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**Science, Technology, Research and Innovation for Development
(STRIDE)**



**Development and Production of High Value *Yacon*
(*Smallanthus sonchifolius*) Products**

GRANTEE: Mindanao State University–Iligan Institute of Technology (MSU- IIT)

PRINCIPAL INVESTIGATOR: Dr. Roberto M. Malaluan

INDUSTRY PARTNER: NutraTech BioPharma, Inc.
DOALNARA Restoration Society

GRANT PERIOD: November 1, 2015 to March 31, 2017

GRANT AMOUNT: Php 4,609,703 (approximately USD98,079)

A healthy alternative to controlling diabetes

Yacon (*Smallanthus sonchifolius*) tuber is regarded as a functional food with a high content of fructooligosaccharides (FOS), inulin, and phenolic compounds. FOS is a dietary sugar that the human body is unable to metabolize, hence it has potential use for controlling diabetes and body weight. The consumption of prebiotics, FOS, and inulin improves the growth of bifidobacteria in the colon, enhances mineral absorption and gastrointestinal metabolism, and plays a role in the regulation of bad cholesterol. These prebiotics promote a positive modulation of the immune system, improving resistance to infections and allergic reactions.



Members of the project team demonstrate how yacon syrup is produced using a vacuum evaporator

Due to the high demand for quality food for controlling diabetes and body weight, the inclusion of *yacon* as a source of fructan-type prebiotics in the production of different foods for human use represents a great opportunity for both innovation and adding value in the functional food industry.

However, *yacon* tubers are perishable and their nutritional content as well as FOS significantly decrease during post-harvest storage. Post-harvest processing is necessary to reduce storage time, increase utilization of this root crop, and reduce economic losses due to spoilage.

MSU-IIT and NutraTech Biopharma, Inc., known to be a Current Good Manufacturing Practices (GCMP)-compliant Filipino company based in Silang, Cavite, engaged in a project for the development of high-value *yacon* products with support from USAID STRIDE. They collaborated with the DOALNARA Restoration Society Farmers Multipurpose Cooperative as a partner for the *yacon* plantation located at Claveria, Misamis Oriental, for farm village scale production of *yacon* value-added products.



The project team and STRIDE representatives inspect the production site of the project

Milestones

The major challenge in the production of *yacon* is its rapid browning due to enzymatic effect once exposed to the atmosphere. The project has been successful in finding an innovative method in producing sundried *yacon* chips with preserved natural color readily available as a functional food supplement.

Moreover, the projects also applied waste minimization processes wherein the blanching solution in the production of the sundried *yacon* chips was recycled as feed to the vacuum evaporator and spray dryer machine to produce *yacon* syrup and *yacon* powder, respectively.

Moving forward

In collaboration with NutraTech BioPharma, Inc., development of *yacon* syrup and *yacon* powder for the production of high-value products (functional food supplements) for domestic and international markets is ongoing.