**Avinashilingam Institute for Home Science and Higher Education for Women Coimbatore –641 043**

# *F-CRAFT 2019-2020*

*The insider of convenience food*

## Department of Food Processing and Preservation Technology

## School of Engineering

Avinashilingam Institute For Home Science And Higher Education For Women
Varapalayam, Chinna Thadagam(P.O), Coimbatore-641108
Telno:0422-2658145/0422-26658716,Website:www.avinuty.ac.in

# Department of Food Processing and Preservation Technology

## Vision

To become a nodal centre of excellence in creativity, innovation and research in Food Processing technology to provide world class quality education for empowerment of women.

## Mission

➢ To provide broad-based education, helping students hone their professional skills and acquire the best-in-class capabilities in Food Technology.

➢ To draw the best expertise in technology, skill development and professional management so as to equip students with appropriate skills to visualize synthesize and implement projects in these fields.

➢ To imbibe a spirit of entrepreneurship and innovation in its students.

➢ To undertake sponsored research and provide consultancy services in industrial education and socially relevant areas.

## Program Educational Objectives (PEO) of B.E.

The Graduates of Food Technology in their profession will be able to:

**PEO1:** Apply principles of basic sciences, and engineering to succeed in their professional career.

**PEO2:** Analyze, design and develop food processes/products that are technically feasible, economically viable and socially relevant.

**PEO3:** Exhibit professional and ethical codes of conduct and an aptitude for continuous learning for catering to the ever-changing needs of the society

# DESIGN AND DEVELOPMENT OF AUTOMATIC FISH DESCALING, BE-HEADING AND SLICING MACHINE

*Dr. A.Lovelin Jerald, Aarya CR, Ashika KS, Sabaritha P, Shivani S*

Fisheries in India have emerged as an important economic sector with varied resources and potentials. Indian Fisheries is an important sector of Food Production. A central concern of fish processing is to prevent fish from deteriorating. Fish undergoes series of pre-processing operations such as washing, cutting of fins, descaling, beheading, evisceration, deskinning, etc. Fish grading and descaling is considered as one of the most important operation during preprocessing of fish. The removal of fish scale is called as descaling. These scales are removed traditionally using knife, this operation consumes time and also cause harm and wound to the hands of person involved in removing the scales of the fish. The machine has been developed with the concept and combination of detecting the quality, removing the scales, cutting the head and tail, slicing of fish and cleaning. Designing of automatic fish de-scaler cum slicer is the best way for reducing the human work and also hygienic handling of fish. This machine component can be easily operated.

# FRIENDLY REFRIGERATED VENDING MACHINE ASSOCIATED WITH IoT FOR FRUITS AND VEGETABLES

*Mrs. A.Reni, S. Jothi, B. Rubakavani, L.Sowmiya, S.Shalini*

Vending machine is the latest trend taking place in the industry. Vending Machine is a system which can vend or offer different products normally installed in supermarkets like household goods, railroad lines, offices, institutes and various other public region. Dispense different products is an automated process, without man power easy to save the time of humans normally seen in fast moving cities because of fast paced life. This project is basically to give whole profit to the farmers by eliminating the mediator. Mediator plays a third party role between the farmer and the consumer. Vending machine would be the direct contact between the farmer and the consumer. It would reduce the workload and it consumes very less time. It has high efficiency and can be place at anywhere because of its compact size. To sell the fruits or vegetables farmers have to be dependent on the middle man. Middle man takes the half of the amount which should go the farmers. This machine would eliminate the middle man can keep a direct contact between the farmers and the consumers. The whole profit or the maximum profit would go to the farmers only. Farmers can load their packed fruits and vegetables  in the vending machine and can place the machine in farmer's market or at any shop. The consumer should first enter the type of produce and then the kilo they needed. Then they should swipe the RFID card or QR card to get the produce out. The status of the produce would directly go the farmers through IoT. This vending machine would help

the consumer to get their product at reasonable cost and there is no need for them to wait for a long time.

## RESEARCH ON DEVELOPMENT AND COMPARATIVE STUDY OF BIODEGRADABLE FILMS FROM VARIOUS STARCHES, INCORPORATED WITH JACKFRUIT SEED POWDER

*Ms.R.Sharmeela, Nathalia.K.S, Nikhila Sherine.S, Sugumaran Shanmathy, Vaheedha.B & Vidhya.S*

Materials that are used for packaging consists of variety of petroleum derived plastic polymer,due its long life properties. Thus its utilization is increasing every day. The use of starch for film making reduces environmental pollution. It causes deposition problems and also affects marine life. Due to many environmental issues, petroleum-based plastics are being replaced by natural polymers. In recent years starch has been evaluated for its film-forming ability for application in the food packaging area. This work deals with extraction of starch from various tubers and incorporating with jackfruit seed powder to make biodegradable film using glycerol as plasticizer. This research study is on the methodology of preparation of film from various starches incorporated with jackfruit seed powder. and testing which has to be performed to the mechanical property of film. Biodegradable plastics are defined as plastics with similar properties to conventional plastics, but they decomposed after disposal to environment by activity of micro-organism to produce end product of $CO_2$ and $H_2O$.

## SMART STORAGE BIN WITH REAL TIME MONITOR AND CONTROL OF STORED GRAINS

*Ms. R.Sharmeela, Bavaharini.K, Haritha.K, Jeevanya.S & Shiny Devadharshini.S*

India is an agriculture country where 70% of the population depends on farming, the storage of grains plays a vital role in national economy. Grains are the major source of food. The storage of grain is the top priority task for restoring and reusing. In the process of grain storage, moisture content, temperature and humidity are major environmental factors that can influence directly on the quality of the grains. To reduce the quality issues, the sensor-based bin has been designed and developed. This new design is used to monitor the parameters, control the moisture content of grain that present in bin and delivers the real time results. The results will be displayed automatically on the LCD. Through this model we tried to decrease the human interface and manipulation that available in the current alternative system.

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## AUTOMATIC FISH SCALER AND CUTTER WITH UTILISATION OF WASTAGE

*Ms. A.Caroline, M.Afrrin, Akshitha.R, R.R.Kaviya Sri & M.Saradhambal*

Fish is highly consumed in the world accounting around 80 million tonnes per year worldwide. The industry related to fish processing has increased leading to adapt the mechanical methods of cleaning, cutting of fish to overcome the manual methods which are done with indigenous tools and usually time consuming considered as a drawback to the quality of the fish .Designing of such automated cleaner will pave way for reducing the human drudgery and also hygienic handling of fish. The fish would be scaled, conveyed, headed, and cleaned automatically with maximum recovery of edible fish flesh with minimum waste and utilization of the waste. The wastes thus released from the industry have been raising concern in recent days. The utilization of waste can be made into enriched products like fish protein, silage, fertilizer and many more. Thus, the maximum efficiency of finished product and waste utilization can be obtained by the recent advancements and innovations.

## REAL TIME QUALITY DETECTION OF VEGETABLES USING SENSOR

*Ms. A.Caroline, A.Anjum Yasmine, M. Deva, K.S Prathyusha, S. Reya Shruthi & C.D Sowndarya*

Quality detector is a hardware which determines the physical and chemical parameters of the specifically selected vegetables. The aim of this project is to develop quality detection for vegetables using sensors. Due to commercialization of agriculture in India, the focus is now on high yield than in high nutrients. So in need of high yield, food gets adulterated to gain more quantity in short period of time. Moreover, pesticides in vegetables are using above the legal maximum residue limit by farmers to gain more profit in lesser time. Although pesticide is highly effective on pests but they can reside in the environment. Among the OP group, Dimethoate is widely used in brinjal and okra. Dimethoate is an acetylcholinesterase inhibitor which disables cholinesterase, an enzyme essential for central nervous system function. In this fabrication, the moisture and color sensor is used to identify the quality of the vegetables, the pesticide sensor is used to determine the level of pesticide sprayed during off-field and on-field. In the quality detection system, it has been found that the percentage value of organic samples and the contaminated pesticide samples of brinjal and okra and also between fresh produce of farm samples and locally available market samples respectively. The variation among these samples shows the high contamination of pesticide residue in vegetables. Hence, the system can be successfully used for the detection of pesticide residues in vegetables. The suggest sensor system is easy, rapid and time undemanding method.

# DESIGN AND FABRICATION OF DOMESTIC FOOD WASTE DECOMPOSER CUM BRIQUETTER

*Ms.Swarnalakshmi.C.S, Haripriya.R , Kaviyapriya.A,  Manimekalai.PL, Nithya.K.G & Sindhuja.V*

Increasing population enhanced the demand for food and resulted in greater amount of waste generation. The purpose of this research is to develop a waste utilization model which converts the waste into useful products like compost and briquettes. The development of the machine is done in such a way that it effectively does briquetting, composting and drying operations. The machine is designed with anaerobic chamber for composting and screw press is attached for the purpose of extrusion. Municipal solid wastes lead to various environmental risks affecting our day to day lives. Briquetting technique can be utilized for the production of solid biofuels as an alternative to conventional fuels can be used for electricity generation from municipal solid wastes. In day to day life food waste have creating a major issue. The conversion of food waste into a useful one is becoming a great challenge. Composting is an old technique used to convert a food waste into compost. Briquetting is a emerged technique used to make a food waste into a briquettes for the energy producer. In our project we combined both techniques into a one mechanism. Further physio-chemical analysis on the compost and briquettes formed are done. This research will succour in supporting the development of technologies to utilize municipal solid waste. The moisture content was determined by hot air oven at 105°c by using drying method. These result shows that the major portion of municipal solid waste and the area under study was organized waste and the moisture content was found to be determined and the wet waste are suitable for the production of energy. This paper discusses about the design and development of the waste decomposer cum briquette which can be adapted as an efficient, eco-friendly and cost-effective option for the purpose of municipal organic solid wastes.

## QUALITY ASSESSMENT OF POULTRY MEAT USING SENSORS BY NON-DESTRUCTIVE METHOD

*Ms. B.Janani, Mohanapriya.K.S,  Padmashree.G, Tamilarasi.P & Tharani.C.P*

The world of meat faces a permanent need for new methods of meat quality evaluation. Researchers want improved techniques to deepen their understanding of meat features. Meat quality is a term used to describe a range of attributes of meat. The quality and safety of food products is a growing concern now-a-days. Non-destructive attributed quality assessment methods have gained dominant factor and considerable attempts for foods. As sensors measure a single quality property, sensor fusion technique has shown great potential for overall attributed quality measurement. The most important attributes for consuming a

poultry meat or meat products is its quality. Quality is meant for its color, gas, temperature and ph. Quality of the meat is important for shelf life of the poultry meat products. In this, quality assessment of poultry meat can be used by quality examiner and small-scale industries. In this method, various sensors are used to determine the quality parameters like pH, color, temperature and gas in non-destructive method. At present there are several limitations for assessing the poultry meat shelf life and quality which includes high cost and long time for single analysis. Therefore, there is a requirement to develop a technique which would supplement these limitations.

## FORMULATION OF EDIBLE AND BIODEGRADABLE STRAW USING IPOMOEOA BATATAS (SWEET POTATO)

*Ms. Surya Prabha, Gokula Varshini S V, Kamala Priya I S, Pavithra R & Sripriya B*

The drinking straw is a small tube or pipes that allow the users to drink beverage more conveniently. This research mainly aims at the development of edible and bio-degradable straw which can be consumed by all the people or degrades naturally over time when disposed. The edible and bio-degradable straw is developed with extrusion technology. The base ingredient was chosen as sweet potato flour which is high in starch content which also acts as natural thickener and stabilizer. The lignin content in the sweet potato act as natural binder (gumming agent). During cooking, the sago absorbs water and undergoes gelatinization process. It gives less stickiness and have a low gelatinization temperature (~70°). The guar gum was added as binding material. They have ability to form hydrogen bonding with water molecule thus have excellent water holding and friction reducing capability and increase the mouth feel and texture. The sugar and salt is added in order to enhance its taste. Sugar enhances the natural flavor by creating a balance among acidity, bitterness and sourness. Flavor in the sugar comes from the thermal degradation. The salt gives strengthening and tightening effect on the dough and inhibits the enzyme activities and the growth of microorganisms. It also enhancesflavor and texture. The edible and bio degradable straw is made by various process such as kneading, sheeting, cutting, rolling and drying. The engineering properties such moisture content, moisture content, water absorption %, ash content and sensory evaluation were evaluated. The physical testings such as versatility, durability, texture/feel, and aesthetics were also evaluated. The edible and biodegradable straw is formulated by varying the ratio of sweet potato flour and cooked sago. The moisture content and the ash content of the final product is found to be 12.3 %db and 1.18 g. the water absorption % is found to be 1.454 % This product can be a alternative for various drinking straw. It can provide various nutrients thereby give number of health benefits.

# FOOD RIDDLES

❖ People buy me to eat, but never eat me, what am I?

Answer: **PLATE**

❖ You can eat my wings, my breast and my legs, when I am alive you can eat my egg, who am I ?

Answer: **CHICKEN**

❖ I can be fried, boiled, mashed , roasted and baked, scalloped and hashed , who am I ?

Answer: **POTATO**

❖ What is the wealthiest nut?

Answer: **CASHEW NUT**

❖ I get chewed, but should not be swallowed or eaten and always get thrown away?

Answer: **BUBBLE GUM**

❖ I am something that smells cheesy but I am not a pair of socks , I am a food that is sliced and delivered in a box?

Answer: **PIZZA**

❖ What need to be broken before it can be used?

Answer: **EGG**

❖ There were 6 people and 6 eggs in a basket each person grabbed an egg but there was still an egg in the basket, how is that possible?

Answer: **The last person who grabbed an egg grab the basket with the egg inside it.**

❖ There are 12 chocolate bars on the kitchen table, you take away 5,how many do you have?

Answer: **5 because it says you take away 5 so 5 you have 5 chocolate bars.**

❖ Alive without breath e, as cold as death, never thirsty, ever drinking?

Answer: **FISH**

**Puzzled By,**
**III-BE(FPPT)**
**S.Chandrika**
**G.Meera Sundari**

# FACT QUIZ

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| | | |
|---|---|---|
| 1. | International rice research is located in which country? | **Phillipines** |
| 2. | Which country is renowned for chocolate? | **Belgium** |
| 3. | Which is the national vegetable of India? | **Indian pumpkin** |
| 4. | Which is the national food of India? | **Khichdi** |
| 5. | Which vegetable is called "the queen of vegetables"? | **Onion** |
| 6. | What's the sweetest fruit? | **Fig** |
| 7. | When does national nut day celebrated? | **October 22** |
| 8. | What is the recently discovered new taste? | **Fat -Oleogustus** |
| 9. | What taste is associated with hydrogen ions? | **Sour** |
| 10. | Which chemical creates an artificial banana flavor? | **Amylacetate** |
| 11. | What organic acid occurs naturally in cinnamon and cloves? | **Benzoic acid** |
| 12. | What is the primary colorant used to color cheese? | **Annato** |
| 13. | Tomato is red colour because of which pigment? | **Lycopene** |
| 14. | What is the Pigment present in meet? | **Myoglobin** |
| 15. | Lectin protein is found in? | **Wheat** |
| 16. | What vitamin does alcohol destroy? | **Vitamin B** |
| 17. | The best temperature for the preparation coffee is? | **95-105°C** |
| 18. | How many taste buds does the average adult have? | **2000** |
| 19. | Ears of corn generally have a how many number of rows? | **16 (mostly)** |
| 20. | Where should raw meat be stored in a refrigerator? | **At the bottom, below all other food** |

**By**
**Gokula Varshini S V (IV BE FPPT)**

**Kamala Priya I S (IV BE FPPT)**

# Students Corner



ART BY
ABBYNANDHITHA.L.G
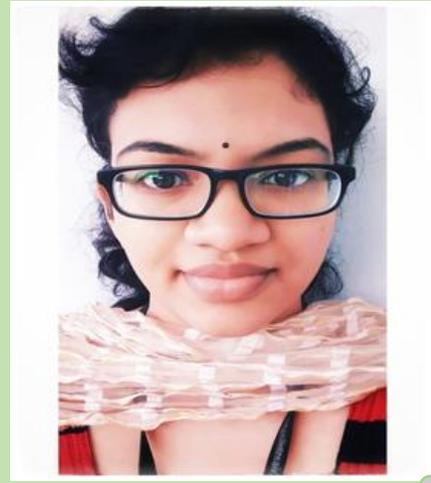II YEAR  B.E (FPPT)





ART BY
S.SHALINI
IV YEAR B.E (FPPT)

# CLASS CROWNING (2019-2020)

AKSHARA
I M.E (FT)
CGPA : 8.64

NINU SUNIL
IV (FPPT)
CGPA : 9.2

R.SRUTHI
III B.E (FPPT)
CGPA : 8.95

**RABIA FARHEEN & ABITHA FRANCIS**
**II B.E (FPPT)**
**CGPA : 8.4**