## MILK AND DAIRY PRODUCTS

**CHEF'S TIP**

When using acids, thicken the milk with starch. This will avoid the milk from curdling, as starch will hold the proteins together and the milk will not split.

Milk is a major ingredient in our diet—poured over cereals, put in tea and coffee—and it also is a part of many dishes, especially desserts such as ice cream, custard, pancake, rice pudding, etc. It is particularly high in calcium, but it is also fairly good in fat too. Milk is mainly made up of water and has many nutrition contents such as proteins, fats, and carbohydrates. Milk also has a sugar called lactose and this is the reason why milk changes colour when heated for a long time. In cooking, milk is mainly used as a poaching liquor to make white sauce and other sauces. In bakery, it is used as a liquid in place of water to enrich the dough or used as a liquid in making creams and pastes. In pastry products milk improves the texture, flavour, nutrition value, and the quality of the product. When milk is used in sauces or as the base for desserts, low heat should be applied to the milk as both the odour and colour of the milk gets adversely affected by the intensity of heat provided. Heated milk forms a layer of protein on the base of the cooking equipment and this coagulated protein can burn if care is not taken. The burnt milk has a very unpleasant flavour which is never desired in cooking. When the acid medium is added to the milk, it coagulates resulting in cheese, curd or, paneer.

The composition of milk is shown in Table 18.8.

**Table 18.8 Composition of milk**

| Constituents | Percentage Present in Milk |
|---|---|
| Proteins | 11 |
| Fats | 3–6 |
| Minerals | 1 |
| Vitamins | 1 |
| Carbohydrates | 2 |
| Water | 82 |

There are many types of milk consumed though mostly it is cow's milk, goat's milk, and sheep's milk. Milk needs to be pasteurized in order to be safe for consumption.

### Pasteurization of Milk

Almost all fresh milk is marketed as pasteurized these days, as this is a precaution to guard against food poisoning. To pasteurize milk one has to heat it to a high temperature below boiling point by one of the following two methods.

**Flash Method** Milk is brought to 71°C and held there for at least 15 seconds.

**Holding Method** In this method the milk is heated to 62°C and held at this temperature for at least 30 minutes.

## Types of Milk

It is important to know various kinds of milk used in cooking and especially in pastry the type of milk plays a very important role. The whole milk will give a different product from the milk powder or milk solids and so on. Table 18.9 shows the various types of milk.

**Table 18.9 Types of milk**

| Type of Milk | Description |
|---|---|
| Whole milk | It can be cow's milk or milk from buffalo, sheep, or even goat. This milk contains at least 3.5 per cent of butterfat, which gives it the wholesome taste. |
| Homogenized milk | It is whole, pasteurized, and treated so that its fat globules are broken to the extent that there is no separation of fat from the milk. It is a mechanical process which reduces the size of the fat and then mixes them together. This is the best milk to use for tea and coffee as the fat does not separate and float on top. |
| Skimmed milk | The fat from the whole milk is removed by a centrifugal force. The fat from the milk is sold separately as cream. The skimmed milk has a trace amount of fat present that can be lower than 1 per cent. |
| Buttermilk | It is a by-product obtained while making butter. When the butter is churned, the whey which is left behind is known as buttermilk. Today buttermilk is made from pasteurized milk with an addition of lactic acid bacteria. This milk can be used for making sorbets and ice creams. |
| Dehydrated milk | This is whole milk from which the water is removed by either spray drying or by roll drying processes. Milk powder is used in breads or cookie doughs to provide enrichment. |
| Condensed milk | This is reduced milk, in which sugar and stabilizers are added to produce a thick and viscous creamy liquid. Condensed milk is used to make various cakes and pastries. It is commercially made and sometimes the sealed condensed milk cans are boiled in water for several hours to produce caramelized cream which can be piped on pastries. |
| Dried milk solids | This is obtained by cooking milk over a slow heat till most of the liquid evaporates and the remaining solid mass is sold of as milk solids. They are also known as *khoya* in Hindi and are extensively used in Indian desserts. |