

Researchers develop kit to detect gluten in any food

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Current commercial tests can only tell that gluten is present in a food but not the grain it’s from. The various detection kits currently available also give variable results of how much gluten is present.

Protein analytics expert with CSIRO, Prof Michelle Colgrave, explains how completing the picture with rye can help consumers and food manufacturers.

“Being able to detect any protein in diverse foods and beverages will help food companies ensure that what’s in the pack is what’s on the pack, and help consumers trust pack labelling around gluten-free claims,” Prof Colgrave said.

“This technology offers many applications for the food industry from helping track contamination in their raw ingredient supply chain, to improving product quality, food safety and meeting regulations.”

The researchers analysed 20 cultivars of rye from 12 countries, which they milled into flour, extracted the gluten proteins and used high resolution mass spectrometry to identify and quantify the proteins. The analysis revealed six proteins specific to all rye varieties but that don’t appear in other grains.

Detecting gluten proteins in their original grain is relatively simple, but when they're in food products we buy at the supermarket and have been baked, extruded or processed in other ways with other ingredients such as salt and sugar, it is a lot more complex.

The team tested a range of commercial flours, breakfast cereals and snack foods and detected the six rye proteins in all the foods that contained rye as a labeled ingredient. They found one "gluten-free" breakfast cereal that contained trace amounts of rye, which did not appear on the ingredients list, and one sample of flour from the wheat-related grain, spelt, which was contaminated with about two per cent rye.

Next steps are to validate the method's ability to accurately quantify the level of glutens present in a food and work with the food industry and commercial testing laboratories to help commercialise the technology.