

# HALOGEN DRYER FOR ROSELLE TEA PRODUCTION

INVENTOR: DR. AMIRIL SAHAB BIN ABDUL SANI  
FACULTY: FACULTY OF MANUFACTURING AND MECHATRONICS  
ENGINEERING TECHNOLOGY  
UNIVERSITY: UNIVERSITI MALAYSIA PAHANG  
EMAIL: amiril@ump.edu.my; nurqayyum@gmail.com  
CO-INVENTORS: MUHAMMAD NUR QAYYUM BIN KAMARULBAHRIN



## Product Background



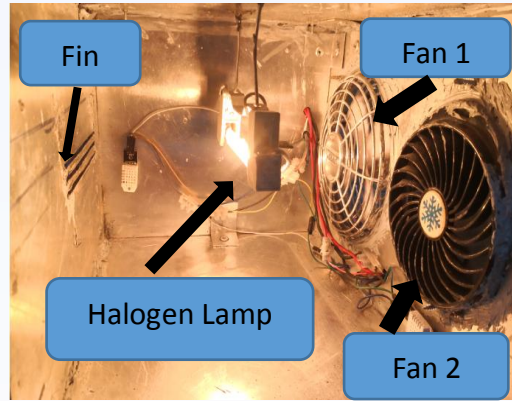
Halogen Lamp



Dried Roselle

- Dried Roselle is produced from heating by using Halogen lamp which emits radiation that generates heat and vaporizes the moisture (water) content of Roselle

## Product Description and Method



- The fresh Roselles are dried inside the halogen dryer which uses Halogen lamp for heating, Fan 1 circulated the heat out through the metal Fin while Fan 2 helps removed the moisture evaporated from the Roselle.

## Novelty and Originality of The Invention

- Environmentally Friendly – does not emit any harmful gas.
- Low electricity consumption (max 200W)
- Medium High Temperature (50°C - 65°C)
- Low Relative Humidity: < 30%
- 2 Fans equipped for circulating heat inside the dryer and remove the evaporating moisture.
- Space saving with high production rate

## Product Image and Product Characteristics



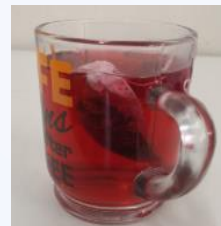
Fresh Roselle



Halogen Dryer



Dried Roselle



Drinkable Roselle Tea



Ground Roselle petals

## Marketability & Commercialisation

- Potential market for this dryer are for food industries which require Roselle to be preserved for a long time (2 years)
- The cost of this dryer is low compared to Heat Pump or Oven dryer since it does not require big mechanical part and high power electric components
- Dryer lifespan is more than 2 years before the controller needs replacement

## Products Applicability, Usefulness and Benefits



- Reduce Drying time
- Increase production rate



- Dried food is safe from dust and animals in a closed place

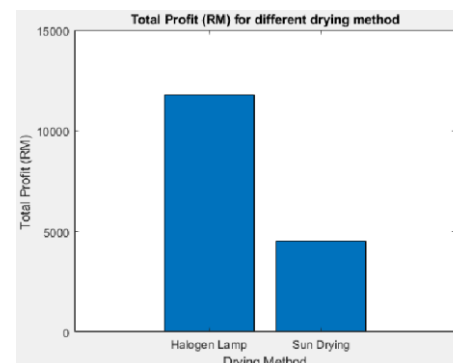


- High product quality of dried food with automated temperature control



- Applicable for Small Medium Enterprise or individuals since the machine is handheld and easy to use

## Profit and Return of Investment



- Halogen dryer gains a profit of more than 2x compared to Sun Drying method (RM11775.16 vs RM4515.29)

## Publication

- Calophyllum-Inophyllum from Pahang Malaysia as Biolubricant Feedstock for Industrial Application, Ch. 39, in Recent Trends in Manufacturing and Materials Towards Industry 4.0, Springer, 2020 (Scopus)

## Status of Innovation

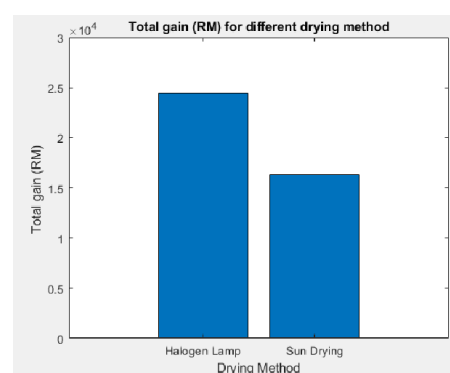
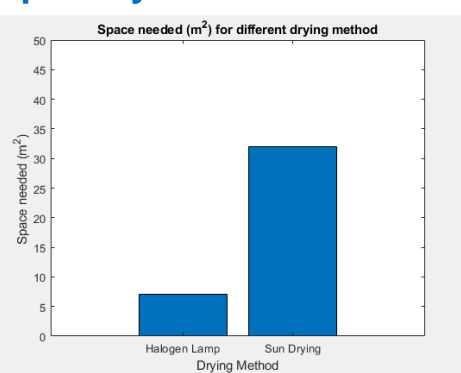
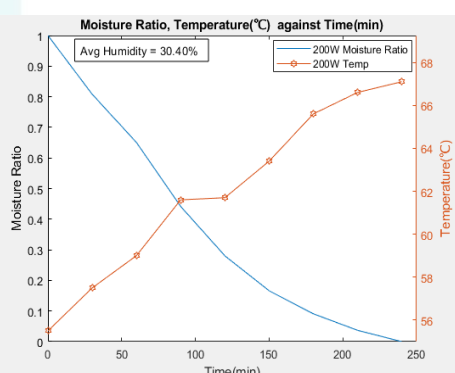
- Prototype with pre commercialization readiness
- Will be sent for Patent listing and to be tested for GMP of food production testing.

## Collaboration/Industrial Partner

- LOI with FAMA Rengit, Johor



## Product Capability and Performance



- Drying Time reduced very shortly (4 hours) compared to sun drying (3-5 days)
- Space need for drying is small for Halogen dryer compare to sun drying