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NATURAL HERBS FOR ALCOHOLISM HANGOVER RELIEF

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Abstract :
Alcoholic liquids such as beer, wine and spirits are extensively fed on round the world. However, alcohol and its metabolite acetaldehyde are poisonous and hazardous to human beings. Chronic alcohol use disease or occasional binge consuming can purpose a huge vary of health problems, such as hangover, liver harm and cancer. The development of alcoholism treatments has medical, societal, and economic implications. Given the drawbacks of synthetic pharmaceuticals, psychological dependence and undesirable behavioral effects, the development of low toxicity and high efficiency medicines derived from natural sources has promising market potential. We studied the effects of natural medicines on alcohol consumption, absorption, and metabolism, as well as the protective effects on alcohol-induced acute and chronic tissue harm, based on these concerns. The purpose of this review is to provide an overview of natural herbs that are useful in the prevention and treatment of hangovers and alcohol use disorder.

Keywords: Herbal product, Hangover, Alcohol use disorder, Hepatoprotection

INTRODUCTION

A hangover is a collection of unfavourable symptoms that can appear after consuming too much alcohol. In addition to make you feel terrible, frequent hangovers are linked to subpar work and friction at the office. In general, the more alcohol you consume, the more likely it is that you will experience a hangover the following day. However, there isn't a secret formula that can predict how much you can drink without getting drunk or getting a hangover. Although they can last up to 24 hours, most hangovers gone on their own, despite how terrible they are. If you decide to use alcohol, being responsible can prevent hangovers in the future.

Alcohol consumption rates by nation:

For every person older than fifteen, 6.4 litres of alcohol are consumed on average annually worldwide. The differences in alcohol concentration between various alcoholic beverages such as beer, wine, and spirits, are reported in litres of 100% pure alcohol per year. Let's illustrate the 6.4-liter average using a bottle of wine in order to better comprehend it. Each volume of wine contains about 12% pure alcohol, which translates to 0.12 litres of pure alcohol per later of wine.

Percentage of adults who drink alcohol:

The biggest percentage of adults who drink alcohol are found in Australia and Western Europe. It is most prevalent in France, where it was estimated that about 95% of adults consumed alcohol in 2010. Again,

compared to other locations, drinking alcohol is far less common in the Middle East and North Africa. Typically, five to ten percent of adults in these areas had consumed alcohol in the previous year; in many nations, this figure was five percent.

According to recent statistics from Statista's Global Consumer Survey, the majority of Brits have hangovers, with over two out of every ten UK respondents admitting they typically experience the negative affects when they drink. Perhaps it should come as no surprise that a larger percentage of persons from the UK tend to overindulge as they are known for their binge drinking. In fact, a study by the food supplement firm Survivor found that the average UK resident experiences two hangovers lasting 36 hours each month, or, as The Independent reported in 2014, will have a hangover for the whole year of their life.

However, Australians and Germans aren't far behind, with 16% of respondents in each nation claiming to have hangovers on a regular basis. Only one in ten respondents in the French nation reported routinely experiencing them, placing them worst among the examined nations.

Although hangovers are not uncommon and may even be a sign of a successful night, doctors advise against binge drinking. According to the UK's official website, alcohol use is a serious public health issue that contributes to an increase in cancer cases and other ailments, in addition to the thousands of cases of people who are involved in (often fatal) drink-driving accidents. It's an issue made worse by the epidemic, as study conducted on behalf of the NHS predicts that over the next 20 years in England, the habitual drinking habits that began during lockdowns will result in up to 25,000 extra drink-related deaths. As with most drugs, alcohol carries a high risk of addiction and can be seriously damaging to health.

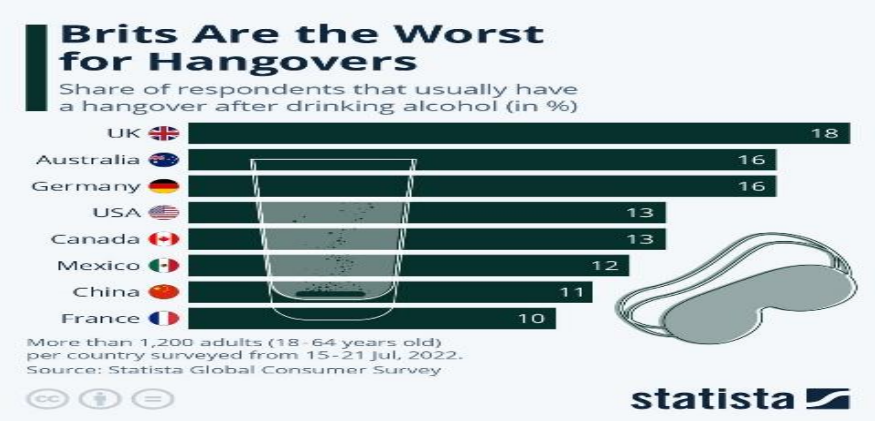

Figure 1 Graph of hangover people after drinking.

This chart shows the share of people that get hangovers regularly when they drink, as of 2022.

ALCOHOLISM

The consumption of ethyl alcohol (ethanol) on a regular basis in quantities sufficient to cause social, psychological, or physical impairment to a person is referred to as chronic alcoholism. Due to variations in each person's sensitivity, it is challenging to specify the minimum amount of "drinks" necessary to diagnose alcoholism. However, the amount of alcohol consumed and the length of time spent drinking are associated to harmful effects, both acute and chronic. Typically, 10 gm of ethanol is included in:

- one can (or half a bottle) of beer,
- 120 ml of straight wine, or
- Liquor with a 43% alcohol content in 30 millilitres (small peg).

Cirrhosis and Alcohol-Related Liver Disease:

The term "alcoholic liver disease" is used to characterise the range of liver damage brought on by both acute and chronic alcoholism. Alcoholic cirrhosis, alcoholic hepatitis, and alcoholic steatosis are the three successive phases of alcoholic liver disease[1].

Metabolism of ethanol:

Alcohol has 7 calories per gram. However, alcohol cannot be stored by the body and must be oxidised, primarily in the liver. Thus, other than providing energy, these empty calories have no nutritional value. Following ingestion and absorption from the small intestine, ethanol travels through the liver where 90% of it is converted to acetate by two enzymes: alcohol dehydrogenase (ADH), which is found in the cytosol, and

acetaldehyde dehydrogenase (ALDH), which is found in the mitochondria of hepatocytes. The body's other organs and tissues oxidise the final 10% of ethanol[1].

First step: The liver uses one major pathway and two minor mechanisms to convert ethanol to acetaldehyde.

- In the cytosol, by the main alcohol dehydrogenase rate-limiting pathway (ADH).
- In the smooth endoplasmic reticulum, where only a portion of ethanol is metabolised, via microsomal P-450 oxidases (also known as the microsomal ethanol oxidising system, or MEOS).
- In the peroxisomes, a small route using catalase and substances like H_2O_2 is present. Because it is poisonous, acetaldehyde can harm membranes and result in cell necrosis. Nicotinamide adenine dinucleotide (NAD), a cofactor and hydrogen acceptor, is simultaneously reduced to NADH.

Second step: The conversion of acetaldehyde to acetate takes place in the mitochondria in the second stage, with ALDH serving as a co-enzyme. The majority of the acetate eventually undergoes oxidation to produce carbon dioxide and water or is transformed via the citric acid cycle into other chemicals, including fatty acids. In parallel, NAD is converted to NADH, increasing the NADH:NAD redox ratio, which is the primary metabolic change taking place during ethanol metabolism. The ratio of its oxidised and reduced metabolites, lactate-pyruvate and Beta-hydroxy butyrate-acetoacetate, provide a good indication of the NADH:NAD ratio.

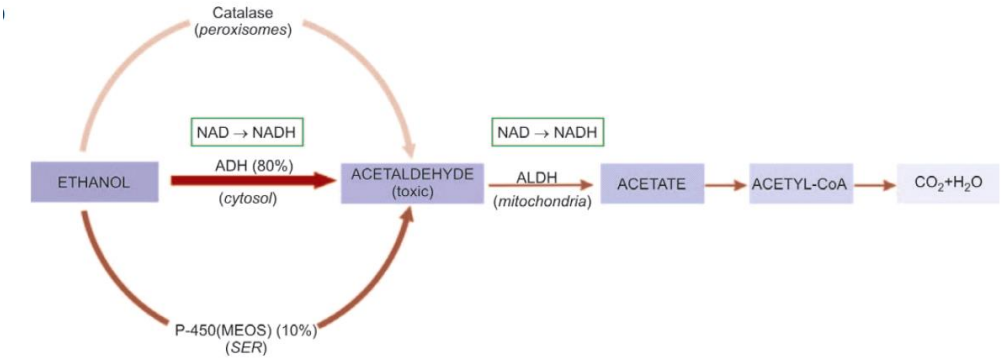

Figure 2 Metabolism of ethanol in liver.

A. Acute alcoholism : Although the stomach and liver are also negatively impacted by intoxication, the central nervous system is where it manifests itself most acutely.

1. The central nervous system: Alcohol has a depressive impact on the central nervous system, and the blood alcohol levels show the extent of these effects in relation to the amount and frequency of consumption. The subcortical structures are affected first by alcohol's effects, which are then followed by disrupted cortical function, motor ataxia, and behavioural abnormalities. Chronic alcoholics, on the other hand, can tolerate larger blood alcohol levels without experiencing such negative consequences due to their CNS tolerance and adaptation.
2. Stomach: It might result in peptic ulcers, acute gastritis, and vomiting.
3. Liver: The most prevalent and significant consequences of prolonged consumption are alcoholic liver disease and cirrhosis.

B. Chronic alcoholism: Damage to organs and systems is widespread when alcoholism is chronic. It is now understood that the majority of alcohol-related damage to various organs is caused by the toxic effects of alcohol and an accumulation of its principal toxic metabolite, acetaldehyde, in the blood, contrary to earlier beliefs that chronic alcohol injury results from nutritional deficits. Free-radical mediated injury and hereditary vulnerability to alcohol dependence and tissue damage are some theories for how chronic alcoholism causes tissue damage.

1.Liver. The most prevalent and significant consequences of prolonged consumption are alcoholic liver disease and cirrhosis.
2.Pancreas. Both acute pancreatitis and chronic calcifying pancreatitis are significant side effects.
3. The digestive system. There may be fatal profuse bleeding related with gastritis, peptic ulcers, and oesophageal varices.
4. The brain and spinal cord. There are Wernicke-Korsakoff syndrome and peripheral neuropathies, as well as cerebral atrophy, cerebellar degeneration, and amblyopia.

5. The circulatory system. Beer drinkers' myocardiosis with a subsequent dilated cardiomyopathy and alcoholic cardiomyopathy are also possible. However, it has been demonstrated that moderate alcohol use raises HDL levels.
6. Endocrinology. Men may have gynecomastia, testicular shrinkage, feminization, loss of libido and potency, and testicular atrophy. The reduction in testosterone levels appears to be the cause of these consequences.
7. Blood. Red blood cell volume may rise along with secondary megaloblastic anaemia and hemopoietic dysfunction.
8. Immune system. Alcoholics are more prone to catching diseases of all kinds.
9. Cancer. Chronic alcoholics have a greater risk of upper aerodigestive tract malignancies, albeit the reason is unclear.

PATHOPHYSIOLOGY

The exact cause of alcoholic liver injury is still unknown, as is the reason why some chronic drinkers experience the full sequence of liver alterations while others do not. In a nutshell, the biomedical and cellular pathophysiology brought on by prolonged alcohol drinking, which results in the morphologic lesions of alcoholic cirrhosis, alcoholic hepatitis, and alcoholic steatosis (fatty liver), can be summarised as follows.

1. Direct liver damage caused by ethanol. There is proof that consistent consumption of ethanol over a period of eight to ten days may have a direct hepatotoxic effect on the liver and result in fatty changes.
2. The liver damage caused by ethanol metabolites. The primary metabolites of ethanol, acetaldehyde, are

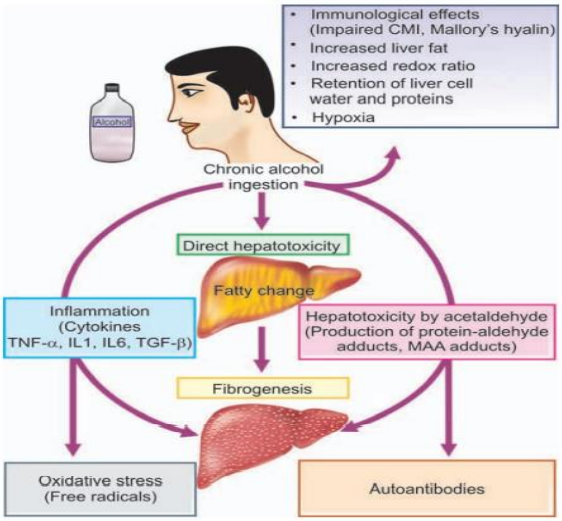

Figure 3 Pathogenesis of alcoholic liver disease.

responsible for the majority of its hepatotoxic effects. The development of two adducts by acetaldehyde causes hepatotoxicity: First, the production of protein-aldehyde adducts, which are particularly toxic and can harm membranes and cytoskeletons as well as result in hepatic necrosis. Second, Malon-di-aldehyde-acetaldehyde (MAA) adduct formation, which results in the production of autoantibodies and the start of an autoimmune response.
3.Oxidative stress. Free radicals are produced when ethanol is oxidised by cytochrome 450 oxidases (MEOS), which causes oxidative damage to proteins and membranes.
4. An immune system mechanism. Alcohol-related liver illness impairs cell-mediated immunity. Hepatocytes are directly targeted by ethanol's immunologic onslaught. A part of the time, even after drinking has stopped, alcohol-related liver cell damage persists and is attributable to immunologic mechanisms.
5. Inflammation. Intestinal cells are also harmed by prolonged ethanol consumption. Tumor necrosis factor, IL-1, IL-6, and TGF- are the main proinflammatory cytokines released by damaged intestinal cells. These cytokines and endotoxinaemia cause hepatocytes to apoptose and necrotize, triggering an inflammatory response in the liver that has already been damaged by alcohol.
6. Fibrogenesis. The primary process that promotes hepatic fibrogenesis is the activation of stellate cells by a variety of stimuli, including injured hepatocytes, malon-di-aldehyde-acetaldehyde adducts, activated Kupffer cells, and acetaldehyde.

7. Increased redox ratio. Lactic acidosis is caused by a substantial increase in the lactate-pyruvate redox ratio as a result of the NADH:NAD redox ratio in the hepatocytes. Gout incidence, collagen synthesis, poor gluconeogenesis, and altered steroid metabolism have all been linked to this altered redox potential.
8. Retention of proteins and water in liver cells. Alcohol inhibits the liver's ability to secrete freshly synthesised proteins, which causes the proteins to be retained in the hepatocytes. Hepatocytes grow as a result of water being simultaneously held in the cell in proportion to the protein, which causes hepatomegaly in alcoholics.
9. Hypoxia. Chronic alcohol consumption increases the liver's need for oxygen, leading to a hypoxic state that results in hepatocellular necrosis in the centrilobular zone (zone 3).
10. A rise in liver fat. Chronic alcoholism results in an increase in the quantity of fat that the liver has access to. This fat may come from exogenous (dietary) sources, excessive adipose tissue mobilisation, or enhanced lipid synthesis by the liver itself. The hepatocytes' lipid build up may be explained by this[1].

Symptoms:

Weakness and exhaustion, excessive thirst, mood disturbances, such as depression, anxiety, and irritability, headaches and muscle aches, nausea, vomiting, and stomach pain, poor or decreased sleep, increased sensitivity to light and sound, dizziness or a feeling that the room is spinning, shakiness, and decreased ability to concentrate.

Causes:

- Alcohol abuse is the main cause of hangovers. Some people can get a hangover after just one alcoholic drink, while others may drink heavily and never get one
- Drinking alcohol increases urine production in the body. Dehydration can then result from frequent urination, which is frequently accompanied by thirst, light headedness, and dizziness.
- Your immune system's inflammatory response is brought on by alcohol. Certain substances that frequently cause physical symptoms, such as difficulty concentrating, memory issues, decreased appetite, may be triggered by your immune system.
- Alcohol irritates the stomach lining. Alcohol boosts stomach acid production and slows down stomach emptying.
- Drinking alcohol can lower your blood sugar levels. If your blood sugar levels go too low, you could have seizures, mood swings, weakness, shakiness, and exhaustion.
- Your blood vessels enlarge when you drink alcohol, which might induce headaches.
- While alcohol can induce sleepiness, it disrupts deeper sleep cycles and frequently wakes people up in the middle of the night.

HOME REMEDIES AND HERBS

Suggested Home Remedies for Hangover:

There is no magical cure to get rid of hangovers; give your body enough time to recover from the toxic effects of alcohol. Meanwhile, you can try these home remedies to manage the symptoms and aid in your recovery.

- Consume fluids: Alcohol consumption causes people to urinate more frequently, which causes the body to lose fluids. Your body may get dehydrated if you also experience sweating, diarrhoea, and vomiting. When you wake up, try drinking a lot of water to replenish the fluids you've lost.
- Consume carbohydrates: Alcohol consumption lowers blood sugar levels, which can cause weariness and headaches. People frequently neglect to eat while binge drinking. The blood sugar levels are further reduced as a result. Increasing your intake of carbs can lessen the effects of a hangover. It will improve blood sugar levels and lessen motion sickness[2].
- Consuming coffee or tea: Tea and coffee both contain caffeine, which has stimulant properties. It can alleviate the grogginess that hangovers bring on. When you awake, make your favourite cup of tea or coffee. You might drink some tea or coffee in this manner to get rid of the sense that you have just returned from combat.
- Take a nap: To get over your hangover, you must need lots of sleep. Even if you feel OK the next morning, the effects of alcohol can impair your capacity to accomplish tasks. To fight exhaustion, try obtaining as much sleep as you can[3].
- Ginseng: Ginseng speeds up the metabolism of alcohol, which can aid in removing alcohol from the body more quickly. It helps to alleviate hangover symptoms in this way.

- Show patience: To completely rid yourself of a hangover's symptoms, you need at least 24 hours. Your body needs time to eliminate all of the harmful alcohol by-products already existing in your system, drink plenty of water, mend your liver, and go back to its regular activity[2].

Herbs used :

The following are some herbs used as an antihangover remedy:

Figure 4 Liquorice

Mulethi/ Liquorice:

Synonyms : Glycyrrhiza, Liquorice root, Glycyrrhiza radix, Mulethi.

Biological Source: It consists of dried, unpeeled, roots and stolon's of Glycyrrhiza glabra Linn, belonging to family Leguminosae. It contains not less than 3.0 per cent of glycyrrhizin acid.

The drug is commercially cultivated on a large scale in Spain, Sicily and England. Glycyrrhiza glabra var. glandulifera (Russian liquorice) grows in Russia and Glycyrrhiza glabra var. violacea comes from Iran.

The following list includes liquorice's characteristics:

o It could possess antimicrobial properties.
o It might possess anti-inflammatory qualities.
o It might exhibit expectorant properties, which aid in sputum secretion.
o It may have demulcent (alleviates itchiness) properties.
o Liquorice may be used to treat respiratory infections.

Mulethi for liver:

A mulethi extract has demonstrated the capacity to prevent and lessen the symptoms of liver conditions such hepatitis C, non-alcoholic fatty liver disease, and jaundice. It also contains anti-inflammatory qualities that calm the liver when a person has hepatitis. Mulethi can cleanse the liver and strengthen its resistance to disease when combined with a warm cup of tea twice daily for a few weeks.

Health benefits of mulethi: Boosts immunity, Controls cholesterol levels, Cures cough and cold, Increases fertility in women, maintains digestive health, Cures skin ailments roots and rhizomes of liquorice can be used in the form of: Powder, Tea, Tonic, Extract, Tincture[4].

Side effects: Liquorice consumption on a regular basis is linked to hypokalaemia, salt and water retention, and hypertension (below normal levels of potassium in the blood).

Low renin activity, hypoaldosteronism, and metabolic alkalosis can all result from excessive liquorice ingestion[5].

Ashwagandha

Figure 5 Ashwagandha

Synonym: Withania root, Asgandh, Winter cherry.

Biological Source:

It consists of dried roots and stem bases of Withania somnifera (Linn.) Dunal, belonging to family Solanaceae and should contain not less than 0.02 per of total withanolide A and withaferin A on dried basis.

This plant grows wildly in all dry parts and subtropical India. It occurs in Madhya Pradesh, U. Pradesh, Punjab plains and North Western parts of India like Gujarat and Rajasthan. It is also found in Congo, South Africa, Egypt, Morocco, Jordan, Pakistan and Afghanistan[6].

Uses: Ashwagandha is a tiny shrub with yellow blooms that is indigenous to Southeast Asia and India. There are several illnesses that can be treated using extracts or powder from the plant's root or leaves, including anxiety and problems with conception.

Might lessen tension and anxiety : The potential of ashwagandha to lessen stress is likely its most well-known use. It is categorized as an adaptogen, a chemical that aids the body in overcoming stress. Heat shock proteins (Hsp70), cortisol, and stress-activated c-Jun N-terminal protein kinase (JNK-1) are among the stress mediators that ashwagandha appears to assist regulate. Additionally, it lessens the activity of the body's HPA axis, which controls how your body responds to stress. May improve brain function, including memory: Taking ashwagandha may benefit cognitive function.

Amla

Synonym: Indian gooseberry, Emblica, Amalki.

Biological Source:

This consists of dried, as well as fresh fruits of the plant *Emblica officinalis* Gaerth (*Phyllanthus emblica* Linn.), belonging to family Euphorbiaceae.

It is a small or medium size tree found in all deciduous forests of India.

It is also found in Sri Lanka and Myanmar.

The leaves are feathery with small oblong pinnately arranged leaflet. The tree is characteristic greenish-grey with smooth bark[7].

Figure 6. Amla

Uses and effectiveness:

Low-density lipoprotein (LDL or "bad") LDL cholesterol and triglycerides are reduced when a specific Indian gooseberry entire fruit extract (Tri-low, Arjuna Natural Ltd.) is taken for 12 weeks.

Ongoing heartburn. Heartburn can be less frequent and severe if Indian gooseberry fruit extract is taken for four weeks.

Dosing : Adults have taken Indian gooseberry fruit extract most frequently in doses of 500–1000 mg orally daily for 4–12 weeks.

Giloy

Synonym: Gudduchi, Gulvel, Tinosopora, Giloe, Amrita.

Biological Source:

These are the dried leaves and stem pieces of woody climber Tinospora cordifolia, Miers belonging to family Menispermaceae.

It contains not less than 0.02 per cent of cordifolioside.

It is found in deciducous and dry forests of India. It is spread throughout India from Kuman to Assam, Bihar, Kokan and also in Sri Lanka and Indonesia.

Figure 7 Giloy

Uses:

It treats pyrexia, generalised debility, and skin conditions. It works well to avoid fibrosis. Additionally used for diabetes, jaundice, and rheumatoid arthritis. It works well for treating viral hepatitis.

Traditional uses: The drug's capacity to impart freshness, energy, and longevity has been employed in traditional medicine since ancient times. It also goes by the name "Amrita" because of these characteristics, these days. Due to its strong immunostimulant effect, the medication is becoming more and more popular. Due to these qualities, it is also known as "Rasayan dravya" in Ayurveda[7].

Ginger

Synonyms: Zingiber, Zingiberis, Sunthi.

Biological Source:

Ginger consists of whole or cut, dried scrapped or unscraped rhizomes of Zingiber officinale Roscoe, family Zingiberaceae. It contains not less than 0.8 per cent of total gingerols on dried basis.

It is said to be native of South East Asia, but is cultivated in Caribbean Islands, Africa Australia, Mauritius, Jamaica, Taiwan and India. More than 35% of the world's production is from India.

Figure 8. Ginger

Uses: Ginger is used as a stimulant, flavouring, fragrant, carminative, and stomachic.

Mouthwash, ginger-flavoured drinks, and alcoholic beverages all employ ginger oil.

It has been said that ginger powder works well for motion sickness. According to some theories, ginger's adsorbent, aromatic, and carminative effects on the gastrointestinal tract lead to the adsorption of toxins and acid-enhanced stomach motility. These may block the symptoms of nausea and G. L. responses.

Bhumyamlaki

Synonyms : Tamalaki, Jata, Phyllanthus vira, uccata.
Botanical Name : Niruri
Family : Phyllanthaceae

Figure 9. Bhumyamlaki

Bhumi amlaki, also known as "gale of the wind," is a popular treatment for a number of illnesses not just in the practise of Ayurveda but also in other medical systems like Unani, Siddha, and Homeopathy. This herb not only cures illnesses but also revives life by restoring organ functions. But our ancestors' old Ayurvedic scholars defined this herb's potential and primary impact on the liver.

Benefits for Body and Mind:

A healthy liver Bhumyamalaki supports kidney function by modulating a healthy liver and gallbladder. By releasing pollutants and minimising mineral build up, balance supports the kidneys. According to Ayurveda, Bhumyamalaki can balance out the kapha and pitta doshas, which correspond to the components of fire and water, respectively.

Unclouded Skin: The power of this plant to purge the liver of toxins also aids in promoting bright, radiant skin because liver health has an impact on skin health.

Immune System: Supports a healthy inflammatory response and fights stresses to help the immune system. The diuretic root is also used to treat jaundice and eliminate bladder stones.

Chronic dysentery can be effectively treated with an infusion of the tender, young roots, while dysentery can be treated with an infusion of the leaves.

An infusion of the root and leaves is a strong tonic and diuretic when taken cold in repeated doses.

The milky juice is a good application to treat obnoxious sores and the herb is stomachic and helpful in the treatment of sores and chronic diarrhoea.

Honey

Synonyms : Madhu, Honey Purified, Mel
Sanskrit name: Madhu, Madvika, Kshaudra, Saradha, Makshika.

Figure 10 Honey

Biological Source:

Honey is a sugar secretion deposited in honey comb by the bees, Apis mellifera, Apis dorsata, and other species of Apis.
Family: Apidae. Order : Hymenoptera.
Honey is produced in Africa, Australia, New Zealand, California and India.

Uses of Honey :

Honey is used as a demulcent and sweetening agent. It is readily assimilated and hence is a good nutrient to infants and patients. It is antiseptic and applied to burns and wounds. It is a common ingredient of several cough mixture, cough drops and vehicle for ayurvedic formulations. Recently, it is used in preparation of creams, lotions, soft drinks and candies also. India has only exploited 10% of its honey potential. India is producing 11000 tonnes of honey per annum, per capital consumption of honey in India is only 8.0 gms while in Germany is 1800 gms.

Side effects:- Wheezing and other asthmatic symptoms, Dizziness, Nausea, Vomiting, Weakness. Excessive perspiration, Fainting, Irregular heart rhythms arrhythmias.

Khajura

Synonym: Phoenix dactylifera, Date Palm, Khajur, Medjool, Simhi, Duraruha, Kharaskhandha, Kasaya, Kharjurika, Haripriya and Duspradharasa.
Botanical name: Phoenix dactylifera L. Family: Arecaceae. Order - Arecales.
The species is widely cultivated across northern Africa, the Middle East, and South Asia, and is naturalized in many tropical and subtropical regions worldwide.

Uses:

- It relieves stomach discomfort and reduces acidity since Khajura is high in potassium and low in sodium.
- Khajura include insignificant cholesterol content, also aid to manage LDL in blood stream, making it a perfect diet for controlling blood pressure. It has strong cardiotonic properties.
- Due to its low glycemic index and active components that make it an anti-diabetics, Khajura has antioxidant capabilities.

Side effects:

- It rarely results in skin rashes.

- Consuming too much khajura may result in digestive problems, which may lead to diarrhoea.
- If consumed in large amounts, it may result in unhealthy weight gain in sedentary individuals.

Aloevera

Synonym: Aloe, Musabbar, Kumari.

Biological source: Aloes is the dried juice of the leaves of Aloe barbadensis Miller, known as Curacao aloes; or of Aloe perryi Baker, known as Socotrine aloes; or of Aloe ferox Miller and hybrids of this species with Aloe africana Miller and Aloe, belonging to family Liliaceae.

Aloes is indigenous to eastern and southern Africa and grown in Cape colony, Zanzibar and islands of Socotra. It is also cultivated in Caribbean islands, Europe and many parts of India, including North West Himalayan region[7].

Uses:

Figure 11 Aloevera

By coating the stomach lining, aloe vera juice can lessen inflammation and balance acidity. The ideal way to consume it is straight up, but you may also mix it with coconut water or non-acidic juice. Aloe vera extract has been shown to have antioxidant properties in both humans and animals and creatures.[8]

The compounds of Aloe vera gel include –

antioxidant, water-soluble and fat-soluble vitamins, enzymes, minerals, polysaccharides, phenolic compounds, and organic acids gastro-protective (peptic ulcer)[9].

Yavatikta/ Kalmegh

Synonym: Andrographis, Kirayat, Bhui-nimb.

Biological Source:

This consists of dried leaves and tender shoots of the plant known as Andrographis paniculata.

Temperature: Ranging between 25°-40°C is suitable.

Kalmegh is an annual herb found in Shri Lanka and throughout India, specifically in Maharashtra, Karnataka, Uttar Pradesh, Tamil Nadu, Andhra Pradesh and Madhya Pradesh. It is cultivated to some extent in Assam and West Bengal. It flowers in the months of September to December and is collected from November to December. Yield per hectare is 2:5 tones[10].

Figure 12 Yavtikta

Uses:

These plant's extracts and andrographolide have pharmacological effects that include immunostimulatory, antiviral, and antibacterial ones. Andrographolide, the primary active component, has a wide range of biological effects, including those that are anti-inflammatory, antibacterial, anticancer, antidiabetic, antimalarial, and hepatoprotective. Researchers suggest that andrographolide be structurally modified in order to obtain diverse leads due to the outstanding diversity of these biological functions. This publication presents comprehensive information about the pharmacological activity of A. paniculata and its main constituent andrographolide in order to support the cutting-edge tendencies in research on andrographolide[7].

Used for purification of blood, in case of nausea and vomiting, the paste of bhunimba is given with honey. The decoction of andrographis paniculata is given in a dose of 20 to 25ml to treat inflammation of the liver. Lets out pitta from the body.

Milk Thistle

Synonyms: Marian Thistle, Our Lady's Thistle, Milk-thistle,
The Wild Artichoke (Silymarin).

Biological Source: These are the ripe seeds of Milk thistle
Silybum marianum (L.) Gaerth, belonging to family Asteraceae (Compositae).

Although, it occurs wildly in Europe, Canada and S.America, it is known to be indigenous to Kashmir.

Figure 13 Milk Thistle

Uses: At the moment, silymarin is mostly utilised for its impact on liver ailments. It is used to treat chronic inflammatory hepatic illnesses such as cirrhosis, fatty infiltration, and hepatitis that are brought on by alcohol and industrial contaminants. Additionally, it has been discovered to be beneficial in treating liver toxicity brought on by amanitin and phalloidin, the main poisonous components of the

deadly death cap fungus Amanita phalloides. Silymarin exhibits liver protection against D-galactosamine, carbon tetrachloride, and thioacetamide in addition to these hepatotoxins. According to reports, silymarin's therapeutic value is attributed to its ability to stabilise cell membranes, promote protein synthesis, and quicken the process of hepatic cell regeneration[7].

Draksha

Synonym: Mrudwika, gostani, rasala, guda, swaduphala, madhuyoni, madhurasa, brumhani, charuphala.

Botanical Name: Vitis vinifera Linn.

Family : Vitaceae[10].

Figure 14 Draksha

Uses: An indigenous to India plant known as draksha or grapes is widely planted in western India, the Mediterranean region, Europe, South Western Asia, Morocco, Portugal, Germany, and Iran. The grape can be consumed raw, used to make wine, dried, and even made into raisins. The Mesopotamian, Egyptian, Harappa-Mohenjo-Daro, and Greek civilizations are known to have used grapes. They were experts in growing grapes and producing wine. The grape fruit is referred to in Ayurveda as "Draksha Phalottama", which denotes that it is the best among all other fruits. Various remedies use fruits that are dry, matured, semi-ripe, or fully ripened and have a sweet and sour flavour[11].

Fennel:

Synonym: Fennel fruits, Fructus foeniculum.

Biological Source: Fennel is made up of dried, ripe fruits that are harvested from the cultivated Foeniculum vulgare Miller plant, of the Umbelliferae family. It must have at least 0.6% of anethole, computed on a dried basis.

It is native to regions in the Mediterranean and is heavily farmed in Germany, Romania, and Russia. India, Lapan, and France Gujarat, Punjab, Maharashtra, Rajasthan, Uttar Pradesh, and West Bengal are among the Indian states where it is grown[12].

Figure 15 Fennel

Uses: Because it aids with digestion, fennel is a fantastic herb for hangovers. Alcohol consumption can cause the stomach lining to swell, which can cause nausea and other digestive issues. Natural anti-inflammatory fennel can aid in reducing this inflammation. Many folks also discover that fennel works wonders for headaches. To relieve a hangover, use fennel seeds or fennel tea. As shown by lower levels of serum aspartate aminotransferase, alanine aminotransferase, alkaline phospha-tase, and bilirubin, the hepatotoxicity caused by acute carbon tetrachloride-induced liver injury was reported to be reduced by fennel essential oil (zbek et al., 2003).

Interaction: CYP3A4 substrates, which are medications that the liver has altered, interact with fennel. The liver modifies and breaks down several drugs. Fennel may alter the rate at which the liver breaks down certain drugs. The results and side effects of certain drugs may alter as a result[13].

AVAILABLE MARKETED FORMULATIONS

The following are some of the formulations that are available in the market:

Table 1. *Marketed Formulations*

Sr. No.	Marketed Preparation	Brand Name	Ingredients
1.	Liquid	ARMR Lemonick	Giloy, Ashwangandha, Aloevera, Punarnava, Kutki and Bhuiamlaki, Saunf, Greentea, Mulethi, Amla, Bhringraj Pittapapada, Kamalphul Ginger, Kasani

2.	Capsules	Himalaya Party smart capsules	Chicory, Grape, Dates, Green chiretta
3.	Capsules	Dr.Vaidya's new age ayurveda LIVit up[36]	Kalmegh Ghan, Airogyavardhin Rasa, Lactose
4.	Liquid	Tree hang and over	Kasani, Ashwagandha, Aloevera, Ginger, Giloy, Saunf, Punarnava, Pitpara, Kutki, Bhringraj, BhumiAmla, Mulethi, Amla, Greentea, Kamalful
5..	Liquid	Vringa Antihangover shots	Amla, Mulethi, Bhuiamla, Giloy, kutki Green tea, Aloevera, soya, Ginger,
6.	Strips	Work nutritions Slips Slips	Khajura, Curcumin, Yavatikta, Kasni, Draksha Bhumyamalaki, Amalaki

CONCLUSION

Alcohol abuse is a well-known factor in a number of health issues and can affect how well important organs including the liver, brain, heart, lungs, and prostate operate. Numerous herbal remedies have demonstrated significant reductions in human hangover symptoms and excellent defence against alcohol-related harm. Natural plant remedies reduced blood alcohol levels, decreased hangover symptom scores, and restored the biochemical signs of liver damage. The main mechanisms of action are antioxidative and anti-inflammatory. Additionally, a number of herbal remedies may be useful in lowering voluntary alcohol use, enhancing drinking habits, and minimising alcohol withdrawal symptoms in those with alcohol use disorders. Additionally, it offers a few plants that are traditionally utilised but lack scientific support.

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