Chapter - II

Aim of the Investigation
2. AIM OF THE INVESTIGATION:

The main focus of the present investigation is to explore the bio-enhancer activity of a novel piperine analogue (PA-1) (Fig. 1) for the anticancer drug etoposide. The present investigation has been divided into the following sections:

- To investigate the interaction of PA-1 with biochemical mechanisms responsible for regulation of bioavailability (Absorption, Efflux, Distribution, Metabolism and Protein binding).
- To investigate the effect of PA-1 on the bioavailability of etoposide.

Study Design

- **Analytical**
  - Development and validation of UPLC-QToF assay for simultaneous determination of etoposide and PA-1 in aqueous and plasma matrix.

- **Pharmacokinetics**
  - Determination of bioavailability of etoposide in presence of co-dosed PA-1
  - Effect of PA-1 on absorption/efflux of etoposide from GIT

- **Mode of Action Studies**
  - Effect of PA-1 on CYP mediated first pass metabolism
  - Effect of PA-1 on etoposide plasma protein binding

- **Toxicity Evaluation**
  - Mucosal toxicity of PA-1
  - 28-day sub acute toxicity of PA-1