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Scientific explanation of mode of action of *Kamadudha Rasa* in *Amlapitta* with special reference to Acid Peptic Disorders: A Review

Divya Singh¹, Nakhat Mal², Vinod Kumar³, Rajendra Prasad Sharma⁴, Purva Pareek⁵

^{1,2,3}Post Graduate Scholar Final Year, Dept. of Rasa Shastra & Bhaishajya Kalpana, National Institute of Ayurveda DE-NOVO, Jaipur, Rajasthan, India.

⁴Professor, Dept. of Rasa Shastra & Bhaishajya Kalpana, National Institute of Ayurveda DE-NOVO, Jaipur, Rajasthan, India.

⁵MD, Ayurveda Expert, Dept. of Rasa Shastra & Bhaishajya Kalpana, National Institute of Ayurveda DE-NOVO, Jaipur, Rajasthan, India.

ABSTRACT

Amlapitta, also known as hyperacidity, is an illness that has been around for a while and is still very prevalent today. It is a very troublesome illness that, if left untreated, can result in a number of severe issues. *Amlapitta* symptoms and signs closely resemble gastritis or hyperacidity. The body's *Pitta Dosha* becoming more active is the primary contributor to hyperacidity. The *Ayurvedic* humour of *Pitta* represents heat or flames. There are a variety of factors that can aggravate *Pitta*, but the major ones are eating foods that are unsuitable for the body type or foods that shouldn't be consumed together (such as milk and fish or milk and salt), as well as drinking overly sour or spicy foods and liquids. In *Ayurveda*, hyperacidity is referred to as *Amlapitta*. Thus, a situation known as hyperacidity is one in which the body becomes more hot and sour. *Pitta* imbalances the digestive fire, resulting in poor food digestion and the creation of *Ama*. An essential medication used in *Amlapitta* is *Kamadudha Rasa*. We are attempting to provide a scientifically sound explanation of the drug's mechanism of action in this review paper.

Key words: *Kamadudha Rasa*, *Amlapitta*, *Rasaushadhis*, *Peptic Ulcer Disease*, *Anti-Ulcer Activity*

INTRODUCTION

Health is the supreme foundation of virtue wealth enjoyment and salvation. Drugs are being used for preservation of health and elevation of disorder since centuries. All societies invariably looked upon to the natural resources for maintenance of health and for attaining freedom from illness. The utility of *Ayurveda*

science is to maintain the health of an invisible and also to cure the disease of the patients. It deals not only with treatment but also physical mental and spiritual well-being at mankind and also showing their experience logic and power of wisdom. *Rasashastra* deals with knowledge of Alchemy (*Lohavadha*) and pharmaceutical process like *Samskara* of Mercury and also processing of different metals and minerals, calcium substances and poisonous herbal drugs with therapeutic parameters vice dose duration indications and contraindications were mentioned.^[1] *Rasashastra* is not counted among the *Ashtanga Ayurveda* but the evolvement of as a specialised branch is traced to the greatest *Nagarjuna* who is considered as the father of *Rasashastra*, it is believed to come into proper existence with its scientific classification and documentation around 8th century. *Atreya Punarvasu* stresses the significance of *Ahara* and *Vihara* in the maintenance of *Agni*. *Agni* in *Ayurveda* is an important entity in the treatment. The impairment *Agni* leads to many ailments. This *Agni* if tried to correlate in the

Address for correspondence:

Dr. Divya Singh

Post Graduate Scholar Final Year, Dept. of Rasa Shastra & Bhaishajya Kalpana, National Institute of Ayurveda DE-NOVO, Jaipur, Rajasthan, India.

E-mail: divyaaingh419@gmail.com

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lines of modern medicine if directs towards different secretions from gastric and liver mostly the secretion of the gastric are taken into account when the *Agni* is though as a physiological and pathological entity. Owing to the lifestyle and food habits at modern day human the disease resulted due to the gastric secretion impairment are most common.^[2]

Amlapitta in Ayurveda

Mandagni is the main root cause of all diseases. It leads to *Ajeerna*. If it neglected, it gives rise to a vicious cycle called as *Amlapitta*. *Amlapitta Vyadhi* is a very common problem in socio-economically developed as well as developed countries. Though the intensity of this disease is not very high its volume is very large. *Pitta Dosha Has Katu, Amla Rasatmak, Tikshna, Ushna, Laghu, Visra, Drava, Guna* etc.^[3] When the *Amla* and *Drava Guna* of the *Pitta Dosha* becomes exaggerated there is a sour, belching and it's condition is regretted to be pathological condition termed as *Amlapitta*.

Amlapitta vis- a- vis hyperacidity

It is very difficult to correlate any disease mention in allopathic system with *Vyadhi* mentioned in *Ayurveda*. But based on sign, symptoms and line of treatment mention in *Ayurveda* and modern medical science can be able to establish their similarity. So, in the same way, *Amlapitta* cannot be correlated with one acid reflux syndrome which comprises with GERD, gastritis, dyspepsia, peptic ulcer, hyperacidity.^[4] The burning sensation in upper abdominal chest, acid reflux, water brash, nausea, vomiting, vertigo and flatulence characterize it.^[5] The term dyspepsia and indigestion are difficult to define. Patients use these terms variously to express a feeling of epigastric fullness, discomfort or pain, heartburn or acidity, nausea, vomiting, belching or flatulence.^[6] In digestion is a non specific term that encompasses a variety of upper abdominal complaints including nausea, vomiting, heartburn, regurgitation and dyspepsia. *Kamadudha Rasa*^[7,8] is one of the ancient formulations used since centuries to treat *Amlapitta* (hyper acidity), *Jirna Jwara* (chronic fever), *Unmada* (insanity) etc. It contains *Pravala, Mukta, Sankha, Shukti, Varatika* in *Pishti/Bhasma* form with *Guduchi Satwa*.

Physiology of Acid Secretion

The stomach consists of two primary functional zones i.e., the oxyntic gland area, representing approximately 80% of the organ, and the pyloric gland area representing the remaining 20%. Parietal cells secrete hydrochloric acid and intrinsic factor which are predominantly present in the oxyntic glands. Chief cells secrete the digestive enzyme precursor pepsinogen.^[9] The histamine, gastrin and acetylcholine released from postganglionic enteric neurons^[10] are the principal stimulants for acid secretion from gastric mucosa.

Basal acid secretion is modulated by acetylcholine from parasympathetic vagal efferent. It directly stimulates acid secretion by binding to muscarinic receptors on parietal cells. Indirectly, acetylcholine also stimulates acid secretion through activation of M2 and M4 receptors on D cells.^[11]

Antacids work instantaneously and give rapid relief from hyperacidity. The primary effect of antacids is partial neutralization of gastric hydrochloric acid and inhibition of the proteolytic enzyme pepsin.^[12] These all antacids are administered orally, and their potency is measured by the amount of acid neutralized by a given dose of the antacid.

Most commonly we use sodium bicarbonate, calcium carbonate, magnesium hydroxide and aluminium hydroxide as antacids. For example, calcium carbonate is sparingly soluble and it reacts with HCl and generates soluble calcium chloride, which is converted back to calcium carbonate in the alkaline conditions of the small intestine. Other used antacids are the insoluble aluminium hydroxide and magnesium hydroxide. Aluminium and calcium containing products generally cause constipation therefore these agents are often combined with magnesium hydroxide, which can cause diarrhoea and loose stools when administered alone.

MATERIALS AND METHODS

The material is gathered from *Ayurvedic* texts, current references of publications, and published articles to review *Kamadudha Rasa*. Based on their therapeutic activities, published research papers were compiled and examined from internet resource.

RESULTS

References of Kamadudha Rasa

SN	Reference	Ingredients	Preparation	Indication	Dose	Anupana
1.	<i>Rasa Yoga Sagara (Jwaradhikara)</i> ^[13] <i>Hariprapannaji</i>	1.Swarna Gairika, 2.Ghrita, 3.Amalaki Swarasa (juice of <i>Emblica officinalis</i>)	<i>Bharjana</i> (frying) of <i>Swarna Gairika</i> is done with <i>Ghrita</i> , powdered and seven <i>Bhavana</i> (trituration) given with <i>Amalaki Swarasa</i> .	<i>Pitta Roga</i> , <i>Prameha</i> (diabeties), <i>Pradara</i> , <i>Pandu Roga</i> (anemia), <i>Kamala</i> (jaundice), <i>Daha</i> , <i>Trishna</i> , <i>Bhrama</i> , <i>Jirna jwara</i>	2 Valla (750mg)	<i>Sita</i> , <i>Ajya</i> , <i>Madhu</i>
2.	<i>Rasa Yoga Sagara (Amlapittadhikara)</i> ^[14] <i>Hariprapannaji</i>	1. <i>Guduchi Sattva</i> , 2. <i>Swarna Gairika</i> , 3. <i>Abhraka Bhasma</i>	All the ingredients are finely powdered and mixed well.	In <i>Prameha</i> with <i>Madhu</i> , <i>Pippali</i> , <i>Tandulodaka</i> . In <i>Pradara</i> with <i>Goksheera</i> , <i>Matsyanda</i> , <i>Tandulodaka</i> etc.	1 Valla (375mg)	<i>Madhu</i> , <i>Pippali</i> , <i>Goksheera</i> , <i>Matsyanda</i> , <i>Tandulodaka</i> etc.
3.	<i>Rasa Yoga Sagara (Amlapittadhikara)</i> ^[15] <i>Hariprapannaji</i>	1. <i>Mukta Bhasma</i> , 2. <i>Pravala Bhasma</i> , 3. <i>Shukti Bhasma</i> , 4. <i>Kapardika Bhasma</i> , 5. <i>Shankha Bhasma</i> , 6. <i>Shuddha Gairika</i> , 7. <i>Guduchi Sattva</i> all in equal quantity	All the ingredients are taken in equal quantity and triturated homogeneously	<i>Jirna Jwara</i> , <i>Bhrama</i> , <i>Unmada</i> , <i>Pitta Roga</i> , <i>Amlapitta</i> And <i>Somaroga</i> .	2 Ratti (250mg)	<i>Sita</i> , <i>Jiraka</i>
4.	<i>Rasamritam of Yadavaji Trikamji Acharya (Ratna Pradhana Yoga)</i> ^[16]	1. <i>Swarna Gairika</i> , 2. <i>Guduchi Sattva</i> , 3. <i>Sharkara</i> , 4. <i>Amalaki Swarasa</i>	<i>Shodhita Swarna Gairika</i> triturated with <i>Amalaki Swarasa</i> continuously for 21 days, dried and powdered. Mix <i>Guduchi Sattva</i> equal to it and also mix Sugar equal to both and grind well.	<i>Rakta Pitta</i> , <i>Trishna</i> , <i>Daha</i> , <i>Bhrama</i> , <i>Murcha</i>	1 Masha (1gm)	<i>Sita</i> , <i>Tandulodaka</i>
5,6	<i>Rasa Tantra Sara & Sidha Prayoga</i>	1. <i>Mukta Pishti</i> , 2. <i>Pravala Pishti</i> , 3. <i>Shukti Bhasma</i> ,	All the ingredients are taken in equal quantity and	<i>Jirna jwara</i> , <i>Bhrama</i> , <i>Unmada</i> , <i>Pitta Roga</i> ,	1-3 Ratti (125-375mg)	<i>Sita</i> , <i>Jiraka</i> .etc

	Sangrah / AFI- part - 2)	4.Kapardika Bhasma, 5.Shankha Bhasma, 6.Shuddha Gairika, 7.Guduchi Sattva all in equal quantity	trituated homogeneously.	Amlapitta and Somaroga.		In Amlapitta with Amla Churna & Ghrita
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Composition of Kamadudha Rasa (with Mukta Pishti)

(Ref: Rasa Yoga Sagara/ Rasa Tantra Sara & Sidha Prayoga Sangrah / AFI- part -2)

SN	Ingredients	Latin / English name	Form used	Quantity
1.	Mukta	Pearl	Pishti	1 part
2.	Pravala	Coral	Pishti	1 part
3.	Shukti	Pearl oyster	Bhasma	1 part
4.	Sankha	Conch shell	Bhasma	1 part
5.	Varatika	Marine shell	Bhasma	1 part
6.	Swarna Gairika	Red ochre	Purified	1 part
7.	Guduchi	Tinospora cardifolia Thunb Miers	Satva	1 part

Probable Mode of Action of The Drug

Kamadudha Rasa with Mukta

The contents of this Herbo-mineral formulation are Mukta Pishti, Mukta Shukti Bhasma, Pravala Pishti, Shankha Bhasma, Suvarna Gairika, Kapardika Bhasma, Guduchi Satva.

Showing Rasa Panchaka of Ingredients of Kamadudha Rasa^[17-19]

SN	Dravya	Rasa	Guna	Virya	Vipaka	Dosha	Karma
1.	Mukta Pishti	Madhura	Laghu	Sheeta	Madhura	Tridosh Shamaka (Mainly Pitta Shamaka)	Ruchikarak, Deepana, Pachana
2.	Pravala Pishti	Madhura Kinchit Amla, Kashaya	Laghu	Sheeta	Madhura	Tridosh Shamaka (Mainly Pitta Shamaka)	Deepana, Pachana, Vrushya, Netrya, Vishanashaka, Mutral
3.	Sankha Bhasma	Tikta, Katu, Kashaya	Laghu, Ruksha Kshara Grahi	Sheeta	Madhura	Kapha Pittaghna	Grahi, Varnya, Balya, Netrya, Vrushya, Paushtika

4.	Shukti Bhasma	Katu, Madhura	Snigdha	Sheeta	Madhura	Vata Pitta Shamaka	Deepana, Ruchikara, Stambhaka, Dahashamaka, Shotha Nasaka
5.	Varatika Bhasma	Katu, Tikta	Ruksha Guru Teekshn	Ushna	Madhura	Vata-Kaphaghna	Deepana, Pachna, Netrya
6.	Swarna Gairika	Madhura & Kashaya	Snigdha	Sheeta	Katu	Pittashamaka Kinchit Kapha Nashaka	Netrya, Dahanashaka, Vishaghna, Vrana, Ropaka, Balya
7.	Guduchi Satva	Tikta, Kashaya	Guru, Snigdha	Sheeta	Madhura	Tridosh Shamaka	Deepana, Pachana, Pittashamaka, Anuloman, Rasayana

- These drugs are *Madhura, Tikta, Katu, Kashaya Rasa Pradhana Dravya, Sheeta virya* and *kinchit Ushna* in *Virya, Madhura Vipaka Pradhana, Laghu, Snigdha, Ruksha, Teekshana Guna Pradhana*.
- Kamadudha Rasa* having properties like *Deepana, Pachana, Netrya, Balya, Rasayana, Varnya, Tridoshshamaka* (mainly *Pittashamaka*), *Anulomana, Vrushya* etc.
- Mukta Pishti* is a *Madhura Rasa, Sheeta Virya* and *Madhura Vipaka* drug. These properties of *Mukta Pishti* help in the *Tridoshshamana* (mainly *Pitta Shamana*). *Acharya Vagbhata* has specifically mentioned *Dahaghna & Agnimandiyahara* properties of *Mukta* in *Rasa Ratna Samucchaya*.^[20] In *Amlapitta*, vitiated *Pitta Dosha* causes various symptoms like *Daha, Amlodgara, Burning* sensation in the epigastric region (*Hrit- Kantha Daha*) etc. This drug helps in neutralizing the excessive acid formation and has an anti-inflammatory action. *Mukta Pishti* also has other properties like *Deepana, Pachana, Ruchikara* which helps in digestion of ingested food and removes *Ama Dosha* and other toxins from the body. In *Mukta Yukta Kamadugha Rasa*, these properties help in enhancing the action of drug as compared to *Mukta Rahita Kamadugha Rasa*.
- When *Amalta (Amla Guna)* of the *Pitta* gets increased and *Pitta Dosha* becomes *Vidhagadha* i.e., *Amlapitta. Nidana Sevana* causes *Pitta Dusti* and causes sign and symptoms mentioned in the disease review section. If patient continues *Nidana Sevana, Pitta* becomes more *Vidagdha* and causes irritation and inflammation of stomach lining and even form ulcers as a complication. In this case, *Kamadugha Rasa* which consists of *Madhura* and *Sheeta Virya* drugs reduces *Pitta Dosha* and reduces inflammation.
- Kapardika Bhasma* is *Katu, Tikta* in *Rasa, Ushna Virya, Vata Kaphaghna*. It is alkaline in nature, hence helps in neutralization of excessive acid formation in the stomach and reduces pain (stomach). It aids in *Deepana & Pachana* because of its *Katu Tikta Rasa* and *Ushna Virya* and ultimately removes the *Ama Dosha* from the body.
- Swarna Gairika* is *Stambhaka* drug which helps in reduction of *Pitta Srava*.
- Rasa Panchaka* of *Guduchi Sattva* has not mentioned separately, hence *Rasa Panchaka* of *Guduchi* is considered as *Guduchi Sattva Rasa Panchaka* but more potent. *Pitta Dosha* is the main *Dosha* in *Amlapitta* and *Guduchi* is having *Tikta, Kashaya Rasa* and *Madhura Vipaka* helps in balancing the *Pitta Dosha*. *Guduchi* contains other properties like *Pitta Ghna, Dhatwanidipana, Raktaprasadana, Dahashamaka, Rasayana, Amapachna, Dhatuvarhdhaka* etc. helps in balancing *Dosha (Tridoshanashaka)*.

- *Shankha Bhasma* is *Kshariya, Sheeta* according to *Bhavaprakasha* helps in balancing the *Amla Guna* of the *Amlapitta*. *Grahi Guna* of the *Shankha Bhasma* cures *Amlapitta and Grahani*.^[21]
- *Kamadudha Rasa* contains drugs of *Sudha Varga* i.e., calcium carbonate which reacts with hydrochloric acid (HCL) i.e., $\text{CaCO}_3 + \text{HCl} = \text{H}_2\text{O} + \text{CO}_2 + \text{CaCl}_2$ and neutralizes the acid, hence acts as efficient antacid
- *Kamadudha Rasa* contains calcium oxide, calcium carbonate and in traces calcium silicates. Calcium is the main ingredients & many enzymes and hormones that regulate digestion and metabolism are produced by it.

DISCUSSION

Amlapitta is caused by aggravated *Pitta* due to excessive intake of pungent and sour food items, alcoholic preparations, salt, hot and sharp stuff. This aggravated *Pitta* cause burning sensations. To pacify the *Pitta*, anger, fear, excessive exposure to sun and fire, intake of dry vegetables and alkalis, irregularity in taking food, and all *Pitta Prakopak* factors should be avoided. Various drugs are described for treatment of *Amlapitta*. Among these *Avipattikar Churna*, *Leela Vilas Ras*, *Amla-Pittantak Lauha*, *Triphala Mandur*, *Kushmand Khand*, *Prawaal Panchamrit*, *Shankh Bhasm*, *Prawaal Pishti*, *Mukta Pishti*, and *Yavakshar* are the main drugs. *Kamadudha Rasa* is used very commonly used in *Amlapitta*. But due to lack of scientific explanation, nobody wants to believe that it is as useful as allopathy drugs. After scientific explanation of its mechanism everyone has proud on the concepts of *Ayurveda* that it is also very scientific.

CONCLUSION

Kamadudha Rasa is a very commonly used drug in *Amlapitta* and it helps not only in reducing the symptoms but also maintains the health. The specially prepared lifestyle chart containing *Ahara* and *Vihara* helps in reducing the symptoms and maintaining the healthy lifestyle. This drug is very beneficial in this disease due to multiple actions such as anticholinergic and directly acting antacid.

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