

UNITED STATES DEPARTMENT OF AGRICULTURE  
COOPERATIVE STATE RESEARCH, EDUCATION, AND EXTENSION SERVICE

OMB Approved 0524-0030

**SUMMARY VITA - RESEARCH PROPOSAL**

Give the following information for each key professional personnel beginning with the Principal Investigator. Photocopy this page for each person.

<b>Name</b> <b>Sheikh M. Basha</b> (Mehboob B. Sheikh)	<b>Title</b> <b>Professor</b> <b>Principal Investigator</b>	<b>Birth date</b> 07 01 1946 (month) (day) (year)
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**Education** (Begin with baccalaureate or other initial professional education and include postdoctoral training)

Institution and Location	Degree/Certification	Year Conferred	Field of Study
A.P. Agricultural University, A.P., India	B. Sc. Agriculture	1968	Agriculture
A.P. Agricultural University, A.P., India	M.Sc. Agriculture	1971	Agricultural Botany
University of Oklahoma, Norman, OK	Ph.D.	1974	Plant Physiology
University of Georgia, Griffin, GA	Postdoctoral training	1975	Food Science
University of Florida, Gainesville, FL	Postdoctoral training	1975	Biochemistry

- Professional Experience** Concluding with present position, list in chronological order previous employment, experience, and honors. List in chronological order the titles and complete references to all publications during the past five years and to representative earlier publications to this application. Do not exceed three pages.

**1975 to 1978, Post-doctoral Research Associate, Department of Biochemistry and Molecular Biology, University of Florida, Gainesville, Florida.**

Purified and characterized the progesterone-induced proteins and enzymes in porcine reproductive fluids. Developed a new method for the determination of tryptophan in protein hydrolysates. Advised and assisted post-doctoral associates and graduate students.

**1978 to 1979, Assistant Research Scientist, Department of Biochemistry and Molecular Biology, University of Florida, Gainesville, Florida**

Developed a 2-D PAGE system to improve the peanut protein resolution. Identified the lectine-binding proteins in legume seeds and their glycopeptide nature. Establish endometrial organ cultures for pig and sheep to study the regulation of progesterone and estrogen-induced secretory proteins during pregnancy.

**1979 to 1981, Assistant Professor, Peanut Research Laboratory, Florida A&M University, Tallahassee.**

Developed a novel method for detection and preservation of urease activity in the polyacrylamide gels. Identified methionine-rich protein in peanut seed and developed methods for its purification. Established a chromatographic system for fractionation of peanut proteins into arachin and non-arachin. Studied the deposition pattern of peanut seed proteins using <sup>35</sup>S-methionine, <sup>3</sup>H-leucine and <sup>14</sup>C-glucosamine in the maturing peanut seed.

**1981 to 1986, Associate Professor, Peanut Research Laboratory, Division of Agriculture Sciences, Florida A&M University, Tallahassee, Florida.**

Fractionated peanut seed proteins into arachin and non-arachin fractions, and constructed their composite 2-D polypeptide maps. Isolated and characterized two cryoproteins from peanut seed. Identified biochemical differences in seed

composition between the nodulating and non-nodulating peanut lines. Purified and characterized acid phosphatase, and basic proteins from peanut seed. Identified genetic variation in the methionine-rich proteins.

**1986 to present, Professor, Plant Biotechnology Program, Division of Agricultural Sciences, Florida A&M University, Tallahassee, Florida.**

**Grape Research:** a). Studies on biochemical and molecular factors affecting anthracnose and Pierce's Disease tolerance in grape. b). Identification and characterization of nutraceutical compounds in muscadine and FL hybrid grape genotypes. c). Characterization of berry components associated with juice and wine characteristics during berry development and ripening. d). Effect of water stress on disease tolerance and nutraceutical characteristics of grape. **Aflatoxin Research:** Drought physiology and molecular biology of water stress to determine the role of drought induced gene/s and gene products in aflatoxin contamination of peanut. **Development of a Methionine-rich Transgenic Peanut:** Cloning of cDNA encoding a methionine-rich protein to increase nutritional value of peanut. Identified a polypeptide containing high amount of methionine among the six subunits of peanut Methionine-rich protein (MRP). Studied the deposition pattern of MRP subunits in developing peanut. cDNA encoding the MRP is being isolated for use in developing a transgenic peanut high in methionine. N-terminal sequence and polyclonal antibodies for the MRP subunits have been obtained and are being used to design degenerate oligonucleotide primers for screening peanut cDNA library. **Flavor Research:** Identification of protein/s involved in the production of off-flavor volatiles in roasted peanut. **Maturity Markers:** Identification of a protein marker for predicting peanut harvest date. **Tissue Culture Studies:** Established a seed culture system for rapid germplasm screening to identify aflatoxin resistant peanut lines under water stress.

### Selected Publications

- Sathanoori, R. S. and Basha, S.M. 1996. Methionine content of the polypeptides of methionine-rich protein from peanut. J. Agric. Food Chem. 44: 2134-2136.
- Basha, S.M. 1997. Capillary electrophoretic separation of peanut proteins. J. Agric. Food Chem. 45: 400-402.
- Basha, S.M., Ying, M. and Young, C. T. 1998. Identification of heat sensitive proteins during roasting of peanut seed. J. Food Quality 22:485-496.
- Basha, S.M., Ying, M., Vives, M.R., Young, C. T. and Boyd, L.C. 1998. Fractionation and characterization of a protein fraction producing off-flavor volatiles in peanut seed. J. Agri. Food Chem. 46:2130-2135.
- Ali-Ahmad, M., and Basha, S.M. 2000. Changes in the protein composition of methanol-soluble and methanol-insoluble fractions of developing peanut seed. J. Agric. Food Chem. 48: 5517-5522.
- Mazhar, H., Basha, S.M. and Lu, J. 2001. Differences in the protein and polypeptide composition of Muscadine grape genotypes. American J. Enology 52: 266-270.
- Jain, A.K., Basha, S.M. and C. Holbrook. 2001. Identification of drought-responsive transcripts in peanut (*Arachis hypogaea* L.). Electronic J. Biotechnology (on line). 15 August, vol 4, N.2, 2001. Available from: <http://www.ejb.org/content/vol4/issue2/full/3/index.html>. ISSN 0717-3458.
- Mazhar, H. and Basha, S.M. 2002. Effect of desiccation on peanut (*Arachis hypogaea* L.) seed protein composition. Environmental and Experimental Botany 47: 67-75.
- Jain, A., Basha, S.M., Lu, J., Lorenzo, A.B. and Leong, S. 2003. Genetic variation and developmental changes in the leaf and fruit sugar content of grape genotypes, Proc. Fla. State Hort. Soc. 16814, Vol. 115, #62.
- Jain, A., Basha, S.M., Mbuya, O. and Leong, S. 2003. Differential accumulation of free amino acids in the leaf and fruit of muscadine and Florida bunch grape genotypes. Proc. Fla. State Hort. Soc. 16814, Vol 115, #63.
- Mazhar, H. and Basha, S.M.M. 2004. Immunochemical characterization of methionine-rich proteins from peanut. Australian J. Experimental Agriculture 44, 7-10.
- Jain, A. and Basha, S.M. 2003. A capillary electrophoretic method for isolation and characterization of grape xylem proteins. African J. Biotechnology 2: 66-70.
- Jain, A and Basha, S.M. 2004. Cloning and structural analysis of a cDNA clone encoding glycinin (Gly-1) seed storage protein of peanut. Electronic J. Biotechnology 7: 224-234.
- Basha, S.M., Musingo, M. and Colova, V.S. 2004. Compositional differences in the phenolics compounds of muscadine and bunch grape wines. African J. Biotechnology 3: 523-528.
- Basha, S.M., Katam, R. and K.S.S. Naik. 2006. Identification of drought responsive proteins in peanut. Plant Physiol. ( In Review).