005, 2006, and 2007) Ocala, FL, USA.