

COMPANY EXTRACTS PECTIN FROM COFFEE PULP

The technologist and the optimist make a good team

One is the inventor, and the other runs the business and finds investors. Andres Belalcazar from Columbia and Rudi Dieleman from The Netherlands met as students in Wageningen and founded a promising startup together. Their goal is to extract useful ingredients from coffee cherry waste.

TEXT ALEXANDRA BRANDERHORST PHOTOGRAPHY GRAHAM MORGAN AND HARMEN DE JONG

Only half of the coffee crop is used. Coffee cherries consist of 45 percent pulp, which is left behind after the green coffee beans are extracted. The pulp is considered waste. Farmers dump it, and it harms the environment. But I have found a solution', says Andres Belalcazar from Colombia. He finished his Master's in Food Technology at Wageningen University in 2012. While he was following this programme he developed the idea of extracting pectin from coffee cherry pulp. Pectin is used as an emulsion stabilizer in soft drinks, sweets, desserts and sauces. 'Without emulsion stabilizer, drinks and foods would be rather disgusting. It allows different ingredients, colours and flavours to mingle', explains Rudi Dieleman, who recently graduated from his Master's in Management, Economics and Consumer

Studies at Wageningen. Together Rudi and Andres founded Pectcof in 2012, a startup that focusses on the biorefinery of coffee pulp.

The two entrepreneurs are hopeful that their pectin can fill a gap in the market. The food industry often uses gum arabic, hardened acacia tree sap, as an emulsion stabilizer. But the supply of this gum is not reliable. Nomads collect it from the trees while herding their cows, mainly in politically unstable regions of South Sudan and Chad. The gum is then shipped to Europe and refined. The quantities are diminishing and it is an expensive ingredient.

SUITS

Andres' family run a food lab in Bogota which performs tests for the food industry.

Before he came to Wageningen Andres worked there for a few years. 'One day a coffee farmer came to us with some coffee pulp. He said he was drowning in it and wanted to know if it could be used somehow. That idea lodged in the back of my mind', says Andres. Years later, in Wageningen, he discussed it with a researcher 'who knew more about pectin than anyone else in the world' and told him about its potential. Andres pitched his idea of extracting pectin from coffee pulp in a 2 minute video clip in the MSc course 'New venture creation' in 2011. Inspired by what he heard, his coursemate Rudi joined Andres' team. 'Even if only some of his projections are right, it is a viable business idea, I thought', says Rudi. With their business plan they won the course competition. 'We won a

‘Technology can help protect the environment’



microloan of 6000 euro. We spent the first 600 euro on suits’, Rudi laughs. ‘We decided to find out whether the idea really would be commercially attractive and feasible.’ They founded Pectcof and Rudi set about building the business and attracting the first investors, while Andres focused on completing his degree. Their company generated lots of interest and got support

from organizations such as Start Life, PPM Oost, Climate KIC and the Centre for Biobased Economy. They won several prizes, including the ‘Ondernemen zonder grenzen’ [entrepreneurship across borders] award in 2014 and the Dutch Venture Competition in 2013. In 2014 Rudi gave a TEDx talk in The Hague about the biorefinery of coffee pulp. >

ANDRES BELALCAZAR

Age: 32

Studied: MSc Food Technology 2010-2012

Works: Chief scientific officer and Co-Founder of Pectcof since 2012



RUDI DIELEMAN

Age: 27

Studied: MSc Management,
Economics and Consumer Studies
2008-2015

Works: Director and Co-Founder
of Pectoof since 2012

‘We spent the
first 600 euros
on suits’

GREENER AND CHEAPER

Once he had graduated, Andres developed the technical processes for preserving the coffee pulp and extracting the pectin. Since then he has patented both processes for the company. The preservation process was tested on coffee farms in Colombia, where the pulp was preserved with a special solution in plastic tanks. Then it was dried and shipped to Wageningen. There, in the Food Solution Center lab, Andres found a way of extracting pectin. That took a lot of time: he started working on it in October 2012 and was only done last February. 'We use green chemistry and very little energy. The gum that we produce is dry, ready-to-use and solvent free. The apple and citrus pectins which are on the market are produced using solvents, which is very expensive. Solvents also pollute the environment', states Andres.

Rudi adds: 'The gum that we make out of coffee pulp is competitively priced and is a sustainable and natural product. The quality is better than that of gum arabic, the supply will be constant and it will be much cheaper too. That makes it an appealing alternative for the food industry. Food corporations like DSM, BASF, Tate & Lyle and Döhler are all queuing up to test the gum. However, Pectcof is not yet able to produce larger quantities. 'The lab results are promising, but now the technology has to be tested on a bigger scale. In order to do that, we need machines. Upscaling is very expensive and a high risk for investors. But recently we have attracted an experienced senior partner with a good network, who is willing to invest in the first steps', Rudi says.

PILOT

As a child Rudi wanted to be a pilot. To understand the science behind aircrafts he studied Electrical Engineering at Windesheim university of applied science in Zwolle. While on this degree programme, Rudi failed the test for the pilot academy because he is slightly dyslectic. In 2008 he went to Wageningen to do a transitional year to prepare for the Master's programme in Management, Economics and Consumer Studies. 'I was more interested in the people

and the companies that make use of technology than in technology itself', Rudi explains. During his Master's course he joined student society KSV, and took part in many student activities and sports. For a year he was fulltime board member of Integrand, an organization that connects companies and students. He was also chairman of the board of Studentenwintersport, organizing a skiing holiday for 1000 Dutch students. In April 2015 Rudi finally finished his Master's degree, just in time before the validity of his grades expired.

Andres, by contrast, finished his Master's within two years. Before obtaining his Bachelor's degree in Biotechnology in Bogota, he had taking cookery courses in Montreal, Canada. 'I am a foodie and there are two top universities for food technology: Cornell in the US and Wageningen. I wanted to experience life in Europe.' Unfortunately he arrived at a time when there was not enough student housing. 'For the first few months we lived in office space next to the hotel Hof van Wageningen', he recalls. He thoroughly enjoyed the international student life in Wageningen, though. 'I went to many parties and we held big dinners for foodies and techies at the student house in Droevendaalsesteeg where I lived. I love cooking and molecular gastronomy. Sometimes I cooked pork loin, froze it and then cooked it again to make it super tender.'

HARDEST DECISION

Andres did an internship at Nestlé, which resulted in a job offer. 'It was one of the hardest decisions I ever made. I still had to write my thesis on developing the Pectcof concept. I chose for Pectcof. It was life-changing.'

In addition to their studies and work, Wageningen also brought the Pectcof team love. Rudi's heart was stolen by Joy Leegwater, who graduated in Food Technology in 2012 and works on improving puff pastry products at Smilde Bakery in Edam. Andres got together with Irina Hotkevica from Latvia. She finished her Master's in Landscape Architecture in 2014 and has a job in Bath in the UK. Andres has joined her there and

they plan to get married on 23 June.

'I expect to be travelling back and forth a lot in the coming years, before deciding where to settle down.'

Pectcof provided an income for Rudi for one year, and for Andres for a year and a half, which was a requirement for getting his Dutch working permit. Now new funding is needed, and in the meantime they are supported by their families and girlfriends.

PROFITABLE

The production of pectin is just the start. Besides pectin, coffee pulp also contains cellulose, which can be used as biofuel, and sugars, which can be used in the food industry. And it is rich in anti-oxidants, which are valued highly in the food industry nowadays. Biorefinery is one of the technologies of the future, predicts Andres.

'Technology can help to protect the environment, make agricultural waste profitable and help coffee farmers who sometimes struggle to survive. I also have other ideas about the use of waste, like the residues of palm oil for example.'

Andres is a true innovator, emphasizes Rudi. In turn, Andres admires Rudi's ability to communicate with people and explain technical things in a simple way. 'Rudi exudes trustworthiness. And he is optimistic. I am a technical-minded person; I need to see evidence. Rudi's positive thinking really gets us through difficult times.'

They have spent a lot of time together over the past four years. 'Sometimes we even slept in the lab and ordered pizza there, just to make sure we could restart a software programme if it ran down', Rudi remembers. Andres: 'Having a startup is like doing a pressure cooker MBA. You have to learn how to build a company and how to deal with investors and customer expectations. Food innovation is not like developing Facebook; it takes a long time. Permits are needed and there are a lot of regulations to protect consumers. But this is the way we conquer the world.' Rudi adds: 'One coffee cherry at the time.' ■

www.pectcof.com