



## THEOPHILUS M. MUTUI, PhD: Kenya

### Development of an efficient tissue culture regeneration protocol and analysis of artemisinin in *Artemisia annua*.



Dr. Theophilus M. Mutui, a visiting scientist from the School of Agriculture and Biotechnology, Moi University, Kenya is currently on a 4-month, IAEA-sponsored training fellowship in Prof. Hazel Y. Wetzstein's laboratory, University of Georgia at Athens. Prof. Wetzstein's laboratory conducts research in plant tissue cultures for plant propagation, new crop development, plant conservation, and research on plant development. Dr. Mutui is learning theories and applications of plant regeneration via organogenesis and embryogenesis protocols. He is also conducting studies on micropropagation of *Artemisia annua* with a view to developing an efficient regeneration protocol and is also attempting to generate somaclones.

Thereafter, Dr. Mutui will relocate to the United States Department of Agriculture (USDA), Agricultural Research Service (ARS), Beltsville Human Nutrition Center in Maryland for 2 months. Here, he

will learn applications of modern and classical extraction technologies and analysis procedures using different chromatographic procedures and HPLC with diode array and mass spectral detection under the direction of Dr. Dave Luthria, a Research Chemist. Dr. Mutui's stay at USDA-ARS will include a 2 week training visit at the Appalachian Farming Systems Research Center (AFSRC), West Virginia. He will be hosted by Dr. Jorge Ferreira, a Horticulturist at USDA-ARS/AFSRC a renowned *Artemisia annua* scientist. During his visit, Dr. Mutui will execute extraction and analysis of artemisinin content of different *Artemisia* genotypes using HPLC-UV.

Dr. Mutui was instrumental in writing an IAEA funded project "KEN/5/029: Development of Appropriate *Artemisia* Varieties for Kenya through Application of Mutation and Biotechnological Techniques for Sustainable Artemisinin Production and Management of Malaria." The objective of this project is to develop high artemisinin producing varieties of *Artemisia annua*, adapted to different agro-ecological zones in Kenya, through induced mutation breeding and biotechnologies. This training will improve Dr. Mutui's skills in plant tissue culture and modern analytical techniques. After completion of his training in the U.S., Dr. Mutui will return to Kenya to apply his newly acquired body of knowledge during execution of the above named IAEA funded project.

In Kenya, Dr. Mutui is the country coordinator for The Essential Electronic Agricultural Library (TEEAL) and Access to Global Online Research in Agriculture (AGORA). He was a national coordinator for EU DG-SANCO Hazard Analysis & Critical Control Point (HACCP) Training Program from 2007-2009. Dr. Mutui has published widely in international refereed journals and is a regular speaker at scientific conferences.

**Trained 1/25/2010—7/23/2010**