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A review on technological parameters and recent advances in the fortification of processed cheese

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Abstract

Background

Although the consumption of processed foods is growing in overseas markets, the increased awareness of consumers to health and wellbeing in recent years has led to a decline in the growth of processed food sales in the Western market. The added pressure on the food manufacturing industry to increase the perceived healthiness of processed foods has opened up new market potential in the area of fortified processed foods, such as processed cheeses.

Scope and Approach

This review paper provides an overview of the current methodologies into the production of a processed cheese with added health benefits, including the use of probiotics and prebiotics, vitamin and mineral fortification and the addition of plant macromolecules.

Key Findings and Conclusions

Processed cheeses with increased health benefits have been of great interest to manufacturers, with reduced salt and reduced fat options commercially available. Although processed cheeses fortified with vitamins, mineral, probiotics and prebiotics are not as widespread, further work in these areas has been identified as a way to produce high value processed cheese products with added health benefits.

Keywords: Processed Cheese, Fortification, Probiotics, Vitamins

1.0 Introduction to Processed Cheese

Cheese has been present in the human diet for many years, with recent literature suggesting early cheese-making practices date as far back as 5,200 BC (Salque et al., 2013). Although the high protein and calcium content of natural cheese is a proven nutritional energy source, issues arising over its low stability lead to the initial production of processed cheese (PC), a natural cheese derivative with higher stability and reduced need for refrigeration (Guinee, Caric, & Kalab, 2004). Since processed cheese was first manufactured in the early 20th century, many different types of processed cheese have been manufactured around the world. In the United States, processed cheese can be sub-divided into four main cheese groups depending on the relative amount and type of ingredients used in its manufacture, namely pasteurized blended cheese (PBC), processed cheese blocks (PCB), processed cheese foods (PCF), and processed cheese spreads (PCS) (Carić & Kaláb, 1993), and legally has to contain more than 51% natural cheese. As well as these major groups, processed cheese analogues (PCAs) can also be manufactured to reduce the amount of natural cheese in the raw material. These analogues can be produced from either dairy, part-dairy, or non-dairy derivatives (Guinee et al., 2004; Mounsey & O'Riordan, 2007), with or without the inclusion of natural cheese. In the US, analogue cheese is further split