



## PRIMITIVE THERAPUTIC BIDS OF MEDICINAL PLANT ROHITAKA-TECOMELLA UNDULATA (SM.) SEEM.: A COMPREHENSIVE APPRAISAL BASED ON CLASSICAL AYURVEDA TEXTS

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### ABSTRACT

The nature made world is gradually eyeing towards plant based natural system of medicine like Ayurveda. The novel healing approach of Ayurveda founded on evidence based fundamental approaches are gaining interest of the scientific communities globally. There are various interesting therapies are in the ocean of Ayurveda, still looking for scientific exploration in order to serve the people worldwide. The plant Rohitaka botanically identified as *Tecomella undulata* Sm. which is commonly distributed in drier part of North-West and western India, is such an example. The present review aimed to analyze the ancient therapeutic uses of Rohitaka mentioned in classical texts of Ayurveda and systematically categorized them in term of contemporary practices. The review suggests that in spite of various published study there are still scope of exploration different novel use of Rohitaka mentioned in classical Ayurveda texts. The present reviews may perform an optimistic role for Researcher, Physician and Industries. It may also provide the future leads and scope for drug development and product marketing.

**KEYWORDS :** Plants, Rohitaka, Hepatic, *Tecomella*, Traditional

### INTRODUCTION

Latest decade have professed remarkable growth in demand of plant based medicine and herbal product in International market. Contemporary data shows that medicinal plants accounts for nearly 70% by worth of the total raw material procured by Ayurvedic companies. The time honored Ayurveda science has gained its importance in the global arcade due to its unique healing approaches. The ancient fundamental base of Ayurveda for novel therapeutic applications of nature based medicine is now the point of attraction of the scientific communities.<sup>[1-6]</sup>

The plant *Rohitaka* is a small tree up to 8 m high with drooping, hairy branches; botanically identified as *Tecomella undulata* Sm. which is commonly distributed in drier part of North-West and western India; extending from western arid/semi-arid parts of Gujarat, Rajasthan, Delhi, and Punjab to eastwards in parts of Uttarpradesh, Bihar along the river Yamuna ascending up to an altitude of 1200m.<sup>[7-9]</sup>

*Rohitaka* is described in *Atharvaveda* as a plant used for *Yagy Karma* (ritual purpose). Similarly its wood was used for making stick for *Upanayana Sanskar* (oath ceremony) of Kings. (*Pai.sam-9/7/13*). The wood of *Rohitaka* was used for lighting fire by rubbing. In Ayurveda *Rohitaka* is famous for treating liver related disorders. It is described as a liver and spleen tonic and indicated in the case of hepatomegaly.<sup>[10]</sup> Various isolated chemical compounds of *Rohitaka* have also been documented.<sup>[11-12]</sup> Classical text books of Ayurveda *Nighantus* (lexicons) are also widely prescribed this plant in the conditions like *yakrutadaliudara*, *kamala*, *kumbha kamala*, *panaki* etc. (disorders associated liver and spleen pathophysiology).

The present review aimed to analyze the ancient therapeutic uses of *Rohitaka* mentioned in classical texts of Ayurveda and systematically categorized them in term of contemporary practices.

### POLEMIC ASPECTS OF ROHITAKA:

The term *Rohitaka* is found in various classical texts of Ayurveda. The confusion arises when in *Charaka Samhita*<sup>13</sup> Chapter of *Chikitsa Adhyaya*, *Rohitaka Lata* (climber or

creeper) is mentioned. While in *Nighantus* (like *Shodhanighantu*, *Kaivedanighantu* and *Raja Nighantu*) two varieties of *Rohitaka* i.e. *Rakta* and *Sweta Rohitaka* are mentioned, which is also creates controversy about accurate and genuine source of both varieties of *Rohitaka*. But the identity of *Rohitaka* is clearly indicated in its descriptive names given in classics, such as *Dadimchhada* and *Dadimpushpaka* (leaves and flower are similar like *Dadima-Punicagranatum* L.). But due to its distribution only in western parts of India and non-availability to other parts practices of substitution with *Aphanamixis polystachya* (Wall.) R. Parker and other species also creates controversy in therapeutic uses of original species. Similarly *Parijata* the name given by Bopadeva as synonyms of *Rohitaka* also a cause of controversy because *Parijata*, *Parijata* and *Paribhadra* appear to be synonyms and may be identified with species of *Erythrina* (*Erythrina variegata* L.). Nowadays maximum number of scholars are agreed *Tecomella undulata* (Sm.) Seem. as the genuine botanical source of *Rohitaka* and it is also mentioned in Ayurvedic Pharmacopoeia of India (API). The name of *Rohitakalata* in *Charaka Samhita*, appears to indicate the use of thin hanging branches of *Tecomella undulata* (Sm.) Seem. The other species which are available in markets of different parts of country are given in the table (Table-1), those are used due to non-availability of *Tundulata* everywhere and those are establishing as substitute and adulteration of genuine source.<sup>[13-14]</sup>

**Table- 1. Different regional source of Rohitaka:**

S. No.	Latin name	Family	Place where used
1.	<i>Aphanamixis polystachya</i> (Blatter)	Meliaceae	Bengal
2.	<i>Mabanigrescens</i> Dalz and Gibs	Ebenaceae	Mumbai
3.	<i>Ventilago madraspatana</i> Gaertn.	Rhamnaceae	Dang, Pavagadh
4.	<i>Polygonum glabrum</i> Willd.	Polygonaceae	Mahabaleshwar, Pavagadh
5.	<i>Myristica attenuate</i> Wall	Myristicaceae	North Kanara
6.	<i>Rhamnus wightii</i> Wight & Arn.	Rhamnaceae	Nilgiris
7.	<i>Tecomella undulata</i>	Bignoniaceae	Rajputana, Ratlam

**Table-2: Rasapanchaka(pharmacological traits) of Rohitaka:**The basic fundamental properties of Rohitaka as mentioned in Ayurveda as bellow-

Sl. No	Traits	Entities
1.	Rasa (taste)	Katu (pungent),Tikta (bitter), Kashaya(astringent)
2.	Guna(virtue)	Sara (movable), Snigdha (unctuous)
3.	Veerya(potency)	Sheeta(cold)
4.	Vipaka(metabolism)	Katu(pungent)
5.	Prabhava	Pliaghna(cure spleen disorders)
6.	Dosh Karma (action)	Kaph Pitta Nashaka

**Table-3. Sansthanik karma of Rohitaka:**Specific system wise pharmacological actions of Rohitaka in Ayurveda:

Doshakarma (action)	Kaphapittashamaka
Sansthanik karma (external action)	Chakshushya (eye protective),Vranaropana(wound healing)
Pachansansthana (digestive system)	Deepan (carminative),Pachan (digestive),Anulomana (laxative),Krimighna(anthelmintics)
Rasvahasansansthana (lymphatic system)	Hridya(cardioprotective)
Mutravahasansansthana (urinary system)	Mutrasangrahaniya (regulator urine),Kaph- ittajprameha (diabetes)
Raktavahasansansthana (haematological saytem)	Plihasankochaka (spleen ailment),Rakta-shodhaka(blood purifier)
Prajanansansthana (genial system)	Yonishravrodhaka (control abnormal discharge)
Satmikarana(habitual)	Lekhana (scrapping), Vishaghna (antidote)

**THERAPUTIC APPLICATIONS OF ROHITAKA IN DIFFERENT CLASSICAL TEXTS OF AYURVEDA:** Rohitaka described under different multi-ingredients formulations (yoga) are listed in table (Table-4).

**Table-4. Formulations (yoga) of Rohitaka mentioned in CharakaSamhita:**<sup>[15]</sup>

S. No.	Name of Yoga	Indications	Dosage form	Reference
2.	Rohitkadiyog	Udarroga (gastric disorders)	Decoction	Ch.chi 13/81-84
3.	Rohitakghrita	Udarroga (gastric disorders)	Ghee	Ch.chi 13/83-85
4.	Triphaladikwath	Udarroga (gastric disorders)	Decoction	Ch.chi 13/149
5.	UdumbaradiLeha	Hridrog (heart disease)	Avaleha	Ch.chi 26/98
6.	Rohitakkalka	Sweta-Pradar (leucorrhoea)	Paste	Ch.chi. 30/116
7.	Kampilladi Yoga	Prameha (diabetes)	Powder	Ch.chi 6/35

Note: Ch.-CharakaSamhita, chi- Chikitsasthan

**Table-5. Formulations (yoga) of Rohitaka mentioned in SushrutaSamhita:**<sup>[16]</sup>

S. no.	Name of Yoga	Indications	Dosage form	Reference
1.	Bhallatkadimantha	Mahakustha (skin disease)	Mantha	Su.chi. 10/4
2.	Kutajkapitha dikashaya	Prameha (diabetes)	Kwath	Su.chi.11/8
3.	RasakriyaAnjan	KachRoga (eye disease)	Anjan	Su.U. 17/41

Note: Su.-SushrutaSamhita, chi- Chikitsasthan, U-Uttar tantra

**Table-6. Formulations (yoga) of Rohitaka mentioned in AstangaSamgraha:**<sup>[17]</sup>

S. No.	Name of Yoga	Indications	Form of drug	Reference
1.	RohitkyadiAvleha	Hridrog (heart disease)	Avaleha	A.sam.c hi. 8/33
2.	Salsaptaparnyadichurna	Prameha (diabetes)	Powder	A.sam.c hi. 14/5
3.	Triphaladantyadighrit	Udarroga (gastric disorder)	Ghee	A.sam.c hi 17/12
4.	Rohitakshatpalghrita	Udarroga (gastric disorder)	Ghee	A.sam.c hi 17/34
5.	Rohitakghrita	Udarroga (gastric disorder)	Ghee	A.sam.c hi 17/35
6.	Rohitkadi yoga	Udarroga (gastric disorder)	Hima	A.sam.c hi 17/36
7.	Bhunimbadiichurna	Kustha (skin disease)	Powder	A.sam.c hi 21/40
8.	Rohitakjatakalka	Pradar (leucorrhoea)	Paste	A.Sam.U . 39/73

Note: A.sam.-AstangaSamgraha, chi- Chikitsasthan, U-Uttar tantra

**Table-7. Formulations (yoga) of Rohitaka mentioned in AstangaHridaya:**<sup>[18]</sup>

S. No.	Name of Yoga	Indications	Forms of drugs	Reference
1.	Rohitka dikwatha	Hridrog (heart disease)	Decoction	A.Hri.chi. 6/53
2.	Pramehanashak yoga	Prameha (diabetes)	Powder	A.Hri.chi. 12/16
3.	Rohitakghrita	Udarroga (gastric disorders)	Ghee	A.Hri.Chi. 15/91-94

Note: A.Hri.-AstangaHridaya, chi- Chikitsasthan, U-Uttar tantra

**Table-8. Formulations (yoga) of Rohitaka mentioned in KashyapaSamhita:**<sup>[19]</sup>

S. No.	Name of Yoga	Indications	Dosage form	Reference
1.	Rohitk adikwatha	Pleehadoshasa manartha	Decoction	Katutailakalpa/ 10
2.	Parijat kshara	Pleehadoshasa manartha	Kshara	Katutailakalpa/ 16.17

**Table-9. Formulations (yoga) of Rohitaka mentioned in SharnagadharaSamhita:**<sup>[20]</sup>

S. No	Name of Yoga	Dosage form	Reference
1.	Pathyadikwath	Decoction	Sha.sam.ma.kh. 2/121
2.	Rohitakarista	Arista	Sha.sam.ma.kh. 12/73-76

Note: Sha. sam. ma. kh.- Sharangadhar Samhita Madhyam Khanda.

**Table-10. Formulations (yoga) of Rohitaka mentioned in Yog-RatnakarSamhita:**<sup>[21]</sup>

S. No.	Name of Yoga	Indications	Form of drug	Reference
1.	Kampilladi churna	Prameha (diabetes)	Powder	Prameh chi.
2.	Rohitakabhaya kalka	Udarroga (gastric disorders)	Paste	Plihodarudar chi.
3.	Maharohitakghrit	Udarroga (gastric disorders)	Ghee	Udar chi.
4.	Rohitakmoolkalk	Pradar (leucorrhoea)	Paste	Pradar chi.

Note: chi- Chikitsasthan.

**Table-11. Formulations (yoga) of Rohitaka mentioned in Chakradutta:<sup>[22]</sup>**

S. No.	Name of Yoga	Indications	Dosage form	Reference
1.	Kampilladi churna	Prameha (diabetes)	Powder	Ch.da. 37/46 /20
2.	Rohitakabhaya churna	Udarroga (gastric disorders)	Powder	Ch.da. 37/46
3.	Rohitakabhaya kwath	Plihayakrit chi. (liver & spleen ailment)	Decoction	Ch.da.38/4
4.	Rohitakharita kiprayog	Plihayakrit chi. (liver & spleen ailment)	Powder	Ch.da.38/13
5.	Rohitakghrit	Plihayakrit chi. (liver & spleen ailment)	Ghee	Ch.da.38/38-40
6.	Maharohitakghrit	Plihayakrit chi. (liver & spleen ailment)	Ghee	Ch.da 38/41-48.
7.	Rohitakkalk	Pradar chi. (spleen ailment)	Paste	Ch.da-61/4.

Note: Ch. da-Chakra dutta.

**Table-12. Formulations (yoga) of Rohitaka mentioned in Vangasena Samhita:<sup>[23]</sup>**

S. No.	Name of Yoga	Indications	Dosage form	Reference
1.	Kampilladi churna	Prameha (diabetes)	Powder	Vang.se. 38/52
2.	Rohitakharitakalk	Udarroga (gastric disorders)	Paste	Vang.se. 40/47
3.	Rohitakghrit	Udarroga (gastric disorders)	Ghee	Vang.se. 40/79-82
4.	Rohitakkalk	Pradar (leucorrhoea)	Paste	Vang.se.69/32

Note: Vang.se.-Vangasena Samhita

**Table-13. Formulations (yoga) of Rohitaka mentioned in Gadanigraha:<sup>[24]</sup>**

S. No.	Name of Yoga	Indications	Dosage form	Reference
1.	Rohitakghrit	Kustha (skin disease)	Ghee	Ga.ni.pra.kha.1/58-60
2.	Rohitakghrit	Udarroga (gastric disorders)	Ghee	Ga.ni.pra.kha 1/176-182
3.	Ayorajchurna	Udarroga (gastric disorders)	Powder	Ga.ni.pra.kha 3/411-421
4.	Rohitakvatak	Udarroga (gastric disorders)	Tablet	Ga.ni.pra.kha 4/70
5.	Rohitakavaleha	Hridrog (heart disease)	Avleha	Ga.ni.pra.kha 5/105-106
6.	Rohitakasava	Pradar (leucorrhoea)	Asava	Ga.ni.pra.kha 6/115-117
7.	Rohitakasava	Prameha (diabetes)	Asava	Ga.ni.pra.kha.1/58-60
8.	Kampilladichurna	-	Powder	Ga.ni.pra.kha 6/337-341.
9.	Rohitakabhaya pr ayog	Prameha (diabetes)	Powder	Ga.ni.dwi.kh. 30/55
10.	Rohitakakrisnapr ayog	Udarroga (gastric disorders)	Powder	Ga.ni.dwi.kh 2/32/66-68

11.	Haritaki Rohitakya divati	Udarroga (gastric disorders)	Tablet	Ga.ni.dwi.kh 2/32/90
12.	Rohitakabhaya pr ayog	Udarroga (gastric disorders)	Tablet	Ga.ni.dwi.kh 2/32/112
13.	Rohitakghrit	Udarroga (gastric disorders)	Ghee	Ga.ni.dwi.kh 2/132/134

Note: Ga.ni.pra.kha-Gadanigraha Samhita Pratham Khanda, Dwi-dwitiya.

**Table-14. Formulations (yoga) of Rohitaka mentioned in Bhaishajyaratnavali:<sup>[25]</sup>**

S. No.	Name of Yoga	Indications	Dosage form	Reference
1.	Nidigdhikakwath	Kustha (skin disease)	Ghrit	Bhai.Ra. 5/44
2.	Panchgavyaghrit	Udarroga (gastric disorders)	Ghrit	Bhai.Ra. 25/40
3.	Rohitakkalk	Udarroga (gastric disorders)	Churna	Bhai.Ra. 40/26
4.	Rohitabhayakwath	Udarroga (gastric disorders)	vatak	Bhai.Ra. 40/10-11
5.	Rohitakghrit (mahat)	Kaphaj Hridrog	Avleha	Bhai.Ra. 40/23-40
6.	Rohitakarista	Udarroga (gastric disorders)	Arista	Bhai.Ra. 40/235-238
7.	Rohitak Prayog	Plihayakrit chi. (liver & spleen ailment)	churna	Bhai.Ra. 41/15
8.	Rohitakvati	Plihayakrit chi. (liver & spleen ailment)	Vati	Bhai.Ra. 41/22-24
9.	Plihashardul Ras	Plihayakrit chi. (liver & spleen ailment)	Ras	Bhai.Ra. 41/99-104
10.	Rohitak Lauh	Plihayakrit chi. (liver & spleen ailment)	Vati	Bhai.Ra. 41/117
11.	Nyagrodhadya Ghrit	Plihayakrit chi. (liver & spleen ailment)	Ghrit	Bhai.Ra. 66/93-99

Note: Bhai. Ra.-Bhaishajyaratnavali.

**DISCUSSION:**

Ayurveda explains multi-dimensional therapeutics applications of Rohitaka (Table-3-13). While analysis such indications some interesting novel applications are also need to be brought for exploration. It is mentioned in classic that stem bark of Rohitaka should be kept in decoction of Haritaki or cow urine for a week and the extract is taken to alleviate jaundice (Kamala), Gulma, Prameha, Piles (Arsha), Pleeha (spleenomegaly) and other Udara (enlargement of abdomen) and worms. During the course of the treatment meat-soup of wild animals should be taken. (Ch.Chi.13/81-82 & A.H.Chi. 15/91-92). Intake of cow's urine or water impregnated with powder of Rohitaka and Haritaki alleviates all types of abdominal enlargement (Udara) including Pleehodara (spleen enlargement), Prameha, Arsha, Krimi and

*Gulma*. (VM.-37/51). One suffering from *Prameha*(diabetes) caused by *Kapha* and *Pitta* should take powdered flowers of *Kampillaka*, *Saptaparna*, *Shala*, *Vibhitaki*, *Rohitaka*, *Kutaj*and *Kapiththa* with honey. (Ch.Chi. 6/35). For both and internal administration, *Khadira*, *Aragvadhā*, *Arjuna*, *Rohitka*, *Lohra*, *Kutaja* and *Kapiththa* with honey should be taken, that may alleviate *Kushtha* (skin disorders) (Ch.Chi. 7/129). According to *Chakradutta* *Rohitaka* is drug of choice in liver disorders and *Vrana*. (C.D. 321). He also explained internal administration of paste of root of *Rohitaka* (*Rohitaka* *Mool* *Kalka*) is beneficial for *Pandu* (anaemia). (C.D. 30/116).<sup>[26-27]</sup>

Various studies have also established its multidimensional pharmacological properties like-Antibacterial, antifungal, antiviral, antifertility, hypoglycaemic, CNS depressant, anticancer, hepatoprotective, hypotensive, muscle relaxant, cardiac depressant, diuretic, analgesic etc.. The researchers opined that the hepatoprotective activity of *Rohitaka* possibly may be a result of the presence of flavonoid compounds.<sup>[27-31]</sup>

In spite of various published study there are still scope of exploration different novel use of *Rohitaka* mentioned in classical Ayurveda texts. The present reviews may perform an optimistic role for Researcher, Physician and Industries. It may also provide the future leads and scope for drug development and product marketing.

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