1.0 INTRODUCTION

The history of Indian milk products is perhaps as old as Indian civilization itself. Use of milk and milk products has been quoted in epics. It is customary practice to grace Indian ceremonies and functions with ghee, butter and sweets made from Khoa, Chhana, and Chakka. Indian milk products have been a source of inspiration deserving to remain in global market. They are marked by a lavish variety of food delicacies, adorned with dazzling colors, aromas and flavors.

Traditional milk products represent the most prolific segment of our Indian Dairy Industry. About more than 50 per cent of milk produced in India is converted to Traditional milk products. Most of the western type dairy products manufactured by the organized sector of the dairy industry are reaching near saturation level in existing domestic and international markets. Indian dairy products have not only served as a cultural link with the modern dairy industry but also provided a technological base for diversification, export promotion and as value added products to make the modern dairy industry economically strong enabling the milk producer to benefit from it.

Today Indian milk products are the largest and fastest growing segment of the dairy industry. They offer opportunities for absorbing the growing surplus of milk, generated by the operation flood. The traditional dairy products enjoy mass appeal, give high profit margins and have high export potential especially for Indians abroad. There is vast scope for development and adoption of modern technologies in hygiene and large scale production. There is need for improvement in product quality, hygiene and shelf-life with modern packaging and preservation techniques.
In the recent years, Research and Development on indigenous dairy products has become one of the thrust areas identified by ICAR. In that direction, a network project was initiated amongst the research centers in the country. Kunda was one of the products identified for improvement of technology and as a result some information has been documented on Kunda. Except the documented source, there is no other published literature on Kunda.

Kunda is one amongst the Khoa based traditional delicacies of India. Kunda can be defined as “a desiccated product light to brown in colour prepared by the continuous heating of milk or high moisture Khoa mixed with calculated amount of sugar. The product has a characteristic rich taste with a pleasant nutty flavour (Anon, 2006).

Satish Kulkarni et al. (2001) reported that Kunda making is a laborious, energy consuming process, efforts are needed to mechanise the process or modify the manufacture process to reduce the drudgery. Kunda is milk based delicacy popular in Belgaum district and neighboring areas, Karnataka state, India. The origin of this product is traced to one Joshi family which had migrated to Belgaum from Dehu area of Rajasthan. Kunda is being prepared since beginning of the 20th century. The successive generation members run the business even today in the city of Belgaum.

Traditionally buffalo milk is used for the preparation of Kunda. In commercial production, high moisture Khoa forms the base material to which cane sugar @ 30 - 35 % w/w or 9 % on milk basis is added and desiccated to light brown, nutty flavour and grainy texture. However, the manufacture of Kunda remained largely confined to northern parts of Karnataka and mainly urban areas in southern parts. This
may be as much largely because lack of production technology. It is said that good quality Kunda can be obtained only from buffalo milk. However the influence of type of milk on the product quality has not been investigated.

Today there are about 300 Kunda production units in Belgaum region with about 4 tonnes of production valued at Rs 110 million/year (Anon, 2006). Demand for Kunda varies from season to season, and the peak demand is around the festival season.

There are no prescribed standards of composition for Kunda. Market samples have varied in composition depending on the manufacturer. The product is generally stored in open tray at shops or packaged in loose LDPE bags or butter paper lined cardboard boxes. The shelf-life of the product is about 4 days at 30 °C. The spoilage was observed to begin with the visible growth of yeasts and molds. Hence, there is a need for development of technology for

(1) Method of manufacture.

(2) Composition

(3) Characterization

(4) Quality

(5) Packaging and preservation

(6) Mass production.

The present study was therefore undertaken with the following objectives:
Objectives

1. To study composition of market samples and characterize sensory attributes of Kunda.

2. To study the effect of different Fat/SNF ratios and sugar level on the quality of Kunda with respect to (a) heat treatment (b) homogenization and (c) use of caramelized sugar.

3. To optimize the process parameters of Kunda manufacture schedules to produce uniform quality product.

4. To study the development of browning and flavour components during preparation of Kunda.

5. To study the suitability of different packaging materials, preservatives, and water activity on the shelf-life of the product.