Cheeses Fortified with Omega-3 Fatty Acids: A review
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Long chain omega-3 polyunsaturated fatty acids are well recognized for their beneficial health effects. Docosahexanoic (DHA) and eicosapentanoic (EPA) fatty acids are the most important omega-3 polyunsaturated fatty acids and are found mainly in fish oil. These acids can help in the decrease of the risk of coronary heart disease and reduce cancer. Also, they have anti-inflammatory activity and proper neurological function.

In order to meet the adequate intake levels of DHA and EPA fatty acids, oral supplements of them are available to the consumers. An alternative to increase the consumption of omega-3 fatty acids is to fortify foods with DHA and EPA. Several foods have been fortified with DHA and EPA such as dairy products, sausages, margarine spreads, cookies and bread. Nevertheless, the challenge in producing fortified foods has been tremendous. The main challenge in producing these foods is related to the stability of fish oil. Using highly refined and odorless or microencapsuled fish oil may be an alternative way to mask undesirable sensory characteristics and thus protect the oil during processing.

Fortification of cheese could be done using DHA/EPA fortified milk or by directly incorporating DHA/EPA during cheesemaking. DHA and EPA are polyunsaturated fatty acids that tend to oxidize, generating typical oxidized, rancid or fishy off-flavors. Therefore when fortifying foods with n-3 fatty acids it is vital to achieve the desired concentration of them in the food product and avoid off-flavors.

This work is a review of studies done in fortifying different kinds of cheese with omega-3 fatty acids. In these studies, cheeses like cheddar, mozzarella, queso fresco etc are incorporated with omega 3-fatty acids and their physicochemical, textural, sensory properties etc are examined. In order to take the best omega-3 retention and avoid off-flavours in sensory cheese characteristics, the source of omega-3 fatty acids (eg. flaxseed oil, encapsulated fish oil powder etc) used, the levels of their fortification, the time of addition during cheese process are some of the factors that are taking into consideration.