

TECH @ BITE

TRENDS IN FOOD TECH INDUSTRY

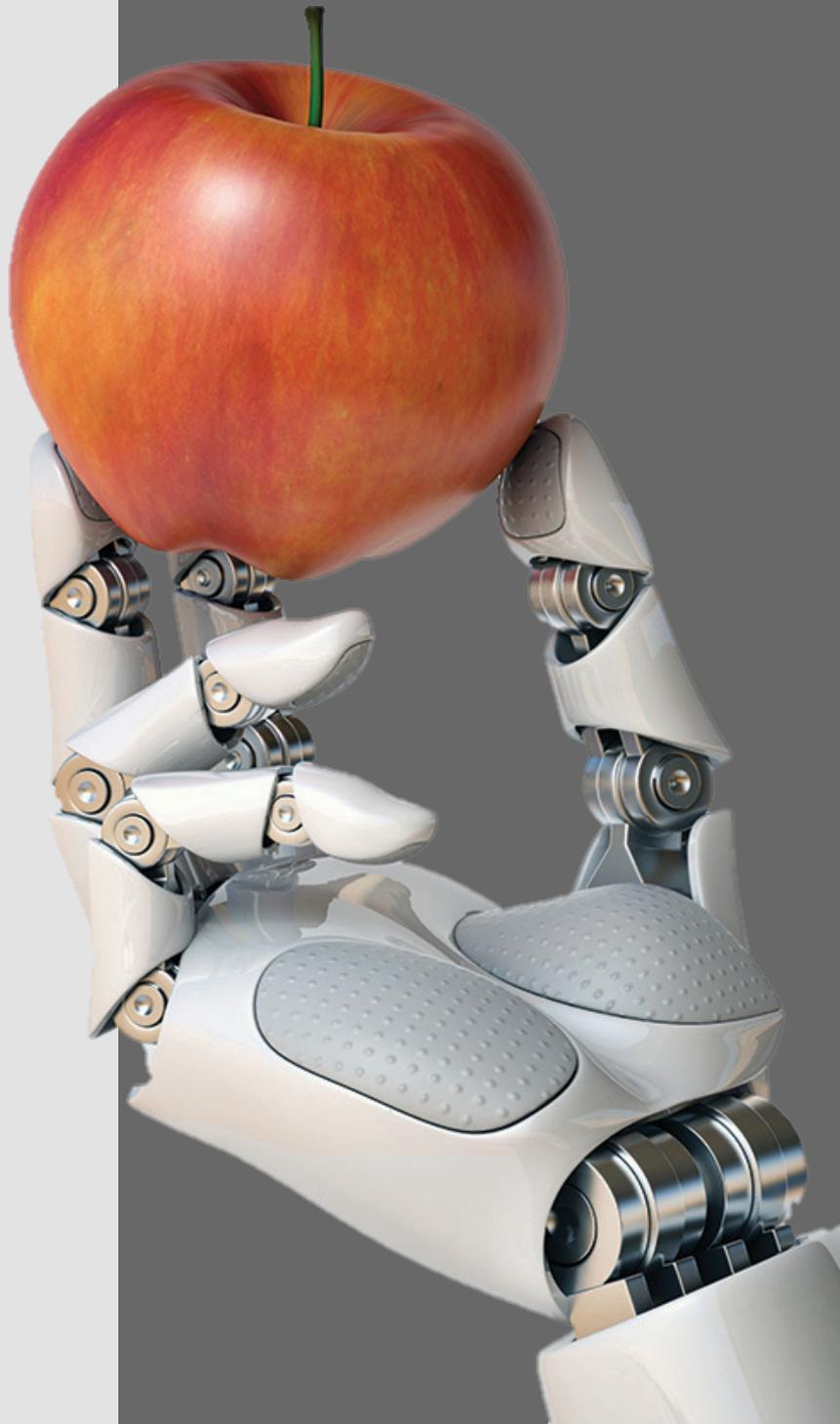
Looking back, 2021 was yet another blooming possibility as there was a greater internet penetration that worked as a catalyst for online food companies such as Licious, Grofers, BigBasket, Zappfresh, and Milkbasket, as more and more people shifted from conventional retail markets to online food deliveries during the pandemic. This, coupled with their accelerated reach resulted in newer groups of customers and higher profits. According to a report by Google and Boston Consulting Group (BCG), India's online food ordering market is expected to grow at a compound annual growth rate of 25-30 percent by 2022. Rapid digitization and a consistently growing consumption multiplied the reach of food tech aggregators between 2017-2019 by six times, according to a report by Google and BCG.

In 2021, the UN climate change conference and food systems summit set the stage for increased focus on a sustainable food supply. Food company and retailer commitments on sustainability and reduced water usage was/will accelerate and carbon labeling is coming into action. Emphasis on reducing food losses increased and the use of waste streams to produce value-added ingredients and foods are growing from niche to mainstream.

People are increasingly turning to plant-based diets for ethical, dietary, and ecological reasons. 2021 saw the launch of plant-based meat as a mainstream food option, with a slew of new products hitting the Indian market which mimic meat in taste, texture, mouthfeel and even close the gap on nutrition through strides in technology. This trend is not expected to slow down, as the rise of meat substitutes like Impossible and make a splash in the market alongside dairy alternatives like almond, oat, and soy milk.

- Anjana P.

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BEE WAX WRAPPERS

BEE'S WRAP, an organic, sustainable, and reusable kitchen wrap, is the newest product that makes your kitchen more eco-friendly. Bee's Wrap helps eco-conscious homes make a healthier choice for our planet by reducing their plastic waste. Traces of chemicals such as PVC and BPA have been found in food being stored with plastic wrap. This product gives a better way to store your food than with organic and non-toxic ingredients. Bee's Wrap uses Global Organic Textile Standards. Certified organic cotton, beeswax sourced



from sustainable beehives, and organic jojoba oil. When you are done using your Bee's Wrap, simply cut it up into pieces and compost it. GOTS stands for the organic status of textiles from the harvesting of the raw materials through environmentally and socially responsible manufacturing all the way to labelling, in order to provide credible assurances to the consumer. Bees Wrap is also Green America Certified, meaning their product helps to create a socially just and environmentally sustainable society. It is breathable, so keep the food fresh! This can be washed and air dried after use. It can be moulded to seal around the containers or the food using body heat. The usable life of bee's wrap depends on how often it is used, washed, and maintained. The production of bee's wrap can be commercial or non-commercial. To detect the antibacterial activity of beeswax wrap, they used Salmonella enteritidis and Staphylococcus aureus.

To detect the anti-yeast activity of beeswax wraps, two strains of *Saccharomyces cerevisiae* were incubated. To determine the anti-viral capacity of beeswax wrap, bacteriophages M13 and P1 were incubated. An estimated 25% of the world's food is lost due to microorganism activity. A 2017 study conducted by Pinto, Pankowski, and Nano discovered that beeswax wrap is capable of preventing the activity of microbes that contaminate food by inhibiting the viable cell count of bacteria. Bees Wrap is a natural alternative to plastic wrap. These wraps have proven to store food well and keep odours and moisture where they should be. Beeswrap uses ethically sourced ingredients.

- **Abhimanyu N.**

FOOD BACTERIA KILLING PACKAGING



As the name suggests, it is an innovative food packaging material that is biodegradable, sustainable and bacteria killing packaging material was developed by a team from Nanyang Technological University, Singapore and Harvard T.H. Chan School of Public Health, U.S. This packaging material is waterproof and is made from a type of corn protein called Zein, starch and other naturally derived biopolymers, infused with a cocktail of natural antimicrobial compounds. These include oil from thyme, a common herb used in cooking, and citric acid from citrus fruits.

The package on being exposed to increased humidity or enzymes from harmful bacteria, the fibers of the material released minuscule amounts of antimicrobial compounds only in response to prevent additional humidity of bacteria capable of killing pathogens like *E.coli*, *Listeria* as well as fungi. As the compounds combat any bacteria that grow on the surface of the packaging material as well as the food product itself, it has the potential to be used for a large variety of products, including ready-to-eat foods, raw meat, fruits, and vegetables. This packaging material is proven to be effective in extending the shelf life of various foods and is half the cost of ordinary plastics and has the potential to become an alternative to plastic packaging which is one of the adverse pollutants.

- **Vihitha P.**

THE GMO CONTROVERSY



In the 1990's, Hawaiian papayas were afflicted by the ringspot virus that nearly wiped out the crop, threatening the livelihoods of thousands of farmers.

After years of research and field study, a new variant resistant to the virus was introduced that eventually saved the crop.

These were genetically modified plants that have since then found widespread use and deemed one of the solutions to food insecurity. Naturally, this opinion is not held by all.

Their commercialization sparked a highly polarized discourse on issues of safety to human health, environmental concerns, intellectual property laws, and the economy.

Genetically modified organisms or GMOs are plants, microbes or animals that have their genes altered to display a desired trait. It normally refers to genetically engineered (GE) organisms though there are non-GE methods of modifying a crop's genes; namely selective breeding, crossing, among others. A genetically engineered crop is a product of recombinant DNA methods that allows a gene from any species to be inserted and then expressed in the crop. As with any new technology, there were concerns on its long-term effects- toxicity, allergenicity, genetic "pollution", and so on, but the safety of these crops is not disputed by most scientific institutions. With 3000 published studies on GMOs, and 280 scientific institutions' safety endorsement, it can be assured that GMOs pose no greater risk to health or environment than their non-GM counterparts.



The critiques of GE crops stem from diverse social movements including Organic agriculture, Food sovereignty, Environmentalism, to name a few . Their fears and mistrust incentivize anti-GMO lobbying. While controversy with GMOs is highly nuanced and based on social and cultural context, there is no reason to condemn the technology itself. It is not a magical solution to global hunger, nor the frankenstein it is made out to be- GMOs are simply a technology with great potential to improve food quality and agriculture when used in an ethical and sustainable farming system.

- Mahima Bhat

BITE YOU DIDN'T KNOW



The Hottest Chili

Currently, the Carolina Reaper holds the Guinness Book of Record as the hottest pepper in the whole world. Developed by Ed Currie, a.k.a Smokin' Ed Currie for his creations of new pepper varieties, it has an average of 1,64,000 SHU (Scoville Heat Unit) which is 175 to 880 times hotter than your average jalapeno pepper!

He created this pepper by crossing a Pakistani Naga with a Red Habanero type. Also called as HP22B pepper, it has a sweet and fruity flavor, right before the heat kicks in. Interestingly, it is not just hot but is also used by scientists to cure children's obesity and also in cancer research. Fascinating right?

- Supritha S.

How Food Feeds FASHION

The fashion industry realized the downside of animal leather- unsustainable, heavy carbon footprint, environmental pollution, and cruelty to animals. This paved the way for research on innovative alternatives. Enter, vegan leather. Different companies use different plant parts that are generally regarded as waste in making leather. Sources vary from apple skin (Frumat, Veera), grape skin (Vegea), pineapple peels (Piñatex), coffee grounds along with (Tômtext), areca palm leaves (Tjeerd Veenhoven), coconut water (Malai), corn (Veja), mushroom mycelium (Mylo, Bolt Threads) so far. The diversity of sources offers to mimic multiple textures of different animal skins while being processed. They found that fermentation was the most fruitful (pun intended) method of softening the substrate.

VEGAN LEATHER



What if apple peels are not just used to make cider, grape skins are no longer composted after fermentation, pineapple peel isn't a home remedy for pimples, and coconut water is not only a refreshment?



But simply turning food into textured fabric doesn't make it fashionable. It has to be both aesthetic and functional to be able to compete against the conventional leather in the market. Plastics like polyurethane and polyvinyl chloride were used to support the fibers and provide the desired flexibility.

Ironically, the fact that plant-sourced leather is non-biodegradable posed a challenge. This stimulated the exploration of other materials and innovative technologies to get the right texture and ensure 100% biodegradability. Natural binders like epoxy, silicone resins, and gums were discovered to be effective substitutes while preserving the feel of faux leather. Further experimentation by Natural Fiber Welding (NFW-MIRUM) showed that mechanical compression was sufficient, thus ruling out any chemical processing. High-end fashion and automotive brands like H&M, BMW, and Volkswagen have invested in or partnered with the technology, promoting a circular economy in the wake. This shows that the food industry has abundant untapped resources that don't just belong in the compost!

- Smruthi Bhat

FOOD INTO FABRIC





THE MONTHLY SPECIAL

I N D U S T R I A L V I S I T



Domaine Sula - The Experience

Sula Vineyards, the name is synonymous with sheer quality and vision. This market pioneer and now the biggest driver of the Indian wine market started with a vision to put the Indian wine brand on the global market. From its inception in 2000 to the current day, Sula has certainly been striding confidently towards achieving this vision, clocking in a revenue of a whopping 500 crore in a wine market like India where the per capita consumption of wine is around 4tbsp a year. To commend the gusto of the brand, we can paint a comparison. The per capita consumption of wine is around 50litres per year in France. The very little market presence of the beverage and the minimal presence of vine cultivable land in our country is not hindering their progress.

We as students of food technology (3rd year) have had the wonderful opportunity to visit one of their vineyards, "Domaine Sula" which is located at Channapatna district here in our very own state. We got to experience and learn the wine-making process in its entirety right from the growth and harvesting of grapes and their different varieties, followed by various steps of sorting, cleaning, peeling, fermentation, aging, packaging, and of course tasting. The visit was extremely enriching and gave us all a deeper insight into the world of wine. It also piqued interest among many students to explore and understand the workings of a career in the wine industry and our role as food technologists in it. This hidden away gem of a location of the Indian wine giant is a perfect site to study the tricks of the trade of wine making.