



Subject Area : Dravya Guna Vigyan

# A REVIEW OF PHARMACOLOGICAL EFFICACY & TRADITIONAL USES OF *HARITAKI* [*TERMINALIA CHEBULA* RETZ]

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ARTICLE INFO	ABSTRACT
Received 16 <sup>th</sup> March 2024 Received in revised form 23 <sup>rd</sup> March, 2024 Accepted 19 <sup>th</sup> April, 2025 Published online 28 <sup>th</sup> April, 2025	<i>Terminalia chebula</i> Retz commonly known as Chebulic Myrobalan or <i>Haritaki</i> is one of the most important medicinal plants in Indian traditional system of medicine (Ayurveda, Unani and Siddha). Acharya Bhav Mishra described the <i>Haritaki</i> as first drug in <i>Bhav Prakash Nighantu</i> . It is called the “ King of Medicines “ in Tibet and is always listed first in the Ayurvedic Materia Medica because of its extraordinary powers of healing with a wide spectrum of biological activities. It is a well-known fact that all parts of <i>Haritaki</i> are useful in the treatment of various diseases. Among all, the most important part is fruit. <i>Haritaki</i> fruit is widely used in the Indian system of medicine as anti -inflammatory, anti-viral, antihyperlipidemic, antioxidant, anti -HIV, anti- ulcerative etc. <i>Charak Samhita</i> , <i>Sushrut Samhita</i> , <i>Ashtanghriddya</i> and <i>Nighantus</i> have mentioned various uses of <i>Haritaki</i> in <i>Atisar</i> (Diarrhea), <i>Prameha</i> (Diabetes), <i>Netraroga</i> (Eye diseases), <i>Amla pitta</i> (Dyspepsia), <i>Pandu</i> (Anemia), <i>Arsha</i> (Piles), <i>Ajeerna</i> (Indigestion), <i>Kamala</i> (Jaundice). It is used as <i>Rasayana</i> (Rejuvenating), <i>Medhya</i> (brain tonic), <i>Deepan</i> (Appetizer), <i>Aam Pachana</i> (Digest Aama or Toxins), <i>Srotas Shodhana</i> (Cleaning the channels by detoxifying the metabolic waste). In this article, we discuss the biochemical constituents, traditional uses, medicinal value of <i>Haritaki</i> and its use as a household remedy. We also emphasized the mechanisms behind the pharmacological activities based on the recent research reports and tried to summarize the results of research done from past years.
<b>Key words:</b>	
<i>Haritaki</i> , traditional uses, <i>Terminalia chebula</i> Retz	
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## INTRODUCTION

According to the World Health Organization, more than 80% of the people living in developing countries depends on traditional medicine for their primary health needs.<sup>(1)</sup> The traditional Indian system of medicines like *Ayurveda*, *Siddha* and *Unani* support the importance of medicinal plants to treat diseases.<sup>(2)</sup> 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 associated easily available at affordable prices.<sup>(3)</sup> *Terminalia chebula* Retz, commonly known as *Haritaki* belongs to family Combretaceae. It is found all over the world. In India, it is

found in sub-Himalaya region from raw Eastwood to west Bengal and Assam ascending up to the altitude of 1500m in Himalayas.<sup>(4)</sup> *Haritaki* is used in traditional medicine due to the wide spectrum of pharmacological activities associated with biological active

## MATERIALS AND METHODS

### Manual searching and collection materials

Charak Samhita, Sushrut Samhita, Ashtanghriddya, Ashtangsangraha, Kashyap Samhita, Bhav Prakash Nighantu, Nighantu Adarsh, Modern Medical databases.

### Classification According to Ayurveda: <sup>(6,7,8,9,10,11,12)</sup>

Classification of *Terminalia chebula* Retz in *Ayurveda Samhitas*:

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<b>Charak Samhita</b>	<b>Prajasthapana, Jwaraghna, Arshoghna</b>
<i>Sushrut Samhita</i>	<i>Triphla, Amlakyadi, Parushaka-di Gana</i>
<i>Ashtanghridya</i>	<i>Haritakyadi Varga, Triphala Varga</i>
<i>Ashtangsangraha</i>	<i>Arshoghna, Kushthghna, Kasaghna, Garbhasthapan, Vaysthapan</i>
<i>Bhav Prakash Nighantu</i>	<i>Haritakyadi Varga</i>
<i>Adarsh Nighantu</i>	<i>Haritakyadi Varga</i>
<i>Raj Nighantu</i>	<i>Amradi Varga</i>
<i>Kaiyadev Nighantu</i>	<i>Aushadhi Varga</i>

**Types of Haritaki:** There are seven types according to *Bhav Prakash Nighantu*.

**As per Bhav Prakash <sup>(9)</sup>**

Types	Morphology	Uses	Habitat
<i>Vijaya</i>	<i>Alabuvritta</i>	<i>Sarvaroghar</i>	<i>Vindhya</i>
<i>Rohini</i>	<i>Vritta</i>	<i>Vran ropan</i>	<i>Prat-ishthanak</i>
<i>Putana</i>	<i>Suksham, Asthi-may</i>	<i>Pralepa</i>	<i>Sindha</i>
<i>Amruta</i>	<i>Mansal</i>	<i>Shodhan</i>	<i>Champa (Bhagalpur)</i>
<i>Abhaya</i>	<i>Panchrekhayukta</i>	<i>Netrarogahar</i>	<i>Champa (Bhagalpur)</i>
<i>Jivanti</i>	<i>Swarna varna</i>	<i>Sarvaroghar</i>	<i>Saurashtra</i>
<i>Chetaki</i>	<i>Trirekhayukta</i>	<i>Rechan</i>	<i>Himachal</i>

**According to Indian Materia Medica:<sup>(13)</sup>**

Types	Morphology	Uses
<i>Suvarna Haritaki</i>	Large, dense, heavy, yellowish to brownish in color	Laxative
<i>Rangari Haritaki</i>	Smaller in size, less wrinkled, less furrowed	Fever, cough, asthma, urinary diseases
<i>Bala Haritaki</i>	Smaller than both, pulp deep brown in color	Chronic diarrhea, dysentery, vomiting, hiccups, enlarged liver & spleen
<i>Java Haritaki</i>	Smallest than all	Sore throat, oedema, itching

**Taxonomy of Haritaki:** <sup>(13)</sup>

**Latin name:** *Terminalia chebula* Retz.

**Kingdom:** Plantae (plants)

**Sub - kingdom:** Tracheobionata (Vascular plants)

**Super division:** Spermatophyta (seed plants)

**Division:** Magnoliophyta (flowering Plants)

**Class:** Magnoliopsidae (dicots)

**Sub- class:** Rosidae

**Order:** Myrtales

**Family:** Combretaceae

**Genus:** Terminalia

**Species:** Chebula

**Synonyms** <sup>(6-12)</sup>

*Haritaki, Vijaya, Rohini, Amruta, Abhaya, Pathya, Chetaki, Shreyasi, Kayastha* are the synonyms of *Haritaki*.

**Vernacular Names** <sup>(6-12)</sup>

*Shiva, Kayastha, Abhaya, Pathya* (Sanskrit), *Harre, Harad* (Hindi), *Haritaki* (Bengali), *Harde* (Marathi), *Harde* (Gujarati) and *Chebulic Myrobalan* in English.

**Raspanchak** <sup>(6-12)</sup>

Property	Description
Rasa	Panchras Lavana varjit, Kashaypradhan
Guna	Laghu, Ruksha
Veerya	Ushna
Vipaka	Madhur
Prabhav	Tridosh har
Dosh-karma	Tridosh har especially <i>Vat-shamak</i>

**Panchbhautik Sanghatan :-** <sup>(6-12)</sup>

Due to *Kashay Ras* [ *Prithvi + Vayu*], *Madhur Ras* [ *Prithvi + Jal*] and *Tikta Ras* [ *Vayu + Akash*] *Haritaki* is *Pittashamak*. Due to *Amla Ras* [ *Prithvi + Tej*] *Haritaki* is *Vatshamak*. Due to *katu Ras* [ *Tej + Vayu*], *Tikta Ras* and *Kashay Ras*, it is *Kaphshamak*.

Hence *Haritaki* is **Tridosh shamak**.

According to Indian system of medicine, all diseases are due to imbalance in *tridosha*. *Haritaki* if taken with salt can cure *Kapha dosha*, with sugar can cure *Pitta dosha* & with ghee can cure *vata dosha* and with jaggery cures all diseases.

**Karma's of Haritaki :-** <sup>(6-12)</sup>

**Rogaghna :-** <sup>(6-12)</sup>

**Charak Samhita:** - *Jwaraghna* (decreases fever), *Kasaghna* (reduces cough), *Kushthaghna* (useful in skin disease), *Arshoghna* (useful in Piles), *Chardi nigrahan* (stops vomiting)

**Sushrut Samhita:** - *Kushthaghna* (useful in skin disease), *Netrahitkar* (useful in Eye diseases), *Visham jwar har* (decreases fever).

**Bhav Prakash Nighantu:** - *Shwasaghna* (useful in asthma), *Kasaghna* (reduces cough), *Prameghghna* (controls Diabetes), *Arshoghna* (useful in Piles), *Kushthaghna* (useful in skin disease), *Shothaghna* (anti-inflammatory), *Krimighna* (useful in worms)

**Kaiyadev Nighantu:** - *Jwaraghna* (reduces fever), *Netrahitkar* (Beneficial in Eye diseases), *Prameghghna* (controls Diabetes), *Krimighna* (useful in worms).

**Raj Nighantu:** - *Netra Vikar* (useful in Eye diseases)

**Dhanvantari Nighantu:** - *Prameghghna* (controls Diabetes), *Kushthaghna* (useful in skin disease), *Netrahitkar* (useful in Eye diseases)

**Ashtanghridya:** - *Prameghghna* (controls Diabetes), *Pandughna*

<i>Karma</i>	<i>Charak Samhita</i>	<i>Sushrut Samhita</i>	<i>Ashtang Hriday</i>	<i>Kaiyadev Nighantu</i>	<i>Raj Nighantu</i>	<i>Bhav Prakash Nighantu</i>	<i>Dhanvantari Nighantu</i>
<i>Vatahar</i>	+	+	+	+	+	+	+
<i>Vaysthan</i>	+	+	+	+	—	—	—
<i>Hriday</i>	—	—	+	—	—	+	+
<i>Balya</i>	—	+	+	—	—	—	+
<i>Netrahitkar</i>	+	+	+	+	+	+	+
<i>Pittahar</i>	+	+	+	+	+	+	+
<i>Ayushya</i>	+	+	+	+	—	+	—
<i>Medhya</i>	+	+	+	+	—	+	+
<i>Medohara</i>	+	—	—	+	—	—	—
<i>Vatapittahar</i>	—	+	+	+	+	+	+
<i>Dipaneeya</i>	+	+	+	+	—	+	—
<i>Rasayani</i>	+	+	+	+	+	+	—
<i>Tridoshar</i>	+	+	—	+	+	+	+
<i>Anuloman</i>	+	+	+	—	—	+	+
<i>Pachan</i>	—	+	+	+	—	+	—
<i>Sangrahini</i>	+	+	+	—	—	—	—

(useful in Anemia)

#### Morphology of *Terminalia chebula* Retz :<sup>(14)</sup>

*Terminalia chebula* Retz is a medium sized deciduous tree with height of up to 30m wide spreading branches and a broad roundish crown. It grows in altitude of 1500m-2000m in mostly clay as well as sandy soils.

**Stem:** It is dark brown.

**Leaves:** Leaves are sub-opposite, ovate 8-20 cm long and deciduous during cold season. The species is identified by dark brown bark exfoliating in irregular woody scales and by presence of pair of large glands present at the end of petioles.

**Fruit:** Fruit is yellow, elliptical with five longitudinal ridges and about 2-4 cm long and 1-2.5 cm wide. Mature fruit is of an ovoid form, from 25 to 38 mm long.

**Flower:** Flowers are somewhat yellowish white and fragrant, borne in large in compound inflorescence. They occur in spike arising from upper axils or in small panicles.

**Seed:** - Seed is globose and 2-6 cm long, sometimes tapering towards the lower extremity, obscurely 5 or 6 sided, more or less furrowed longitudinally, covered with a smooth yellowish-brown epidermis within which is an astringent pulp, enclosing a large rough bony one celled endocarp.

#### Habitat :<sup>(15)</sup>

*Terminalia chebula* Retz is found throughout South East Asia like India, Sri Lanka, Bhutan, Nepal, Bangladesh, Pakistan, Myanmar, Cambodia, Laos, Vietnam, Indonesia, Malaysia, Egypt, Turkey and Thailand. In India, it is found in the Sub Himalayan tracks from eastward to West Bengal and Assam ascending up to the altitude of 1500m in the Himalayas.

#### Planting and Harvesting <sup>(16)</sup>

Trees are grown from seeds. The fallen fruits are collected and dried thoroughly. Then hardened flesh is removed. In India, seeds are usually sown in boxes or nursery beds in spring

season or before rainy season, covered with soil and watered regularly. Clay and sandy soils are ideal for growing them. They require full sunlight and ample amount of water. These deciduous trees remain leafless from February to early April. The flowers bloom between April and August. The trees bear fruit between November and February. The fruits are harvested while they are ripened. Harvesting is done by handpicking the fruits.

**Part used:** Fruits

**Chemical composition:** - A number of glycosides have been isolated from *Terminalia chebula* Retz including triterpenes, arjun glucoside I, arjun Genin and chebulosides I & II and Coumarin conjugated with garlic acid called chebulin as well as other phenolic compounds including ellagic acid, chebulinic acid, gallic acid, ethyl gallate, punicalagin, luteolin and tannic acid. <sup>(17)</sup> Chebulic acid is a phenolic acid compound isolated from the ripe fruits. <sup>(18)</sup> Luteic acid can be isolated from the bark. <sup>(19)</sup>

**Doses:** 3 - 6 gm drug in powder form

**Important Formulations:** - *Triphla Churna*, *Triphladi Taila*, *Abhayarishta*, *Agastya Haritaki Rasayana*, *Chitrak Haritaki*, *Danti Haritaki*, *Dashmool Haritaki*, *Brahma Rasayana*, *Abhaya Lavana*, *Pathyadi Lepa* etc.

#### Concept of *Ritu Haritaki* :-<sup>(9)</sup>

*Haritaki* is known as *pathya* in *agrya*(best) *dravya sangraha*, it is *neetya sewaniya dravya*.

Ritu	Dosha Avastha	Anupana	Guna, Karma of Anupana Dravya
<i>Varsha</i> (Rainy season)	Vata Prakopa, Pitta Sanchay	Saindhav	Vrushya, Tridoshar

<b>Sharada (Autumn)</b>	Pitta Prakopa, Vata Prashaman	Sharkara	Vrushya, Vata Pitta Shamak
<b>Hemanta (Winter)</b>	Pitta Prashaman	Shunthi	Vrushya, Vata kaph Shamak
<b>Shishira (Winter)</b>	Kapha Sanchay	Pippali	Vrushya, Kapha Pitta Shamak
<b>Vasanta (Spring)</b>	Kapha Prakopa	Madhu	Vrushya, Tri- dosh Shamak
<b>Grishma (Summer)</b>	Vata Sanchay, Kapha Prashaman	Gur	Vrushya, Tri- dosh Shamak

#### Traditional uses of *Haritaki*:

- 1) Its fruit is extensively used as traditional medicine by Thai for laxative, carminative, astringent and tonic effects.
- 2) It is used as traditional medicine by Tribes of Tamil Nadu to cure several diseases such as Fever, Cough, Diarrhea, Gastroenteritis, Skin disease, Candidiasis, Urinary Tract Infection & Wound Infections.
- 3) It is commonly used in many Ayurveda formulations which are Cardiogenic and Diuretic.
- 4) It is used to prevent ageing and impact long immunity.
- 5) It is reported to cure Blindness and it is believed to stop the growth of Malignant Tumors. <sup>(20)</sup>

#### Pharmacological actions:

##### 1] Cardioprotective activity:

*Terminalia chebula* Retz extract was found to ameliorate the effect of isoproterenol on lipid peroxide formation and retained the activities of the diagnostic marker enzymes in isoproterenol induced Myocardial damage in rats. <sup>(21)</sup>

Its pericarp has also been reported to have Cardioprotective activity in isolated frog heart model. <sup>(22)</sup>

##### 2] Antioxidant & Free Radical Scavenging Activity:

The Leaves, Bark and Fruit of *Terminalia chebula* Retz possess high antioxidant activity and phenolic compounds are found to be responsible for this activity. <sup>(23)</sup> Strong antioxidant activity of aqueous extract of *Terminalia chebula* Retz was observed by studying the inhibition of radiation induced lipid peroxidation in rat liver microsomes at different doses. <sup>(24)</sup>

##### 3] Radioprotective Activity:

The administration of *Terminalia chebula* Retz extract prior to whole body irradiation of mice resulted in the reduction of peroxidation of membrane lipids in the mice liver as well as decrease in the radiation induced damage to DNA. It also protected the human lymphocytes from undergoing the gamma radiation induced damage to DNA exposed in vitro. <sup>(25)</sup>

##### 4] Chemo preventive Activity:

*Terminalia chebula* Retz showed chemo preventive effect on nickel chloride induced renal oxidative stress, toxicity and cell proliferation response in male Wistar rats. <sup>(26)</sup>

##### 5] Immunomodulatory Activity:

Crude extract of *Haritaki* plant stimulated cell mediated immune response in experimental amoebic liver abscess in golden hamsters, <sup>(27)</sup> aqueous extract of *Haritaki* produced an increase in humoral antibody titre and delayed type of hypersensitivity in mice. <sup>(28)</sup>

##### 6] Adaptogenic and Anti Anaphylactic Activity:

Aqueous extract of *Haritaki* possess significant effect on antinitrophenyl Ig E induced Tumor necrosis factor alpha production from rat peritoneal mast cells indicating its anti-anaphylactic action. <sup>(29)</sup>

##### 7] Gastrointestinal Motility Improving & Anti ulcerogenic Action:

*Haritaki* fruit increases gastric emptying time due to its laxative action. This action appears to be balanced with protective effect on gastrointestinal mucosa, with the improvement in the secretory status of Brunner's gland involved in the protection against Duodenal ulcer. <sup>(30)</sup>

##### 8] Anti protozoal Activity:

The acetone extract of *Haritaki* seeds showed anti plasmodium activity against *plasmodium falciparum*. <sup>(31)</sup>

##### 9] Anti-Viral Activity:

*Haritaki* fruit has retroviral reverse transcriptase inhibitory activity. <sup>(32)</sup>

It protects epithelial cells against influenza A virus, supporting its traditional use for aiding in recovery from acute respiratory Infections. <sup>(33)</sup>

##### 10] Anti - allergic Activity:

Aller-7, a polyherbal formulation of seven medicinal plants including *Haritaki* exhibited potent in vitro anti allergic activity isolated guinea pig ileum substrate. <sup>(34)</sup>

##### 11] Anti carcinogenic Activity:

Ethanol extract of *Haritaki* fruit inhibited cell proliferation and induced cell death in dose dependent manner in several malignant cell lines including human (MCF-7) & mouse (S115) breast cancer cell line, human osteosarcoma cells. <sup>(35)</sup>

##### 12] Anti Amoebic Activity:

A combination of *Haritaki* and four other drugs like *Boerhavia diffusa*, *Berberis aristata*, *Tinospora cordifolia* and *Zingiber officinale*, have maximum rate of 73% in experimental amoebic liver abscess in hamsters. <sup>(36)</sup>

##### 13] Anti spasmodic Activity:

Studies of *Haritaki* has demonstrated its anti-spasmodic properties by the reduction of abnormal blood pressure as well as intestinal spasms. This confirms its traditional use in spastic colon and other intestinal disorders. <sup>(37)</sup>

##### 14] Wound Healing Activity:

Topical administration of an alcoholic extract of *Haritaki* Leaves on the healing of rat's dermal wounds showed that *Haritaki* treated wound healed faster as salivary bacterial for up to 90 min. post rinsing. <sup>(38)</sup>



### 15] Purgative property:

Purgative action of an oil fraction from *Haritaki* has been documented. <sup>(39)</sup>

### 16] Anti- fungal Activity:

An aqueous extract of *Haritaki* exhibited anti - fungal activity against number of dermatophytes and yeasts. <sup>(40)</sup>

### 17] Anti- Diabetic and Retino - Protective Action:

Water extract of dry fruits of *Haritaki* at a dose of 200mg / kg body weight improved the glucose tolerance as indicated by 44% of reduction in the peak blood glucose at two hours glucose tolerance test in Diabetic (Streptozotocin induced) rats. <sup>(41)</sup>

*Haritaki* fruit exhibited dose dependent reduction in blood glucose of streptozotocin induced Diabetic rats both in short term and long-term study showed retino-protective action. <sup>(42)</sup>

## CONCLUSION

Now a days, research on Indian traditional medicinal plants has gained a new recommence. Although other systems of medicine are effective, they have number of undesired effects which often lead to serious complications. Being natural, herbal medicines don't possess such side effects. *Haritaki* (*Terminalia chebula* Retz) has an important position in *Ayurveda* - an Indian indigenous system of medicine. *Haritaki* due to its strong antioxidant and biological properties prevent innumerable health disorders. Several researchers revealed that various extracts and herbal formulation of *Haritaki* showed potential therapeutic benefits against various diseases and the results are similar to standard drugs. According to literature and references, *Terminalia chebula* Retz is one of the most versatile plants having a wide spectrum of pharmacological and medicinal activities.

## References

- Sharma M, Pandey Govind P, Ethnomedicinal plants for prevention and treatment of Tumors, International Journal of Green Pharmacy, 2009; 3 (1): 2 - 5.
- Beusher N, Bodinet C, Neumann -Haefelin D, Marston A, Hostettmann K; Antiviral activity of African medicinal plants, J Ethnopharmacol, 1994; 42 (2): 101 - 109.
- Kannada P, Ramadevi SR, Hopper W; Antibacterial activity of *Terminalia chebula* Retz fruit extract, African Journal of Microbiology Research, 2009; 3 (4): 180 -184.
- Shrivastava R.K. 2000, Approach Grafting- A New Approach for the formation of Clonal Bank of *Terminalia chebula* Retz, The Indian Forester 126, 300- 304.
- Prakash DV Sree Satya N, Suman Sumanjali Avanigadda S, Vangalapati M; Pharmacological Review on *Terminalia chebula* Retz. International Journal of Research in Pharmaceutical and Biomedical Sciences, 2012; 3 (2): 679 - 681.
- Acharya Vidyadhar Shukla, Prof. Ravi Dutt Tripathi, "Charak Samhita", Vaidya Manorama Hindi Commentary, Vol- I & II.
- Ambika Dutta Shastri, "Sushrut Samhita" Ayurved Tatva Sandipika, Vol- I & II.
- Kaviraj Atridev Gupta, "Ashtangsangraha" Hindi Commentary, Vol- I & II.
- Pandit Shree Lalchandraji Vaidya, "Sarvanga Sundari Vyakhya" Commentary, Bhav Prakash, Madyam Khanda, 3<sup>rd</sup> Edition 1970, Motilal Banarasidas, Delhi.
- Shree Satyapal Bhishgacharya, "Kashyap Samhita" Edition 2004, Chaukhamba Sanskrit Sansthan, Varanasi.
- Shri Bapalal G. Vaidya, Nighantu Adarsh Vol. -1, Haritaki 549 - 567, Chaukhamba Bharti Academy (2007).
- Prof. P.V. Sharma, "Dravya Guna Vigyan" Vol- II Chaukhamba Bharti Academy Varanasi, 16<sup>th</sup> Edition 1994.
- Bhagawan Dash, Kashyap L (1980) Materia Medica of Ayurveda, Concept Publishers Company, India.
- Gupta AK, Quality Standards of Indian Medicinal Plants, Vol- 1, 2003, 206.
- Shu HZ, Flora of China, *Terminalia chebula* Retzius, Vol 13, 1788, 309-319.
- Khare CP. Indian Medicinal Plants: An Illustrated Dictionary. Berlin: Springer - Verlag; 2007. PP 652-653.
- Govt. of India, The Ayurvedic Pharmacopoeia of India, New Delhi; Govt. Of India, Ministry of Health and Family Welfare Department of Indian system of medicine and Homeopathy; 2001. P. 47.
- Sukhdev SH Deepak M, Joseph GVR, Joseph S., Nagar G., Indian Herbal Pharmacopoeia. Vol. 2, Jammu Tawi IDM, Mumbai and RRL, CSIR; 1999. PP.154
- Kumar A, Lakshman K, Jayaveera K, Satish K, Tripathi SM, Estimation of Rutin and Quercetin *Terminalia chebula* Retz by HPLC, Int J AesthAntiag Med. 2009; 2 (1): 3.
- Gupta Atrideva, Ashtanghriddya of Vagbhatta, Vidhyotini Hindi Commentary, 11th Ed. Varanasi Chaukhamba Sanskrit Bhavana, 1993.
- Aslokar LV, Kakkar KK, Chakra OJ, New Delhi: Publications and Information's Directorate, CSIR ;1992, Glossary of Indian Medicinal Plants with Active Principles.
- Suchalatha S, Shyamdevi CS, Protective effect of *Terminalia chebula* Retz against experimental Myocardial Injury induced by isoproterenol, Indian J Exp Biol. 2004; 18: 737-7421.
- Chang CL, Lin CS. Development of antioxidant activity and pattern recognition of *Terminalia chebula* Retz. Extracts and it's fermented product. Hung Kuang J. 2010; 61: 115-129.
- Lees HS, Won NH, Kim KH, Lee H, Jun W, Lee KW. Antioxidant Effects of Aqueous extracts of *Terminalia chebula* Retz in vitro and in vivo. Biol Pharm Bull. 2005; 28 (9): 1639-1644.
- Gandhi NM, Nayar CKK, Radiation Protection by *Terminalia Chebula* Retz, some Mechanistic Aspects, Molecular and Cellular Biochemistry, 277 (1-2), 2005, 43-48.
- Prasad L, Hussain Khan T, Jahangir T, Sultana S, Chemo modulatory effects of *Terminalia chebula* Retz against Nickel Chloride-induced oxidative stress and Tumor promotion response in male Wistar rats, J. Trace Elem. Med. Biol, 20 (4), 2006; 233-239.
- Shiva Prasad HN, Khariya MD, Rana AC, Mohan S, Preliminary Immunomodulatory Activities of Aqueous extract of *Terminalia Chebula* Retz, Pharm. Boil; 44 (1), 2006, 32-34.
- Sohni YR, Bhatt RM, activity of a Crude extract formu-

- lation in experimental Hepatic Amoebiasis and in Immunomodulation Studies, J. Ethnopharmacol. 54 (2-3), 1996, 119-124.
29. Rege NN, Thatte UM, Dahanukar SA, Adaptogenic Properties of six Rasayana Herbs used in Ayurvedic medicines, Phytotherapy Res. 13, 1999, 275-291.
  30. Nadar TS, Pillai MM, Effect of Ayurvedic Medicines on beta-glucuronidase activity of Brunner's glands during recovery from cystine induced Duodenal ulcers in rats, Indian J, Exp. Biol. 27(11), 1989, 959-962.
  31. Sohni YR, Kaimal Bhatt RM, The Anti Amoebic effect of Crude drug formulation of herbal extract against Entamoeba histolytica in vitro & in vivo, J Ethnopharmacol, 1995; 45(1): 43-52.
  32. Jeong AHN, Kim CY, Lee JS, Kim TG, Kim SH, Lee CK et Al, Inhibition of HIV-1 integrase by galloyl glucosides from *Terminalia chebula* Retz and flavanol glycoside gallate from *Euphorbia pekinensis*, Plant Med. 2002; 68: 457-459.
  33. Lee D, Boo K, Woo J, Duan F, Lee K, Kwon T, et Al. Anti -bacterial & Anti-Viral activities of extracts from *Terminalia chebula* Retz barks' Korean Soc Appl. Biol Chem. 2011; 54(2): 295-298.
  34. Pratibha N. Saxena VS, Amit A, D'Souza P, Bagchi D. Anti-inflammatory activities of Aller-7, a novel polyherbal formulation for allergic rhinitis. Int J Tissue React. 2004; 26(1-2):43-51.
  35. Reddy DB, Reddy TC, Jyotsana G, Sharan S, Priya N, Lakshmipathi V, et al. Chebulagic acid, a COX-LOX dual inhibitor isolated from the fruits of *Terminalia chebula* Retz, induced apoptosis in COLO-205 cell line. J Ethnopharmacol. 2009; 124 (3): 506-512.
  36. Sohni YR, Bhatt RM, Activity of Crude extract of formation in experimental Hepatic Amoebiasis and Immunomodulation Studies, J Ethnopharmacol, 54(2-3),1996,119-124.
  37. Seyyed AM, Ali V, Mohammed KGN, Heyman M, Spasmogenic Activity of the seeds of *Terminalia chebula* Retz in small intestine; in vitro and in vivo Studies. Malays J Med Sci. 2011; 18(3) :18-26.
  38. Li K, Diarrhea Y, Zhang H, Wang S, Zhang Z, Yun. B, et al Tannin extract from immature fruits of *Terminalia chebula fructus* Retz. promote cutaneous wound healing in rats. BMC Comp Alter Med. 2011; 11:1-9.
  39. Miglani BD, Sen P, Sanyal PK, Purgative action of oil obtained from *Terminalia chebula* Retz, Indian J Med Res, 52(2),1971,281-283.
  40. Ray PG, Majumdar SK, Anti Microbiol activity of Indian plants, Econ, Bot. 1976,120-131.
  41. Reddy VRC, Cardioprotective activity of fruit of *Terminalia chebula* Retz. Fitoterapia ,1990;61: 517-525.
  42. Singh I, Singh PK, Bhansali S, Shariq N, Malhotra S, Pandhi P, Pal Singh A. Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh City, India.

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