

SOLAR DEHYDRATION TECHNOLOGY IN FOOD PROCESSING

In Academics and Research, Solar dryer facility is available in the Department of Home Science. Food technology students and scholars conducted research projects using solar dehydration technology. Drying foods using solar energy helps in retaining the colour, Flavour and nutritional value to a large extent. It can minimize cost, wastage and increase the productivity in terms of quality and quantity. Hands on training was given to the students with the resource persons on solar dehydration. Various foods and food products were developed. The students undergone training programmes and internship in Society for Energy, Environment and Development (SEED) Hyderabad.

Solar dryers require a certain investment for the set-up of the appliance, but no expenditures for the fuel. The basic function of a solar dryer is to heat air to a constant temperature with solar energy, which facilitates extraction of humidity from foods inside a drying chamber. Ventilation is enabled at a constant rate through defined air inlets and outlets, small solar ventilators or temperature difference, either due to exposition or vertical height. In direct sun driers the food is put in boxes with a transparent lid. Additionally, the temperature in the drier is raised due to the greenhouse effect and the air exchange is regulated by vents. The food is not exposed to direct sunlight in indirect sun driers as the fresh air is heated separately from the food chamber. This method is preferable for drying foods which lose nutritional value when exposed to direct sunlight. Hybrid driers combine solar energy with a fossil fuel or biomass fuel. Solar drying has many advantages over open traditional drying like; Safe & hygienic, Free from insect and bird contamination, Clean & dust free products, more uniform quality products, Uniform color, texture, and appearance of the product, evenness in drying, moisture control to optimum levels, Nutrient retention especially beta carotene, yields high quality Products with better shelf life of the products.



Solar Drying Facility in the Department of Home Science



Solar Drying by the students of Food Technology



Plate 7: Osmo solar dried strawberry bits



Plate 8: Osmo solar dried pineapple bits

Dehydration of Fruits using Solar energy

PRE-PROCESSING AND



Fresh Pineapple



Removing the crown



Peeled Pineapple



Pineapple slices



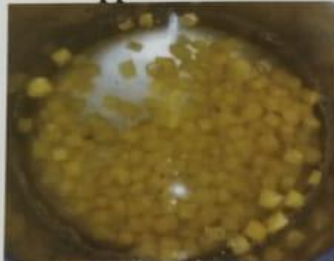
Pineapple chunks



Steam blanching



After steam blanching



Cold water dipping



Dipping in sugar syrup



Loading into trays



Drying in solar chamber



Osmo solar dehydrated
pineapple slices
(end product)



Osmo Dehydrated Pinapple Slices

*Developed for:
Paper code 402: Food product
development and marketing.
MS Food technology
2017 -2019*

Solar dehydration in Food Processing.



SOCIETY FOR ENERGY, ENVIRONMENT & DEVELOPMENT

Certificate of Participation

MS. G. JYOSHNA

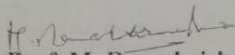
has successfully completed the
Training Programme

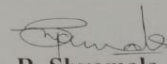
on

**ENTREPRENEUR DEVELOPMENT PROGRAM ON
SOLAR DEHYDRATION OF FRUITS & VEGETABLES &
AWARENESS ON DIGITAL MARKETING**

14TH - 17TH December, 2021

Hyderabad


Prof. M. Ramakrishna Rao
Founder & Director (R&D)


R. Shyamala
General Secretary



SOCIETY FOR ENERGY, ENVIRONMENT & DEVELOPMENT

Certificate of Training

MS. M. MANASWINI

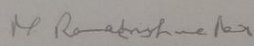
has successfully completed
In-Plant Training

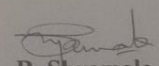
at

'SEED' SOLAR FOOD PROCESSING R & D LABORATORY

1ST - 31ST December, 2021

Hyderabad


Prof. M. Ramakrishna Rao
Founder


R. Shyamala
General Secretary



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Prof. M. Ramakrishna Rao, Ph.D.
Formerly Professor of IISc, Bangalore.

CERTIFICATE

This is to certify that the project entitled "**Studies on Physico-Chemical, and Quality Parameters of Jackfruit Bar**" was carried out in our organization, Society for Energy Environment & Development (SEED) Laboratory, Hyderabad from May 18th to July 5th 2018 by T. Chiranjeevi, Reg.No: (25418062005), MS. Food Technology student of S.V.University, College of Sciences, Tirupathi, (A.P). For partial fulfillment for the award of Masters in Food Technology for the Academic Year 2018.

Date: 5/07/2018

Place: Hyderabad

Prof. M. Rama Krishna Rao

Director R&D

Training and Internship in the field of Solar dehydration.

**SRI VENKATESWARA UNIVERSITY
COLLEGE OF SCIENCES, TIRUPATI
DEPARTMENT OF HOMESCIENCE
FOOD TECHNOLOGY**



CERTIFICATE

This is to certify that the thesis entitled “APPLICATION OF OSMOSOLAR DEHYDRATION TECHNOLOGY TO POMEGRANATE PEEL AND ASSESS THE EFFICACY OF IT ON FUNCTIONAL MALTED BEVERAGE MIX” submitted by Ms. G. JYOSHNA(FOOD TECHNOLOGY) with Reg No. 25421062001 has been carried out by her under my supervision. This work has not been submitted for the award of any degree or diploma.

Place: TIRUPATI

Date: 12.08.2022

(Dr. MANJULA KOLA)

Research supervisor

Dr. Manjula Kola
Associate Professor
Department of Home Science
Sri Venkateswara University
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Research projects on Solar energy

SRI VENKATESWARA UNIVERSITY
COLLEGE OF SCIENCES, TIRUPATI
DEPARTMENT OF HOME SCIENCE
FOOD TECHNOLOGY



CERTIFICATE

This is to certify that the thesis entitled **Development and Quality Analysis of Vegan Kulfi Enriched with Osmo Solar Dehydrated Fruit Bits** submitted by **Ms. M. Manaswini** (MS Food Technology) with Reg. No. 25421062002 has been carried out by her under my supervision. This work has Not been submitted for the award of any degree or diploma.

Place: Tirupati
Date: 16.8.2022


(Dr. MANJULA KOLA)
Research Supervisor
Department of Home Science
Sri Venkateswara University
TIRUPATI-517 502, A.P.

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