Chapter # 3 SCOPE OF THE PRESENT STUDY

Diabetes is a metabolic disorder that is characterized by hyperglycemia caused by the effect of deterioration in insulin secretion or insulin activity. Chronic hyperglycemia causes damage and dysfunction in different organs, particularly the eyes, kidneys, nerves, heart and blood vessels in the long term. Nephropathy that generally develops as an end-stage complication in patients appears when the kidneys become incapable of performing their functions as a result of damage and dysfunction of renal capillaries. Immunological and inflammatory mechanisms play an important role in the development of diabetic nephropathy. Natural treatment methods with higher tolerability are being investigated, due to the dosage problems of current drug therapies in antidiabetic treatment as well as their adverse effects on diabetic complications. In this context, studies focus on natural active agents with antidiabetic effects that also minimize diabetic complications.

Evaluation of plant products for pharmacological and medicinal effects is of growing interest as they contain many bioactive substances with desired therapeutic potential. Literature collections from reputed journals and worldwide web indicate that studies still continue to identify new nephroprotective agents for DN. Furthermore, most of the therapeutic agents used for DN are derivatives of the natural products.

The ancient Indians have identified and utilized the medicinal properties of several plants for the treatment of several diseases including kidney failure. Medicinal plants used in the folk medicine to treat several disorders including DN. However the nephroprotective effect of Naringenin was not scientifically evaluated and therefore
the present study was designed to investigate the preventive efficacy of NARN in streptozotocin-induced diabetic nephropathy.

The main objectives of the present study are,

1. to dose-dependent screening of NARN for its nephro-protective effects in the streptozotocin (STZ) treated rats.
2. to evaluate the nephroprotective potential of NARN on STZ-induced diabetic nephropathy in rats.
3. to study the hypoglycemic and anti-inflammatory effects of NARN on STZ-induced diabetic nephropathy in rats.
4. to study the modifying effects of NARN on lipidperoxidation and antioxidants status in STZ-induced diabetic nephropathy in rats.
5. to examine the effect of NARN on lipid profile in STZ-induced diabetic nephropathy in rats.
6. to study the efficacy of NARN on structural integrity of red blood cells in STZ-induced diabetic nephropathy by measuring the osmotic fragility and permeability of erythrocytes.