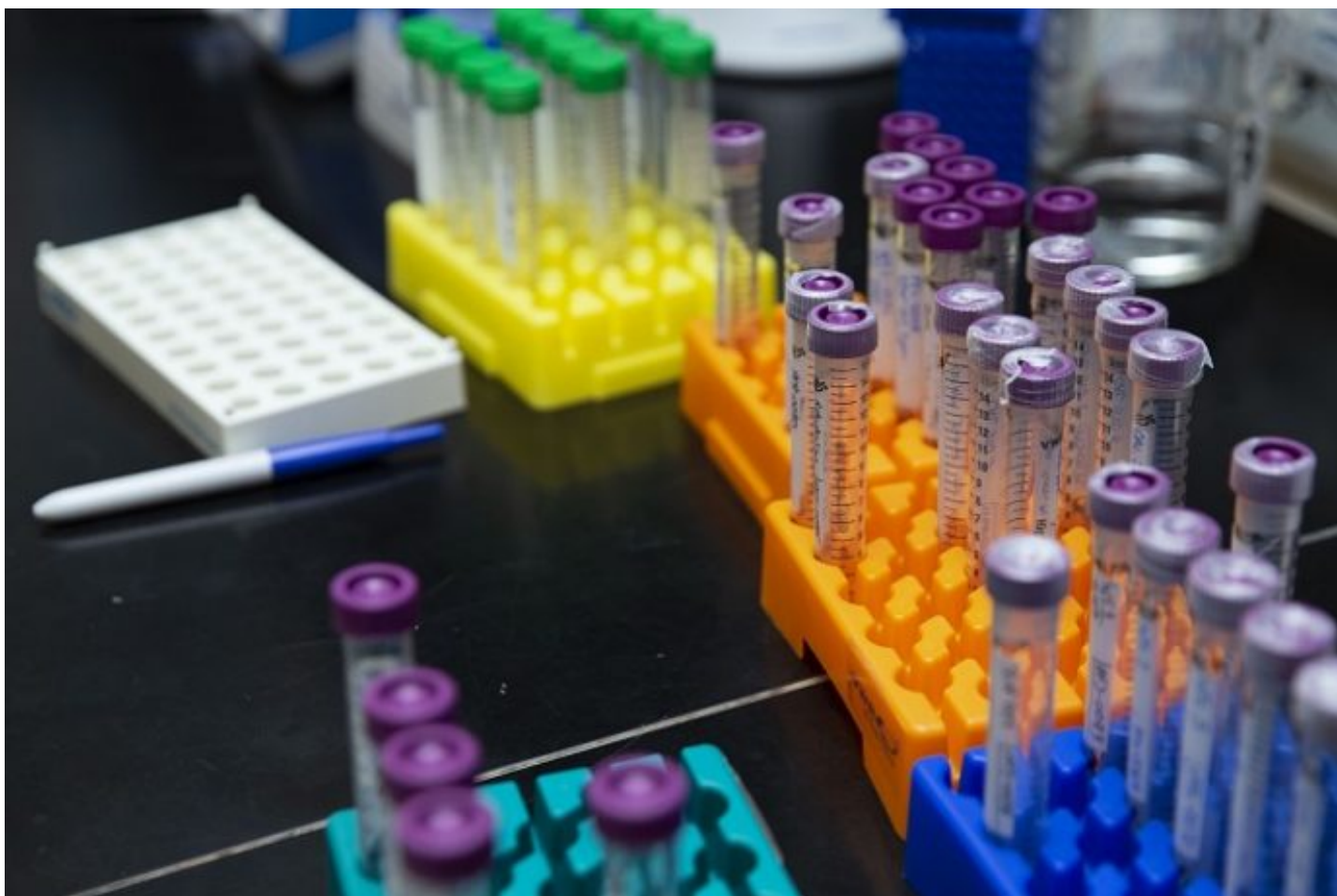


Special Startup Series: Bio-based colors to prevent synthetic's adverse health effects

<https://www.biovoicenews.com/special-startup-series-bio-based-colors-to-prevent-synthetics-adverse-health-effects/>

By : Rahul Koul - May 13, 2019



Color has always been an important additive in the food and beverages industry, as it enhances the appearance of food and makes it more desirable. Additionally, they can be found in cosmetics and pharmaceuticals. However, though inexpensive in use, the prolonged use of synthetic colors has thrown up many challenges, including allergic reactions to humans (many of the synthetic colors are carcinogenic in nature), air pollution and water pollution.

Today, almost 1.3 million tonnes of dyes, pigments and dye pigments – valued at \$23 billion – are manufactured synthetically leading to 15-20 percent of freshwater pollution caused by textile dyeing and treatment alone.

Another challenge is the rapid depletion in non-renewable petroleum sources, which act as the starting material for all synthetic colors.

Working to find viable natural alternatives is the Pune based technology driven startup, [KBCols Sciences](#). Utilizing the bioprocess technology, the start-up currently focuses on exploring microbes as an inexhaustible source for extracting different natural colors.

It was this apathy towards the environment relating to uninhibited use of synthetic colors that motivated Dr Vaishali M. Kulkarni and Dr Arjun Singh Bajwa; both PhDs in bioprocess technology, to start their this venture.

“Previously, natural colors were used in various industries; however, the inexpensive manufacturing of synthetic colors has led to the complete capture of the market by synthetic colors,” says Dr Vaishali while sharing the motivation behind their idea.

The inception & recognition

KBCols Sciences was founded in January 2018 is by Dr Vaishali M. Kulkarni who is now the CEO. The top management also includes Dr Arjun Singh Bajwa who is spearheading the business development of the company.

The journey of the company started at the Institute of Chemical Technology, Mumbai (formerly, UDCT Mumbai). However, its first tryst with entrepreneurship was when founders as young Ph.D. research fellows participated in ABLE’s BEST-India in 2015, with merely an idea. Following that, they refined their idea into a solid business plan by participating in various workshops and competitions such as IIGP 2016, Axis Moves 2017 etc.



Dr Vaishali M. Kulkarni Founder Director.



Dr Arjun Singh Bajwa

The developmental efforts at KBCols are being implemented and further developed by Dr Vaishali M Kulkarni and Dr Arjun Singh in assistance with able professors serving as an honorary advisory board.

Since its inception, the company has received many national and international laurels like BEST ABLE 2015, India Innovation Growth programme 2016, Axis Moves 2017 and National Bio-entrepreneurship competition 2018.

Overcoming challenges

The biggest challenge for the company was to arrange funding to set up its own research facility. As a fresh Ph.D. graduate without industrial experience, it was a difficult task for founders to arrange initial funds.

Vaishali credits her mentors and incubation partner, Venture Center, Pune besides the team's will power for having not only set up their own facility but now also actively trying to establish the scale-up facility. "The support received has not only included mentorship sessions to improve on our business pitch but also valuable technical guidance to sharpen our pitch impact," she says.

"The other major problems have been getting the right candidates and business and financial administration. As an entrepreneur, you are supposed to know everything and do everything, which can be disconcerting, but through all the support from various partners (Venture Center, BIRAC, DST-Lockheed Martin) it's all been wonderful and worth cherishing. The various partners have not just helped meet various compliance and regulations but have also provided valuable technical help in product development, explains Vaishali while summing up, "In all, the journey of KBCols has been worth every hurdle so far!"

The startup is currently supported by and funded by BIRAC's Biotechnology Ignition Grant, with Venture Center as our BIG partner. The ignition grant has helped us to develop our proof-of-concept studies and carry out industrial validation.

The company expects guidance from government agencies for sufficient follow up funding options as product development requires a huge investment, and networking support to reach the market faster. Besides, it is also looking for regulatory assistance to navigate the complex regulatory landscape.

R&D focus and the reasons for it

"At KBCols, we are using an innovative approach to develop the proof-of-concept for extracting stable natural colors from natural isolates or microbes and applying them in various industries through an environment friendly and novel process. The overall process not only includes screening for novel stable producers but also a cost effective sustainable process for producing these colors along with novel formulations for application purposes," explains Dr Vaishali.



KBCols Red pigment.

The company is hopeful that its approach will help change the landscape of dyeing in the apparel industry as well as increase the use of natural colors in high-end value sectors like foods and cosmetics.

Dr Vaishali believes that KBCols technology will help minimize the climate impact of the apparel and chemical color industry by providing an alternative to environmentally hazardous chemical colors and land intensive floral colors. “In the last few years, our idea and startup have gained tremendous traction with respect to the numerous possibilities and applications for our products,” points out Vaishali revealing that company has already developed three products (natural blue/violet pigment, natural red/pink pigment, and natural yellow pigment) which have shown a lot of promise. The applications of these pigments are being developed in collaboration with the industrial partners.

What is the company aiming at?

Coloring agents and additives are used ubiquitously across various industries and sectors. The global textile dyes market was estimated to reach US\$ 5.5 billion by 2015. Currently, natural colors constitute 1 percent of that market, which is US\$ 55 million. In the near future, India alone is expected to supply 6.4 percent of the natural color market.

Increasing health consciousness has led to the growth of the clean label trend in the world. With more customers willing to pay for clean label foods, the market for natural food colors is predicted to reach \$ 1.7 billion by 2020.

With the trend for natural products continuing to enjoy massive popularity among cosmetic consumers, the global natural pigment market in cosmetics is predicted to reach US\$ 16 billion by 2020. The market in Asia is expected to grow substantially in the coming years due to changing consumer demographics towards a younger affluent segment.

“In addition to these applications, where natural colors can replace synthetic colors, our innovative technology can also provide the basis to develop sustainable processes for industrially important biomolecules,” reveals Vaishali.

Undertanding the strategy and efforts

The immediate business plan of the company includes segmenting customers based on regulatory requirements and then preparing a strategy to enter the market at the earliest.

As per Vaishali, the strategy to enter the market will vary depending on the sector that we are

catering to. So, the segmentation of customers will be done based on least complex G2M (go to market) and most complex G2M (go to market). The least complex G2M would be one that requires color samples with the least purity, and whose market is less regulated, for example, textiles and paper printing. “Therefore, these are likely to be the first markets we will target through meaningful collaborations with various industries and partners that can help us launch our product,” she adds.

In the later part, the company plans to target slightly more complex markets that require partially purified color samples; these include the feed sector, etc. Eventually, in the pipeline, it will be reaching out to the most complex G2Ms, which would be sectors like food and pharmaceuticals that require color samples with the highest purity.

Way Forward

At present the company is at the scale-up stage, and post BIRAC’s Biotech Ignition Grant (which is ending on September 2019), it would focus on raising funds for scale up and product launch. The founders are looking at initially targeting the less complex markets such as textiles and printing to start generating cash flow by early next year.

“In the next 5 years, we want to expand into heavily regulated markets such as cosmetics and food with three natural colors. Moreover, we are looking to develop our product pipeline further to strengthen our customer portfolio,” says Vaishali while outlining the future agenda.

KBCols Sciences surely has a huge advantage in terms of geographical location, as South East Asia is the textile hub. Looking ahead, the company intends to leverage the advantages of both location and industrial collaboration over the next 5 years to ensure that it can make a huge difference towards saving the environment.

Our best wishes to founders for their unique ideas.