

# Utilization Of Buttermilk

# Sweet Cream Buttermilk (SCBM)

## Market Milk:

- **Undiluted SCBM admixed either with whole milk for fluid milk supply or with skim milk for drying**
- **Use of SCBM in market milk for toning of buffalo milk improves palatability, viscosity and heat-stability and reduces curd tension without adversely affecting keeping quality**
- **Used for preparation of flavored milks and milk beverages**
- **Powder made from mixing of SCBM with skim milk → used for reconstitution purposes**

# Fermented Dairy Products

## ■ Dahi

- **Curd prepared by incorporating SCBM into whole milk has soft-body → probably due to presence of phospholipids and other MFGM materials, and free fat in buttermilk**
- **Recommended 1-2% skim milk powder for improving body of dahi made from buttermilk**

## ■ **Yoghurt**

- **Increasing TS in yoghurt milk to around 14-16 g/100g**
- **Replacement of SMP with buttermilk powder up to 50% in manufacture of low-fat yoghurt → found acceptable and similar to control product**
- **Buttermilk powder added to low-fat yoghurts up to 4.8% → yielded soft and smooth product**
- **Use of dried buttermilk found to reduce susceptibility of yoghurt to syneresis**

# Indian Traditional Dairy Products

## ■ *Chhana*

- ***Chhana* produced from buffalo milk → hard and greasy because of inherent differences in qualitative and quantitative aspects of buffalo milk**
- **Admixture of SCBM and buffalo milk in proportion of 60:100, on total solids basis, adjusting fat and SNF ratio to 1:2.1 and coagulating at pH of 5.2 at 75°C produced highly acceptable *chhana***

## Paneer

- Replacement of skim milk with SCBM for standardization of buffalo milk found to increase yield of *paneer* by about 1% without altering organoleptic and textural properties
- Good quality *paneer* prepared from low fat milk by incorporating buttermilk solids to buffalo milk

- **Chakka and Shrikhand**

- ***Chakka* made from 50% replacement had improved flavour and with smoother body and texture and no adverse effect on chemical composition**
- ***Shrikhand* prepared from SCBM with 15% total solids was similar to that of control product prepared from buffalo skim milk**

## **Frozen Dairy Products**

- **Buttermilk powder extensively used in preparation of ice cream and other frozen desserts**

## **Beverages**

- **Addition of fruit juices or fruit pulps → an attractive avenue for utilization of buttermilk**



## Probiotic Drinks

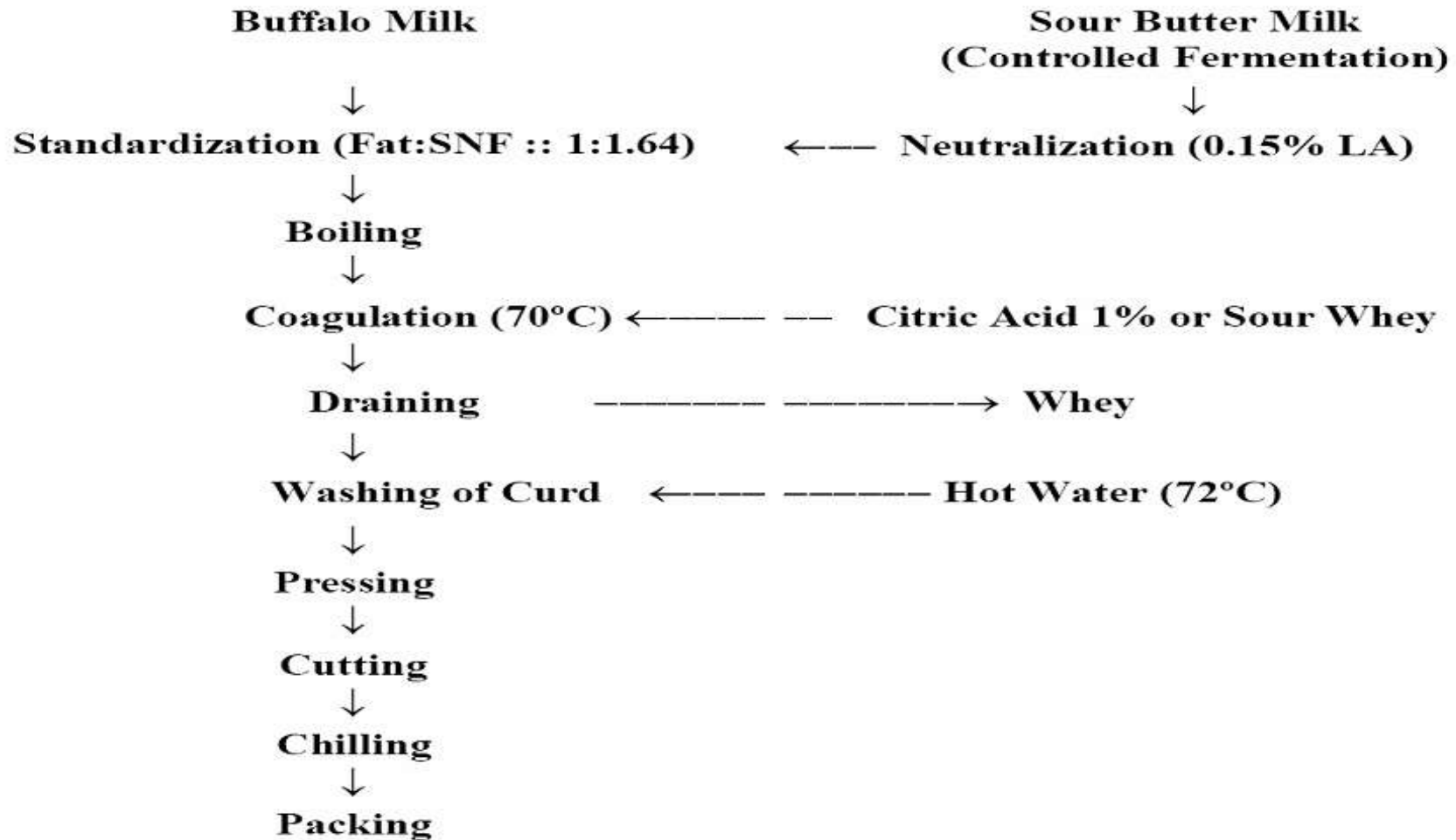
- Health benefit of fresh buttermilk fermented with *Lactobacillus acidophilus* → serum and liver cholesterol reduced while high density lipoproteins were increased
- Lipoproteins are molecules made of proteins and fat. They carry cholesterol and similar substances through the blood
- Probiotic buttermilk adding probiotic strain of *Lactobacillus reuteri* @ 1% has reported no significant differences in composition and sensory quality compared with control
- Other uses or benefits
- MFGM proteins, rich in buttermilk, releases bioactive peptides

# Utilization of Sour Buttermilk

- **Obtained either from natural souring of milk/cream or by controlled fermentation during manufacture of butter**
- **Obtained from first category is not preferred for human consumption**
- **Converted into casein by adopting modified processing conditions for other uses**
- **Process standardized for manufacture of paneer from mixture of buffalo milk and sour buttermilk**

- ***Paneer*** prepared by this method gave higher yield by retaining more moisture in comparison with control *paneer*
- Organoleptic quality and shelf life of buttermilk extended *paneer* were comparable to control *paneer*

# Flow diagram of manufacturing paneer from sour butter milk



# Utilization of Desi Buttermilk

- **Made by blending dahi with water, sugar or salt and spices until frothy**
- **Consistency depends on ratio of dahi to water**
- **Made thick by mixing four parts dahi to one part water and/ or crushed ice**
- **Flavored in various ways with salt, mint, cumin, sugar, fruit or fruit juice and even spicy additions such as ground chilies, fresh ginger or garlic**
- **Ingredients placed in blender and processed until the mixture is light and frothy**

- **Sometimes a little milk used to reduce acid tinge and is topped with a thin layer of malai or clotted cream**
- **Sweetened *lassi*, popular mainly in North India and its salted version in the southern parts of the country, has high nutritive and therapeutic value**
- **Rich source of vitamins— A,B,C,D & E**
- **Excellent thirst quenching and nourishing beverage, particularly during summer months**
- **Used for making some popular traditional preparations e.g. *karhi*, *rabri* (fermented), *raita* etc.**

# Future Scope

- ◆ **Role of buttermilk solids in health foods --- being investigated by many workers**
  - **Role of buttermilk phospholipids in health-related functions --- used as functional ingredients in development of nutraceuticals**
  - **Butter milk solids possess antioxidant activity --- use in stabilizing food matrixes against lipid peroxidation reactions**
  - **Dried buttermilk can replace SMP in manufacture of *gulabjamun* mix powder --- high lecithin content in buttermilk may improve textural properties of *rasogolla***

# Conclusions

- ◆ **High nutritional value of buttermilk and increasing public awareness concerning environmental pollution warrants for economic utilization of this important byproduct**
- ◆ **Sweet cream buttermilk used in fluid milk industry as a milk extender with specific benefits over skim milk**
- ◆ **Other potential uses of buttermilk solids are in manufacture of soft varieties of *cheese*, *paneer*, fermented milks and traditional milk products**
- ◆ **Judicious use of buttermilk solids in development of functional foods is another promising area**