A DRUG REVIEW ON CHEPPU NERUNJIL ENNAI - A SIDDHA HERBAL FORMULATION IN THE MANAGEMENT OF SOOLI KANAM (CHILDHOOD ASTHMA) IN CHILDREN

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ABSTRACT

Siddha system is the oldest and well documented Indian traditional System of medicine. The term siddha means achieving perfection. Siddhars were saints who achieved better results in medicine. Siddhars are human beings with super intellectual capacity. Asthma is one of the most common chronic diseases of childhood. Most children develop asthma in early age. Prevalence of asthma in children increases due to growing urbanization, modernization, overcrowding and changing life styles. Asthma is a non communicable disease characterized by recurrent wheezing, breathlessness, chest tightness, and coughing. The symptoms of Soolikanam nearly correlate with childhood asthma. Numerous medicines for Soolikanam (childhood asthma) are explained in Siddha text. Cheppu Nerunjil Ennai is one of the herbal formulation indicated for Soolikanam. Cheppu nerunjil ennai was mentioned in balavagadam siddha text book. This trial drug Cheppu Nerunjil Ennai comprises of eight herbal ingredients like Indigofera linnaei, Desmodium triflorum, Euphorbia parviflora, Cassia tora, Vigna trilobata, Sesbania grandiflora, Allium cepa, Ricinus communis. The herbal ingredients of Cheppu Nerunjil Ennai possess anti asthmatic activity, anti spasmodic, anti allergic activity, anti oxidant and immunomodulatory activity. This review article reflects history, properties, chemical constituents, pharmacological activities and several medicinal uses of the drug Cheppu Nerunjil Ennai on Soolikanam. This review further focuses to improve the research on Siddha herbal medicines.

INTRODUCTION

Bronchial asthma is a heterogeneous pulmonary disorder characterized by recurrent episodes of cough, breathlessness and wheezing, which may resolve spontaneously or after the use of bronchodilator medication.[1]

The prevalence of asthma has increased over time and an additional 100 million people worldwide are expected to develop asthma by the year 2025.[2] In the past 10 years, the proportion of Indian school children suffering from asthma has increased to more than double.

The increase in the prevalence of bronchial asthma in children may have serious implications in their adult life, as 40% children with trivial wheeze and 70% - 90% of these with troublesome asthma continue to have symptoms in mid- adult life.[3]

Siddha medicine is an ancient healing science of South India. Siddha system of Medicine point out three cardinal energies named Vali, Azhal and Iyam. These principles are related to fundamental physiology of our body.

According to Siddha literature, which categorizes kanam, as a respiratory disease, into 24 types. Out of this 24 types, Soolikanam nearly correlates with the symptoms of childhood asthma, which is described in Siddha text Kuzhandhai Maruthuvam-Balavagadam. The drug Cheppu Nerunjil Ennai is indicated for Soolikanam in that text.[4] Majority of ingredients in this formulation, are having anti-inflammatory, anti asthmatic, anti spasmodic, anti-oxidant, anti-microbial activities and are beneficial in respiratory diseases.
MATERIALS AND METHODS

Table 1: Ingredients and Purification of Cheppu Nerunjil Ennai

| S.no | Name of the Plant       | Used Part | Weight     | Purification                                                                 |
|------|-------------------------|-----------|------------|------------------------------------------------------------------------------|
| 1    | Cheppu Nerunjil         | Root      | Kazharchikai alavu (2.6gm) | The plant was purified by cleaning the roots with water for removing the dust particle. |
| 2    | Chiru Pulladi           | Root      | Kazharchikai alavu (2.6gm) | The plant was purified by cleaning the roots with water for removing the dust particle. |
| 3    | Chiruamman Patcharisi    | Root      | Kazharchikai alavu (2.6gm) | The plant was purified by cleaning the roots with water for removing the dust particle. |
| 4    | Thagarai                | Root      | Kazharchikai alavu (2.6gm) | The plant was purified by cleaning the roots with water for removing the dust particle. |
| 5    | Naripayarukodi          | Whole plant | Kazharchikai alavu (2.6gm) | The plant was purified by cleaning it with pure clean cloth. |
| 6    | Agathi                  | Bark      | Kazharchikai alavu (2.6gm) | The plant was purified by outer most layer is peeled off. |
| 7    | Vengayam Allium cepa    | Bulb      | Kazharchikai alavu (2.6gm) | Clean it with water and washed of then peel of outer skin and remove the central vein of the Allium cepa and dry it and it get purified. |
| 8    | Chitraamanakku Ennai    | -         | 160ml      | -                                                                            |

Method of preparation

1. All the above ingredients were purified.
2. The roots of Cheppu nerunjil, Chiru pulladi, Chiru amman patcharisi, Thagarai are grinded into fine powder.
3. Naripayarukodi, Agathipattai, Vengayam are grinded into paste form.
4. The above mixture is added to 160 ml of Castor oil and stirred well.
5. Then it is kept in sunlight for 6 hours.
6. Prepared medicine is stored in clean and dry glass container.

Dosage: 5ml, two times a day.
Duration: 7 days.

Cheppu Nerunjil

Latin name: Indigofera linnaei L.
Family: Fabaceae
English name: Birdsville indigo, Nine -leaved indigo
Parts used: Root

Habitat: This species grows commonly in grasslands, also in the plains, fallow field. It is widely distributed in India,indo-Malesia to Australia and West Africa.

Organoleptic Characters

Taste: Sweet
Character: Cold
Division: Sweat

Actions: Diuretic, Febrifuge

Phytochemical Constituents

- Indigofera linnaei have tannins, saponins, flavonoids, cardiac glycoside, Steroids, terpenoids, coumarins and two compounds namely, 5-[(E)-2-(4-hydroxylphenyl] benzene-13-diol and gitoxin belonging to the class of tannols and steroidal glycoside.[5]

Pharmacological Activity

- Indigofera possess Anti microbial[5], Anti inflammatory[6], Analgesic activity[6], Anti-oxidant activity.[7].

Therapeutic uses

The juice of the Indigofera is used as antiscorbutic for burns. It is used by native medical practitioners to treat rheumatism, arthritis, inflammation, tumor and liver disease.
Habitat: This species grows in moist places, grasslands and wastelands, herb found to be growing in India especially in Kerala, Maharastra, kamrup, bongaigaon.

**Organoleptic Characters**
Taste: Bitter,
Character: Hot
Division: Pungent
**Actions:** Carminative, Galctagogue, Tonic

**Phytochemical Constituents**
Desmodium contains chemical contituents ursolic acid, vitexin, Genistin,ucosterol and rare Diholosylflavane, 2-0 glucosylvitexin[8], desmodium leaves contains total alkanoid, 0.01-0.015%,bête phenethyamine (major alkaloids), indole -3 –acidic acid, tyrumine, Trigonelline, Choline, Hypaphorine. Desdomium root contains the alkaloid 0.01-0.0018% Hypaphorine (major alkaloids) n, n -dimethyl tryptophan betaine.[9]

**Pharmacological Activity**
Desmodium possess Anti oxidant, Anti spasmodic activity, Anti inflammatory, Anti proliferative, Analgesic, Anthelminitic activity.[9]

**Medicinal Uses**
Euphorbia is used for breathing disorders including asthma, bronchitis and chest congestion.

4. Thakarai
Latin name: *Cassia tora*
Family: Caesalpinaceae
English name: Foetid cassia
Parts used: Flower, Seed, Leaf.

**Habitat**
A small shrub, common in plains from coast in low lying places, river banks, fallow fields, wastelands. Found up to 1400m.Distribution of this plant is India to Polynesia.

**Phytochemical Constituents**
* Cassia tora seed possess alkaloids, flavonoids, terpinoides, saponine. Tannin, amino acids, protein and glycosidase. [12]
The cassia tora roots contain presence of 1,3,5-trihydroxy-6-7-dimethoxy-2-methyl anthroquinone and β-sitosterol. The leaves a rich in emodin, tricontan-1-ol, stigmasterol, β-sitosterol- β-d-glucoside, freidlen, palmnitr, stearic, succinic and d-tartaric acids, uridine, quercitrin and iso-quercitrin.

The flowers are reported to contain kaempferol and leucopelargonidin. [13]

Pharmacological Activity

Cassia possess Anti asthmatic activity, Anti inflammatory, Antinociceptive activity, Anti oxidant, Anti microbial activity, Anti bacterial activity, Anti helminthic activity, Hepatoprotective and immuno-stimulatory. [14]

Medicinal Uses

Seeds have anti parasitic properties. The paste of seeds is applied topically on ringworms and scabies. The decoction of whole plant is given as a vermifuge, the root of the plant are used as a bitter tonic, stomachic and leaves as an antiperiodic aperients and anthelmintic.

The dried root of cassia tora is good purifier of blood and tonic.

5. Naripayarankodi

Latin name: Vigna trilobata
Family: Fabaceae
English name: Wild gram
Parts used: Leaf, Seed

Habitat: It is distributed in rocky areas in dry and moist deciduous forests and plain areas. Cultivating mainly in India: Kerala, Assam, Bihar, Gujarat, Maharatra.

Organoleptic Characters

Taste: Sweet
Character: Cold
Division: Sweet

Actions: Refrigerant, Expectorant

Phytochemical Constituents

Vigna trilobata possess Amino acids, valine, leucine, tyrosine, Phenylalanine, Lysine Isoleucine, flavinoids, glycosides, isovitexin, kaempferol, kievitone, quercitin, saponins, sterols, vitexin, tannins, Vitamin K, C [15]

Pharmacological Activity

Vigna posses Anti oedema, Anti-inflammatory, Hepato protective, Anti oxidant [16].

Medicinal Uses

The roots use for Fever, cough, worm infestation, gout, wound inflammation, useful in diarrhea, irritable bowel syndrome, improves vision, good for eye disorders.

6. Agathi

Latin name: Sesbania grandiflora
Family: Fabaceae
English name: Sesban, Sawamp, and pea
Parts used: Leaf, flower, seed, root

Habitat: This species grows commonly in wet places, and along marshes. Plant commonly distributed in India. In India distribution of this plant is widely available in Assam, Maharatra, Tamil Nadu, Uttar Pradesh.

Organoleptic Characters

Taste: Bitter
Character: Cold
Division: Pungent

Actions: Astringent, Tonic

Phytochemical

Leucocyanidin and cyanidine present in seeds, Oleanolic acid and its methyl ester and kaemferol-3-rutinoside which are present in flower. The bark contains Tannins and gum. Saponin and sesbanimide isolated from seeds. [17] Isoflavanoids, isovestitol, medicarpin, sativan, betulinic acid, aspartic acid, alanine. [18]

Pharmacological Activity

Sesbania possess Anti oxidant, Anti bacterial, Anti inflammatory, Hepato protective [19]. Leaves have antimicrobial activity. Anti diarrheal. [20]

Medicinal Uses

Crushed leaves are applied as a poultice to sprains and bruises of all kinds, swellings, rheumatism, itching. The bitter bark is considered as an astringent, febrifuge, tonic and an antipyretic, a remedy for gastric troubles, colic with diarrhea and dysentery. The bark
decoction is taken orally to treat fever, diarrhea and dysentery and diabetes.

7. Vengayam
Latin name: Allium cepa
Family: Liliaceae
English name: Onion
Parts used: Bulb

**Habitat:** Allium cepa originates from Central Asia. It is cultivated in all over India. Onions are growing most in any soil, chiefly in the temperature zones.

**Organoleptic Characters**
Taste: Bitter
Character: Hot
Division: Pungent

**Actions:** Stimulant, Diuretic, Expectorant, Emmenagogue, Demulcent, Aphrodisiac

**Phytochemical Constituents**
Allium cepa possess high levels of phenolic compounds, flavonoids are the major phenolic in onion. Onion bulbs contain inulin, kestose, nystose and fructofuranosynytose. Flavonols are rich in onions, present as glycosides, named quercetin and kaempferol. Anthocyanins (250mg/kg) mostly present in red onions.

Onions are also hold vitamin C, B₆, potassium and chromium.

Sulfur compounds are responsible for odor and flavor; these are main volatile compounds in onion. Other compounds like, aldehyde and ketones are present in minor amount, that is (17-21%) and (3-7%) respectively. [21]

**Pharmacological Activity**
Allium possess Anti spasmodic, Anti asthmatic activity, [22] Anti bacterial activity, Anti viral activity, Anti oxidant, Anti inflammatory activity, Expectorant, Bronchodilator. [23]

**Medicinal Uses**
Onion as medicine help in treating sore throat, asthma, bronchitis, cough, high cholesterol, diabetes, joint disorders, digestive ailments, loss of appetite, gall bladder diseases, angina pectoris, high blood pressure, atherosclerosis.

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8. Aamanakku ennai
Latin name: Ricinus communis
Family: Euphorbiaceae
English name: Castor oil
Parts used: Seeds

**Habitat**
A weed of river beds, waterways, roadsides, railways and other waste areas in tropical, sub-tropical and temperature environments.

**Organoleptic Characters**
Taste: Bitter
Character: Hot
Division: Pungent

**Action:** Laxative, Emollient

**Phytochemical Constituents**
Seeds and fruits possess 45% of fixed oil. Seed oil contain 12% of palmitic acid, 0.7% of stearic acid, 0.3% of arachidic acid, 0.2% of hexadecenoic acid, 3.2% oleic acid, 3.4% linoleic acid and 89.4% of ricinoleic acid. [24]

Steroids, saponins, alkaloids, flavanoids and glycosides are present in it. 0.55% of ricinine and 0.016% of N-demethylrecinine are 2 main alkaloids present in leaves. [25]

**Pharmacological Activity**
Ricinus communis possess anti histaminic activity, anti spasmodic, anti asthmatic activity, anti microbial, anti oxidant, anti inflammatory activity, hepato protective [26]

Plant extract of R.Communis contain anti-microbial activity against various microorganisms such as, Staphylococcus aureus, Bacillus subtilis, proteus vulgaris, candida albicans and aspergillus niger.

Due to the presence of flavanoids, extract of this plant has anti-inflammatory activity.

**Medicinal Uses**
Ricinus communis have been widely used in traditional medicine such as abdominal disorders, arthritis, backache, muscle aches, constipation, insomnia, menstrual cramps, promotes wound healing.

**CONCLUSION**
In the present review reveals, that the medicinal plants in this drug ‘Cheppu Nerunjil Ennai’ are very effective and safer for medicinal uses. The ingredients of Cheppu Nerunjil Ennai having anti-
inflammatory, anti-asthmatic, bronchodilator, antimicrobial and antioxidant activities. So it will be correcting respiratory disease. The phytochemicals which are present in these plants are mostly steroids and alkaloids which are responsible for the actions. So from the current article concludes that these medicinal plants are having high medicinal values. The Cheppu nerunjil ennai contain a higher proportion of phytochemicals and pharmacological activities which would be responsible for its significant effect on Soolikanam (Childhood Asthma). So cheppu nerunjil ennai may be considered as an extensive medicine for the management of childhood asthma.

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