The control and integration of the vital life functions in mammals and other higher vertebrates are carried out by two remarkable systems, the endocrine and nervous system. The coordinated functioning of these systems is mediated by chemical messengers carried from one cell to another. In the nervous system, messages are transmitted directly to other cells by specific neurotransmitters. In the case of endocrine system the chemical messengers termed "hormones" are generally transported through the blood stream to the sites of action that are often distant from their point of origin. The chemical messengers modulate a wide variety of biochemical reactions and metabolic pathways in almost every known cell type.

Endocrinology is the study of the nature, regulation, mechanism of action and biological effects of the hormones released by the ductless glands, the endocrines (Greek, endo means 'within'; krinein, 'to separate'), in health and illness. The classic endocrine glands are the pituitary, adrenals, thyroid, parathyroids, pancreatic islets, gonads and placenta. Adrenal glands are one of the endocrine glands in vertebrates, especially in mammals which is a compound structure consisting of an outer cortex and an inner medulla. The hormones of the cortex are steroids, where those of the medulla are amines. The two components of the organ originate from different embryonic primordial. The cortex is derived from lateral mesoderm in close association
with the developing gonads. The medulla differentiates from neural crest cells along with the sympathetic ganglia.

Removal of a gland would deprive the organism of its normal source of hormone, so that measurable abnormalities appear in the individual during its life history. Varying degrees of hypofunctions may be produced by subtotal ablations. Experiments involving in multiple ablations may be performed to assess the relative significance of several glands in a particular process. For example, removal of the pancreas elevates the blood sugar and produces other symptoms of diabetes mellitus; if the pituitary is removed from the same animal, the diabetic symptoms are ameliorated.

Bilateral removal of the adrenals produces a series of metabolic disturbances which are identical with those appearing in patients with Addison’s disease such as extreme muscular weakness, a variable degree of hypoglycemia, gastrointestinal disturbances, reduced blood pressure and body temperature, ceased growth in young animals, lose of body weight etc., (Joseph et al., 1991; Stryer, 1995; Guyton and Hall, 2000). Adrenal insufficiency results in metastases in patients with disseminated breast or lungs, stomach and colon cancers (Ihde et al., 1990; Hason et al., 1991). Acquired immuno deficiency syndrome (AIDS) can be associated with adrenal insufficiency in its late stages (De GRoot and Jameson, 2001). The most common cause of adrenal deficiency is due to polyendocrine deficiency syndrome or autoimmune adrenal deficiency. The symptom of the syndrome is hypoparathyroidism (Neufeld et al., 1981) and other diseases such as
autosomal recessive pattern in Sibships (Eisenbarth and Jackson, 1992) and
dominant pattern appearing in multiple generations of an affected family
(Eisenbarth et al., 1978). Coutard et al., (1978) was reported death of animals
due to impairment of circulatory system on adrenalectomy. In order to identify
the physiological symptoms of Addison's disease other than morphological
symptoms listed above some studies are need to made on adrenalectomy,
especially in rats for taking certain curative measures.

Several reports though are available on the general impact of
adrenalectomy, very little information is available on the biochemical,
histological and haematological changes, especially in the hepatic and
reproductive tissues which are the important sites of growth and development.
Therefore, the present work is aim to undertake such studies on the hepatic and
reproductive tissues of adrenalectomized animals in order to understand
coherently the implication of Addison's disease. Further, as there are no
comparative studies are reported on the impact of adrenalectomy on sex of rats
the present study is extended to male and female rats for the understanding of
the differential effects of adrenalectomy, if any, on sex of the animal.

It is only a small segment of this vast subject is examined here. This
work is preliminary and further studies are required to attain a definitive
conclusion. A rigid limitation in the availability of laboratory facilities and
time for completion of work prevented the author from penetrating into the
core of this investigation. Nevertheless the author is hopeful of persuing this
work further.