

Ayurveda

KEYWORDS: Rasanjan

Raskriya, Rasaut, kwath, Ghana, B. aristata

CRITICAL REVIEW ON PHARMACOLOGICAL USES OF RASANJANA (Extract of Berberis aristata)



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Abstract

Extract of berberis aristata well known as Rasanjana is traditional medicine belongs to Berberidaceae. It is used in number of formulations after proper purification process. These formulations are to preserve health and to cure variety of diseases, like eyes disorders, skin diseases, menorrhagia. In this study daruharidra (berberis aristata) & goat milk is main ingredient & both have been considered as very significant herb in many eye diseases & skin disease for external application. The bark is used as main part of daruharidra used in its crude form as powder or decoction. According to reference of ayurved prakash samhita & bhavpraksh nighantu. **Aim and Objective:** Details about Rasanjana can be found in scattered form in Samhitas and Nighantu. However, single hand study regarding its details is not available. Hence in current review article, attempt is to gather therapeutic, pharmacological, medicinal evidences of Rasanjana from Ayurvedic Samhitas and Nighantu. In current article, references of various formulations of Rasanjana were reviewed through Brihatrayand Nighantus and related articles.

INTRODUCTION: Daruharidra is one of the most important drugs in ayurveda . Extract of daruharidra is also known as Rasanjana, Rasot, Ghan etc. Berberis species are major source of berberine and other alkaloids namely , berbamine , Palmatine , iso-tetrandrine etc. Daruharidra and goat milk both are used as a remedy for treating eye disorders , ear disorders , jaundice, diabetes, fever etc Rasanjana OR rasot is the crude concentrated extract prepared from roots and stem bark of Daruharidra . in rasanjan preparation here Goat milk is used. Goat has tremendous result in eye disease.

Ayurveda is an ancient science comprises of bhaishaj to treat various diseases. It involves use of single herb, formulation of herbs, combination of herbs and minerals. Among 7000 species of medicinal plant recognized all over the world more than 900 types of precious medicinal plants are said to be found in Nepal. Medicinal plants have been used for centuries before they advent of orthodox medicine plants still constitute one of major sources of drugs in modern as well as traditional medicine throughout the world. As per WHO (world health organization) report, there are about 4 billion people of the world presently utilize herbal medicines as their primary health care or as an alternative medium of medicine. Berberis Aristata well known as Rasanjan is traditional medicines belongs to family Berberidaceae.

Material and methods:

For the current article, review has been done from Brihatray i.e. Charak Samhitas, Sushruta Samhita and Ashtang Hriday. Ras, veerya, karma and synonyms are studied from Nighantus in brief.

Various review articles were also reviewed and the formulation of Rasanjan has been compiled.

A literary review of on the other medicinal properties of the drug in other diseased condition has been studied considering pharmacological action of drug.

CLASSIFICATION AND DISTRIBUTION OF DARUHARIDRA⁽¹⁾:

1.	KINGDOM	PLANTAE
2.	DIVISION	MAGNOLIOPHYTA
3.	ORDER	RANUNCULALES
4.	CLASS	MAGNOLIOPSIDA
5.	FAMILY	BERBERIDACEAE
6.	GENUS	BERBERIS
7.	SPECIES	ARISTATA

BOTANICAL DESCRIPTION⁽²⁾: Evergreen shrub having height 1.25 to 3 meter .the leaves are strong with fine whorled. Venation, straight, but with denatate or corrugated margins . inflorescences 5 to 8cm long, with large yellow coloured flowers the fruits are bluish purple & small flowers bloom in spring & fruits in the winters .The stem is ash coloured from outside but is dark yellow colour inside Rasanjan (Rasot) is prepared from the chemicals or juice of chitra variety of Daruharidra.

VERNACULAR NAMES⁽³⁾:

SR. NO.	REGION / LANGUAGE	NAMES
1.	SANSKRIT	Katamkateri, dirvi
2.	HINDI	Rasoth, Rasawath
3.	BENGALI	Rasanjan
4.	MARATHI	Rasavath, Rasanjan
5.	PUNJABI	Rasoth
6.	GUJARATI	Rasavanti
7.	TELUGU	Rasanjanamu
8.	KANNADA	Rasanjana
9.	MALAYALAM	Rasoth
10.	ENGLISH	Indian Berberis

PROPERTIES OF RASANJAN⁽⁴⁾:

1	Rasa	Katu-pungent taste Tikta- Bitter
2	Veerya	Ushna (Hot Potency)
3	Karma	Chedan (scrapping property), rasayan

CLASSICAL CATEGORIZATION⁽⁵⁾:

SR .NO.	GRANTH	VARGA /GANA
1.	Raj Nighnatu	Suvarnadi varga
2.	Bhavprash Nighantu	Haritakyadi varga
3.	Dhanwantari Nighantu	Chandanadi varga
4.	Shodhala Nighantu	Chandanadi varga
5.	Kaiyadev Nighantu	Dhatu varga

6.	Madanpal Nighantu	Suvarnadi Varga
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SYNONYMS : In Various Nighantu, Rasanjan has the following synonyms:

Sr. No	Synonyms	DN ⁽⁶⁾	KN ⁽⁷⁾	RN ⁽⁸⁾	BN ⁽⁹⁾	MN ⁽¹⁰⁾
1.	Rasanjan	+	+	+	+	+
2.	Tarkshyashail	+	+	+	+	+
3.	Rasajatam	+		+		
4.	Rasodbhawam	+	+			
5.	Rasgarbha	+	+	+	+	
6.	Rasabhyam	+				
7.	Darvikwath	+	+	+		
8.	Rasodbhutam			+		+
9.	Rasagrajam		+	+		+
10.	Krutakam			+		
11.	Balabhaishyam		+	+		
12.	Varyanjanam		+	+		
13.	Rasnabham			+		
14.	Agnisaram					
15.	Tarkshyam		+		+	
16.	Rasottamam		+			
17.	Rasagrayam		+			
18.	Darvyadi		+			+
19.	Krutrim		+			+
20.	Rasaj		+			

There are 20 synonyms for Rasanjan included in this table. The majority of synonyms are based on its morphological structure ,karma,upama.etc

RASAPANCHAK:

A drug's potency refer to all the qualities that it possesses, including ,Rasa,,Veerya .According to Acharya Charaka some substances functions according to their Rasa (Taste). Some according to their qualities. some according to their Veerya (potency),and some according to empirical action(prabhav).

The Rasapanchaka of Rasanjan along with its panchmahabhoot sanghthan is given below:

Sr. No	Rasapanchaka	Panchamahabhuta Constitution
1.	Ras katu Tikta	Agni + vayu Vayu + Akasha
2.	Veerya Ushna	Vayu + Agni

RASAPANCHAK ACCORDING TO DIFFERENT NIGHANTUS :

Sr. No.	Rasapanchaka		DN	ShN ⁽¹¹⁾	KN	BP	MN
1.	Ras	Katu		+	+	+	+
2.		Tikta	+	+	+	+	+
3.	Veerya	Ushna		+	+	+	+
4.		Sheet	+				

ROGAGHNATA AS PER DIFFERENT NIGHANTUS :

SR.NO	ROGAGHNATA	DN	BN	KN	ShN	MN
1.	Raktapitta	+				
2.	Kaphaghn	+	+	+		+
3.	Hikka	+				
4.	Shwas	+				
5.	Varnya	+				
6.	Mukhrog	+		+		+
7.	Vishahar	+	+		+	
8.	Kantivardhak	+				
9.	Netrarog		+	+	+	+
10.	Twacharog					
11.	Vrandosh		+	+		+
12.	Jwarhar		+			
13.	Arshoghn		+			

14.	Shothaghn		+			
15.	Raktashodhak		+			
16.	Chakshushya					+
17.	Sthaulya					+
18.	Pandu					+
19.	Asrugadar					+
20.	Atisar					+
21.	Kushtgghn					+

(DN- Dhanwantari Nighantu, KN-kaiyadev Nighantu, BP-Bhavprakash nighntu,RN-Raj NighantuShN- Shodhal Nighantu,.

Parts used:

1. Root
2. Bark
3. Fruit

Procedure of Preparation of Rasanjana(12)

Preparation of Rasanjana was carried out in 2 steps.

Step I – Preparation of Daruharidra Kwatha (decoction)

Materials required – Daruharidra – 100g

Water- 1600 ml (for Kwatha preparation)

Water - Q.S. (for washing)

Equipments required – utensils, cloth for filtering, heating device.

Procedure:

1. Daruharidra stem bark free from insects was taken and washed properly for soil removal.
2. It was soaked in 16 parts of water i.e. 1600 ml for a period of 12 hours.
3. Soaked Daruharidra was kept on moderate flame for heating. It was subjected to heating till the contents were reduced to ¼ th i.e. 400 ml.
4. Then it was filtered through cloth to get decoction of Daruharidra.

Observation- The colour of water changes to yellow after soaking and after Kwatha preparation its colour changes to dark brown.

Precaution – Heating should be done on moderate flame.

Step II- Preparation of Rasanjana

Materials required – Daruharidra Kwatha - 400 ml

Cow's milk – 400 ml

Equipments required – utensils, stirrer, heating device.

Procedure:

1. Daruharidra Kwatha 400 ml was mixed with equal quantity of cow's milk and subjected to heating on mild flame.
2. Continuous stirring of the contents was done to avoid sticking of contents as the liquid turns thick (syrupey) in consistency.
3. Further heating was carried out by water bath method to avoid charring.
4. After complete evaporation of liquid content it was further dried in the Sun and preserved in air tight containers. Observation – The contents get thick and towards end turn semisolid in consistency. Precautions – Heating should be done carefully to avoid charring for which Water bath method is the best.

Dose: juice of root 10 -20 ml, Decoction- 50-100ml; rasanjan- 1/4 to ½ gms ; Fruit – 1gm .In malaria total 5 to 10mg as stimulant for heart but larger dose can lead to cardiac poisoning.

Rasanjan IN BRIHATRAYI :

CHARAKSAMHITA⁽¹³⁾ :

1.	Prapunna dadi lepa	Mul	Lep	Exter nal	Kushta	Cha.chi 7/ shlok-93	190
1.	Kushtat alepan	Mul	Aale p	Exter nal	Kushta	Cha chi 7 /	190
2.	Vk kushtana shak 6 yog	Mul	Lep	Exter nal	Kushta	Cha chi 7 /24-25	193

3.	Manah shiladi lepa	Mul	Lepa	External	Kushta	Cha chi 7	193
4.	Raktasrav rodhak yog	Mul	Churna	Internal	Arsha	Cha chi 14/187	338
5.	Raktarshn ashak yog	Mul	Churna	Internal	Arsha	Cha chi 14/195	339
6.	Nagaradya churna	Mul	Churna	Internal	Grahani	Cha chi 15/129-131	372
7.	Vachadi churna	Mul	Churna	Internal	Grahani	Cha chi 15/134-136	372-373
8.	Jivantyadi leha	Mul	Awaleha	Internal	Kas	Cha chi 18/176-179	450
9.	Rasanjan adi churna	Mul	Churna	Internal	Atisar	Cha chi 19/108	472
10.	Mahagan dhahasti agad	Mul	Anjan, prashan, lepa	External/ internal	Vishachikitsa	Cha chi 23/77-94	542
11.	Amrut ghrut	Mul	Ghrut	Internal	Apasmar, kshaya, gulma, pleeha, unmad, udarrog, pandurog, kamala	Cha chi 23/243-248	561
12.	Kalak churna	Mul	Churna	Internal	Mukhrog, dantarog, kantharog	Cha chi 26 /194-195	642
13.	Pathadi churna	Mul	Churna	Internal	Kanthrog, kawalgraha	Cha chi 26 /199	642
14.	Khadiradi gutika	Mul	Gutika	Internal	Mukhpak, mukhdurgandh, aruchi, swarbhed, lalasrav	Cha chi 26/206-214	643
15.	Gandhata il	Mul	Tail	External	Karnashool	Cha chi 26/224-225	645
16.	Kshartail	Mul	Tail	External	Karnabadhira, karnanad, karnasrav, karnkrumi, karnshool	Cha chi 26/226-229	645
17.	Raskriya yog	Mul	Raskriya	External	Timir, patalrog, andhatv	Cha chi 26/260	648
18.	Pradarnas hak yog	Mul	Kshirpak	Internal	Raktapradar	Cha chi 30 /97	752

PHARMACOLOGICAL ACTIVITIES: (14)

Hepatoprotective: *B. aristata* roots have been used in treatment of jaundice in Ayurveda. Hepatoprotective action of extract is partially through inhibition of microsomal drug metabolizing enzyme. Butanolic extract of *B. aristata* shows effective action of hepatoprotection by selective inotropic activity.

Antidiabetic Hypoglycemic effect of *B. aristata* root was evaluated. *B. aristata* roots contain potent and orally effective antidiabetic component which either triggers the formation of insulin or shows

insulin like effect. The extract of *Berberis aristata* (root) has strong potential to regulate glucose homeostasis through decreased gluconeogenesis.

Anticancer: Methanolic extract of stem of *B. aristata* shows concentration dependent inhibition of HT29 cells. Berberine, an alkaloid isolated from the plant *Berberis aristata*, has been found to inhibit significantly the carcinogenesis induced by 20-methylcholanthrene or Nitrosodimethylamine.

Antimalarial Antiplasmodial efficacy of root bark of *Berberis aristata* has been found to exert significant schizont maturation inhibition of *P. berghei* isolates in vitro.

Antimicrobial : Ethanolic root extract of *B. aristata* shows antifungal activity. Significant antifungal activity was found against *Candida* species and *Aspergillus* species.

Berberine an alkaloid from the plant *Berberis aristata*, which has been known since ancient times as an antidiarrheal medication inhibited by approximately 70% the secretory responses of the heat-labile enterotoxins of *Vibrio cholerae* and *Escherichia coli*.

Berberis aristata shows effect against hepatitis infection. Berberine is an alkaloid from the Indian medicinal plant *Berberis aristata*. It may be an effective anti-giardial drug.

Anti-inflammatory: The *Berberis aristata* plant was found to have moderate antiproteolytic activity toward trypsin-induced hydrolysis of bovine serum albumin. Alcoholic and aqueous extracts of *Berberis aristata* showed good activity against acute inflammation.

Antioxidant : The extract of *Berberis aristata* (root) has strong potential to decrease oxidative stress.

Observations and Results:

In present review, total formulations were found in Ayurvedic texts indicated in internal and external application like kwath, ghrut, taila, Avaleha, lep, churna. These various formulations are used in treating Menorrhagia, skin diseases, Piles, wound, mouth ulcers.

Conclusion :

The present study show that rasanjan was prepared as per Sharangdhara samhita, Bhavamishra, Ayurved Prakash also. It is found to be good quality of Rasanjan which can be used externally as well as internally for various diseases.

Discussion: Rasanjana prepared with it is highly efficacious. Preparation of Rasanjana is mentioned in two Ayurvedic texts. Bhava Mishra the author of Bhava Prakasha puts forward the use of cow's milk for preparation of Rasanjana whereas Rasa Madhava the author of Ayurveda Prakasha advocates the use of goat's milk, the basic procedure being the same. Properties possessed by cow's milk according to Ayurvedic Samhitas (classical texts) viz. Sheeta Virya (cold potency) and Madhura rasa (sweet taste) makes Rasanjana prepared with it suitable for Pitta dosha (humour) disorders like Pittaj Atisara (diarrhea) etc.

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