



A Systematic Review on Natural Plants Used for Hepatoprotectivity

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Received: 30-07-2018; Revised: 25-08-2018; Accepted: 06-09-2018.

ABSTRACT

Hepatoprotection is the ability to prevent damage to the liver. This is also known as Anti-hepatotoxicity. The liver is one of the most important organs in the body, performing a fundamental role in the regulation of diverse process, among which the metabolism, secretion, storage and detoxification of endogenous and exogenous substances are prominent. Due to these functions, hepatic disease continue to be among the main threats to public health, and they remain problems throughout the world. Liver disease can be inherited or caused by a variety of factors such as viruses and alcohol use. Obesity is also associated with liver damage. Over time, damage to the liver results in scarring, this can lead to liver failure. Deficiency of vitamin C also causes liver disease.

Keywords: Hepato protectivity, parts of Natural plants, chemical constituents.

INTRODUCTION

Despite enormous advances in modern medicine, there are no completely effective drugs that stimulate hepatic function, that offer complete protection of the organ, or that help to regenerate hepatic cells. Thus it is necessary to identify many pharmaceutical alternatives for treatment of liver diseases. There are some herbals with potentially hepato protective constituents. They are *Astragalus propinquus*, *Curcuma*, *Brassica*, *Silbummarianum*, *Syzygium cumin* etc.

This present review focus on providing the information about the *Silybum marinum* and many another hepatoprotective activity.

*Syzygium cumini*¹

Commonly known as jambolan, java plum, black plum or jamun, is an ever green tropical tree in the flowering plant family myrtaceae. It consists of more amount of vitamin C so it can be used as heptoprotective activity.

It consists of vitamins thiamine, riboflavin, niacin, vitamin B6 and vitamin C.

- *Syzygium cumini* (jamun fruit) works miraculously in diabetes.
- This fruit is rich in iron and richness of iron makes it a natural blood purifier.
- It is used as astringent.
- It contains various chemical compounds like oxalic acid, gallic acid etc. This makes this fruit capable to fight against malaria and various other microbial and bacterial infections.
- Prevent cardiovascular disease.
- It is also used for treatment of lung disorders such as cough, asthma and bronchitis.

- Used for abdominal pain and dysentery.

In Ayurveda, its fruits, seeds, bark and leaves are used as medicine for treating bleeding disorders and other diseases.

Jamun seed powder (churna) is used in the management of diarrhea, dysentery, and diabetes.

Jamun are prescribed for nausea, vomiting, bleeding disorders, and metrorrhagia.

Jamun seeds contain albumen, fat, glycosides, an alkaloid; jambosine, resin ellagic acid, querecetin, gallic acid as well as elements of zinc, vanadium, sodium and potassium.

The fruit jamun is mostly used for its high vitamin C and anthocyanin. The major anthocyanins in jamun fruit are malvidine, glucoside, petunidin, cyaniding.



Figure 1

Astragalus propinquus

It is commonly known as Mongolian milkvetch which is a flowering plant in the family fabaceae.

- Astragalus is a general tonic to protect the liver, and to fight bacteria and viruses.
- Astragalus is commonly used in combination with other herbs. For example, in combination with

Ligustrum lucidum (glossy privet), astragalus is used orally for treating breast cancer, cervical cancer, and lung cancer.

- The dried root of astragalus has been used in repair and regeneration of injured organs and tissues. Used for common cold.
- Upper respiratory infections.
- Allergies.
- Fibromyalgia.
- Anaemia.
- HIV/Aids.



Figure 2

Brassica⁻²

Brassica is a genus of plants in the mustard family. Brassica has many uses: it yields a seed oil, crushed seed is used in the production of mustard and it has a variety of vegetable uses. It is also used as forage and medicinally.

It is grown mainly for its seeds.

- The oil is used as hair oil and as lubricant.
- A peculiar use of mustard oil is to retard the fermentation process when making cider from apples.
- Brown mustard is reported to have anodyne, aperient, diuretic emetic and rubefacient properties.
- It is a folk remedy for arthritis, foot ache.
- It is also used against tumours.
- Leaves applied to the forehead are said to relieve headache.
- The leaves are eaten in soups to treat bladder inflammation and haemorrhage.



Figure 3

Table 1

| Botanical Name | Family | Parts used | Solvent used | Chemical constituents | Screening method |
|-----------------------------------|----------------|-----------------|--------------------|-----------------------------------|-------------------------------|
| <i>Amaranthus caudatus</i> Linn | Amaranthaceae | Whole Plant | Methanol | Flavonoids, Saponins, glycosides | Carbon tetra chloride induced |
| <i>Anisochilus carnosus</i> Linn | Lamiaceae | Stems | Ethanol | Alkaloids, flavonoids, glycosides | Carbon tetra chloride induced |
| <i>Asparagus racemosus</i> Linn | Asparagaceae | Roots | Ethanol | Phenols, coumarins | Paracetamol induced |
| <i>Azimatetarcantha</i> | Salvadoraceae | Leaves | Ethanol | Flavonoids, triterpenoids | Paracetamol induced |
| <i>Calotropis procera</i> R.Br | Asclepediaceae | Root bark | Methanol | Terpenoids glycosides, flavonoids | Carbon tetra chloride induced |
| <i>Cajanus cajan</i> Linn | Leguminosae | Pigeon pea leaf | Ethanol | Flavonoids, stibenes | D-galactosamine |
| <i>Cajanus scarabaeoides</i> Linn | Fabaceae | Whole plant | n-butanol, ethanol | Flavonoids | Paracetamol induced |

*Solanum nigrum*³

It is a species in genus solanum. It is also known as black night shade.

It consists of flavonoids and terpenoids which can act against diseases. Mainly fruits of this plant are used for medicinal purposes.

- It is used as analgesic.

- It is used as sedative with powerful narcotic properties.
- It is used for treatment of herpes.
- It is used in dysentery, stomach complaints and fever.
- The juice of the plant is used on ulcers and other skin diseases.

The leaves are rich with polyphenols.



Solanum nigrum contains the substances, such as alkaloid, steroid alkaloid, steroidal saponins and glycoprotein, exhibiting anti-tumor activity. The plant is used as hepatoprotective agent.



Figure 4

CONCLUSION

The present study synthesized the most accurate evidence for the hepatoprotective effects of some fruits and plants of a natural resin and one of the main polysaccharides present in the cellular wall of yeasts, algae, and cereals against different toxic compounds that cause hepatic damage, considered within the area of chronic degenerative diseases. The plants, fruits, compounds described could offer novel therapeutic options that exist for the treatment of liver diseases.

REFERENCES

1. Chein, CF; Wu, YT; Tsai et.al., "Biological analysis of herbal medicines used for the treatment of liver diseases." Biomed Chromatogr. 25(1-2), 2011 Jan, 21-38. doi: 10.1002/bmc.1568.PUBMED.
2. Ghosh, N; Ghosh, R; Mandal, V; Mandal, SC et.al., "Recent advances in herbal medicine for treatment of liver diseases". Pharm Biol., 49(9), 2011, 970-88. doi: 10.3109/13880209.2011.558515. Epub 2011 May 19
3. Lin JH, Lu AY. Role of pharmacokinetics and metabolism in drug discovery and development et.al. Pharmacol Rev. Jiunn H. Lin and Anthony Y. H. Lu, Pharmacological Reviews December 49 (4), 1997, 403-449
4. Shanani S. et.al, Evaluation of hepatoprotective efficacy of APCL- A Polyherbal formulation in vivo in rats. Indian drugs., 36(10), 1999, 628-631. DOI: 10.4172/2327-5162.1000262
5. SubramoniamA, Pushpangadan P. et.al, Development of phytomedicine for liver diseases. Indian Pharmacol. First published: 23 September 2008.
<https://doi.org/10.1046/j.1440-1746.17.s3.30.x>
6. AdewusiEA, Afolyan AJ . A review of natural products with hepatoprotective activity. J Med plants Res.et.al, Journal of Medicinal Plants Research Vol. 4(13), pp. 1318-1334, 4 July, 2010 Available online at www.academicjournals.org/JMPR DOI: 10.5897/JMPR09.472 ISSN 1996-0875.

Source of Support: Nil, Conflict of Interest: None.