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Scientists create 'no tears' onions

by Margot Staunton

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Scientists in New Zealand and Japan have created a "tear-free" onion using biotechnology to switch off the gene behind the enzyme that makes us cry, one of the leading researchers said Friday.

The discovery could signal an end to one of cooking's eternal puzzles: why does cutting up a simple onion sting the eyes and trigger teardrops?

The research institute in New Zealand, Crop and Food, used gene-silencing technology to make the breakthrough which it hopes could lead to a prototype onion hitting the market in a decade's time.

Colin Eady, the institute's senior scientist, said the project started in 2002 after Japanese scientists located the gene responsible for producing the agent behind the tears.

"We previously thought the tearing agent was produced spontaneously by cutting onions, but they proved it was controlled by an enzyme," he told AFP from his home outside Christchurch.

"Here in New Zealand we had the ability to insert DNA into onions, using gene-silencing technology developed by Australian scientists.

"The technology creates a sequence that switches off the tear-inducing gene in the onion so it doesn't produce the enzyme. So when you slice the vegetable, it doesn't produce tears."

Eady said that by stopping sulphur compounds from being converted to the tearing agent and redirecting them into compounds responsible for flavour and health, the process could even improve the taste of the onion.

"We anticipate that the health and flavour profiles will actually be enhanced by what we've done," he said.

"What we're hoping is that we'll essentially have a lot of the nice, sweet aromas associated with onions without that associated bitter, pungent, tear-producing factor."

The breakthrough has caused ripples overseas, following an international symposium in the Netherlands and after the trade journal Onion World featured Eady's work on the front cover of its December issue.

Eady, who has several model onion plants at the institute, said despite the excitement about the prospect of "no tears" onions in every home, it would be 10 to 15 years before this happened.

"This is an exciting project because it's consumer orientated and everyone sees this as a good biotechnology story," he said.

"I'm more interested in sustainable production and the onions we are working on must be capable of being grown in an efficient manner.

"We have a burgeoning population to feed, and with climate change and other challenges, available resources are being reduced.

"The gene silencing system can also be used to combat virus diseases, and biotechnology in general can help us produce more robust crops."
