Herbal Remedy for Liver Cancer – Review

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Abstract:
Liver is a vital organ play a major role in metabolism and excretion of xenobiotics from the body. Herbal medicines are in great demand in the developed world for primary health care due to their efficacy, safety and lesser side effects. Botanical medicines have been used traditionally by herbalists and indigenous healers worldwide for the prevention and treatment of liver disease. Clinical research in this century has confirmed the efficacy of several plants in the treatment of liver disease, while basic scientific research has uncovered the mechanisms by which some plants provide their therapeutic effects. The biochemical mechanism of cancer prevention in tissues by herbs is proposed. Broadly herbs are rich in alkaloids, flavones, antioxidants, xanthones, omega-3 fatty acids, vitamins, minerals and fibers. Most of the herbs are derived from plants and they act as regulatory biochemical metabolites either by direct intermediary metabolism or regulating cancer pathways and stimulating immunity. The focus of review is to introduce available herbs, herbal biochemical action and herbiceutical anticancer formula. The herbal anticancer formula may be prepared by using: antiproliferative herb extracts combined with vitamin supplement, lactate dehydrogenase enzyme inhibitor, palliative alkalinizing sodium or potassium salts as mixture in liquid, paste or syrup form. Herbiceuticals from herbs are potential anticancer supplements if used with care and regulatory guidelines. This article is a overview of botanicals used in the treatment of liver disease.

Key Words: Liver cancer, Hepatogenic, Hepatoprotecteetive effects.

INTRODUCTION:
Cancer is a general term applied of series of malignant diseases that may affect different parts of body. These diseases are characterized by a rapid and uncontrolled formation of abnormal cells, which may mass together to form a growth or tumor, or proliferate throughout the body, initiating abnormal growth at other sites. If the process is not arrested, it may progress until it causes the death of the organism [1]. Types Of Cancer: 1) Cancers of Blood and Lymphatic Systems: a) Hodgkin's disease b) Leukemias, c) Lymphomas, d) Multiple myeloma, e) Waldenstrom's disease.2) Skin Cancers: a) Malignant Melanoma .3) Cancers of Digestive Systems: a) esophageal cancer, b) Stomach cancer, c) Cancer of pancreas, d) Liver cancer, e) Colon and Rectal cancer, f) Anal cancer.4) Cancers of Urinary system: a) Kidney cancer, b) Bladder cancer, c) Testis cancer, d) Prostate cancer.5) Cancers in women: a) Breast cancer, b) Ovarian cancer, c) Gynecological cancer, d) Choriocarcinoma 6) Miscellaneous cancers: a) Brain cancer, b) Bone cancer, c) Carcinoid cancer, d) Nasopharyngeal cancer, e) Retropitoneal sarcomas f) Soft tissue cancer, g) Thyroid cancer[2]. Symptoms of cancer metastasis depend on the location of the tumor: When cancer begins it invariably produces no symptoms with signs and symptoms only appearing as the mass continues to grow or ulcerates. The findings that result depend on the type and location of the cancer. Few symptoms are specific, with many of them also frequently occurring in individuals who have other conditions. Cancer is the new "great imitator". Thus it is not uncommon for people diagnosed with cancer to have been treated for other diseases to which it was assumed their symptoms were due.[3]. In this article we are going to discuss about liver cancer and its treatment by herbal plants. There are many herbal plants which cures liver cancer. These plants include Silybum marianum (milk thistle), Picrorhiza kurroa (kutki), Curcuma longa (turmeric), Camellia sinensis (green tea), and Glycyrrhiza glabra (licorice). Silybum marianum, Picrorhiza kurroa, Curcuma longa, Camellia sinensis, and Glycyrrhiza glabra.[4]. In this article we will discuss about Curcuma longa (turmeric) and Green Tea (Camellia sinensis)

LIVER CANCER:
The liver is the largest glandular organ in the body, and has more functions than any other human organ. A person's entire blood supply passes through the liver several times a day. The Liver has a pivotal role in human metabolism. Liver produces and secretes bile, it also produces prothrombin and fibrinogen, both blood clotting factors, and heparin, a mucopolysaccharide sulfuric acid ester that helps keep blood from clotting within the circulatory system. The liver converts sugar into glycogen. Liver diseases have become one of the major causes of morbidity and mortality in man and animals all over globe and hepatotoxicity due to drugs appears to be the most common contributing factor[5]. Among the many diseases that can affect the liver the most common is 'viral hepatitis' (Inflammation of liver caused by viral infection). Hepatitis can be caused by drugs, viruses, bacteria, mushrooms, parasites like amoebas or giardiasis. About 20,000 deaths found every year due to liver disorders. The use of natural remedies for the treatment of liver diseases has a long history and medicinal plants and their derivatives are still used all over the world in one form or the other for this purpose. Scientific evaluation of plants has often shown that active principles in these are responsible for therapeutic success. A large number of medicinal plants have been tested and found to contain active principles with...
curative properties against a variety of diseases[6]. Liver protective plants contain a variety of chemical constituents like phenols, coumarins, lignans, essential oil, monoterpenes, carotinoids, glycosides, flavanoids, organic acids, lipids, alkaloids and xanthenes[7]. Recent experience has shown that plant drugs are relatively non-toxic, safe and even free from serious side effects[8]. This review article has been presented to enumerate some indigenous plants that have hepatoprotective properties.

**HERBAL REMEDY FOR LIVER CANCER:**
Herbal drugs have become increasingly popular and their use is wide-spread. Herbal medicines have been used in the treatment of liver diseases for a long time so the maintenance of a healthy liver is essential for the overall well being of an individual. Liver injury induced by toxins is more common nowadays. Herbal remedies are focused in the pharmaceutical industry to evolve a safe route for liver disorders. Therefore, hepatoprotective natural products are Andrographis paniculata, Chamomile capitula, Silybum marianum, Coccinia grandis, Flacourtia indica, Wedelia calendulacea, Annona squamosa, Prostechea michuacana, Ficus carica, Lepidium capitula, Pyyllanthus emblica, Curcuma longa, Picrorhiza kurroa, Azadirachta indica, Aegle marmelos, Cassia roxburghii, Orthosiphon stamineus, Jatropha curcas, Foeniculum vulgare, Trigonella foenum graecum, Eclipta alba, Garcinia mangostana[9]. The present review is aimed at compiling data about Curcuma Longa(Tumeric) and Green Tea(Camellia sinesis).

### Curcuma longa (TURMERIC):

**Scientific classification**
- Kingdom: Plantae
- Subkingdom: Tracheobionta
- Superdivision: Spermatophyta
- Division: Magnoliophyta
- Subclass: Zingiberidae
- Order: Zingiberales
- Family: Zingiberaeaceae

**DESCRIPTION:**
Curcuma longa is a member of the ginger family. It is a tropical plant extensively cultivated in the tropical areas of Asia, and to a lesser extent in Africa. It is the source of the spice turmeric, which is derived from the dried, ground rhizome[11].

### HISTORY OF TURMERIC:
Marco polo (1280 AD) refers to turmeric as Indian saffron used for dying cloths. As far as documented evidence, it is used daily in India for at least 6000 years as medicine, beauty aids, cooking spice and a dye. Obtestibly it was used to worship the Sun during the solar period of India, a time when Lord Ram Chandra walked the Earth. It was mentioned in the Artharveda of India. Buddhist monks have used turmeric as a dye for their robes for at least 2000 years. It was listed in an Assyrian herbal circa 600 BC and was mentioned by Discorides in the herbal that was the western herbal rediscovered it 700 years ago via Marco Polo and it is used in traditional lethal poison of pit vipers. In China it was mentioned in the Pent-Sao of the 7th century. For at least 1000 years Chinese are used turmeric as medicine especially for the spleen, stomach and liver medicines. They use it to stimulate and purify and as an anti-biotic, anti-viral and an analgesic[12].

**ACTIVE CONSTITUENTS:**
Turmeric is comprised of a group of three curcuminoids: curcumin (diferuloylmethane), demethoxycurcumin, and bisdemethoxycurcumin , as well as volatile oils (tumerone, atlantone, and zingiberone), sugars, proteins, and resins. The curcuminoid complex is also known as Indian saffron[13]. Curcumin is a lipophilic polyphenol that is nearly insoluble in water but is quite stable in the acidic pH of the stomach[14].

### TURMERIC MEDICINAL USES:
From many years awareness of turmeric and its use as medicine is continuously increasing. A flowering plant, Turmeric, in the ginger family, is commonly used as a food coloring and is one of the basic ingredients in curry powder[15]. To heal many health disorders like liver problems, digestive disorders, treatment for skin diseases and wound healing turmeric has long been used in Medicinal as an anti-inflammatory.Curcumin is the active ingredient in turmeric which has been shown to have a wide range of therapeutic effects[16]. This improves the body's ability to digest fats. For chronic digestive weakness and/or congestion turmeric is recommended.

**Liver Diseases:**
Turmeric is beneficial for its influence on the liver. In spring more consumption of herbs and foods can strengthen the liver. Turmeric shares similar liver protectant compounds that milk thistle and artichoke leaves contain. It is said to shrink engorged hepatic ducts, so it can be useful to treat liver conditions such as hepatitis, cirrhosis, and jaundice[17].

**Cancer:**
Recent scientific research confirm that turmeric can cure host of diseases, also they found that turmeric restrain the growth of various types of cancer. Turmeric is used for the treatment of skin cancer[18].

**Bacterial Infection / Wounds:**
Turmeric is useful as an external antibiotic in preventing bacterial infection in wounds.
**ANTI-INFLAMMATORY ACTIVITY:** Turmeric decreases congestion and inflammation from stagnant mucous membranes. Turmeric is anti-inflammatory to the mucous membranes, which coat the throat, lungs, stomach and intestines. Regular use of turmeric can benefit from Colitis, Crohn’s disease, diarrhea, and post-giardia or post salmonella conditions. The itching and inflammation that accompanies hemorrhoids and anal fissures can reduce by use of turmeric. Turmeric can also benefit skin conditions including: eczema, psoriasis and acne, for those it is potent detoxifier “Turmeric gives the energy of the Divine Mother and grants prosperity of health. Turmeric is effectual for purification the chakras, as well as purifying the path of the subtle body.”

**HEPATOPROTECTIVE ACTIVITY IN LIVER CANCER:** *In vitro* and *in vivo* animal studies provide evidence for the hepatoprotective effects of turmeric however, there are no human clinical studies.

Like silymarin, turmeric has been found to protect animal livers from a variety of hepatotoxic substances, including carbon tetrachloride, 7,8 galactosamine, pentobarbital, 1-chloro-2,4-dinitrobenzene, 4-hydroxynonenal, 10 and acetaminophen (paracetamol). The hepatoprotective effects of turmeric may stem from its potent antioxidant effects. Turmeric contains several water- and fatsoluble antioxidant compounds, of which curcumin was found to be the most active. The antioxidant effects of other components of turmeric are also significant. A heat-stable protein isolated from the aqueous extract of turmeric was found to be more effective against superoxide than curcumin, and more effective in inhibiting oxidative damage to DNA. Dietary supplementation of turmeric in rats (one percent bdetoxification by increasing the activity of glutathione S-transferase, an enzyme which conjugates glutathione with a wide variety of toxins to facilitate their removal from the body. y weight turmeric for 10 weeks) was found to significantly protect detoxification by increasing the activity of glutathione S-transferase, an enzyme which conjugates glutathione with a wide variety of toxins to facilitate their removal from the body.**

**ANTI-INFLAMMATORY ACTIVITY:** Both the volatile oil and curcumin exhibit powerful anti-inflammatory effects. Orally administered, curcumin was found to be as effective as cortisone or phenylbutazone in acute inflammation, and one-half as effective in chronic inflammation as these drugs, without toxic side-effects. One mechanism of curcumin’s anti-inflammatory activity may be its ability to block the production of pro-inflammatory arachidonic acid. Curcumin significantly inhibited the conversion of dihomo-gamma-linolenic acid to arachidonic acid in the fungus Mortierella alpina and in rat liver microsomes.

**CHOLERETIC ACTIVITY:** Curcumin also has choleretic effects on the liver. Bile acid production was increased over 100 percent in rats after oral curcumin administration. Increased production of other constituents of bile, including cholesterol, bile salts, and bilirubin, was also demonstrated.
Histopathological examination revealed effective protection. Catechins have been discovered to be powerful known about the hepatoprotection afforded by green tea. In addition, the anti-carcinogenic effect of green tea on the alcohol, d-galactosamine, and 1,4-naphthoquinone. In rat liver cells exposed to 1,4-naphthoquinone, green tea extract prevented the expected cellular damage. This protective effect was suggested to be due to maintenance of protein thiol levels by green tea [23]. Protein thiols help maintain the intracellular reduction-oxidation (redox) balance. Protein tertiary configuration (shape), and therefore cellular function, is dependent on the maintenance of the redox balance. In rat liver cells exposed to 1,4-naphthoquinone, green tea extract prevented the expected cellular damage. This protective effect was suggested to be due to maintenance of protein thiol levels by green tea [24]. Much of the green tea research involves its effects on cancer prevention and treatment. A full review of the anti-cancer properties of green tea is beyond the scope of this review, but at least a passing mention must be made on the subject with regard to liver cancer. Green tea has been found to reduce or prevent the growth of hepatic neoplasms in rodentsonly treated animals [25].

**CONCLUSION:**

More researches is required to explore the herbal remedy for liver cancer. In spite of tremendous strides in modern medicine, there is hardly any drug that stimulates liver functions protect liver from damage or help regenerating hepatic cells. However a number of drugs are employed in traditional system of medicine for liver affections. Therefore the most effective drug for each kind of liver disease. Pharamacovigilance of plant based drugs be further improved and mechanism of action must be elucidated. There is still lot of work to be done in order to achieve a reliable standarized products and link it to a specific biological activity and therapeutic application.

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