

Critical Review of *Manjishtha (Rubia Cordifolia Linn.)*

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ABSTRACT

In the present chapter, entire review of the drug Manjishtha (*Rubia Cordifolia Linn*) has been taken right from Vedic era till date. Historical Background, botanical Description, Pharmacological actions, Therapeutic Indications & update Research work has been mentioned in detail. In Charaka samhita Manjishtha is mentioned in 3 different Mahakashaya. Manjishtha is one of content of Varnya Mahakashaya. It is widely used, till today, in various skin disorders like erysipelas, eczema, acne, scabies, recurrent skin infections and allergic manifestations. *Rubia cordifolia* has been reported to contain a wide range of antioxidants and have been in practice in the ancient eastern system of medicine to cure various disorders.

KEYWORDS: *Manjishtha, Varieties, Classical references, Varnya*

INTRODUCTION

Manjishtha has been mentioned in Rigveda by the synonym “Lohini- Daurbhavati” yatha Manjishtha in Etareyanyaka [3/2/4116]. Manjishtha has been mentioned in shakhayana bramhan [7/7], Hiranyakaushikshrot sutra [26/1/13], Kaushuk sutra [38/9], Kaudhrum sutramagha sutra [2/1/19], Ashwalayanghriha sutra [1/19/9], Varahadharmasutra [11/65], and Gautama sutra [1/21], Atharva parishishtha [58/1/7].

Table No.1: Manjishtha in Vedic Era

Sr.no	Vedic Era	Reference
1	Etareya aranyaka	3/2/4/16
2	shakhayana bramhan	7/7
3	Hiranyakaushikshrot sutra	26/1/73
4	Kaushuk sutra	38/9
5	Kaudhrum sutramagha sutra	2/1///19
6	Ashwalayanghriha sutra	1/19/9
7	Varaha dharmasutra	11/65
8	Gautama sutra	1/21
9	Atharva parishishtha	58/1/7

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A. Manjishtha in Samhita: (Bruhaytrayi)

Manjishtha has been mentioned in bruhatatrayi for both preventive & curative purpose. It is mainly indicated as **Varnya**, Rasayan, Svarya etc.

1. Charaka Samhita: (1000 B.C.)

Manjishtha has been described in 3 of the Mahakashayas in CharakSamhita.

Varnya [Cha.Su.4/8], Vishaghna [Cha.Su.4/16], Jwarahar [Cha.Su.4/39]. Charaka included Manjishtha in Tikta-Sknada [Cha.Vi.8/142].

CharakSamhita quoted the Rasayan property of Manjishtha in one of the Basti formulation. Charak illustrate therapeuticaction of manjishtha in various diseases like Raktapitta, Kushtha, Unmad, Shotha, Grahani, Pandu, Shwas, Vattavyadi, Mukhroga, Shiroroga etc.

Manjishtha has been mentioned in whole charak Samhita 43 times for different therapeutic action. Varnya action mentioned 18 times in Charak samhita.

Table No.2: Varnya References of Manjishtha:

Sr.no	Reference	Adhikar	Yoga name/Formulation (Manjishtha is one of its contents)
1	Cha.Su. 4/8		Varnya Mahakashaya
2	Cha.Su. 4/16		Vishagna Mahakashaya
3	Cha.Su. 4/39		Jwarahar Mahakashaya
4	Cha. Chi. 3/257	Jwara	Chandanadya Taila
5	Cha. Chi. 7/65	Kushtha	Mustadi Churna
6	Cha.Chi. 7/100	Kushtha	Triphaladi Kashaya
7	Cha. Chi. 7/120	Kushtha	Vipadikahar Lepas
8	Cha. Chi. 16/105	Pandu	Gaudarishtha
9	Cha. Chi. 25/112	Vrana	Twacha shuddikar Lepa
10	Cha. Chi. 26/236	Netraroga	Pittajnetravikarhar Lepa
11	Cha.Chi.28/149,161	Vatavyadhi	Bala Taila
12	Cha. Chi.29/93	Vatarakta	Madhuparnyadi Taila
13	Cha. Chi.29/107	Vatarakta	Amrutadi Taila
14	Cha. Chi.29/113	Vatarakta	Mahapadma Taila
15	Cha. Chi.29/114	Vatarakta	Bala Taila
16	Cha. Chi.29/123	Vatarakta	Khuddak padmak Taila
17	Cha. Chi.29/134	Vatarakta	PindaTaila
18	Cha. Si.12/19	Rasayana	Anuvasan Basti

Manjishtha has been mentioned 25 times for other therapeutic actions including with Adho, Madhya, Urdhwabhag diseases.

Table No.3: Other references of Manjishtha:

Reference	Total in no.	Reference	Total in no.
Cha.Ni.4/29	1	Cha.Sha.8/54	1
Cha.Chi.6/39	1	Cha.Chi.14/160	1
Cha.Chi.8/145	1	Cha.Chi.15/148, 159	2
Cha. Chi.9/43,75	2	Cha.Chi.17/145	1
Cha.Chi.11/44	1	Cha. Chi.21/75	1
Cha.Chi.12/67	1	Cha.Chi.23/50,79,185	3
Cha.Chi.26/207,232, 268	3	Cha.Si.3/46	1
		Cha.Si.12/27,56	2
Cha.Chi.30/275	1	Cha.Si.20,41	2

2. Sushruta Samhita (1000B. C.)

Manjishtha is included Priyngwadi Gana for vranaropan property in Dravyasangrahaniya Adhyaya with synonym 'Samanga' [Su.Su.38/45]. Sushruta samhita quoted Manjishtha in pitta Samshaniya Dravyas in Samshodhanasamshamaniya Adhyaya [Su.Su.39/8]. In Sushrutasmhita Manjishtha has been mentioned useful in various diseases like Saddyovrana, Bhagna, Prameha, Kasa, Atisara, Apasmar, Mudgarbha, Mukharoga, Drushtiroga, Karnaroga etc. in the form of Churn Taila/Ghruta/Lepa.

In whole Sushruta Samhita, Manjishtjha has been mentioned 53times for its various actions.

Table No.4: Varnya References of Manjishtha:

Sr.no	Reference	Adhikar	Yoganame/Formulation (Manjishthaisoneofits content)
1	Su.Su12/26	Agnidagdhvran	
2	Su.Su.39/8	Pittasanshamn	
3	Su.Chi.3/13	Saddyovrana	Samangadi Taila
4	Su.Chi.2/83	Saddyovrana	Manjishtha Taila
5	Su.Chi.3/7	Bhagna	BhagnaPrasadakTaila
6	Su.Chi.9/47	Kushtha	Mahavajrak Tila
7	Su.Chi.9/59	Kushtha	Mahavajrak Tila
8	Su.Chi.17/8	Visarpa	Kaservadi Taila
9	Su.Chi.37/37	Vatavyadhi	Bala Taila
10	Su.U.18/100	Drushtiroga	Lepa

Table No.5: Other references of Manjishtha:

Reference	Total in no	Reference	Total in no
Su. Su.16/5	1	Su.Chi.25/16,20,38	3
Su.Su.38/45	2	Su.Chi.37/17	1
Su.Su.39/7	1	Su.Chi.38/26,50,52,54,105	5
Su.Sha.10/57	1	Su. Ka.6/3,8	2
Su.Chi.3/58	1	Su. Ka.7/22	1
Su.Chi.6/9	1	Su.U.9/12	1
Su.Chi.7/35	1	Su.U.12/12	1
Su.Chi.8/40, 41	2	Su.U.17/89	1
Su.Chi.11/8	1	Su.U.21/48	1
Su.Chi.15/31	1	Su.U.30/5	1
Su.Chi.16/14,18	2	Su.U.39/225,244,251,281,305	5
Su.Chi.22/32	1	Su.U.40/19,69, 121	3
Su.U.52/23	1	Su.U.60/43	1
Su.U.61/31	1	Su.U.62/22,27	2

3. Ashtanga Hrudaya (700 A.D.):

Vagbhatacharya included the Manjishtha in Priyangvaddi and Ambashthadi ganas for its Pittshamaka, Vranaropaka, Pakvatisaranashanaproperty. [A.H.15/37,38,39] References for its action on various diseases like Kasa, Prameha, Gulma, Shotha, Unmada, Mukharoga, Shiroroga, Karnaroga and Netraroga are also found. It has been included as an important dravya in treatment of Kshudraroga.

Acharya Vagbhata has mentioned Manjishtha in whole Samhita for 44 times.

Table No.6: Varnya References of Manjishtha:

Sr.no	Reference	Adhikar	Yoga nama/Formulation (Manjishtha is one of its contents)
1	A.H.Chi.13/4	Vidradhi	Kwatha
2	A.H.Chi.18/14	Visarpa	Lepa
3	A.H.Chi.19/50	Kushtha	Mustadi Churna
4	A.H.Chi.19/77	Kushtha	Siddha Sarjarasa
5	A.H.Chi.21/60	Vatavyadi	Prasarnitaila
6	A.H.Chi.21/65	Vatavyadi	Siddhataila
7	A.H.Chi.21/75	Vatavyadi	Balataila
8	A.H.Chi.22/22	Vatashonit	Prapaudarikadi Taila
9	A.H.U. 22/28	Vatashonit	Siddhataila
10	A.H.U. 22/44	Vatashonit	Siddhataila
11	A.H.U. 32/16	Kshudraroga	Churna/Lepa
12	A.H.U. 32/17	Kshudraroga	Lepa
13	A.H.U. 32/28	Kshudraroga	Kunkumadi Taila
14	A.H.U. 32/31	Kshudraroga	Pathadi Churna

Table No.7: Other references of Manjishtha:

Reference	Total in no.	Reference	Total in no.
A.H.Sha.1/61	1	A.H.U.13/4,93,	2
A.H.Sha.2/48	1	A.H.U.14/25	1
A.H.Chi. 3/102	1	A.H.U.18/8,21,44,47	4
A.H.Chi. 5/71	1	A.H.U.22/85,92,	2
A.H.Chi. 10/48	1	A.H.U.25/60,67	2
A.H.Chi. 11/59	1	A.H.U.30/34	1
A.H.Chi. 12/18	1	A.H.U.34/63	1
A.H.Ka.4/37	1	A.H.U.36/59,65,	2
A.H.U.5/10,45	2	A.H.U.37/38,71	2
A.H.U.6/27	1	A.H.U.38/18	1

4. Ashtanga sangraha (600 A.D.):

Ashtanga Sangraha quoted the specific reference of Manjishtha against the Vyanga. [A.S.U.37/24] Ashtanga Sangraha mentioned the Manjishtha as Prayogic Dhum, Vamanopag, and Pittagna Dravya in shodhanadi Gana Sangraha Adhya. Ashtanga Sangraha includes Manjishtha in Varnya, Vishagna, Jwarahar as well as Sandhaniya Mahakashyaya. Manjishtha has been mentioned 24 times for its therapeutic uses in Ashtanga Sangraha.

Table No.8: Varnya References of Manjishtha:

Sr.no	Reference	Adhikar	Yoga/Formulatio (Manjishtha is one of its contents)
1	A.S. Su.14/7	Pittagna	
2	A.S. Su. 15/10	Varnya	
3	A.S. Chi.3/45,73	Raktapitta	Kwatha
4	A.S. U.37/24	Vyanga	Lepa

Table No.9: Other references of Manjishtha:

Reference	Total in no.	Reference	Total in no.
A.S. Su.14/2,6	2	AS.Chi.3/102	1
A.S.Su.15/7,18 28,35	2	A.S.Chi.5/71	1
A.S. Su.16/31	1	A.S.Chi.6/67	1
A.S.Chi.2/21,60,110,124,	4	A.S.Chi.10/22,34,35,36,38,39,41,	7

In Laghutrayi:**1. Madhava Nidana (700 A.D.):**

As Madhavanidana specially comments on diagnosis of diseases, it has not described properties and uses of any herb. So Manjishtha is not mentioned in Madhavanidana Samhita.

2. Sharangadhara Samhita (1300 A.D.):

Descriptions of various Bhaishajya Kalpana are described in Sharangadhara Samhita. Sharangadhara has been mentioned Manjishtha 4-times under the Lepa kalpana. Manjishtha is mentioned in all types of formulations like Churna (Pratisaran), Taila (Chandanadi), Ghrita (Mahatiktaka), Asawa (Ushirasava), Arishta (Dashamularishta), Gutu (Kaishor guggulu), etc. Manjishtha has been mentioned 18 times in Sharangadhara Samhita.

Table No.10: Varnya References of Manjishtha:

Sr.no	Reference	Adhikar	Yoga nama/Formulation (Manjishtha is one of its contents)
1	Sha.Ma.7/77	Kushtha	Gutu
2	Sha.Ma.9/46	Kushtha	Mahatiktaghrita
3	Sha.Ma.9/53	Dadru, Kushtha	Kasisadighrita
4	Sha.Ma.9/58	Vrana	Jatyadighrita
5	Sha.Ma.9/115	Vattavyadhi	Baladitaila
6	Sha.Ma.9/146	Vatarakta	Pinataila
7	Sha.Ma.9/169	Dushthavrana	Jatyaditaila
8	Sha.Ma.10/113	Raktapitta	Ushirasava
9	Sha.U.13/10	Vattabhishyanda	Erandadiyoga

Table No.11: Other references of Manjishtha:

Reference	Total in no.	Reference	Total in no.
Sha.Ma.9/39,99,165,191,204	5	Sha.Ma.11/96,148	2
Sha.Ma. 10/18,53,81	2		

3. Yogaratnakar: (1700 A. D.)

Yogaratnakar, which is the minor image of Charakasamhita, throws light upon curative aspect of diseases providing different types of formulations of Manjishtha. Manjishtha has been included for 51 times in various formulations given in Yogaratnakara.

Table No.12: Varnya References of Manjishtha:

Sr.no	Reference	Adhikar	Yoga /Formulation(Manjishtha is one of its contents)
1	Y.R. 2/22	Saddyovrana	Gauradi Ghrita
2	Y.R. 2/23	Saddyovrana	Jatyadi Taila
3	Y.R. 2/30	Kushtha	Navaka Kashaya
4	Y.R. 2/30	Kushtha	Mahakashaya
5	Y.R. 2/30	Kushtha	Sarhapadi Churna
6	Y.R. 2/30	Kushtha	Majishthadi Taila
7	Y.R. 2/30	Kushtha	Vishataila
8	Y. R.2/33	Visarpa	Triphaladi Lepa
9	Y. R.2/33	Visarpa	ManjishthaAbhaya Lepa
10	Y.R.2/36	Masurika	Nyagrodadi Lepa
11	Y.R.2/37	Kshudraroga	Lepa
12	Y.R.2/37	Kshudraroga	Kunkumadi Taila
13	Y.R.2/37	Kshudraroga	Khadiradi Taila

Table13: Frequency of references of Manjishtha in Yogaratnakara:

Sr. no	Therapeutic Activity	Frequency
1	Vatarakta	7
2	Prameha	1
3	Shlipada	1
4	Vrana	5
5	Jwara	8
6	Atisara	2
7	Rajyakshma	3
8	Unmada	2
9	Vataroga	8
10	Mukharoga	1

5. Bhavaprakasha Samhita:

Bhavaprakasha mentioned therapeutic uses of Manjishtha in various diseases like Kushtaha, Prameha, Pakvatisara, Unmada, Apasmara, Vishamjvara etc. Manjishtha has been mentioned in Bhavaprakasha Samhita for 14 times.

Table no. 14: Varnya reference of Manjishtha:

Sr.no	Reference	Rog adhikara	Yoga nama/Formulation (Manjishtha is one of its contents)
1	Bh.P.M.Kha. shlok.72-88	Kushtha	Amritbhalatak-avleha
2	Bh.P.M.Kha. shlok.39-44	Vyanga	Lepa
3	Bh.P.M.Kha. shlok.129,133	Vrana, Vatarakta	Guduchi Taila
4	Bh.P.M.Kha. shlok.155	Vrana, Vatarakta,	Madhukadya Taila

Table no. 15: Frequency of Manjishtha references in Bhavaprakasha Samhita:

Sr.no.	Therapeutic Action	Frequency
1	Pakvatisara	1
2	Kasa,	1
3	Shvasa	1
4	Apasmara	3
5	Unmada	3
6	Vatavyadi	3
7	Gulma	1

6. Bhaishajyaratnavali:

Bhaishajyaratnavali is compilation of various formulations. Manjishtha has been used in number of formulations for different therapeutic purposes. Vajikarana, Vatahara, Pramehagna, Shothahara, actions of Manjishtha are mentioned in Bhaishajyaratnavali.

Manjishtha has been included for 64 times in various formulations given in Bhaishajyaratnavali.

Table No.16: Varnya References of Manjishtha:

Sr.no	Reference	Adhikar	Yoga nama/ Formulation(Manjishtha is one of its contents)
1	Bha.R.13/269	Raktapitta	Hribeadya Taila
2	Ba.R.60/33	Kshudraroga	Bhrigaraja Taila
3	Ba.R.60/143	Kshudraroga	Mahanila Taila
4	Ba.R.64/23	Netraroga	Drakshadi ashotana
5	Ba.R.64/119	Netraroga	Pathyadi Lepa
6	Ba.R.64/160	Netraroga	Churnanjana
7	Ba.R.64/256	Netraroga	Nripativallbha Taila/ Ghrita

Table17: Frequency of references of Manjishtha in Bhaishajyaratnavali:

Sr. no	Therapeutic activity	Frequency
1	Jwarahar	3
2	Atisara	2
3	Grahani	4
4	Pandu	1
5	Rajyakshma	3
6	Murchya	1
7	Unmada	3
8	Vatavyadhi	16
9	Hridroga	1
10	Vatarakta	3
11	Prameha	4
12	Shotha	1
13	Mukharoga	6
14	Shiroroga	2
15	Vajikarana	1

B. Manjishtha in Nighantu:

Nighantus are the collection of information about various synonyms, varieties, properties, action & indications of herbs, which are used in the management of diseases. Detail review of Manjishtha has been taken from the Nighantus right from Dhanvantari Nighantu up to the Paravarti.

1. Dhanvantari Nighantu (1000-1300 A.D.):

In this Nighantu, Manjishtha occupies its place under the Guduchyadi Varga. Approximately 18 synonyms are given for Manjishtha. Specific Varnya action is not mentioned but its Netrarogahara, Vishahara actions are mentioned.

2. Shodhala Nighantu (1200 A.D.):

Manjishtha is grouped in Shodhala nighantu under Guduchyadi varga. The synonyms & actions are similar to other diseases.

3. Madanpala Nighantu (1400 A.D.):

In this Nighantu, 14 synonyms are mentioned for Manjishtha. The properties & action are similar to the other texts.

4. Raj Nighantu (1500 A.D.):

Manjishtha is grouped under Pippallaydi Varga in Raja Nighantu. Total 30 Synonyms are mentioned here from which Chitralata, Kshetrino, Nagakumarika are different one. Chol, Yojani, Kaunchi, & Sihanhali are four varieties of Manjishtha also quoted by Raj-nighantu.

5. Kaiyadeva Nighantu (1500 A.D.):

In this text, Manjishtha is mentioned in Aushadhi Varga. Total 30 Synonyms are mentioned here from which Harini, Rasayani, Tamra are different. Yonirogahara & Ratatisaragna are two properties of Manjishtha mentioned in kaiyadeva Nighantu.

6. Bhavaprakasha Nighantu (1600A.D.):

In this classical text, Manjishtha has been placed in Haritakyadi Varga. Bhavaprakash Nighantu is known by the name 'Haritakyadi Nighantu'. Manjishtha is said to be Tikta, Kashya, Madhura rasa, Katu vipaka and Ushna

veerya. The properties are Guru, and pharmacological actions mentioned are Varnya, Swaraya and Chakshushya etc.

7. Nighantu Ratnakar (1900A.D.):

Manjishtha is discussed under Gandusha-Prakarana in this text. Varnya & other actions of Manjishtha are described as in other Nighantu.

8. Shaligrama Nighantu (1900 A.D.):

Manjishtha is described under Guduchyadi Varaga in this nighantu. 17 synonyms are given of which Manduka, Kandiri are different ones; It has mentioned Yakrut doshahara property of Manjishtha Fruit. Manjishtha root also effective in Charma, Vaivarnya, Tilakalaka diseases.

9. Nighantu Adarsha (2000 A.D.):

Total 8 Synonyms are mentioned here from which “Lohitalata” is Different.

10. Priya-Nighantu (2000 A.D.):

Priya nighantu classifies Manjishtha under Shatapushpadi varga.

C. Modern Period: (20th- 21st Century)

Indian Medicinal Plants (Dr. Kirtikar, K.R. & Basu, B.D.):

Family characters of Rubiaceae are described in this text. Vernacular names, morphology and microscopy of Manjishtha are described in detail under the family Rubiaceae.

1. Indian Materia Medica (Dr. K.M. Nadkarni):

This book places Manjishtha under the natural order Rubiaceae Along with various vernacular names, uses, actions etc.

2. Wealth of India – Raw materials, Vol. III (CSIR, New Delhi):

The text describes about the macroscopic characters, habitat & occurrence of Manjishtha. Natural regeneration & details of artificial regeneration, trade and commerce are given. Cultivation, propagation, disease & pests, storage are mentioned in detail.

3. Glossary of Indian Medicinal Plants (R. N. Chopra, S. L. Nayar, I. C. Chopra):

Botanical description, habitat and action are described.

4. Data Base on Medicinal Plants Used in Ayurveda, Vol. 5 pg. no.171-178. (K. V. Bill ore, M. B. Yelena, T. J. Dennis, B. G. A. S. Udhari):

Manjishtha has been described under the natural order, Rubiaceae. Besides the usual description; it gives details of pharmacognosy, physical constants, chemical constituents, pharmacological activities, therapeutic evaluation & toxicology Manjishtha. Propagation & cultivation are also described in detail. Important references of the experimental & clinical research are described.

5. The Ayurvedic Pharmacopoeia of India, Part 1, Vol. III (Department of AYUSH):

Detail description of Manjishtha root, stem fruit, leaf & seed is given in the text. It includes vernacular names, macroscopy, microscopy, properties, action, therapeutic uses & formulations.

6. Classical uses of Medicinal Plants (Dr. P. V. Sharma):

Therapeutic actions of Manjishtha in the classics are distinguished as per various diseases in this book. This is an important collection of references.

7. Dravyaguna Vidnyana [Dr. P. V. Sharma]:

This text gives detail review of Manjishtha regarding vernacular names, botanical description, chemical composition & action on different strotasa.

8. Dravyagunavidnyana [Vaidya V. M. Gogte]:

It explains internal uses of Manjishtha according to each strotasa in detail.

9. Dravyaguna Vidnyana Part I & II [Dr. A. P. Deshpande, Dr. Subhash Ranade]:

It describes therapeutic uses of Manjishtha in various diseases. It explains action of Manjishtha on various strotasa in detail. After the thorough review of Manjishtha from Vedic era up to modern period, the further detail description of Manjishtha has been given in the forthcoming pages.

Discussion**Nirukti (Etymological Derivation)**

It is a pleasant and beautiful in appearance.

Namarupavidnyana of Manjishtha:**Synonyms of Manjishtha:**

Total 50 synonyms of Manjishtha are mentioned in the nighantus. Among them, Manjishtha, Yojanvalli, Samanga, Vikasa, Bhandi are most commonly used.

Table no. 18: Synonyms of Manjishtha:

Sr. No.	Synonym	D. N.	M. N.	R. N.	K. N.	B. N.	N. A.	P. N.	Sh. N.
1	Manjishtha	√	√		√	√	√	√	√
2	Yojanavalli	√		√	√	√	√	√	√
3	Vikasa	√	√	√	√	√	√		√
4	Samanga	√	√	√	√	√	√		√
5	Kalmeshika	√	√	√	√	√			√
6	Bhandi	√	√	√	√	√			√
7	Jingi	√		√	√	√			√
8	Bhandiri			√	√	√	√		√
9	Raktangi	√	√			√			√
10	Rakta	√	√	√					√
11	Vijaya	√	√	√	√				
12	Vastrabhushana	√	√	√	√				
13	Raktayashtika		√	√	√	√			
14	Mandukparni				√	√			√
15	Gandiri				√	√			
16	Vastrarangini					√			√
17	Manjula		√		√				
18	Tamravalli		√		√				
19	Varahatri		√	√					
20	Chhadma		√	√					
21	Manjusha			√		√			
22	Gauri			√	√				
23	Kshetrini	√		√					
24	Kala	√							√
25	Yojanvallika				√				√
26	Kalmeshi	√					√		
27	Bhandi	√			√				
28	Raktyashti	√							√
29	Padma			√					
30	Rohini			√					
31	Aruna					√			
32	Harini			√					
33	Chitralata			√					
34	Gandali	√							
35	Kakamandika				√				
36	Nagkumarika			√					
37	Bhandirilata			√					
38	Ragadi			√					
39	Ragadya			√					
40	Rasayni				√				
41	Tamra				√				
42	Tamramula				√				
43	Manduka								√

44	Kandiri								√
45	Yojanparnika								√
46	Bhanditaki					√			
47	Manjuka	√							
48	Lohitlata						√		
49	Arunlatika							√	
50	Jwarahantri			√					

Vernacular Names:

1. Arabic: Fovvac
2. Asami: phuvva, Majathi
3. Bengali: Manjishtha, Manjit
4. English: Indian Maddar
5. Gujarathi: Manjitha
6. Hindi: Manjith, Majith
7. Kashmir: Faharghas
8. Kannada: Manjushtha, Siomalate, Siragatti
9. Latine: *Rubia cordifolia* Linn.
10. Malyalam: Manjethi, Poont
11. Marathi: Manjishtha, Manjestha
12. Oriya: Majistha, Barheripani
13. Persian: Runas
14. Panjabi: Manjatti, Kukarphadi
15. Sanskrit: Manjishtha
16. Sindhi: Majista, Velmadata
17. Tamil: Manjitti, Manjatte
18. Telagu: Tamravalli, Manjishtige
19. Urdu: Majeeth

Classification**A. Taxonomical Classification-**

Kingdom: Plantae

Division: Magnoliophyta Class: Magnoliophyta Order: Gentianales Family: Rubiaceae Genus: Rubia

Species: Cordifolia

B. Ayurvedic classification as per different texts:**Table.no.19: Classification as per Text:**

Sr. No	Samhita/Nighantu	Gana/Varga
	Charak Samhita	Varnya, Vishaghna, Jwarahara
2.	Sushruta Samhita	Priyangvadi Pittasanshamana
3.	Ashtanga Hrudaya	Priyagvadi Ambashthadi
4.	Ashtana Sangraha	PrayogicDhum Vamanopaga, Pittaghna, Varnya, Vishagna, Jwarahar, Sandhaniya, Mahakashyaya
5	Bhavaprakash Nighantu	Haritakyadi Varga
6	Dhanvantari Nihantu	Guduchyadi varga
7	Raj Nighantu	Pippalyadi Varga
8	Kaiyadeva Nighantu	Aushadi varga
9	Madanpala Nighantu	Haritakyadi Varga
10	Shaligram Nighantu	Guduchyadi varga

Propagation and Cultivation –

The plant is propagated from seeds and two-node cutting. The seeds are collected during December and January. It is preferable to use seed for large scale cultivation, considering cost factor and high rate of germination.

Nursery techniques- (Argo-techniques):

A. Raisin propagates- The planting stock may be raised in nursery in January through seeds. The seeds obtained from dried ripe black fruits are sown in nursery beds either in rows or randomly by

broadcasting. A thin layer of soil and organic manure spread over the seeds, and the beds are regularly watered. After germination, seedlings with two to three leaves are transplanted in polybags for establishment. The plant can also rise through cuttings containing two or three nodes, treated with commercially available rooting hormones or 3000 parts per million. Indole-3 butyric acid for rooting although, cuttings give 90 percent success, it is still preferable to take up large scale cultivation through seeds, which is economic and results in 80-85 percent germination within 20 days. Propagation rate and pretreatment- About 350 gm. Of seeds are required to raise a nursery for planting in hector of land. It is advisable to treat these seeds with 0.02 percent.

- B. Planting field-** The soil is properly ploughed, harrowed once or twice, planked lightly to make it porous and weed free. FYM @ 10 tones per hector and NPK @ 30:40:20 kg. Respectively are applied to soil as basal dose during land preparation.
- C. Transplanting and optimum spacing-** Seeding/ root cuttings are transplanted to the main field in April-May. An optimum spacing of 60 cm × 75 cm is recommended in field, which gives an optimum crop stand of 22,000 plants per hector.
- D. Intercropping system-** The plant is climber and may be intercropped with shrubby perennial species, support cropped.
- E. Harvest management- Crop maturity and harvesting:** *Rubia cordifolia* starts flowering after one year in August and seeds mature in October-November. Root can be harvested after 2 years at pre flowering stage in October or late fruiting stage by the end of November or even in early December when seed is required for next crop. The crop can, however, be allowed to stand in the field for 3 years.
- F. Post-harvest management-** The hard root is cut into small pieces and dried in shed. The dried root pieces are packed in gunny bags for storage in cool and dry place.

Yield and cost of cultivation about 3 tonnes of dry root is obtained per hector of cultivated crop. The estimated cost of cultivation for two-year crop is about Rs. 100,000 per hector.

Key characters of family Rubiaceae-

Rubiaceae family includes about 400 genera & 4800-5000 species of varied distribution in tropics, subtropics but mainly in temperate zone. Some species even grow in arctic countries. The family includes trees, shrubs, climbers & epiphytes.

Floral formula – $k(4-5) \text{ or } 0, C(4-5) A(4-5), G(1-8)$

Habit- Herbs, shrubs, or trees

Leaves- Opposite, simple with entire margin, interpetiolar stipules or stipules leaf-like to resemble whorled leaves

Flowers- Inflorescence cymose, or Solitary, actinomorphic. Sepals (4-5, fused at base.

Petals-4-5 fused, corolla often trumpet shaped.

Stamens- 4-5, inserted into corolla wall, as many as petals. Ovary- inferior, usually 2-carpellate, placentation axile

Fruit- Acapsule, drupe, berry or schizocarp, sometimes aggregate. Examples: bedstraw, madder (*Galium*, *Rubia*)

External morphology –

Manjishtha consists of dried stem of *Rubia cordifolia* Linn. (Fam. Rubiaceae); a perennial herbaceous prickly creeper or climber up to 10m long, found throughout the country ascending to 3750 m.

Stem:

Stem slender, more or less cylindrical, slightly flattened, wiry, about 0.5 cm thick, brown to purple coloured; surface scabrous, stiff and grooved with longitudinal cracks, fracture, short.

Root:

Root is cylindrical often surmounted by a knotty crown. About 1.5 to 4 cm in diameter and 2 to 9 cm in length, surface smooth rarely grooves often exhibiting lateral root scars. Dark reddish brown externally & internally, fracture short.

Leaf:

Leaves in whorl of 4, ovate, 4-9 × 1.5-3.5 cm, lower leaves longer than upper, scabrous above, margins with minute prickles, all 5-(rarely 7-) nerve from the base.

Flower:

Flower are Small, White, Greenish or in a shades of yellow, sweet-scented in terminal panicles of cymes.

Calyx: 4-5 usually insignificant gamocephalous homoseimofreceptaclessuperiorly.

Corolla:

4-5 lobes on the axis inside the rim generally funnel shaped hypocratariform or rotate, segments with valvate imbricate or twisted aestivation superior.

Androceim: Stamen as many as corolla lobes & alternating with them, insert on corolla tubes, anthers introse, 2 celled longitudinal dehiscent, superior.

Gynoceim: 1-8 carples, symcarpous ovary inferior rarely superior o. **Fruit:** Dedymuous or giobose, 4-6 mm in diameter, purplish black when ripe. **Seed:** Endospermic.

Pollination: By insects.

Macroscopic description:**Root:**

Root is cylindrical often surmounted by knotty crown. About 1.5 to 4 cm in diameter & 2 to 9 cm in length. Surface smooth rarely groove often exhibiting lateral root scars. Dark reddish brown externally & internally, Fracture short.

Stem: Stem slender, more or less cylindrical, slightly flattened, wiry, about 0.5 cm thick, brown to purple coloured; surface scabrous, stiff and grooved with longitudinal cracks; prickles present in the immature stem; nodes distinct having two leaf scars, one on either side; fracture, short.

Microscopic description:

Table no.20: Microscopic variation of Manjishtha root and stem

Character	T.S. of Manjishtha root	T.S. of Manjishtha stem:
Similar Structure	Cork (c), Cluster crystals of calcium oxalate (Clr), Acicular crystal (Ac), Cortex (Cr), Phloem (Ph), Vessel (V), Medullary rays (Mdr), Xylem (Xy)	Cork (c), Cluster crystals of calcium oxalate (Clr), Acicular crystal (Ac), Cortex (Cr), Phloem (Ph), Vessel (V), Medullary rays (Mdr), Xylem (Xy)
Different Structure		Pith (Pi)

Root:

In transverse section, the root is circular in outline. Outer 5-7 layers of cells from the cork tissue, occasionally containing tannin. Secondary cortical cells are thin walled and polygonal in shape. Many of these cells contain tannin. Phloem cells are thin walled, some of them contain tannin. Cambium is 2-3 layered. Secondary xylem consists of vessels and tracheids.

Stem:

Transverse section of mature stem shows exfoliating cork, ruptured at places, forming dome shaped structure, consisting of 3-12 or more radially arranged cells. Secondary cortex 3-5 layered consisting of tangentially elongated, thin walled cells, some of which contain acicular crystals of calcium oxalate whereas a few cells contain sandy crystals as black granular masses. Secondary phloem is a wide zone reddish colour composed of sieve elements and phloem parenchyma, a few cells containing sandy crystals of calcium oxalate. Secondary xylem is a continuous cylinder of reddish colour, composed of vessels, tracheids, fibres, xylem parenchyma. Vessels are pitted and show great variation in shape and size. Xylem fibres are thick-walled, long and short, with pitted thickenings. Pith consisting of thin walled, parenchymatous cells, a few containing sandy crystals of calcium oxalate.

Powder (stem)–

Pink; shows numerous fragments of cork, lignified xylem vessels, tracheids, and fibres with pitted and reticulate xylem parenchyma having red coloured contents; acicular and sandy crystals as black granular masses.

Varieties of Manjishtha**Table no. 21: Varieties of Manjishtha accordingly different text:**

Basedon distribution	Basedonquality (R. Nighantu)	Modern Medicine
Nepali	Chola	Rubia cordifolia
Irani	Yojani	Rubia tinctoria
Aphagani (Shreshtha)	Kouchi	Rubia peregrina
Hindustani (Kanishtha)	Sinhali	

Chemical composition:

Root: Free alizarin and its glucosides, pupurin, xanthopurpurin, munjistin, glucose, sucrose, ruarythric acid, pseudopurpurin, 1-4 dehydroxy-2- methylanthraquinone, 1-hydroxyl-2-methylanthraquinone, physcion, nordamnacanthol, 1,4- dihydroxy-6-methylanthraquinone, two pentacyclic triterpenes-rubicoumaric acid and rubifolic acid, 1,5-dihydroxy-2-methyl anthranthraquinone and 3-prenyl-5(or8)-methyl-1,4-nepthoquinone, 1-hydroxy-2-methoxy anthraquinone, 1,4- dehydroxy-2-methyl-5-methoxy anthraquinone, 1,3-diamethoxy-2-carboxy anthraquinone and rubianin, mollugin, 1-hydroxy-2methyl-9,10-anthraquinone, 1,3-dehydroxy-2-ethoxymethyl-9,10-anthraquinone, lucidin, primeveroside, ruberythric acid, anthraquinone 2-methyl-1,3,6-trihydroxy-9, 10-anthraquinone, 3-0- (6-0-acetyl)- α -rhamnosyl-(1 \rightarrow 2)- β -glucosides and 2-methyl-1,3,6-trihydroxy-9,10-anthraquinone, 3-0- α -hamnsyl-(1 \rightarrow 2)- β -glucosides, cyclic heptapeptides –RA-III and RA-IV, cyclic hexapeptides RA-V and RA- VII, 1-acetoxy-6-hydroxy-2-methyl anthraquinone-3-0- α -rhamnosyl (1 \rightarrow 4)- α -glucoside, 1,4-dehydroxy-2-carboethoxy anthraquinone, 1-hydroxy-2-carboxy-3-methox anthraquinone, 1-hydroxy-2-methyl-6 or7-anthraquinone, oleanolic acid actate, β -sitosterol, scopoletol, ten fatty acid with saturated or unsaturated long chains, anthraquinones, naphthohydroquinones, naphthohydroquinone dimers, mollugin, furomollugin and dehydro-alpha-lapchone.

Plant: alizarin, its glucoside, munjistin, 1-methoxy-2-methoxy-methyl-3-hydroxyanthraquinone, 4-hydroxy-2-carboxy anthraquinone, 1, 4-dihydroxy-2- carbomethoxyanthraquinone, 1,4-dihydroxy-2-hydroxymethyl anthraquinone, 3-prenylmethoxy-1,4-napthaquinone, rubiatriol, rubiumaricandrubifolicacid, 1-hydroxy-2-methyl-6or7-methoxyanthraquinone, 1-hydroxy-2-hydroxymethyl anthraquinone (plant).

Pharmacodynamics (Rasapanchaka)**Table no.22: Rasapanchaka of Manjishtha:**

Nighantu	Rasa	Vipaka	Veerya	Guna
Bhavaprakasha Nighantu	Madhura Tikta Kashaya	Katu	Ushna	Guru Ruksha
Dhanvantari Nighantu	Madhura Kashaya	Katu	Ushna	Guru
Madanapala Nighantu	Madhura Tikta Kashaya	Katu	Ushna	Guru Snigdha
Raj Nighantu	Madhura	Katu	Ushna	Guru
Kaiyadeva Nighantu	Madhura	Katu	Ushna	Guru
Shaligram Nighantu	Madhura	Katu	Ushna	Laghu Snigdha
Priya Nighantu	Tikta Kashaya	Katu	Ushna	

Pharmacological Action**Table no.23: Pharmacological Action of Manjishtha from various literatures:**

Sr. No.	Pharmacological Action	Cha. S.	Su. S.	A. S.	A. H.	B. N.	D. N.	K. N.	R. N.	M. N.	P. N.	SH. N.
1.	Rasayan	+										
2.	Varnya	+	+	+	+	+				+	+	+
3.	Swarya					+		+		+		+
4.	Kushtha	+	+	+	+	+	+	+		+	+	+
5.	Vatavyadi	+	+	+	+							
6.	Shotha	+	+	+	+	+		+		+	+	+
7.	Dahaprashaman	+	+	+	+							
8.	Vattarakta	+	+	+	+							
9.	Pandu	+		+	+							
10.	Shiroroga	+	+	+	+	+						+
11.	Mukharoga	+	+									
12.	Yoniroga					+		+		+	+	+

13.	Netraroga	+	+	+	+	+	+	+	+	+	+	+
14.	Raktapitta	+	+	+	+	+						
15.	Prameha	+	+	+	+	+	+	+	+	+	+	+
16.	Vishahara	+	+	+	+	+	+	+	+	+	+	+
17.	Atisara		+									
18.	Vidradhi	+	+	+	+							
19.	Vrana	+	+				+		+	+	+	+
20.	Kshudraroga	+	+	+	+							
21.	Mutrakruchha						+					
22.	Karnaroga						+		+			+
23.	Raktatisara						+		+		+	+
24.	Swarya						+			+		+

Formulations and preparations:

- | | |
|------------------------|-----------------------------|
| 1. Manjishtha Churna | 7. Manjishthadi Taila |
| 2. Manjishthadi Kwatha | 8. Khadiradi Gutika |
| 3. Manjishthadi Lepa | 9. Laghumanjishthadi Kvatha |
| 4. Arvindasav | 10. Guduchyadi Taila |
| 5. Ashvagandarishtha | 11. Vyaghri Taila |
| 6. Ushirasava | 12. Manjishtha Phanta |
| | 13. Chandanasa |

Trade and commerce:

Retail market price – Root – Rs. 150 /- kg (2001)

Conclusion

Major Chemical Constituents: Quinones (anthraquinone glycosides), Iridoids (manjistin), Triterpenoids are the major chemical constituents of *Rubia cordifolia*. It is used both, internally as well as externally. Externally it can be applied as a paste by itself or with honey; it heals inflammation and gives the skin an even tone and smoothness.

As per recent market trend Manjishtha root adulterated with Manjishtha stem and the mixture of Manjishtha stem & Manjishtha root is available in market. Hence it is needed to study of Manjishtha root & Manjishtha stem. Herbal Cosmetics have growing demand in the world market and is an invaluable gift of nature.

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