


Review Article
A REVIEW ON THE PROBABLE MODE OF ACTION OF HINGUVACHADI CHURNA (POWDER)- AN AYURVEDIC FORMULATION WITH MULTIFACETED ACTION
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ABSTRACT

Since time immemorial, a wide variety of various formulations have been used by Ayurvedic physicians to treat different gastro intestinal disorders which includes *Churna* (powder), *Kwatha* (decoctions), fermented preparations like *Asava* and *Arishta*, *Lehya* (linctus), *Vati/ Gutika* (tablets) etc. *Agnimandya* (slow digestive power) is considered as the root cause of all disorders in Ayurveda, especially gastrointestinal disorders. *Hinguvachadi Churna* is a time tested formulation widely used by Ayurvedic practitioners for correcting the digestive power of our body. There are 24 constituents in this formulation and is indicated in the management of certain specific disease conditions originated because of *Vata* and *Kapha* humour. Modern scientific world always need explanations and logic behind the mode of action of various Ayurvedic procedures. This review is an attempt to explain the mode of action of this formulation. On analysing the properties of the ingredients, it was found that it is predominant of *Katu rasa* (pungent taste), *Ruksha* (dry) *Teekshna* (sharp) *Guna* (property), *Ushna veerya* (hot potency), *Katu vipaka* (pungent taste after bio transformation). These properties are responsible for the various pharmacological action of the formulation in Ayurvedic terms. As per modern pharmacology, phytoconstituents of many herbs are having action concerned with motility and secretions of Gastrointestinal tract, ultimately resulting in improved digestive capacity of our body. Analysis of mode of action gives a deep insight about the usage of formulations with a better understanding. The physician can apply his logic to use the medicine in contexts other than indicated.

KEYWORDS: *Hinguvachadi churna*, Mode of action, Ayurveda.

INTRODUCTION

Hinguvachadi churna is a time tested formulation, widely used in the management of various disorders, especially gastro intestinal disorders because of vitiation of *Vata* humour, *Kapha* humour and *Ama* (undigested form of food).^[1] Modern scientific world always need explanations and logic behind the mode of action of various Ayurvedic procedures. This is a humble effort to explain the mode of action of this formulation, which is highly effective to correct digestive imbalances

with predictive result. It is described in various Ayurvedic textbooks like *Bhaishajya ratnavali*, *Sahasrayogam*, *Yogaratanakaram* etc. I have selected the description in *Ashtanga hridayam*, *Gulma chikitsa* chapter.

MATERIALS AND METHODS

There are 24 constituents in this formulation (Fig 1), which includes 2 *Ksharas* (alkali preparations) and 3 *Lavanas* (salts).

***Rasa* (taste), *Guna* (properties), *Veerya* (potency), *Vipaka* (biotransformed taste after digestion), *Karma* (action) of ingredients** ^[2]

Drug	<i>Rasa</i> (taste)	<i>Guna</i> (property)	<i>Veerya</i> (Potency)	<i>Vipaka</i> (Bio transformed taste)	Action
हिंगु:	Pungent	Hot, sharp, light, unctous	Hot	Pungent	<i>Vata</i> kapha alleviating, increase <i>Pitta</i> , digestive, carminative, relieves colicky pain, abdominal lumps, flatulence, worms

वचा	Pungent, Bitter	Sharp, Light	Hot	Pungent	<i>Kaphavata</i> alleviating, digestive, relieves constipation, abdominal distension, colicky abdominal pain, worms
विजया	Astringent, Sweet, Sour, Bitter, Pungent	Light, dry	Hot	Sweet	Alleviates <i>Tridosha</i> , digestive, carminative, relieves haemorrhoids, swelling, ascites, worms, sprue, constipation, abdominal lumps, flatulence, vomiting, splenomegaly, urinary obstruction, dysuria
पशुगन्धा	Pungent	Light, sharp	Hot	Pungent	Alleviate <i>Kapha</i> , <i>Vata</i> , worms, colicky pain
दाडिम	Sour	Light, unctous	Slightly hot	Sour	Increase <i>Pitta</i> , alleviate <i>Ama</i> , <i>Vata</i> , <i>Kapha</i>
दीप्यकः	Pungent, bitter	Light, sharp, dry	Hot	Pungent	Alleviate <i>Kaphavata</i> , digestive, relieves vomiting, pain around urinary bladder
धान्यकः	Astringent, Bitter, Sweet, Pungent	Light, unctous	Hot	Sweet	Alleviate <i>Tridosha</i> , digestive, alleviates anorexia, indigestion, haemorrhoids, worms
पाठा	Bitter	Light, sharp	Hot	Pungent	Alleviate <i>Vatakapha</i> , colicky pain, vomiting, diarrhoea, worms, abdominal lumps, wounds (ulcer)
पुष्करमूलः	Bitter, Pungent	Light, sharp	Hot	Pungent	Alleviate <i>Vatakapha</i> , anorexia, pain in flanks
शठी	Pungent, Bitter, Astringent	Light, sharp	Hot	Pungent	Alleviate <i>Vatakapha</i> pv, constipating, relieves swelling, wounds, colicky abdominal pain
हपुषः	Bitter, Pungent	Light, dry	Hot	Pungent	Alleviate <i>Vatarakta</i> , (dha.ni), worms, anorexia, splenomegaly, pain around anus
अग्निः	Pungent	Light, dry, sharp	Hot	Pungent	Alleviate <i>Vatakapha</i> , digestive, carminative, relieves sprue, swelling, haemorrhoids, worms
यवक्षारः	Pungent	Light, dry, sharp	Hot	Pungent	Alleviate <i>Kapha</i> , digestive, relieves haemorrhoids, sprue, splenomegaly, flatulence
स्वर्जिकाक्षारः	Pungent	sharp	Hot	Pungent	Alleviate <i>Vatakapha</i> , Relieves abdominal lumps, flatulence, worms, ascites
शुण्ठी	Pungent	<i>Laghu</i> , unctuous	Hot	Sweet	Digestive, Alleviate <i>Vatakapha</i> , rheumatic fever, vomiting, colicky abdominal pain, swelling, flatulence, haemorrhoids, ascites, constipation
मरिचः	Pungent	Light, dry, sharp	Hot	Pungent	Alleviate <i>Vatakapha</i> increase <i>Pitta</i> , digestive, relieves colicky abdominal pain worms

पिप्पली	Pungent	Light, unctuous, sharp	Both hot and cold	Sweet	Digestive, Alleviate <i>Vata</i> kapha
सैन्धव लवणः	Salt	Light	Cold	Sweet	Alleviate <i>Tridosha</i> , digestive, stomachic relieves anorexia
सौवर्चल लवणः	Salt	Light, clear, penetrating	Hot	Sweet	Alleviates <i>Vata</i> , increase <i>Kaphapitta</i> , laxative, digestive, carminative, Relives anorexia, colicky abdominal pain
विट लवणः	Salt	Light, dry, sharp, spreads quickly in body before digestion	Hot	Sweet	Alleviate <i>Vata</i> kapha, digestive, relieves anorexia, constipation, colicky abdominal pain, flatulence
अजाजी	Pungent	Light, dry	Hot	Pungent	Alleviate <i>Vata</i> kapha, increase <i>Pitta</i> , stomachic, digestive, constipating, relieves anorexia, abdominal lumps, vomiting, diarrhoea
चव्यः	Pungent	Light, dry	Hot	Pungent	Alleviate <i>Vata</i> , flatulence <i>Kapha</i> , increase <i>Pitta</i> , digestive, stomachic, laxative, relieves ascites, flatulence, splenomegaly, abdominal lumps
तित्रिणीकः	Sour	Light, dry	Hot	Pungent	Alleviate <i>Vata</i> kapha, digestive relieves diarrhoea, anorexia ^[3]
वेतसाम्लः	Sour	Light, dry	Hot	Pungent	Alleviate <i>Vata</i> , laxative, relieves abdominal lump, colicky abdominal pain, wounds

Analysis

Of the 24 ingredients of *Hinguvachadi Churna*, 17 are having pungent taste, 3 having salty taste, 1 with sweet, 1 with bitter and 2 with sour as predominant tastes. All are light (easily digestible), 10 are dry, 5 with unctuous, 12 with sharp, 1 with spreading quickly nature before digestion, 1 with penetrating and 1 with clear properties. 22 of 24 drugs are having hot potencies, 1 with slightly hot potency and 1 with slightly hot and slightly cold potency. Regarding biotransformed taste after digestion, 14 are pungent, 7 are sweet and 3 are sour. As far as action on bio humours are concerned, 17 alleviate *Kapha vata*, 3 alleviate three biohumours, 1 alleviates *Vata, Rakta*, 1 alleviates *Vata* and alleviates *Kapha*.

Dashaimani's (group of 10 best herbs with digestive action) of Charaka Samhita in which constituents are included^[4]

Hingu- *Deepaneeya Gana*

Vacha- *Triptighna*

Vijaya- *Arshogna, Jwaraghna*

Dadima- *Hridya, Chardhinigrahana*

Deepyaka- *Shuolaprashamana, Deepaneeya*

Dhanyaka- *Trishna Nigrahana*

Chitraka- *Deepaneeya, Triptighna, Bhedaneeya, Arshoghna*

Shunti- *Triptighna, Arshoghna, Deepaneeya, Soolaprashamana, Trishnanigrahana*

Maricha- *Deepaneeya, Shoolaprashamana, Krimighna*

Pippali- *Triptighna, Deepaneeya, Soolaprashaman*

Ajaaji- *Soolaprashamana*

Chavyam- *Triptighna, Arshoghna, Deepaneeya, Soolaprashamana*

Dose: 3gm-6gm twice daily

Dosage: Powder (चूर्णः), (widely used in tablet form also as *Hinguvachadi Gutika*, triturated using *Panchakola* decoction, *Jambeera rasa* (lime juice), *Ardhaka rasa* (ginger juice) usually which are *Agnideepaka dravyas*).

Time of Administration

It depends on the condition in which medicine is prescribed, as it is indicated in various diseases. ^[5]

Prakbakti: In *Apanavata* vitiation: Eg. *Vasti ruja*

Madhyabhakta: In *Samana vata* vitiation: Eg: *Nabhi ruja*

Adhobhaktam (Pratarashana): In *Vyana vata* vitiation: Eg: *Hrit graham*

Adhobhaktam (Sayamashana): In *Udana vata* vitiation: Eg: *Kante bandham*

Sabhaktam: *Aruchi*

Samudga: In *Hidhma* for *Amapachana*

Muhurmuhu: *Swasa, Kasa, Hidhma*

Sagrassa: In *Prana vata* vitiation, as *Agnideepaka churna*

Anupana: Not specifically indicated, usually hot water, cumin seed water / butter milk/ginger juice (all being *Agnideepaka Dravyas*)

Sahapana: Along with different formulations for promoting agni like *Gandharvahastadi Kashaya, Saptasaram Kashaya, Abhayarishtam, Pippalyasavam, Duralabharishtam, Poothikasava, Poothikaranjasava* etc as per the logic of physicians.

Contraindications

Better to avoid usage for long period in Hypertensive patients as it contains salts and also in very emaciated patients and those suffering from infertility as it contains *Kshara*, which may increase the emaciation and affect the quality and quantity of sperm/semen

Therapeutic Uses

Dosha karma (Action on bio humours): *Vatakaphahara, Vatanulomaka* (helps the normal movement of *Vata* humour).

Agni karma (Action on bio fire): *Deepana* (digestive), *Pachana* (stomachic).

Malakarma (Action on waste products of our body): *Vinmutra vibandhahara* (relieves the obstruction in passage of *Vata*, faeces, urine).

Srotokarma (Action on channels of body): *Srotoshodhaka* (removes the obstruction in channels of body), *Lekhana* (scrapes away the vitiated humours, tissues and waste products of our body).

Other actions: Antacid, Antispasmodic, carminative, increases taste of food, healthy for throat, relieves worms, colicky abdominal pain.

Indicated in the management of *Vatakapha amaja* (caused because of vitiated *Vata, Kapha* and *Ama*)

Pain in the precordial area, flanks, area around urinary bladder, anus, vulval/vaginal area (perineum), Low back pain, abdominal lumps, Anorexia, abdominal pain, loss of appetite, Indigestion, sprue, bloating, belching, flatulence, obstruction in the movement of *Vata* humour, faeces, urine, Obstruction in throat, feeling of constriction in the precordial area, Anaemia, Splenomegaly, Haemorrhoids, Hiccup, *Vridhi* (Conditions like hydrocele, inguinal hernia), Dyspnoea, cough.

Therapeutic uses other than textual indication

Indications

Colicky abdominal pain due to spasm in internal organs like urinary bladder, malabsorption syndrome, IBS, *Kashtarthava* (primary dysmenorrhoea), hyperacidity, flatulence, urinary colic, dyslipidaemia, renal colic, pleural pain, achalasia cardia, intercostal myalgia, Atonic bladder.

Another important use is that it is used in *Kashayavasti* (decoction enema) the form of *Kalkka* (fine paste)/*Kashaya* (decoction)

Probable Mode of Action

On the analysis of properties of *Hinguvachadi churna*, it was found that drugs are predominant in *Katu rasa* (pungent taste), *Laghu* (light) *Ruksha* (dry) *guna*, *Usna Virya* (hot potency) and *Katu Vipaka* (pungent after biotransformation). *Tikta* (bitter), *Kashaya* (astringent) and *Amla Rasa* (sour taste) is also present in very few ingredients. Bitter taste has *Agnivardhaka* (digestive), *Ruchya* (relieves anorexia) and *Mukha Shodhaka* (cleansing mouth) properties, so it increases appetite and improves digestion. Astringent property has the property of *Asravishodhana* (purifying blood). Sour taste of *Punica granatum, Garcinia Morella* has properties like which improves digestion, increases appetite. Its *Hridya* (pleasing to mind) property reduces nausea and vomiting. Sour taste also has the property of *Muda Vata Anulomana* (normalises movement of *Vata*). Pungent taste increases appetite and improves digestion which brings about *Srotoshodhana* (cleanses body channels). Light and dry properties of the drugs pacify *Kapha* vitiation if any. *Sara* (mobility), *Ushna* (hot), *Tikshna* (sharp) and *Sookshma* (penetrating) properties of the drugs in the formulation remove obstruction by *Kapha* humour and thus allow normal movement of *Apana Vata* (a sub classification of *Vata* humour). *Hingvachadi Churna* mostly contains drugs having hot potency which pacifies vitiated *Vata* and *Kapha*. Most of the drugs in the formulation have pungent biotransformation which also pacifies vitiated *Vata* and *Kapha*. *Vata Anulomana* (normalising movement of *Vata* humour), *Shulahara* (relieving abdominal colic), *Shothahara* (relieves swelling), *Srotovishodhana* (clears body channels) properties of drugs of *Hingvadichurna* facilitates normal flow of *Vata* and alleviates *Kapha*. This renders the indigested food into the assimilable form and the normalised *Agni* leads to subsidence of disease.

Probable mode of action (In each indication)

Pain in the precordial area, flanks, area around urinary bladder, anus, vulval/vaginal area (perineum), low back pain

Formulation is specifically indicated in *Vatakaphaamajarogas* (originated due to vitiated *Vata*, *Kapha* and indigested food). 20 out of 24 constituents are *Vatakaphahara* (alleviates *Vata* and *Kapha*). All constituents are having *Amapachana* (stomachic), *Deepana* (digestive) properties. 23 out of 24 constituents are *Vatadoshahara* (alleviates *Vata*). *Soola* (colicky abdominal pain) is a *Nanatmaja Vikara* of *Vata Dosha*. Moreover *Soolahara* (alleviating *Soola*) action is specifically mentioned for *Ferula asafoetida*, *Acorus calamus*, *Terminalia chebula*, *Cleome gynandra*, *Cyclea peltata*, *Hedyotis corymbosa*, *Zingiber officinale*, *Piper nigrum*, *Sorchal salt*, *Garcinia morella*. Also, *Inula racemosa* is the *Agrya Oushadha* (best medicine) mentioned for *Parswasoola* (pain in flanks). *Apium graveolens* is having *Vastirujahara* (relieving pain around urinary bladder) property. *Sphaeranthus indicus* is described to have *Gudarthihrit* (relieving pain related to anus, rectal region) property.

Abdominal lumps (Gulma)

Gulma is considered as *Tridoshaja*, *Vata* predominant disorder. As per Ayurveda abdominal lump caused due to aggravation and encapsulation of *Vata Dosha* which spreads widely like shrubs/lump (*Gulmawat Vishalaataawaat*). It is usually known as tumor of abdomen. When there is obstruction in the *Rasavaha srotas* (channels carrying *Rasa* tissue), it results in *Agnimandya* (decreased digestive capacity), progressing to *Gulma*. 23 out of 24 constituents alleviates *Vata dosha*. Specifically *Gulmahara* property mentioned for *Ferula asafoetida*, *Terminalia chebula*, *Cyclea peltata*, *Sodium bicarbonate*, *Cuminum cyminum*, *Piper chaba*, *Garcinia morella*. All constituents are stomachic and digestive. Cleansing property of channels of formulation also supports it.

Pungent taste and hot potency of *Zingiber officinale* removes obstruction in channels. *Piper longum* due to its pungent taste and hot potency increases biofire by which digestion of indigested food occurs. Due to the above factor *Gulma* originated by *Ama* subsides. *Apium graveolens* is helpful in normalising movement of *Vata*. *Piper longum* increases biofire and thereby reduces blockage in the microcirculatory channels. *Ferula asafoetida*, *Piper longum*, *Z. officinale* and *Apium graveolens* are prescribed as wholesome diet for *Gulma*. *Piper nigrum* by its hot potency and pungent taste increases biofire; by sharp, hot property expels the vitiated *Doshas* which are in *Sanchaya Avastha* (accumulated stage). *Pramathi Guna* (property of

expelling vitiated *Doshas* form channels forcefully) of *P. nigrum* helps in *Srotoshodhana*.

Vata, Vit, Mootrasangam (obstruction in the movement of *Vata* humour, faeces, urine, *Kante Bandham* (Obstruction in throat), *Hrit Graham* (Feeling of constriction in the precordial area)

Vatavridhi and *Rudhagati* (vitiating and obstructed movement of *Vata* humour) is the cause for the conditions. Most of the constituents are normalise movement of *Vata*, especially *Acorus calamus*, being *Pramathi* herb. The *Ushna*, *Teekshna* property of the drugs help to clear vitiated *Vata* in the digestive tract, treating bloating, flatulence, colic and undigested food in the stool; it moves *Samana Vayu* and draws *Apana Vayu* down. *Terminalia chebula* is *Vatanulomaka*, *Vibandhahara* (removes obstruction) and is indicated in *Mutrakrichra* (dysuria) and *Mutraghata* (obstructed movement of *Vata*). *Z. officinale*, *vida salt* is *Vibandhahara*. *Sorchal salt* is *Malabhedaka* (helps in the passing of faeces, urine). *Piper chaba* is *Bhedi* (laxative). *G. morella* is *Rechani* (laxative). Due to strong pungent taste, formulation purifies the tongue and throat and thus relieves obstruction in throat. *Vatahara* property relieves feeling of constriction in the precordial area and drugs with sour taste are pleasing to mind and good for heart.

Annasradha/Adhmana/Agnisadam/ Pandu rogam (Conditions like Anorexia, abdominal pain, loss of appetite, Indigestion, sprue, bloating, belching, flatulence/ Anaemia)

Agnimandya (decreased biofire) is the cause, *Deepana* (digestive) property at its best gradient of all drugs help to relieve this, especially *P. longum*, *P.nigrum*, *Z.officinale*, *P.zeylanica*, *2 kshara*, *F. asafoetida*, *Apium graveolens*, *C. sativum*, *C. cyminum*, *P.chaba*. Drugs due to its pungent taste and hot potency increases the digestive fire. Many drugs have *Ruchyam* (relieves anorexia). *Pramathi Guna* of *P. nigrum* helps in removing obstruction of channels and is indicated in indigestion, colicky abdominal pain and flatulence. Synonymns, *Agni* of *P. zeylanica* and *Deepyaka* of *A. graveolens* implies the *Agnideepana* property of the drugs. *Ksharas* are said to be *Agni Sannibha* (equal to fire)

Pleeha (Splénomegaly), *Durnama* (Haemorrhoids), *Vridhi* (Conditions like Inguinal hernia, hydrocele)

These are diseases due to vitiating of *Vata, Kapha*. *Vatakapha* alleviating property of the formulation helps. *T.chebula*, *S.indicus*, *Hordeum vulgare* ash, *P. chaba* are specifically indicated in the disease, Splénomegaly. *P. longum* is the *Agrya Oushadha* (best medicine) mentioned for Splénomegaly, by its *Srotoshodhaka* (cleansing channels) & *Rasayana*

(nourishing *Dhatus*) property, nourishment of tissues take place. *P. zeylanica*, *Hordeum vulgare* ash, *Z. officinale* is indicated in haemorrhoids.

Hidhma (hiccup), Swasa (dyspnoea), Kasa (cough)

These are *Vata* predominate conditions. Normalising the movement of *Vata* is the treatment principle. Pungent taste, hot potency helps in this. *Inula racemosa* is said to be the best medicine for condition associated with pain in flanks, dyspnoea, cough.

Probable Mode of Action in Dyspepsia- Modern Pharmacology

- In dyspepsia (*Agnimandya* and related conditions): Galactone and diterpenoids isolated from ginger exhibited anti 5HT effect (5HT receptors are concerned with gastric motility and secretions in the gut). Function as digestive aids; has anti-ulcer, anti-emetic and cholagogic (Increases the biliary secretions) properties. In experimental animals, 36 Gingerol and shogaol, active components of Ginger, reduce gastric contractions but increases gastro intestinal motility and spontaneous peristalsis activity. *P. longum* exhibited substantial anti-ulcer activity. It resulted in significant increase in mucin secretion and mucosal glycoprotein and marked decrease in cell shedding, showing anti-ulcer effect. It acts as a catalyst; increase the action of other herbs. Acts as bioavailability enhancer by enhancing gastro intestinal absorption and causing thermogenesis. Both pipartine and alcoholic extract extracted from the stems exhibited significant inhibition of ciliary movements of oesophagus of frog, which avert heartburn and nausea in hyperacidity.
- *Ajamoda* (*A. graveolens*) produces contraction of the isolated ileum, tracheal chain and bronchial musculature in guinea pigs.
- *Lavana* (salts) helps soften food and make it easily digestible, aids secretion of saliva and gastric juices. It also softens the mucus membrane. It acts as carminative, digestive and stomachic properties.
- *F. asafoetida* significantly reduces the gastric volume, total acidity, free acidity, and increase the pH of gastric juice. So *Hingu* is preferred, when *Adhmana* and *Shula* are the chief complaints.
- *Trikatu* in total is known to influence the bioavailability of drug. Piperine in particular functions as bioavailability enhancer by improving gastro intestinal absorption and inducing thermogenesis.^[6]

➤ Moreover, ingredients of *Hingvachadi churna* functions as digestive stimulant by different enzymatic secretions. Oral administration of Piperine, Cumin, Asafoetida, *A. graveolens*, as a single dose significantly stimulates the liver to produce bile rich in bile acids, which play a very significant role in fat digestion and absorption. Proteins, starch and triglycerides, the major macromolecules in food are hydrolyzed by the major pancreatic enzymes- proteases (trypsin and chymotrypsin), amylase and lipase respectively. The dietary intake of spice principles Piperine, Ginger, Asafoetida, and Ajowan significantly enhance lipase activity. Pancreatic amylase activity is induced by dietary ginger.

➤ The study on antispasmodic and antidiarrhoeal activity of *Acorus calamus* revealed that plant extract causes the spontaneous inhibition of high K (+) induced contractions which caused spasmolytic activity which is mediated through the calcium channel blockade.^[7]

Probable Mode of action in Soola (colicky pain)

- Ginger (*Sunthi*) decreases both acetylcholine-induced and electrically-induced smooth muscle contractions. The spasmolytic property is accredited to gingerol, which also reduces the biosynthesis of prostaglandins (lipid compounds that have a role in pain perception) and serotonergic activity.
- Ginger is also anti-inflammatory that aids in the management of pain and discomfort accompanying with inflammatory changes in the gastrointestinal tract. COX-1 and -2 enzymes are also inhibited by it.
- Celery (*Ajamoda*) also has spasmolytic action, which is particularly beneficial in decreasing gastrointestinal tract spasms. It has potent COX-1 and -2 inhibitory anti-inflammatory, santi-nociceptive and analgesic effect.
- Cumin also has analgesic, carminative and stimulant effects. It exhibits neurotropic anti-spasmodic action. Anti ulcerogenic activity of *Cuminum cyminum* has also been proved.
- In rats, colloidal solution of asafoetida exhibited anti ulcer effects in acute gastric ulceration induced by cold restraint stress, aspirin and pylorus ligation.
- In the stomach of rats, *Piper longum*, *Zingiber officinalis* and *Ferula* species augment mucin secretion and decrease cell shedding.
- Asarone of *Vacha* has a relaxing effect on smooth muscle tissue, relieving the spasm.

- *Terminalia chebula* extract showed antisecretory activity in pylorus ligated model which lead to significantly increased gastric Ph, reduction in the gastric juice volume, free acidity and total acidity.^[8]
- The ethanolic extract of *Cyclea peltata* roots showed significant antisecretory activity by decreasing pepsin secretion, gastric juice volume and acid output in pylorus-ligated rats. Further, it showed significant gastroprotective effects.^[9]

Probable Mode of Action in *Gulma* (Abdominal lump)

- Ginger has got anti-cancer and antiinflammatory activity by inactivating NFκB by suppressing pro-inflammatory TNF-α 71.
- Piplartine & piperene of piper compounds has antiabdominal tumor mechanisms of action. Piplartine compound destroys cancer cells by targeting the stress response to reactive oxygen species (ROS). Piplartine induces selective apoptosis in cells which have a cancer genotype by targeting a non-oncogene co-dependency attained through expression of the cancer genotype in response to transformation-induced oxidative stress.
- Piperine is a chief component of black (*P. nigrum*) and long (*P. longum*) pepper. The content of piperine in black pepper varies from 5% to 9%. Piperine can inhibit human fibrosarcoma (HT-1080) cell expression of matrix metalloproteinase (MMP)-9, thus interfering with tumor cell invasion and migration.
- The essential oil present in *Carum Carvi* is used as a cancer preventing agent. It is also known to boost the immune system.
- Asafoetida contain essential oil (10-17%) having antioxidant action and is a cancer chemo preventive agent.
- In mice, Lectins of *A. calamus* have inhibitory effect on the growth of some neoplastic cell lines.
- Chebulagic acid of *Terminalia chebula*, showed potent dual inhibition against COX and 5-LOX. It also exhibited anti-proliferative activity against HCT-15, COLO-205, MDA-MB-231, DU-145 and K562 cell lines.
- Treatment of HT-29 colon cancer cells has been indicated by *P. grantum* juice by reducing COX-2 expression and inflammatory cell signaling that may cause cancer initiation and progression.
- NF-κB activation induced by TNF, other carcinogens and inflammatory stimuli was inhibited by Plumbagin.^[10]
- Biflavonoids 2, 3, and 5 of *Rhus parviflora* showed significant cytotoxicity.

- *Garcinia morella* fruit extract significantly reduced the release of nitrite and TNF-α level of LPS induced RAW 264.7 cells and resulted in anti inflammatory effect.

Probable Mode of Action in *Swasa* (dyspnoea), *Kasa* (cough)

- Crude extract of *Acorus calamus* showed significant carbachol response with the blockage of calcium channels by anti-cholinergic and anti-depressant effect.
- Sitosterols and glucosides of *Hedychium spicatum*^[11] and Inulin of *Pushkaramoola*^[12] has marked anti 5HT and anti histaminic activities which caused bronchodilatory effect.

CONCLUSION

Hinguvachadi churna is a time tested formulation, widely used in the management of various disorders, especially gastro intestinal disorders of *Vata*, *Kapha*, *Amaja* origin. There are 24 constituents in this formulation. It is mainly *Katu rasa*, *Laghu ruksha teekshna guna*, *Ushna veerya*, *Katu vipaka pradhana*. These properties are responsible for the various pharmacological action of the formulation in Ayurvedic terms. Many ingredients are even included in several *Dashaimani* groups of Charaka Samhitha like *Deepaneeya*, *Soolahara*, *Triptighna* which are related to its action. As per modern pharmacology, phytoconstituents of many herbs are having action concerned with motility and secretions of GIT, ultimately resulting in improved digestive capacity of our body. More researches should be done to evaluate the mode of action of this formulation and clinical studies to establish its efficacy.

REFERENCES

1. Acharya Vagbhata, Ashtanga Hridaya, Chikitsasthana, Edited by Pt. Hari Sadasiva Shastri Paradakara, Published by: Chaukhambha Sanskrit Sansthan, Varanasi, 14/31-33, Pg-687
2. Acharya Bhavamishra, Bhavaprakasha Nighantu, Published by M. Narayanan Vaidyar, Kannur, Hareetakyadi varga
3. Acharya Susrutha, Susrutha Samhitha, Published by: Chaukhambha Sanskrit Sansthan, Varanasi
4. Acharya Charaka, Charaka Samhitha, Published by: Chaukhambha Sanskrit Sansthan, Varanasi, Shadvirechanashataashriteeyam
5. Acharya Vagbhata, Ashtangasangraha, Published by: Chaukhambha Sanskrit Sansthan, Varanasi, Roganutpadaneeyas
6. Dash M. et al. Probable Mode of Action of Hingvastaka Churna: A Critical Review. International Journal of Research in Ayurveda and Pharmacy, Sep2016, 7(4):1-8, Available

online:

https://www.researchgate.net/publication/308279809_Probable_Mode_Of_Action_Of_Hingvastaka_Churna_A_Critical_Review dt 29.3.2021

7. Kour Gagan deep, Sharma AK, Dash Sanghamitra, Bal Nigamanand. Vacha (*Acorus Calamus* linn.): a Valuable Medicinal Plant. *Int. J. Ayur. Pharma Research*. 2014; 2(8):1-11.
8. Basha SJ, Mallapu K. A review on *Terminalia chebula*, *Int. J. Phar Res*, 2017; 7(10): 187-191.
9. Singh S, Nishteswar K, Review on *Cissampelos Pareira* & *Cyclea Peltata* (Patha Dwaya), *Phyto-Pharmacological Perspectives, International Journal of Ayurvedic Medicine*, 2013, 4(4), 282-28929.
10. Vishnukanta, Rana AC, *Plumbago Zeylanica: A Phytopharmacological Review*, *International Journal of Pharmaceutical Sciences And Research*, Available Online: <https://ijpsr.com/bft-article/plumbago-zeylanica-a-phytopharmacological-review/?view=fulltext> dt 29.3.2021
11. Ghildiyal S et al, Pharmacological evaluation of extracts of *Hedychium spicatum* (Ham-ex-Smith) rhizome, *Anc Sci Life*. 2012 Jan-Mar; 31(3): 117-122. DOI: 10.4103/0257-7941.103189
12. Sastry JLN, Nesari TM, Rajendra H. Comparative study on the substitutes used in Ayurveda with special reference to substitutes for Pushkaramoola (*Inula racemose* Hook. f) viz Kushta (*Saussurea lappa* Decne) and Erandamoola (*Ricinus communis* L.): M A clinical study. *Int. Res. J. pharm*, 2013, 4(5), 92-100.

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