EUREKA PROJECT 4906 LycopeneRAMAN

BOOSTING EUROPEAN EXPORTS WITH FOOD TESTING TECHNOLOGY

As exporters of food produce, how can European countries keep up with the global market? The competition-boosting technological solutions developed as part of a European research project provide an interesting answer to this question.

Portugal is a formidable tomato producer; in 2010, the country's output of tomatoes by area was more than ten times that of the US. This crop has long been a dietary staple in Europe, but took on new importance in recent years when its health benefits began to be recognised. In particular, lycopene – the phytochemical that gives tomatoes their distinctive colour – has been shown by some studies to have anti-cancer properties, provoking great interest from markets worldwide.

In 2009, demand for lycopene as a health food was particularly strong in Japan – and one large Portuguese company known as Fomento da Industria do Tomate (FIT) was already expanding its business into this emerging market. The only challenge was determining which tomatoes contained high concentrations of lycopene using the methods available; FIT therefore joined forces with Danish research SME RSP Systems, as well as research institutions in both countries, to come up with a solution. With funding provided by Eurostars, an SME-focused instrument managed jointly by the EUREKA Network and the European Union, the LycopeneRAMAN project was born.

Quality and quantity

The objective of LycopeneRAMAN was to create a new, efficient testing method that could be integrated into the production line for maximal convenience – and RSP Systems believed that the answer lay in Raman spectroscopy. This technology, which determines the chemical makeup of products by shining a laser onto them and analysing the light that reflects back, was particularly appropriate for tomatoes as its results are not disrupted by water content. Combined with its use of a common type of laser, these features made RSP Systems' innovative mini double-slit Raman spectroscope faster and cheaper than its competitors.

> *"The success of our Eurostars project has had a big impact on us as a company*

Over the 39-month duration of the project, the international partners were able to successfully design and implement beta versions of the Raman spectroscope in two production lines within an FIT factory. This innovation has since provided the Portuguese company with just the opportunity it needed to capitalise on the emerging Japanese market; they are now able to offer a new high-lycopene product that is proving popular not only in Asia, but also in Australia and within Europe as well. With further testing funded by FIT, the double-slit Raman system will be perfected, and perhaps made commercially available.

As for the project's leading company, RSP Systems, reflecting on the work performed CEO Stefan Banke admits: "The success of our Eurostars project has had a big impact on us as a company. In particular, we now work in a far more organised way." This newfound experience, gained through collaboration with their larger partners, may be part of the reason that the company was bought out by investors late in 2011 – allowing RSP Systems, much like its partner FIT, to assume a more competitive position in the marketplace thanks to LycopeneRAMAN.

EUREKA INNOVATION AWARD 2014
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PARTNERS

RSP Systems A/S, Denmark
Danish Technological Institute, Denmark
Fomento da Industria do Tomate, Portugal
Technical University of Lisbon, Portugal

BUDGET

€ 0.6 M

DURATION

39 months

COUNTRIES INVOLVED

EUREKA is a European network for market-oriented R&D.

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