4) WORK PLAN AND METHODOLOGY

1. Review of literature
   This will be done by referring different journals, e-journals, patents, books, etc.

2. Approval of institutional animal ethics committee
   Approval from IAEC will be taken after preparation of form B as per CPCSEA guidelines.

3. Selection of the animals such as mice or rats
   Rodents such as mice or rats will be selected according to action of diabetic inducers, data available from literature survey or by doing preliminary study on the rodents.

4. Selection of suitable diabetic inducers
   Different combinations of diet like HFD, fructose, sucrose and chemicals which have potential to cause pancreatic β cell dysfunction will be used for production of diabetes in rodents. Dose determination of these diabetic inducers will be done after preliminary study on the rodents.

5. Induction of diabetes into rodents
   After selection of diabetic inducers, diabetes will be induced. Two different novel models will be performed.

6. Assessment of diabetes in both models
   This will be done by measurement of different parameters like blood glucose, insulin level and Histopathological examination of pancreas, liver and kidney etc.

7. Validation of newly developed models
   For the determination of the validity and suitability of newly developed models for pharmacological testing of various compounds, the response of these models to the classes of antidiabetic drugs commonly used to treat type 2 diabetes mellitus, such as insulin sensitizers thiazolodindiones e.g. Pioglitazone and biguanides e.g. Metformin will be tested.
8. **Long term study of the developed models**

   In order to know the suitability of newly developed models for the long term studies, the prepared models will be tested for biochemical parameters for longer duration of time.

9. **Study of diabetic complications**

   Models will be tested for different complications of diabetes such as retinal damage, diabetic neuropathy, cardiovascular diseases, hepatic malignancy, metabolic syndrome which normally occurs in the humans.

10. **Comparison of both models on the data available by above studies**

    Comparison between both models as well as with existing models of type 2 diabetes mellitus will be done on the basis of data available by above studies in order to find out which one is most suitable.