Ph. D Synopsis

WORK PLAN AND METHODOLOGY

1. Literature review by using reference books, Journals and by e - library

2. Collection and authentication of Plant material.
   The part the plant material will be collected from Mahavir Ayurvedic Bhandar, Mumbai, India and authenticated from authorized person.

3. Extraction
   a. Dried and powdered plant material extracted by using soxhlet apparatus with petroleum ether (60-80°C) and ethanol as a solvent.

4. Phytochemical Investigation
   a. Characterization of fruits of *Piper cubeba* extracts for various phytocomponents by chemical test for determination of different chemical constituents.

5. Pharmacological evaluation of fruits of *Piper cubeba*
   a. Procurement of Experimental Animals.
   b. Acute toxicity studies of the extract as per OECD guidelines
   c. Screening for Hepatoprotective activity by Carbon tetrachloride and ethanol induced toxicity models.
   d. Antioxidant activity by using spectrophotometer assay
      ➢DPPH (1,1-Diphenyl-2-Picryl Hydrazyl) free radical scavenging activity,
      ➢Reducing power assay
      ➢Nitric Oxide Radical Scavenging Activity
      ➢Hydrogen peroxide radical scavenging activity

6. Various biochemical parameters are estimated such as,
   • Alanine aminotransferase (ALT)
   • Aspartate aminotransaminase (AST)
   • Alkaline phosphatase (ALP)
   • Total bilirubin (TBil) and Direct bilirubin (DBil)
   • Total Protein (TP)
   • Serum triglycerides (STG)
   • Lipid peroxidation
   • Reduced glutathione
   • Catalase

7. Morphological and histopathological parameters like weight and, examination of
isolated liver will be performed.

8. Toxicological evaluation of fruits of *Piper cubeba*
   a. Changes in the body weight and histopathological examination of selected organ such as liver, kidney and brain will be performed.