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BHUMYAMALAKI IN THE MANAGEMENT OF JAUNDICE: A COMPREHENSIVE REVIEW

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ABSTRACT
Jaundice is a serious health issue that affects many people around the world. It is caused by high levels of bilirubins in the blood, which can cause the skin to turn yellow and the mucous membranes to become discolored. There are many traditional medicinal plants that have been used to treat jaundice. One of the most well-known of these is Phyllanthus niruri, which is used in many traditional medicinal systems. The purpose of this review is to provide an in-depth look at the pharmacology, clinical effectiveness, safety profile and molecular mechanisms that support the therapeutic benefits of bhumyamalaki for jaundice.

KEYWORDS: Bhumyamalaki, Phyllanthus niruri, jaundice, hepatoprotective, antioxidant, anti-inflammatory, clinical efficacy, safety profile, molecular mechanisms.

INTRODUCTION

Jaundice can be caused by a variety of aetiologies, such as viral hepatitis, alcohol related liver disease, bile obstruction, and haemolytic disorders. Although modern medicine has been made progress in treating jaundice, it remains a difficult condition to treat, so it is important to look for alternative and complementary therapies.

Bhumyamalaki (also known as Chanca Piedra, or 'Stonebreaker') is a naturally occurring substance in Ayurvedic, Traditional Chinese Medicine, and other native healing systems. It is known for its anti-inflammatory and prophylactic properties.

Botanical Description and Phytochemical Composition

Phyllanthus or bhumyamalaki is a small herbaceous shrub with beautiful green leaves. It is a member of the phyllanthaceae family. It is also known as phyllanthus niruri. Phyllanthaceae are a group of genera that include phytochemicals such as lignans, alkaloids, flavonoids, tannins, and other bioactive constituents. It has a wide range of pharmacological properties such as Hepatoprotective, Anti-inflammatory, Antioxidant and Immunomodulatory.

Phytoconstituents
The phyto-constituted components of bhumyamalaki range from lignans and alkaloids to flavonoids, tannins, and other bioactive compounds. Some of the pharmacological activities attributed to bhumyamalaki are: Phyllanthin, Hypophyllanthin and Niruriside.

Pharmacological Properties
A wide range of pharmacological effects are attributed to the bioactive components of bhumyamalaki: lignans; alkaloids; flavonoids; tannins; antioxidants; anti-inflammatory agents; antiviral agents; immunomodulators; and others.

It improves liver regeneration, increases bile secretion and regulates liver enzymes that are involved in the metabolism of bile, thereby relieving symptoms associated with jaundice.

It has been extensively studied in preclinical studies and clinical trials, and has been shown to reduce the symptoms of jaundice and improve liver function parameters in clinical trials.

Mechanism of action
The drug modulates several biochemical pathways that are important for liver function. For example, it improves liver detoxification, increases bile secretion and has anti-inflammatory properties that help to reduce liver damage and improve liver function. Its antioxidant properties help to neutralise free radicals and reduce oxidative stress which play an important role in jaundice.

Clinical Efficacy
In clinical trials, patients with jaundice experienced significant decreases in serum levels of bile acids, liver enzymes, and AST, as well as improvements in subjective symptoms (e.g., nausea, tiredness, abdominal pain, etc.) following supplementation.

It has also been shown to work synergistically with conventional therapies to treat viral hepatitis, as well as drug induced liver injury.

In addition, clinical studies have been conducted to evaluate the effectiveness of bhumyamalaki in patients suffering from jaundice. Serum bilirubin concentrations have been significantly reduced, liver function tests have improved, and clinical symptoms have been resolved. However, additional well-designed randomised controlled trials are needed to confirm these findings.

Safety Profile
It is generally considered safe to consume within recommended doses. However, there have been isolated reports of gastrointestinal issues, allergic reactions, herb-drug interactions, and other adverse reactions. Therefore, long-term safety studies should be conducted and pharmaco-vigilance initiatives should be undertaken to better understand the potential side effects and to ensure the safe use as a treatment for jaundice.

Molecular Mechanisms
Hepatoprotective properties are mediated by modulation of multiple molecular pathways associated with oxidative stress, inflammation (apoptosis), and liver (renal) remodelling pathways.

The primary mechanisms of action are oxidative scavenging, proinflammatory cytokine inhibition, suppression of N-Fibrosis-Cytokine (NF-κB) signalling, antioxidant enzyme upregulation, and proliferative pathways (Akt/mTOR, Wnt/δ- catenin signalling).

Pharmacological Actions
Hepatopoietic, Antioxidant, Anti-inflammatory, Antiviral, and Anti-Inflammatory properties have been shown in experimental studies.

Its capacity to regulate the enzymes involved in the metabolism of bile and the secretion of bile suggest that it may play a role in treating jaundice.

Dosage and Administration

The right dose depends on a variety of factors, including the severity of the jaundice and individual patient profile, as well as the formulation (i.e., powder vs. extract vs. decoction) of the bhumyamalaki.

Generally, standardized extracts contain 200-500mg of herb taken orally, three times a day. However, customized dosing plans based on individual needs may improve therapeutic outcomes.

Traditional Uses

Bhumyamalaki is classified as a "pitta reducing" herb in Ayurveda. It has hepatoprotective properties, cholagogue properties, diuretic properties, and is prescribed in various forms for the treatment of hepatitis, jaundice, and other liver diseases. Traditional Ayurveda practitioners often use this herb in combination with other herbs, such as Picrorhiza Kurroa or Tinospora Cordifolia.

CONCLUSION

As a result, bhumyamalaki is emerged as one of the most promising herbal remedies to treat jaundice due to its diverse pharmacological profile, clinical effectiveness, and positive safety profile.

However, further research efforts, such as well-constructed clinical trials and mechanistic studies as well as standardisation of herbal formulations are necessary to confirm its therapeutic benefit and to bring it into the mainstream of healthcare practice for treating jaundice.

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