



### Human Nutrition and Health

## Summary 2016

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### Concentration of biogenic amines in different Canadian cheeses and effect of salt concentration on the type of biogenic amines produced in cheeses

Biogenic amines (BA) are organic basic nitrogenous compounds mainly formed by the decarboxylation of amino acids. Many microorganisms, including Gram positive and Gram negative have the capacity to produce BA. Previous studies demonstrated that cheeses can accumulate BA over than 1000 mg/kg and that their concentrations increase during cheese ripening.

The presence of BA can lead for some consumers to develop nausea, hot flashes, red rash, respiratory difficulties, vomiting, perspiration, heart palpitation, hypo- or hypertension, and migraine. Some countries in the world determined the concentration of BAs in their cheeses.

In Canada the production of Cheddar cheese is important. However, only a few studies are reported in the literature on the concentration of BAs in Cheddar cheese. In addition, Canada produces many other types of cheese, but no information is available in the literature on the occurrence of BA in other Canadian types of cheese. Health Canada has recently recommended to reduce salt in many Canadian cheeses. By reducing salt in cheeses, microbial activities increase and favor the production of BA. However, no information is available

in the literature on the impact of salt reduction on the production of BAs in Canadian cheeses.

For Canadian cheese processors, this project will allow for the development of new:

- knowledge on the type of Bas and their concentrations in Canadian Cheddar and other specialty cheeses;
- knowledge on the impact of commercial mesophilic and thermophilic lactic acid starters and commercial yeasts used by Canadian cheese processors on the production of BAs in cheeses;
- knowledge on the impact of salt reduction on the type of BAs and their concentrations in cheeses;
- adapted method (extraction and analysis) to determine the concentration of BAs in different Canadian cheeses;
- knowledge on the effect of the use of adjunct culture and probiotic bacteria on the reduction of BAs in cheeses;
- knowledge on the impact of microfiltration of milk to reduce the production of BAs in cheese;
- possibility of reducing BAs in cheeses by combining the use of MF, starters without decarboxylase activities and adjunct culture with amino-oxidase activities.