

With avocados on the mind, Mexican company Biofase entered 2012 determined to develop 100% biodegradable plastic resins. Chemical engineer and founder Scott Munguia spoke with www.freshfruitportal.com about this innovative project making the most of discarded seeds. 

"Bioplastic technology has existed for 10 to 15 years, but in my research I realized there was a problem and that these products were using potential food sources like corn and potatoes," he said.

"Bioplastic is intended to be a green product, so we must seek new alternative raw materials with renewable products and avocado seeds are perfect since in Mexico, one of the biggest avocado producers, it is really industrialized. The seeds are thrown out and we give them another use."

According to Munguia, the Mexican industry discards about 30,000 tons (MT) of seeds a month. Under Biofase's plan, companies would no longer need to pay third parties to dispose of such waste. The company would pick the product up and reintegrate it into the production system for a 100% sustainable alternative.

He explained that the seed contains a monomer, a small molecular mass that developers have been able to convert. After technical feasibility testing, the process was taken for production.

"The main objective of bioplastics is quick disintegration. Petroleum-based plastics that we normally use take a thousand years to disintegrate. There are plastics that stay in the environment indefinitely and that generate significant ecosystem pollution. That's why we're look for vegetable sources."

Biofase produces resins for processing and mass production for use by other businesses.

The company has already patented the technology and is looking for new raw material with the same monomer as avocados.

"The company is relatively new and we don't have a big research department. So while we are in the testing phase for other vegetable sources, we are focused now on taking full advantage of avocado seeds and putting ourselves in charge of industry waste for bioplastic production."

Biofase has two product lines: Biocom, 100% biodegradable and compostable thermoplastic resins, and Bioblend, an additive that can be mixed into petroleum products to make them

partially biodegradable.

For Munguia, green product development has two fundamental goals: to reduce pollution and to find a new resource as an answer to oil scarcity.

"The market is growing substantially, as much for bioplastics as for biofuels. In Mexico, the bioplastic market has maintained 20% annual growth, and 600% globally. For 2020, we expect much more," he said.

"Consumers are becoming increasingly aware and we thought that would be our main sales point. But we have realized that businesses are the ones looking to improve their image through green product utilization. Our most important potential, true clients are these businesses that want to incorporate this technology to show clients later the social responsibility that they achieve environmentally."

Munguia explained further that green production isn't only on the mind of big business. Small companies like organic coffee producers are interested as well.

Market

Currently, Biofase is in negotiations with Mexican supermarkets looking to use resin in their bags and fertilizer companies interested in using the product in their plastic packaging.

"For the moment, we're only looking for sales in Mexico. The company is really young and we are looking for stability to be able to grow."

Munguia added that the true competition comes from bioplastic additive producers, which he said are more talk than reality.

"These petroleum plastic additives are said to be biodegradable because they break the polymer into very small parts. But these parts still exist. You don't have the bag but you do have a lot of plastic dust," he commented.

"There are other companies trying to develop our technology but no one is using avocado seeds like us. They normally use potential food sources like corn or potatoes."

Projections

Munguia said Biofase is evaluating the possibility to develop its own bags, cups and cutlery, but wants to take heed first of market conditions.

"We've thought about having ourselves produce the products directly but we'll need to capitalize on the company. For example, in Mexico, the regulations are more beneficial for bags than injectable products, so we want to see how these government regulation trends develop and if it grows and what would be best to invest in. We're going in but we want to wait for the market to show clearer trends."

For Biofase, 2012 was a year to build strategic alliances with potential clients and to send product samples for businesses to preform necessary tests. In 2013, the business plans to formally enter the market.

"We project 30 tons a month with an estimated monthly profit of US\$46,000 in the first year. We hope to have a growth rate of 20% in the first year and for the second, we hope for 60% since we will have more experience."

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