ABSTRACT

Milk is consumed on large scale by human on daily basis and is one of the important food ingredients of human life. As milk consist essential nutrients, it is consumed in various ways. Dairy product is one of important sector leading to national economy of various countries. Averagely more than 100 million tons of milk is produced in India per annum. The milk production is considered as major factor that affects the livelihood for small-scale farmers and gives them a very good source of income.

The fat content in milk is determined at controlled milk sample temperature. Fat globules in milk gets evenly distributed at certain temperature, at that point fat content can be measured with greater accuracy. The temperature of milk sample finds an application of conventional temperature controlling techniques or some advance methods such as Fuzzy Logic Controller (FLC) or Adaptive Neuro-Fuzzy Inference system (ANFIS).

The innovative method based on fat detection using carbon rod can be effectively employed for estimation of fat content. The carbon rod method gives better performance to estimate fat value. The ultrasound signal of different frequencies is made to pass through given milk sample and various parameters related to ultrasonic signal propagation are explored. The innovative method presented is found to be analogous to ultrasonic estimation of fat in milk, hence giving an alternative to estimate fat content in milk sample.

Thus ANFIS can be employed to control temperature of milk sample accurately. The milk sample may be heated upto 40°C to estimate fat content in it, where the fat globules are considered to be distributed evenly in milk sample. Having sample temperature below this value may lead to false estimation and having above this value may lead to destroy the globule membrane which will again give a false estimation of fat content.