

Figuring out how to make the healthiest potato chips on the planet

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Researchers have now found out how to stop the formation of harmful acrylamides when deep-frying potatoes to make potato chips.

Frying potatoes causes the formation of harmful chemicals called

acrylamides. The acrylamide content in potato chips is influenced by factors such as the potatoes themselves, storage conditions and the heat treatment process. Researchers have been looking into acrylamides together with the food packing company Produsentpakkeriet in Frosta, north-east of Trondheim, Norway.

"Here we face an additional challenge because colder growth conditions often mean that less mature potatoes are used to make potato chips," says researcher Solveig Uglem at SINTEF, who has been heading the research team. "Less mature potatoes contain more sugar, and this can lead to a higher acrylamide content in the potato chips that we make from them," she says.

Reducing food waste and boosting quality

According to the research team, this project has provided us with new knowledge about the best ways of storing potatoes in order to reduce [food waste](#). It has shown us how to achieve optimum crisp quality and minimize the risk of acrylamide formation.

The results demonstrate that three key factors are involved:

- Use of the right kind of potato
- Achieving the correct maturity before harvesting
- Achieving a correct and tailored storage temperature

As part of a three-year study, the researchers have also been looking into the use of simple methods of measuring the sugar content of potatoes. Such measurements, taken both before and after harvesting and while the potatoes are in storage, are important for ensuring that sugar levels are sufficiently low to enable the potatoes to be made into potato chips.

The team discovered that measurements of sucrose and aspartic acid

contents in potatoes offered the best indicators of the [acrylamide](#) levels that potato chips will obtain after deep frying.

"However, this method is slow and requires the use of expensive instruments," says Erlend Indergård, who has been participating in the project. "We've found that measuring [glucose concentrations](#) using a blood sugar meter that anyone can purchase at a local pharmacy offers a quicker and more accessible means of getting an indication of whether a potato's sugar content is too high," he says.

So far, the method has been well received by potato growers. By measuring the glucose content, they can get an indication as to whether or not their potatoes are right for harvesting. It is both unsustainable, and can result in major financial loss, if a batch of [potatoes](#) has to be rejected because [sugar](#) levels are too high. Potato growers should thus be encouraged to keep track of the glucose content in their crop both immediately after harvesting and during storage. This will enable them to take action if they observe any changes in quality.

More information: Details (in Norwegian):
[www.matriketmidt.no/nyheter/na ... anseres-frostachips/](http://www.matriketmidt.no/nyheter/na...anseres-frostachips/)

Provided by SINTEF

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