4. RESEARCH ENVISAGED

Medicinal plants are still a valuable source of new pharmaceutical products and natural products still remain as one of the best reservoir of new structural-typed bioactive compounds. More than 25% of modern medicine comes from natural products and another 25% are structural modification of the lead compounds from natural source. It is estimated that only 15% of higher plants have been investigated for potentially useful biological activity. In spite of the presence of known antidiabetic medicine in the pharmaceutical market, remedies from medicinal plants are used with success to treat this disease. Many traditional plant treatments for diabetes are used throughout the world. Plant drugs and herbal formulations are frequently considered to be less toxic and free from side effects than synthetic one.

Based on the WHO recommendations, hypoglycemic agents of plant origin used in traditional medicine are important. The attributed antihyperglycemic effects of these plants are due to their ability to restore the function of pancreatic tissues by causing an increase in insulin output or decrease in the intestinal absorption of glucose. Hence treatment with herbal drugs has an effect on protecting β cells and smoothing out fluctuation in glucose levels. In general, there is very little biological knowledge on the specific modes of action in the treatment of diabetes, but most of the plants have been found to contain substances like phenolics, glycosides, alkaloids, terpenoids, flavonoids etc., that are frequently implicated as having antidiabetic effects.

4.1 Need for study

Therefore, in recent years, considerable attention has been directed towards identification of plants with antidiabetic ability that may be used effectively for human consumption. There has been rapid expansion of different classes of
antihyperglycemic drugs with unique pharmacological mechanism of action and, correspondingly, they have diverse toxicological profiles. A variety of medications are reported to maintain hyperglycemia i.e. elevated blood glucose level like insulin, sulphonylureas, biguanides, thiazolidinedione, glucagon-like peptide-1 analogues and dipeptidyl peptidase-IV inhibitors. Overdose of these drugs may include agitation, altered behavior, excess sweating, slurred speech, tachycardia, seizures, and coma. Subcutaneous dose of insulin is associated with profound risk blurred vision and hypoglycemia. Sulfonylureas can cause hypoglycemia, which stimulates appetite and leads to weight gain. Biguanides causes anorexia and encourage weight loss. Thiazolidinediones like pioglitazone, rosiglitazone can cause hepatic dysfunctioning as an adverse effect on regular treatment. Management of diabetes without any side effects is still a challenge to the medical system. Nevertheless, natural supplements are widely used around the world to treat diabetes, but medical research does not support their effectiveness . Therefore, the search for natural supplement from medicinal plants is being intensified probably because of its fewer side effects, readily availability and low cost. Thus the scientific validation of medicinal plants traditionally used in the treatment and management of diabetes is necessitated.

*Gymnemesylvestre R.Br*(Gudmar) (Family- Asclepiadaceae), *Eugeniajambolana* Lam (Jamun) (Family- Myrtaceae), *Momordicacharantia* Linn (Karela) (Family- Cucurbitaceae), *Emblicaofficinalis* Gaertn.(Amla) (Family- Euphorbiaceae) & *Curcumatonga* Linn (Turmeric) (Family- Zingiberaceae) are widely used in ayurvedic medicine for the treatment of diabetes, tonsillitis, diuretic, blood impurities, antiseptic and antioxidant, anticholesterol.
Hence, in the present study it has been planned to investigate the phytochemical and pharmacological profile of a polyherbal formulation prepared from the leaves of *Gymneme sylvestre*, Seed of *Eugenia jambolana*, fruit of *Momordica charantia*, Fruit of *Emblica officinalis* and Rhizome of *Curcuma longa* to verify potentials of the plants with scientific approach for Anti Diabetics effects.