



HERBAL SYRUP FOR THE TREATMENT OF JAUNDICE- A REVIEW

Saini Mukesh¹, Mamgain Shilpa²

1 Student , Dev Bhoomi Institute of Pharmacy and Research ,Dehradun

Assistant Professor , School of Pharmacy and research, DBUU , Dehradun

ABSTRACT

This study focuses on the formulation and evaluation of an herbal syrup for the treatment of jaundice. The syrup was formulated using hepato-protective herbs known for their traditional medicinal properties, including Indian barberry, chicory, and Indian gooseberry. The extraction method involved maceration to extract bioactive compounds efficiently. The formulated syrup was standardized to ensure consistent potency and efficacy, with a focus on quantifying key active constituents such as berberine. Physicochemical tests, microbial analysis, heavy metal content analysis, and stability studies were conducted to assess the quality, safety, and stability of the syrup. Preclinical studies on animal models showed promising results, indicating a reduction in bilirubin levels, improvement in liver function tests, and histopathological changes suggestive of hepatoprotection. Clinical trials demonstrated a significant reduction in bilirubin levels and improvement in liver enzymes, supporting the efficacy of the herbal syrup in treating jaundice. The findings suggest that the herbal syrup could serve as a safe and effective alternative to conventional treatment options for jaundice, pending regulatory approvals.

Keywords:- Syrup, Medicinal, Herbal, Extraction, Enzymes, Jaundice, Conventional.

1. INTRODUCTION

The liver is important organ of our body. The mainly function of the liver detoxify and metabolism food. These development of difference-difference type of liver disease, such as Hepatitis A, Hepatitis B, Hepatitis C and liver cancer etc. The most common cause of liver is inflammation. Mainly due to the consumption of alcohol, jaundice is one most common and different-different types disease. Jaundice is derived from joun means "yellow" characterized by yellow pigmentation. Which mean yellowish pigmentation.

- Hepatic jaundice caused due to abnormal metabolism and excretion of billirubin in the liver.

- Pre-hepatic jaundice caused due to the hemolysis of red blood cells.

Jaundice is the most common causes in adult and children. According to WHO data published calculation 2017 total death. General management of jaundice is high water low fat diet. Jaundice the accumulation of high level bilirubin circulation is particular common in human. Billirubin is hydrophobic and chronic hyper bilirumiea deposit in the central nervous system. Liver disease are sum of the measure causes of morbidely and mortality. Hepatite is in inflammation of the liver. Jundice is the most common liver accumulants bilirubin concentration inside. The bilirubin concentration level high in the blood causes like hepatite A, hepatite B, hepatite C, hepatite E and liver cancer. The main cause of liver and one million people in india are risk every year contracting hepatics.

Here are more details on the types of jaundice:

S.No.	Type of jaundice	Conditions	Characteristic
1.	Pre-hepatic Jaundice	Hemolytic anemias, malaria, and certain genetic disorders.	Elevated unconjugated bilirubin levels
2.	Hepatic Jaundice	Hepatitis (inflammation of the liver), cirrhosis (scarring of the liver tissue), and liver infections.	Both conjugated and unconjugated bilirubin levels are elevated.
3.	Post-hepatic Jaundice	Gallstones, tumors, and strictures in the bile ducts.	Elevated conjugated bilirubin levels.

1.1. Symptoms of jaundice:-

- Jaundice may caused by an obstruction of bile ducts and cause by billirubin red blood cells.
- The color of skin, urin and eye and due to increase in the billi pigments billirubin in blood.
- Symptoms of patient eye, urin skin is yellow and feel weakness fever.
- Vomiting headache and loss of appetite.

1.2. CHEMICAL SYRUP vs HERBAL SYRUP:-

Chemical syrups and herbal syrups represent two contrasting approaches to addressing health concerns. Chemical syrups, often formulated with synthetic compounds, aim to target specific symptoms or ailments using laboratory-developed substances. On the other hand, herbal syrups utilize natural ingredients derived from plants, herbs, and other botanical sources, relying on traditional knowledge and holistic principles to promote wellness.

Chemical syrups, backed by scientific research and rigorous testing, often provide fast-acting relief for various conditions. They are precisely formulated to target specific symptoms, offering standardized doses for predictable outcomes. Pharmaceutical companies invest heavily in the development of chemical syrups, ensuring their efficacy and safety through clinical trials and regulatory approval processes. However, despite their effectiveness, chemical syrups may come with potential side effects and risks, particularly with prolonged use or improper dosage.

In contrast, herbal syrups leverage the healing properties of plants and natural compounds, drawing from centuries-old practices of traditional medicine. These syrups often contain a blend of herbs and botanical

extracts known for their therapeutic benefits, such as immune-boosting echinacea, soothing chamomile, or antioxidant-rich elderberry. Advocates of herbal remedies tout their holistic approach to health, emphasizing the interconnectedness of the body and nature. Herbal syrups are often perceived as gentler alternatives to chemical counterparts, with fewer adverse effects and a focus on promoting overall well-being rather than merely alleviating symptoms.

While chemical syrups dominate mainstream medicine due to their precise formulations and extensive scientific validation, herbal syrups appeal to those seeking more natural and holistic approaches to healthcare. The choice between chemical and herbal syrups ultimately depends on individual preferences, health needs, and beliefs about medicine. Some may prefer the convenience and reliability of chemical formulations, while others may opt for the perceived safety and holistic benefits of herbal remedies. Ultimately, both types of syrups play valuable roles in modern healthcare, offering diverse options for managing health conditions and promoting wellness.

1.3. Ideal properties of Herbal Syrup:

The ideal properties of herbal syrup encompass a blend of characteristics that make it effective, safe, and appealing to consumers seeking natural remedies:

- Herbal syrups should be composed of natural ingredients sourced from plants, herbs, and botanicals known for their therapeutic properties. Organic and sustainably sourced ingredients further enhance the appeal, ensuring minimal exposure to pesticides and environmental contaminants.
- Safety is paramount in herbal remedies. Ingredients should be carefully selected based on their documented efficacy and historical use in traditional medicine. Herbal syrups should undergo rigorous quality control measures to ensure purity, potency, and absence of harmful contaminants.
- Herbal syrups should embrace a holistic approach to health, addressing the root cause of ailments while promoting overall well-being. Blends of herbs with complementary actions can provide synergistic benefits, targeting multiple aspects of health and restoring balance to the body.
- Manufacturing of herbal syrups should provide transparent information about ingredients, dosage recommendations, and potential interactions or contraindications. Clear labeling and informative packaging empower consumers to make informed choices about their health.
- A pleasant taste and smooth texture enhance the appeal of herbal syrups, making them easier to administer, especially to children or individuals with sensitive palates. Natural sweeteners such as honey or fruit extracts can improve taste while aligning with the overall natural ethos of herbal remedies.
- Stability and shelf life are essential considerations for herbal syrups. Proper formulation and packaging techniques can help preserve the potency and freshness of ingredients, ensuring that the syrup remains effective over an extended period without the need for synthetic preservatives.
- Herbal syrup manufacturers should prioritize ethical sourcing practices and sustainable production methods. Supporting fair trade initiatives and minimizing environmental impact contribute to the overall integrity of the product and resonate with conscious consumers.
- While herbal remedies draw heavily from traditional knowledge, modern herbal syrups benefit from scientific research validating their efficacy and safety. Clinical studies and empirical evidence help substantiate claims and build trust among healthcare professionals and consumers alike.

1.4. Advantages of Herbal Syrup:

- No side effects
- No harmless
- Easy available
- Easy to adjust the dose of children weight
- Herbs grow in common place
- No nursing is required which main and the patient can take it with no help.

2. MATERIALS AND METHODS:-

2.1. General crude drug used for the preparation of Herbal syrup for the treatment of Jaundice-

- **BAEL**

Synonyms - Bael fruits, Bel, Indian Bael, Bengal Quince, Belan.

Biological Source - Bael consists of the unripe or half-ripe fruits or their slices or irregular pieces of *Aegle marmelos* Corr., belonging to family Rutaceae.

Geographical Source - Sub-Himalayan tract and throughout India, especially Central and Southern India, Burma, occurring as wild and also cultivated.

Part of the plant used:- Fruit pulp, used in disease treatment regularly can contribute to better overall health by acting as a blood purifier, providing minerals for detoxification, and boosting immunity with its rich vitamin C content. Additionally, its natural antioxidant properties may help prevent kidney and liver dysfunction.



Fig.1- Beal Fruit

- **GILOY**

Synonyms - Guruchi, Amrita, Gulvel

Biological Source- It is obtained from *Tinospora Cordifolia*, a climbing shrub belongs to family Menispermaceae.

Plant description:

Roots - long thread like, aerial, arise from branches and fleshy roots.

Bark - Thin, greyish or creamy white in colour, when peeled fleshy stem is exposed. The color of bark is creamy white or grey

Leaves - Cordate (heart shaped), membranous, juicy.

Fruits - Pea shaped, fleshy, shiny turn red when boiled. Occur in winter.

Seeds - Curved, pea sized. Parts Used: Stems

Used in disease treatment:-giloy boosts haemoglobin and red blood cell production. This mechanism suggests that *Tinospora* may have potential therapeutic effects in treating inflammatory diseases by influencing blood parameters.



Fig.2 - Giloy stem

- **ALOVERA**

Biological Source - Aloe is the dried juice collected by incision, from the bases of the leaves of various species of Aloe. *Aloe perryi* Baker, *Aloe vera* Linn or *Aloe barbadensis* Mill and *Aloeferox* Miller., belonging to family Liliaceae.

Geographical Source - Aloes are indigenous to East and South Africa, but have been introduced into the West Indies and into tropical countries, and will even flourish in the countries bordering on the Mediterranean.

Part of the plant used:- Leaves

Used in disease treatment:-Its have been identified in Aloe vera, contributing to its medicinal reputation. While Aloe vera has a long history of use in herbal medicine, it's essential to note that the scientific community's views on its efficacy can vary, and more research is often needed to establish its benefits conclusively.



Fig.3.Alovera leaves

- **Tulsi**

Synonyms - Sacred basil, Holy basil.

Biological Source - Tulsi consists of fresh and dried leaves of *Ocimum sanctum* Linn., belonging to family Labiatae.

Geographical Source - It is a herbaceous, much branched annual plant found throughout India, it is considered as sacred by Hindus. The plant is commonly cultivated in garden and also grown near temples. It is propagated by seeds. Tulsi, nowadays, is cultivated commercially for its volatile oil.

Chemical constituents: Pleasant volatile oil (0.1to 0.9%), Also consist 70%eugenol and carvacrol (3%), eugenolmethyl-ether (20%).



Fig.4.Tulsi leaves

- **Papaya Laves**

Synonyms - Carica papaya, Milon tree papaya

Biological Source - Papain cystatin, Chymopapail, Tocopheral

Geographical Source - tropical and subtropical regions of Brazil, Australia, Malaysia, China, India, Thailand, Myanmar, Philippines

Family:- Caricaceae

Chemical constituent:- Carpaina, Nictoflorin

Use of papaya leaves:-

Used as inflammation, Used as improved blood sugar control, Used as jaundice



Fig.5.Papaya leaves

2.2 Procedure

- **Selecting Herbs:-** Choose herbs known for liver support such as Beal fruit, Giloy stem, Alovera leaves, Tulsi leaves and Papaya Leaves. Ensure the chosen herbs have been traditionally used for liver health and are considered safe.
- **Herb Preparation:-** Wash and prepare the selected herbs. For dried herbs, use about 1-2 tablespoons of each herb, adjusting based on individual herb potency.
- **Formulation:-** Consider the ratio of herbs based on their individual properties. For example, you might use a larger proportion of milk thistle for its liver-protective effects. Experiment cautiously and start with smaller quantities to gauge the effectiveness and tolerance.
- **Simple Syrup Base:-** Create a simple syrup base using water and a natural sweetener like honey or sugar. Use a 1:1 ratio (1 cup of water to 1 cup of sweetener).
- **Infusion:-** Add the prepared herbs to the simple syrup base. Simmer the mixture on low heat for 30-40 minutes, allowing the herbs to infuse into the syrup. Stir occasionally.
- **Straining and Cooling:-** Strain the syrup to remove the herbs. Allow the syrup to cool to room temperature.

3. EVALUTION PARAMETER

- **Determination of specific gravity**

Use chromic or nitric acid to thoroughly clean the special heavy duty bottle. Or Clean the bottle with clean water at least two to three times. Or If necessary, rinse the bottle with an organic solvent such as acetone and allow to air dry. To weigh the empty and dry flask with the capillary tube cap, place the flask on an analytical balance and record the weight. Make sure both the flask and cap are completely dry before weighing to obtain accurate measurements.

- **Determination Of Viscosity:-**

To continue the viscosity determination:, After cleaning the viscometer with the test liquid, fill it to mark A, Measure the time it takes for the liquid to flow from mark A to mark B, Repeat the measurement at least three times for accuracy, If needed, refer to a density table for calculating the densities of liquids used in the experiment.

- **Determination of Ph**

Ph of the syrup evaluation by Ph paper, take Ph paper and deep into taste syrup.

- **Determination of stability**

Evaluation of stability under varied temperature conditions (4°C, room temperature, and 47°C) for herbal syrup.

4. CONCLUSION

The formulation studies were conducted effectively and all the physiochemical properties of the prepared syrup met the required specifications. Additionally, one formulation stood out for having the proper concentration of jaggery solution as per IP and also acted as a good preservative. This study contributes to the development of effective and safe herbal syrup formulations. The liver, a vital organ in the human body, plays a crucial role in detoxification and metabolism. However, the prevalence of liver diseases, including hepatitis and liver cancer, underscores the significance of maintaining liver health. Jaundice, characterized by yellow pigmentation, is a common manifestation of liver dysfunction, often resulting from abnormal bilirubin metabolism. Chemical and herbal syrups offer distinct approaches to addressing health concerns related to liver function. Chemical syrups, formulated with synthetic compounds, undergo rigorous scientific testing and clinical trials to ensure efficacy and safety. While they provide fast relief, they may also carry potential side effects with prolonged use. In contrast, herbal syrups harness the healing properties of natural ingredients derived from plants and botanicals. Rooted in traditional medicine practices, herbal syrups offer a holistic approach to health, addressing underlying causes while promoting overall well-being. With fewer adverse effects, they appeal to those seeking natural alternatives. The ideal herbal syrup embodies several key properties, including natural ingredients, safety, efficacy, transparency, palatability, stability, and ethical sourcing. By leveraging the therapeutic benefits of herbs and botanicals, herbal syrups can support liver health and enhance overall wellness.

In this study, a herbal syrup formulation was developed using select herbs known for their liver-supporting properties, such as bael fruit, giloy stem, aloe vera, tulsi, and papaya leaves. The formulation process involved herb preparation, formulation, simple syrup base creation, infusion, straining, and cooling. Evaluation parameters included specific gravity, viscosity, pH, and stability under varied temperature conditions. By incorporating these ideal properties and utilizing traditional knowledge alongside modern scientific validation, herbal syrups can serve as effective allies in promoting liver health and overall wellness. As individuals increasingly seek natural remedies, herbal syrups offer a promising avenue for supporting liver function and maintaining vitality.

5. REFERENCE

- [1] Roy A, Bhoumik D, Sahu RK, Dwivedi J. Herbal plants used in liver protection – a review. UK J Pharm Bio Sci 2014;2:23–33.
- [2] Verma R. A review on hepatoprotective activity of Herbal plants. J MedPlants Stud 2018;6:188–90.
- [3] Pandit A, Sachdeva T, Bafna P. Drug-induced hepatotoxicity: a review. J ApplPharm Sci 2012;2:233–43.
- [4] Muhammad WA, Shamsad T, Muhammad AA, Rukhsar J. Jaundice: a basicreview. Int J Res Med Sci 2016;4:1313–9.
- [5] Tewari D, Mocan A, Parvanov ED, Sah AN, Nabavi SM, Huminiecki L, et al.Ethnopharmacological approaches for therapy of jaundice: Part I. Front Phar-macol 2017;8:1
- [7] World Health Organization.According to the latestWHO data on Liver DiseaseDeaths in India. World Health Rankings; 2017.
- [8] Pandey B, Pandey P, Paikara D. Some important medicinal plants used by tribalpeople of Chhattisgarh. Indian J Life Sci 2015;5:067–9.
- [9] International Institute of Population Sciences. National Family Welfare Survey, 1998–99; October 2000. Mumbai, India.
- [10] World Health Organization. According to the given data on World Water Day2001. World Antibiotic Awareness Week; 20
- [11] Bhandari A, Patra S, Patra PK, Pandey P. Herbal and food plants used by Tribals and Traditional Healers for the treatment of various disease in Balod,Chhattisgarh. Indian J Life Sci 2015;5:062–6.
- [12] Society for Social Services Madhya Bharat Chapter. Assessment of exportpotential of medicinal plants and its derivatives from Chhattisgarh and itspolicy implications. Raipur, Chhattisgarh: Chhattisgarh State Medicinal Plant Board (CGSMPB); 2010–2011. p. 1–171.
- [13] Sharma R. Medicinal plants diversity in Bhilai city district Durg, Chhattisgarh, India. Int J Pharm Life Sci 2016;7:4952–66.
- [14] Battu GR, Kumar BM. Hepatoprotective activity of Abrusprecatorius Linn against paracetamol induced hepatotoxicity in rats. Pharmacologyonline
- [15] C.G.BUTLER .C.O. JefferandH. Kalmsted Experimental S and D.B.V college Received 4July1943.
- [16] Kaushik , A ; Chavhan , v : Sudha, (2016) Formulation and Evaluation of herbal syrup, EJPMR, 3(5),517-522.
- [17]Akula , N.P. subramanyam. K. V. Sanym .p,Karthik.s.Madhuri , J. Mounika, G andTamkanat.f (2017).
- [18]Mujawar, F.P.Patil, M.K , sawale. J(2016) Formulation and Evaluation of herbal syrup form some Herbs used as expectorant WJPPS, 2 (5),3848-38
- [19] A Text Book ofPharmacognosy Dr. C. K.kokateS.BGokhale A.P Purohit by eight addition a drugTulsi Page no.9.82.

[20] A Text Book of Pharmacognosy Dr C.K.Kokate S.B.Gokhale A.P. Purohit by eight addition a drug cinnamon Page no.9.118

[21] Tewari U, Bahadur AN, Soni P, Pandey S. Medicinal uses of some threat- ened species of wild herbal plants from Bilaspur district. Indian J Sci Res 2014;4:64–9.

