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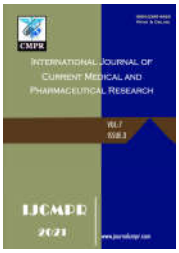

Research Article

# SAFE AND EFFECTIVE IMMUNOMODULATORY COMPOSITION FOR THE LIVER MALFUNCTION SURENDRANAGAR (GUJARAT), INDIA

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**ABSTRACT**

This list is just a general guideline. Many drugs affect the liver to one degree or another and we can't list all of them here; new drugs are always being approved for general use. "Liver Malfunction-Jaundice" – novel research composition signifies that **it** is analytically and clinically proven safe and effective.
**Clinical Indication**: Liver Dysfunction- Jaundice –Detoxify Liver, Fatty Liver



## INTRODUCTION

The liver is the principal organ that is capable of converting drugs into forms that can be readily eliminated from the body. Given the diversity in use today and the complex burden they impose upon the liver, it is not surprising that a broad spectrum of adverse drug's effects on liver functions and structures has been documented. The reactions range from mild and transient changes in the results of liver function tests to complete liver failure with death of the host. Many drugs may affect the liver adversely in more than one way, as cited below in several listings. The use of the following drugs requires careful monitoring of their effects on the liver during the entire course of treatment.

### *Background of the Invention*

The liver of our body is an organ which acts like a filter: it helps digest food by filtering out bad chemicals and substance from the food we eat. It is an energetic and critical part of our digestive system, and one of the most important organs in our body. However, the liver is also prone to damage. There are many causes of damage to liver, from chemical to disease. At presently near about two million Americans suffer from liver damage caused by alcohol abuse. About 10 to 20 percent of large alcohol takers will develop cirrhosis of the liver, which is characterized by scarring of the liver and causes irreversible damage. If large alcohol takers do not stop drinking, cirrhosis can cause poor health and, ultimately, death. In addition to cirrhosis, heavy drinkers may suffer from chronic liver disease or alcoholic hepatitis.

Damage to the liver can lead to problems with blood sugar levels. When alcohol is present in the body, the liver works to metabolize it. Because the liver is busy metabolizing alcohol, it is often not able to adequately maintain blood sugar levels, which may result in hypoglycemia (low levels of blood sugar). Hypoglycemia is most likely to occur in individuals who have not maintained an adequate diet. When it occurs, the brain is not able to receive the energy it needs to function, and symptoms such as hunger, weakness, headache, tremor, and even coma (in severe cases) may occur.

Hepatic insufficiency can be defined as a clinical condition resulting from the additive effects of toxic metabolic defects. It may occur in any form of liver disease. It is usually gradual and relatively asymptomatic (David Cayer, American journal of digestive disease).

Hepatic insufficiency can be characterized by condition where liver is unable to perform its normal function. If the same is not treated then it may lead to impaired function of filtration carried out by liver and as a result, lots of waste products get

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accumulated in the blood and lead to serious condition of hepatic coma.

Jaundice is a clinical condition which is characterized by yellowing of the skin and the whites of the eyes which is due to an accumulation of a cellular waste production called bilirubin. The discoloration is often, but by no means always, accompanied by itching, which can be intense, as well as by nausea, vomiting, headache, fever, dark-colored urine, abdominal pain, loss of appetite, abdominal swelling, and light-colored stools.

Jaundice is not a disease in and of itself, but a sign that the liver is having inability to perform the normal function specifically handling bilirubin. The liver makes bilirubin from dying red blood cells and other sources. It then converts bilirubin into bile, which has several purposes, among them the digestion of fatty acids and neutralization of stomach acid. If there is too much bilirubin production for the liver to deal with, or if the liver's functioning is compromised, jaundice will be the outcome at the end.

Jaundice may be caused by several different disease processes. It is helpful to understand the different causes of jaundice by identifying the problems that disrupt the normal bilirubin metabolism and/or excretion.

The liver has many functions. One of the liver's functions is to produce and secrete bile into the intestines to help digest dietary fat. Another is to remove toxic chemicals or waste products from the blood, and bilirubin is a waste product. The liver removes bilirubin from the blood. After the bilirubin has entered the liver cells, the cells conjugate (attaching other chemicals, primarily glucuronic acid) to the bilirubin, and then secrete the bilirubin/glucuronic acid complex into bile. The complex that is secreted in bile is called conjugated bilirubin. The conjugated bilirubin is eliminated in the feces. (Bilirubin is what gives feces its brown color.) Conjugated bilirubin (called direct) is distinguished from the bilirubin that is released from the red blood cells and not yet removed from the blood which is termed unconjugated (called indirect) bilirubin.

Jaundice occurs when there is 1) too much bilirubin being produced for the liver to remove from the blood. (For example, patients with hemolytic anemia have an abnormally rapid rate of destruction of their red blood cells that releases large amounts of bilirubin into the blood), 2) a defect in the liver that prevents bilirubin from being removed from the blood, converted to bilirubin/glucuronic acid (conjugated) or secreted in bile, or 3) blockage of the bile ducts that decreases the flow of bile and bilirubin from the liver into the intestines. (For example, the bile ducts can be blocked by cancers, gallstones, or inflammation of the bile ducts). The decreased conjugation, secretion, or flow of bile that can result in jaundice is referred to as cholestasis: however, cholestasis does not always result in jaundice.

The bile ducts normally discharge pigments and bile salts into the intestine and an obstruction in the ducts can cause jaundice. The yellowish pigmentation of the skin is because of bile mixing with the blood. The obstruction could be caused by gallstones or an inflammation of the liver, known as hepatitis.
Results and statistical analysis of many epidemiological studies, clinical trials, and laboratory mechanistic studies indicate that many medicinal plants may be useful in the prevention and treatment of liver dysfunction and its related diseased conditions.

There are many poly herbal formulations available in the market claiming to be useful for many diseased conditions including liver damage, liver cirrhosis, hepatic insufficiency and many more but majority of such poly herbal formulations doesn't contain the standardized material and appropriate proportion of required plant extract with required active constituents according to targeted condition.

It is visible from the above discussion that there is still exists a long felt need and a strong demand in the society for the herbal formulation based on plant of natural kingdom, which provides beneficial activity against liver dysfunctional the same time doesn't have major side effects to human beings.

We have surprisingly found that when extract of specific parts of specific plant are formulated in to a composition, the said composition exhibits superior activity in the treatment of liver dysfunction with minimal or no side effects at all.

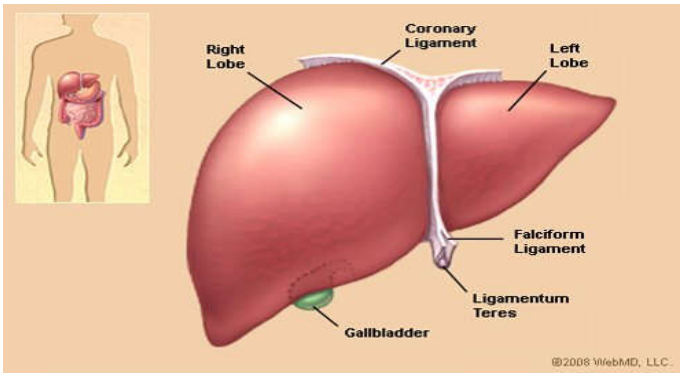


**Table 1**

***Method of Invention***

The materials used for the composition had been procured from the authentic laboratory/company in dry extract form. Each ingredient had been provided with the laboratory intervention and analysis as like microbial counts and solubility tests. Glidant Aerosil (USFDA Certified) added 3 percent of the material weight. Hard gelatin Capsules used and due care for GLP and GMP maintained. HPLC and LD50-Safety & Toxicity tests performed.

***Object of the Invention***

The major interest was to assess series of active compounds, safe, effective and low cost for the treatment. As liver has most significant role in metabolism, it focuses prime attention. Healthy liver function may safeguard other diseases like diabetes, Cirrhosis of liver and many more.

***Keywords***

Liver, dysfunction, Jaundice, Fatty Liver, Loss of Appetite.

***Detailed Description of the Invention***

The present invention is contemplates plant extract composition exhibiting activity against liver dysfunction wherein the plant extracts composition comprises extracts of Curcuma longa, Phyllanthus emblica and Gymnosporea montana and at least a carrier.

As used herein, liver dysfunction means the diseases condition known as jaundice and hepatic insufficiency and preferably the disease condition of jaundice. Active compound responsible for specific activity can be found in higher concentrations in specific parts of medicinal plants and in lower concentration in other parts of the medicinal plant. The specific part of the

medicinal plant having the higher concentration of the plant are selected and processed further to use for the preparation of the plant extract composition. Preferably the extracts of the specific part of plant are used for the preparation of the composition of the present invention to provide the desired therapeutic effect in liver dysfunction condition.

Pathophysiological Factors: (Target of New Drug) – Hypothesis and Prognosis (Composition of Bioactive Compounds)

1. Hepatoprotective activity by noting its effect on carbon tetrachloride (CC14)-indiced changes in liver cytoarchitecture and alterations in certain biochemical parameters as where transminase activity, lipid constituents of serum and liver, orosomucoid level in serum and liver glycogen, and phospholipids contents, besides, significant changes in the liver cytoarchitecture.
2. The compound has been well defined and established as an antagonist activity against genotoxic chemicals, anticlastogenecity in *vitro* , antimicrobial activity in *vitro*, anti oxidant activity in vitro, anti inflammatory activity in *viva* and *vitro*, prevention of hepatocarciogenesis in *vitro* and in *viva*, enhancer of natural killer (NK) cell activity in *vitro*, inhibition of HIV-1 reverse transcriptase in *vitro*, prevention of experimental acute pancreatitis, protection against radiation induced chromosome damage in *vitro*.
3. The selective, antigen specific augmentation of human T-cell response suggests that *** compound would be promising as an adjunct to chemotherapy or as a short term prophylactic agent- *Immunomodulatory effect.*
4. Suppressing nuclear factor *kappa beta* (NF-KB). Cancer cells often over express NK-KB and use this as a means to proliferate. *** has shown to suppress NK-KB. It further blocks estrogen and estrogen-mimicking chemicals that promote cell mutation and proliferation. *** Also inhibits cyclooxigenase (COX) and lipoygebinase (LOX), two enzymes that promote inflammation which play significant role in the development and progression of cell carcinoma and colon cancer. The compound is strong antioxidant and further protects cells against free radicals that promote cancer and cause aging by damaging DNA and activating genes. Destroying abnormal pre-cancereous cells stop certain forms of cancer by inducing 'aptosis', a process that identifies cancereous cells and instructs them to self-destruct. Enhancing immunity shown to stimulate both,

***Plant Extracts Used***

1. Curcuma longa
2. Gymnosporea montana
3. Phyllanthus emblica

***Summary of the Invention – Pilot Case Study***

The objects as mentioned above are achieved by providing a plant extracts composition comprising extracts of Curcuma longa, Phyllanthus emblica and Gymnosporea montana and at least a carrier.

The extracts used to prepare the composition are prepared from specific parts of the respective plants like extract of Curcuma longa; Phyllanthus emblica and Gymnosporea montana are prepared from tubers, fruits and leafs of respective plants.

Table 1: Results after conventional and *this Immunomodulatory Suppliment*

Normal: Direct: 0.2-1.0 - Indirect: 0.0-0.8 -S.G.P.T: 0.45 Urine Bile Salts: Absent- Urine bile Pigments: Absent

Nomenclature: The name given to the discovered Immunomodulator for the liver dysfunction is HIPATONE®

**Table 2**

| Patient Code | Age | Treatment (for 6 days) | Total Bilirubin (mg/dl) | S.G.P.T (u/L) | Urine Bile Salts | Urine Bile Pigments |
|---|---|---|---|---|---|---|
| DP | 43 | Conventional Treatment | 10.03 | 265 | Present | Present |
| | | **HIPATONE** Treatment | 0.9 | 0.6 | Absent | Absent |
| NJ | 44 | Conventional Treatment | 9.07 | 325 | Present | Present |
| | | **HIPATONE** Treatment | 0.7 | 0.45 | Absent | Absent |
| CS | 19 | Conventional Treatment | 9.17 | 492 | Present | Present |
| | | **HIPATONE** Treatment | 0.5 | 44 | Absent | Absent |
| RP | 37 | Conventional Treatment | 8.87 | 187 | Absent | Present |
| | | **HIPATONE** Treatment | 0.45 | 45 | Absent | Absent |
| KP | 27 | Conventional Treatment | 7.24 | 187 | Present | Present |
| | | **HIPATONE** Treatment | 0.3 | 46 | Absent | Absent |
| AD | 32 | Conventional Treatment | 5.03 | 97 | Present | Present |
| | | **HIPATONE** Treatment | 0.4 | 44 | Absent | Absent |
| VG | 48 | Conventional Treatment | 9.87 | 324 | Present | Present |
| | | **HIPATONE** Treatment | 2.04 | 123 | Absent | Absent |
| RA | 18 | Conventional Treatment | 4.35 | 127 | Present | Present |
| | | **HIPATONE** Treatment | 0.46 | 45 | Absent | Absent |
| HR | 23 | Conventional Treatment | 5.94 | 146 | Present | Present |
| | | **HIPATONE** | 0.43 | 44 | Absent | Absent |
| JA | 48 | Conventional Treatment | 3.78 | 137 | Present | Present |
| | | **HIPATONE** | 0.46 | 47 | Absent | Absent |

## CONCLUSIONS

It is well postulated that the above composition has prolific safety and effects with the sustainable observation.

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