AIM & OBJECTIVES

Worldwide, over ten million new cases of cancer (all sites excluding non-melanoma skin), with over six million deaths, were estimated. Since 1990 there has been a 22% increase in cancer incidence & mortality. Most frequent cancers recorded are lung, breast, colorectal, and stomach\textsuperscript{123}. Although these figures are disquieting, some progress has been made in cancer diagnosis and treatment\textsuperscript{124} & \textsuperscript{125}.

Drug discovery from medicinal plants has played an important role in the treatment of cancer and, indeed, new clinical applications of plant secondary metabolites and their derivatives have been attempted towards combating cancer\textsuperscript{126}. Of all available anticancer drugs between 1940 and 2002, 40% were natural products or natural product-derived with another 8% considered natural product mimics\textsuperscript{127}.

Several promising plant-derived compounds are in clinical trials as potential cancer chemopreventive agents, including curcumin (Phase I colon), genistein (Phase I breast and endometrial), soy isoflavones (Phase II prostate), indole-3-carbinol (Phase I breast recurrence), perillyl alcohol (Phase I breast), various forms of retinoic acid (over 100 clinical trials in progress), phenethyl isothiocyanate (Phase I lung), green tea/epigallocatechin gallate (Phase II breast, Phase I unspecified cancer, Phase II bladder recurrence), and resveratrol (Phase I unspecified cancer)\textsuperscript{128}. These and other promising phytochemical chemopreventive agents work by various mechanisms of action targeting initiation, promotion, and progression of carcinogenesis\textsuperscript{129}.

These studies on the chemo preventive agents from plant sources and their mechanism of action in controlling this deadly disease prompted us to take up plant sources to study their Anticancer potential, and identify probable anticancer drug molecule.

A brief literature review was carried out on the anti tumor activity studies carried out on plant extracts and plant metabolites. Based on the reviews species of \textit{Artemisia} were selected due to their predominant occurrence in and around Trichy. Besides, presence of anticancer compounds such as sesquiterpene lactones, caryophyllene, etc., prompted us to screen the selected plant extracts against Ehrlich Ascites Carcinoma, a colorectal cancer.
AIM & OBJECTIVES

4.1. Species of *Artemisia* selected for the present study are:

- *Artemisia nilagirica* Pamp. &
- *Artemisia parviflora* Buch. - Ham. Ex D. Don

4.2. Objectives:

- To determine the botanical and chemical standards for the selected species and the extracts taken up for the study.
- To conduct *in-vitro* & *in-vivo* cytotoxic studies against Ehrlich Ascites Carcinoma cell lines.
- To evaluate biochemically the anticancer potential of the selected plant drugs against Ehrlich Ascites Carcinoma.
- To perform HPTLC & GC-MS studies of the extracts selected for the study, and to identify the molecules present in the extracts subjected to anticancer studies.
- To carry out docking studies on the identified compound in GC-MS to arrive at the possible mechanism of anticancer action.
- To assess the safety and efficacy of the compound.