



International Journal of Indian Medicine

www.ijim.co.in

ISSN: 2582-7634

Volume - 5, Issue - 6

June 2024



IJIM

INDEXED



International Journal of Indian Medicine

International Category Code (ICC):  ICC-1702International Journal Address (IJA):  IJA.ZONE/258276217634

A CONCEPTUAL STUDY OF MEDICINAL PLANTS USED IN LIVER DISEASES

Gathe P.¹, Sangoram A.²

1. PhD (sch), Associate Professor, Tilak Ayurved Mahavidyalaya, Pune, Maharashtra, India.
2. Professor & HOD, Tilak Ayurved Mahavidyalaya, Pune, Maharashtra, India.

ABSTRACT:

Liver disease has become a matter of social health concern. The worldwide prevalence of liver disease is rapidly increasing due to changes in our cultural and lifestyle norms. Modern medicine is known to have serious adverse effects in patients with liver disease. Ayurveda is enriched with herbal medicine with various herbo-mineral formulations and their efficacy and safety in treating liver disease has been evidenced in multiple forms of research. This potential of Ayurveda formulation can be utilized to treat liver disease. The present review done from Ayurveda Textbooks, Smahitas, and Nighantus to summarize medicinal plants that use in Ayurveda to liver diseases as a hepato-protective.

KEYWORDS: Ayurveda, Liver diseases, Medicinal Plants, Hepato-protective.

CORRESPONDING AUTHOR:

DR. PRADNYA GATHE

PhD (sch), Associate Professor,
Tilak Ayurved Mahavidyalaya, Pune, Maharashtra, India.
Email: gathepradnya@gmail.com



How to cite this article: Gathe P., Sangoram A. A conceptual study of Medicinal plants used in Liver Diseases. Int J Ind Med 2024;5(6):07-17 DOI: <http://doi.org/10.55552/IJIM.2024.5602>

INTRODUCTION:

THE liver is one of the vital organs that regulates the physiological process of the body to maintain homeostasis. Liver disease has become a serious public health problem in today's era. It affects more than 10% of the world's population, and is also the fifth most common cause of death worldwide. Approximately 1.5 billion cases of chronic liver disease (CLD) are reported worldwide which is a slow progressive process of inflammation, destruction, and degeneration of liver parenchyma leading to Liver fibrosis and Liver cirrhosis. Also, it is noted that one of the major causes of ascites in most patients. It involves varied liver pathology such as fatty liver, hepatocellular carcinoma, cirrhosis, fibrosis, chronic hepatitis, etc. Approximately 50% of patients with CLD progress toward ascites within 10 years. The causes of CLD include viral infections such as Hepatitis B, Hepatitis C, metabolic cause (nonalcoholic fatty liver disease [NAFLD]), the use of toxic substances and drugs, that is, excessive alcohol consumption (alcoholic liver disease), and autoimmune factor (causing primary sclerosing cholangitis and primary biliary cholangitis). Symptoms of CLD include poor appetite, jaundice, ascites, peripheral edema, itchy skin, decreased weight, small spider angioma, anemia, and splenomegaly. In *Ayurveda*, some disease conditions are described that enumerate the earlier-mentioned stages of CLDs and their treatment. *Udar*, *Yakrut Vriddhi*, *Plihavriddhi*, *Kamala* are explained in *Ayurveda*. The treatment for liver diseases in contemporary medicine is very limited. Several Medicinal plant preparations either

single or combination drugs, have been used in Indian Traditional Ayurvedic Medicine for the treatment of liver diseases. Herbal medicines are effective drugs for the treatment of Liver diseases. The safety and efficacy of various herbal drugs in the treatment of liver diseases have been reported in clinical trials. In present review article, tries to compile information on Medicinal plants used in Liver diseases according to *Ayurved*.

Materials and Method: The literature review was done from *Ayurveda Samhita*, *Nighantus*, compendia, clinical medicine texts & related websites for the present work.

Literature review from *Ayurveda Samhita*, *Nighantus*.

Ayurveda classics have described various formulations for the management of liver disorders, among which the most abundant and prescribed ones are *Kutki* (*P. kurroa* Royle ex Benth), *Guduchi* (*Tinospora cordifolia* (Willd)Miers), *Bhunimba* (*A. paniculata* Nees.), *Bhumiamalaki* (*P. niruri* Linn.), *Kakmachi* (*S. nigrum* Linn.), *Yashtimadhu* (*Glycyrrhiza glabra* Linn.), *Guduchi* (*T. cordifolia* [Willd.] Hook. F. and Thoms.), *Bhringraj* (*E. alba* [L.] Hassk.), *Pippali* (*Piper longum* L.), *Rohitaka* (*Tecoma undulate* G. Don.), *Nimba* (*Azadirachta indica* A. Juss.), *Sharapunkha* (*T. purpurea* Pers. Linn. Pers.), *Ashwagandha* (*W. somnifera* Linn.), *Vasa* (*Adhatoda vasica* Nees.), *Paarijata* (*N. arbor-tristis* Linn.), *Bharangi* (*C. serratum* Linn. Moon.), *Haridra* (*C. longa*), *Nimba* (*A. indica* A. Juss.), *Apamarga* (*A. aspera* Linn.), *Daruharidra* (*Berberis aristate* DC) etc.

Name of Drug	Scientific name & Family	Raspanch ak	Chemical composition	Part used	Action	Pharmacological Action
Guduchi	LN: <i>Tinospora cordifolia</i> (willd)Miers F: Menispermaceae	Guna:Laghu, Snigdha, Guru. Rasa: Tikta, Kashaya. Veerya:Ushna. Vipaka:Madhura. Dosh: Doshagna, Vataghna, Tridosaghna.	Alkaloids, glycosides, steroids, polyphenols, Zinc & copper	Stem, leaves	Rasayana, Kamalahar, pramehar Jeernajwara, Agnideepan, Aampachana, Kustha.	It contains alkaloid and polyphenols which offer antioxidant Potential. Zinc and copper protect cells from oxidative damage due to their antioxidant potential Cognitive enhancement. Possess learning & memory enhancement. Macrophage activation property. Immunopotential property.
Kutki	SN: <i>Picrorhiza kurroa</i> Royle ex Benth F: Scrophulariaceae	Guna:Ruksha, Laghu, Rasa:Tikta. Veerya:Sheeta. Vipaka:Katu..	Kutkin, glycosides, picosides I, II, and III, Apocynin, Curcubitacins	Dry rhizomes and roots.	Dosha:Kaphapittahara. Karma:Lekhaniya, Bhedaniya, Deepana and Yakrutottejaka	carminative, digestant and has a cooling effect and is used as a cardiostonic, antipyretic and anti-helminthic. It is also used in diabetes, jaundice, blood disorders, hepatomegaly, liver and spleen disorders and skin disorders.
Haridra	SN: <i>Curcuma longa</i> Linn F: Scitaminae	Guna: Ruksha, Laghu Rasa: Tikta, Katu Vipak: Katu Virya: Ushna	curcuminoids; curcumin, demethoxycurcumin, bisdemethoxycurcumin.	Rizhome	Doshghnta: Kaphapittashamak Roghnata:Vranropan, Pinasa	antioxidant, analgesic, anti-inflammatory, antiseptic activity
Vasa	SN: <i>Adhatoda vasica</i> F: Acanthaceae	Guna:Laghu, Ruksha	vasicine, vasicol,	Leaves	Doshnagnta: Kaphapittashamak	Antitussive, anti-asthmatic, antibacterial,

		<i>Rasa:</i> Tikta, Kshaya <i>Vipak</i> : Katu <i>Virya:</i> Sheeta	adhato nine, vasicino ne,		<i>Roghnta:</i> Swarya, Shwasa, Kasa	antifungal, hepatoprotective
Bharangi	SN: <i>Clerodendrum serratum</i> Linn F: Verbenaceae	<i>Guna:</i> Laghu, Ruksha <i>Rasa:</i> Tikta, Katu <i>Vipak:</i> Katu <i>Virya:</i> Ushna	Saponi ns (terpen oids and steroids) , flavono ids and phenoli cs	Roots	<i>Doshghnata:</i> Kaphavatsha mak <i>Roghnta:</i> Sho tha, Kasa Shwasa	anti-asthmatic, anti- allergic
Bhringraj	SN: <i>Eclipta alba</i> (L.) Hassk. F: Compositeae	<i>Guna:</i> Ruksha, Laghu. <i>Rasa</i> : katu , Tikta . <i>Veerya:</i> Ushna . <i>Vipaka</i> : katu .	Coumes tans – Wedelol actone (0.5 – 0.55%), desmet hylwed elolacto ne and desmet hylwed elolacto ne-7- glucosi de	Seeds, Juice of Leaves, Herb , Oil.	<i>Dosha</i> : Kaphavatahar a. <i>Karma</i> : Rasayana, Keshya, Tvachya, Kushtaghna, Chakshushya, Krimighna, Shothaghna , Yakritottejaka , Pandughna	, hematemesis, emaciation, cough, dyspnoea, fever and burning sensation. cooling, nutritive, aphrodisiac, stimulant, diuretic, and eyetonic, antibacterial and anti- fungal, general weakness, cough, dyspnoea, fever, asthma, constipation, sore throat, and gonorrhoea.
Bibhitak	SN: <i>Terminalia bellirica</i> Roxb F: Combretaceae	<i>Guna:</i> Ruks h, Laghu <i>Rasa:</i> Kshaya <i>Vipak:</i> Madhura <i>Virya:</i> Ushna	Glucosi de, tannins, gallic acid, ellagica cid, ethylgal ate, gallylgl ucose, chebula nic acid	Fruit	<i>Doshgnta:</i> Tridoshhar, specific on Kapha doshahar <i>Roghnta:</i> Kas anashanam, Swarya	Antispasmodic ,Bronchodilatory activity antioxidant, anticancer, antidiabetic, wound healing, antibacterial, anti-inflammatory and hepatoprotective

Pippali	SN: <i>Piper longum</i> Lin F:Piperaceae	Guna: <i>Laghu, Snigdha, Tikshna</i> Rasa: <i>Katu</i> Vipak: <i>Madhura</i> Virya: <i>Anushna</i>	Piperine, Alkaloids, Volatile oil	Fruit	Doshgnta: <i>dry: Kaphvatshamana</i> Wet: <i>Pittashaman</i> Roghnata: <i>Rasayana, Agnideepan, vrusya, Kasa, Shwas, Prameha, Pleehavruddhi.</i>	Immunomodulatory and antitumor activity, Antiamoebic activity,
Haritaki	SN: <i>Terminalia chebula</i> , Retz F:Combrataceae	Guna: <i>Laghu, Ruksha</i> Rasa: <i>Panchrasa, lavanrasa varjit</i> Vipak: <i>Madhura</i> Virya: <i>Ushna</i>	Ellagic acid, chebulinic acid, gallic acid, terflavin B, a type of tannin, while chebulinic acid is found in the fruits.	Fruit	Doshgnta: <i>Tridoshahar</i> Roghnata: <i>Rasayana, Medhya, Agnideepana, Netrarog, Twacharoga, Prameha, Shwas</i>	Antioxidant effect antitussive, cardiotonic, homeostatic, diuretic, and laxative
Pushkarmula	SN: <i>Inula racemosa</i> Hook.f F:Compositae	Guna: <i>Laghu, Tikshna</i> Rasa: <i>Tikta, Katu</i> Vipak: <i>Katu</i> Virya: <i>Ushna</i>	Inulin, Volatile oil, Alantolactone	Root	Doshgnta: <i>Kaphavatshamak</i> Roghnata: <i>Hikka, Shwasa, Kasa</i>	anti-inflammatory, analgesic, antifungal, antibacterial, hepatoprotective, anti-allergic, antioxidant, anti-asthmatic, adaptogenic, adrenal beta blocking, hypoglycemic and cardioprotective activity
Marich	SN: <i>Piper nigrum</i> Linn Family: Piperaceae	Guna: <i>Laghu, Tikshna</i> Rasa: <i>Katu</i> Vipak: <i>Katu</i> Virya: <i>Ushna</i>	Piperine, Piperidine, Pipretine, Chavicine	Fruit	Doshgnata: <i>Vat kaphashamak</i> Roghnata: <i>Shwasa, Shleshma praserak, Kasahar</i>	Antihypertensive, antiplatelet, antioxidant, antitumor, anti-asthmatics, analgesic, anti-inflammatory, anti-diarrheal, antispasmodic,

						antidepressants, immunomodulatory, anticonvulsant, anti-thyroids, antibacterial
Bhunimba	SN: <i>Andrographis paniculata</i> (Burm.f.) Wall. ex Nees F: <u>Acanthaceae</u>	Guna: Laghu, Ruksha. Rasa: Tikta. Veerya: Us hna. Vipaka: Katu.	Andrographolide, a bicyclic diterpenoid lactone and Kalmeghin (upto 2.5%)	Fresh and dried leaves, whole plant.	Dosha: <i>Kaphapittahara</i> . Karma: <i>Deepana, Rochana, yakritottejaka, Kushtaghna, Shothaghna, Jwaraghna</i> .	Antidiarrheal, Hepato protective, tonsillitis, respiratory infections, and tuberculosis
Bhumiamalaki	SN: <i>Phyllanthus niruri</i> L. F: Euphorbiaceae	Guna: Laghu, Ruksha. Rasa: Tikta, Kashaya. Veerya: Sheeta. Vipaka: Katu.	Phyllanthus primarily contains lignans (e.g., phyllanthine and hypophyllanthine), alkaloids, and <u>flavonoids</u> (e.g., <u>quercetin</u>).	Whole plant	Dosha: <i>Kaphapittaghna</i> Karma: <i>Kasawasahara, Dahaprashamana, Rochana, yakrutottejaka, Kandughna</i> .	viral hepatitis, jaundice, gonorrhoea, skin ulcers, sores
Kakmachi	SN: <i>Solanum nigrum</i> L. F: Solanaceae	Guna: Laghu, <i>Snigdha</i> . Rasa: Tikta, <i>Katu</i> . Veerya: <i>Anushna</i> . Vipaka: <i>Katu</i> .	Solasonine and solamargine	Leaves, whole plant, fruit	Dosha: <i>Tridoshahara</i> . Karma: <i>Vrishya, Rasayana, Shoolaghna, Netrya, Saraka, Kandughna, Kushtaghna, Arshoghna</i> .	antiperiodic, antiphlogistic, diaphoretic, diuretic, emollient, febrifuge, narcotic, purgative, sedative, analgesic, antispasmodic, anti-inflammatory and vasodilator.

Nimba	SN: <i>Melia azadirachta</i> -Linn F: Meliaceae	Guna: Laghu, Ras: Tikta. Veerya: Sheeta. Vipaka: Katu	Margosic acid, nimbin, nimbidi n, nimbini n, kaempferol, quercetin, β -sitosterol, azadiro ne, paraisine, vanillic	Bark, leaves, flowers, fruits, seeds, kernel, oil from seeds, exudates or gum and sap.	Dosha: Pittakaphahara. Karma: Kandughna, Krimighna, Grahi, Vranaghna, Kushtaghna.	astringent, antiperistaltic, antiseptic used in ulcers and eczema, skin diseases, anti-helminthic, antifungal, antidiabetic, antibacterial, antiviral.
Kumari	SN: <i>Aloe indica</i> Royle F: Liliaceae	1. Whole plant Guna: Guru, Snigdha, Pichchila. Rasa: Tikta, Madhura. Vipaka: Katu. Veerya: Sheeta. 2. Dried pulp of leaves: Laghu, Ruksha, Tikshna and Ushna	Barbaloin, isobarbaloin and β -barbaloin.	Leaves, juice and pulp	Dosha: Tridoshhara, Karma: Bhedan, Daha, Raktapitta, Plihavrudhi, vrana, shool *Dried pulp of leaves: Karma: Rasayana, Bhedana, Garbhashayasankochaka	wound healing, improved blood glucose levels in diabetics, and with lower blood lipids in hyperlipidaemic patients, ulcerative coliti.
Sharapunkha	SN: <i>Tephrosia purpurea</i> (Linn)/Pers. F: Leguminosae	Guna: Laghu, Tikshna Rasa: Tikta, Kashaya. Veerya: Ushna. Vipaka: Katu,	tephrosin, deguelin and quercetin, the roots also contain isotephrosin	Whole plant (root, stem, leaf).	Dosha: Kapha. Karma: Rasayana, Shothaghna, Kushtaghna, Krimighna, Raktarodhak.	anthelmintic, alexiteric, antipyretic, alternative, cures diseases of liver, spleen, heart, blood, tumours, ulcers, leprosy, asthma, poisoning

			and rotenone. 2.5% rutin, Purpurin,			
Ashwagandha	SN: <i>Withania somnifera</i> , <i>Dunal</i> F: Solanaceae	Guna: Laghu, Snigdha. Rasa: Madhura, Kashaya, Tikta. Veerya: Ushna. Vipaka: Madhura.	Alkaloids- Withanin, somniferolactones. Tyrosine.	Root	Dosha: Vata, Kapha, Pitta. Karma: Vrishya, Balya, Shothahara, Rasayana.	<i>Ashwagandha</i> believed to maintain oxidation process by pacifying <i>Tridoshaic</i> balance. The <i>Ashwagandha</i> help to prevent premature aging due to their strong antioxidant potential. Immunoprotection.
Apamarga	SN: <i>Achyranthes aspera</i> L. var. F: Amaranthaceae	Guna: Laghu, Ruksha, Tikshna, Rasa: Tikta. Veerya: Ushna. Vipaka: Katu.	Achyranthine, betaine, oleanolic acid, glucose, galactose, rhamnose	Herb, leaves, seeds, roots and panchangakshara	Dosha: Kapha, Vata, Pitta. Karma: Krimighna, Deepana, Pachana, Raktavardhana, Shothahara	vomiting, bronchitis, heart disease, piles, itching abdominal pains, ascites, dyspepsia, dysentery, blood disease, antileprosy
Rohitaka	SN: <i>Tecomella undulata</i> G. Don F: Bignoniaceae	Guna: Laghu, Snigdha Rasa: Katu, Kashaya Veerya: Sheeta Vipaka: Katu	naphthoquinone derivative, iridoid glucoside, phytosterol, fatty alcohol, flavonoids, flavonoid glucoside and triterpenoids	Stem Bark	Dosha: Kapha, Pitta Karma: Krumighna, Yakrut Plihaghna, Vranahar, Gulmahar	Liver and spleen diseases, tumours, conjunctivitis, hepatosplenomegaly, syphilis, gonorrhoea, hepatitis, as a blood purifier and in wound healing, anti bacterial, anti microbial, immune modulator, analgesic and hepatoprotective.

Daruharidra	SN: <i>Berberis aristata</i> DC F: Berberidaceae	<i>Guṇa</i> - <i>Laghu, Ruksha Rasa-Tikta, Katu</i> . <i>Vipaka</i> - <i>Katu</i> . <i>Veerya</i> - <i>Ushṇa</i> .	Berberine, 2. Berberamine, 3. Aromoline, 4. Karachine, 5. Palmatine, 6. Oxycanthine, 7. Jatrorrhizine, 8. Colubamine,	Root, stem and leaves	Dosha: <i>Kaphapittahar Karma: Kusthaghna, Kandughna, Jvaraghna, Visarpahar, Pramehghna.</i>	antibacterial, antiperiodic, antidiarrheal and anticancer cholegogue, astringent, hepatostimulant and hepatoprotective which are useful in treating anorexia, dysentery, hepatitis and liver disorder.
--------------------	--	---	--	-----------------------	--	--

The Mode of Action and Properties of Hepato-protective Drugs—

Ayurveda Perspective: The mode of action of these drugs are described in terms of functions such as *Anulomana* (carminative or correcting the movement), *Rechana* (cause increased bowel movement and cleanse the body of deposited wastes, toxins, and bile juices), *Pittasaraka* (excrete the bile and other inflammatory markers), *Yakrituttejaka* (stimulates the liver), *Pleehahara* or *Pleehaghna* (reduce the size of spleen), and *Shothahara* (reduces swelling, oedema inflammation, and clears the body channels), which are described for these drugs. The drugs are described to have hepato-protective potential on the basis of choleric and cholegogue action, antioxidant effect, antiviral effect, antiedemic, anti-inflammatory, diuretic, antioxidative, rejuvenative, and hepatosplenoprotective, metabolism-promoting actions, and immune-modulating effects. In *Ayurveda*, drugs which explained in the management of liver diseases stimulate the digestive and metabolic processes, remove obstruction (caused due to undigested metabolic waste), purify the blood, clear the

flow of bile, stimulate bile flow, and thus reduces inflammation, resulting in the clinical relief associated with significant changes in biochemical and radiological parameters.

DISCUSSION:

Most of these drugs have *Tikta* (bitter), *Katu* (pungent), and *Kashaya* (astringent) *Rasa*, and *Katu Vipaka*. The drugs shows *Deepana-Pachana*, *Yakridottejaka*, blood-purifying properties along with digestive stimulant action and *Pitta* pacification, which is helped by their *Laghu* property, *Katu Rasa*, and *Katu Vipaka*. Due to improved digestion, it helps to decrease the vitiated *Kapha* and *Ama*, and clears the obstruction of channels, restoring the natural flow of *Pitta*. Being *Pitta-Saraka*, once the passages are clear, they facilitate bile flow and clear inflammation and swelling. *Yakridottejaka* action stimulates the liver cells to function properly. Further, due to their *Deepana-Pachana*, *Yakridottejaka*, and *Rasayan* properties, they cause the regeneration of liver cells and protect them from damage caused due to toxins and chemicals. Most of these drugs, with drugs such as *Yastimadhu* (*G. glabra* (L.)) and *Ashwagandha* (*W. somnifera* (L.)) having sweet (*Madhura*) tastes. They are light to

digest (Laghu, except *Glycerriza* and *Tinospora* which are heavy to digest) and produce properties similar to pungent taste in the body after digestion (*Katu Vipaka* except for *Pippali* (*P. longum*), *Yastimadhu* (*G. glabra*), *Guduchi* (*T. cordifolia*), *Bhumyamalaki* (*P. niruri*), and *Ashwagandha* (*W. somnifera*), which develop sweet properties after digestion, and hence are used as nourishing [*Rasayan*] drugs). *Kutaki*, *Guduchi* shows hepatoprotective properties. *Rohitaka*, *Sharapukha*, *Kutaki*, and *Daruharidra* described to have hepatoprotective potential on the basis of choleric and cholegogue action, antioxidant effect, antiviral effect, antiedemic, anti-inflammatory, diuretic, antioxidative, rejuvenative, and hepato-splenoprotective properties.

CONCLUSION:

In this article, a detailed description of medicinal drugs is explained and used for CLD due. In this review, the Collection of drugs that show hepato-protective properties, *Yakrut plihaghna* properties. It helps to reduce oxidative stress that damages the liver by their hepato-protective property. Also helps to preventing fibrogenesis, inhibition of oxidative damage, tumour growth, and antiviral effect of formulations. All medicinal plants mentioned in present article are very useful to treat Liver disease.

Need of scope: There is a need of more randomized, multicentric clinical trials to develop evidence-based therapeutics for CLD treatment. Further research is also needed for some medicinal plants to identify, isolate, confirm, and standardize the active components or molecules.

REFERENCES:

1. Sapna N.Shetty, Sushma Mengi, Rama Vaidya, Ashok Vaidya. A study of standardized extracts of *Picrorhiza kurroa* Royle ex Benth in experimental non
2. Keerthana J, Vijay Javagal, Rajatha Sheregar. A Controversial Medicinal Plant *Murva*: A Review. International Journal of Health Sciences and Research.2021;11(1);152-56.
3. Suman Singh, Nishteswar K.Review on *Cissampelos pareira* & *Cyclea peltate* (*Patha Dwaya*) Phyto-Pharmacological Perspectives.International Journal of Ayurvedic Medicine, 2013;4(4);282-289.
4. Agnivesha, Carakasamhita, elaborated by Caraka and redacted by Drdhabala, commentary by Acharya Vidyadhar Shukla and Prof.Ravi Dutt Tripathi. Vimansthan, Ch.8/87; Vol 1; Reprint, Delhi: Chaukhamba Sanskrit Pratishthan; 2005: p. 639.
5. Sadhana Misar (Wajpeyi). Hepato protective and Heffect of *Kutaki* (*picrorhiza kurroa* royle ex benth.)-a review.International Journal of Research and Analytical Reviews (IJRAR).2019;6(1):782-
6. Stanley Davidson, Davidson's Principle and Practice of Medicine, edited by Stuart H.Ralston, Ian D.Penman, Mark W.J.Starchan. Hepatology, Non Alcoholic Fatty Liver Disease. 23rd Edition, ELSEVIER International edition; 2021:882-885.
7. Vagbhat, Ashtang Hridayam of Vagbhat, edited by Dr.Brahmanand Tripathi. Sutrastan. Ch.15, Ver.15. 1st edition, Varanasi: Chaukhamba Sanskrit Sansthan; 1990: p. 199.
8. .Bhavamishra, Bhavaprakasa Nighantu, Commentary by Dr.K.C.Chunekar, edited by Dr.G.S.Pandey. Guduchyadi varga, Guduchi. Reprint,Varanasi:Chaukhambha Bharati Academy;2009:p 270-271.
9. .Bhavamishra, Bhavaprakasa Nighantu, Commentary by Dr.K.C.Chunekar, edited by Dr.G.S.Pandey. Haritakyadi varga,

- Kutaki. Reprint,Varanasi:Chaukhambha Bharati Academy;2009;p 70-71.
10. .Bhavamishra, Bhavaprakasa Nighantu, Commentary by Dr.K.C.Chunekar, edited by Dr.G.S.Pandey. Guduchyadi varga, Patha. Reprint,Varanasi:Chaukhambha Bharati Academy;2009;p 394-397.
 11. Aspi F Golwalla, Sharukha Golwalla, Golwalla's Medicine for students, edited by Milind Nadkar. Hepatology,Functional anatomy and physiology of Liver. 25th edition, New Delhi: The Health sciences Publisher;2020: 64-65.
 12. Stanley Davidson, Davidson's Principle and Practice of Medicine, edited by Stuart H.Ralston, Ian D.Penman, Mark W.J.Starchan. Hepatology, Non-Alcoholic Fatty Liver Disease. 23rd Edition, ELSEVIER International edition; 2021:882-885.
 13. Netsearch, Pubmed, Goggle Scholar

Source of Support: None declared

Conflict of interest: Nil

© 2024 IJIM (International Journal of Indian Medicine) |

An Official Publication of ARCA- AYURVEDA RESEARCH & CAREER ACADEMY

Website: www.ijim.co.in Email: ijimjournal1@gmail.com