WORK PLAN AND METHODOLOGY

1. Literature review for individual ingredients Simh nad guggul and kshir bala taila formulations.

2. Procurement of plant materials and other raw materials.

3. Identification and authentification of plant materials
   Method: Botanical, morphological, microscopical and extractive value study.

4. Formulation of Kshir bala taila and Simh nad guggul
   Method of formulation: Kshir bala taila (AFI, Part-I, 8:11)
   Simh nad guggul (AFI, Part-I, 5:12)

5. Physico-chemical evaluation of Kshir bala Taila
   Method of evaluation:
   a. Physical evaluation of taila:
      Colour, odour, Taste, Density (40°C), Viscosity(40°C),
      Surface tension, Refractive index (40°C), Bolining point.
   b. Chemical evaluation of taila:
      Saponification value, Acid value, Ester value, Iodine value,
      Peroxide value, Unsaponifiable matter, Mineral oil trace detection (Hold’s test), Rancidity test (Kreis test).
   d. Preliminary phytochemical screening.
   e. Identification and estimation of Phyto-constituents by chromatographic and spectroscopical study.

6. Physico-chemical evaluation of Simh nad Guggul

   Method of evaluation:
   a. Physical evaluation: Colour, odour, Taste, Shape, Size
      Uniformity, Weight uniformity, Hardness, Friability,
Disintegration time, Dissolution time, pH (1% aq. Solution), Loss on drying.

b. Chemical evaluation: Water soluble extractive value, Alcohol soluble extractive value, Ether soluble extractive value, Ethyl acetate soluble extractive value, Total ash, Acid insoluble ash, water soluble ash, Total tannin content, Total guggulsterol content, total sulphur content, Total ricinol content.

c. Preliminary phytochemical screening of successive solvent extracts.

d. Identification and estimation of Phyto-constituents by chromatographic and spectroscopic techniques.

7. Pharmacological evaluation of Kshir bala Taila and Simh nad Guggul

Method of evaluation:

a. **Animals:** Adult male rats of Wistar strain having average weight (200 to 300 gm) were selected for the study.

b. **Freund’s Adjuvant Induced Arthritis In Rats (Newbould Bb., 1963)**

c. **Pharmacological parameters evaluated:**

- Body weight,
- Paw edema volume (ml) using plethysmometer
- Erythrocyte sedimentation rate
- C-reactive protein
- Rheumatic Factor
- Blood components: WBC count, RBC count, Platelet count, Hemoglobin content, Polymorph count, Lymphocyte count, Eosinophils count, Monocytes count, Basophils count, PCV, MCV, MCH, MCHC, RDW.
- Histopathological study of rat joint tissues
- Behavioral study.

(All behavioral study and biological sample analysis were done on 0, 15th and 30th day of study.)

(Clinical study data will include all the above parameters except histopathological study.)