



## 1. INTRODUCTION

Cheesemaking practice is an ancient milk preservation technique, which is believed to have been pioneered in the Eastern Mediterranean countries over 10 000 years ago (Fox, 1987b; Scott, 1986 according to Early, 1992). It was traditionally made on small scale by carrying milk in animal skin sacks, stomachs or bladders. Over centuries, the cheesemaking technique has been modified and finally evolved into a large scale commercial process in which scientific principles are applied (Early, 1992).

Cheesemaking is a form of milk preservation in which the nutrients of milk are selectively concentrated in the form of a palatable food. The concentration of the milk solids is basically achieved by curd production through either acidification, renneting or a combination of the two. The newly formed product, cheese, has a different image and consumption pattern from fresh milk (Early, 1992).

There is a wide variety of cheeses which are manufactured both industrially and on small scale world wide. One of the major reasons for this is the difference in the mammal species used as the source of milk; for instance in Greece, goats and sheep are used as the major if not sole source of milk for the daily human diet as well as for processing to cheese and other milk products (Eekhof-stork, 1976; Barbosa, 1990). In South Africa milk from goats and sheep is scarce and produced in small quantities. For cheesemaking purposes on industrial scale, cow's milk is predominantly used and by far the most commonly produced milk.

Cheese produced from goat's and ewe's milk is typically white in colour, and native to countries like Greece where these milks are produced in large quantities. These include Feta cheese and a variety of other brined or pickled cheeses. According to Barbosa (1990), Feta cheese has gained high popularity and

conquered new markets in many countries other than Eastern Mediterranean countries. As a result, the chemical composition of Feta cheese may vary from one country to another depending on the raw material used and its processability. However, the chemical composition of Feta cheese can be generalised as shown in Table 1.1.

**Table 1.1:** Chemical composition of Feta cheese (Macrae, Robinson & Sadler, 1993)

Constituents	Percentages
Moisture	48 - 54
Fat in dry matter	48 - 52
Protein	≈25.1
Salt	4 - 5

Apart from the features given in Table 1.1, Feta cheese is known to be soft in texture and has a pH value of about 4.3 to 4.6 (Tzanetakis, Mastrojiannaki & Tzanetaki, 1995).

Feta cheese and other cheeses made from goat's milk or mixtures of goat's and other milk provide a most effective relief from the dull monotony of factory made cow's milk cheese. Blending cow's milk with at least 25% goat's milk has been reported to give cheese a unique but pleasant flavour and texture (Brown, 1981).

### **1.1 PROBLEM STATEMENT**

For the South African market, there are problems related to the manufacturing of Feta cheese of the original Greek type.

- (i) The supply and production of ewe's and/or goat's milk is not so well established as that of cow's milk. This implies that collection of sufficient goat's



milk to start processing may take too many days and incur high expenses for storing and transportation of milk over long distances from the producers to the processors. A solution would be to use mixtures of the two types of milk.

(ii) Feta cheese made exclusively from cow's milk loses its familiar properties. It is not as smooth and fragrant as the Greek type, moreover it possess an unusual yellow colour which is misleading and give consumers a wrong perception about the product.

(iii) The properties of milk from a given mammal species may vary considerably due to seasonal, regional and vegetation (used as feed) variations and this can make South African milk different from that used for production of Feta cheese in other countries (Lacroix, Paquin & Verret, 1993; Ozimek & Kennelly, 1993; Potter & Hotchkiss, 1995).

## **1.2 OBJECTIVES**

Despite the complications mentioned in section 1.1, consumers still demand high quality Feta cheese with typical characteristics more especially in terms of flavour, nutritional value, safety and standard composition. Based on these facts, the objective of this project was to study the effect of using mixtures of cow's milk and goat's milk on the composition, physical, chemical and sensory properties of Feta cheese.