CHAPTER - 1
INTRODUCTION

In India, the intensity of population growth is very high and facing the problem of human existence. To meet the increasing demand of food for growing population, it has become mandatory to adopt new scientific methods to increase the production of non-conventional crops of biological origin.

Goats are catching attention of livestock industry due to potential for meat and milk especially in developing countries like India. Goats are very important species of livestock because of their ability to convert fibrous feed and fodder into quality meat. Goat provides not only supplemental income to farmers but also livelihood to millions of small, marginal and landless labourers in rural India. Goat meat is preferred throughout the country. Almost 95 per cent of goat meat produced in India is consumed locally. Availability of meat thus is far below the requirement. Goat production, therefore, has considerable potential to fulfil the requirement of meat within the country as well as for export. This attaches tremendous scope to the livestock industry to develop disease resistant breeds having meat value. Therefore, in the recent years, the lymphatic system has received great attention by scientists.

The lymphatic organs are the specialized form of connective tissue, which contains large number of lymphocytes with reticular cells and reticular fibres. The critical function of the lymphatic organ is the protection of body against deleterious effects of invading foreign substances, cells, or microorganisms. It is responsible for acquired immunity.

The immune system comprised of primary and secondary lymphatic organs. The primary lymphatic organ (thymus) is the site for autonomous production of new lymphocytes. The secondary lymphoid organ (spleen) is the site, where lymphocytes respond to antigen. The lymphoid organs are present in mammal, throughout life but undergo changes with the advancement of age. The lymphoid organs are present in infancy and reach their maximum at puberty. The cellular population of thymus and spleen are said to vary among age groups of the species particularly when their immuno competence vary.
Thymus is the most essential lymphoid organ, which determines the number of lymphocytes in other lymphatic organ. The thymus undergoes a natural phenomenon of age involution particularly at puberty under the influence of sex hormone (Dougherty, 1952). The thymus also plays a very important role in the regulation of immunological competence of the animal (Clauson et al. 1967). The thymus is said to undergo more mashed involutionary changes after puberty than the other organs of lymphoid system (Yoffey and Courtice, 1970).

The spleen is a primary blood-forming organ. In most of the mammals, spleen produces red blood cells, platelets and granulocytes during embryonic life but produces lymphoid cells throughout the life (Krause and Cutts, 1994). Spleen is one of the main components of the immune system.

The structure of the spleen and the relationship between red pulp and white pulp depends on the distribution of the blood vessels. They differ markedly in different animal species and change in the course of immune responses or disturbances of blood cell formation and distribution.

The composition of normal thymus and spleen may serve a reference for the pathological conditions and may aid in diagnosis of immuno deficiency diseases. Thorough knowledge of micro-anatomical structures of various systems, particularly the immunological system is need of the present day.

Considering the importance of the thymus and spleen during different age groups, the present study is undertaken with the following objectives:

1. To study the histological changes in the thymus and spleen at various age groups in goat.

2. To study the histochemical changes in the thymus and spleen at various age groups in goat.

3. To study the presence of 'B' and 'T' lymphocytes in the thymus and spleen at various age groups in goat.