BioSpectrum
the business of Bio & Health Sciences
ASIA EDITION

Thai rice researcher gets NSTDA Research Chair Grant

November 21, 2012 | News | By BioSpectrum Bureau



Singapore:Ã?Â Dr Apichart Vanavichit, associate professor, Kasetsart University, and director, Rice Gene Discovery Unit, Thailand, was awarded the 2012 NSTDA Research Chair Grant to work on "Whole genome mutagenesis to enhance rice breeding potential for climate change".

With a budget of the $648, 900 (19.93 million Baht), Dr Apichart and his team aim to develop new rice varieties that will withstand effects caused by climate change. The project consists of three major tasks: mutant discovery, functional discovery, and gene pyramiding. Prior to this project, Dr Apichart has already identified mutant genes involved with rice grain qualities (aroma, amylose content, gelatinization temperature and oil quality) and stress tolerance (iron toxicity and submergence tolerance) in a mutant population of Jao Hom Nin generated through chemical mutagen.

In this project, mutant discovery will focus on using TILLING (Targeting Induced Local Lesions in Genomes) to identify new mutant genes associated with new traits namely drought, salinity and cold resistance during flowering stage. Mass screening of mutant lines for abiotic traits will be implemented in a greenhouse with temperature and humidity control in order to facilitate the identification of desired mutant lines out of the 20,000 lines comprising the population.

In the functional characterization of genes, desired mutant lines for each trait will be selected and will be subjected into SNP typing. Mutations in the gene other than SNP will be determined by using the new generation sequencing technique. In the end, characterized genes in mutant lines will be used and applied in breeding. Functional markers will be developed out of the characterized genes and mutant lines will be crossed to Pinkaset in order to validate the functionality of the genes in new germplasm. Molecular breeding method will be used to identify lines containing the target genes in single and in pyramided fashion.

Another NSTDA Research Chair Grant was given to Prof Prasit Pavasant from Chulalongkorn University to develop dental stem cell for periodontal tissue engineering application.