

Special Startup Series: Innovating healthy food manufacturing- the biotech way

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By : Rahul Koul - July 5, 2019



During the past few decades, the risk of developing various lifestyle diseases and disorders has increased dramatically due to the rise in consumption of processed food. This is a consequence of food toxins regularly consumed as a part of our daily diet. While these days the bakery products have become an essential part of the food basket for a majority population, there has been a growing concern of increasing toxicity in foods, the rise in use of chemicals, decline of nutritional balance in our daily diet. At the same time, there seems to be no alternative to this problem except the preventive measures and the complete switchover to healthier food options.

Working in this direction is the food technology startup, Krea Foods and Beverages based in Bhubaneswar, Odisha which has developed various verticals which include R&D, commercial manufacturing of bakery and confectionery items without the use of chemical synthesizers. The company is making use of enzymes like asparaginases, proteases, and amylases for process enhancement and toxin reduction. The other innovative methods

include fortification using a multi-vitamin approach.

Currently, Krea manufactures its products from an 8000 square feet state of the art manufacturing unit and feeds almost 1.5 lakh people per day in Bhubaneswar, Odisha, India including 30,000 tribal children at the world's largest tribal university, KISS. These tribal students are provided highly nutritious products like cookies, puffs and value-added breads on a zero-profit model.

Inception

The foundation of Krea Foods and Beverages was laid at the Technology Business Incubator, KIIT University, Bhubaneswar in Odisha on the 26th of August, 2016. The company founded by Dr Vishakha Raina, Mr Rahul Chatterjee and Prof Joydeep Biswas, is innovating new methodologies to create better food options through its research and development.

As the name suggests, the word 'Krea', comes from creativity or the urge to work and create new and sustainable technologies. The team thus focusses towards creating a Health and Wellness brand in the Food and Beverage sector using its research expertise in creating a healthy and innovative food and beverage product portfolio primarily for the state of Odisha and the country at large.



Dr Vishakha Raina (in the middle) and other co-founders with the team at Krea Foods and Beverages.

Talking about the inspiration, Dr Vishakha Raina mentions, "Our idea was focused around meeting the current problems of the food ecosystem. We aim to fulfill the untapped demand of healthy bakery products by providing a portfolio of nutritious, organic and hygienic items with the help of R&D innovation in food sciences and food biotechnology. Creating healthy alternatives to the food system was our prime motto and with this thought in mind our R&D journey began, from creating a small food technology laboratory from where we used to

create products and have it organoleptically evaluated from various consumers of a varied age group to gauge the feedback.”

Dr Raina points out that, like any other business, there are many challenge in her industry too including skilled labor, lack of awareness regarding food safety, food myths and lack of government regulations that hinder the rate of progress. However, she also adds that the team at Krea is multi-disciplinary in nature, where research scientists, food and beverage experts, chefs and others create a beneficial ecosystem to thrive, keep being motivated and succeed.

The focus of R&D activities

The long-term objective of the company is to design sustainable technologies to create affordable innovative nutrition dense foods by utilization of local and organic raw material in our state-of-art manufacturing facility. The innovation lies in designing energy-nutrient balance with a ‘no’ or ‘low’ preservative-based strategy. For example, incorporation of locally available goodness of nutrient-dense cereals/pulses like jowar, bajra, ragi, soya, oats, gram etc. for products with high shelf-life.

The Research and Development (R&D) team at Krea focuses to plan affordable and novel baked food formulations using organic components for the demanding market. The motto is about creating healthy foods packed with the natural goodness of indigenous wholesome grains with the target to alleviate malnutrition and supplement nutrition to the masses. This process would be contributing to nutritional sustainability along with decreasing the chemical/toxin content in food by the use of biotechnology.

The key differentiator of Krea Foods and other unique propositions includes ‘the innovation lies in designing energy-nutrient balance with a ‘no’ or ‘low’ preservative-based strategy’. The R&D team is using unique enzyme concoctions using amylases, proteases for processes improvement and to minimize preservatives and synthetic chemical usage like potassium bromate, potassium iodate which are carcinogenic for human consumption.

The team is working towards developing of a novel asparaginase based enzyme formulation for decreasing acrylamide, a process toxicant which is cancer causing and is found in daily foods which consists of 40% of our daily dietary intake. This product is a one stop solution that clearly differentiates Krea as this product is not available in the Indian market and is not used by any other food processing industry to decrease food toxin. Another major areas is creating products with greater shelf life of products which can be used for consumption during disaster management and for campers, mountaineers and defense personnel.

Product development and commercialization

Krea ventured out to produce various bakery and confectionery items using mandia (finger millets) as the chief raw material source in accordance to the Mission Millets initiated by the Government of Odisha. In addition, the R&D unit of the company is also working to develop various novel enzymatic solutions to reduce toxicity in the daily processing of food products. This project is currently in the post proof of concept stage and will be ready to hit the market once the upscaling and safety efficacy studies commence.

The company is providing professional training to tribal students of Odisha in bakery manufacturing, free of cost, under the program KalingaKhadyaShiksha. It us also working on

products like nutria bars and crackers along with nutritious meals with higher nutrition potential to the market at a subsidized price as part of the malnutrition alleviation strategy of the country. The innovative packaging system and solutions to preserve products in a better way instead of chemical alternatives.



In a nutshell, Krea is looking to meet all the avenues involved in the food processing pie right from the molecular level R&D to its translation into the daily regular products keeping commerce as a key parameter. The bakery and confectionery products are at par with the market competition and as it meets consumerism with health, an apt linkage considering the need of the hour.

Govt support played a big role

Krea has received productive support from various funding agencies across the country namely BIRAC, DBT, Start-up Odisha, Start-up India, MSME, Government of India, NSTEDB, DST, Government of India and some angel investors for various projects including R&D as well as as seed fund to build the research and manufacturing capacity of the company.

“As a company, we would consider ourselves extremely fortunate to have the support, guidance and cooperation of the business incubator, KIIT-TBI. The management of KIIT-TBI has been an inspirational and motivating factor behind the success of the company, says Dr Vishakha Raina while expressing her gratitude for the support, “We are extremely thankful and blessed to be supported by these government bodies and agencies. We are constantly mentored to develop the capabilities that the company believes in building.”

She adds: “The company has recently been funded by one of the premiere PSU of the country Indian Oil Corporation Limited as part of their Start Up Fund program and has received a start up fund to develop the various formulations to reduce toxicity developed for various food processing industries. We are committed to balance commerce and R&D and thrives on the mentorship of government agencies including NRDC and the KIIT-TBI Bio-incubator to produce innovations that would be beneficial for the food industry.”

Way forward

Krea is aspiring to enter the retail segment later this year of 2019 and will span out to the entire city of Bhubaneswar and Cuttack in Odisha. In addition, Krea would be expanding its wings of B2B sales to railways and airports within the next fiscal year of operations. The company's revenue pattern at B2B scale revolves a low profit high volume business ranging to profit margins from 12 to 15 percent.

"We are currently working in a B2B segment targeting schools, institutions amongst others. The immediate strategy is to develop the supply chain from the grass root level where millet flour processing centers would be created in various districts of the state of Odisha which would alleviate skill in process and produce finished raw material required as a raw material to manufacture the food products at Krea," says Dr Vishakha Raina.

This supply chain and model is being developed in accordance to the Millets Mission of the state of Odisha and would be a key component to promote grass root level innovation and also bring food sustainability to the state and the country at large. Krea also is aspiring to enter the retail segment later this year of 2019 and will span out to the entire city of Bhubaneswar and Cuttack in Odisha.

In the next five years, the company is targeting to be recognized as a Pan-India brand in the bakery and confectionery segment and in the food processing and health and wellness space. The vision is to create various novel products, technologies and utilize them to create food sustainability, making food healthier and safer for consumption in our society.

Our best wishes to the founders.