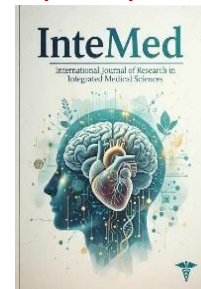




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Review Article

PIPPALI – A BOON FROM AYURVEDA IN THE MANAGEMENT OF LIFESTYLE RESPIRATORY DISEASES

Pippali - A boon from Ayurveda in the management of lifestyle Respiratory diseases

Dr.Roop Mathew,

Assistant Professor-Department of Kayachikitsa, Sumatibhai Shah Ayurved Mahavidyalay, Hadapsar,Pune, Maharashtra,India -411028

Email : rpmat86@gmail.com

Abstract

Lifestyle disorders are a major health issue observed all over the world. Chronic respiratory diseases contributes a major burden of non-communicable diseases, According to the WHO data-2021,among the top causes of death in India, Chronic respiratory pulmonary disorder (COPD) contributes to 70.5% and Lower respiratory infections 27.8%.India has an estimated 33million patients with asthma and 55 million cases of COPD. These chronic disorders significantly reduces the patient's quality of life. Undoubtedly, there are well-studied and effective conventional medications available nowadays. Still it has its limitations, including side effects, in the course of life long medications required for these disorders. Ayurveda provides a promising comprehensive approach in managing respiratory disorders. Respiratory disorders are considered as vitiation in the *Pranavaha srothas*.This subsequently causes *kasa* and *shwasa*,comparable to concepts of COPD and asthma. *Pippali Rasayana* is a proven effective drug in the management of respiratory disorders. Rasayana therapy itself as adaptgenic, cytoprotective and immune modulatory action.It has been mainly suggested in two forms as *Vardhamana pippali* & *Ayah patra pippali Rasayana*. *Ayah patra pippali Rasayana* is a unique combination of pippali

with a major *rakta prasadana* drug like Ayas. Earlier researches proved that it is a special formulation where iron is present in a nano form that can drastically enhance the bioavailability of the drug. All these findings give new purview for researchers in Ayurveda working in the field of chronic respiratory disease management

Keywords – Chronic respiratory disease ,chronic obstructive pulmonary disorder, quality of life, *Pippali Rasayana*, *Ayah Patra Pippali Rasayana*

INTRODUCTION

Lifestyle respiratory diseases are chronic lung and airway conditions heavily influenced or caused by daily habits, personal choices and environmental exposure. According to WHO data, chronic respiratory diseases(CRD's) affects the airways and other structures of the lung. The lung is the most vulnerable internal organ to infection from external environment. COPD, asthma, occupational lung diseases and pulmonary hypertension remains the most common CRD's and it substantially reduce the quality of life of patients.

CRD's are not completely curable, several forms of treatment and medications, aims to open the blocked

air passages and refine the breathing quality can ameliorate the symptoms and enhance the daily life for people living with these conditions. This is where Ayurveda can play a pivotal role in the improvement of quality of life of patients with these chronic conditions.

PATHOLOGY OF COPD AND ASTHMA

Asthma and COPD are both chronic inflammatory lung diseases causing airflow limitation. Asthma involves reversible bronchoconstriction and eosinophilic inflammation, where as COPD involves progressive largely irreversible airway destruction, fibrosis and alveolar wall loss. Asthma involves chronic airway inflammation. It basically involves airway hyper responsiveness and variable airflow limitation and is defined by history of typical respiratory symptoms. In COPD, there is a fixed airflow limitation and it is progressive.

Asthma-Chronic Obstructive Pulmonary Disease Overlap (ACO) is a disease process for which the underlying pathology is not yet fully resolved. The patients exhibit overlapping clinical characteristics of both asthma and COPD.

CONCEPT OF COPD AND ASTHMA IN AYURVEDA

According to Ayurveda, the basic pathology of all respiratory tract disorders, including COPD and asthma, is the *dushti* of *Pranavaha srotas*. The main disorder affecting the pranavaha srotas is *Swasa* or the difficulty in breathing. *Vata* and *Kapha* are the main deranged dosas involved in it.

The moolasthanas of *Pranavaha srotas* – *Hridaya* and *Mahasrotas*

The diseases affecting the *Pranavaha srotas* is *Yapya* according to Acharya Charaka and *Krchrasadya* by Acharya Susruta, in the prognosis.

PIPPALI – A BOON FROM AYURVEDA

Pippali is an inevitable drug in many of the Ayurvedic formulations.

“*Palati Aturam iti Pippali*” (Nighantu Adarsh)

“*Pru palanapooranayoh*” (Amarakosha)

The word pippali has its origin from “*pru*” dhatu, with meaning, that which has the ability to protect from diseases.

HISTORICAL BACKGROUND

Ancient mythology reveals that the drug Pippali has its origin during *samudramathana* along with Amrita. In Atharva veda Pippali is categorised as a Rasayana and known by the names Kshipta bhesaji, Atividdha bhesaji and also as Vateekrita bhesaji. Sayana quotes the usefulness of pippali in the management of dhanurvata, aksepaka and other vatavikaras. There are also references from Jaiminiya Bramana, which delineate that saint Vasista consumed pippali to attain health and wealth. According to Kesava Paddhati (26/33-40) it is indicated for vata vyadhis. From these references, we can understand the significance of the drug from the ancient time itself.

Charaka mentioned that Pippali should not be used in excessive quantities (or regularly). However, it may be used as Rasayana. In this context, Chakrapani clarifies that the restriction is limited in diet and not for medicinal use.

Varieties :

Susruta and Vagbhata have delineated two varieties of Pippali viz., Pippali (*Piper longum*) and Gaja Pippali (*Piper chaba*). Raja Nighantu provides

four varieties of Pippali viz., Pippali, Gaja Pippali, Simhali Pippali and Vana Pippali.

PHARMACOLOGICAL PROPERTIES:

Botanical name	- Piper longum Linn.	Rasa	- Katu
Family	- Piperaceae	Guna	- Laghu, Snigdha, Teekshna (Ardra – guru)
Synonyms	- Magadhi, Krshna, Kana, Kola, Tikshna, Tandula, Vaidehi, Usana, Soundi	Veerya	- Ushna (Ardra – sita)
		Vipaka	- Madhura
		Karma	- Vata- sleshma hara (Ardra- kaphavardhaka), Deepana,
English name	- Long pepper		Vrshya, Rasayana

Major chemical constituents

Synonyms of Pippali in various Ayurvedic texts :

Magadhi, Tikshna, Usana, Soundi, Krshna, kola.

The plant contains resins, volatile oil, starch, gum and inorganic substances. It contains essential oil, mono and sesquiterpenes and caryophyllene mainly. Piperine, pipartine, piperlongumine, piperlonguminine, pipernonaline, piperundecalidine, piperide, sesamin, β - sitosterol, four aristolactons (cepharnone B, aristolactam A II, piperolactum A and piperolactum B) and 4,5- dioxoaporphines are other major constituents.

Classical Categorization:

Charaka	- Deepaniya, Kanthya, Trptighna, Soola prasamana, Kasa hara, Hikkanigrahana, Sita prasamana, Asthapanopaga
Susruta	- Pippalyadi, Tryusana (Trikatu), Amalakyadi, Sirovirechana
Vagbhata	- Pippalyadi, Vatsakadi, Vellapamargadi, Katu skandha

PIPPALI RASAYANA

Vagbhata had identified the Rasayana properties of Pippali and told that Pippali rasayana, cures kasa, swasa, galagraha, yakshma, meha, grahani, arsas, pandu, vishama jwara, sophia, hidhma, pleeha and vatasonitha.

Parts used : Fruit, Seeds

Few Important formulations of Pippali:

- Amalaka Rasayana - Rasayana
- Brumhani gutika - Vrshya, Brumhana
- Pippalyadi ghrutha – Jeernajwara, kshaya, kasa
- Gomootra rasakriya – netraroga
- Dadimadi ghrita – Pandu, gulma.

RESEARCHES ON PIPER LONGUM LINN.

- Alkaloidal amide reported free radical scavenging property (Pathak et al.2008)
- Alkaloidal amide shows increase in the bioavailability of various therapeutically diverse drugs (Shankaracharya et al.,1997)
- Also piperine has been documented to boost the bioavailability of a number of therapeutic drugs (Srinivasan.,2007)
- Piper longum Linn. has been found to possess immunomodulatory activity (Devasagayam and sainis, 2002)
- Marked anti-inflammatory activity was established (Sharma & Singh, 1980)
- Each alkaloids isolated from Piper longum was found to be active against atleast one particular species of bacteria ie. Piperlongumine against *Bacillus subtilis*, piperine against *Staphylococcus aureus*, pellitorine against *Bacillus sphaericus* (Srinivasa Reddy et al, 2007)

Ayah Patra Pippali Rasayana

It is a unique combination of Pippali with major *shonithasthapana* drug *Ayas*.

Loha

Synonyms	-	Ayas, Loha, Sastra, Tikсна, Krshnaloha
Varieties	-	Munda, Tikсна, Kantam
English name	-	Iron
Latin name	-	Ferrum
Symbol	-	Fe

Important ores - Haematite (Fe_2O_3), Magnetite (Fe_3O_4), Siderite (FeCO_3), Iron Pyrite (Fe_2S_3), Limonite ($2\text{Fe}_2\text{O}_3 \cdot 3\text{H}_2\text{O}$)

Descriptions of iron is available in Ayurvedic classics like Charaka Samhita and Susruta Samhita. Knowledge regarding loha, ayaskriti, bhasma and other iron preparations are mentioned in the treatment of many diseases in Ayurvedic classics.

PROPERTIES

- Rasa - Kashaya, tikta, madhura
- Guna - Guru, rooksha, sara
- Veerya - Sita
- Vipaka - Madhura
- Karma - Tridosahara, Deepana, Anulomana, Sonithasthapana, Balya, Vrshya, Sreshtama Rasayana, Lekhana, Yogavahi.

Previous Researches in Ayah Patra Pippali Rasayana

There have been few studies on this formulation

- A Randomised controlled clinical trial to assess its efficacy in bronchial asthma proved presence of iron in this formulation(1)
- Presence of nano iron particles in this formulation was detected which drastically increases the bioavailability of the drug (2).

- Significant improvements in the Quality of life of patients with RA., with statistically significant results in Hb level (3)

DISCUSSION

Pippali has *Vata-Kapha hara* property. By its *snigdha guna*, it pacifies *vata* and by its *katu rasa*, it is *kapha shamana*. Pippali has *Deepana guna*. Thus it is *agni vardhana* in nature and so it helps in enhancing *dhatwagni*. By the virtue of its *Madhura vipaka*, pippali acts as *rakta prasadana*, *rasayana* and *balya*. The *usna* and *teekshna* *gunas* helps pippali in deeper penetration and enable it to impart its *rasayana gunas* into the deeper *dhatu*s.

The immunomodulatory and free radical scavenging property of piperine has been proved through various researches. *Piper longum* is proved to possess marked anti-inflammatory activity.

Pippali and Ayas are major *rakta prasadana dravyas* mentioned in our classics. *Ayah Patra Pippali rasayana* is a unique combination of pippali with ayas. Ayas is considered to be *yogavahi* in nature. Thus in combination with *ayas*, *pippali* may easily penetrate the deeper *dhatu*s and this can help in dispensing its *rasayana gunas* at deeper levels in a more efficient way.

Pippali can prove to be an effective drug in many diseases including the chronic respiratory disorders, since they are also predominantly *vata -kaphaja* in pathology. With its *ushna* and *katu* properties, it can ease the airway congestion, by removing the thick accumulated mucus(*kapha*) and thus subsequently improve the pulmonary function by *vatanulomana*. With its *rasayana* properties, it can play a pivotal role in improving the quality of life of patients with these chronic disorders. There is definitely scope of more researches in this dimension.

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