

TAMIL NADU AGRICULTURAL UNIVERSITY

PROCEEDINGS

8th Community Science Scientists Meet

(May 4, 2021)

Lead Center

**Community Science College & Research Institute
Madurai- 625 104**

**Directorate of Research
Tamil Nadu Agricultural University
Coimbatore 641 003**

8th Community Science Scientists Meet

The 8th Community Science Scientists Meet was held during May 3-4, 2021 at the Tamil Nadu Agricultural University, Coimbatore, through on-line connecting all scientists across the University College Campuses, Research Stations and KVKs besides main campus. **Dr. K.S. Subramanian**, Director of Research welcomed the gathering and set the stage for the meet. **Dr. N. Kumar**, Vice Chancellor appreciated the scientists of Community Science College & Research, Institute, Madurai, in developing several value added products and drudgery reduction tools for women besides releasing five technologies for commercialization. He suggested the scientists to research on tamarind candy, fortification of foods with spinach, moringa and agathi, bread fruit based foods and rapid drying of fig products. In the pandemic period, food and nutrition play a key role in the maintenance of human health. Some of the millet based products and immune boosters are to scientifically validated and clinically tested prior to the pronouncement of health benefits of the products. The lessons from China has to be learnt to promote value added products as they consume more than 60% processed foods while it is just 10% in India.

The Director of Research flagged off a few researchable issues such as commercialization of released value added products such as rice analogue, bioavailability of carotenoid and Fe fortified millets, banana health mix and shelf stable meat substitute from greengram and ring harvester to reduce drudgery for farm women. Further, he suggested Dean, CSC & RI, Madurai, to take steps to make use of the available infrastructure facilities in DARS, Chettinad, ADAC & RI, Trichy and COE Millets, Athiyendel utilizing the services of the contractual workers. The Director of Research further suggested that glycemic index values of the value added products have to be determined clinically using the MOU signed with Madras Diabetes Research Foundation, Chennai (MDRF). The action taken reports on the 7th Scientists Meets and the proposed Action Plan (2021-22) were presented by **Dr. S. Amutha**, Dean, CSC & RI, Madurai. During the pre-review, the Dean of the CSC & RI and technical directors had reviewed the on-going university research projects (19), action plan projects (10), core projects (2), AICRPs (2) besides externally funded projects (12).

The outcome of the review process was presented by **Dr. G. Hemalatha**, Prof. & Head, Food Science & Nutrition on "*Food Processing and value Addition*", **Dr. P. Parimalam**, Prof. & Head, Family Resource Management & Community Science, on "*Nutrition and Health*" and **Dr. G. Sashidevi**, Sr. Scientist, HDFS, on "AICRP – FSN".

The Director of Research concluded the event with a set of points for consideration that include cataloguing of value added products, branding of commercially viable products, critical evaluation of medical textiles, promotion of products available against COVID 19 and data on improvement in anemic status of girl students of AC & RI, Echankottai, due to regular eating of millet cookies. **Dr. P. Geetha**, Assoc. Prof. (FSN), PHTC, AEC & RI, Coimbatore, proposed a formal vote of thanks.

Flagging of Issues highlighted by Director of Research, TNAU, Coimbatore

1. Commercialization of Simulated rice analogue, Banana health mix, Shelf stable meat substitute
2. Suitable proposal for effective utilization of facilities available in DARS, Chettinad and ADAC&RI, Trichy should be proposed
3. Testing of new products by adopting ethical clearance by medical professionals, and study using animal models
4. Linkages with Institutes such as IIFPT,CFTRI

The proceeding of the 8th Community Science Scientists Meet was furnished under following heading/Departmentwise.

1. University Research Progress/Externally funded projects / AICRP
2. AICRP on Home Science
3. ACTION PLAN

University Research Progress/Externally funded projects / AICRP

<p>HSCRI/MDU/FSN/2017/002 Exploitation of Tamarind varieties for product diversification.</p>	<p>Sweet Tamarind variety may be utilized for product diversification. Comparative analysis should be carried out using hybrid varieties.</p>
<p>HSCRI /MDU /FSN 2018/001 Standardization of Texturized Vegetable Protein blending Mushroom and underutilized Pulses.</p>	<p>Follow up process for patententing the technology.</p>
<p>HSCRI/MDU/FSN/2018/004 Extraction of biocolours from Pasalikeerai fruits (<i>Basella alba</i>) and Sappathikalli fruits (<i>Opuntia ficus-indica</i>) and their utilization in the value added products</p>	<p>Since the biocolours are to be used for food products, the safety of the product may be assured by analyzing as per FSSAI, Codex Regulations</p>
<p>CSCRI/MDU/FSN /2020/002 Development of functional beverage from banana pseudo stem</p>	<p>Follow up process for patententing the technology.</p>
<p>HSCRI/MDU/FSN/2018/002 Developing and assessing the efficacy of antimicrobial food packaging material: a green technology</p>	<ul style="list-style-type: none"> • Gas transmission property has to be studied for finding the efficacy of packaging material. • Oxygen permeability ability may also be experimented. • Soil degradation test may be included.

<p>CSCRI/MDU/FSN/2020/001 Development of value added products from Palmyrah tuber (<i>Borassus flabellifer</i>)</p>	<p>Bitter principle to be studied and Work may be carried out as per the objective.</p>
<p>CSCRI/MDU/FSN/2019/005 Development and evaluation of value added products from bamboo shoots</p>	<p>Project proposal on finding the aromatic principle using the E nose technology should be proposed as early as possible Innovative products to be developed. Work may be carried out as per the objective.</p>
<p>CSCRI/MDU/FSN/2019/004 Optimize the Production process for development of cereal based ice cream cones and cups by using mathematical models</p>	<p>All the objectives may be completed within the stipulated period and completion report submitted within time.</p>
<p>CSCRI/MDU/FSN/2020/004 Extending the shelf life of Palmyra palm tender fruit endosperm(PTFE) by Canning</p>	<p>Work may be carried out as per the objective and publication in NAAS rated journals as and when the objectives are completed.</p>
<p>AECRI / CBE/ PHT/ 2018 / CPO23. Processing of fruit powder from muskmelon and its stability during storage</p>	<p>Since the project has been completed approval for the completion report to be obtained.</p>
<p>CSCRI/CBE/FSN/2020/001. Extraction and encapsulation of betel (<i>Piper betle</i> L.) leaves extract and preparation of value added products.</p>	<p>Betel leaf juice / chewing gum / fortified milk powder can be developed and focus on therapeutic property improves the scope of the project.</p>
<p>CSCRI/ CBE / FSN / 2020 / 002. Studies on utilization of tamarind seed kernel powder as a natural food additive in processed food.</p>	<p>Completion report to be submitted.</p>
<p>CSC&RI/CBE/FSN/200/004 Standardization of the Process for Novel Flavor Retained High Value Jackfruit Products</p>	<p>Low G.I jack fruit varieties may be included in consultation with Dr.R.Jeyavalli, Assistant Professor (Horti), Kudumiyanmalai</p>
<p>CSCRI/PKM/FSN/2020/001 Studies on the formulation of Value added products from red colour Manila Tamarind (<i>Pithecellobiumdulce</i>) var.PKM 2 Under commercial Exploitation</p>	<p>Total anthocyanin content to be analysed using GCMS/HPLC in developed products. Extent of reduction in nutritional and therapeutic properties to be done. Ways to reduce the processing cost for the developed products may be explored. Minimal processing may be tried out and reported. New URP on wood apple to be proposed in addition to the ongoing URP which was already suggested</p>

<p>CSCRI/CTN/FSN/ 2020/001 Application of Response Surface methodology for Optimization of Process parameters for Edible coating of jack fruit bulbs (<i>Artocarpus heterophyllus</i> L.)</p>	<p>The variables selected for RSM has to be rechecked and Work may be carried out as per the objective.</p>
<p>ADAC RI / TRY/ FSN/ 2020/001 Studies on physico- chemical characteristics and its suitability in cooking of selected millets after parboiling and milling</p>	<p>Physico chemical characteristics and its relevance in cooking/ processing/ parboiling have to be completed as quickly as possible.</p>
<p>MFPI/AEC/CBE/PHT/2019/R007 Development of Natural Food Additives by Utilizing Grapes Wastes</p>	<p>Resveratrol content has to be analysed.</p>
<p>CSCRI/MDU/FSN/2020/003 Exploitation of underutilized pulses to achieve nutritional security</p>	<p>Work may be carried out as per the objective.</p>
<p>HSCRI/MDU/FSN/2018/001 Assessing the hypoglycemic effect of selected medicinal plants for Type II Diabetics</p>	<p>Anti diabetic property of Bitter gourd and Athalakai may be studied extensively. It may be proposed as new University Research Project</p>
<p>HSCRI/MDU/FSN/2018/003 Nutritional and sensory evaluation of tempeh prepared using <i>Dolichos lablab</i> .</p>	<p>Work may be carried out as per the objective.</p>
<p>CSCRI/MDU/FSN/2019/002 Standardization and Development of Seaweed based value added products</p>	<p>The nutritional qualities of the seaweed juice may be studied. The chemical constituent have to be observed using statistical tool with more precision in obtaining the nutritional analysis.</p>
<p>HSCRI/TRY/FSN/2018/001 Formulation of Millet Based Therapeutic Breakfast Foods</p>	<p>Work on consumer acceptability of millet based idli has to be given due importance</p>
<p>CSCRI/MDU/FSN/2019/001 Study on fortification of Iron in idly batter</p>	<p>Since the project has been completed completion report to be submitted.</p>
<p>CSCRI/MDU/FSN/2018/CP092 Development and standardization of protein enriched fruit beverages</p>	<p>Follow up process for patenting the technology.</p>
<p>CSC&RI/CBE/FSN/2020/003 Development of Immune Boosting RUTF from Pulses, Moringa/ Amla for Severely Malnourished Children</p>	<p>The product may be standardized as per the specification of emergency ration Shelf life of the product to be studied.</p>
<p>CSCRI/MDU/FSN/2019/003 Assessing the Impact of Value addition technologies developed by CSC & RI , Madurai</p>	<p>Work may be carried out as per the objective.</p>
<p>No.DST/HSCRI/MDU/FSN/2016/R013 Development of functional fermented millet based</p>	<p>Project completion approval from funding agency should be obtained.</p>

drink for combating vitamin B12 deficiency	Technology commercialization should be completed
DBT/HSCRI/MDU/DAS/2018/T004 Enhancement of livelihood security based on locally available resources for Disabled women	Work may be carried out as per the objective.
GoI-MSJE/ HSCRI/ MDU/ DAS/ 2018/T003 "Financial Assistance for undertaking various activities for Person with Disabilities under the Scheme for Implementation of Persons with Disabilities Act (SIPDA)"	Work may be carried out as per the objective.
SDPC/HCRI/PKM/PHT/2021/R001 Development of Immune-booster from fruits, vegetable and herbs as remedial for viral infections - A novel food supplement	Work may be carried out as per the objective. Since the project period is already started during March 2021 speedy action to be taken without further delay and to report in time to SDPC, Chennai
No.DR/ P7 /ASO / SDPC/ TNSLURB /CSC&RI,/MDU/2021 Formulation of Immune Boosting - Micronutrient Rich Soup Cubes	Work may be carried out as per the objective. Since the project period is already started during March 2021 speedy action to be taken without further delay and to report in time to SDPC, Chennai During this COVID pandemic bringing innovative immune booster should be completed.

AICRP on Home Science	
Food Science and Nutrition	
Development of region specific therapeutic foods for prevention of diabetes	
Dietary approach for management of dual burden of malnutrition among farm women.	
Human Development	
Reproductive Health care in Agrarian Families Objectives	
Developing Parenting Index for Rural Families	
Family Resource Management and Consumer Studies	
Drudgery Reducing Farm Technologies for Gender Equity	
Ergonomics for Work Improvement and Gender Equity in Agro-Enterprises	
Textile Science and Design	
Comprehensive use of Underutilized Natural Fibres for Livelihood of Rural Women	

Since the project has been completed new project has to be initiated

Utilization of Renewable Plant Sources and Agro Waste for Herbal Functional Finishes	Aromatic extract such as Omavalli/ Lemon grass/ Nochi can be tried out for making face mask. Other phenomena studies may also be included.
A social pursuit through popularization and product diversification of ethnic crafts on textiles with ICT application	Since the project has been completed new project has to be initiated
Extension Education and Communication Management	
Promoting Farm Women Knowledge Groups (FWKGs) For Enhanced use of ICT in Agriculture and Allied Sectors	
Empowerment of Farm Women on Climate Change	
Scoping IFS Models from Gender Perspective with Focus on Enhancing Farm Income	
TNAU-UGC-PDFSS-1707 Standardization of appropriate processing technology for developing value added products from Sapota (<i>Achraszapota</i> L.) fruit.	Work may be carried out as per the objective. NAAS rated publication ethical clearance, FSSAI approval for new products to be completed.
TNAU-PDF-Farm Knowledge Centre FWKC-Core Project-Phase III, Trichy Impact of evidence based ayurvedic food for revitalization of mental health among 3-10 years ADHD affected children	The Ethical clearance and the safety of the product has to be ensured before going for supplementation to ADHD children.
Action Plan 2021-2022	
Assessing the suitability of bio fortified pearl millet variety for value addition	Suitable ICAR/TNAU sorghum varieties has to be included for the study.
Study on assessment of glycemic index of rice land races	Advanced Cultures of TNAU can be included for assessing the Glycemic index of rice.

Concluding Remarks of Vice-Chancellor, TNAU, Coimbatore

1. The research work carried out by community scientist working at Krishi Vigyan Kendra of TNAU has to be reviewed by the Technical Director.
2. Dr.S.Kannan, Associate Professor working at ARS, Vridhachalam can be critically reviewed by the Technical Director and the reports has to be submitted. In this context letter to be sent for revision of project proposal and to bring out viable value added products to benefit farmers and stake holders.

3. The MoU signed between TNAU and MDRF has to be effectively utilized for scientific validation. Products proposed by the concerned scientist to supply the required quantity to MDRF for measurement of GI through clinical study.
4. Sweet tamarind variety may be exploited for product preparation.
5. Locally available iron rich sources such as moringa leaves / Agathi leaves can be exploited for iron fortification of idli batter.
6. Anti microbial mask holding TNAU brand name may be popularized through e marketing.
7. Quick method of drying technique for Arid Zone fruits such as figs / pear may be optimized. Selection of varieties may be consulted with Horticulturist Dr.M.S.Aneesa Rani, Professor and Head, Dept of Fruit Science, HC &RI, Coimbatore.
8. Underutilized bread fruit may be exploited for preparation of diced vegetable as a substitute for meat as meal maker.
9. Project on avocado fruit oil may be taken up.

Concluding Remarks of Directors of Research, TNAU, Coimbatore

1. Database of products can be made with simple illustrative pictures
2. Commercially viable products can be commercialized through Director, Agri Business Development, TNAU, Coimbatore.
3. For testing of new products on animals / human / institutional ethical clearance should be obtained.
4. Medical textiles addressing for covid pandemic should be encouraged.
5. The iron supplementation studies carried out by the community scientist Dr.G.Kavithashree at AC&RI, Eachankottai can be taken as base resource and can be adopted in all hostels of TNAU.
6. Fruits night at every fortnight of a month can be encouraged in hostels

Concluding Remarks of University Officers

1. Dr.V.Jawarhalal, Director of Extension Education, TNAU, Coimbatore insisted to have diversification of packaging for better marketing
2. Dr.V.K.Paulpandi, Dean, AC &RI, Madurai stressed the promotion of millet milk developed at CSC &RI, Madurai.
3. DR.P. Masilamani, Dean, Anbil Dharmalingam Agricultural College & Research Institute, Trichy has stressed to the importance of antioxidant activity of *Annona muricata*

ACTION PLAN

Title of the project : Formulation of value enriched Expanded Germinated Millet Ready To Eat products

Project leader: Dr.V.Meenakshi, Assistant Professor

Objectives	Activities		Deliverables/ Expected Out come
	2021	2022	
To optimize process parameters for development of Ready to Eat (RTE) expanded products from germinated millets	Germination of Ragi and little millet will be standardized. Germinated flour (Ragi/little millet) and maize flour will be utilized in different ratios (100, 80:20, 70:30. 60:40, 50:50) for the preparation of expanded product. The process of extrusion technique will be optimized using Response surface methodology (RSM).Central composite design will be utilized using Design of experiment.		<ul style="list-style-type: none"> ✓ Millet based new innovative product with health benefits ✓ Can be an alternate choice for breakfast cereals from cereals
To study the quality characteristics and shelf life of the RTE expanded products		<p>Physico-chemical properties: Bulk density, Expansion ratio, Colour, Texture (Hardness, crispiness) Water activity,</p> <p>Nutritional Characteristics : Moisture, protein, dietary fibre, resistant starch, minerals, Energy</p> <p>Microbial characteristics: Total plate count</p>	<ul style="list-style-type: none"> ✓ Can fetch good market potential by competing with breakfast cereals from cereals & Unhealthy snacks.

<p>To study the economic feasibility and consumer preference of the RTE expanded products</p>		<p>The cost benefit analysis of the standardized product will be carried out to find out the economic feasibility of the product.</p> <p>A questionnaire will be developed to carry out consumer preference of the developed product .</p> <p>A survey on consumer preferences will be carried out among rural and urban adolescent group. (Number of Adolescent group : 50 in each group)</p>	
---	--	--	--

Project title: Development of prophylactic probiotic chewing gum for oral health

Project team:

Dr.T.UmaMaheswari, Assistant Professor (Microbiology), Dept. of FSN, CSC&RI, Madurai

Dr.G.Hemalatha, Professor & Head, Dept. of FSN, CSC&RI, Madurai

Objectives	First year	Second year	Third year	Expected outcome
	2021-2022	2022-2023	2023-2024	

Objective 1: Screening of indigenous lactic acid bacteria for probiotic activity	<ul style="list-style-type: none"> Isolation and characterization of indigenous LAB from fermented food samples Assessing the probiotic attributes viz., survival under GIT conditions, safety aspects and antimicrobial activity of selected probiotic LAB will be tested 			Indigenous and safe probiotic LAB will be characterized.
Objective 2: Assessing the safety and inhibitory activity of selected probiotic lactic acid bacteria		Adhesion in HGEC and its efficacy to be tested <i>in vitro</i>		Colonization efficacy of probiotic LAB in oral cavity will be evaluated
Objective 3: Development of probiotic chewing gum for oral care			The selected probiotic LAB will be used in the development of chewing gum	Probiotic chewing gum for oral care will be developed

Project title: A New Approach to Modeling and Process Optimization of Protein levels in cereals and millet based extruded breakfast cereals using Artificial Neural Network

Project team:

Dr. M. Ilamaran, Assistant Professor (FSN), Dept of FSN, CSC &RI, Madurai

Dr. B. Sivasankari, Assistant Professor (Maths), AC & RI, Madurai

Dr. M. Kalpana, Assistant Professor (Computer Science), ADAC & RI, Trichy

Objectives	Activities		Expected Outcome
	2021-2022	2022-23	
Objective I : To formulate the composite flour with selected cereals and millets and determine the rheological, physical, and chemical properties of the dough prepared by blends of composite flours.	The blends of the different cereals and millets flour will be formulated. The developed composite will be evaluated for rheological, physical and chemical properties.		Development of grain based Ready-To-Eat breakfast cereals with Enriched level of Protein vitamins, minerals, dietary fibre, resistant starch and phytochemicals and antioxidant activity.
Objective II: To standardize the process for formulating GABA and protein enriched germinated brown rice based breakfast cereals and waffles by using Response Surface Methodology (RSM) followed by Artificial Neural Network (ANN)	The techniques for the development breakfast cereals by using cereals and millets will be optimized by using Response Surface Methodology followed by Artificial Neural Network. The selected grains will be used to develop breakfast cereals through twin-screw extruder (conditioned with water to achieve feed moisture)		The grains based breakfast cereals will be a healthy alternative to white rice with applications as health food in regular dietary suitable for all age groups and also in medical nutrition therapy. Will benefit the farming community and the food industry.
Objective III : To determine the functional and nutrient composition of the final product and compare it with control (wheat based breakfast cereals) to evaluate nutritional improvements.		Functional and nutrient composition of the germinated brown rice based breakfast cereals will be analysed and compare it with control <ul style="list-style-type: none"> • Expansion ratio • Bulk density • Water absorption index (WAI) and water solubility 	Expected to create a Niche market for Germinated Brown Rice based Ready-To-Eat breakfast cereal foods and waffles. <ul style="list-style-type: none"> • Will promote rice and millet cultivation with more profitability for milling

		<p>index (WSI)</p> <ul style="list-style-type: none"> • Textural measurement • Dietary fiber determination <p>Nutritional Evaluation</p> <p>Moisture, fat, crude fiber and ash, Energy, protein, Carbohydrates, minerals</p>	<p>industry and for food processing sector</p>
<p>Objective IV: To determine the consumer acceptability of final product by performing sensory analysis and investigate shelf life of the final product</p>		<p>Sensory Evaluation</p> <p>The sensory evaluation will be conducted for the germinated brown rice based breakfast cereals prototypes conforming to all the treatment formulations</p> <p>Storage quality</p> <p>About one kg of the developed breakfast cereals will be packed and stored at room temperature to study the storage quality of developed samples.</p>	

Project title: Immunity boosting Products from underutilized west Indian cherry (*Malpighia glabra* L; *Barbados cherry*)

Project team: Dr.G.Sashidevi, Assoc. Prof (HD&FS), CSC&RI, Madurai

First year	Second year	Expected outcome
2020-2021	2021-2022	
Product development from west Indian cherry viz., smoothie, rasam, soup, puree, RTD tea, fruit powder and ice cream	<ul style="list-style-type: none"> Assessing the Nutrient composition and bioactive components of the prepared products. Shelf life study of the prepared products 	<ul style="list-style-type: none"> West Indian cherry is attractive to customers who prefer natural products over synthetic ones (for example it is a popular natural source of vitamin C). As it can be sold in both fresh and processed forms, the fruit is an excellent source of income to producers and agro-processors. The fruit is also a perennial, producing throughout the year The developing of processing technology will help in better utilization of West Indian cherry fruits through value addition

Project title: Formulation of value added products from selected underutilized horticultural crops

Project team: Dr.K.Jothilakshmi AP (FSN), Department of HD&FS, CSC&RI, Madurai

Objectives	Activities		Expected Out come
	0-6 months	7-12 months	
<ul style="list-style-type: none"> To formulate the value added products from avocado (<i>Persea americana</i> and Roselle (<i>Hibiscus sabdariffa</i>)) To study the quality parameters of developed value 	<ul style="list-style-type: none"> Standardization of Avocado fruit and seed powder Standardization of Roselle calyx juice and Kombucha 	<ul style="list-style-type: none"> Analyzing the biochemical parameters - (Energy, β-carotene, vit C, calcium and iron) Analyzing the microbial qualities of the 	<ul style="list-style-type: none"> To increase the income of the farmers To popularize the value addition technologies of underutilized

<p>added products</p> <ul style="list-style-type: none"> • Popularization and commercialization of developed technologies 		<p>developed products</p>	<p>selected crops.</p> <ul style="list-style-type: none"> • Popularize the standardized technologies through training programmes
--	--	---------------------------	---

Project title: Valorization of Grape seeds by Converting into high value foods

Project team: Dr. G. Gurumeenakshi, Assoc. Prof. (FSN), CPHT, AEC&RI, TNAU, Coimbatore

Objectives	Activities		Expected outcome
	2021-2022	2022-2023	
<ul style="list-style-type: none"> • To screen and characterize grape seed from fresh and processed waste. • To develop and evaluate high value products utilizing grape seed oil. • To study the suitability of grape seed as a functional food decorator. • To popularize and commercialize the developed products. 	<ul style="list-style-type: none"> • Analysis of nutritional and other phytochemical components in grapes seeds. • Development and evaluation of grape seed oil and grape seed powder incorporated functional foods 	<ul style="list-style-type: none"> •Development and evaluation of functional food decorator from grape seed viz., sugar coated grape seeds as toppings in icecreams, cakes, pastries, mouth freshner and in desserts. •Popularization and commercialization of the product 	<ul style="list-style-type: none"> • Valorization of wasted grape seeds due to high value products. • New functional food decorators from grape seeds.

Project title: Formulation of kodo millet incorporated sourdough bread**Project team:****Dr. P. Geetha, Assoc. Professor (FSN), CPHT, AEC&RI, TNAU, Coimbatore****Dr. P. Vennila, Professor (FSN), CPHT, AEC&RI, TNAU, Coimbatore**

Objectives	Activities		Expected outcome
	2021-2022	2022-2023	
<ul style="list-style-type: none"> • Process standardization of kodo millet incorporated sour dough bread. • To study the shelf life, physic chemical and sensory properties. • To study the volatile compounds present in the sour dough bread. 	<ul style="list-style-type: none"> • Process standardization of kodo millet incorporated sour dough bread along with cinnamon and cloves. • To study the shelf life, physic chemical and sensory properties 	<ul style="list-style-type: none"> • To study the volatile compounds present in the sour dough bread. • To study the cost economics. • To train the entrepreneurs. 	A niche healthy bakery product

Project title: Assessing the suitability of bio fortified pearl millet variety for value addition**Project team: Dr. S. Arokiamary, Asst Prof (Home Science), KVK, Madurai****Dr. Chelvi Ramesh, Programme Coordinator, KVK, Madurai**

First year	Second year	Expected outcome
2021-2022	2022-2023	
<ul style="list-style-type: none"> • To study the physico - chemical characteristics of biofortified pearl millets namely Dhanasakthi & AHB 1200 Fe • To assess the antinutritional factors in biofortified pearl millet 	<ul style="list-style-type: none"> • To assess the bioavailability of iron (in-vitro study) in biofortified pearl millet • To develop value added products like laddu, kanji or porridge and health mix from biofortified pearl millet 	Alleviation of micronutrient deficiency among children and adolescence

Project title: Suitability assessment certain tapioca varieties on the development of extruded products

Project team: Dr. Cissie Theeblyn David, Asst. Prof (FSN), KVK, Kaniyakumari

Objectives	First year	Second year	Expected outcome
	2021-2022	2022-2023	
<ul style="list-style-type: none">• Standardize extruded products with the tapioca varieties (Hraswa and Yethapur-1 and 2)• Storage studies employing vacuum packaging and nitrogen flushing• Shelf life performance, consumer acceptability and BCR	Product standardization with tapioca varieties (Hraswa, Yethapur-1 and Yethapur-2)	Sensory scoring and shelf life performance studies	Minimize post harvest loss, increase remunerative returns to the farmers and entrepreneurs with product diversification

Project title: Study on assessment of glycemic index of rice land races

Project team: Dr.A.Kalaiselvan, Assistant Professor (FSN), KVK, Ramanathapuram
Dr.L.Karpagapandi, Assistant Professor (FSN), CSC &RI, Madurai
Dr.S.Arokiamary, Assistant Professor (FSN), KVK, Madurai

Implementing
centres:

1. Community Science College and Research Institute, Madurai
2. Krishi Vigyan Kendra, Ramanathapuram.

First year	Second year	Expected outcome
2021-2022	2022-2023	
Collection of rice land races and analysing the proximate principles and phyto-chemicals Development and standardization of convenience foods from the collected land races	Assessing the Glycemic index of the standardized foods in healthy volunteers in the age group of 25-50	<ul style="list-style-type: none"> • Rice landraces having low glycemic index will be identified. • Food Products having low glycemic index among the same rice variety will be developed

List of Scientist Attended

Sl.No	Particulars of Dean / Director
1	Dr.K.S.Subramaniyan, Director of Research, TNAU, Coimbatore
2	Dr.S.Amutha ,Dean,CSC &RI, Madurai
3	Dr.Mohan Kumar Director CPMB,TNAU, Coimbatore
	Dr.M.Jawaharlal, Director of Extension Education, TNAU, Coimbatore
4	Dr.K.R.Ashok, Director, CARDS, TNAU, Coimbatore
5	Dr.V.K.Paulpandi, AC &RI, Madurai
6	DR.P. Masilamani, Dean, Anbil Dharmalingam Agricultural College & Research Institute, Trichy
7	Dr.V.Thirupathi,Dean, AEC & RI, Kumulur
8	Dr.K.Parthiban, Dean, FC & RI, Mettupalayam
9	Dr.A.Velayutham, Dean, AC & RI, Thanjavur

Sl.No	Name of the Scientists from Community Science College and Research Institute , Madurai
1.	Dr.S.Kanchana ,Professor and Head , Dept of HD&FS
2.	Dr.G.Hemalatha ,Professor and Head,Dept of FSN
3.	Dr.P.Parimalam, Professor and Head Dept of FRM &CS
4.	Dr.R.Saravanakumar, Associate Professor (FSN), Dept of TSD, CSC &RI, Madurai
5.	Dr.A.Janakirani, Professor and Head, Dept of EE &CM
6.	Dr.R.Vijayalakshmi, Associate Professor (FSN) Dept of HD &FS, CSC &RI, Madurai

7.	Dr.G.Sashidevi, Associate Professor (FSN), Dept of HD &FS, CSC &RI, Madurai
8.	Dr.P.S.Geetha ,Associate Professor (FSN) ,Dept of DAS, CSC &RI, Madurai
9.	Dr.K.Shanthi, Associate Professor (FSN), Dept of HD &FS, CSC &RI, Madurai
10.	Dr.M.Ilamaran, Assistant Professor (FSN), Dept of EE &CM, CSC &RI, Madurai
11.	Dr.V.Meenakshi ,Assistant Professor (FSN), Dept of TSD, CSC &RI, Madurai
12.	Dr. T.Uma Maheswari ,Asst .Professor(Agrl.Micro), Dept of FSN, CSC &RI, Madurai
13.	Dr.J.Selvi, Assistant Professor (FSN), CSC &RI, Madurai
14.	Dr. K.Jothilakshmi, Assistant Professor (FSN), CSC &RI, Madurai
15.	Dr. K.P.Sivakumar, Assistant Professor (FSN), CSC &RI, Madurai
16.	Dr.L.Karpagapandi ,Assistant Professor (FSN), Dept of FRM, CSC &RI, Madurai
17.	Dr. E.Tamil Selvi ,Assistant Professor (FSN), Dept of TSD, CSC &RI, Madurai

Scientists from other College/Department / Research Station / KVK

1.	Dr.P.Shanthi, Professor, KVK Tiruvallur
2.	Dr.P.Vennila, Professor (FSN), PHTC, AEC &RI, TNAU, Coimbatore
3.	Dr. G.Gurumeenakshi, Associate Professor (FSN),PHTC, AEC &RI, TNAU, Coimbatore
4.	Dr.P.Geetha, Associate Professor (FSN), PHTC, AEC &RI, TNAU, Coimbatore
5.	Dr.M.Marimuthu, Assoc. Prof, ADAC&RI, Trichy
6.	Dr.S.Kannan, Assoc. Prof, ARS, Vridhachalam
7.	Dr.S. Jesupriya Poornakala, Assistant Professor (FSN), KVK, Vamban
8.	Dr.K.Geetha, Assistant Professor (FSN),KVK, Sirugamani
9.	Dr.V.Vani, Assistant Professor, Department of Post Harvest Technology, Horticultural College and Research Institute, Madurai
10.	Dr.B. Nallakurumban, Assistant Professor (FSN), KVK, Viringipuram, Vellore
11.	Dr.V.Veeranan Arun Giridhari, Assistant Professor (FSN), KVK, Papparapatti
12.	Dr.S.Kamalasundari, Assistant Professor (FSN), KVK, Needamangalam
13.	Dr.G.G.Kavithasree, Assistant Professor, KVK, Thiruppur
14.	Dr.S.Arokiamary, Assistant Professor, KVK, Madurai
15.	Dr. A.Kalaiselvan, Assistant Professor , KVK, Ramanathapuram
16.	Dr.A.Vijayakumar, Assistant Professor, KVK, Virudhunagar
17.	Dr.Cissie Theeblyn David,Assistant Professor, KVK, Tirupathisaram
18.	Dr.M.Raveendran, Professor and Head (BioTech), CPMB, TNAU, Coimbatore
19.	Dr.J.Rajangam, Professor and Head, Dept. of Fruit science, HC&RI, Periyakulam
20.	S. Vellaikumar, Assistant Professor, Department of Biotechnology, AC&RI, Madurai
21.	Dr.V.Sivasankari, Assistant Professor (Maths), Department of Agricultural Economics, AC&RI, Madurai
22.	Dr.P.Rajkumar, Professor and Head, Dept. of Food Process Engineering, AEC & RI, Coimbatore
23.	Dr. Chelvi Ramesh, Programme Coordinator, KVK, Madurai
24.	Dr. A. Kavithapushpam, Assistant Professor (Bio Chemistry), AC&RI, Kilikulam