Introduction

India is one of the leading producers of milk in the world. From the world’s total milk production, India contributes nearly about 16 percent. Throughout the world, India is considered the biggest consumer of the milk. In the year 2013-14, the milk production in India rose up to 139.68 million tonnes (mt), that is production increased by 5.5 per cent than the last year’s 132.43 mt. (Source: Ministry of Agriculture). Among all states, Maharashtra is sixth in the production of milk in the country. In the villages from all the produced milk, its half is utilized or consumed by rural peoples only and remained half of the is distributed to the urban. The milk which is received from the villages, from that half of the milk ie. 50% is in the liquid form and near about 35 percent is utilized for preparing indigenous dairy products like paneer, chhana, ghee and to produce other different sweet byproducts from chhana, khoa and khoa incorporated byproducts like gulabjamun, pedha etc. and fermented dairy products like curd, lassi and shrikhand. The 15% milk is utilized for producing butter, different types of dried milk powder and manufacturing other western dairy products. Now day milk is not utilized as dilute form but large part is consumed in concentrated form which is very much liked are Rabri, Basundhi, burfi etc. Though the earning income is different for different peoples and regions, milk is very needful food for the home purpose in rural as well as urban people. In forthcoming era in 2021-2022 the home demand is said to be near about 2,35,000 tones which gives Rs.1800 lakh for the milk and its products.

In India, paneer is a very much, well-known and popular among the entire dairy product. It is produced by acid coagulation of whole milk after the heating of milk and complete whey is removed by draining and after draining the paneer is widely used for culinary purposes in the northern and western parts of India. Since last past two decades, paneer has enjoyed one of the status of national culinary dish in India. From the nutrition point of view, the paneer has very good nutritional value and wholesome food item. Since paneer is in the concentrated mass form that is consisting of protein, fat and including the micronutrients like minerals and vitamins.

Paneer is having very good biological value of protein in between 80-86, after consisting high content of protein and digestibility. Since during the preparation of traditional dairy products more hands of labours are required and hence due to many hands the final quality of product is not uniform, thus final quality of product will have variation in terms of physical,
chemical, microbiological and sensory quality characters, therefore it requires needful modernization in the up gradation of production technology to the finished product of good homogeneity.

In wide number of culinary dishes and ready to eat snacks paneer is utilized as base ingredient. By producing paneer of 2, 35,000 tones about Rs. 1800 billion is earned, hence there is a great scope for the production of paneer and its marketing. In India around 5 percent of total milk is utilized in the manufacturing of paneer (ICMR 2000; Chandan 2007). Good quality paneer can be prepared by developed useful technologies for the production of paneer from reconstituted milk (Singh and Kanawjia, 1992) recombined milk (Singh and Kanawjia, 1991). Good quality paneer could be produced by combining buffalo skim milk and groundnut oil or partially hydrogenated vegetable oil (vanaspati) (Roy and Singh 1999). By combining skim milk with coconut milk of 25% fat improved the process of production of paneer (Venkateshwarlu et al. 2003).

In the proportion of 20 percent buffalo skim milk with the 80 percent of cow whole milk is combined and good quality of paneer is produced (Chavan et al. 2007). The paneer produced from ship milk resembled buffalo milk paneer (Kale et al. 2008). Developed the manufacturing method with changes (heat treatment of 90 °C, coagulation temperature of 90 °C and coagulant strength of 2% citric acid) for the production of paneer from ewe’s milk with 6.94% fat.

There are many kinds of coagulants been used are namely lemon juice, citric acid, tartaric acid, lactic acid, malic acid, hydrochloric acid, phosphoric acid, acetic acid, fermented milk, sour/cultured whey, yoghurt and lactic cultures. Calcium Lactate is also used as a coagulant in production of paneer (Sachdeva and Singh 1987; Kumar et al. 1998; Deshmukh et al. 2009). But there is large effect of the strength of the coagulant utilized in the produced paneer related to the body and texture i.e. Soft body and smooth texture is produced by the use of low strength of coagulant and high strength is responsible for the hard body.

Texture plays an important role to the consumers related to preference and acceptance of paneer. Structure and texture are correlated hence sensory acceptance is depend on the Structural composition. International Organization for Standardization defines texture as a sensory characteristic perceived largely by way of the senses of movement and touch. With the help of
sensorial and Instrumental methods textural qualities of foods can be analyzed. Instrumental texture profile analysis (ITPA) gives the action performed in the human mouth. There have been mechanical methods developed to evaluate organoleptic characteristics of the food to get rid of following errors like time consumption, to train the panel, there psychology during sensory evaluation of important sensory qualities. Now a day for the determination of texture of the cheese texture profile analysis is very effectively mechanical instrument used. Texture evaluation is often an important step in developing a new food product or optimizing processing variables.

Due to high perishable nature of paneer its quality starts deteriorate just after 3 days at refrigeration temperature (Bhattacharya et al. 1971). Paneer has only one day shelf life at room temperature. Therefore to lengthen the keeping quality time of paneer it requires additives, alteration in processing of paneer, covering surface by packaging materials which is suggested by many researchers. Different kinds of packages played the great role in increasing the keeping quality of the product. Day by day it is found that there is a much increase in the demand of paneer in India because of its utilization in wide varieties dishes, which will help to increase the economical condition of the country ie. rural and urban.

IMARC which is a research and advisory firm found that there is very great boost market for the paneer in coming era. Due to this great response towards paneer by health aware consumers there has been large scope for the researchers to develop well nutraceutical enriched different varieties of good quality paneer. Considering commercially the above facts the present investigation has been taken on “A study on preparation for physico-chemical sensory and textural characteristics of paneer”.