Taro for food and economic security in East Africa

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Project summary
Taro is one of the staple food crops in sub-Saharan Africa with both the foliage and corms utilised for food. In most African countries, taro is mainly cultivated by small-holder farmers and it plays an important economic, nutritional and cultural role. The production of taro in the region is very low and has declined significantly over time due to the unavailability of improved and clean planting materials and the occurrence of weeds, pests and diseases. Therefore, the aim of this project is to identify the economically important pathogens infecting taro in the region, and to develop reliable diagnostic tools. The project will also create a collaboration with both national and international research institutions to facilitate exchange of planting materials and improve disease resistance and productivity of taro, leading to improved livelihoods of small-holder farmers in the region.

Outputs

- Both DNA and RNA viruses infecting taro in Burundi, Ethiopia, Kenya, Tanzania and Uganda were identified and characterized
- The genomic organization of economically important viruses was determined
- Fungal isolates infecting taro in Burundi were also identified
- Development of pathogen robust molecular diagnostic tools is in progress
- Virus-free planting materials were produced through tissue culture

Outcomes

- Insuring a safe germplasm exchange between institutes by using the newly developed diagnostic tools.
- The usage of disease free planting materials derived from tissue culture will improves the production of taro.
- Contributes to economic and food security and enhance livelihoods of small-scale farmers.
- Coordinated and enhanced disease diagnostics capacity will be established between NARS to improve disease management.
- Quick disease diagnostics and management will be achieved by plant quarantine offices in case of disease out-break based on the information generated.

Potential to scale-up

- Development of collaborative research project and community of common practices between NARS in Ethiopia, Kenya and Uganda with international research institutes working on taro is under its establishment phase.
- Disease resistant materials will be imported from other institutes for adaptation and evaluation and potential scale-up of promising varieties to farmers.
- Several-fold increase in yield will be achieved from using of clean planting materials.

Partnerships

1. Holetta National Agricultural Biotechnology Research Center, Ethiopian Institute of Agricultural Research (EIAR)
2. University of Burundi (UoB)
3. Institut des Sciences Agronomiques du Burundi (ISABU)
4. Department of Biotechnology, Addis Ababa Science and Technology University (AASTU).
5. Biosciences east central Africa - International Livestock Research institute hub (BecA-ILRI hub)
6. Centre for Tropical Crops and Biocommodities, Queensland University of Technology (CTCB-QUT)

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