

Topic - Microbiology of Paneer

Paneer is a kind of pressed chhana and some what resembles unripened cheese.

Paneer is an indigenous milk product prepared by the combined action of acid coagulation and heat treatment of cow or buffalo or a combination thereof. The phenomenon of precipitation involves the formation of large structural aggregates of protein in which milk fat and other colloidal and soluble solids are entrapped along with whey.

According to PFA 1975 rules paneer is a product obtained from cow or Buffalo milk or combination thereof by precipitation with sour milk, Lactic acid or citric acid. It shall not contain more than 70% moisture & the milk fat content shall not be less than 50% of the dry matter.

Preparation -

Milk is heated to 80-82°C for 5 minutes and cooled to 70°C followed by addition of coagulants. After allowing the coagulated mass to settle for 15 min, the whey is removed by using muslin cloth. The mass is now pressed in a hoop followed by cooling (4-6°C) in chilled water. The product is cut into desired size pieces, packed in polythene bags and stored in refrigerator 5°C. The product keeps well for about a week under refrigeration.

Microbiological quality of Paneer

The microbiological quality of paneer, like other indigenous milk products, chiefly depends on the conditions of manufacture, subsequently handling, storage and sale of the products.

J-4012 Microbiology of Milk product

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The possible sources of contamination might be air, water, utensils, cutting knife, muslin cloth as well as persons handling the product. The number and type of micro-organisms and their distribution in the paneer may be depending on the location of the shop, extent of exposure of the product to the environment, temperature and period of storage.

According to a survey conducted by G.S. Rajarhia et al (1984), the market samples of paneer obtained from Karnal and Delhi were found to heavy load of total bacteria population, *coliform* and yeast & molds. Another study of market paneer from Ludhiana city indicates heavy contamination of the product with *Staphylococcus*, 25% of which were found to be positive for coagulase & T_{DNase}. (C. Kulkarni & Grover 1984).

Microbial Defects in paneer

(1) Rancidity defect - The defect is caused by micro-organisms due to fat break down. The causal micro-organism is *Staphylococci*.

Prevention.

Storage at 5°C can check the rancid defect.

2. Mold growth. The most common mold occurring is ~~Penicillium~~ *penicillium*, *Aspergillus*.

Prevention.

The mold growth can be avoided by keeping moisture at optimum level.

Microbiology of Milk
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BIS of paneer

Total count $> 5 \times 10^5 / \text{gm}$
Coliform $> 90 / \text{gm}$
Yeast & Mold $250 / \text{gm}$

Question & Answer

True / False

Q1 Paneer is obtained by lactic fermentation.

Q2 Paneer is prone to more spoilage like rancidity & Mold growth.

Fill in the blank

Q1 The microbiological standard for paneer is $5 \times 10^5 \text{ c.f.u. / gm (Max)}$