

**PRESS RELEASE**

**Gluten substitutes from corn: Virna Cerne and Ombretta Polenghi named European Inventor Award 2016 finalists**

* **Italian food scientists nominated for developing a new method to produce gluten-free food**
* **Process isolates and extracts gluten-like proteins from corn, which can then be added to various food products**
* **Dough that mimics the flavour, texture and chemical behaviour of baked products made with regular wheat flour**
* **EPO President Battistelli: "Cerne and Ombretta's innovative process helps people throughout the world with coeliac disease and gluten intolerance effectively manage their condition."**

**Munich, 26 April 2016 –** As the popularity of gluten-free diets has swelled in recent years, so too has the prevalence of coeliac disease. In fact, there are more than four times as many people with gluten intolerance now than there were four decades ago. Scientists are still divided over the exact reason for this. However, one thing is certain: the roughly 1 in 100 people who suffer from coeliac disease ­– and many more who prefer to limit the gluten protein in their diets ­– would have a much harder time finding gluten-free baked goods and pastas that taste, look and feel like the real thing were it not for the work of Italian scientists Virna Cerne and Ombretta Polenghi.

For this achievement, the European Patent Office (EPO) has named Cerne and Polenghi finalists for the European Inventor Award 2016 in the category "Industry". The winners of the 11th edition of the annual innovation prize will be announced at a ceremony in Lisbon on 9 June.

"Cerne and Ombretta's innovative extraction process helps people throughout the world with coeliac disease and gluten intolerance effectively manage their condition," said EPO President Benoît Battistelli announcing the European Inventor Award 2016 finalists. "Not only has it improved the lives of millions of people affected by this disease, it has also helped secure their company a top spot in the gluten-free industry."

The two Italian food scientists, working in the R&D department of food and nutrition company Dr. Schär along Italy’s northeastern Adriatic coast, found a way to extract gluten-like proteins from corn and use them as a substitute for traditional grains. In doing so, they cleared a major hurdle for people living with gluten-related dietary restrictions. Gluten is found in all sorts of food and beauty products. For people with coeliac disease, consumption of even a tiny amount of gluten can trigger an immune reaction that damages the fine, bristly inner surface of the small intestine, making it difficult for the body to absorb nutrients from food into the bloodstream.

**A mix of alternatives**

While the number of alternative flours on the market has risen dramatically in recent years, many of them just don’t do the trick. Finding viable substitutes for dough made with wheat or other gluten-laden grains is no simple task. That's because gluten has very specific characteristics that make it ideal for baking. It acts as a binder that holds food together, giving bread its sponginess, for instance. Take that away, and a baker is left with sub-optimal dough that may either fail to rise, collapse, harden too quickly or, perhaps most importantly, taste unpleasant.

**A recipe for success**

Cerne and Polenghi were not the first scientists to derive proteins from corn, but theirs was the first extraction process that did not result in dough that was lumpy, off-coloured or foul-smelling. Their method, patented in 2013, involves stirring corn or a corn by-product into a solution of water and alcohol, and heating it. This process isolates two gluten-like proteins, *zein* and *glutelin*, which can then be added to food in various quantities depending on which texture, consistency or taste you are trying to mimic.

After all the pouring, heating, stirring and cooking, Cerne and Polenghi have developed a protein supplement that significantly increases the quality of a variety of gluten-free foods. Since the only effective treatment for gluten intolerance is a consistently gluten-free diet, giving people with coeliac disease more choices when they go shopping can lead to a substantial improvement of their quality of life.

Even if you have to give up gluten for your whole life, it does not mean that you cannot enjoy food," says Cerne.

**Hungry market**

Gluten-free products are certainly in high demand: In 2015, consumers the world over spent over EUR 4 billion on gluten-free food. They didn’t only spend their money on breads and pastas, either. The billion-euro industry spans a myriad of gluten-free dishes, drinks – even dog food. New products are constantly being introduced, and by 2020, sales of gluten-free products are expected to top EUR 7 billion. Companies continuously invest in R&D to come up with new ingredients and better processes. Patents thus play an important role in this industry. Italian company Dr. Schär, which employs over 1 070 people, accounts for some 35-40% of the market share in Europe, and is also a big player in the US, where it opened a subsidiary in 2007.

**Gourmets leading the lab**

It is fitting that these technological advances were developed in Italy, a country renowned for its love of good food. The inventors, too, have been accompanied in life by their passion for nourishment. Virna Cerne obtained her master's degree in Food Science and Technology in 1994 from the University of Udine. She spent two years in Berlin developing fruit-based products for yogurt manufacturers before returning to Italy in 1996 to join Dr. Schär. Today she heads the R&D department and is on the company’s executive board.

Ombretta Polenghi combined her interests in nutrition and great-tasting cuisine while earning her master's degree in Food Science and Technology from the University of Udine – beginning the same year that Cerne graduated. After joining Dr. Schär in 2002, she rose from R&D researcher to department manager of research and innovation. Today Polenghi finds time to juggle her research of gluten-free and nutritional products with family life, which includes home-cooked meals.

**Additional resources**

[**Video and photo material**](http://www.epo.org/news-issues/press/european-inventor-award/cerne.html)

**[Read more about the inventor](http://www.epo.org/learning-events/european-inventor/finalists/2016/cerne.html)**

 **View the patent:** [**EP2401920**](http://worldwide.espacenet.com/publicationDetails/biblio?DB=EPODOC&II=0&ND=3&adjacent=true&locale=en_EP&FT=D&date=20120104&CC=EP&NR=2401920A1&KC=A1)

**Sometimes simplicity is simply better**

The world of intellectual property isn’t only about high-tech and complex engineering, often simple inventions can have far-reaching effects. Past European Inventor Award nominees with elegantly simply innovations include: [Mario Moretti Polegato](http://www.epo.org/learning-events/european-inventor/finalists/2012/polegato.html)’s breathable shoes, [Claus Hämmerle and Klaus Brüstle’s](http://www.epo.org/learning-events/european-inventor/finalists/2013/haemmerle.html)bluemotion cabinet hinges and [Joshua Silver’s](http://www.epo.org/learning-events/european-inventor/finalists/2011/silver.html) adjustable eyeglasses. [**Read more about "simply brilliant" innovations.**](http://www.epo.org/news-issues/technology/lifestyle/simple-inventions.html)

[**About the European Inventor Award**](http://www.epo.org/learning-events/european-inventor.html)

[**About the European Patent Office (EPO)**](http://www.epo.org/news-issues/press/background/epo.html)

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