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Review on *Sitopaladi Churna*: An Ayurvedic Antitussive Polyherbal Formulation

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ABSTRACT

Sitopaladi Churna is one of the polyherbal Ayurvedic formulation ordinarily used. It contains veritably safe and easily available herbal drugs. *Sitopaladi Churna* is mentioned in varied classic text books like *Charak Samhita*, *Sharangdhara Samhita*, *Bhaishjya Ratnavali*, *Yog Ratnakar* etc under the treatment of *Kasa*, *Aruchi*, *Jwar*, *kshaya rog* etc. It is used as a remedy for Cough (*Kasa*). In *Ayurveda* this formulation is used for a range of respiratory problems from chest congestion, cold and flu to pneumonia, tuberculosis and bronchitis. Due to its antioxidant and anti-inflammatory action, it controls respiratory infections. The present review article is undertaken to discuss about the ingredients of the formulation and action of *Sitopaladi Churna*.

Key Words *Kasa*, fever, *Sitopaladi Churna*, *Tuberculosis*

Received 02nd June 22 Accepted 11th August 22 Published 10th September 2022

INTRODUCTION

Respiratory disease causes an immense worldwide health burden¹. Approximate 235 million people suffer from asthma²; more than 200 million folks have chronic obstructive pulmonary disease (COPD); 65 million suffer from medium to serious COPD³. Over 100 million people experience sleep-disordered breathing⁴; 8.7 million people develop TB annually⁵; 4 millions live with pulmonary hypertension; 3 and more than 5 million people abide with occupational lung diseases, totalling over one billion persons suffering from long term respiratory conditions⁶. Despite increased

understanding of pathogenesis of the respiratory diseases such as asthma and COPD, their incidence is increasing quickly all over the world^{7,8}. COPD patients have a common symptom i.e chronic cough⁹. Most popular cough medicines prescribed all over the world are based on herbal derivatives. *Sitopaladi Churna* is a polyherbal Ayurvedic formulation which is used as an antitussive, analgesic and antipyretic¹⁰. It is made from herbs like *Mishri* (Candy sugar), *Vanshalochana* (Silicacious concretion extract of *Bambusa bambos* Druce), *Pippali* (*Piper longum* Linn), *Ela* (*Elleteria cardemomum* Maton), *Dalchini* (*Cinnamomum*

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zeylanicum Breyn)¹¹. It is used as a medicine for cold, cough, congestion, bronchitis, tracheitis, sinus headache, respiratory allergy, seasonal

sneezing, wheezing and excess mucous¹². *Sitopaladi churna* is generally taken with honey or ghrita possibly for the synergistic effect¹³.

Drug Review

Table 1 Ayurvedic Pharmacology of Drugs

| Ingredient | Botanical Name | Part used | Ayurvedic Properties | Quantity |
|----------------------------------|--|-----------------------|--|----------|
| <i>Sitopala</i> ¹⁴ | <i>Saccharum officinarum</i> | Sugar Candy | - | 16 parts |
| <i>Vanshlochan</i> ¹⁵ | Silicacius concretion extract of <i>Bambusa bambos</i> Druce | Silicacius concretion | <i>Rasa - Katu, kashaya</i> <i>Guna - Ruksha, guru</i> <i>Virya - Ushna</i> <i>Vipaka - Katu</i> <i>Karma - Deepana, Pachana, Swashara, Jwaraghana</i> <i>Dosha Karma - Vattpittakarak, kaphanashak</i> | 8 parts |
| <i>Pippali</i> ¹⁶ | <i>Piper longum</i> Linn | Dried Fruit | <i>Rasa - Madhura, Tikta, Katu</i> <i>Guna - Snigdha, Laghu</i> <i>Virya - Anushna</i> <i>Vipaka - Madhura</i> <i>Karma - Deepana, Raktavardhak, Kasahar, Swasahara, Jawaraghana</i> <i>Dosha Karma - Vatakaphahara, Tridoshaghna</i> | 4 parts |
| <i>Ela</i> ¹⁷ | <i>Elleteria cardemomum</i> Maton | Dried Seed | <i>Rasa - Katu</i> <i>Guna - Laghu, Ruksha</i> <i>Virya - Ushna</i> <i>Vipaka - Katu</i> <i>Karma - Deepana, Pachana, Kasa, Swasa, Kshaya</i> <i>Dosha Karma - Kaphapittahara</i> | 2 parts |
| <i>Twak</i> ¹⁸ | <i>Cinnamomum zeylanicum</i> Breyn | Stem Bark | <i>Rasa - Tikta, Katu</i> <i>Guna - Laghu, Ruksha</i> <i>Virya - Ushna</i> <i>Vipaka - Katu</i> <i>Karma - Deepana, Pachana, Kasa, Yakshamanashaka, Aruchi, Swasha</i> <i>Dosha Karma - Vatpitanashaka</i> | 1 part |

DISCUSSION

Sitopaladi Churna is mentioned in various ayurvedic texts such as *Charak Samhita*¹⁹, *Sharangdhara Samhita*²⁰, *Bhaishjya Ratnavali*²¹, *Yog Ratnakar*²², *Vrind Madhav*²³, *Brihat Yog Tarangni*²⁴ and *Gada Nigreh*²⁵. In *Charak Samhita* it is mentioned for *kasa*, *swasa*, and *kshaya rog*. In *Bhaishjya Ratnavali* it is mentioned for *kasa*, *swasa*, and *kshaya rog*. In *Sharangdhara Samhita* it is under the treatment for *Kasa*, *Kshaya*, *Raktapitta* and *Daha*. In *Gada Nigreh* it is indicated for *Rajayakshma*. *Yog Ratanakar* has indicated it for *Kasa*, *Swasa*, *Kshaya*, *Aruchi*, *Jwara*,

Parshavashool. All Ayurvedic texts have mentioned same ingredients and quantity.

Critical analysis on ingredients of *Sitopaladi Churna*

Almost all authors have taken same ingredients and no controversy is seen regarding its ingredients and its quantity. On surveying the literature, it is found that *Sitopaladi Churna* is advised in *kasa*, *swasa*, *kshaya rog*, *Raktapitta*, *Daha*, *Aruchi*, *Jwara* and *Parshavashool*. If we consider therapeutic potential of the herbs, properties of *Vansha* in *Raja Nighantu* is mentioned in *moolakadivarga* as *deepana*, *pachana*,

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ruchikrita, ajeernanashana, shoolahna, hridya and *gulmanashana*²⁶. *Pippali* is *deepana*, used in *Vata vikara, kasa, swasa* and *kshaya roga*²⁷. Properties of *Ela* is it discipates the *pittaj* and *Kaphaj* diseases²⁸. *Dalchini* is *Amadoshnashak, kanthshudhikarak* and *kasahara*²⁹.

Vanshalochana (Silicacius concretion extract of Bambusa bambos Druce) - Bamboo species belongs to the Poaceae family, on the whole Poaceae has about 1,500 species, and 87 genera worldwide. It is distributed between humid tropical, sub-tropical and mild moderate regions across the globe³⁰. Bamboo sap is used to treat cold, fever, or loss of consciousness associated with phlegm-heat. It is mainly used as a cure in children in disorder of fever and epilepsy. *Pleioblastus amarus*, a tall bamboo growing in Southern China, its leaves has slightly bitter, pungent taste and is used in treating fever, fidgeting, and lung inflammation³¹. Studies related to the biological activity of bamboo species suggested that they possess activities such as anticancer, antidiabetic, anti-inflammatory, antioxidant, antibacterial, cardioprotective, hepatoprotective and neuroprotective³⁰.

Pippali (Piper longum Linn) - The plant *Pippali* is botanically identified as *Piper longum* Linn. is a member of Piperaceae family. It is commonly found in the tropical regions of India from central Himalayas to Assam, evergreen forests of Western Ghats etc. It is an aromatic slender climber having perennial woody roots³². Several research studies has suggested that it has Antibacterial, anti-inflammatory, insecticidal, antimalarial, CNS stimulant, antitubercular, anthelmintic, hypoglycemic,

antispasmodic, cough suppressor, anti-giardial and immunostimulatory action³³.

Ela (Elleteria cardemomum Maton) - *E. cardemomum* commonly known as queen of spices belongs to Zingiberaceae family. It is a perennial shrub, has fleshy, thick and lateral roots that can grow upto a height of eight feet (Kapoor, 2000)³⁴. Cardamom has folklore repute as carminative, diuretic, cardiogenic, abortifacient, expectorant and stimulant. It is of great use in diseases like in asthma, bronchitis, haemorrhoids, renal and vesical calculi, halitosis, anorexia, gastropathy, hyperdipsia, burning sensation, frailty, and vitiated conditions of *vata*³⁵. Cardamom oil can be used in food, liquor etc and in the field of medicine, it is proved as antiseptic, stimulant, stomachic, aromatic and anti-spasmodic. In addition works as a laxative and soothes dyspepsia and nausea even during pregnancy³⁴.

Dalchini (Cinnamomum zeylanicum Breyn) - *C. zeylanicum*, a member of the Lauraceae family, is a tropical evergreen tree, inhabitant to Sri Lanka and the Malabar Coast of India. It has different names such as *dalchini* in Hindi, *cannelle* in French, *kaneel* in German, *canela* in Spanish, *yook gway* in Chinese and *kurunda* in Sinhalese. The botanical name *Cinnamomum* is imitative from the term *amomon* which is Hebraic and Arabic, that means fragrant spice plant³⁶. Medicinally, cinnamon is used in the treatment of diarrhoea, indigestion, poor appetite, low vitality, and rheumatism, cough, bronchitis, influenza, pyrexia, arthritic angina, palpitations, HTN and nervous disorders. It stimulates the circulatory system and capillary circulation, controls infections, lowers blood sugar levels in diabetics and possibly be used as a skin antiseptic^{37,38,39,40,41}.

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Table 2 Phytochemical Constituents and Mechanism of Action

| DRUG NAME | PHYTOCHEMICAL CONSTITUENTS | PHARMACOLOGICAL ACTIVITY |
|-----------------------------------|---|---|
| <i>Sitopala</i> ⁴² | Terpenoids, Flavonoids, Phenolic Acid, Phytosterol | Anti-Inflammatory, Analgesic, Antihyperglycemic |
| <i>Vanshlochana</i> ⁴³ | Cholin, oxalic acid, leucine, riboflavin, gluteline | Antipyretic, Analgesic, Anti-inflammatory |
| <i>Pippali</i> ⁴⁴ | Piperine, zingiberine, terpinolene, sesamine | Anti-inflammatory, cough suppressor, anthelmintic, immunostimulatory |
| <i>Ela</i> ⁴⁵ | Alkaloid, terpenoid, phenol, steroid, tannins | Analgesic, Antispasmodic, Anti-Inflammatory, Antioxidant, Antimicrobial, Anticonvulsant |
| <i>Dalchini</i> ⁴⁶ | Terpenes, flavonoids, steroids, phenylpropanoids | Anti-Inflammatory, Analgesic, Antioxidant, Antimicrobial |

Action in Cough

In *Ayurveda* cough (*Kasa*) is classified into five categories : *Vataja kasa* (dry cough with little mucus); *Pittaj kasa* (cough with moderate, sticky mucus); *Kaphaj kasa* (cough with heavy mucus and congestion), *Ksataja kasa* (cough due to a chest injury); and *Ksayaj kasa* (cough due to a prolong disease like TB)⁴⁷. *Sitopaladi churna* is a versatile remedy that is recommended for all these kinds of Cough. Depending on the nature of the cough, it is prescribed with honey, water, or *ghee* or alongside with other herbal formulations. The anti-tussive activity of this medicine is assign to its ability to affect the central nervous system and suppress a cough (*Kasa*)⁴⁸.

Vanshalochana is *Madhura*, *Kashaya* in *Rasa* and has *Ruksha*, *Laghu*, *Tikshana guna*. It is *Kapha Nissaraka* and *Swashara*. *B. arundinacea* Retz.'s siliceous secretion (up to 97 % SiO₂) is considered aphrodisiac and its tonic is used in asthma and cough (*Kasa*)⁴⁹.

Pippali is *Kaphahar* due to its *Katu Rasa* and by its *Snigdha guna Vatahara*. Due to its *Kaphatavata shamak* action it is *Kasahara*, *Swasahara*. It is reported as good remedy for

treating gonorrhoea, dysmenorrhoea, tuberculosis, sleeping disorders, respiratory tract infections, chronic gut-related pain and arthritic conditions⁵⁰. *P. longum* has been used to possess immunomodulatory and antitumor activity since a long time⁵¹. The decoction of dried young fruits and decoction of its roots is given in the treatment of acute and chronic bronchitis⁵². An extract of the fruits in milk reduced passive skin anaphylaxis in rats and protected guinea pigs against antigen-induced bronchospasm⁵³.

Ela by its *Guna* and *Rasa* decreases the vitiated *Kapha*. As per *Bhavprakash* it should be used in *Kaphaja Kasa* and *Swasa*. It is used for controlling asthma, carminative, cold, cough, congestion of lungs and pulmonary tuberculosis⁵⁴. *E. cardamomum* was evaluated for protective-effect on lungs against damage induced by pan masala in the lung of male Swiss rats by using biochemical assay (pNPP kinetic, α -naphthylphosphate kinetic and IFCC method), on cardamom treatment in the PMT and pan masala with cardamom treated (PMCT) mice, congestion of lungs was mild with almost no medullary hemorrhage⁵⁵.

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Dalchini is *Ushna* in *Virya* because of which it is *Kaphavata shamak* and *Pittavardhaka*. It is *Kaphahara* and *Yakshmanasak*. Presence of cinnamic acid makes it Anti-tubercular. It provides relief in sore throat, influenza, common cold and headache. It is also used as an expectorant and has anti-tubercular activity⁵⁶.

Action in Anemia

Vanshlochan comprises of ninety to ninety seven percent of organic silica, potash, iron and many other ingredients⁵⁷.

Ela is a great source of minerals, iron and vitamins, with high levels of vitamins C, B6, A, riboflavin, thiamin, niacin and pyridoxine which can be helpful in anemia⁵⁸.

Action in Fever

The juice (*swarasa*) of the stem of *Vanshlochan* is considered antipyretic (*Jwara*), antitussive (*Kasa*), expectorant and tranquillizing and has been used for bronchial, cartarrhal and cerebral infections. Decoction of roots of *Vanshlochan* is used as a remedy for anxiety, fever, sleeping problems and general restlessness. Its leaf is considered to have antipyretic and diuretic action. It has been given as a cure for chest and head colds, pharyngitis with action being to encourage the flow of urine and suppression of fever⁵⁹.

Several studies have been conducted which suggests that piperine, a phytochemical constituent of *P. longum* act as CNS depressant, antipyretic, palliative and anti-inflammatory⁶⁰. *Piper longum* cures chronic fever and loss of appetite⁶¹.

Ela has anti-inflammatory as well as antioxidant effects and it has strong body detoxification properties. In *Ayurveda*, cardamom is known as *Tridoshic* and is used in balancing the three *doshas* thus maintaining the health of the body. Dried fruit of the plant is used as a CNS stimulant, as a cardio tonic and as antipyretic⁶².

CONCLUSION

This critical analysis was done to evaluate the action of *Sitopaladi Churna* in mentioned clinical conditions. This study observed that the ingredients present in *Sitopaladi Churna* provides a significant symptomatic relief from *Kasa* (cough), *Swasa* (Asthma), *Kshaya* (Tuberculosis), *Jwara* (fever) and *Pandu* (Anemia). Clinically, it is a drug of choice for respiratory infections.

ACKNOWLEDGEMENT

I am very thankful to Dr. Khem Chand Sharma, Dr. Usha Sharma, Dr. Mahesh Chandra for providing valuable suggestion and helping in preparation of this manuscript.

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