

FAO/IAEA International Symposium on Plant Mutation Breeding and Biotechnology



Contribution ID: 227

Type: Poster

BROADENING THE GENETIC VARIATION OF VEGETATIVELY PROPAGATED CROPS USING NUCLEAR TECHNIQUES IN NICARAGUA

An IAEA-funded four years national project will be carried out with the objective of expanding the genetic variability of cocoyam, taro and plantain through the induced mutations on in vitro plants of two cultivars per crops, searching for diseases tolerant and climate change adapted genetic variants. These crops are sources of protein and carbohydrates for consumers and income for farmers in tropical countries. Nevertheless, their narrow genetic base and way of vegetative reproduction put in risk the production and make difficult to meet the challenges of climate change (emergence of new pests and diseases) and the new market demands. In Nicaragua the areas, yields and production of cocoyam has been reduced due to the attack of root rot disease (RRD) caused by *Pythium myriotylum* in rainforest region and the reduction and unpredictable distribution of rain in the Pacific region. Taro production depends on only one non-resistance cultivar to Taro leaf blight (*Phytophthora colocasiae*), which recently reduced totally the production in Puerto Rico and Dominican Republic. Plantain production relies on few cultivars susceptible to diseases and pests. The gamma-ray irradiation dose per crop will be determined. 500 in vitro plants per each two cultivars per crop will be entered in a mutation induction programmes. The in vitro chimeric tissues will be disaggregated through four subcultures. Induced variability will be assessed at in vitro, greenhouse and in field conditions. Molecular techniques will facilitate the mutant selection. New cocoyam, taro and plantain mutants adapted to the main effects of climate change (drought) and current diseases will be generated.

Country or International Organization

Nicaragua. National Project.

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Track Classification: Mutation breeding for ornamental and vegetatively propagated crops