



# CAFT - H.Sc. NEWS LETTER

October 2016 - March 2017

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## News in Brief

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### On going Activity

Training programme on Student READY programme in Home Science - Modalities and Guidelines for Programme implementation  
From 1<sup>st</sup> to 21<sup>st</sup> November 2017

### Training programme on

## “Student READY programme in Home Science Modalities and Guidelines for Programme implementation”

The Student READY (Rural Entrepreneurship Awareness Development Yojana) programme aims to provide rural entrepreneurship awareness, practical experience in real-life situation in rural agriculture and creating awareness to undergraduate students about practical agriculture and allied sciences. The programme will help in building confidence, skill and acquire Indigenous Technical Knowledge (ITK) of the locality and thereby, preparing the passed out students for self-employment. It also aims to provide opportunities to acquire hands-on-experience and entrepreneurial skills. To reorient graduates of agriculture and allied subjects for ensuring and assuring employability and develop entrepreneurs for emerging knowledge intensive agriculture, it was felt necessary to introduce this program in all the AU's as an essential prerequisite for the award of degree to ensure hands on experience and practical training. In Home Science / Community Science two modules have been suggested by ICAR for implementation. They are

**Module 1: Product Development and Entrepreneurship:** This module aims to grant practical knowledge to students regarding product development and entrepreneurship, covering all aspects related to income generation through production and sale of clothing and textiles, and interior decoration products and also the management of their entrepreneurial ventures.

**Module 2: Community Nutrition and Welfare** This module aims to impart practical knowledge to students regarding community welfare encompassing all the aspects viz. diet counselling, food preservation, food service and hospitality management, Nutraceuticals and health foods, Early childhood Care, Education and counselling for parents and community, Multimedia and Video production. Students would be ready to conduct and manage community welfare programs independently.

Since this being a new concept from ICAR guidelines with various components involved in organizing the programme, the faculty involved in offering this programme need to be oriented towards successful implementation of the programme.

### I. OBJECTIVES

- To serve as a national resource and training centre for faculty in the frontier areas of Home Science.
- To update the curriculum and courses of Faculty of Home Science to strengthen Teaching and evaluation at UG and PG level.
- To support the government in training personnel.
- To disseminate Home science information to personnel of different sectors.

## RESEARCH FACULTY RESEARCH (Ongoing Research Projects)

### Nutraceuticals properties of underutilized fruits and vegetables in North Eastern Hill Region of India

#### Project leader and associates

**Dr. K. Aparna**, Scientist, QC Lab (Collaborating Institute) - PI

**Dr. M. Sreedhar**, Principal Scientist, QC Laboratory - Co-PI (Collaborating Institute)

Funded by DBT

Budget: Rs. 19.07 lakhs for a period of 3 years (2014-2017)

#### Outcomes

Value addition techniques to crops like Tree bean, Kachai Lemon, Bay leaf, Prunes and King chilli, have been standardized and evaluated for acceptability. Based on the acceptability scores, products like King chilli sauce, toffee, masala powders and pickle; Kachai lemon squash, jelly and RTS beverage, Bay leaf tea variations, spice powders, carbonated beverages, tree bean powder based spice mixes, extruded snacks were available for commercial upscale through appropriate collaborations.



**Value added products developed with Tree bean (Parkiaroxxburghii), Kachai Lemon (Citrus jambhiri, Cinnamon Tamala and King Chilli)**

### Eco Holi Colors for Environment and Human Safety

#### Project leader and associates

**Dr. R. Geetha Reddy**, Associate Professor, Dept of HECM, PJTSAU, Hyderabad, (PI)

**Ms. Sireesha Deepthi**, Assistant Professor, APTX Department, PJTSAU, Hyderabad, (Co-PI)  
Funded by PJTSAU

Budget : Rs. 5.10 lakhs from February-March, 2017.

#### Outcomes

The university under paid up trails in the Natural Dye Paint Production Unit located at Rajendranagar prepared two tonnes of Eco Holi Colours in five shades during February- March, 2017. Around 1400 kgs of the Colours in 5 shades in Pink, Yellow, Green, Orange and Blue were prepared and sold in twin cities under the university brand name.



**Raw materials and eco holi colours produced**

### Parenting Experience: a life cycle analysis of rural and urban families

**K. Mayuri**, Emeritus Scientist, College of Home Science, PJTSAU, Hyderabad

The two-year project from November 2015 to October, 2017, is working on both quantitative as well a small sample of qualitative data on parenting practices in both urban and rural areas. This study aims to cover a wide range of parenting aspects across generations to draw a trend analysis. 150 urban and 150 rural families, mothers, fathers and child are participating in the study.

The researcher developed all tools of the study such as Parenting style, Self-efficacy, Sense of personal control, Social approval motive, Spousal support, Grand parent support, Parental modelling, Family values, Work life balancing and Dependent variables scales on Parenting practices and experiences. The data collection in urban areas is completed and the rural data collection is going on. Age, gender and area differential trends will be plotted and interpreted. And inferential statistics will be employed to interpret the effects of independent variables on the dependent variables on parenting practices and experiences.

### MFPI – Quality Control Laboratory 2016-2017

▶ The MFPI – Quality Control Laboratory has successfully maintained the accreditation status with NABL by passing out the “Surveillance Audit” as per ISO/IEC 17025:2005 QMS.



- ▶ Successful in first ever International Proficiency Test Round conducted by M/S LGC; Lancashire, UK by scoring very good 'Z' scores for elemental analysis and proximate estimation.
- ▶ Selected as Expert referral Lab for providing technical guidance for Labs in other Universities.
- ▶ During 2016-17, 3157 commercial samples have been analysed generating an income of Rs. 8.30 Lakhs.
- ▶ Quality finger print data base for 11 promising cereals, pulses and oil seed varieties of the University has been generated.
- ▶ Market sample analysis of food samples completed successfully for wide ranging collection.
- ▶ Under Bio fortification studies, 46 entries of 16 rice cultures were profiled for iron, zinc through optical emission spectrometry.
- ▶ Cost effective, eco friendly, long term seed storage protocols for revalidated Tellahamsa seed using gamma radiation in combination with free radical quencher Glutathione successfully developed and validated.
- ▶ Generation of fatty acid and amino acid profiles of 11 cereal, pulse and oil seed varieties of the University and processed products through gas and liquid chromatography respectively accomplished.
- ▶ Under GAP sample analysis advance stage rice cultures of the University were evaluated for grain quality parameters.

## PG STUDENT RESEARCH

### Department of FDNT

#### Development of vegetable based functional foods and assessing the impact of supplementation on immunity status of elderly

##### *Priya Sugandhi Geddam and K. Uma Maheswari*

Effect of probiotics, prebiotics and synbiotics based functional food formulations such as yoghurt on the immune status of the elderly was studied. Significant difference was observed in the mean ADA levels after supplementation of yoghurt in elderly population. Abnormal and subnormal ADA levels ( $30.7\mu\text{l}$ ) reached to normal values ( $22.13\mu\text{l}$ ) after supplementation in all experimental groups. The mean zinc level before and after supplementation of yoghurt ranged from 63.1 – 85.2 and 87.23 to 112.59 respectively. Significant increase ( $P < 0.05$ ) in serum

zinc levels was observed after supplementation of yoghurt in all the experimental and control groups. Significant ( $p < 0.05$ ) increase in mean CD4 counts was observed in V4 (YSC + *L. Casei* + FOS), V8 (YSC + *B. bifidum* + OEP), V6 (YSC + OEP) and V3 (YSC + FOS) after supplementation. FOS ( $p < 0.05$ ) and probiotic groups ( $p = 0.002$ ) had significantly lower CD4 counts than OEP groups after supplementation. From the study it was concluded that vegetable based functional yoghurts prepared with onion prebiotic extract will help in boosting the immunity status and reducing the morbidity among the geriatrics as evidenced by significant increase in immune markers such as ADA, zinc, CD4 and CD8 counts after supplementation for a period of 45 days. Such formulations need to be popularized by further consumer acceptability and commercialization studies.



#### Development and evaluation of stabilized rice bran incorporated baked products

##### *K.S. Krishnegowda and Dr. K. Uma Maheswari*

Three baked products like biscuits, cookies and cakes were developed by using wheat flour and two types of rice bran (whole rice bran and stabilized whole rice bran). Sensory evaluation was done for the control sample and for all the six variations to know the most acceptable baked products from each of the variations. The mean sensory scores revealed that biscuit and cakes were best accepted at 10% level of WRB and SWRB incorporation. Cookies were best accepted at 10% incorporation of WRB and 20% in SWRB respectively. Addition of increasing amount of rice bran from 0 to 30 % decreased diameter and spread ratio and increased thickness of biscuits and cookies. Addition rice bran from 0 to 30 % decreased height, length, width, volume and density of cakes. There was a significant difference ( $P < 0.05$ ) between the control sample and rice bran incorporated baked products. There was a decreasing trend of sensory scores for

colour, texture, taste, flavour and overall acceptability for control, raw rice bran and stabilized rice bran incorporated baked products, during shelf life study and significant difference was found between the treatments and duration for all the sensory characteristics.

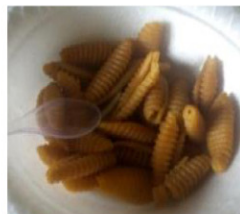


### WRB and SWRB incorporated products

### Screening of tomatoes for development of lycopene enriched rice based ready to cook extruded products

**R. Srivalli and Dr. B. Anila Kumari**

The Pusa Ruby cultivar had high lycopene content of 5.49 mg/100 g, TSS of 6.93° Brix, pH less than 4.5 and uniform red colour. The lycopene content of tomato powder was 4.19 mg/100 g, rehydration ratio 1.09% and dehydration ratio 22.49%. Cold extrudes Cavatelli and Tagliatelle with 40% rice and 60% refined wheat flour was added with 10% tomato powder and sensory evaluation was done. Cavatelli extrudate got significantly highest scores for texture, taste and overall acceptability. The IC<sub>50</sub> value for inhibition of  $\alpha$ -amylase activity was 40.47 mg/ml and for  $\alpha$ -glucosidase was 45.14 mg/ml. The developed extrudate had 25 times higher potassium content than sodium. Lycopene content of developed extrudate was 3.72 mg/100g and decreased to 1.71 mg/100g on 60<sup>th</sup> day after storage.



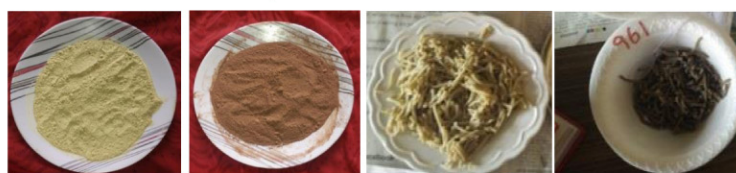
Extrudates

### Development of rice bran and vegetable pomace powders enriched rice based ready to cook extruded products

**N. Bhagyalakshmi and Dr. Jessi Suneetha W**

The rice based extrudate with 40% rice flour, 60% refined wheat flour and 15% stabilized rice bran was standardized. To this, beetroot pomace powder (BPP) at four levels viz. 7.5, 10, 12.5 and 15% and cauliflowers trimmings powder (CTP) at 5, 10, 15 and 20% were added. The BPP at 7.5% and CTP at 5% were

developed as the most acceptable extrudates. WAI and WSI decreased more in rice bran added extrudate compared to control extrudate due to the replacement of the starch by fiber component. Control extrudate had significantly higher ( $p < 0.05$ ) moisture, carbohydrate and energy content than the extrudate with CRB, BPP and CTP. The increasing order of ash was CTP extrudate > BPP extrudate > CRB extrudate > control extrudate. The vegetable waste added extrudates had lower fat content in comparison to control and CRB extrudates. High protein content was seen in CTP extrudate and lowest in control extrudate. The adding of rice bran and vegetable waste powders decreased the requirement of  $\alpha$ -glucosidase enzyme by 9.21, 33.89 and 12.5% for CRB, BPP and CTP extrudates.



Cauliflower trimmings powder

Beetroot pomace powder

CTP extrudate

BPP extrudate

### Development and evaluation of value added shrikhand

**J. Srinivas and Dr. Jessi Suneetha W**

The result of chemical and nutritional quality characteristics of control and value added shrikhand revealed that the protein, fat, ash, carbohydrate, energy, acidity, total solids and reducing sugars were high in value added shrikhand compared to control with statistically significant difference ( $p < 0.05$ ). There was a decreasing trend of sensory scores for colour, texture, taste, flavour and overall acceptability for control and value added shrikhand during storage and significant difference was found between the treatments. The total bacteria and mould counts were increased after storage for a period of 7 days with TBC and TMC being higher in value added shrikhand compared to control. The microbial counts gradually increased with the increase in storage period *i.e.* day 0 to day 24 in both control and value added shrikhand.

### Effect of Rice Bran Oil Spread on the Physical, Sensory and Fatty Acid Profile of Cake

**Rizwana Shaik and Dr. K. Aparna**

Studies were carried out to replace Hydrogenated Fat (HF) with Rice Bran Oil (RBO) and two varieties of Rice Bran Oil Spread RBOS1 and RBOS2 in the preparation of cake. Results revealed that there was no

significant difference in overall acceptability of cake made with HF and RBOS2. The internal structure and pore structure of RBOS2 cake was finer and smoother than the control cake as per SEM imaging. The pores within the core varied in diameter between  $13.9\mu\text{m}$  -  $29.6\mu\text{m}$  in control cake and between  $16.9\mu\text{m}$  -  $58.6\mu\text{m}$  in RBOS2 cake at 500x magnification indicating good textural properties compared to HF cake. The fatty acids analysis results showed that the amount of total trans fatty acids (TFA) was 15.46% in HF cake, 3.56% in RBO cake, 4.54% in RBOS1 cake, 3.78% in RBOS2 cake. Hence, consumption of the HF products might prove to be harmful, if consumed in large amounts and at higher frequencies and therefore RBOS can be promoted as healthy fat for production of baked products.

### Effect of selected demographic characters on health related quality of life (HRQOL) in type 2 diabetic subjects of Hyderabad & Ranga Reddy districts of Telangana state

*V. Daivashiromani and Dr.K. Aparna*

The presence of diabetic complications significantly affects some health related quality of life (HRQO) domains. The patient-centered knowledge can be incorporated into chronic disease treatment strategies designed to improve or enhance function in everyday life and improve or enhance health-related quality of life (HRQOL). These Strategies may not only prevent diabetes related complications, but may also prevent irreversible deterioration of health related quality of life in diabetic patients. It can be concluded that a better quality of life would also mean improved confidence and a positive outlook, both of which will go a long way in the management of diabetes.

### Department of RMCS

### Designing Ergonomic Interventions for Cooks in Commercial Kitchens

*E. Shirin Hima Bindu and Mahalakshmi V. Reddy*

Study was taken up to explore the variables that contribute towards developing work related musculoskeletal symptoms and occupational hazards among cooks in commercial kitchens and design ergonomic interventions to control and prevent occupational hazards. A sample of 90 cooks from restaurants, catering centres and fast food centres, were selected. The findings revealed that there is a

significant association between age, work duration, dimensions of the commercial kitchen work station, posture; quality of physical work environment, work place lay out on the musculoskeletal discomforts experienced by the cooks. Majority of all injuries in three different types of commercial kitchens were burns and scalds followed by repetitive motion injuries, cuts and lacerations. Ergonomically designed commercial kitchen layout was developed and executed to create maximum efficiency and safety in work area. To mitigate the occupational hazards personal protective aids were designed and developed viz., aprons, elbow caps, anti-fatigue cum anti-skid shoes, cut resistant and heat resistant gloves to improve the occupational wellbeing of cooks.



### MOMENTOUS EVENTS & CELEBRATIONS

#### ICAR monitoring and review team visit :

Chairman, Dr. R.C. Maheswari, Former VC, SKNDAU, Dantiwada, Guragaon, Members: Dr. J. S. Bhatia, Former ADG, Education, Dwarka, New Delhi, Dr. K.V. Prabhu, Jt. Director (Research), PUSA, Shri RadheyShyam, Comptroller, Bareilly, UP, Member Secretaries: Dr. P.S. Panday, ADG, ICAR, PUSA and Dr. NidhiVerma, Pr. Scientist (EP & HS), PUSA, New Delhi visited College of Home Science on 17<sup>th</sup> January 2017; interacted with the staff and students and they also visited the labs in all the departments.



## Job Mela organised at College of Home Science, PJTSAU

College of Home Science organized a Job Mela on 22.02.2017 at College of Home Science to present UG and PG outgoing students by the placement incharge Ms. T.S. Nagamani. Twenty four reputed Private organizations participated in the Job Mela. A total number of 164 students attended the interview and 101 students were selected by different organisations, they are Digital and Animation Studios, Diet & Nutrition clinics, Hospitals, Preschools, Architects and Interior Designers, Weavers Cluster Groups, Cotton mills and Apparel Industries.



## Training programme organised by CAFT – Home Science

The XXIX Training Program of CAFT Home Science on “New media for development communication: measuring tools and techniques” was organized by Dr. K. Uma Maheswari Director CAFT Home Science and Dr. P. Amala Kumari, Course Director. from 16.9.2016 to 06.10.2016, at College of Home Science, Saifabad, Hyderabad The program was inaugurated by the chief guest Dr. V. Praveen Rao, Hon'ble Vice Chancellor PJTSAU and Dr. Kanchan K. Mallik, Associate Professor and faculty Fellow, UNESCO Chair on Community radio, Hyderabad Central University. Twenty participants representing 9 different Universities from all over India took part in the training. CAFT Home Science News letter XI issue and practical manual on “Basics in Food Analysis” was released by the chief guest. Dr.F.L.Sharma, Professor and Head Department of Extension Education, Rajasthan Collage of Agriculture, Udaipur, and Rajasthan was nominated by ICAR as an expert member for monitoring and evaluation of the programme. Valedictory programme was conducted on 6th October for which was presided over by Dr.A.Mrunialini, Associate Dean & Dean Home Science i/c and Sri. Udayshankar, Programme Head,

All India Radio, Hyderabad was the chief guest. On successful completion all the data and technical information was updated in Capacity Building Portal (CBP) ICAR.



## World Food Day

World Food Day was celebrated at Post Graduate and Research Center, PJTSAU, Rajendranagar, Hyderabad, in collaboration with IndiaN Dietetic Association (Telangana and AP chapter). Students prepared different posters on this occasion. Best poster was given to P. Priyadharshini and G.Sai Bharat.



Dr. Uma Maheswari addressing the gathering

## Best Poster



Poster presentation by students on the occasion of world food day -2016



### Dietetics' day

4<sup>th</sup> Dietetics' day was celebrated on 10.01.2017 at NIN-ICMR, Hyderabad on the theme - **"Consult a Dietician get Fooducated"**. An exhibition stall was arranged on "Millets" by the staff and students of FDNT department, PG & RC to give awareness on health and nutritional benefits of millets to the public.



### National Science Day

National Science Day was celebrated on 28.2.2017 at college of Home Science, PJTSAU. In this view a guest lecture was arranged by department of RMCS on the topic 'Science and technology for specially challenged people'. Architect Mr. Srinivas from Vinjamuri Associates, Himayatnagar was invited as speaker for the guest lecture.

### World Consumers Day

World Consumer day was celebrated on 7.3.2017 at College of Home science, PJTSAU. In this view a panel discussion was arranged by RMCS Department on the topic - 'Building digital world consumers can trust'.

### International Women's day

With the theme "Be Bold to Change", International women's day was organized by HECM department. On this occasion, a skit, role play, mime and ramp walk on famous women of different fields were organised. Rural games were played and messages by staff and students were given. III<sup>rd</sup> year students developed electronic and printed booklets on different issues related to women.

The Women Protection cell, PJTSAU, Rajendranagar, Hyderabad also celebrated International women's day on 8<sup>th</sup> March 2017. Dr. A. Manjulatha, Former Vice Chancellor of Telugu University, Hyderabad graced the occasion as Chief Guest.



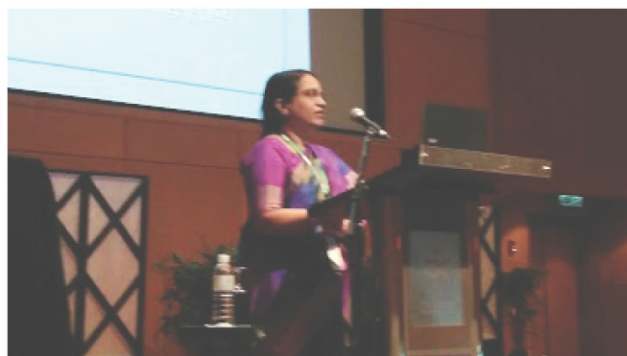
### Parent Education Programme for parents of Lab school children

Department of HDFS organised Parent Education Programme for parents of Lab school children for the topic **"Tools for parenting excellence"** on 4.3.2017. Total 59 parents of lab school children participated in the programme. Dr. M.Sarada Devi, Professor and University Head, Dept. of HDFS addressed the parents.

### Staff participation in Workshops / Conferences / Meets

#### International

- Dr. V. Vijayalakshmi, Associate Dean, Professor & Head, Dept. of Foods and Nutrition presented a paper on "Process Involved in Handling Ag MOOC course for Nutrition: A Personal Experience" at VIII PAN Common Wealth Forum Conference held at Kolumpur, Malaysia from 27.11.16 to 30.11.2016.





## National

- Dr. K. Uma Maheswari, Professor & University Head, FDNT department, Dr. K. Uma Devi Professor, FDNT and Dr. P. Amala Kumari, Professor, HECM attended National consultative meet for mobile “APP” development for Indian food composition tables and promotion of healthy food choices at National Institute of Nutrition Tarnaka, Hyderabad on 8.02.2017.
- Dr. A. Mrunalini, Dean of Home Science and Dr. A. Padma, Professor and University Head of APTX dept, Dr. Nasreen Banu, Principal Scientist, HDFS, AICRP, Dr. Sarah Kamala, Principal Scientist, HECM, AICRP, Ms. T. Kamalaja, FN, and AICRP attended XXII Biennial Workshop at AAU Campus, Jorhat, Assam from 9.02.2017 to 12.02.2017.
- Dr. K. Uma Devi Professor, FDNT dept, Dr. P. Amala Kumari, Professor, HECM dept, Dr. D. Ratna Kumari, Professor RMCS Dept and Dr. P. Sreedevi, Asst. Professor, Dept. of HDFS attended two days workshop on fine tune of UG courses - V Dean Curriculum at Guntur, Andhra Pradesh from 10.3.2017 to 11.3.2017.

## Achievements Corner

### MOU's signed

T.V. Hymavathi, Professor, Foods and Nutrition Department, PGRC, P.J.T.S. Agricultural University, Rajendranagar, Hyderabad signed MoU with Cerio exports Pvt. Ltd on behalf of university for millet technology.

### Award

Dr. K. Uma Maheswari, Prof & University Head (Foods & Nutrition), PGRC received "Reviewer Excellence Award" of Asian Journal of Dairy and Food Research on 28.12.2016 in recognition of outstanding contributions to the journal.



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