

## PHARMACOLOGICAL REVIEW OF DHANVAYASA (FAGONIA CRETICA LINN)

Dr. Tarun Gupta<sup>1\*</sup>, Prof. Dr. U. U. Zala<sup>2</sup> and Prof. Dr. P. U. Vaishnav<sup>3</sup>

<sup>1</sup>P.G. Scholar, Post Graduate Department of Rasashastra evam Bhaishajya Kalpana, J.S. Ayurved Mahavidyalaya, Nadiad, Gujarat.

<sup>2</sup>Professor, Post Graduate Department of Rasashastra evam Bhaishajya Kalpana, J.S. Ayurved Mahavidyalaya, Nadiad, Gujarat.

<sup>3</sup>Principal and Head, Post Graduate Department of Rasashastra evam Bhaishajya Kalpana, J.S. Ayurved Mahavidyalaya, Nadiad, Gujarat.

Article Received on  
11 April 2018,

Revised on 01 May 2018,  
Accepted on 21 May 2018

DOI: 10.20959/wjpr201811-12444

### \*Corresponding Author

**Dr. Tarun Gupta**

P.G. Scholar, Post Graduate  
Department of Rasashastra  
evam Bhaishajya Kalpana,  
J.S. Ayurved Mahavidyalaya,  
Nadiad, Gujarat.

### ABSTRACT

Dhanvayasa (*Fagonia cretica* Linn.) is a small spiny woody perennial under shrub, mostly found in the dry regions of North-west India. *Fagonia Cretica* Linn. belongs to family Zygophyllacea, commonly known as Dhamaso in Gujarati and Duralabha in Bengali. Dhanvayasa and its compound formulations are widely used in Ayurvedic classics to treat vitiated conditions. It possesses Tikta-Kashaya-Madhura Rasa (taste), Laghu-Sara Guna (properties) and Sheeta Virya (potency). It's Rasapanchaka and therapeutic properties are explained in different Samhita and Nighantu. It's astringent, antiviral, antimicrobial, antiseptic, anti-inflammatory, antioxidant, in liver cancer and thrombolytic action had been found in different researches. Sarjika

Kshara is prepared by processing the ash of Dhanvayasa Panchanga and it is used as main ingredients in many Ayurvedic formulations e.g. Chitrakadi Vati, *Duralabhadi kwath*, and *Ushirasava*. In present study, an attempt to collect information regarding Dhanvayasa and its Pharmacological activities from available classical literature and previous research articles in a systematic manner, which can be useful in conducting further clinical trials.

**KEYWORDS:** Dhanvayasa, *Fagonia Cretica*, Pharmacological Action, Rasapanchaka.

## INTRODUCTION

In Ayurveda, substances of natural origin, including whole plant or their part, animal Parts and minerals are used as medicine either alone or in combination. *Dhanvayasa* and its compound formulations are widely used in Ayurvedic classics to treat *Pitta* vitiated conditions. *Dhanvayasa* (*Fagonia cretica* Linn.) is a small spiny woody perennial under shrub, mostly found in the dry regions of North-west India.<sup>[1]</sup> *Fagonia Cretica* Linn. belongs to family *Zygophyllaceae*, commonly known as *Dhamaso* in Gujarati and *Duralabha* in Bengali.<sup>[2]</sup> *Sarjika Kshara* is prepared by processing the ash of this plant<sup>[3]</sup> and it is used as main ingredients in many Ayurvedic formulations e.g *Chitrakadi Vati*, *Duralabhadi kwath*, and *Ushirasava*.. It's *Rasapanchaka* and Therapeutic properties are explained in different *Samhita* and *Nighantu*. Hence, in this article an attempt has been made to collect information regarding *Dhanvayasa* and its Pharmacological activities from available classical literature and previous research articles in a systematic manner, which can be useful in conducting further clinical trials.

## AIM OF STUDY

To Review the Pharmacological Action (*Rasapanchaka*) of *Dhanvayasa* (*Fagonia cretica* Linn.)

## MATERIALS AND METHODS

In this article, information of *Rasapanchaka* (Pharmacological action) are compiled and analyzed from *Rajanighantu*<sup>[4]</sup>, *Bhavaparkasha nighantu*<sup>[5]</sup>, *Madanpal nighantu*<sup>[6]</sup>, *Dhanvantari nighantu*<sup>[7]</sup>, *Priya nighantu*<sup>[8]</sup>, *Nighantu Ratnakara*<sup>[9]</sup>, *Nighantu Adarsha*<sup>[10]</sup> and Ayurvedic Pharmacopeia of India.<sup>[11]</sup>

**Table. 1. Showing Rasa of *Dhanvayasa* in different classical texts.**

Rasa	R.N	M.N	K.N	D.N	P.N	N.R	B.N	N.A	A.P.I
<b>Katu</b>	+	-	-	-	-	+	-	-	+
<b>Tikta</b>	+	+	+	+	+	+	+	+	+
<b>Madhur</b>	-	+	+	+	+	+	+	+	+
<b>Kashaya</b>	-	+	+	-	-	-	+	+	+

R.N –*Rajanighantu*, M.N- *Madanpal nighantu*, K.N- *kaidev Nighantu*, D.N-*Dhanvantari nighantu*, P.N- *Priyanighantu*, N.R- *Nighantu Ratnakar*, B.N- *Bhavaparkash nighantu*, N.A- *Nighantu Adarsha*, A.P.I- *Ayurvedic Pharmacopeia of India*.

**Guna**- *Dhanvayasa* possess *Laghu* and *Sara Guna*.<sup>[12]</sup>

**Vipaka**\_- *Dhanvayasa* possess *Madhura Vipaka*.<sup>[13]</sup>

**Table. 2. Showing Virya (Potency) of Dhanvayasa in different classical texts.**

Virya	R.N	M.N	K.N	D.N	P.N	N.R	B.N	N.A	A.P.I
Ushna	+	-	-	-	-	-	-	-	-
Sheeta	-	+	+	+	+	+	+	+	+

**Karma Acc to A.P.I.** Kaphahara, Vatahara, Pittahara and Medohara.

**Chemical Constituents:** Saponins I & II<sup>[14]</sup>, Alkaloids (Harmine), Aminoacids (Alanine, glycine, leucine, arginine, isoleucine, Lysine, Phenylalamine, proline, tyrosine and valine), Terpenoids of oleanane group.<sup>[15]</sup>

### Pharmacological Activities

Thrombolytic activity.<sup>[16]</sup>

Neuroprotective Activity.<sup>[17]</sup>

Antioxidant activity.<sup>[18]</sup>

Synergistic activity.<sup>[19]</sup>

Cytotoxic, Antitumor.<sup>[20]</sup>

Analgesic activity.<sup>[21]</sup>

Anti pyretic.<sup>[22]</sup>

Anti-inflammatory activity.<sup>[23]</sup>

Wound healing study.<sup>[24]</sup>

Antiallergic.<sup>[25]</sup>

Anti- microbial activity.<sup>[26]</sup>

Radioimmuno Assay of Fagonia critica and isolated triterpenoids.<sup>[27]</sup>

**Table. 3. Showing Therapeutic Uses of Dhanvayasa in different classical texts.**

Reference	Therapeutic Uses
A.P.I <sup>[1]</sup>	Atisara, Grahani, Daha, Jvara, Visamjvara, Trsna, Prameha, Moha, Murccha, Raktapitta, Raktavikara, Kustha, Vatarakta, Gulma, Bhrama, Chardi, Kasa, Mutraghata.
Raja nighantu <sup>[4]</sup>	Vata-Pitta disorders, Jvara, Gulma and Prameha.
Madanpal nighantu <sup>[6]</sup>	Trsna, Daha, Brahma, Shirashoola, Arsha, Sandhivata, Chardi, Atisara, Grahani, Vatarakta, Masoorika, Vrana.
Kaidev Nighantu	Raktapitta, kapha, medo, Brahma, Visarpa, Kustha, Vatarakta, Trsna, Kasa, Jvara and Chardi.
Dhanvantari nighantu <sup>[7]</sup>	Raktapitta, Brahma, Murchha, Atisara, Grahani and Mutrakrichaa.
Priya nighantu <sup>[8]</sup>	Mada, Trsna, Jvara, Chardi, Visarpa, Brahma and Kustha.
Nighantu Ratnakar <sup>[9]</sup>	Kapha, Medo, Mada, Brahnti, Raktapitta, Kustha, Trsna, Visarpa, Jvara, Vatarakta.

Bhavaparkash nighantu <sup>[5]</sup>	Arsha, Daha, Chardi, Brahma, Parlapa, Visham jvara, Raktapitta.
Nighantu Adarsha <sup>[10]</sup>	Kaphaja Chardi, Raktapitta, Mutraghata, Brahma, Mukhpaka.
Quality Standards Of Indian Medicinal Plants Vol. 9 <sup>[14]</sup>	Antipyretic, Wound healing and Anti tussive.

## DISCUSSION

*Dhanvayasa* possesses *Tikta-Kashaya-Madhura Rasa* (taste), *Laghu-Sara Guna* (properties) and *Sheeta Virya* (Potency). *Rajnighantu*, *Nighantu Ratnakar* and A.P.I mentioned *Katu rasa* along with *Tikta*, *Madhura* and *Kashaya rasa*. *Raj nighantu* also mentioned *Ushna virya* of *Dhanvayasa*. It have *Kaphahara*, *Vatahara*, *Pittahara* and *Medohara karma*. *Duralabha* is the Synonyms for *Dhanvayasa*. It is indicated in *Raktapitta* and *Kaphaja Chardi* by *Acharya Charaka*. It is indicated in *Mutraghata* and *Bharama* by *Acharya Vagbhatta* and *Acharya Chakradatta* respectively. The ayurvedic references also shows that the Plant *Dhanvayasa* have *Kaphahara*, *Vatahara*, *Pittahara* and *Medohara* properties and can be used in *Atisara*, *Grahani*, *Daha*, *Jvara*, *Visamjvara*, *Trsna*, *Prameha*, *Moha*, *Murccha*, *Raktapitta*, *Raktavikara*, *Kustha*, *Vatarakta*, *Gulma*, *Bhrama*, *Chardi*, *Kasa* and *Mutraghata* vikara. Modern studies reveals its Thrombolytic, Neuroprotective, Antioxidant, Synergistic, Cytotoxic, Antitumor, Analgesic, Anti pyretic, Anti-inflammatory, Antiallergic, Anti-microbial and Wound healing activity.

**Controversy:** Acc.to *Bhavaparkasha Nighantu*, *Dhanvayasa* and *Yavasa* are considered to be identical in properties as well as indications. They have been used as a substitute for each other. At present *Dhamasa* is identified as *Fagonia cretica* Linn. and *Yavasa* as *Alhagi pseudalhagi* (Bieb) desv and both are different species.

## CONCLUSION

According to Ayurvedic Literature and investigations of various researchers it is concluded that *Dhanvyasa* (*Fagonia cretica* Linn.) has active medicinal potential and various proved pharmacological actions like Anti-inflammatory, Analgesic, Antiallergic, Neuroprotective, Thrombolytic, Antimicrobial, wound healing and used in treatment of *Atisara*, *Grahani*, *Daha*, *Jvara*, *Visamjvara*, *Trsna*, *Prameha*, *Moha*, *Murccha*, *Raktapitta*, *Raktavikara*, *Kustha*, *Vatarakta*, *Gulma*, *Bhrama*, *Chardi*, *Kasa*, *Mutraghata*. This study helps in conducting further clinic trials, so that *Dhanvayasa* can be used for more therapeutic purposes.

**REFERENCES**

1. The Ayurvedic Pharmacopoeia of India part 1 volume-V.Government of india, 23.
2. The Ayurvedic Pharmacopoeia of India part 1 volume-V.Government of india, 23.
3. Acharya Sadanandsharma, Rasatarangini, Pandit Kashinathshastri, Tarang 13/45-47, Chaukhamba Sanskrit Bhavan, Varanasi, Reprint, 2014; 313.
4. Pandit Narahari, Rajanighantu, Tripathi Indra dev editor, 5<sup>th</sup> edition, Chowkhamba Krishnadas Academy, Varanasi, 72.
5. Bhavamishra, Bhavaprakash, by Prof. K.R. Srikantha Murthy, vol, Chowkhamba Krishnadas Academy, Varanasi.
6. Nripa Madanpala Madan vinod, Madanpala Nighantu, Prof. Dr. Gyanendra Pandey editor, Chaukhamba Orientalia, Varanasi, 59.
7. Diwedi BK, Editor. Dhanvanatari Nighantu, Guduchyadi Varga. Chaukhamba Krishnadas Academy, Varanasi, 2008; 20.
8. Priyavrat Sharma editor, Priya Nighantu. Shatapushpadi varga, Chaukhamba Surbharti Prakashan, Varanasi, 2004; 109.
9. Brihad Nighantu Ratnakara, Khemraj Shri Krishana Das,Guduchyadi Varga, Chaukhamba Sanskrit Series, Varanasi, 308.
10. Bapalal Vaidya, Nighantu adarsha. Vol 2, Laghugokshuradi varga, Chaukhamba Bharati Academy, 2013; 214.
11. The Ayurvedic Pharmacopoeia of India part 1 volume-V.Government of india, 23.
12. The Ayurvedic Pharmacopoeia of India part 1 volume-V.Government of india, 23.
13. The Ayurvedic Pharmacopoeia of India part 1 volume-V.Government of india, 23.
14. Quality Standards of Indian Medicinal Plants, 9: 159.
15. The Ayurvedic Pharmacopoeia of India part 1 volume-V.Government of india, 23.
16. Dagainawala HF and Taori GM, Kashyap RS. Effect of Fagonia Arabica (Dhamasa) on in-vitro thrombolysis, BMC Copl.Alt.Med., 2007; 7: 36.
17. Rawal AK, Muddeshwar MG, Biswas SK. Rubia cordifolia, Fagonia Cretica Linn and Tinospora cordifolia exert neuroprotection by modulating the antioxidant system in rat hippocampal slices subjected to oxygen glucose deprivation. BMC Complementary and Alternative Medicine, 2004; 4: 11.
18. Satpute RM, Kashyap RS, Dagainawala, HF, Antioxidant potential of F.Arabica against the chemical ischemia induced in PC12 cell. IJPR, 2012; 11(1): 303-313.

19. Das R, Kaushik A, Synergistic activity of Fagonia Arabica and Heteropneustes fossils extract against myocardial, cerebral infraction and embolism disorder in mice J Pharm Bioallied Sci., 2010; 2(2): 100-104.
20. Lam M, Carmichael AR, Grffiths, HR, An aqueous extract Of Fagonia cretica induces DNA damage, cell cycle arrest And apoptosis in breast cancer cells via FOXO3a and p53 Expression, Plosone, 2012; 7(6).
21. Pareek A, Batra N, Goyal M, photochemical and biological activity of Fagonia indica, International Research Journal of Pharmacy, 2012; 3(6).
22. El-Shabrawy OA, El-Gindi OD, Melek FR, Abdel-Khalik SM, Haggag MY. Biological properties of Saponin mixtures of Fagonia cretica and Fagonia mollis, Fizoterapia, 1997; 68: 219-222.
23. El-Shabrawy OA, El-Gindi OD, Melek FR, Abdel-Khalik SM, Haggag MY. Biological properties of Saponin mixtures of Fagonia cretica and Fagonia mollis, Fizoterapia, 1997; 68: 219-222.
24. Saleh IA, Hasan SY, Aftab A. Anti-inflammatory and Wound healing activity of Fagonia schweinfurthi alcoholic extract herbal gel on albino rats. African Journal of Pharmacy and Pharmacology, 2011; 5(17): 1996-2001.
25. Yahya AL, Abdulaziz m. Fagonia bruguieri freeze dried Extract as anti allergic treatment. WIPO patent aplication WO/2007/072100.
26. Pareek A, Batra N, Goyal M, photochemical and biological activity of Fagonia indica, International Research Journal of Pharmacy, 2012; 3(6).
27. Perroniv A, Masullo MA, Basarello C, Hamed AI, Belisario MA, Pizza C. Sulfated triterpene Derivative from Fagonia Arabica J.Nat.Cons, 2010; 70: 584-588.