



Research and Developments in Food Process Engineering and Technologies



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Indian Institute of Crop Processing Technology
(Ministry of Food Processing Industries, Government of India)
Thanjavur, Tamil Nadu

IICPT - History



1967	Laboratory, Thanjavur Cooperative Marketing Federation, Thiruvarur
1972	Renamed as “Paddy Processing Research Center” Department of Food, GoI
1987	Shifted to Thanjavur
2008	Upgraded as “Indian Institute of Crop Processing Technology” Ministry of Food Processing Industries, GoI
2009	Commencement of Academic Courses



IICPT - Vision



- **To Undertake Basic, Applied and Adoptive Research in Post-production Sector of Cyclone/Storm Prone Areas and Wetlands, also Including Plantation, Spices and Other Important Crops;**
- **To Act as a National Organization for Information on Post-production Systems of Mandated Crops;**
- **To Undertake Transfer of Technology, Consultancy, Training and Analytical Services for Raw and Processed Agricultural Commodities;**
- **To Establish Linkages with Related Processing Industries and Other Academic as well as R&D Institutions for Achieving its Goals Effectively.**

ISO 14001 and 22000 & HACCP Certified FPBIC

- ❖ **Trainings to entrepreneurs, rural youths, self help group members**
- ❖ **Technology transfer through Assistance to clients to establish new food processing businesses**
- ❖ **To act as an incubation unit to interested stake holders for product development and market testing**





Food Safety and Quality Testing Laboratory

NABL Accredited ISO/IEC 17025:2005 FS&QTL FSSAI Referral LAB

- ❖ Analysis of food samples for composition, textural properties, viscosity, elemental analysis, pesticide residues, toxins, water quality and phyto-chemical analysis
- ❖ Useful to Food industries, Academicians, students and Researchers
- ❖ Consultancy service for setting up food quality testing laboratory
- ❖ Hands on training for various hi-tech equipments
- ❖ Hi-tech facilities: GC-MS, ICP-OES, LC-MS, Amino acid analyzer and others



Mobile Food Processing Unit



Mobile Food Testing Laboratory



Gadgets/ Machineries Developed

- Multipurpose yard drying equipment for paddy drying (1000 no.'s distributed)
- Low friction huller for shelling and polishing
- Fluidized thermal disinfestation unit
- On-farm fruits and vegetables washer
- Tender coconut dewatering system
- Sugarcane peeler
- On-farm vegetable grader
- Rice degermer
- Aonla deseeding device
- Vegetable (tuber) washer
- Green leaf washer
- Fruit ripening chamber
- Rice puffing unit (3 no.'s distributed)



Gadgets/ Machineries Developed

- Black gram thresher
- Divergent roller vegetable sorter
- Semiautomatic fish descender
- Jaggery powdering machine
- Garlic peeler
- Continuous UV sterilization unit
- Chikki making machine
- Makhana processor
- Fish smoking unit
- Modular ventilated curing system for onion
- Moringa leaves separator
- Machine vision system for sorting of Guava
- Acoustic resonance system for sorting of Brinjal, Muskmelon
- Soft x-ray system for detecting infestation in Mango



Technologies Developed

- Retort packing technology for traditional Indian sweat meat products
- Short time preservation technique for ready to eat lemon rice
- Production of *Tannase* enzyme
- Short time preservation technique to preserve high moisture paddy
- Reprocessing technique to salvage fungal infected parboiled paddy
- Short soaking cum tempering (SST) method for paddy parboiling
- Sand parboiling method
- Preservation of paddy straw
- Prevention of husk opening in parboiling
- Bottling of toddy
- Toddy clarification technology



Technologies Developed - And Transferred

Sl.no.	Technology
1	Idli dry mix - biological method
2	Idly dry mix (chemical method)
3	Process on millet/rice puffing machine
4	Process on extruded products RTC & RTC
5	Process on health mixes for school going children and adolescents
6	RTE breakfast items and meal
7	Pulse – rice analogue
8	Pneumatic grain pump
9	Millet based uppuma & pongal mix
10	Millet based idli mix

Technologies Developed - And Transferred

Sl.no.	Technology
11	Ready to use crispy mix
12	Ragi cookies
13	Sugar free rusk
14	Multigrain rusk
15	NAIP kure
16	Braffins (Rice bran muffins)
17	Technology to treat rice mill effluents
18	Asoka sweet (retort processed traditional Indian sweet)
19	Low glycemic rice – brand name “Saffola Arise”
20	Multipurpose yard drying equipment for paddy drying

Technologies Developed - And Transferred

Sl.no.	Technology
21	Millet burfi
22	Low friction huller for shelling and polishing
23	Short time preservation technique to preserve high moisture paddy
24	Reprocessing technique to salvage fungal infected parboiled paddy
25	Short soaking cum tempering (SST) method for paddy parboiling
26	Preservation of paddy straw
27	Prevention of husk opening in parboiling
28	Jaggery powder manufacturing

Technologies Developed - To be Commercialized

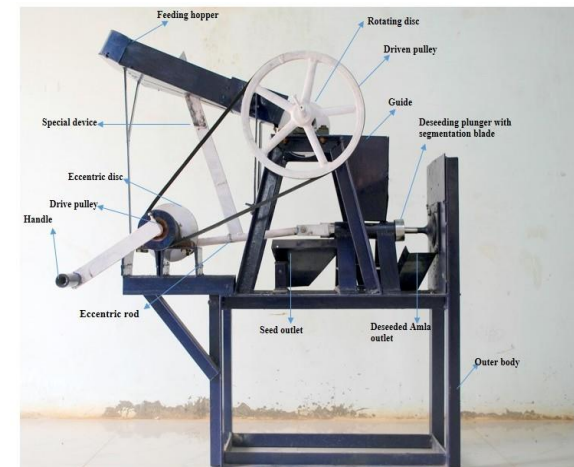
- Retort packing technology for traditional Indian products
- Short time preservation technique for ready to eat lemon rice
- Production of *Tannase* enzyme
- Sand parboiling method
- Bottling of toddy
- Toddy clarification technology



Mobile Granule Conveyor



Rotary Vegetable Washer



Amla Deseeder



Idli Blister Packaging



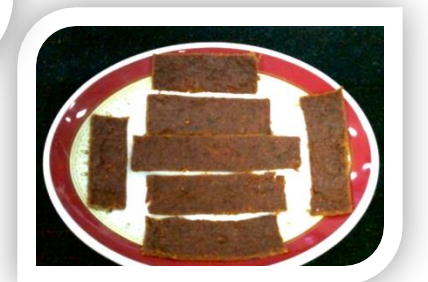
Fish Smoking Kiln



Banana Quick Ripening Chamber



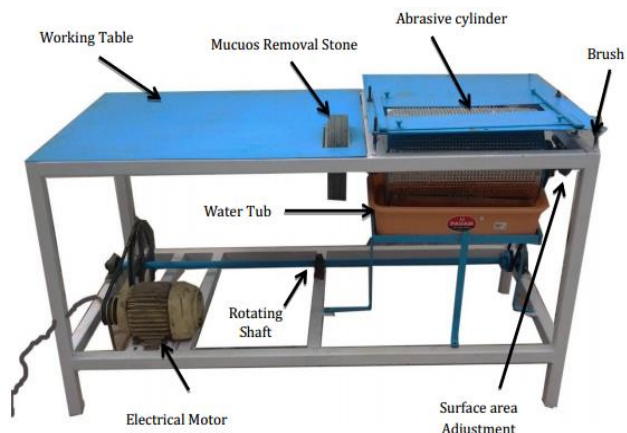
Value Added Products from Cashew Apple



**Moringa
 Leaf
 Separator**



**Fish
 Descaler**



**Green Leaf
 Washer**



Onion Curing Chamber

RF Dryer For Multiple Product Drying



- OZONE treatment for storage of food grains, Fruit juice and spices disinfestation
- Ohmic heating treatment for edible film for packaging of chocolates
- Non destructive analysis for Mango quality through soft X Ray
- Acoustics Lab for assessing maturity index of coconut and detection of insect borer for Brinjal
- Ultrasonic treatment
 - for extraction fruit juice
 - Precondition of pulses for milling process
- Silo Storage for grains storage under controlled atmospheric condition
- Microwave processing for drying coffee bean, cardamom and parboiling of paddy
- Cold Plasma for preservation of Bread
- Extrusion process for pulse analogs using rice and pulse mill byproducts

Development of ready-to-eat products from jack fruit and their preservation



Jack fruit bulbs



Jack fruit seeds



Jack fruit rind

Value Added Products from Jack Fruit Bulb



Chips



PickleChips



Candy



Dehydrated flakes



Halwa



Dehydrated Flakes



Pappad



Fruit leather



RTS Beverage



Flour



Holige



Pakoda

Value Added Products from Jack Fruit Seeds



Chappathi

Seed flakes



Seed flour



**Jack fruit rind
pickle**



Jack fruit rind

(B) Skill Development Programmes – Types

FOOD PROCESSING BUSINESS INCUBATION CENTER

Sl. No.	Trainings	Period	Scope
1.	Beginners Training	1 day	Create awareness, motivate venture in food processing sector, understand basic principles and techniques in food processing
2.	Executive Training	5 days	Skilling in food processing techniques.
3.	Skill Development Training	2 weeks	Program with technical sessions + demonstration
4.	Advance Skill Development Training	5 weeks	Program with technical sessions + demonstration + hands-on training PMKVY Skill India
5.	Skill Advancement In-plant Training	4 weeks	For bonafide students, researchers of other institutes
6.	Technical guidelines cum Training	6 months	Six months programme in discrete

FOOD SAFETY AND QUALITY TESTING LABORATORY

1.	Hands-on-Training on Hi-Tech Equipments	5 days	Short term training in handling of equipments like GC-ECD/FPD, GC-MS, HPLC, HPTLC, ICP-OES, Rapid Visco Analyser and Food Texture Analyser
2.	Training on Analytical Instrumentation	3 days	

IICPT – Collaborations



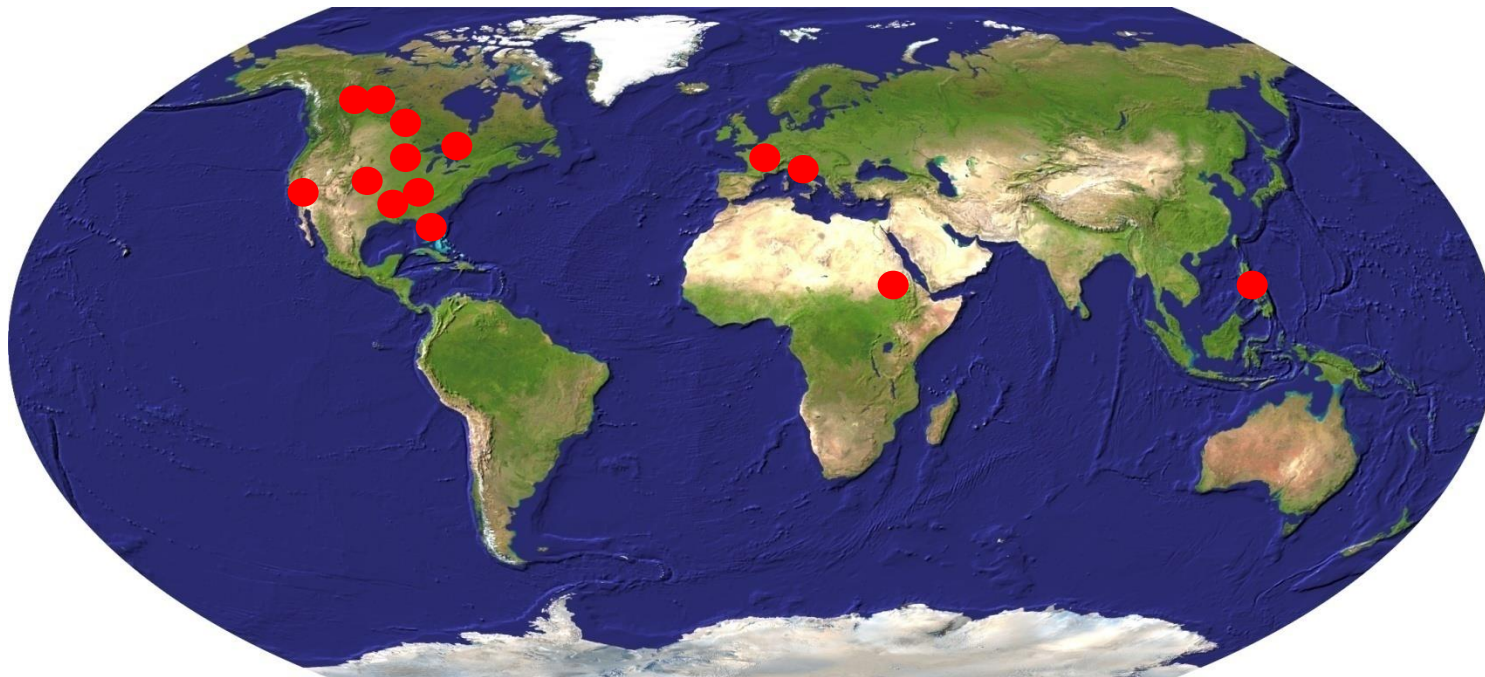
International MoU's	14
National MoU's	23



IICPT – Collaborations



International Universities/ Institutions



University of Manitoba

University of Nebraska-Lincoln

University of Saskatchewan

McGill University

Colorado State University

Illinois Institute of Technology

Saskatoon Pulse Growers

Oklahoma State University

Kansas State University

Auburn University

Wageningen University

Asian Institute of Technology

Ambo University

ONIRIS



**A Hunger Free World
is our Motto and it is
Every one's Responsibility!**