

# CRITICAL REVIEW ON THALEESAPATHRADI CHOORNAM WITH SPECIAL REFERENCE TO SWASAHARA KARMA

<sup>1</sup>Devisree. C, <sup>2</sup>Giri. P. V

<sup>1</sup>PG Scholar, <sup>2</sup>MD (Ay), Ph.D (Ay), MHA, Professor,

<sup>1</sup>Department of Kayachikitsa, <sup>2</sup>Vaidyaratnam Ayurveda College, Ollur, India.

**Abstract:** Respiratory diseases are one of the leading cause of morbidity all over the world. Many classical formulations are enlisted in Ayurveda texts for curing respiratory ailments. *Thaleesapathradi choornam* is such a a formulation which has the functions of *swasahara, kasahara, ruchya, deepana, chardihara, pleehasoolaghna, hritsoolaghna, parswasoolaghna, pandu hara, jwaraghna, athisaraghna, and moodavata anulomana*. A detailed literary review has been conducted to explore the probable mode of action of *Thaleesapathradi choornam* in *swasa roga*. Most of the ingredients contain bioactive compounds like flavonoids, tannins, phenols, saponins, sterols, terpenes, quinones, glycosides and alkaloids. These are having anti-inflammatory, antioxidant, and immune modulator properties which may work on bronchial asthma which is the result of chronic inflammatory response in aurways. Also *katu-thikta rasa, laghu,-ruksha guna, and swasahara karma* of the ingredients may do *samprapthi vighatana* of *swasa roga*.

**Index Terms:** *Thaleesapathradi choornam, swasahara karma.*

## I. INTRODUCTION

Respiratory diseases are one of the common and significant cause of illness and death around the world. The recent global burden of disease survey data have shown that both acute and chronic respiratory diseases are prevalent in substantial number in India<sup>1</sup>. According to *Ayurveda swasa* is a disease caused mainly due to *pranavaha srotho dushti*. Due to obstruction caused by *kapha, vata* get vitiated ant got *sthanasamsraya* in *amasaya* and produce *swasa* in *uras*. Many formulations are explained for the cure of *swasa roga* in *Ayurveda* classics. *Thaleesapathradi choornam* is a preparation mentioned in the context of *rajayakshma chikitsa*. 12 gram of *thaleesapathra*, 24 gram of *maricha*, 36 gram of *sundi*, 48 gram of *pippali*, 60 gram of *vamsarochana*, six gram of *twak*, six gram of *ela*, and 384 gram of *sarkara* are taken and powdered separately and mix together to obtain *Thaleesapathradi choornam*<sup>2</sup>. It is indicated in *pranavaha srotho vikaras* like *swasa, kasa* and also in other diseases like *aruchi, agnimandya, chardi, pleeha, hrith soola, parswa soola, pandu, jwara, athisara, and mooda vatha*. This study was done to review the probable mode of action of *Thaleesapathradi choornam* in *swasa roga*<sup>3</sup>.

## II. RESEARCH METHODOLOGY

The study was done by literature survey through various *Ayurveda* classical textbooks, journals and articles. Review mainly focused on pharmacological properties of each ingredient in *Ayurvedic* and modern perspective. A total of eight research articles were reviewed and out of which two were pharmacognostic studies, three were pharmacognostic and phytochemical studies and one was pharmacognostic and physico chemical study, one was phytochemical and biological study and one was phytochemical study.

## III. RESULTS AND DISCUSSION

**Table1. Pharmacological properties of *Thaleesapathradi choornam* in *Ayurvedic* perspective**

Sl.no.	Ingredients	Rasa	Guna	Veery	Vipaka	Karma
1	<i>Thaleesapathra</i> <sup>4</sup>	<i>Katu, Tiktha, Madhura</i>	<i>Laghu, Tikshna</i>	<i>Ushna</i>	<i>Katu</i>	<i>Vatakaphaharam, Swasaharam, Kasaharam</i>
2	<i>Maricham</i> <sup>5</sup>	<i>Katu, Thiktha</i>	<i>Laghu, Tikshna, Ruksha</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kaphavathaharam, Swasaharam</i>
3	<i>Nagaram</i> <sup>6</sup>	<i>Katu</i>	<i>Laghu, Snigdha</i>	<i>Ushna</i>	<i>Madhura</i>	<i>Vatakaphaharam, Swasaharam, Anulomanam</i>
4	<i>Pippali</i> <sup>7</sup>	<i>Katu, Tiktha, Madhura</i>	<i>Laghu, Snigdha</i>	<i>Anushna</i>	<i>Madhura</i>	<i>Vataharam, Kaphaharam, Swasaharam, Kasaharam</i>
5	<i>Subha</i> <sup>8</sup>	<i>Madhura, Kashaya</i>	<i>Laghu, Ruksha</i>	<i>Seetha</i>	<i>Madhura</i>	<i>Vatapithaharam</i>
6	<i>Twak</i> <sup>9</sup>	<i>Katu, Thiktha, Madhura</i>	<i>Laghu, Ruksha, Tikshna</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kaphavathaharam, Kantasudhikaram, Ruchyam</i>
7	<i>Ela</i> <sup>10</sup>	<i>Katu</i>	<i>Laghu, Ruksha</i>	<i>Seetha</i>	<i>Madhura</i>	<i>Tridoshaharam, Kasaharam, Swasaharam</i>
8	<i>Sarkara</i> <sup>11</sup>	<i>Madhura</i>	<i>Laghu, Snigdha</i>	<i>Seetha</i>	<i>Madhura</i>	<i>Vatapithaharam, Ruchyam, Jwaraghnam</i>

According to *Ayurveda*, *swasa roga* is a disease occurring in *pranavaha srothas* due to *kapha vatha dushti*. So removing the obstruction caused by *kapha* and normalisation of the *vatha gathi* is the primary aim of treatment. Pharmacological Properties of *Ayurvedic* drugs is inferred through *rasapanchaka*. Most of the drugs in *Thaleesapathradi choornam* are having *thiktha katu rasa*, *laghu*, *rooksha*, *thikshna guna*, *ushna veerya* and *kaphavathahara* properties. Most of them are having disease specific *swasahara* and *kasahara* action also. So these all may contribute to the *samprapthi vighatana* of *swasa roga*.

**Table 2. Pharmacological properties of each ingredients of *Thaleesapathradi choornam***

Sl. No.	Ingredients	Botanical name	Family
1	<i>Thaleesapathra</i>	<i>Abies webbiana</i>	Pinaceae
2	<i>Maricha</i>	<i>Piper nigrum</i>	Piperaceae
3	<i>Nagara</i>	<i>Zingiber officinale</i>	Zingiberaceae
4	<i>Pippali</i>	<i>Piper longum</i>	Piperaceae
5	<i>Subha</i>	<i>Bambusa arundinaceae</i>	Poaceae
6	<i>Twak</i>	<i>Cinnamomum zeylanicum</i>	Lauraceae
7	<i>Ela</i>	<i>Elettaria cardamom</i>	Scitamineae
8	<i>Sarakara</i>	<i>Sacharum officinarum</i>	Graminaceae

The phytochemical profile, pharmacognostic characters, gas chromatography and mass spectrometry of compounds of methanolic extracts of *Abies webbiana* leaves were studied in the article. Raw drug was collected from local market, Thanjavur, Tamil Nadu and identified in the NABL accredited laboratory of CARISM SASTRA University and authenticated using macroscopic and microscopic studies. Phytochemical screening revealed the presence of sterols, terpenes, sugars, phenols, flavonoids, tannins, saponins and quinones in the methanol extract of *Abies webbiana*. The presence of these phytochemical constituents might be responsible for the therapeutic properties exhibited by this plant. Steroids act as anti inflammatory, antispasmodic, analgesic, and antidiuretic agent and they also enhance fertility. Terpenes are antibacterial, analgesic and anti-inflammatory agents. Plant phenols are groups of antioxidants that reduces various stages of Cancer process. They also give security against cardiovascular diseases and prevent oxidative damage to biomolecules such as DNA, proteins, and lipids. Flavonoids have antihyperlipidemic activity, iron chelating activity, and radical scavenging activity. Tannins are a group of polymeric phenolic substances and have antifungal, antibacterial, anti inflammatory and analgesic activities. Thus the study provided scientific evidence for the presence of various phytoconstituents which might be responsible for the reported medicinal properties of *Abies webbiana*<sup>12</sup>.

Quantification of total phenol, flavonoid content and pharmacognostic evaluation including HPTLC fingerprinting for the standardization of *Piper nigrum* Linn. Fruits was the content of the article. Standardization parameters like extractive values, ash value, moisture content, loss on drying, and pH values were analyzed. Harborne method was adopted for phytochemical screening. Analysis of total phenolic content, flavonoid content, pesticide residues, aflatoxin and heavy metals were also performed. Thin layer chromatography system was used for methanolic extract of *Piper nigrum* Linn. Fruits. HPTLC fingerprinting was carried out to confirm the presence of various phytochemical constituents in the extract. The total phenolic and flavonoid contents of methanolic extract of *Piper nigrum* were determined by UV spectrophotometric method. The fruits of *Piper nigrum* Linn. were collected from a local supplier of Khari bawli market, Delhi and authenticated by taxonomist and sample specimen was submitted to faculty of pharmaceutical sciences, Jodhpur National University, Rajasthan. The preliminary qualitative phytochemical screening revealed the presence of alkaloids, carbohydrates, phenolic compounds, flavonoids, proteins, saponins, lipids, tannins, and sterols. The phenolic and flavonoids compounds are important antioxidants, antimicrobial, anti allergic, anti-inflammatory and anticancer agents<sup>13</sup>.

Pharmacognostic evaluation, phytochemical screening and antimicrobial activity of rhizome of *Zingiber officinale* were the aim of the article. The experimental sample was collected from Moran region of Dibrugarh district of Assam. The specimen was submitted to the department of Herbal Science and technology, ADP college, Nagon. The physicochemical analysis such as ash value, water and alcohol soluble extractive value and moisture content were done. The phytochemical analysis were carried out for aqueous and methanolic extracts to determine the presence of bioactive compounds. The preliminary phytochemical analysis shows the presence of alkaloids, carbohydrates, flavonoids, phenol, protein, saponin, tannin, and glycosides in the methanolic extract. These might be the cause of therapeutic actions of *Zingiber officinale*<sup>14</sup>.

Pharmacognostical and phytochemical analysis of *pippali* was reviewed through the article. The macroscopic and microscopic characters, physico- chemical constants, quantitative microscopy parameters, extractive values, TLC, and HPTLC were studied. Preliminary phytochemical screening on fruit of *Piper longum* was done. Experimental sample was collected from Cherrapunji region. Thin layer chromatography and HPTLC were used to identify the components in *Piper longum*. Preliminary phytochemical testing of *Piper longum* gave the presence of phytochemicals namely alkaloids, glycosides, flavonoids, steroid, phenol, tannin, terpenoid, sterol, carbohydrates, proteins and amino acids. The antibacterial, anti inflammatory, insecticidal, antimalarial, antispasmodic, immunostimulatory, cough suppressor, and hepatoprotective actions of of Pippali may be due to the presence of these phytochemical constituents<sup>15</sup>.

Pharmacognostical and physico- chemical studies on the root of *Bambusa arundinaceae* was reviewed. The study provided taxonomical, pharmacognostical, and physico- chemical details of *Subha*. The important parameters studied were macroscopic and microscopical characters, measurement of length, width and diameter of starch grain, fibre, and calcium oxalate crystals. The physicochemical studies revealed the presence of starch, polyphenols, lignins and flavonoids<sup>16</sup>.

Pharmacognostic profile and phytochemical analysis of *Cinnamomum zeylanicum* bark extract was the content of the article. In the study, pharmacognostic profile and phytochemical analysis of *Cinnamomum zeylanicum* bark had been evaluated for

the presence of bioactive compounds. The specimen was collected from Idukki, Kerala and authenticated by botanical survey of India, Coimbatore. Powdered *Cinnamomum zeylanicum* bark was subjected to various qualitative tests for the identification of phytochemical constituents. The study revealed the presence of alkaloids, flavonoids, proteins, terpenoids, phenolic compounds, sterols, carbohydrates, glycoside, and tannins. The result suggests that methanolic extract of *Cinnamomum zeylanicum* bark has promising therapeutic potential and can be used in the management of various diseases. Saponins have the property of precipitating and coagulating red blood cells. Flavonoids have been referred to as nature's biological response modifiers because of their inherent ability to modify the body's reaction to allergies and viruses<sup>17</sup>.

Phytochemical screening and evaluation of antimicrobial and antioxidant activity of *Elettaria cardamomum* was the aim of the article. The cardamom fruits were purchased from local market of Babuganj, Lucknow were identified by prof. Y.K. Sharma, former head, department of botany, University of Lucknow. Dried cardamom seed powder extract was obtained and phytochemical analysis was carried out. The phytochemical analysis of the methanol extract of cardamom demonstrated the presence of terpenoids as the major phytochemical. In addition to that flavonoids and glycosides were also found in the extract. Antioxidant potential of cardamom extract was evaluated using DPPH radical scavenging assay. Antimicrobial activity of cardamom extract was evaluated and found to be effective. Thus the study reported various phytochemicals in the seed with antioxidant and antibacterial potential<sup>18</sup>.

Phytochemical screening of *Saccharum officinarum* (Linn.) was done in the article. Sugar plant for the study was collected from agricultural field situated at Sitapur, Chitrakoot, Satna, Madhyapradesh. The plant was identified by Dr. Manoj Tripathi, Botanist. Sugarcane is the principal raw material for the sugar industry. Sugarcane extract has displayed a wide range of biological effects including immune stimulation, antithrombosis activity, anti-inflammatory activity, and anti stress effects. Sugarcane juice has broad biological effects in raising innate immunity to infections. In the study, preliminary phytochemical analysis and HPTLC fingerprint profiling were done. The phytochemical analysis revealed the presence of alkaloids, carbohydrates, proteins, resins, saponins, tannin, flavonoids and glycosides<sup>19</sup>.

#### IV. CONCLUSION

Thalesapathra contain major phytochemical constituents like sterols, terpenes, sugars, phenols, flavonoids, tannins, saponins and quinones. Maricham contain sterol, phenols, flavonoids, tannins, saponins, alkaloids, carbohydrates, proteins and lipids. Nagaram is great source of phenols, flavonoids, tannins, saponins, glycosides, alkaloids, carbohydrates, and proteins. Phytochemical constituents in Pippali include sterols, terpenes, phenols, flavonoids, tannins, glycosides, alkaloids, carbohydrates and proteins. Subha contain bioactive constituents like lignin, phenols, flavonoids, and starch. The phytoconstituents in Twak include sterols, terpenes, phenols, flavonoids, tannins, glycosides, alkaloids, carbohydrates and proteins. Ela contain terpenes, flavonoids and glycosides as phytochemical constituents. The bioactive compounds in Sarkara include flavonoids, tannins, saponins, glycosides, alkaloids, carbohydrates, proteins and lipids.

Flavonoids are a class of polyphenolic secondary metabolites found in all ingredients of *Thalesapathradi choornam*. They possess anti-inflammatory, antioxidant, anti-allergic as well as immune modulating effects. The results of several studies suggest that an increase in flavonoid intake is beneficial for asthma. Tannins are a class of astringent polyphenolic biomolecules present in six ingredients of *Thalesapathradi choornam* and function as antioxidants, anti-inflammatory and immunomodulatory agents. Phenols are the most abundant secondary metabolites of plants and found in six ingredients of *Thalesapathradi choornam* and are strong antioxidants and anti-inflammatory agents. Many plants store chemicals in the form of glycosides and five of the ingredients in *Thalesapathradi choornam* contain glycosides. They have proven anti-inflammatory properties. Alkaloids are a class of naturally occurring organic compounds found in five of the ingredients of *Thalesapathradi choornam* and have showed bronchodilator and anti-inflammatory properties. Saponins are a diverse group of glycosides present in plants and found in four of the ingredients of *Thalesapathradi choornam*. Pharmacological effects of saponins include stimulation of immune response and counteract oxidative stress. Sterols are the subgroup of steroids and an important class of organic molecules. In *Thalesapathradi choornam*, four of the ingredients contain sterols. They possess anti-inflammatory and antispasmodic properties. Terpenes are aromatic compounds found in many plants and are found in four ingredients in *Thalesapathradi choornam*. They have the medicinal properties like anti-inflammatory, antioxidant and anticancer effects. Quinones are a class of organic compounds found in *Thalesapathra* and act as anti-inflammatory and antioxidant agents.

Bronchial asthma is a chronic inflammatory disease of the airways characterised by airway hyper-responsiveness and airflow limitation. Increasing evidence has indicated that oxidative stress, one of the causative mechanisms of asthma, is thought to be a central event in inflammatory responses. In general, a drug with anti-inflammatory, bronchodilator, antioxidant and immunomodulatory action will definitely work in bronchial asthma. While analyzing the properties of each ingredient of *Thalesapathradi choornam* the drugs are having anti-inflammatory, antioxidant, antispasmodic, and immunomodulatory action. After analyzing the properties of each ingredient, it can be concluded that *Thalesapathradi choornam* has very much effect in controlling swasa roga. Also katu-thikta rasa, laghu,-ruksha guna, and swasahara karma of the ingredients may do samprapthi vighatana of swasa roga.

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