

## Ritu Haritaki (Seasonal Regimen with Indian Rhubarb) – A Boon to Seasonal Health

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Cite this paper as: Janhvi Mahadev Gomare, Sushma T.J., Vijayalaxmi Warad, Sandeep V. Binorkar, Lavanya L., Anil kumar K.M., Sharangouda J. Patil and Sudhakar Reddy P., (2025) Ritu Haritaki (Seasonal Regimen with Indian Rhubarb) – A Boon to Seasonal Health. *Journal of Neonatal Surgery*, 14 (15s), 1273-1279.

### ABSTRACT

*Haritaki*, scientifically known as *Terminalia chebula*, is a prominent herb used in traditional *Ayurvedic* medicine. *Haritaki* is a deciduous tree native to South Asia, with the fruit being the most utilized part in medicinal preparations. It is characterised by its astringent taste and is believed to balance the *doshas* in body. It possesses five rasas except *lavana* with *Kashaya* rasa predominant. *Haritaki* is renowned for its therapeutic properties including its antioxidant, anti-inflammatory and antimicrobial activities. It is *Rasayana* (rejuvenator) and best among *pathya* (wholesome to body). Its *Rasayana* effect will be achieved by consuming it with different *anupanas* (vehicle) in different *ritus* (seasons) known as *Ritu haritaki*. *Haritaki* is considered as mother. Like mother takes care of whole family, similarly *Haritaki* will takes care of body. Intake of *haritaki* in every *ritu* along with different *anupana* is known as *Ritu haritaki* which promotes digestive health, enhances immunity and acts as detoxifier. In this article a systematic review has been done to gather information from available literature of *Ayurveda* and contemporary science regarding *haritaki* and its consumption in every season with different *anupana* with possible scientific substantiation.

**Keywords:** *Haritaki*, *Terminalia chebula*, *Ritu*, *Anupana*, *Antioxidant*, *Immunomodulation*

### 1. INTRODUCTION

Human passion on herbal medicine dated back to time immemorial. As we are aware, the very survival of animal kingdom is dependent of plant kingdom. Plants play major role in the pharmacotherapy in day-to-day life. Vedic literature indicates mainly about the utility of single herbs in the management of different ailments<sup>1</sup>. Different varieties of *haritaki* are described in *Ayurvedic* texts and size of the fruit of this tree which is used in medicine varies. The tropical tree, which is found growing at altitudes up to 650m possesses a great trunk, thick leaves, yellowish flowers and blackish brownish fruits. The fruit is used in medicine, the seed is taken out and the whole pulp is then used. The blackish brown variety is the most important. *Haritaki* (*Terminalia chebula*) is one of the important as well as commonest herbs used by folk, household and traditional medicine. It is one of the ingredients of *triphala* i.e. *Haritaki*, *Vibhitaki* and *Amalaki* <sup>2</sup>. *Haritaki* with different *Anupana* (vehicle) yields rejuvenative effect in different *ritu*(seasons)<sup>3</sup>. *Acharya Charaka* highlighted its rejuvenative properties in *Chikitsasthana*. He specifically stated that *Haritaki* is best among the herbs to be used regularly. i.e. “*Haritaki pathyanam*”<sup>4</sup>.

### Taxonomy features of *Haritaki*

**Latin name:** *Terminalia chebula* retz., Family: Combretaceae.

**Synonyms:** *Haimavati*, *Shiva*, *Pathya*, *Abhaya*, *Kayastha*, *Shreyasi*, *Chetaki*, *Amrita*, *Vijaya*, *Avyatha*, *Jivanthi* and *Rohini*<sup>5</sup>

**Vernacular names:** Hindi: Harad, Marathi: Hirada, Tamil: Kadukkai, Telugu: Karakkaya, Kannada: Alalekayi, English name: Myrobalans, Chebulic myrobalans<sup>6</sup>

broadly due to variations in the amount, intensity and distribution of climatic constituents. In the study of climate, the main consideration is with the average occurrence of the various elements, their interrelationships and how they affect the environment?

**Morphology:** It is a large perennial tree, which grows up to 30-40 feet height. Phyllotaxy: Alternate

**Leaf:** simple, petiolate, aggregated at the tip of the branches, leathery, obovate/ oblong -ovate, acute, wavy margins, having a glandular structure at base of leaf.

**Inflorescences:** Axillary and terminal spike. Flower: Complete, regular, bisexual.

**Fruit:** Obovoid or ellipsoidal more or less five ribbed when dry.

**Habitat:** Abundant in Northern India, also occurs in Bihar, West Bengal, Assam, Central and South India. Chemical constituents: Anthraquinone Glycoside, Chebulinic acid, Tannic acid, Terchebin, Vit C, Arachidic, Behenic, Lindic, Oleic, Palmitic, Stearic acids<sup>7</sup>.

**Table 1: Types of *Haritaki* as per the Acharya Bhavaprakasha<sup>8</sup>**

| Types            | Swaroopa of fruits         | Habitat             | Uses              |
|------------------|----------------------------|---------------------|-------------------|
| <i>Vijaya</i>    | Oval in shape              | <i>Vindhya</i>      | <i>Sarvaroga</i>  |
| <i>Rohini</i>    | Round in shape             | Everywhere          | <i>Vrana</i>      |
| <i>Putana</i>    | Small and less bulky       | <i>Sindhu</i>       | <i>Pralepa</i>    |
| <i>Amrutha</i>   | Bulky                      | <i>Champa desha</i> | <i>Shodhana</i>   |
| <i>Abhaya</i>    | Fruit has five lines on it | <i>Champa desha</i> | <i>Netra roga</i> |
| <i>Jeevanthi</i> | Yellow in color            | <i>Saurashtra</i>   | <i>Sarvaroga</i>  |
| <i>Chetaki</i>   | Having 3 lines             | <i>Himalayas</i>    | <i>Rechaka</i>    |

However, in practice three variety of *Haritaki* are found<sup>9</sup>-

(1) *Bala Haritaki* (2) *Chambhari- Rangari Haritaki* and (3) *Survari Haritaki*

**Grahya laxanas of *Haritaki*:** A fruit of *Haritaki* which sinks in water, which is fresh, smooth, bulky, round in shape and weighs at least 26 grams is considered ideal for medicinal use<sup>10</sup>.

**Rasa panchaka of *Haritaki*:** *Guna*: - *Laghu*, *Ruksha*, *Rasa*: - *Kashaya pradhana Lavana varjita pancha rasa*, *Virya*: - *Ushna*, *Vipaka*: - *Madhura* & *Prabhava*: - *Tridosahara*, *patyakara*.

**Rasa predominance in different parts of *Haritaki***

**Phalamajja:** - *madhura*, *snayu-aml*, *Vrunta* – *tikta*, *Twacha- katu*, *Asthi-kashaya*.

**Karma:** It acts as *Tridosha shamaka* (mitigates *vata*, *pitta*, *kapha*) *Shothahara* (anti- inflammatory), *Chakshushya* (beneficial for eyes), *Mukharogahara*(cures oral diseases), *Balya* (strengthening), *Kustagna* (cures skin diseases), *Trshnanigrahana* (relives thirst), *deepana* (appetizer), *Pachana* (digestant), *Vatanulomana* (carminative), *Vrana ropana* (wound healing), *Yakrita pleeha uttejaka* (hepatoprotective), *Kasa swasahara* (cures cough & breathlessness), *Hikka* (cures hicccough), *Mutrala* (act as diuretic), *Rasayana* (rejuvenator), *Vaajikara* (aphrodisiac)<sup>11</sup>.

**Vishistha yoga:** *Abhaya aristha*, *Pathyadi kwatha*, *triphala churna*, *T. ghrita*, *chitraka Haritaki* <sup>12</sup>.

**Restorative effect:** - *Haritaki* acts as a rejuvenator (by cleaning various malas). But for producing its *rasayana* effect, it needs various supportive *dravyas* in different seasons in the form of *anupana* (vehicle).

**Varsha (rainy season):** - *saindhava* (rock salt sodium chloride)

**Sharada (autumn season):** - *sharkara* (sugar candy)

**Hemanta (winter season):** - *shunthi* (dry ginger)

**Shishira (winter season):** - *pippali* (piper longum)

**Vasanta (spring season):** - *madhu* (honey)

**Grishma (summer season):** - *guda* (jaggery)<sup>13</sup>.

**Gana:** Charaka- Prajasthapana, Jwaraghna, Kushtaghna, Kasaghna, Arshoghna.

Sushruta- Triphala, Amalakyadi, Parushakadi.

### Haritaki in Nighantus (Lexicons)

The word *Nighantu* is derived from the word *Nirukta* i.e. which helps to point out concealed meaning of *Vedas*. Similarly, *Nighantus* contain documented list of medicinal plants and throw light on their general and therapeutic properties in the form of different synonyms. Thus, we can say *Nighantus* are *Ayurvedic* Materia medica. *Haritaki* is described in *Nighantus* as *Rasayana* (rejuvenating)<sup>14,15</sup> *Vrinaropana* (wound healing)<sup>16,17</sup>, *Shulahara* (antispasmodic)<sup>18,19</sup>, *Hrudya* (cardioprotective) and *Pramehanashaka*(antidiabetic). It is indicated in *Vishamjwara* (malaria), *Udararoga* (gastro-intestinal disorders), *Shiroroga* (disease of head) and *Krimi-roga* (worm Infestation).<sup>18,19</sup>

## 2. REVIEW ON RITU (SEASON)

**Definition of Ritu:** Which is a tendency to move continuously in a cyclic manner is called as *Ritu*(seasons). The period of one year is divided into six *ritus*- *Shishira* (winter season), *Vasanta* (spring season), *Grishma* (summer season), *Varsha* (rainy season), *Sharad* (autumn season), and *Hemanta* (winter season). *Tikta* (bitter), *Kashaya* (astringent), *Katu* (pungent), *Amla* (sour), *Lavana* (salt), *Madhura* (sweet) tastes are predominated in food and medicines in respective seasons<sup>20</sup>. According to the intensity of sun rays, these six seasons are divided into two groups such as; 1. *Adaana kaala* (debilitating period) 2. *Visarga kaala* (strengthening period). According to purificatory therapy, these are grouped in two groups as follows; 1. *Sadharana ritu* (General seasons) - *Pravrit*, *Sharada*, *Vasanta ritu*. 2. *Vishista ritu* (specific seasons) - *Hemanta*, *Grishma*, *Varsha ritu*.

**Anupana (vehicle):** *Anupana* (vehicle) is defined as the *pana* (drink) which is taken immediately after *ahara* (food), *aushada anga* and *aushada yoga* (medicines)<sup>21</sup>.

**Anupana karmukata:** As the oil added to water spreads quickly on the surface of water, so the *oushadha* (medicine) along with the *Anupana* spreads in the body and produces its effect when administered with appropriate *Anupana* <sup>22</sup>.

**Benefits and Importance of Anupana:** *Anupana* invigorates, gives contentment, helps in proper movement of food inside, stability of body, softens the consumed food, increases the *kledata* (moisture) and helps in proper digestion of the food<sup>23</sup>.

**Ritu Haritaki Sevana:** *Haritaki* provides the restorative effect i.e., *rasayana* by cleansing the channels of body. But for producing the *rasayana* effect it needs various supportive *dravyas* in different *ritu* such as;

In *Varsha ritu* - *Haritaki* + *saindava lavana* (rock salt)

In *Sharada ritu* - *Haritaki* + *sharkara* (Sugar)

In *Hemanta ritu* - *Haritaki* + *shunti* (dry ginger)

In *Shishira ritu* - *Haritaki* + *pippali* (piper longum)

In *Vasanta ritu* - *Haritaki* + *madhu* (Honey)

In *Grishma ritu* - *Haritaki* + *guda* (Jaggery)

**Table 2: Suggested Ritu haritaki with anupana in dosage forms**

| Ritu     | Haritaki      | Anupana  | Anupana dosage |
|----------|---------------|----------|----------------|
| Varsha   | Haritaki (3g) | Saindava | 3g             |
| Sharad   | Haritaki      | Sharkara | 1tsp           |
| Hemanta  | Haritaki      | Shunti   | 50ml (kashaya) |
| Shishira | Haritaki      | Pippali  | 250mg          |
| Vasanta  | Haritaki      | Madhu    | 2tsp           |
| Grishma  | Haritaki      | Guda     | 3g             |

## 3. DISCUSSION

Phadke and Kulkarni screened for in vitro antibacterial activity of extracts from the plants of *T. chebula* *E. alba* and *sanctum* was carried out by the disk diffusion technique. All showed such activity against human pathogenic gram positive and gram-negative bacteria. The activity against salmonella organisms was shown only by *T. chebula* against shigella organisms by *T.*

*chebula* and *E. alba* but not only by sanctum. The widest spectrum of antibacterial activity was shown by *T. chebula*. It was most potent.<sup>24</sup>

Mard et al., reported for spasmogenic activity of the seed of *Terminalia chebula* Retz in rat small intestine in the in vivo and in vitro studies. This study showed that aqueous extract of *T. chebula* seed improves constipation induced by morphine and increases the gastrointestinal transit ratio, which supports its traditional use in constipation. The in vitro study revealed that ATC activity was related to  $Ca^{2+}$  influx. More studies are necessary to elucidate the mechanism(s) of its action.<sup>25</sup>

Dong et al., studied on the acetate extract of *Terminalia chebula* alleviates DSS-induced ulcerative colitis in C57BL/6 mice. This result shows TCEA significantly lowered DAI scores and inhibited the weight loss and colonic shortening induced by DSS. The colon histomorphology and oxidative stress levels were enhanced after TCEA treatment compared with DSS induced UC group. TCEA attenuated the inflammatory response by regulating TLR4/MyD88/NF- $\kappa$ B pathway activation. Intestinal flora sequencing showed that DSS and TCEA greatly impacted mice's composition and diversity of intestinal microorganisms. But TCEA increased the abundance of Bacteroidetes and decreased the abundance of Firmicutes and Proteobacteria compared with the DSS group, which contributed a lot to returning the intestinal flora to a balanced state.<sup>26</sup>

Smitha and Dilipkumar research work done on the efficacy of Ritu haritaki (seasonal adjuvant of haritaki) on disorders of varsha ritu (monsoon) w.s.r to quality of life: an open labelled randomized controlled clinical trial).<sup>27</sup> In this study *Ritu haritaki* was found to be effective in reducing the severity and frequency of diseases (common cold, cough and fever) among the participants during *Varsha Ritu*. There was significant improvement in the Domain 1 and Domain 4 of WHO QOL BREF. The changes in the haematological parameters (TLC, DC, ESR) within the normal limits suggest an improvement in the general health which also can be concluded due to the intervention.

Aabhashankar studied - a preventive trial on Ritu haritaki in seasonal diseases of grishma ritu - A non-randomised controlled trial. In this study Ritu haritaki is found to have a significant effect in preventing seasonal diseases of grishma ritu compared to the control group of healthy volunteers and significant improvement in subjective parameters in the trial group by virtue of the effect of intervention<sup>28</sup>.

#### **Haritaki with Saindava lavana on Dosha, Agni, Bala in Varsha ritu**

*Varsha ritu* (rainy season); is first season of *visarga kala* (debilitating)<sup>29</sup>, during which *alpa rukshata* (mild roughness), *amla rasa* (sour taste) are predominant. *Agni* (digestive power) becomes irregular. *Bala* (strength) of the person is less. Due to *mandagni* (decreased digestive energy) and excess cold, *sanchaya* (accumulation) of *pitta dosha* and *prakopa* (aggravation) of *vata* takes place.<sup>30</sup>

The *lavana rasa* (salt taste) is formed in *sharad ritu* (autumn season), but its utility is best during *Varsha ritu* (rainy season) to tackle aggravated *vata*. *Haritaki* with *saindava lavana* (rock salt) brings the *Sanchita pitta* (accumulated *pitta*) to equilibrium state due to *Laghu guna* (lightness) and *Madhura vipaka* of both *Haritaki* and *Saindhava lavana*. *Saindhava lavana* acts as *Vata shamaka* due to its *Lavana rasa*, *Snigdha guna* (unctuousness), and *Madhura vipaka* (post digestion). *Haritaki* acts as *vata shamaka* due to the *Madhura*, *Amla rasa*, *Ushna virya* and *Madhura vipaka*.<sup>31</sup> When the *Vata* and *Pitta* are brought to their equilibrium state, they ultimately enhance the *Agni* (metabolism), which is impaired due to *Vata prakopa* (aggravation of *Vata*) and *Pitta Sanchaya* (accumulation of *pitta*), *Haritaki* and *saindhava* act as appetizer, digestant, and restore the strength of the person by its *Madhura vipaka*.

#### **Effect of Haritakee with Sharkara on Dosha, Agni, Bala in Sharad ritu**

*Sharada ritu* (autumn season) is second *ritu* (season) of *visarga kala*<sup>32</sup>, comes under the *sadharana ritu*. During which *madhyama snigdha*<sup>33</sup> (mild unctuousness) and *lavana rasa* (salt taste) are predominant. *Agni* (digestion) becomes *teekshna* (increased), *Bala* (strength) of the person is *madhyam* (moderate), due to predominance of *snigdha guna*, *lavana rasa*. *Haritakee* with *sharkara* (sugar candy) does purification of provoked *pitta*, due to its *snigdha Guna* (unctuousness), *madhura rasa* (sweet taste) and *vipaka* (post digestion). By this the *pitta* gets purified When the *pitta dosha* is purified, it restores the strength and digestive capacity of the person. *Madhura rasa*, *madhura vipaka* and *sheeta virya* of *sharkara* prevent the further vitiation of the *pitta*. Along with this they help in mitigating *shamana rupi vata* (which are under mitigating stage), due to their *snigdha Guna*, *madhura rasa* and *vipaka*. The *ushna virya* of *Haritaki* mitigate the *vata*.

#### **Effect of Haritaki with Shunti (Ginger officinale) on Dosha, Agni, Bala in Hemanta ritu**

*Hemanta ritu* (winter season) is the last season of *Visarga kala*<sup>34</sup>, during which the *snigdha Guna* and *madhura rasa* are predominant. In this season the strength of the person is good, the *pitta* is in mitigating state and *kapha* at its accumulating stage<sup>35</sup>. It mitigates the *kapha* at its accumulating stage and prevents aggravation, due to *ushna virya* (hot potency), *katu*, *tikta*, *kashaya rasa* (pungent, bitter, astringent taste), *laghu*, *ruksha Guna* (lightness, dryness) of *Haritaki* and *shunti* (ginger). Along with this it helps to bring back the *pitta* to equilibrium state by its *Madhura vipaka*. Due to its *Ushna virya* it stimulates the *Agni* which get impaired during vitiation of *pitta*.

### **Pippali (Piper longum) on Dosha, Agni, and Bala in Shishira ritu**

Shishira ritu (winter season) is first season of the *Adana kala* (strengthening season)<sup>36</sup>, during this period the intensity of sun rays will gradually increase, along with this *Ruksha Guna* (dryness)<sup>37</sup> also increases and strength of person gradually decreases due to excess coldness. The accumulation of *Kapha* takes place in this season. To mitigate the accumulated *Kapha*, *Haritaki* should be taken with piper longum fruit, as it is good *Sleshmahara* (*kapha* mitigate), due to its *Katu rasa* (pungent taste), *laghu*, *Tikshna Guna* (lightness and penetrating properties) and *Ushna virya*. Apart from this it also brings the *Shamana rupi pitta* to its equilibrium state. By this it maintains the equilibrium status of the *Dosha* leading to *Agni samyata*, *Dhatu samyata* (equilibrium state of agni and body tissue) and ultimately leads to *Rasayana karma*.

### **Effect of Haritaki with Madhu (Honey) on Dosha, Agni and Bala in Vasanta ritu**

*Vasanta ritu* (spring season) is second ritu of *Adana kala*<sup>38</sup>, comes under *Sadharana ritu*. During this Ritu, *Ahara* and *Aushada dravyas* (food and medicines) are *Madhyama rukshata* (moderately dry) and astringent. Hence, strength of person is reduced<sup>39</sup>. The aggravation of *Kapha* takes place in this Ritu. To mitigate the aggravated *Kapha*, *Haritaki* should be taken with honey. The *Laghu*, *Ruksha Guna* (lightness and dryness) and *Kashaya rasa* (astringent taste) of *Haritaki* and *Madhu* help to mitigate *Kapha*. *Ushna virya* of *Haritaki* also acts as *Kaphahara*. Because of its *Madhura vipaka*, this combination also acts as *Rasayana*.

### **Effect of Haritaki with Guda (Jaggery) on Dosha, Agni, and Bala in Grishma ritu**

*Grishma ritu* (summer season) is the last season of *Adana kala*<sup>40</sup> and comes under *Visishta ritu*. During this season *dravyas* have *Atirukshata Guna* (excessive dryness) and *Katu rasa* (pungent taste), which considerably reduce the strength of a person. Accumulation of *Vata* and mitigation of *Kapha* will take place in this season<sup>41</sup>. *Guru*, *Snigdha Gunas* (heaviness and unctuousness) and *Madhura vipaka* of jaggery and *Usna virya*, *Madhura vipaka* of *Haritaki* helps to prevent the *Vata sanchaya*. By this, it checks *Vata* from moving into further *Kriyakalas* (pathological stages). *Ushna virya* and *Laghu*, *Ruksha gunas* of *Haritaki* brings the *Samana rupi kapha* to its equilibrium state.

### **Haritaki as Immunomodulatory Activity and Anti-oxidant activity**

In Ayurveda, *Hartaki* is considered the best *Pathya Dravya* (substances that clean the channels) and a good *Rasayana* (immunomodulator). Vaibhav Aher and Arun Kumar Wahihave<sup>42</sup> seen the Immunomodulatory Activity of *Terminalia chebula* Retz. They have assessed the immunomodulatory potential of the alcohol extract of the dry ripe fruit of this plant at the cellular and molecular levels using Wistar male rats. These studies showed that there was distinct increase in the levels of glutathione, superoxide dismutase and catalase following treatment with *T. chebula* as alcohol extract compared to treatment with SRBC and cyclophosphamide. Glutathione is the major endogenous antioxidant produced by cells and Catalase is an antioxidant enzyme while Superoxide dismutase induces the activation of endogenous system of antioxidant defenses. Therefore, the extract has both antioxidants as well and immunomodulatory activities, and thus capable of protecting cells from oxidative damage. Chen et al. evaluated the antioxidant capacity of tri-ethylchebulate, an aglyconer from *Terminalia chebula* Retz fruit in vitro.

## **4. ANTI-MUTAGENIC AND ANTI-CARCINOGENIC ACTIVITIES**

Ponnusankar et al. has performed by the effect of 70% methanolic fruit extract of *Terminalia chebula* was studied on growth of several malignant cell lines. One of the fractionated compounds from ethanolic fruit extract of *Terminalia chebula*, chebulagic acid, showed potent dual inhibition against COX and 5-LOX. It also showed anti-proliferative activity against HCT15, COLO-205, MDA-MB-231, DU-145 and K562 cell lines. A recent study has shown the ability of triphala to inhibit cytochrome P450<sup>32-39</sup>.

Effect of *Terminalia chebula* extract on humoral antibody titer and delayed-type hypersensitivity response using SRBCs as an antigen in mice. The results obtained in the current study show that *Terminalia chebula* extract displays a dose-dependent immunostimulatory effect in relation to antigenic stimulation. Injecting mice i.p. with 109 SRBCs suspended in saline sensitizes them for elicitation of DTH and also induces antibody formation, therefore this system has major advantage; that is, it enables two components of immune response to be measured in the same species under ideal conditions and is relatively simple and inexpensive to perform. *Terminalia chebula* extract produced a dose-dependent increase in both the parameters (i.e., antibody production and delayed-type hypersensitivity). Therefore, is concluded that the aqueous extract of fruit of *Terminalia chebula* has promising immunostimulant properties<sup>32-39</sup>.

## **5. CONCLUSION**

From the detailed review, it can be inferred that *Haritaki* is an important plant used in Ayurveda as well as in other indigenous systems of medicine. The mythological origin of the plant represents the immortal nature of therapeutic attributes in the human body. This review attempts to summarize the various facts about *Haritaki* (*Terminalia chebula*) including its pharmacological actions. Flavonoids, hydrolysable tannins, terpenes and gallic acid are the main constituents which are responsible for its pharmacological activities. It is a frequently used *Ayurvedic* medicine to treat many diseases such as skin diseases, anaemia, jaundice, constipation, piles, asthma, cough, fever, chronic ulcers etc. It is a *Rasayana* i.e. promote health,

immunity and longevity. This review gives a wide knowledge about the herb and their importance as medicine. By following ritu haritaki schedule one can harness the benefits of haritaki and well-being throughout the changing seasons.

**Conflicts of interest:** Nil

**Funding:** Nil

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