

A CRITICAL REVIEW ON THE PROBABLE MODE OF ACTION OF RAJA CHOORNA.**[Sneha M S¹](#), [Rekha. R²](#)**¹PhD Scholar, Department of Dravyaguna Vijnana, Parul Institute of Ayurveda, Vadodara, Gujrat, India²Assistant professor, Department of Dravyaguna Vijnana, Sri Sidharameswara Ayurveda college, Naubad, Bidar, Karnataka, India**Corresponding Author:** snehagiriprasad@gmail.com<https://doi.org/10.46607/iamj13p6052022>

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Article Received: 03/06/2022 - **Peer Reviewed:** 16/07/2022 - **Accepted for Publication:** 23/07/2022**ABSTRACT**

Raja choorna is a powdered poly herbal formulation explained in *Arogyaraksha kalpadruma* chapter 9, *Grahaniroga chikitsaadhyaya*. This preparation is rarely explored and used in Ayurveda but has a better effect in *agni*. Although it is not mentioned in major classics like *Charaka Samhitha*, *Sushruta Samhitha* *Ashtangahrridaya*, etc, and *Laghutrayis*. This is a simple herbomineral combination with easily available 11 drugs effective in digestive fire malfunctions. Almost all the ingredients and the *anupana* have *katurasa* and *vipaka*, *ushna veerya laghu rooksha teekshna guna*. These properties will pacify *kapha* and *vata* and stimulate *agni*. *Takra*, the *anupana* mentioned in in the context of *Avachoomana* is the best vehicle with proper nutritional value. As per *Ayurveda*, the digestive fire has the main role to keep the human being alive and healthy. *Raja choorna* helps in *kapha vataja vikaras*, *Agnideepana*, reducing *shoola*. The aim of this article is to critically review the ingredients of *Raja Choorna* and its probable mode of action in the indications mentioned in *Arogya rakshakalpadruma*.

Key words: *Raja choorna*, *Grahani roga*, *Agnimadya*, *Deepana*, *Shoola***INTRODUCTION**

The digestive function means the complete conversion of the ingested food into corresponding items like glucose, fatty acids, amino acids, and

absorbable form of trace elements like vitamins and minerals. Appropriate secretion of the digestive juices and enzymes along with motility of the

intestinal tract is the main factors promoting digestion. The improper movement of the intestine and the inadequate secretion of digestive enzymes and hormones leads to stasis and inadequate assimilation, which may aid in putrefaction or fermentation by the activity of the intestinal organisms. The collection of gas in the intestinal tract is to some extent a physiological procedure. When there is an intake of food that contains excessively high elements of fat and/or sugar and/or protein and when there is unsettling influence or poor function of the liver, then there are more chances to form gas in the intestinal tract. The basic concept of *Ayurveda* is that the status of digestive fire (*Kayagni*)/digestive enzymes in the body determines whether the human being is healthy or diseased. The derangement in the *Kayagni* (digestive fire) is the root cause of all diseases. When *agni* combines with *vata* or *kapha* it leads to improper combinations of *agni* like *vishamagni* and *mandagni* both will lead to diseased conditions. *Raja choorna* has the indications like pacifying *kapha* and *vata* and even all the *kaphaja* and *vataja* vikaras, *Agnideepana* (improves/sharpens the digestive fire), and *shoola nashana* where *shoola*

is one among the cardinal feature of *vata*. *Anupana* is the vehicle and triggering factor of a medicine. *Arogya Raksha kalpa Druma* mentioned *takra* (butter milk) as the *anupana* which is *Agnideepana*, *rooksha*, and *katurasa -vipaka dravya*. The preparations in *Ayurveda* are formulated through the activation of different chemical compounds by different manufacturing processes¹. *Raja choorna* is a herbomineral preparation containing *Sunthi*, *Pippali*, *Marica*, *Ajmoda* or *Yavani*, *chitraka*, *Bharangi*, *Chavya*, *SuddhaHingu*, *Saindhavalavana*, *bidalavana*, and *yavakshara*. It is indicated in *Agnimadya* (Digestive impairment), *Shula* (Colicky Pain), *Vataroga* (Disease due to *Vata* dosha), *kapha roga* (disease due to *kapha*)². In the present critical analysis, an attempt has been made to correlate the probable mode of action of the formulation in the above-mentioned clinical conditions.

MATERIALS AND METHODS

The data collection for this article is done from classical textbooks and Nighantus, *Ayurveda pharmacopeia of india*, different reliable articles and web sources, etc.

Drug Review

Table 1:

Ingredients	Part used	Properties	percentage
<i>Shunti</i> ³ Zingiber officinale Zingiberaceae	Rhizome	<i>Rasa-katu Guna-laghu, snigdha Veerya-ushna, Vipaka-madhura Doshakarma-vatakaphahara, Karma-pachana, anulomana, ruchya, vrishya, Amavatahara, grahi</i>	9.09
<i>Maricha</i> ⁴ Piper nigrum piperaceae	fruits	<i>Rasa-katu Guna-rooksha, teekshna Veerys-ushna Vipaka-katu Doshakarma-pittakara, kaphavatajit Karma-deepana, shoolahara, krimihara, ruchya</i>	9.09
<i>Pippali</i> ⁵ Piper longum piperaceae	fruit	<i>Rasa-katu, tikta, madhura Guna-laghu, snigdha, teekshna Veerys-ushna Vipaka-madhura Doshakarma-vatakaphahara, tridoshaghna Karma-deepana, shoolahprashamana, amadoshahara, krimihara, ruchya, pramadhi, udararoga, gulma</i>	9.09
<i>Ajmoda</i> ⁶	fruit	<i>Rasa-katu, tikta</i>	9.09

Trachyspermum Apiaceae		<i>Guna-laghu, teekshna</i> <i>Veerya-ushna</i> <i>Vipaka-katu</i> <i>Doshakarma-vatakaphahara, pittakara</i> <i>Karma-deepana, pachana, shoolahna, gulmanashana, krimihara</i>	
<i>ShuddhaHingu</i> ⁷ Ferulaasafoetida Apiaceae	Resin	<i>Rasa-katu</i> <i>Guna-teekshna</i> <i>Veerya -ushna</i> <i>Vipaka-katu</i> <i>Doshakarma-vatahara, pittakara</i> <i>Karma-deepana, pachana, shoolahna, gulmanashana, ruchya, krimihara</i>	9.09
<i>Chitraka</i> ⁸ Plumbago zeylanica Plumbaginaceae	Root	<i>Rasa-katu</i> <i>Guna-laghu, rooksha</i> <i>Veery -ushna</i> <i>Vipaka-katu</i> <i>Doshakarma-vatahara, kaphahara</i> <i>Karma-deepana, pachana, grahi, shoolahna, gulmanashana, ruchya, krimihara</i>	9.09
<i>Bharangi</i> ⁹ Clerodendrum serratum Verbenaceae	Root	<i>Rasa-katu, tikta, kashaya</i> <i>Guna-rooksha, laghu</i> <i>Veerya-ushna</i> <i>Vipaka-katu</i> <i>Doshakarma-vatakaphahara</i> <i>Karma-deepana, pachana, shodhaghna, gulmanashana, ruchya</i>	9.09
<i>Chavya</i> ¹⁰ Piper chaba piperaceae	root	<i>Kanamoolagunam</i> <i>Rasa-katu</i> <i>Guna-rooksha, laghu</i> <i>Veerya -ushna</i> <i>Vipaka-katu</i> <i>Doshakarma-vatakaphahara, pittakara</i> <i>Karma-deepana, pachana, krimihara, anahahara, gulmanashana, ruchya</i>	9.09
<i>Saindhava lavana</i> ¹¹	Rock salt	<i>Rasa-lavana</i> <i>Guna-laghu, sukshma, snigdha</i> <i>Veerya-sheeta</i> <i>Vipaka-madhura</i> <i>Doshakarma-tridoshanut</i> <i>Karma-deepana, pachana, vrisya, ruchya, netrya</i>	9.09
<i>Bida lavana</i> ¹²		<i>Rasa-sakshara</i> <i>Guna-laghu, teekshna, rooksha</i> <i>Veerya-ushna</i> <i>Vipaka-katu</i> <i>Doshakarma-urdhva-adhakaphavatanulomana</i> <i>Karma-deepana, pachana, vyavayi, ruchya, vibandhahara, anahahara, vishtambhahara, shoolahara</i>	9.09
<i>Yava kshara</i> ¹³	Carbonate of potash	<i>Rasa-sakshara</i> <i>Guna-laghu, snigdha, sookshma</i>	9.09

	<p>Veerya-ushna Vipaka-katu Doshakarma-pitta vardhaka, kaphashamaka Karma-deepana, shoolahara, amahara, gulmahara, grahanihara, anahahara</p>	
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DISCUSSION

Critical analysis of ingredients of Raja churna

The reference to *Raja choorna* is from *Arogyarakshaka Kalpadruma* which is a popular text in *keraleeya chikitsa* written by Kikulangara Rama Warriar. There are 11 key ingredients in *Rajachurna* and after a keen search of the literature found that all the ingredients are supporting each other to do the karma like normalizing the *vata*, *pitta*, *kapha*, and helping the *Kayagni* to achieve its *swasthavastha*. The ingredients should be taken in equal quantities as there is no specific amount mentioned.

Shunti, (dry ginger), *maricha*, and *pippali* are all together known as *trikatu*. *Trikatu* is a combination which is *deepana*, *pachana*, *gulmahara*, *swasahara*, *Kasahara* and also works on *udara* and *anaha*. The *katurasa*, *ushnaveeryalakhurookshaguna*

of *shunti* will passify *vata*, *kapha*, and *ama*, and *snigdha* and *madhuravipaka* will alleviate the *pitta*. It will act as *malasangrahini* by its hot nature, and it will dry up the water content in the *mala* in the case of *athisara* and it also acts as *vibandhahara* due to its *vibandhabhedana shakthi*¹⁴. *Maricha* one of the members of *trikatu* is having *kaphavatahara* and *pittakara* due to their properties. The alkaloid called piperine present in both *maricha* and *pippali* has antimutagenic and anti-tumorous effects. Piperine, stimulates the digestive enzymes of the pancreas, especially insulin and glucagon enhancing the digestive capacity and effectively reducing the gastrointestinal food transit time. This process also protects the pancreas from oxidative stress. The enhanced bioavailability property of piperine will help to nourish the body properly¹⁵.

Table 2: Physical properties of *Shunti*, *Maricha*, and *Pippali*^{16,17,18}

DRUG NAME	PHYSICAL PROPERIES
<i>Shunti</i>	Foreign matter- NMT 1%
	Total Ash- NMT6%
	Water soluble ash – NLT 1.5%
	Alcohol soluble extract – NLT 3%
	Water soluble extract – NLT 10%
<i>Maricha</i>	Foreign matter- NMT 2%
	Total Ash- NMT5%
	Water soluble ash – NLT 0.5%
	Alcohol soluble extract – NLT 6%
	Water soluble extract – NLT 6%
<i>Pippali</i>	Foreign matter- NMT 2%
	Total Ash- NMT5.5%
	Water soluble ash – NLT 0.2%
	Alcohol soluble extract – NLT 4%
	Water soluble extract – NLT 12%

The *katu-tiktarasa*, *katuvipaka*, *ushnaveerya*, and *lakhurookshaguna* of *Ajamoda* will pacify *vata* and *kapha* and ignates the *agni*. The seeds of *Ajamoda* (*A. graveolens*) have high levels of antioxidants such

as vitamins A, B, and C which will help in reducing the oxidative stress caused by toxic agents¹⁹. Apigenin, one of the main active chemical compounds in *Ajamoda* have the ability to inhibit the

growth of many human cancer cell lines like cervical carcinoma cells, breast cancer cells, and leukaemia

through apoptosis activity^{20,21,22}.

Table 3: Physical properties of Ajamoda²³

DRUG NAME	PHYSICAL PROPERIES
Ajamoda	Foreign matter- NMT 5%
	Total Ash- NMT 14%
	Water soluble ash – NLT 3%
	Alcohol soluble extract – NLT 14%
	Water soluble extract – NLT 3%

Hingu, is one of the ingredients which should be used after frying because in raw form it may cause nausea. This is mentioned in *SharangadharaSamhita*, *Choorna Kalpana* that before using *hingu* in any preparation we should go for dry fry. The property of *hingu* like, *katurasa*, *katuvipaka laghurookshaguna* and *ushnaveerya* will pacify *vata* and *kapha* and keeps their control on *pitta*. So it will a good role as *deepana*, *pachanagulmanashaka*, *adhmanahara*, *vibandhahara* in the combination. The volatile oils and the *ushaveerya* increase the digestive fire, act as antispasmodic and analgesic, and are fast acting due to its *teekshnaguna*. *Hingu* is having a strong sulphurous odour. *Ferula asafoetida* has a great role in the digestion of dietary lipids by stimulating bile flow and enhancing bile acid secretion. Its activities of digestive enzymes of the pancreas and small intestine. Moreover, it is used for low acid levels in the stomach, stomach pressure, flatulence, and loose

stools. *Hingu* has three main contents, which includes resin (40–64%), gum (25%), and essential oil (10–17%)²⁴. The resin mainly contains ferulic acid and its esters, coumarins, sesquiterpene coumarins, and other terpenoids. The gum includes glucose, galactose, 1-arabinose, rhamnose, glucuronic acid, polysaccharides, and glycoproteins, and the volatile fraction contains sulfur-containing compounds, monoterpenes, and other volatile terpenoids²⁵. Sulfur compounds in *F. asafoetida* resin show various biological activities²⁶. Three major sulfur constituents that have been identified include 2-butyl 1-propenyl disulfide, 1-(methyl thio) propyl 1-propenyl disulfide, and 2-butyl 3-(methyl thio)-2-propenyl disulfide²⁴. The relaxant compounds in *F. asafoetida* gum extract interfere with a variety of histaminic receptor and muscarinic adrenergic activities or with the mobilization of calcium ions required for smooth muscle contraction²⁷.

Table:4 Physical properties of Hingu²⁸

DRUG NAME	PHYSICAL PROPERIES
Hingu	Foreign matter- NMT 2%
	Total Ash- NMT 15%
	Water soluble ash – NLT 2%
	Alcohol soluble extract – NLT 50%
	Water soluble extract – NLT 50%

Chitraka, one of the strong ingredients present in *Raja Choorna* has *katurasa* and *vipaka*, *ushnaveerya*, and *laghurookshaguna* which will passify *vata* and *kapha* and do the *amapachana* and *agnideepana*. According to Ayurveda the useful part of *chitraka* is rootbark and should be used only after purification in lime water. Plant contains different chemical compounds such as naphthaquinones, alkaloids, glycosides, steroids, triterpenoids, tannins, phenolic compounds, flavanoids, saponins, coumarins,

carbohydrates, fixed oil and fats, and proteins^{29,30,31,32,33}. Among them, plumbagin is the principle active compound. Plumbagin (5-hydroxy-2-methyl-1, 4- naphthoquinone- C₁₁H₈O₃) is primarily present in roots in higher amounts³⁴. Plumbagin plays a central role in regulating diverse processes in leukocytes like cellular proliferation, expression of immunoregulatory genes, and apoptosis during innate and adaptive immune responses³⁵. *Acharya charaka* mentioned it in *deepanapachanagana*,

shoolaprashamanagana, bhedaneeyagana, triptighnagana, arshognagana, and acharya sushruta mentioned it in *pippalyadigana, mustadigana, amlakadigana, mushkakadigana, varunadigana, aragw adhadigana*. Acharyasharagadhara set it as an

example for *deepana-pachanadravya*. It is an ingredient in *chaturrooshana, panchakolashadooshana* etc. The above explanations give the evidence of the popularity of *chitraka* from the ancient period.

Table 5: Physical properties of *Chitraka*³⁶

DRUG NAME	PHYSICAL PROPERIES
<i>chitraka</i>	Foreign matter- NMT 3%
	Total Ash- NMT 3%
	Water soluble ash – NLT 1%
	Alcohol soluble extract – NLT 12%
	Water soluble extract – NLT 12%

Bharangi is having *katutiktarasa, katuvipaka, laghu-rookshaguna, ushnaveerya*. These properties of the drug will passify *vata* and *kapha*. It will do the *deepanapachana karma* by controlling *pitta* in a proper way. Root contain Saponins, D - mannitol, Stigmasterol, oleanolic acid, Queretaroic acid, Serratagenic acid, Sitosterol, Clerosterol identified as 5, 25- stimastadien-3 β o, Clerodone as 3 β -hydroxyl- lupan 12- one, B- sitosterol, Lupeol, A steroidal glycoside, Phytosterols, Ferulic acid, etc. Phenolic extract of the root is having high free radicle scavenging properties. Clerodendrum serratum shows

various biological activities, such as anti-inflammatory and anti-nociceptive, antioxidant, anticancer, antimicrobial, anti-hypertensive, anti-obesity, anti-diarrheal, hepatoprotective, memory enhancing, and neuroprotective activities. Terpenes, including monoterpene and its derivatives, sesquiterpene, diterpenoids, and triterpenoids, as the major chemical constituents which will help the plant to do biological activities and have a great potential to be developed as new drugs, especially for anti-inflammatory, antioxidant, anticancer, and antimicrobial agents³⁷.

Table 6: Physical properties of *Bharangi*³⁸

DRUG NAME	PHYSICAL PROPERIES
<i>Bharangi</i>	Foreign matter- NMT 2%
	Total Ash- NMT 11%
	Acid soluble ash – NLT 1%
	Alcohol soluble extract – NLT 6%
	Water soluble extract – NLT 12%

Chavya or *Gajapippali* is having the same guna as *pippalimoola*. It is having *katu rasa* and *vipaka, ushnaveerya, and laghu-rookshaguna*. *Chavya* is *vata-kaphahara* and *agnideepaka* and karma as *deepana, pachana, amahara, gulmahara*, etc. It is useful in *udararoga, anaha, krimi, shoola, arsha*, and many other gastrointestinal diseases. The fruits of *Piper chaba* are used as a gastro-protective, anti-flatulent,

appetizing property, as an expectorant, anti-fungal agent, anti-tussive, and also possess cholesterol-lowering properties³⁹. Ethanolic fruit juice of *Piper chaba* has also been shown to possess erythropoietic effects⁴⁰. This plant contains isoflavanons and alkaloids are having antioxidant compounds. These compounds will break the oxidation chain reaction by removing the free radicle intermediate⁴¹.

Table 7: Physical properties of *Chavya*⁴²

DRUG NAME	PHYSICAL PROPERIES
	Foreign matter- NMT 2%
	Total Ash- NMT10%
	Acid soluble ash – NLT 1.5%
	Alcohol soluble extract – NLT 3%
	Water soluble extract – NLT 6%

Saidhavalavana and *Bidalavana* are two types of *lavana* in *Raja choorna*. *Saidhavalavana* is best among the *lavanavarga* due to its *Madhura vipaka* and *anushnasheetaguna*. Usually, *lavanavargas* are having *vidahi* property but *Saidhavalavana* is an exemption. *Acharya Sushruta* says that *saidhavalavana* is *deepna*, *pachana*, *chakshusya*, *hridya*, *ruchyavrishya*, and best for *tridoshaghna*. *Sindhavalavana* is having potassium as the main element of sodium⁴³. *Bidalavana* is having *kshara rasa*, *katuvipaka*, *laghurookshatheekshnaguna*, and *ushnaveerya*. It is a very potent and fast-acting *lavana* and does the *chedanakarma*. In higher doses,

it will increase the *pitta* and cause mucosal erosion, *udarashoola* etc. both the *lavanas* are hygroscopic. So, *Raja choorna* should be kept in an airtight container otherwise it will absorb the humidity in the air and start to spoil. *Yavakshara* is one of the alkalis, which is having *kshararasa*, *katuvipaka*, *ushnaveerya*, *laghu*, *rooksha*, and *theekshnaguna* and it is *pittavardhaka*. *Yavakshara* contains elements like sodium, potassium, iron, etc. It is useful in *adhmana*, *gulma*, *anaha*, *shoola*, *pleehamaya*, *mootrakrichra*, *grahaniroga*, etc.

Table 8: Physical properties of *Yava Kshara*⁴⁴

DRUG NAME	PHYSICAL PROPERIES
Yavakshara	Loss on drying at 110oc -NMT 4%
	Acid soluble ash -NMT 1%
	Ph (10% aqueous solution) -9-10
	Sodium – NLT 17%
	Potassium – NLT 16%
	Iron – NLT 1.5%

TAKRA ANUPAANA

Takra (buttermilk) is recommended as *anupana* for *Raja choorna*. *Takra* is *kashaya* (astringent), *amla* (sour), *madhura* (sweet) in *rasa* (tastes), and possessed with *laghu* (light for digestion) *guna*, *ushnaveerya* (potency), and *madhuravipaka*. *Takra* does *deepana* (carminative), *balya* (strengthening), *vrishya* (aphrodesiac), and *preenana* (nourishing) action⁴⁵. It is best in *grahaniroga* (mal absorption) because of *sangrahi* (anti-diarrhoeal) and *laghu* (light for digestion) *guna*. *Shotha* (Swelling) *Grahanidosha* (Sprue), *Mutragraha* (Difficulty in Micturation), *Udara* (Ascites), *Aruchi* (Anorexia), *Snehvyapad* (Complication due to overuse of oily substances), *Garavisha* (Low Potency Poison) In

Udara (Ascites)⁴³. *Acharya Charaka* mentioned that *Takra* (Buttermilk) is very useful in *Gaurava* (Heaviness in the body) *Arochaka* (Anorexia) *Mandagni* (Low Digestive Fire) *Atisara* (Diarrhea), *Vata-Kaphapradhana vyadh* is⁴³. Buttermilk is famous for its nutritional value. It provides sufficient nutritional supply to the body through its components such as energy, carbohydrates, fat, protein, calcium. In 100 g of buttermilk, it contains 40-kilo calories of energy, 4.8 g of carbohydrate, 0.9 g of fat, 3.3 g of proteins, and 116 micrograms of calcium, Vitamin A 1 %, Vitamin C 4 %, and iron 1 %⁴⁶. *Raja choorna* is a combination of 11 drugs and should be used as *takra* as *anupana*. All are having *katurasa katuvipaka*, *laghurookshaguna*, and *ushnaveerya*. The drugs are *kaphavatashamaka* and controlled

pittavardhna. The *bidalavana* and *yavakshara* will clear the *srotas* and burn the *ama*. Both of them help the other drugs to reach the target cells as early as possible due to their *rooksha*, *teekshna*, *laghu*, *vyavayiguna*, and *kshara* character. Buttermilk has a characteristically sour taste. Increased acidity of buttermilk is due to lactic acid produced by lactic acid bacteria; while fermenting lactose, the primary sugar in milk. As the bacteria produce lactic acid, the pH of the milk decreases, and casein, the primary milk protein, precipitates which causes the curdling of milk with a sour taste. This process makes buttermilk thicker than plain milk. Probiotics and Prebiotics together maintain the growth of bacteria in the colon. Prebiotics is the indigestible food that passes into the colon unabsorbed by the upper intestinal tract where they act as a better medium for the growth of the gut bacteria. Probiotics refer to the microbiota in the colon and their helpful activities often lead to better health of the intestine. Buttermilk has probiotic qualities that help to regulate the functions of the gastrointestinal system. This is because probiotics introduce healthy bacteria into the body, particularly into the digestive tract, where they are essential for the breakdown and absorption of foods and their nutrients.

CONCLUSION

Raja choorna, from *Arogyarakshakalpadruma*, *Grahanirogachikitsaadhyaya* is a unique and useful combination of 11 drugs. According to *Bhavaprakasha Nighantu*, all the ingredients are *deepana*, *pachana*, *shoolahara*, *agnimadyahara*, *gulmanashaka*, etc. including the *anupana takra*. As *Takra* has *deepana* (Carminative), *pachana* (digestive), *sangrahi*, and *tridoshahara* properties and is mainly indicated in disorders related to the gastrointestinal tract. The main indications of *Rajachoorna* are *kaphavatahara*, *sholanashana*, *vanhideepana*. The critical analysis of the ingredients in this article proves its efficacy.

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