Preparation of Jwarahara syrup: Treatment for fever

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Abstract
The most susceptible age for infection being the Paediatric age group and the commonest presentation of this age being Jwara (fever). Jwara affects both shaareera (physically) and manas (mentally). Deha-santapa and Mana-santapa are the cardinal features of the disease Jwara.

The drugs in the Jwarahara syrup contain Sariva (Hemidesmus indicus), Patha (Cyclea peltata), Manjistha (Rubia cordifolia), Draksha (Vitis vinifera), Pīlū (Salvadora persica), Parushaka (Grewia asiatica), Sharkara (Saccharum officinarum), Haritaki (Terminalia chebula), Vibhitaki (Terminalia bellarica) and Amalaki (Emblica officinalis), taken from the Jwarahara Dashemani of Charaka Samhita Shad virechan ashatashiyta Adhyaya. In the context of treatment, method of preparation is of utmost importance. For a longer shelf-life and good palatability especially for the paediatric age group, these drugs will be administered in the form of Sharkara Kalpana (Syrup). The preparation of the syrup is done by using modern pharmaceutical equipments and the methods of preparation of Sharkara Kalpana explained in the classics have been incorporated.

Keywords: Jwara, Jwarahara, syrup, modern pharmaceutical, Sharkara

Introduction
The significance of the disease Jwara can be understood by its various synonyms viz. Athanka (to cause fear), Yakshma (causes many chronic diseases if neglected), Vikara [1] (affects the shareera and manas equally) etc. Jwara is also explained under the heading of Nidanarthakara Rogas [2], where improper management of Jwara leads to Rakta-pitta then to Sosha consequently. Jwara is also one such condition which gets resolved within a week or when neglected can even cause death. All these descriptions tell us that the physician has to be thorough with the concepts of Jwara mentioned in the classics. Considering the pediatric group, since they have Aparipakwa-dhatu, Aklesha-saha, Asampoorna-bala [3], the physician has to be even more cautious when the child is brought with the symptoms of Jwara. This article highlights the different steps involved in the preparation of Jwarahara Syrup.

Materials and Method

Ingredients of the formulation [4]
1. Sariva
2. Patha
3. Manjistha
4. Draksha
5. Pīlū
6. Parushaka
7. Sharkara
8. Haritaki
9. Vibhitaki
10. Amalaka

Sariva [5] (Hemidesmus indicus R.Br.)
Air dried roots yield essential oil 0.225 percent, containing p-methoxy salicylic aldehyde (m.p. 42°) as the major component constituent (C. 80%). The aroma of the drug is attributed to this aldehyde. Other constituents present in the roots are: β-sitosterol, a-and β-amyrins (both free and as esters), lupeol, tetracyclic, triterpene alcohols, small amounts of resin acids, fatty acids, tannins, saponins, a glycoside and a ketone.
Properties and action of Sariva
Rasa- Madhura, Tikta
Guna- Guru, Snigdha
Virya- Sheeta
Vipaka- Madhura
Dosha karma- Tridoshahara
Used part- Fruit

Parushaka [10] (Grewia asiatica Linn.)
Fruits contain acid (as citric) 2.8% sugar (as sucrose) II.7% and vitamin C-trace. The pectin content is low. The fruit juice content ranges from 55 to 65% in Parushaka.

Properties and action of Haritaki
Rasa- Kashayap radhan apancharasalavanavarjita
Guna- Laghu, Ruksha
Virya- Usna
Vipaka- Madhura
Dosha karma- Tridoshahara
Used part- Fruit

Vibhitaki [12] (Terminalia bellarica Roxb.)
The fruits contain beta-sitosterol, gallic and ellagic acids, ethyl gallate, galloyl glucose, chebulagic acid and a cardiac glycoside, bellaricain. The fleshy fruit pulp contains 21.4% tannin, both condensed and hydrolysable types.

Properties and action of Vibhitaki
Rasa- Kashaya
Guna- Laghu, Ruksha
Virya- Usna
Vipaka- Madhura
Dosha karma- Tridoshahara
Used part- Fruit

Amalaka [14] (Emblica officinales Gaertn.)
Fruit is a rich source of Vitamin C. Seeds contain fixed oil, phosphatides and an essential oil. Fruit, leaves and bark are rich in tanning fruits contain gallic acid, tannic acid, resinosum matter, glucose, albumin, cellulose and minerals specially calcium, other than good content of Vitamin C and other substances.
Properties and action of Amalaki
Rasa- Amlapradhana pancharasa alavana
Guna- Laghu, Ruksha, Sita
Virya- Sita
Vipaka- Madhura
Dosha karma- Tridoshahara
Used part- Fruit

Collection and authentication of raw drugs
The raw drugs were collected from the SDM Pharmacy of Ayurveda, Udupi, Karnataka state, India. The drug analysis and standardization were done at SDM centre for Research in Ayurveda and Allied Sciences, Udupi, Karnataka state, India.

Method of preparation
The dried (Fig. 1 – 10) drugs are collected, with a quantity 500g each. The drugs were soaked in cold water overnight, next day kwatha (decoction) of drugs was prepared (Fig. 11 and 12) by adding 40 litres of water, boiled and reduced to 1/4th part and filtered, remnant is 12 litres (Fig. 13), to this 10 kgs of sugar is added & boiled on mild flame till one-thread consistency was obtained. Total quantity of suspension obtained is 12 litres which is cooled down and bottled, into 60 ml each. They are packed in plastic containers which are then sealed. Then the containers are labelled and made ready for distribution (Fig. 14).

Fig 1: Sariva  
Fig 2: Patha  
Fig 3: Manjistha 

Fig 4: Daksha  
Fig 5: Pilu  
Fig 6: Parushaka 

Fig 7: Sharara  
Fig 8: Haritaki  
Fig 9: Vibhitaki
Precautions to be taken
1. Temperature is maintained in moderate fire 100 degree Celsius.
2. The Syrup should be in single thread consistency form.
3. The syrup is packed on the cold stage.

Temperature noted at different intervals
Initial stage - 100 °C
Material differentiating stage - 70-80 °C
Sugar mixing stage - 80-85 °C
Last stage – 45 °C

Organoleptic parameters of finished product
- Color: Dark brown color
- Consistency: liquid form
- Smell: specific odour
- Taste: sweet with little astringent.

Discussion
The syrup is prepared based on the Ayurvedic classical formulation of Sharkara Kalpana. More modern practical approaches can be inculcated for better extraction of the active principles from the raw drugs. The finished product of Jwarahara Syrup was dark brown in color and liquid in consistency which are optimum characteristics for a syrup. The specific odour of the syrup is attributed to the properties of Sariva. The cumulative effect of the Dashemani drugs establishes sweet with a little pungent taste of the syrup. In a child suffering from jwara, we can use Jwarahara Syrup as an Antipyretic drug.

Conclusion
More practical approach must be incorporated in the field of Ayurvedic medicine manufacture even though the introduction of modern expertise in pharmaceutical sector has amplified the effectiveness of such medicinal formulations including those of Ayurveda. The finished products should be safe and genuine for consumption.

References
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