



Masterful: In Tours, France, Franck Michoux and his team cultivate especially robust plants and subject them to stress

Products & Markets

QUANTUM LEAP IN TOURS

Once a niche product, now a megatrend: The demand for natural cosmetics is rising worldwide. In response to this trend, scientists in Tours, France, are using advanced biotechnology to produce highly effective plant extracts.

The stress experiment began right before Christmas, of all times. “It was the kind of thing that is generally bound to fail,” recalls the plant biologist Franck Michoux. Before he and his team left on vacation, they didn’t put plants into the soil, but instead let them float on a nutrient solution under sterile conditions in a bioreactor. “I was convinced that the cells would be dead when we returned,” says Michoux. Instead, one of the plants grew several new leaves. When repeated tests yielded the same result, Michoux applied to have the process patented in 2008. In order to perfect the method, he founded Alkion Biopharma SAS in 2011.

Plants under pressure

The small Christmas miracle was due to a unique property that plants have: “Plants can’t run away when they encounter adverse conditions. They have to repel the attacks. Many genes in a plant’s genome only become active when danger looms,” explains Michoux. If a fungus attacks a tree trunk, for example, the plant’s genes deliver the blueprint for a fungicide. When confronted with frosty temperatures, some flowers toughen their cells with a natural antifreeze agent. Others produce toxins to fend off insects.

In the lab, scientists subject plants to as many as 40 different extreme conditions. Among other things, they change the light, the temperature, or the composition of the culture medium so that the plants have to defend themselves with the desired substances. When Michoux presented his research results at a conference in Paris, he found out that some of these substances are especially interesting to the cosmetics industry. Half of the sector was suddenly lining up to learn more from Michoux’ lab.



In the lab, the scientists can create high concentrations of effective substances. This is done by means of biotechnology, which makes it reproducible

Raw material for natural cosmetics

Through its acquisition of Alkion Biopharma in 2016, Evonik closed a gap in its product range and became the owner of the firm—now renamed Evonik Advanced Botanicals—and one of the world’s leading technologies for the production of plant-based raw materials for cosmetics. Whereas plants that are conventionally grown on plantations suffer from fluctuating yields and levels of quality, Michoux and his team create effective substances in a lab. The substances are produced in high concentrations and have a positive sustainability profile. Moreover, they are created by means of biotechnology, so the results are reproducible.

Ayurveda wisdom and cutting-edge biotechnology

The main business of Evonik Advanced Botanicals is still the production of customized plant preparations as ordered by its clients. The scientists at the lab have recently launched the first product of their own on the market: NEOPLANTA® Withania. This plant-based raw material unites ancient Ayurveda wisdom with cutting-edge biotechnology in order to protect the skin against premature aging as a result of stress and environmental factors. The extract is produced from the roots of the plant Withania somnifera. People knowledgeable in Ayurveda medicine will know the plant under the name ashwagandha or, more commonly, as Indian ginseng or winter cherry. To conduct the market launch, Michoux was able to draw on Evonik’s network of experts for handling approval issues, marketing, and sales. NEOPLANTA® Withania is available all over the world. “Interest is especially great in the USA and Japan,” says Michoux.

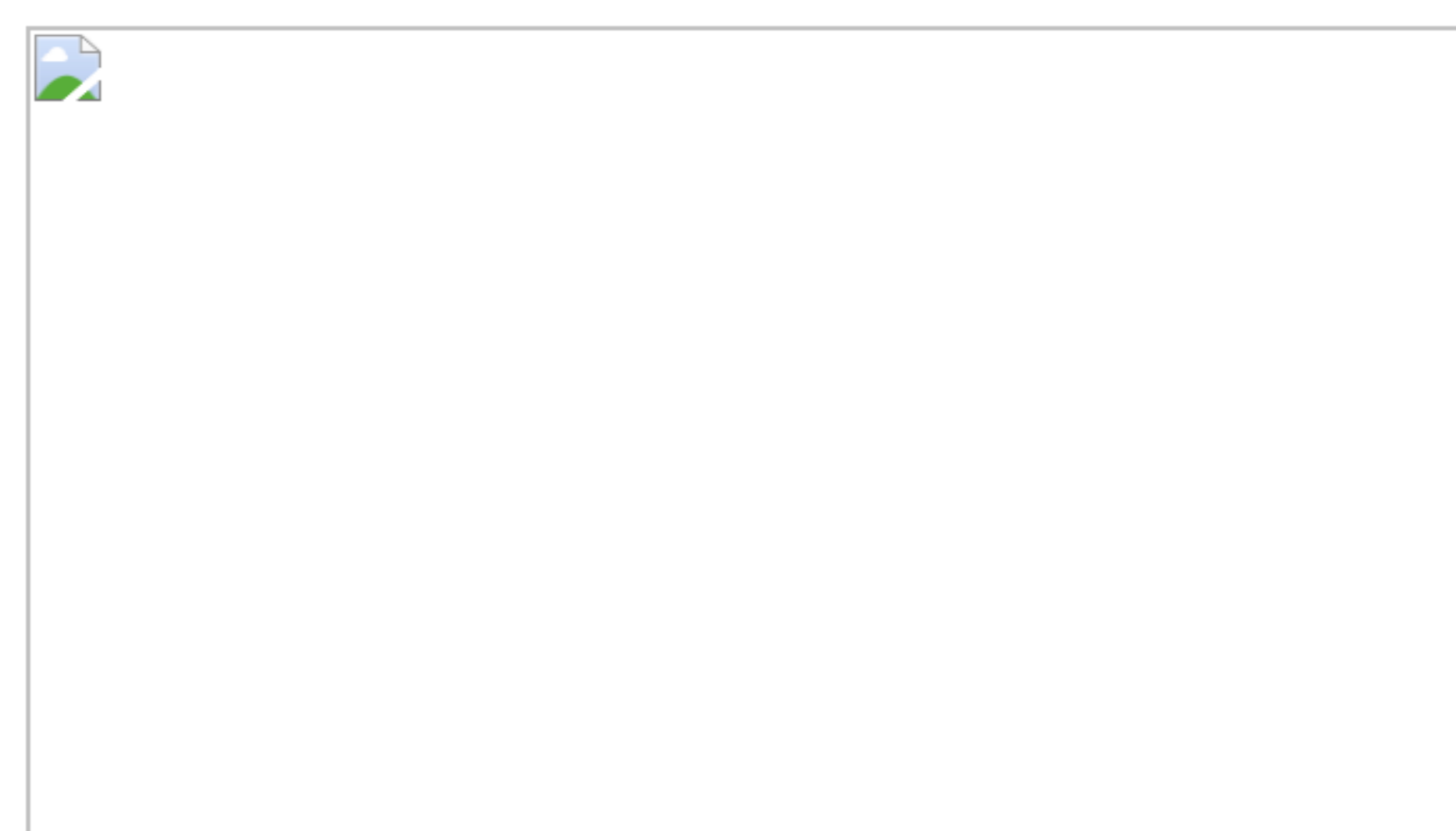
This encourages the company’s plant biologists to further expand their own range of products, which has great potential. The scientists in Tours are currently testing more than 70 plant species. Not a day goes by when they aren’t surprised by the wide variety of reactions. Michoux is convinced that this is just the tip of the iceberg. “If there’s one thing I’ve learned from plants, it’s their persistence,” he says.

WHAT CUSTOMERS LOOK FOR WHEN BUYING COSMETICS AND PERSONAL CARE PRODUCTS

- 54% natural ingredients
- 52% no animal testing
- 48% free of preservatives
- 35% vegan
- 30% alcohol-free

Results of a survey of online shoppers in Germany, France, and the United Kingdom (Source: A. T. Kearney)

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