



## Ayurveda

## PHARMACODYNAMICS OF JWARAHAR MAHAKASHAYA : A REVIEW

Dr. Sneha Mittal\*

P.G Scholar, P.G Department Of Dravyaguna, Government Autonomous Dhanwantari Ayurveda College, Ujjain. \*Corresponding Author

Dr. Sunita D. Ram

Guide, Associate Professor &amp; Head Of The Department, P.G Department Of Dravyaguna, Government Autonomous Dhanwantari Ayurveda College, Ujjain.

**ABSTRACT** A Polyherbal formulation which are effective in *jwara* is given by acharaya Charak in *shadvirechanshatashritiya adhyaya* of *sutra sthan* of *charak samhita* and named it as *jwarahar mahakashaya*. *Jwara* explained in ayurveda is approximated as fever or pyrexia in modern science. It is not only an independent disease but also occurs as a symptom and most of the time as a complication of other diseases. Modern antipyretic drugs like NSAIDS Have proved as a major breakthrough in managing the disease but their side-effects like renal impairment, gastric ulcers cannot be ignored. Keeping these side-effects in view *jwarahar mahakashaya* holds more importance in the current era. To know the probable mode of action i.e pharmacodynamics of this polyherbal formulation one must understand the etiopathogenesis of *jwara* as well as the properties of these herbs. In this paper mode of action of *jwarahar mahakashaya* has been tried to explain through both the ayurveda and modern concepts.

**KEYWORDS** : *Jwara* , fever , *jwarahar* , agni, prostaglandin(PGE2)

## INTRODUCTION

A Compilation of 50 polyherbal formulation for various disorders is given by *acharya Charaka* in the fourth chapter *Sutra Sthan* of *Charak samhita* and named them as *Mahakashaya*. Each *mahakashaya* includes ten drugs which are specific against corresponding disease or symptom. under this umbrella, *jwarahar mahakashaya* is explained. It includes the following drugs – *sariva* , *sharkara* , *patha* , *manjishtha* , *draksha* , *pilu* , *parushaka* , *abhaya* , *amalaki* , *vibhitaki*. *Jwara* explained in ayurveda is approximated as pyrexia / fever in modern medicine. According to mythology, *Jwara* was originated from the hot and destructive breath of Lord Siva<sup>[1]</sup>. It not only occurs as an independent disease but also occurs as a complication of other diseases. Keeping in view its importance *acharya charaka* dedicated a whole chapter for explaining its treatment and placed it first among other diseases in *chikitsa sthan* of *charak samhita*. Many acharayas regarded it as '*rogaraja*' i.e king of various disorders. It is believed to manifest as the result of hypofunctioning of *jatharagni* which leads to the formation of *aam* (endotoxins). It is known to be a *pitta pradhan tridoshaja* vyadhi. Both *shareera* as well as *manas* are affected .These

herbs of *jwarahar mahakashaya* work at the level of *dosha*, *agni*, *dhatu* to break the pathogenesis of the disease and helps in achieving the disease free status of the body as well as mind. As per the treatment principles of *jwara*, drugs used should perform *agnideepana karma* and must pacify *pitta dosha*.

## MATERIAL AND METHODS

Brief description of *jwara* and its pathogenesis.

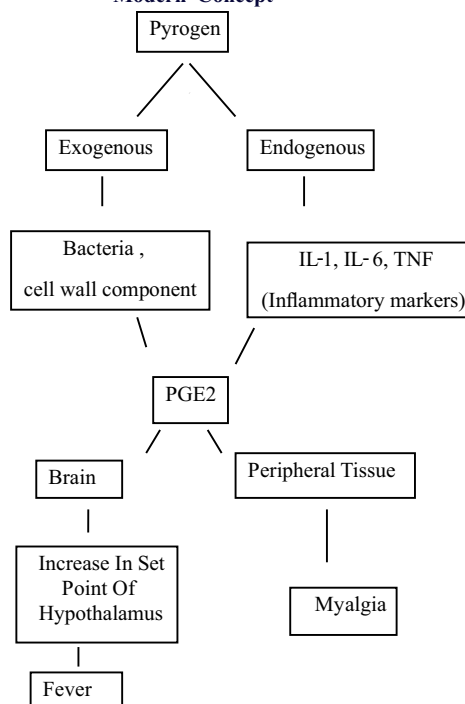
A critical analysis of the drugs mentioned in *jwaraghana mahakashaya*

## JWARA

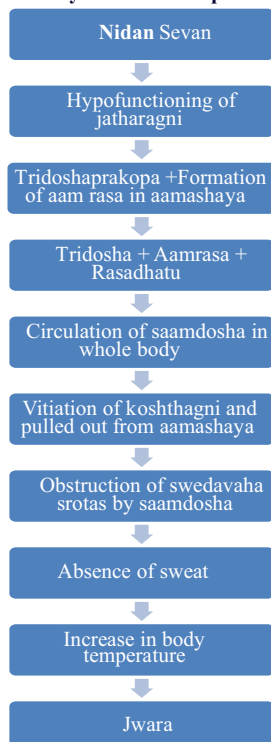
*Acharya Sushruta* mentioned characteristic features of *jwara* which occur simultaneously. These are<sup>[2]</sup>

1. Obstruction of sweat (*sweda*)
2. Rise in temperature (*santapa*)
3. Bodyache (*sarvanga grahanam*)

## Pathogenesis Of Fever

Modern Concept<sup>[3]</sup>

## Ayurvedic Concept



The origin of *jwara* has occurred due to the accumulating tendency of humans i.e. *parigraha*. Following the exposure of etiological factors there is aggravation of the three *doshas* – either individually or jointly in the combination. afterwards they spread through *rasa dhatu* and dislodge the *jatharagni* from its own place. Being supplemented with their own heat and the heat of the *jatharagni*, the heat of the body gets accentuated. Along with this, improper functioning of *jatharagni* leads to improper digestion of ingested food, which leads to the formation of *aam rasa*. along with *rasa dhatu* and aggravated *dosha* this *aam rasa*

enters in to circulation. These channels of circulation gets obstructed by them and they being further aggravated pervade the entire body to produce excessive heat. the person's body temperature increases and this condition is called *jwara*<sup>[4]</sup>. *Pitta dosha* is invariably vitiated in all types of *jwara*, according to *acharya Vagbhata* “ there is no *jwara* without the increase of temperature and temperature cannot get increased without the vitiation of *pitta*.”<sup>[5]</sup>

## JWARAHAR MAHAKASHAYA

### Rasapanchaka Of The Herbs<sup>[6]</sup>

Table no.1

Herb	Rasa	Guna	Veerya	Vipaka	Effect on dosha
<i>Sariva</i>	<i>Madhur, tikta</i>	<i>Guru, snigdha</i>	<i>Sheet</i>	<i>Madhur</i>	<i>Tridosha shaman</i>
<i>Sharkara</i>	<i>Madhur</i>	<i>Sheeta</i>	<i>Sheet</i>	<i>Madhur</i>	<i>Vata pitta har</i>
<i>Patha</i>	<i>Tikta</i>	<i>Laghu, tikshana</i>	<i>Ushna</i>	<i>Katu</i>	<i>Vata kapha har</i>
<i>Manjishtha</i>	<i>Tikta, kashaya, madhur</i>	<i>Guru, ruksha</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kapha pitta shaman</i>
<i>Draksha</i>	<i>Madhur, kashaya</i>	<i>Guru, sara</i>	<i>Sheeta</i>	<i>Madhur</i>	<i>Tridosha har</i>
<i>Peelu</i>	<i>Tikta, madhur</i>	<i>Laghu, snigdha</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kapha vata har</i>
<i>Parushaka</i>	<i>Kashaya, amla</i>	<i>Laghu</i>	<i>Sheeta</i>	<i>Madhur</i>	<i>Pakwa- vatapittahar</i> <i>Apakwa - pittakar</i>
<i>Haritaki</i>	<i>Kashaya (pradhan), tikta, madhur, katu, amla</i>	<i>Laghu, ruksha</i>	<i>Ushna</i>	<i>Madhur</i>	<i>Tridosha har</i>
<i>Amalaki</i>	<i>Amla (pradhan), kashaya, tikta, madhur, katu</i>	<i>Guru, ruksha, sheeta</i>	<i>Sheeta</i>	<i>Madhur</i>	<i>Tridosha shaman</i> <i>Specialty pitta shamak</i>
<i>Bibhitaki</i>	<i>Kashaya</i>	<i>Ruksha, laghu</i>	<i>Ushna</i>	<i>Madhur</i>	<i>Tridosahar</i> <i>Kapha-pitta har</i>

### Pososlogy<sup>[7]</sup>

Table no.2

Herb	Part used	Formulation & Dose	Functional component
<i>Sariva</i>	Root	Powder -3 to 5 gms <i>Kalka</i> – 5 to 10 gms <i>Phanta</i> -50 to 100 ml	Sterol : hemidesterol Hemidesmol 2- hydroxy -4-methoxy benzaldehyde.
<i>Sharkara</i>	Granules	<i>Panak</i> – 50 to 100 ml	Glucose
<i>Patha</i>	Root	powder– 1 to 3 gm	Beberine Deyamettin
<i>Manjishtha</i>	Root & stem	Powder – 1 to 3 gm Decoction- 20 to 40 ml	Purpurin Munjistin Xanthin
<i>Draksha</i>	Fruit	Juice – 20 to 40 ml	Glucose mallic acid Tartaric acid Racemic acid
<i>Peelu</i>	Root bark	Decoction– 50 to 100 ml	Trimethylamine
<i>Parushak</i>	Ripe fruit	<i>Panak</i> /juice -10-20 ml	Citric acid Glucose Vitamin c
<i>Haritaki</i>	Fruit	<i>Churna</i> with <i>sharkara</i> - 3 to 6 gm	Chebulinic acid Tannic acid Vitamin c
<i>Aamalaki</i>	Fruit	Juice with <i>sharkara</i> : 20 ml	Gallic acid Ellagic acid Glucose
<i>Bibhitaki</i>	Fruit	Powder – 3 to 6 gm	Gallic acid Chebulinic acid

## DISCUSSION

### Ayurvedic Concept

First and foremost thing advised by Acharya Charak for the patient of *jwara* is to perform *langhan*. The basic concept behind this is to restore the *agni* of the patient at its normal seat simultaneously balancing all the vitiated *doshas*.

After balancing status of *agni* and *dosha* The important thing to keep in mind is to maintain the energy level of the patients so as to promote speedy recovery of the patient. On this basis herbs of *jwarahar mahakshaya* can be subgrouped in to three categories :

1. Herbs that increase *agni* and helps in clearing *srotas*: *sariva, patha, manjishtha, haritaki*
2. Herbs that pacify *pitta dosha* : *sariva, sharkara, patha, manjishtha, draksha, parushak, amlaki*
3. Herbs that maintain energy level of the patient : *sharkara, draksha, parushak, peelu*.

### 1. Sariva Asclepediaceae

**Shweta sariva : *Hemidesmus indicus* r.br.**

**Krishna sariva : *cryptolepis buchananii* Roem & Schult.**

Plant has two varieties i.e. *shweta sariva* and *Krishna sariva*. Bhavprakasha indicated this herb in *agnimandya, aruchi, aamvisha, jwara, atisara*. Acharaya Charak indicated its *patoladi kwath* in *visham jwara*. Acharaya Sushruta mentioned its use in month wise regime in pregnancy as it stabilizes foetus and prevents abortion thus making it suitable to be used in fever in pregnant females. It performs *deepana karma*, thereby causing *aampachana* by virtue of increased *agni*, simultaneously through its *madhur, tikta rasa* and *sheet veerya* it pacifies *pitta dosha* thereby helps in regulating body temperature.

Pharmacological actions

Antiulcer, anti-inflammatory, hepatoprotective, renoprotective, antipyretic, immuno modulatory.<sup>[8]</sup>

### 2. Sharkara *Sachharum officinarum* Linn. Gramineae.

Bhavprakasha placed it in *ikshu varga*. It is a product derived from

sugarcane(*sachharum officinarum*).It is included in *swabhavta hitkar dravya* which naturally benefits the body. Bhavprakasha indicated it in *murchha, vaman, jwara*.

By virtue of its *sheet veerya* and *madhur rasa* it helps in regulating down the body temperature. Moreover its *madhur rasa* helps in maintaining the energy level of body by supplying the amount of glucose for energy needed by the body. It helps in pacifying *vata-pitta dosha*. So it can be used in *rakt-pittaj jwar*.

### 3. Patha *Cissampelos pariera* Linn. Menispermaceae

Bhavprakasha indicated it in *jwara, chhardi, atisaar, hridaya roga*. Its *tikta rasa* will help in pacifying *pitta dosha*. It possess *laghu, tikshna guna* by virtue of which, it will help in clearing the channels. *Katu vipaka* and *ushna veerya* helps in increasing the *agni* thereby promotes *ampachana*.

#### Pharmacological properties

Some study shows antipyretic and analgesic effect are observed in *Cissampelos pariera* Linn.<sup>[9]</sup>

### 4. Manjishtha *Rubia cordifolia* Rubiaceae

*Madhur, tikta, kashaya rasa* are *pittashamak rasa*, which helps in reducing elevated *pitta*, thereby reducing elevated body temperature. By virtue of its hot potency and *kapha shamak* property, it helps in clearing the channels.

#### Pharmacological actions

Several in vivo and in vitro researches proved that *manjishtha* root and stem possess antipyretic, antidysentric, analgesic, anti-inflammatory, hepatoprotective properties.<sup>[10]</sup>

### 5. Draksha *Vitis vinifera* Linn. Vitaceae

Bhavprakasha indicated this herb in *jwara, trishna, kamala, raktapitta* in which *pitta dosha* is involved. Its ripe fruit is advised to take in *jwara* as it has *madhur, kashaya rasa, madhur vipaka, sheet veerya* which reduces elevated *pitta dosha*. Its unripe fruit is not advised in *jwara* as its *amla rasa* will increase *pitta dosha*.

#### Pharmacological properties

It has hepatoprotective effect, antimicrobial and antiviral effect, anti-inflammatory effect, and antioxidant effect.<sup>[11]</sup>

### 6. Pilu *Salvadora persica* Linn. Salvadoraceae

Root *kwath* is given in fever induced weakness. It possess *madhur, tikta rasa* and it pacifies all the three *doshas*.

#### Pharmacological properties

It has great antiplaque, antipyretic, hepatoprotective, antiulcer properties.<sup>[12]</sup>

### 7. Parushaka *Grewia asiatica* Linn. Tiliaceae

Bhavprakasha indicated its ripe fruit in *jwara* and *daha*, it possess *madhur rasa, sheeta virya* which help in pacifying *pitta dosha*. It is advised to be taken in *panak* form. Whereas its unripe fruit is not advised to be taken in fever as it will increase *pitta dosha*.

*Grewia asiatica* fruit extract have analgesic, antipyretic and antiinflammatory property.<sup>[13]</sup>

*Grewia asiatica* is potent analgesic and antipyretic agent. it has mechanism of action similar to NSAIDS.<sup>[14]</sup>

### 8. Haritaki *Terminalia chebula* Ritz. Combretaceae

Except *amla rasa* it possess all the five *rasa* with predominance of *kashaya rasa*. it is hot in potency and has *madhur vipaka*. it performs *deepana karma* i.e increases *agni* thereby promotes the digestion of *aam* and helps in breaking the pathogenesis of *jwara*. Bhavprakasha indicated this in *visham jwara*. It is contra indicated in *nav jwara* i.e in first seven days from the start of fever due to its *kashaya rasa* which will promote *stambhan* of *doshas*.

*Amalkyadi gana* has antipyretic effect due to inhibition of synthesis or release of PGE2 into the preoptic area of hypothalamus.<sup>[15]</sup>

### 9. Aamalaki *Phyllanthus embelica* Linn. Euphorbiaceae

By virtue of its *madhur rasa* and *sheet veerya* it pacify *pitta dosha*. It is considered as the best *rasayan dravya* and *vayasthapana dravya* thus help in nourishment of all the *dhatu*. which makes it best suitable for the patients suffering from chronic fever.

#### Pharmacological actions:

It has been reported to have antipyretic, anti microbial, analgesic, anti-inflammatory, hepatoprotective, antiulcer, anticancer, immunomodulator and neuroprotective effects.<sup>[16]</sup>

### 10. Bibhitaki *Terminalia bellerica* combretaceae

It pacify *kapha* and *pitta dosha*. Bhavprakasha indicated this herb in *kasa*, making it suitable to be used in fever induced due to cold and cough. Due to its *rasayan* property it can be given to patient having *jeerna jwara* i.e in patients emaciated due to long standing fever.

#### Pharmacological properties

It is reported to have analgesic, antimicrobial, antispasmodic and bronchodilatory, antiulcer and antipyretic property.<sup>[17]</sup>

#### Modern Concept

Fever is complex physiologic response triggered by infections or aseptic stimuli. Elevations in body temperature occur when concentrations of prostaglandins (PGE2) Increase within hypothalamus.

The phytochemical analysis of *jwarahar mahakashay* preparation indicated the presence of flavonoids, glycosides and sugars. Since flavonoids are well known for their ability to inhibit pain perception and to exhibit anti-inflammatory property due to their inhibitory effect on chemical mediators of inflammation.

Flavonoids and its related compound also exhibit inhibition of arachid acid Peroxidation which results in reducing prostaglandin levels thus reducing the fever.<sup>[18]</sup>

Since flavonoids exhibit several biological effect such as anti-inflammatory, antimicrobial, antihepatotoxic and antiulcer activities. It has antioxidant property as well<sup>[19]</sup>. From above discussion, we can say that flavonoids are useful in chronic disorders.

#### CONCLUSION

Most of the herbs of *jwarahar mahakashaya* have predominance of *madhur, tikta rasa* and have *madhur vipaka* through which pacification of *pitta dosha* occurs. Herbs like *sariva, patha, manjishtha, haritaki* work at the level of *agni* which aids in *aam pachan*.

It has been established by various studies on individual herbs and their combination that these herbs reduce prostaglandin(PGE2) levels in the blood. Moreover antiulcer, hepatoprotective and renoprotective properties are Major advantages of these herbs, making them safe to be used for longer durations. They can be used in various combinations as per the *dosha* status of the patient.

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