



### Therapeutic Potential of Ayush 64 in Covid-19: An Ayurvedic Perspective

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#### Abstract

In the human history, a medical emergency has emerged in the form of Covid-19 disease. Coronavirus disease 2019 (COVID-19), is caused by severe acute respiratory syndrome which has become pandemic. The medical treatment of Covid-19 consists of symptomatic management and oxygen supply, with ventilation for patients with acute respiratory failure. There is no specific treatment for Covid-19. Globally, efforts are being made to verify the efficacy of traditional system of medicines to fight against the Covid-19. Ayurveda, the traditional system of Indian medicine, has also number of herbal medicines which can be used to treat the systems of Covid-19. The Ayush-64 drug is used to treat Malaria (*Visama Jvara*) and it has been developed by CCRAS, Ministry of AYUSH, Govt. of India. Contents of Ayush 64 drug are: *Saptaparna* (*Alstonia scholaris*

R. Br.) Bark Aqueous Extract 100 mg; *Katuki* (*Picrorhiza kurroa* Royle ex. Benth) Root do 100 mg; *Kirata tikta* (*Swertia Chirata* (Pexb ex. Karst) Whole plant do 100 mg; and *Kaberuka* (*Caesalpinia crista* Linn.) Seed powder 200 mg. This paper intends to understand the drug actions of contents of Ayush 64 according to Ayurvedic point of view.

**Key words:** Ayush64, Kiratatikta, Saptaparna, Kutaki, Latakaranja,

#### Introduction:

In December 2019, a novel Coronavirus was first reported in Wuhan, China.<sup>1</sup> It was named by the World Health Organization as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and is responsible for Coronavirus disease 2019 (COVID-19).<sup>2</sup> Every science has its own limitations and it is human nature to protect ourselves from any disaster. All over the

world, traditional systems of medicines are trying to find out the effective treatment for Covid-19. Ayurveda is the traditional system of Indian medicine and CCRAS has developed AYUSH-64 drug which is used since 1980 for treatment of fevers, inflammation and joint pains. It is used to treat the *Vishamjvara* (malarial fever), *Shleepada* (microfilaremia) and *chikungunya*. During Malaria epidemic in Rajasthan and Assam in 1994 and 1996 respectively, AYUSH 64 was used in 3600 fever cases in Rajasthan and 2294 fever cases in Assam.<sup>3</sup> AYUSH 64 consists of 4 herbal drugs: *Alstonia scholaris* (aqueous bark extract), *Picrorhiza kurroa* (aqueous rhizome extract), *Swertia chirata* (aqueous

extract of whole plant) and *Caesalpinia crista* (ne-powdered seed pulp).

#### **Description of Ingredients of AYUSH-64:**

##### **1. Swertia Charta:**

##### **Important pharmacological effects:**

*S. chirata* is mainly used as antipyretic, anthelmintic, and antiperiodic, cathartic and in asthma and leucorrhoea and as harsh, analeptic, stomachic; mitigate inflammation. Also used as purifier of Breast milk, and as a laxative and carminative.<sup>4</sup> In Ayurveda literature, *chirayita* is used to treat diseases such as *jwar, kustha, kandu, prameha swaasa, kaasa, aruchi, trishna, daaha, krimi, vrana*.etc.<sup>5</sup>

#### **Karma (action - pharmacodynamics) and prayoga (uses) of s. Chirayita<sup>6</sup>**

<b>Karma (Action- Pharmacodynamics)</b>	<b>Prayoga (Uses- Indication)</b>	<b>Classical references</b>
<i>Kapha pitta shaamak, saarak, rakta dushti and daaha naasak</i>	<i>Sannipaataj jwar, swaas, daaha, kaasa, sotha, trishna, kushtha, jwar, vrana, krimi</i>	Bhav.Prakash. Nighantu29. Haritakyadi varga ,153-155
<i>Sleshma pitta shaamak, rakta dushti har</i>	<i>Soka,arti, kaasa, trishna,jwar</i>	Dhanwantari Nighantu30.Guduchyadi Varga 33-35
<i>Kapha pitta shaamak,vaata kaarak, saarak, rakta dushti har</i>	<i>Kustha, meha, swaasa, kaasa, trishaa, daaha, aruchi, sopha, jwar, krimi</i>	Kaiyadev Nighantu.31 Aushadhi varga 889- 891
<i>Vaata kaarak, kapha pitta har,pathya,vrana ropana</i>	<i>Jwar, kustha, kandu, sopha</i>	Raj Nighantu32. Prabhadraadi varga 15-18
<i>Kapha pitta har,ati sara</i>	<i>Jwar, krimi, kustha, daaha, vrana</i>	Priya Nighantu33.Satapushpaadi varg,134
<i>Vaatal, pitta shaamak</i>	<i>Sannipataj jwar, swaasa, kaasa, daaha</i>	Madanpaal Nighantu34. Abhayadi varga,143-144
<i>Saarak,kapha pitta shaamak</i>	<i>Sannipataj jwar, swaasa, kaasa, daaha</i>	Mahaushadh Nighantu35 Mahaushadhaadi Varga,91-92
<i>Krimighna,Sleshmahaa,</i>	<i>Sannipaati, shulaapaha,</i>	Sodhal.Nighantu36part-1,

<i>mala dhvansi</i>	<i>jwar nidraapaha</i>	Guduchyadi varga121-122
<i>Stanyasodhana, Trishna nigrahan</i>	<i>Agnimandhya, arochak, Grahani, Kamala</i>	Charak Samhita.37-40 Sutrasthan 4/12,14; Chikitsasthan15/132,137,181;7/146
<i>Pittakaphaapahaa</i>	<i>Pandu, Apasmar, Unmad</i>	Sushrut Samhita41-43. Sutrasthan46/270, Uttartantra.44/28,62/35
<i>Kapha naasak, dusta vrana vishodhan</i>	<i>Kandu, Prameha, Vishamjwar, Chhardi, kustha</i>	Ashtang samgraha sutrasthan44 16/11- 12, Ashtang hridaya45 sutrasthan 15/17-18

### Antipyretic activity & Antiviral activity:

The aqueous extract of *Swertia chirata* Buch Ham. Root (ASC) (Family: Gentianaceae) was evaluated for its antipyretic potential on Brewer's yeast induced pyrexia in albino rats and Typhoid-Paratyphoid A, B vaccine induced Hyperexia in rabbits. In both models, the extract, at dose of 200 mg kg<sup>-1</sup> body wt. and 400 mg kg<sup>-1</sup> body weight, produced significant (p<0.001) reduction in elevated body temperature in a dose dependent manner. The antipyretic effect of the extract was comparable to that of paracetamol (150 mg kg<sup>-1</sup> body weight, p.o.), a standard antipyretic agent.<sup>7</sup> The antiviral activity of *Swertia chirata* (Buch-Ham) was tested against Herpes simplex virus (HSV) type-1, using multiple approaches both at cellular and molecular level. In this preliminary study, extract of *Swertia chirata* (Buch-Ham) showed antiviral properties against Herpes simplex virus type-1.<sup>8</sup> Swerchirin a tetra oxygenated xanthone from *S.chirayita* (Buch-Ham) was tested for antimalarial activity by Goyal et., al. Compound was proved to be effective even at 1/5 of standard dose primaquine by both oral and subcutaneous

routes. The drug is effective at both oral and subcutaneous routes. The drug is effective at both the routes i.e., at 1.6 mg/kg and 320 micro gm/kg by reaching nil parasitaemia in infected rats.<sup>9</sup> Chirayatra is an effective drug for reducing fevers. It is especially beneficial in the treatment of malarial fevers. It is also effective in hysteria and convulsion. The herb is an excellent drug for strengthening the stomach and promoting its action. It is used in the treatment of dyspepsia and diarrhoea. Chirayata possesses anthelmintic that is, worms destroying, properties and is used in killing intestinal worms.<sup>10</sup>

### 2. *Caesalpinia Crista*:

#### Pharmacological properties

*Guna – Laghu, Ruksha*

*Virya: Ushna*

*Vipaka: Katu*

**Karma: Vishamjwaraghna, Tridosahar, Vranropan**

*Latakaranj* has *ushna virya* and *katu vipak*, it regulates *vatakapha dosha*. It acts as *shothahar, deepan, tridoshashamak*.<sup>11</sup> Role of *Latakaranj* (*Caesalpinia Crista* / Fever Nut) - *Latakaranj* has *tikta -kashaya rasa, laghu - ruksha guna, ushna virya* and *katu vipak* which acts as *tridoshshamak Vedanasthapak* (analgesic), *raktashodhak*

(blood purifier) and *pramehghna* (antidiabetic). It also contains Bonducin – Glycoside having antitumor, analgesic and anti-inflammatory action.<sup>12</sup>

### Important preparations

A. Visamajwaraghnivati- helps in *jwara* specially *visham jwara*.<sup>13</sup>

### 3. *Alstonia scholaris* (L.) R.Br.:

*Alstonia scholaris* plant is used in Ayurvedic, Unani, Homoeopathy and Sidhha/Tamil types of alternative medicinal systems against different ailments such as asthma, malaria, fever, dysentery, diarrhea, epilepsy, skin diseases, and snakebite etc.<sup>14</sup> The plant is traditionally being used in debility (Rahmatullah et al., 2009), arthritis (Yusuf et al., 2006), impotence (Zashim Uddin et al., 2006), wounds and earache (Bharadwaj and Gakhar, 2005), asthma (Saikia, 2006; Vikneshwaran et al., 2008), leucorrhoea (Bhandary et al, 1995), dog bite (Prusti and Behera, 2007), fever (Rajakumar and Shivanna, 2010), cancer, tumour, jaundice, hepatitis, malaria, skin diseases (Mollik et al., 2010), diarrhea (Dash and Padhy, 2006).<sup>15</sup> Traditional the bark is bitter, astringent, acrid, thermogenic, digestive, laxative, anthelmintic, antipyretic, depurative, galactagogue, stomachic, cardiogenic and tonic. It is useful in fever, malarial fever, abdominal disorders, diarrhoea, dysentery, dyspepsia, leprosy, skin diseases, pruritus, tumours, chronic and foul ulcers, asthma, bronchitis, cardiopathy, helminthiasis and debility. The milky exudate is bitter and is good for ulcers, vitiated conditions of *vata* and otalgia.<sup>16-17</sup>

### 4. *Picrorhiza Kurroa*:

‘In Greek, “picros” means bitter, while “rhiza” means root. The specific epithet of

plant is taken from the Punjabi name of the plant “Karu”, which means bitter.<sup>18</sup>

**The names and qualities of Kutki** - *Katwi, Katuka, Tikta, Krishnabheda, Katambhara, Ashoka, Matsyashkala, Chakraangi, Shakuladani, Matsyapitta, Kandruha, Rohini* and *Katurohini* are all names of *Kutki*.

‘*Picrorhiza kurroa* Royle ex Benth. is widely used by locals in curing diseases like stomachache and high fever. To cure fever, 10 g root powder mixed with 1 g black pepper and honey is given to the adult patient. 0.25g powder of *kutki* with mother’s milk is advised for newborns to cure stomachache.<sup>19</sup> *Kutki* is widely used in Ayurvedic and Unani traditional medicine systems in India with the rhizomes valued for their effectiveness as an antibiotic. It is regarded as one of the major components of *Arogyavardhini*, an effective Ayurvedic preparation used to treat liver illnesses.<sup>20-21</sup> Rhizome of the plant is also used in treatment of high blood pressure, intestinal pain, eye disease, gastritis, bile disease, sore throats, blood, and fever.<sup>22</sup> *Kutaki* is considered to be a valuable bitter tonic and a favorite remedy in bilious dyspepsia accompanied with fever. It is antipyretic, anthelmintic, and slightly laxative and is useful in asthma, blood troubles, burning sensation, piles, inflammations, ringworm.<sup>23</sup>

### Discussion:

Medicinal plants are crucial for about 80% of the world population in developing and developed countries for their primary and basic health care needs owing to better tolerability, superior compatibility with human body and having lesser side effects.<sup>24</sup>

All the four components of AYUSH 64 (viz. *Saptaparna* (*Alstonia scholaris*), *Latakaranja* (*Ceasalpina bundac*), *Katuki* (*Picorrhiza kurroa*), *Kiratatikta*(*Swertia chirata*) are having *tikta*, *kashya rasa*, *laghu*, *ruksha guna*. These properties of the above drug can pacify the *pradhana dosha* of *jvara* i.e., *pitta* and the *tikta*, *kashya rasa* of these drugs are *raktasodhaka* (blood purifier) in nature. This property might have helped in clearing the parasites from the blood. Three out of four drugs of AYUSH 64 are having *ushna virya*, thereby they can pacify *vata* which is responsible for chills, rigors, nausea, vomiting, giddiness, body ache and headache.<sup>25</sup>

The treatment of *Jvara* aims at digestion of *ama* (partially digested metabolic waste) through *langhana* (fasting restricted calorie intake) and formulations (single herb/ polyherbal) containing ingredients having *tikta rasa*, *ushna virya*, *katu vipaka* and *amapachaka* (anti-inflammatory) property.

#### **Conclusion:**

According to *Ayurvedic* concepts, in *Jvara*, *agnimandya* usually leads to formation of *Ama* and ultimately leading to the *Amavastha*. Among 13 types of *agni*, *Jatharagni* is the main on which remaining *agnis* are dependent and *Jatharagni* can be corrected with the help of *Agnideepana* and *Amapachak rasa*. The ingredients in AYUSH-64 are having *Tikta rasa* which is *Agnideepak* and *Amapachak*. AYUSH-64 may relieve some symptoms of Covid-19 and further research is needed to find out the efficacy of AYUSH-64 drug.

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