



# Potassium control in vegetables and Recovery of autotoxicity

Agricultural  
Science and  
Technology

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## Summary

### Backgrounds

- Potassium intake is restricted for patients who are suffering from kidney diseases. They cannot consume foods having higher K such as melon, sweet potatoes, etc.
- However, athletes and hypertensive patients need to intake potassium-containing foods.
- Nutrient solutions in hydroponic culture of strawberries are drained out after harvest.
- Lettuce in plant factory appeared to growth inhibition by continuous cultures using the same culture solutions.

### Purpose

- By hydroponic technique low K melon and high & low K sweet potato is being investigated and developed.
- Autotoxic chemicals and inhibitors exudated from plant roots are degraded and nutrient solutions are reutilized in recycled hydroponic systems.

### Major achievements

- By controlling nutrients of solutions, low K melon and sweet potato for dialytic patients are developed.
- By nutrient management, low and high K sweet potato for athletes and hypertensive patients is developed.
- By AC electrolysis autotoxic-chemicals are disassembled and removed.

## Prospects of collaboration

- Production of low K melon and sweet potato for dialytic patients, high potassium sweet potato for athletes and hypertensive patients.
- Production of lettuce, wasabi, and strawberries in plant factory using artificial lights.



Tasting low K melon by the dialytic patient in an affiliated hospital of Shimane University



Cultivation of sweet potato in pertile-supported hydroponic system



AC electrolysis machine



## Business Point

We research and develop horticultural techniques by hydroponics.