INTRODUCTION

Heat treatment is an important and indispensable step milk has to undergo before its consumption. Manufacture of concentrated and dried milk products also involve such procedure. Although the present trend in the modern dairy industry is for high temperature short time treatment, in the preparation of Indian indigenous products drastic heat treatments are employed. Forewarming is another important prerequisite in the manufacture of condensed and evaporated and dried milk products.

The manifestations of heat treatment on milk brings about several changes in its constituents. The most affected victims are the proteins, lactose and water soluble vitamins in milk. Amongst these, the most vulnerable constituent is the milk protein. The viscosity and gelation in condensed milk, the coagulation of sterilized milk and evaporated milk and the solubility of milk powder are governed by the heat induced changes in the milk protein fractions.

In advanced countries, where only cow milk is processed for the manufacture of products, considerable data have been documented on the heat-induced changes in the milk proteins. While in India there is a vast potential for buffalo milk supply and hence endeavours are being made to manufacture products from milk of this species. The compositional differences of buffalo and cow milk are
fairly understood and the physico-chemical properties are being well studied. Chemical constitution studies of the casein micelle of these milk revealed marked difference in their properties. While such informations are gaining impact, information on the heat induced changes on the proteins of buffalo milk are however, lacking. Even sufficient knowledge about the distribution of nitrogen into the various protein fractions of Indian buffalo milk are not available.

A number of factors are responsible for the heat stability of milk. The present investigation was therefore, undertaken to elucidate the changes that heat induces in buffalo milk proteins. Its difference with that of bovine milk proteins was also evaluated. Not only changes occur in individual proteins during heat treatments, but also interaction between milk proteins occur, which determines the qualities of the products. Hence in the work delineated, attempts have been made to study the interaction between the proteins of buffalo milk at elevated temperatures. In these investigations, heating conditions selected were at temperature range of 65°C to 100°C for a duration of 10 minutes, though emphasis has been given to heat treatments at 95°C and 100°C. It is likely that these findings might contribute considerable assistance in the preparations of improved buffalo milk products.