

TECH - A - BITE

FOUNDING / CORE COMMITTEE :

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“ FOUNDERS’ NOTE

Hey there,
We're glad you decided to take a look at our brain child.
As students of food technology experiencing the dynamic nature of the food industry, we found the need to create a space where we develop the relevant skill-set among our fellow students. This would help us all become industry ready and not only survive the job market but to thrive in it.

To bring life to our vision, we started **FoodAdobe – The motley of foodies**, a club that encourages students of food technology or of any life science background to get a deeper insight into the food sector. We involve our subscribers with webinars/seminars, guest lectures, and engaging activities through our various social media platforms. One of the main elements of our club is what you're currently reading, the departmental newsletter- **Tech-a-Bite**.

Through this newsletter, we render access to research publications, have discussions on the same, and make current trends and debates easier to follow. For the problem solvers out there, we keep challenging brain teasers and riddles. We also include fun facts, interview excerpts from our talks with the industry experts and other first-hand information, all in just a few pages.

We, the students of batch 2019 and 2020 are devoted to building this club and the newsletter of cutting edge and sheer quality to bridge the gap between the industry and students. Your active involvement and support are counted on and hope you help us bring out the best of the club.

See you around :)

- members of **FOOD TECH CLUB**



PASSION FRUIT JAM

BSc. GROUP PROJECT REVIEW

DR. RAJADURAI MURUGAN

The Jams, Jellies and Marmalade Industry all over the world has a wide demographic of consumers and is considered a staple and fun food. From being a part of the PB&J sandwiches to being rolled with chapatis and rotis that were packed into our lunchboxes, Jams and Jellies are everywhere. However, this deliciousness comes at a cost. Packaged Jams are filled with sugar and other added chemical preservatives and nearly no other nutritional value. This may hamper the consumer's health if consumed on a daily basis. Now, how do we overcome this problem and not compromise on any aspect of the taste? Enter, Passion fruit jam. This bi-coloured variety of fruit is appreciated among refined palettes worldwide due to its complex and unique aroma, sweet acidic flavour, nutritional and medical properties, and exoticness. The juice has an excellent blending consistency and is filled with essential acids, carbohydrates, vitamin A, fibre, ascorbic acid, and various minerals. Passion fruit is rich in pectin which prevents the need for commercial pectin in jam production. The jam is also supplemented with sesame seeds that are a rich source of both micro and macronutrients. This research project/product development carried out by our very own alumni under the assistance of our faculty is a perfect example of filling the gap in the market. This product is a demonstration of identifying an under-worked crop that has a huge potential in the exotic crop market that can add value to the existing supply chain while delivering relatively nutritious and healthy food.

- Smruthi D, Apoorva J.

FOOD WASTE- A FUEL OF THE FUTURE

The amount of food waste produced each year could fill up a lake, and yet we still lack solutions to fix this dire issue. What if we had a way to convert this waste into energy? Some of our students of batch 2018 who worked under dr.CG , have won many awards for their innovative idea to help solve this problem. "Microbial fuel cell" or known as MFC is the proposed idea that aims to eliminate excess biowaste by converting it into fuel. The ambition was to utilize the potential of microbiome present in fruits and vegetable waste, kitchen (Rice wash water), and agricultural wastes as sources of power generation, and evaluate it, using microbial fuel cells without proton exchange membranes.

The research abstract is given below

Abstract (DR. CHENAPPA GURIKAR)

Globally, one-third of the total food produced for human consumption (1.3 tons every year) is lost due to poor production and supply chain management (UNEP, Sept 2020) which results in a carbon footprint of about 3.3 billion tons of CO₂, which is equivalent to 8% of global greenhouse emissions. In fact, according to the Ministry of Agriculture, Rs. 50,000 crores worth of food produced is wasted every year in the country (India today, 2014), which is either incinerated or dumped into landfills causing pollution and health hazards to human beings. The management of food waste can be done in various forms. Among them, microbial fuel cells (MFCs) are one of the electrochemical devices that use food wastes as organic substrates and microbes as catalysts instead of inorganic catalysts to drive the anodic and/or cathodic reactions resulting in the production of electricity. The field of microbial fuel cells (MFCs) was initially focused on wastewater treatment but now, MFC technology can be applied for the management of food wastes and simultaneously used for electricity generation to cater to the energy demand in rural or remote areas that are not linked to the electric grid.

MFC

This research provides companies conducting food businesses a way to reuse their products that are unfit for human consumption for the benefit of the company, generating electricity for their use and thereby reducing the costs. It can also be cost-effective to generate electricity for rural dwellers this way. MFCs can add to sustainable energy sources whilst both tackling energy shortage and putting food waste to better use. As bioenergy in a fossil fuel dominated world, it is a step in the right direction.

- Mahima B, Marwa M.

PRETTY PACKAGING TO THE GRAVE

"Imagine your diary milk is no more the glossy purple and chocolate in and out of the packaging...but instead slaps you on your face with the sugar content in it." In 2018, the FSSAI proposed a draft Food Safety and Standards (Labeling and Display) Regulations, 2018, highlighting certain criteria for labeling and display on the front of food packs. Under this, the FSSAI proposed the Guiding Daily Amounts (GDA) design for FoPL , with the nutrient(s) of concern (high on sugar/salt/fats) in the food product to be marked in RED. The FSSAI also laid down the thresholds for sugar, salt/sodium and fats for various food and beverage categories which was in line with the WHO- SEARO model. Faced by opposition from the industry as the packaged food companies requested FSSAI to keep some products out of FOP labeling regulations that insists on display of detailed nutritional information prominently citing practical issues for industries like confectionery, beverage as these industries majorly depend on sugar and calories.

On the beneficial side, positioning the nutritional information on the back or side of labels leads to a poor grasp of the nutritional information required by consumers to make healthy food choices. Thus, the purpose of Front of Pack Labeling (FoPL) is to empower consumers to make healthier choices by providing information about the overall nutritional quality/warning about the nutrients of concern present in the food product, in a straightforward, easy, simple and clear manner. This benefit the producers by showcasing the fortified ingredients which can in turn add up to the marketing strategy boosting the overall acceptability.

If we are to decide if its advantageous or disadvantages, as of my opinion: that it would be a threat to the industries. As FSSAI is a bridge between consumers and producers. This will kill the Indian market as the exported products will attract the consumers with their pretty packaging leaving the imported products deserted in the shelf.

- Aashika G, Vihitha P.

21ST AMENDMENT GASTROBAR, INDIRANAGAR

1. How did you manage to overcome the pandemic situation?

The fact that the rents are fixed costs, it had to be shed from our pockets for the hotel to not shut down or be bought out. The willpower and the never-give-up attitude helps to run a business at any point of difficulty. As we have a loyal customer base, coping with the pandemic losses has been much better.

2. What kind of license did you procure for the restaurant?

Alcohol license, trade license, Fssai license, and the main basic licenses to be procured. It will take a month or two for this process.

3. What is your marketing strategy?

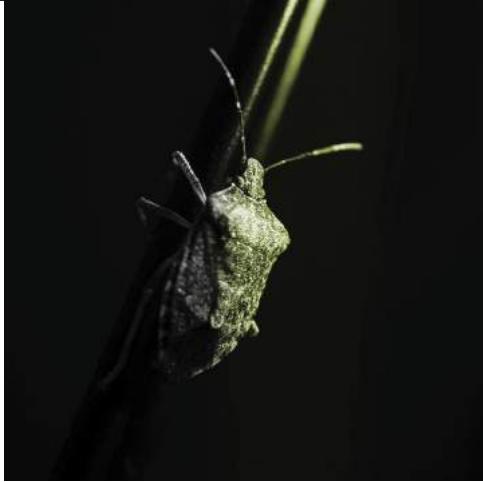
The marking strategy is word-of-mouth marketing. Essentially, it is free advertising triggered by customer experiences—and usually, something that goes beyond what they expected where you treat your customers with utmost hospitality and quality and get them to visit again. Our food and beverages are of good quality and pocket-friendly priced that gives us the name of "Chin Lungs of Indiranagar".

4. How do you hire your staff/chefs?

In the beginning, it was a consultancy where a kitchen consultant was appointed. They curated the menu and trained the staff, and the operations team had a manager. Right now "Ultimate Workforce", an HR agency takes charge of this expecting a commission in return

5. How do you procure your raw materials?

Initially through multiple vendors who function as wholesale retailers. At present, we are shifting to a single centralized vendor that is Zomato hyperpure as this allows restaurants to buy all commodities like vegetables, fruits, poultry, groceries, meats, seafood, dairy, and beverages.



As the population is growing at an extreme speed, the demand for food increases which further alters major trends in the food industry. One such instance is the prediction of insects to be used as meat replacements in the near future. Even if the world is slowly moving towards veganism and sustainable food options, a majority of the population in this world depends on heavy non-vegetarian means for their protein requirement. Hence, the unavailability of meat or food shortage scenario that is to arrive in the near future will take a huge toll on the health of our people.



INSECT PROTEIN

DO OR DIE : WOULD YOU EAT INSECTS FOR SURVIVAL?

- MARWA MAYAN

One such solution that is a current hot topic undergoing immense discussion and research right now is the consumption of insects for protein. "In 2002, the total meat consumption of developing and developed countries was 137 million tonnes, and in 2005 it was 155 million tonnes for the developing countries. This consumption is expected to be doubled in 2030 . This increase is a problem because the production of meat is a major contributor to the pollution of the environment and the current impact is already above limits. (FAO, 2006)."

Crickets and other insects have been a food source all around the globe for centuries. It is estimated that two billion people around the world eat insects as part of their everyday diet. For example, bars in Thailand will sell you beer and serve you a bowl of fried insects as if they were a bowl of peanuts! But the reason for this replacement makes total sense as insects have high protein yield and are packed with high nutrients. Some species of crickets have just as much Omega-3 fatty acids as fish, along with numerous amino acids, vitamins and minerals and offer roughly as much protein content as beef.

Beef or meat production often takes 12-60 times the amount of feed and water as compared to crickets production.Cricket farming also emits fewer greenhouse gases and does not necessitate land removal to expand. They also don't require hormones or antibiotics to keep them alive during the agricultural process, thus all the food is organic.

The fact that insects are 12 to 25 times more efficient at converting their food into protein than animals is extremely impressive and Crickets need six times less feed than cattle, four times less than sheep and two times less than pigs, according to the FAO. One of the main reasons behind this efficiency is because insects are cold-blooded and therefore waste less energy maintaining their body heat.

One exceptionally striking statement we come across in most articles is that lobster was once considered as the "cockroach of the sea" , considered unappetizing and food for the poor but has now turned into luxury food , thus scientists do see hope for insects to be considered worthy enough to our consumers one day but they do suggest marketing it in powder and other processed forms rather than the insect cooked as it is as this could help attract and convince a larger scale of consumers Thus , Our main observation from this review was that farmed insects could help tackle two of the world's biggest problems at once: food insecurity and the climate crisis , but at the end of the day our real question is would you ever consider this alternative for your survival?



THE MONTHLY SPECIAL

"Our actions are our future– Better production, better nutrition, a better environment and a better life"

World Food Day marks the anniversary of the founding of the FAO of the United Nations, as suggested by former Hungarian minister of agriculture and food Dr Pal Romany. The theme for World Food Day 2021 is "Safe food now for a healthy tomorrow" with the aim of tackling global hunger and striving to eradicate hunger across the world. Food heroes of the world are celebrated for their contributions towards a sustainable, hunger-free world. Hence, October 16 marks the day where the privileged ones help the world realise and notice the underprivileged that die of hunger or hunger related diseases. The primary purpose being to promote the message that food is a fundamental and basic human right and to bring about awareness regarding malnutrition and obesity, both of which can lead to serious health complications. However, a proper diet can significantly reduce the risk of heart disease, diabetes and cancer which seriously needs to be taken care of looking at the lifestyle of the present generation and our eating habits. Food is key to health and wellbeing and if taken care of now , we can look forward to a healthier future.

Qu wrote in an opinion piece marking World Food Day that , "All of us have the potential to be food heroes. Our actions are our future. But it doesn't end with you and me. The old adage goes: 'We are what we eat.' It also holds true that how our children and grandchildren develop will be influenced as well by what we eat," he added."

- Aarushi A, Adeline S, Harshith N. Raj

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RUAS INSIGHTS

