Name of product : I – Toxicity Removal System: An Intelligent Automated Crop Machine

Researcher details

i) Name : Mohd Hudzari Hj Razali, Wan Musa Wan Muda, Che Abdullah Abu Bakar, Hasbullah Hj Muhammad, Noordin Asimi Mohd Noor, Nashriyah Mat, Azizah Endut, Abd. Jamil Zakaria, Muhammad Rizuwan Yahaya, Abdul Ssomad M. Abd Halim and Syazili Roslan

ii) Email : mohdhudzari@unisza.edu.my

iii) Contact no. : 0192208486

Faculty : Agriculture, Biotechnology and Food Sciences

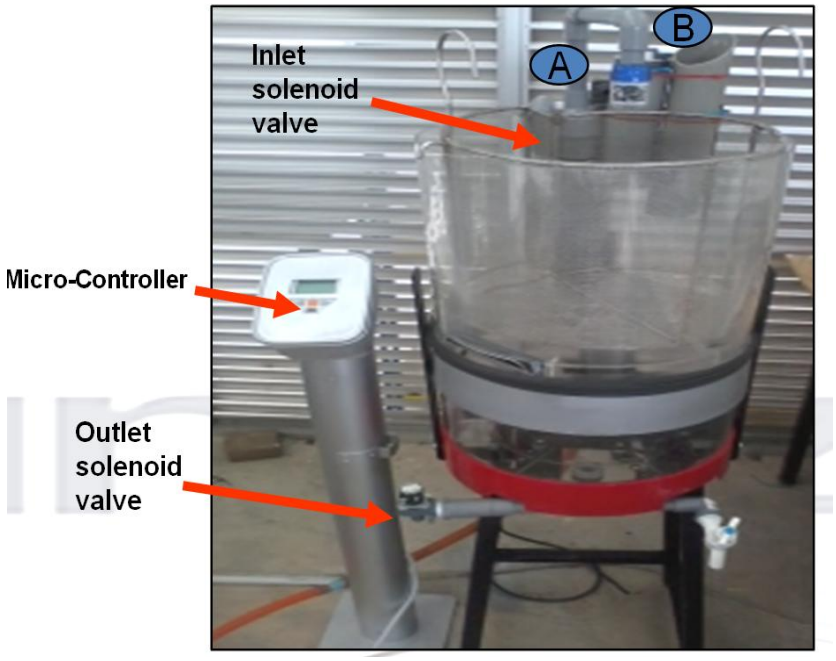
Cluster/Area of study : Automation and Agriculture Mechanization

Status of the product : patent pending

Product description : *(Not more than 500 words)*

Scientific studies on poisonous food plants e.g. *Dioscorea hispida, Manihot esculenta, Prunus cerasus* showed that its roots and leaves contains toxic compounds and can only be consumed after the compounds are removed. Traditionally, the roots of poisonous plant were peeled, sliced and soaked in flowing water such as in a river up to three days for detoxifying process. This research introduced the development of a standalone automatic toxicity removal machine which consists of a microcontroller, solenoid valves, sensors, water pump, electrical circuitry and robust machine structure. During operation process, sliced or blended roots were inserted into machine basket, and the user must push the START button at the controller box to switch on the water pump. The vortex created by the pump caused the water to circulate thus aiding the removal of the toxic compound from the food samples. Contaminated water is automatically removed from the machine after outlet solenoid valve is triggered by detecting the intensity sensor. At same time when the level of water in container is decreased, the inlet solenoid valve will open by detecting the ultrasonic sensor for initiating the flow of fresh water into the machine. From the experiments, the process for removing toxic compound is achieved by showing it significance according to pH values and fish survival rate. Raw roots in which toxic compounds were removed by this machine were cooked and were found safe to be consumed by human. This automated machine can save time and is more effective for removing toxic compounds from poisonous food plants compared with a traditional method and can function as a stand-alone machine.

Picture of the product : *(Attach in JPEG/GIF format)*



MINISTRY OF SCIENCE, TECHNOLOGY & INNOVATION

ITEX 13 MALAYSIA 24th INTERNATIONAL INVENTION, INNOVATION & TECHNOLOGY EXHIBITION

UNDER THE PATRONAGE OF THE MINISTER OF SCIENCE, TECHNOLOGY AND INNOVATION

MINDS

Certificate of Award

This is to certify that

MOHD HUDZARI HJ RAZALI,WAN MUSA WAN MUDA,
CHE ABULLAH ABU BAKAR,HASBULLAH HJ MUHAMMAD,
NOORDIN ASIMI MOHD NOOR,NASHRIYAH MAT,AZIZAH ENDUT,
ABD.JAMIL ZAKARIA,MUHAMMAD RIZUWAN YAHAYA,ABDUL SSOMAD
M.ABD HALIM & SYAZILI ROSLAN

has been awarded the

ITEX GOLD MEDAL

for the invention

I-TOXICITY REMOVAL SYSTEM

at the

24th International Invention, Innovation & Technology Exhibition
ITEX 2013
Kuala Lumpur, Malaysia
9th – 11th May 2013

Academician Emeritus Professor Tan Sri Datuk
Dr Augustine Ong Soon Hock
President
Malaysian Invention and Design Society