PROJECT 2013-2018

CONCENTRATION OF BIOGENIC AMINES IN DIFFERENT CANADIAN CHEESES AND EFFECT OF SALT CONCENTRATION ON THE TYPE OF BIOGENIC AMINES PRODUCED IN CHEESES

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Number of students trained (MSc, PhD, Post-Doc):	**N/A**
TOTAL BUDGET	**$171,880**

INVESTMENT PARTNERS

Agriculture and Agri-Food Canada

DAIRY FARMERS OF CANADA

OBJECTIVE:

Biogenic amines (BA) can be produced by bacteria found in raw milk. This study considered the possibility that BA concentrations in a number of cheese varieties could reach levels that might cause negative health effects in some consumers. This possibility has come into focus since Health Canada has recommended reducing the salt content of cheese which could result in increased microbial activity leading to higher BA levels.

KEY OUTCOMES:

In examining factors affecting BA production in cheese, it was found that:

- Few lactic acid bacteria commonly used to produce cheese are able to produce BA. Of those with this ability, none were able to produce BA in milk or cheese.
- Undesirable bacteria found in raw milk have the capacity to produce BA when cheese is ripened at 15°C but this capacity is reduced by high salt concentration. At a ripening temperature of 4°C, there were no significant differences in the low levels of BA production between low- and high-salt cheeses.
- Microfiltration can be used to reduce undesirable bacterial populations in milk used to make cheese, lowering BA production in cheeses with low salt content.
- Some commercial probiotic bacteria that are able to oxidize BA can be used in cheese ripened below 15°C to reduce BA content; ripening at 15°C reduced populations of some probiotic strains.

BENEFITS TO THE DAIRY INDUSTRY

- Provided new knowledge related to factors associated with BA levels in Canadian cheese which is very relevant for Canadian cheese processors.
- Provided information that may be useful to Health Canada in relation to their salt reduction strategy and implications for cheese.