Review Article

Haritaki A Boon To Herbalism – A Review
Dr S. Aruna*1, Dr L.V. Nandakishore2
1 Asst Professor, Dept of computer Science, A.M Jain College, Chennai -114.
2 Professor, Dept of Mathematics, Dr MGR Educational and Research Institute University, Chennai-95.

*Corresponding author
Dr S. Aruna
Email: aruna.lasaji@yahoo.com

Abstract: The demand for herbal therapeutics is increasing gradually in the world. The Indian system of medicines uses herbal preparations in majority for the management of diseases. Globally a large number of Pharmacological studies have been conducted extensively on various medicinal plants. In recent years a lot of research is being conducted on Terminalia chebula (Haritaki). The pharmacological studies of Haritaki were reviewed in this paper.

Keywords: Terminalia chebula, herbal drugs, Indian medicinal plants, pharmacological studies, haritaki, Kadukkai.

INTRODUCTION

According to the World Health Organization (WHO) more than 80% of the people living in the developing countries depend on traditional medicine for their primary health needs [1]. The traditional Indian system of medicines like Ayurveda, Siddha and Unani support the importance of medicinal plants to treat diseases [2].

Plants produce a wide array of bioactive principles and constitute a rich source of medicines [3]. The demand for plant-based therapeutics is increasing in both developing and developed countries due to the growing recognition that they are natural products, non narcotic, easily biodegradable, pose minimum environmental hazards, have no adverse side-effects and are easily available at affordable prices [4].

Terminalia chebula (haritaki) is used in traditional medicine due to the wide spectrum of pharmacological activities associated with the biological active chemicals present in this plant [5]. The name Haritaki in Sanskrit refers to the yellowish dye (harita) that contains the god Siva (Hari, i.e. the Himalayas) and that it cures (harayet) all the diseases [6].

Haritaki is a moderate sized tree grows widely in India, Myanmar, Bangladesh, Iran, Egypt, Turkey, China etc. [5]. It is found throughout India, chiefly in deciduous forests and areas of light rainfall, but occasionally also found in slightly moist forests, flowers appear from April-August and fruits ripen from October-January, fruit is drupe-like, 2–4.5 cm long and 1.2–2.5 cm broad, blackish, with five longitudinal ridges [7].

SYNONYMS [8]
China – Zhang-Qin-Ge, Hezi
France – Myrobalan in dien
Germany - Myrobalane
India - {Assamese – Shilikha; Bengali – Haritaki; Gujarati–Hirdo, Himaja, Pulo-harda; Hindi – Harre, Harad, Harar; Kannada – Alalekai; Kashmiri–Halela; Malayalam – Katukka; Marathi - Hirda, Haritaki, Harda, Hireda; Oriya – Harida; Punjabi – Hakeka, Harar; Sanskrit – Haritaki, Abhaya, Kayastha, Siva, Pathya; Tamil – Anmai, Amutam, Aritaki, Pethiyam, Varikkai; Telugu – Karakkaya; Urdu – Halela}
Srilanka – Aralu
Tibet – Harro

Types of haritaki:
In Siddha literature seven types of Haritaki are identified according to their geographical distribution namely Vijayan, Boodhana, Rogini, Abhyan, Amrutha, Boothagi and Sethagi.

Tastes found in the fruit of haritaki:
Among the six tastes except salt other five tastes are found in the fruit of haritaki namely outer skin-pungent, ridge-sour, seed-astringent, stem-bitter, endosperm-sweet.

Haritaki for tridosha:
To Indian system of medicine all diseases are due to the imbalance in tridosha or three bodily humors. Haritaki if taken with salt can cure kapha dosha, with
sugar can cure pitha dosha and when taken with ghee can cure vatha dosha.

**Chemical constituents of haritaki**

It contains high phenolic content, especially hydrolyzable tannins, anthraquinone, flavonol, carbohydrates, glucose and sorbitol [9], chebulic acid [10], chebulinic acid [11], ellagic acid, gallic acid [12], chebulagic acid [13] etc.

**Pharmacological studies of Haritaki:**

Based on the chemical constituents present in haritaki several pharmacological investigations have been conducted in various in vivo and in vitro. Table 1 shows the summary of the findings of some of these pharmacological studies.

<table>
<thead>
<tr>
<th>Pharmacological activity</th>
<th>Author/Reference</th>
<th>Extract type</th>
<th>organisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antibacterial</td>
<td>Kannan et al.,[4]</td>
<td>Ethanol extract</td>
<td>Salmonella typhi, Staphylococcus aureus, Bacillus subtilis etc.</td>
</tr>
<tr>
<td></td>
<td>Malekzadeh et al.,[14]</td>
<td>Ether, alcoholic, water extract</td>
<td>Helicobacter pylori</td>
</tr>
<tr>
<td>Anticancer</td>
<td>Saleem et al.,[15]</td>
<td>70% of methanol</td>
<td>Human(MCF-7), mouse (S115) breast cancer cell lines etc.</td>
</tr>
<tr>
<td>Anticaries</td>
<td>Jagtap et al.,[16]</td>
<td>Aqueous extract</td>
<td>Streptococcus mutans</td>
</tr>
<tr>
<td>Anticonvulsant</td>
<td>Hogade Maheswar et al.,[17]</td>
<td>Ethanolic, chloroform, Petroleumether aqueous extract</td>
<td>Rats</td>
</tr>
<tr>
<td>Antidiabetic</td>
<td>Gandhipuram P et al.,[18]</td>
<td>Ethanol extract</td>
<td>Adult albino male rats</td>
</tr>
<tr>
<td></td>
<td>Rao et al.,[19]</td>
<td>chloroform extract</td>
<td>Streptozotocin induced diabetic rats</td>
</tr>
<tr>
<td>Antifungal</td>
<td>Saheb Shinde et al.,[20]</td>
<td>Aqueous, alcoholic, ethyl acetate extract</td>
<td>Aspergillus niger, Aspergillus flavus, Alternaria alternata etc</td>
</tr>
<tr>
<td></td>
<td>Vivek et al.,[21]</td>
<td>70% of methanol, ethylacetate, hexane, chloroform extract</td>
<td>Fusarium oxysporum, Phytophthora capsici, Fusarium solani etc.</td>
</tr>
<tr>
<td>Antimutagenic</td>
<td>Grover et al.,[22]</td>
<td>Chloroform, aqueous extract</td>
<td>Salmonella typhimurium</td>
</tr>
<tr>
<td></td>
<td>Kaur et al.,[23]</td>
<td>Acetone,aqueous chloroform extract</td>
<td>Salmonella typhimurium</td>
</tr>
<tr>
<td>Antioxidant</td>
<td>Suchalata et al.,[24]</td>
<td>95% of ethanol extract</td>
<td>Adult male albino rats</td>
</tr>
<tr>
<td></td>
<td>Chia-lin chang et al.,[25]</td>
<td>water, methanol &amp; 95% of ethanol extract</td>
<td>Fermented products</td>
</tr>
<tr>
<td>Antiallergic</td>
<td>Raju et al.,[26]</td>
<td>Methanolic extract</td>
<td>Wistar albino male rats</td>
</tr>
<tr>
<td>Antiviral</td>
<td>Hongbo Ma et al.,[27]</td>
<td>Acetone extract</td>
<td>Swine influenza A virus</td>
</tr>
<tr>
<td></td>
<td>Kim et al.,[28]</td>
<td>Aqueous extract</td>
<td>Hepatitis B virus</td>
</tr>
<tr>
<td>Cardioprotective</td>
<td>Suchalata et al.,[29]</td>
<td>95% of ethanol extract</td>
<td>Adult albino male rats</td>
</tr>
<tr>
<td>Cytoprotective</td>
<td>Kaur et al.,[30]</td>
<td>Acetone extract</td>
<td>Cancer cell lines</td>
</tr>
<tr>
<td>Immunodulatory</td>
<td>Vaibhav Aher et al.,[31]</td>
<td>Alcohol extract/</td>
<td>Male wistar rats</td>
</tr>
<tr>
<td>Radioprotective</td>
<td>Jagetia et al.,[32]</td>
<td>Aqueous extract</td>
<td>Rats</td>
</tr>
<tr>
<td>Wound healing</td>
<td>Manish PalSingh et al.,[33]</td>
<td>Hydroalcoholic extract</td>
<td>Induced diabetic rats</td>
</tr>
<tr>
<td></td>
<td>Choudhary [34]</td>
<td>90% of ethanol extract</td>
<td>Wistar albino rats</td>
</tr>
</tbody>
</table>

**Toxicological studies on Haritaki:**

The inner seed of the fruit of Haritaki is toxic hence removed while preparing therapeutics based on Haritaki. The acute toxicity study of the 50% alcoholic extract [35], subchronic toxicity study of both powder and water extract [36], acute and chronic toxicity
studies of water extract given orally [37] from dried fruits of haritaki demonstrated no toxic effects in mice. **Traditional Uses of haritaki:**

The fruit of haritaki has been extensively used in Thai traditional medicine for laxative, carminative, astringent, expectorant, and tonic effects [38]. It is routinely used as traditional medicine by tribes of Tamil Nadu to cure several ailments such as fever, cough, diarrhea, gastroenteritis, skin diseases, candidiasis, urinary tract infection and wound infections [6]. It is used commonly in many Ayurvedic preparations as diuretic and cardiotonic [16]. It is used to prevent aging and impart longevity, immunity [31]. It is reputed to cure blindness and it is believed to inhibit the growth of malignant tumors [15].

**Haritaki as Kayakalpa:**

It can be used as a kayakalpa (rejuvenating the body and the mind) if taken in evening in prescribed amounts. To act as kayakalpa it should be consumed according to the season as shown in Table 2.

### Table 2. Consumption of Haritaki in 6 seasons

<table>
<thead>
<tr>
<th>Season/Kaalam</th>
<th>Adjuvant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illavenil (mildly sunny)</td>
<td>Honey</td>
</tr>
<tr>
<td>Muthuvenil (intense sunny)</td>
<td>Jaggery</td>
</tr>
<tr>
<td>Kar (Cloudy rainy)</td>
<td>Rock salt</td>
</tr>
<tr>
<td>Kuthir (Cold)</td>
<td>Sugar</td>
</tr>
<tr>
<td>Munpani (Early misty)</td>
<td>Dried ginger</td>
</tr>
<tr>
<td>Pinpani (Late misty)</td>
<td>Long pepper</td>
</tr>
</tbody>
</table>

**Important preparations of haritaki:**

- Kadukkai mathirai: Iron deficiency
- Moola kudori thylam: For bleeding piles.
- Bhavana kadukkai: Anaemia
- Kadukkai legiyam: Constipation, gas trouble, ulcer
- Triphala choornam: Digestive, blood purifier, reduces cholesterol, antioxidant, balances three body humors.

**CONCLUSION**

The traditional Indian system of medicines like Siddha, Ayurveda and Unani mainly uses medicinal plants for the management of diseases. Recognition for herbal therapeutics is gradually increasing in the world because they are safe and natural products. Extensive research has been carried out on medicinal plants attracting many more scholars to devote themselves for further study. *Terminalia chebula* (Haritaki) is one of the important herbal drug used for treating many diseases including some varieties of cancer. It is rich in chemical constituents. Many pharmacological investigations have been carried out based on its chemical constituents. A review on some pharmacological studies on haritaki are presented in this paper. These studies justify the claim on ancient literatures that haritaki called as amutham (nectar) in tamil is a kayakalpa which balances the three bodily humors or doshas that are the main reasons for illness and stress that herbal medicines treats the cause of the disease rather than suppressing the symptoms.

**REFERENCES**

11. Quanbin Han, Jingzheng Song, Chunfeng Qiao, Lina Wong and Hongxi Xu; Preparative isolation of hydrolysable tannins chebulagic acid and chebulinic acid from *Terminalia chebula* by high-speed counter-current chromatography. J. Sep. Sci, 2006;29:1653-1657.


