

Research Proposal

Cancer is a disease that is characterized by any malignant tumor or growth resulting from the abnormal or uncontrolled division of cells. Cancer arises from transformation of normal cells into tumor cells in multistage process. Liver cancer is the growth and spread of unhealthy cells in the liver that starts as primary liver cancer. Cancer that spreads to other organs is called as metastatic liver cancer. Hepatocellular Carcinoma(HCC) is a primary malignancy of the liver and occurs predominantly in patients with chronic liver disease and cirrhosis. Liver cancer is a major health problem world-wide and is the fifth most common cancer in men. Hepatocellular carcinoma(HCC) accounts for 70 to 85% of primary malignancy tumor of liver and it is frequently associated with chronic inflammation in the liver induced by persistent infection with hepatitis B and hepatitis C virus along with some toxins and other reactive oxygen species(ROS). The main treatment of primary liver cancer are surgery and chemotherapy.

Siddha medicine consists of large numbers of herbs with medicinal and pharmacological importance. The herbal medicines have a vital role in the prevention and treatment of cancer which execute their therapeutic effect by inhibiting cancer activating enzymes and hormones, stimulating DNA repair mechanism, promoting production of protective enzymes inducing anti-oxidant action and enhancing immunity. Phytochemicals derived from traditional medicinal plants have been found to possess anticancer and chemo protective effects. They are safer for long-term use in cancer patients. Many anticancer agents obtained from plant source have achieved pre-clinical or clinical development. Karisalai karpam chooranam is one of the siddha poly herbal drug consists of 7 different medicinal plants *Eclipta prostrata* (Karisalankanni), *Wedelia calendulacea* (Manjal karisalai), *Indigofera tinctoria* (Avuri), *Sphranthus indicus* (Kottakarandai), *Centella asiatica* (Vallarai), *Acalypha indica* (Kuppaimeni), *Coldenia procumbens* (Siruseruppada) used to cure liver disorder such as jaundice, enlargement of liver and spleen, anemia and hepatosplenomegaly.

The effect of karisalai karpam chooranam against hepatocellular carcinoma cell lines and effective dose level of the component is evaluated by anticancer activity tests – MTT assay, Annexin V and Propidium iodide staining, DNA fragmentation assay, Cell cycle arrest by flow cytometry and Real time PCR (Caspase 9, Cytochrome C, Bax and Bcl2) using hepG2 cell lines. It is proved that karisalai karpam chooranam has anticancer activity. Future work is to perform study in *in vivo* model to find out the efficacy of karisalai karpam chooranam.