SECTION - IV

JUSTIFICATION OF THE PRESENT WORK
Ghee is the Indian name for clarified butter fat. It is usually prepared from the milk of cows, buffaloes, goats and/or sheep. Glycerides, free fatty acids and phospholipids constitute mostly the saponifiable matter of ghee whereas unsaponifiable matter consists of sterols (mostly cholesterol), fat soluble vitamins, carotenoids, triterpenoid alcohols such as lanosterol, squalene, carbonyl compounds, ubiquinone etc. Quantitatively, the unsaponifiable matter is a minor fraction (0.25 to 0.45% by weight of fat), but is not necessarily less important from nutritional and technological stand points.

The unsaponifiable constituents are important in several respects. Unsaponifiable constituents like tocopherols, carotenoids and vitamin A have antioxidant properties and thus have profound bearing on the oxidative stability of milk fat based products. The incorporation of fatty acid free unsaponifiable matter (144) into milk fat has been reported to increase its shelf life. An inhibitory effect on lipase action is said to be exerted by cholesterol (48). Cholesterol, in close association with lecithin, is believed to
maintain the stability of fat emulsion (64–a, 94).
Unsaponifiable matter is the repository of fat soluble vitamins and essential fatty acids bound to sterols. The unsaponifiable matter being an important part of milk fat is likely to have an impact on many of the technological problems involving milk fat during manufacture and storage of dairy products.

It is evident from a survey of literature that the information regarding the unsaponifiable fraction of milk fat is primarily available from cow milk fat and there too our knowledge is far from complete. Information about the unsaponifiable matter of buffalo milk fat is rather limited.

Species has an important bearing on the composition and properties of milk. It is reasonable to expect that the unsaponifiable matter of buffalo milk fat may differ from the unsaponifiable matter of cow milk fat, especially when buffalo milk is known, during its processing for the manufacture of milk products, to present technological problems unknown in case of cow milk.

In view of the above, it was of interest to examine buffalo milk fat with regard to its unsaponifiable constituents and the present study deals with this aspect of buffalo milk fat chemistry. A comparative
picture of the cow milk unsaponifiable constituents has also been included in order to avoid possible variations due to feeding and management practices.