

CHEESE PRODUCTION PROCESS WITH A MICROBIAL ENZYME

“A microbial enzyme that reduces cheese production costs while ensuring the quality of the final product, presenting high yield and preserving the aroma, flavor and texture of cheese.”



Source: www.istockphoto.com



Description

The technology consists of a new cheese production process which substitutes the use of animal enzymes for a specific microbial enzyme. This enzyme can be used in the production of any type of cheese produced by enzymatic coagulation, such as Minas Frescal cheese, mozzarella cheese, half cure cheese, and others.

Problem

The commercial enzyme most widely utilized in cheese production is bovine rennet. Traditionally obtained from the stomach of suckling calves, rennet is expensive and production volumes are limited. The scantiness of raw material, its high price, and the worldwide growth of cheese production have motivated an increase in the search for substitutes of this agent, without affecting the quality of the product.

Proposed solution

This technology enables the production of cheeses using a microbial enzyme obtained by fermentation in the production of “prato” cheese (a Brazilian soft cheese), in place of animal rennet. The enzyme presents intense coagulant activity and low proteolytic activity, and does not impair the yield, aroma and flavor of cheese.

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Benefits

- High coagulant activity and low proteolytic activity;
- High production yield;
- Ensures optimal conditions for the development of the original aroma, flavor and texture of cheese;
- Unrestricted availability of raw material;
- Inexpensive to obtain due to the possibility of using cheap substrates for fermentation;
- Greater acceptance among people that do not eat food containing animal products;
- Greater acceptance among groups that oppose the use of animal enzymes due to religious and ethical principles.

Market potential

According to a study by SEBRAE, Brazil's cheese production in 2006 was estimated at 952 thousand tons. In the same year, Euromonitor International estimated total retail sales at R\$ 7.7 billion. Of the country's total cheese production, 68% corresponds to Minas Frescal, prato, mozzarella and grated cheeses, all of which can be made with the new technology. The adoption of microbial coagulant is still low due to the slightly sour flavor it gives cheese, but this is not the case of cheese made with the enzyme developed by researchers of São Paulo State University – UNESP (Sebrae, 2006; Euromonitor International, 2006).