Preparation of cheese

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INTRODUCTION

- According to Davis, cheese is a product made from the curd obtained from milk by coagulating the casein with the help of rennet or similar enzymes in the presence of lactic acid produced by added micro organisms, from which part of moisture has been removed by cutting, cooking and a pressing.
- Like butter, cheese function as the balance wheel of the dairy industry.
- An insignificant amount of milk is annually converted into cheese in India.
- Cheese should not contain any ingredient not found in milk, except coagulating agent, sodium chloride, calcium chloride not exceeding 0.02% by weight.

- **Hard cheese contains:**

- Not more than 43.0 percent moisture and
- Not less than 42.0 percent milk fat of dry matter

It may contain 0.1 percent of sorbic acid or its sodium, potassium, or calcium salts or 0.1 percent of niacin.

HISTORY

- Cheese is one of the oldest food of the mankind about 2500years ago.
- Cheddar cheese originated in the town of cheddar located in the country of somerset in south western England.
- Cheddar is probably the best known cheese in the world.
- Modern cheese making technologies has advanced through the years shown below:-

A) About 1870 – commercial rennet preparation by Hansen in Denmark.

B) About 1900 –use of titratable acidity.

Scientific basis of cheese making

Stated by davis as follow

A= all cheeses, irrespective of country of origin and methods of manufacture, possess certain common characters

(i) They are **made up of milk** of certain mammals.

(ii) The first stage is souring ripening.

(iii) The second stage is clotting/coagulation by rennet or a similar enzyme preparation.

(iv) The third stage is cutting or breaking up of the coagulum or junket to release the whey;

(v) The fourth stage is the consolidation or matting of the curd;

(vi) The fifth stage is maturing /curing of green cheese in some type of container

Classification

Cheese can be classified according to:

(i) Geographical considerations.

(ii) Type of milk.

(iii) Method of manufacture.

(iv) General appearance.

(v) Physical and rheological properties: very hard (less than 25% moisture): hard (25-36% moisture); semi hard (36-40% moisture); and soft (40% moisture)

(vi) Chemical analysis

Food and nutritive value

- Cheese has high food and nutritive value.

(i) It is excellent source of milk protein.

(ii) A rich source of calcium and phosphorous.

(iii) An excellent source for several fat soluble vitamins(ADE&K).

(iv) A concentrated form of energy 400 calories/100g.

(v) It is both palatable and digestible, there is practically no waste.

Manufacturing of cheddar cheese

- Receiving milk (from high grade milk can yield high grade cheese)
- Pre heating(35-40˚)
- Filtration (remove any visible dirt in milk so has to improve the aesthetic quality of the cheese made.)
- Standardization (standardization refer to adjustment casein/ fat ratio in cheese milk to 0.68-0.70)
- Pasteurization(63˚/30min for LTLT & 71˚ C for 30 sec for HTST)
- Adding starter
- Adding colour (When colour is used it is added just before renneting the usual amount is 32-200ml or more 1000kg milk)
- Adding rennet (adding rennet to milk in cheese making is commonly known as renneting)
- Coagulation (refers to liquid milk changing to a semi solid junket)

Cutting (refers to cutting of the firm coagulum into cubes of specific size)

Cooking refers to heating (up to 37-39˚C) of curd cubes it begins within 15 min of cutting

Drainage of whey (to removal of whey from curd when the curd cubes have been reduced to about one half of their size at cutting)

Cheddaring

Milling salting

Dressing

Pressing

Drying

Paraffining

Curing/maturing

THANK YOU