MAME C. GUEYE: SENEGAL

Sesame molecular genetics and physiology.

Dr. Mame C. Gueye, a visiting scientist from the Senegalese Institute of Agricultural Researches (ISRA, Senegal) is currently on a 3-month, IAEA-sponsored training fellowship on sesame molecular genetics and physiology in Dr. Kashchandra G. Raghothama's laboratory, Department of Horticulture, Purdue University, Indiana.

At ISRA, Dr. Gueye works on genetic characterization and marker assisted selection strategies including genetic mapping and QTL identification of traits associated with drought tolerance and biotic stress of local crops such as cowpea, sesame and tamarind. In Senegal, which is located in the Sahelien zone, drought and plant diseases are among the major agricultural constraints and small farmers have limited access to pesticides and other resources.

This IAEA fellowship offers an exceptional opportunity for Dr. Gueye to use molecular and physiological tools for characterizing drought tolerance in sesame and thus aids in the improvement of the production of this important crop.

The training program includes isolation of homologs of drought tolerance or water use efficiency associated plant genes. The cDNA library of salt and osmotic stressed sesame will be used as a template for PCR implications with primers corresponding to conserved sequences in well characterized drought and water stress associated genes. If needed, cDNA prepared with mRNA isolated from water stressed sesame plants will be used as template in PCR amplifications. The amplified products will be cloned and sequenced to confirm sequences corresponding to the genes of interest. These sequences will serve as molecular markers for analyzing the expression of genes in sesame improvement programs.

Dr. Raghothama's laboratory has a long history in research on molecular genetics and plant stress, particularly in transcriptional regulation of phosphate starvation induced genes.

Dr. Gueye will carry this knowledge back to Senegal in July. She will expand this research and use acquired tools in training researchers from West and Central Africa's sub-region as a part of the Institutional mandate.

During this training, Dr Gueye had the opportunity to participate in the International Association for Plant Biotechnology 12th World Congress held in conjunction with the 2010 Meeting of the Society for In Vitro Biology from June, 6-11-2010 in St Louis, Missouri. This was very useful for her in terms of gaining the latest knowledge in biotechnology and building new partnerships.

Trained 5/1/2010—-6/30/2010