**Chapter-I**

**INTRODUCTION**

**The metabolic profile** test was developed by Payne in Compton (England) as a diagnostic tool to study causes of production diseases in dairy cows (Payne et al., 1970). The term “metabolic profile” refers to the analysis of blood biochemical constituents that are useful to evaluate and prevent metabolic and nutritional problems in dairy herds (Wittwer, 1995; Gonzalez et al., 2000).

Profile of blood metabolites have been used widely to identify problem and to indicate dietary causes of diseases or low production (Lee et al, 1978). The blood biochemical profiles are considered important in evaluating the health status of animals. The estimates of biochemical constituents are the prerequisites to diagnose several patho-physiological and metabolic disorders in cattle’s (Mc Dowell, 1992; Chaffe, 1976).

The health and metabolism of farm animals have been assessed by measuring serum biochemical parameters (Friendship and Henry, 1992). In human medicine, clinical biochemical analyses have been used extensively in large-scale health investigations (Hewett, 1974). Measurement of these parameters provide a practical diagnostic tool for evaluating pathological conditions in live animals or for monitoring the health status of animals (Verheyen *et al*., 2007). There is a good correlation between the serological abnormalities of herd blood parameters and the existence of clinical problems within the herds (Blowey, 1992). The fertility of farm animals has also been found to be significantly inversely related to levels of serum biochemical parameters such as serum inorganic phosphorus, serum potassium, serum total protein and serum urea - nitrogen (Hewett, 1974).

Usefulness of metabolic profile is more relevant in such periods when animals are more susceptible to metabolic changes, as in early lactation, considering herd characteristics, geographic location and physiological status of the animals (Payne, 1987).

Early lactation imposes severe metabolic changes that challenge the organism to maintain an homeostatic equilibrium to compensate the great expenses of nutrients that lactogenesis demands (Eldon et al., 1988).

Some works have shown differences in the metabolism of dairy cows affected by the number of previous lactations that can cause variations in the metabolic profile of those animals.

Considering the above facts, the present study was undertaken to fulfill the following objectives:

* To clinically assess the metabolic profile of lactating dairy cows;
* To study how the number of previous lactations could affect the metabolic profile of lactating dairy cows in a dairy herd of Chittagong, Bangladesh.