



Scientific validation of Siddha formulation Poonaga parpam: A Review

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Abstract

Siddha is the most ancient indigenous system of medicines of Indian origin, is practiced exclusively in Tamilnadu and in some parts of the neighboring states. *Poonaga parpam* is an animal origin siddha formulation which is quoted in the text "*Sikicha Rathina Deepam*" that is indicated for *Kodiya Kaasam* (Asthma), *Mega Suram* (Syphilitic Fever), *Thagam* (Thirst). It is a fine ash obtained through incineration. The current study is aimed to review the pharmacological effect of ingredients of *Poonagaparpam*. The proven information about the ingredients of *Poonaga parpam* in siddha literature, broncho dilator, anti inflammatory, anti pyretic, and anti microbial studies and related beneficial effects are compiled.

Keywords: *Poonaga Parpam*, earthworm, *Aristolochia bracteata*

Introduction

Siddha system is one of the most conservative medical systems in the world. In the field of medicine, Siddhars enlightened the world to save the human lives from various refractive diseases. Siddha system of medicine use plants, minerals and animal products as main ingredient to cure various ailments. It is more widely used for the human ailments from time immemorial. They formulated the medicines for diseases on the basis of Suvai (Taste), Gunam (Character), and Veeriyam (Division).

Poonaga parpam has been used for the management of bronchial asthma by traditional healers and Siddha physicians and there is also scientific data for its safety. *Poonagam* (earthworm) and *Aaduthinnapaalai* (*Aristolochia bracteata*) are used as an ingredient for the preparation of *Poonaga parpam*. It is prepared through the special oxidation procedure involving purified form of earthworm processed under herbal juice.

Standard Operative Procedure for preparation of “Poonaga parpam”¹:

The test drug Poonaga parpam is mentioned in Siddha text “Sikicha Rathina Deepam”. The ingredients of this formulation are

- Purified Poonagam (Earthworm) 1 Veesai (1400gm)
- Juice of Aduthinnapaalai (*Aristolochia bracteata*) 1 litre
- Butter milk 3 litres

Purification (*Suddhi*)^{1,2,3}:

The earth is considered to be a source of valuable drugs. Earthworms not only enriched with pharmaceutically useful compounds but also contain certain toxic materials. One of the most important tasks is removal of these toxic substances, which is called purification (*Suddhi*) of raw materials by Siddhars. Otherwise it may results in toxicity. *Suddhi* contributes the following changes in the raw drug:

- Reduction in particle size
- Conjugation of trace elements
- Elimination of unwanted elements
- Formation of desirable compounds

Poonagam- Poonagam was soaked in buttermilk. When it repels the sand it was taken out and dried, then it was grounded.

Aduthinnapaalai- Aduthinnapaalai was washed in the running tap water to remove the soil and impurities.

Preparation of Poonaga parpam¹:

Procedure:

Purified Poonagam was grounded well using mortar and pestle and juice of Aduthinna Paalai (*Aristolochia bracteolata*) was added little by little to it for one day and made into pellet and dried. The pellet was then placed in between two earthen saucers and it was covered by mud sealed cloth. Then it was subjected into *pudam* by using 100 cow dung cakes. The above mentioned

procedure was repeated for 9 times and finally the *parpam* was powdered well and stored in an air tight container.

Dose : ½ - 1 Kundri (65-130 mg)
Twice daily, after food
Adjuvant : Honey
Indications : Kodiyaa Kaasam (Asthma)
Mega Suram (Syphilitic Fever)

Review of Siddha Literature

Poonagam (Earthworm)⁴

It is mostly available in slough. In Siddha aspect, there are two varieties of earthworms i.e., reddish and pale red coloured. Reddish earthworms have great medicinal values because of its more copper content

Synonym

Naankuzh Pulu, Naaku Poochi, Kandapadham, Boomiver ‘naankuzhpulu’ which means worm shaped process of the cecum- compared its shape with that of vermiform appendix, ‘naakupoochi’ which means round worms in the intestine, ‘kandapadham’ flower cobra-the smallest of the kind found in flowers described its look alike creatures, ‘boomiver’ root under the earth compared its nature of living.

General characteristics of Poonagam

மாதவறு செய்வறு சிமாறுமடங் காச்சந்தி
பாதவறுநோயோடுபாறுமடல் - வாதவாறு
குண்டபதம்நூமோக்காளமையமும்போங்
கண்டபதமென்றுங் கால்

-Pathartha Guna Sinthamani

Therapeutic action

According to siddhars the earthworms have following actions i.e., it can cure severe thirst, crural paralysis (paralysis of the thighs characterized by loss of motion and sensation arising from the deranged condition of wind humor in the lower part of the body, vomiting and phlegmatic diseases.

Therapeutic uses of earthworms as per siddha literature

- 12.6 gm purified earthworm powder can be taken along with grape juice for anuresis, renal and vesical calculus.
- It can be taken along with broth soup for spermatogenesis.
- For hydrocele and labour pain, it can be applied externally along with almond oil.
- Boil earthworms along with gingely oil and it can be taken internally for throat pain and chronic cough.
- For dislocation of joints and blood clots which is formed in the inflamed or injured area, earthworms can be grounded along with hot basalt and can be applied externally.
- The earthworm is fried in gingelly oil along with equal quantity of dried leech. It is then applied over the penis for improving the sexual vigour.
- When the earthworm is used for medicinal purposes, ghee, milk, and meat should be taken in excessive quantities.

Other Siddha formulations using earthworms as ingredient

Drug Name	Dosage	Indications	
Poonaga Karukku ⁴	650 gm twice a day with honey	Xerostomia, delirium or apoplexy.	
Poonaga Karukku ⁴ Kudineer	Quantity sufficient	Xerostomia, delirium or apoplexy.	
Poonaga Parpam ¹	65-130 mg with honey twice a day for 15 days	Bronchial asthma, syphilitic fever, and thirst.	
Seenthil Chooranam ⁵	1-2 grams twice a day	Venereal disease, colic, cough, orchitis, phlegmatic and nervous diseases, biliousness, tuberculosis and skin diseases.	Ghee
		Dyspepsia, Rhinitis	Honey
		Dandruff, fever, tinea infections	Sugar
Poonaga Chooranam ¹	¼ thola with ghee twice a day	Dropsy, dyspepsia, bronchial asthma, tuberculosis, hemorrhoids, hemoptysis.	
Varmaani Kuligai ⁶	Payirualavu	Bronchitis, bronchial asthma, tuberculosis.	
Nava Paasana Thylam ¹	External Medicine	Neuralgic pain of the limbs, rigidity of the joints from the effects of rheumatism.	
Poonaga Ennai		Disease in children arising chiefly from indigestion, marked by suppression of stools and urine, aversion to milk, screaming, etc.,	
Kirigaikkum Kulambu ⁶	1 karandi (twice a day)	Grit	

II. Aaduthinna Paalai –Aristolochia bracteata⁷

Synonym

Aadutheenda paalai, Aaduthodappalai, Pangam paalai

Organoleptic Characters

Taste : Bitter
Character : Heat
Division : Acrid

Therapeutic action

Anthelmintic, Emmenagogue, Stimulant, Tonic, Purgative, Alterative, Anti periodic

General characteristics of *Aaduthinna paalai*

கிரந்திகரம் பன்வெக்கைகேசநலிமாந்தை
யரந்தைவினையையறுக்கும் – துறந்து
பிரியொணாநோய்களையும் பிழ்முன்பாராமல்
மறியுணாமூலியடைவாய்

Theraiyar Venba

ஆடுதொடாய் பாளைக் ககக்கருமிவன்சிவந்தி
நீடுகருங் குட்டம் நிறைகரம்பான் – ஆட்டிச்சேய்
எண்பதுவாய்வும் இகல்குட்டமுந்தீரும்
திண்பெறுநற் றாதுவுமாஞ் சேய்ப்பு.

Agathiyar Gunavakadam

It cures skin eruptions, glandular swelling, hair loss, congenital heat in children. It also Cures intestinal worm infestations, ringworms and 80 types of vadh diseases.

Therapeutic uses of *Aaduthinna Paalai* as per siddha literature

- The decoction of the leaves is given for above mentioned ailments.
- The powdered seed along with castor oil can be used to cure stomach ache, amenorrhoea, intermittent fever, labour pain. It also cures intestinal worms infestations.
- The whole plant along with gingelly oil can be used externally to cure ringworms, eczema.
- The powdered root is used to cure snake bites and other poisonous bites.

Other Siddha formulations using *Aaduthinnapaalai* as ingredient

- *Aadutheendapaalai Ennai*
- *Thuvar Ennai*
- *Mooku Noi Thailam*
- *Aadutheendapaalai Maathirai*
- *Milagennai*

Scientific Review

Broncho Dilator Activity

Poonagam (Earthworm)^{8,9}

An effective asthma-calming component from earthworms was separated early in the 1930's. This component was used in experiments with rabbit lungs and reported that the component made bronchiectasis. Hence it could be used to resist asthma caused by histamine and pilocarpine. This component was injected Intravenously to the body cavity of experimental animals, 50% of the animals could withstand the lethal dose of histamine.

*Aaduthinna paalai (Aristolochia bracteata)*¹⁰

H r Chitme et al., studied the Antiallergic activity of *Aristolochia bracteolata* Lank in animal model. It was evaluated using compound 48/80 induced anaphylaxis, dermatitis, rhinitis and pruritis, as a preclinical model for acute phase of hypersensitivity reactions. The present study implied that the chloroform extract of *Aristolochia bracteata* had potent and significant effect in toluidine diisocyanate induced rhinitis in swiss albino mice. Mast cell membrane stabilization activity was also observed in compound 48/80 induced mast cell activation. A significant reduction was observed in serum nitrate levels, rat peritoneal fluid nitrate levels and BAL nitrate levels. The extract was also found to possess significant inhibitory effect on blood histamine levels.

Anti-Inflammatory Activity

Poonagam (Earthworm)^{11,12}

M.Balamurugan et al., studied the anti inflammatory activity of earthworm extract by using the carrageenan induced left hind paw edema method. The results revealed that the histamine induced acute phase rat hind paw oedema volume and turpentine induced chronic phase granuloma pouch weight and its exudate volume was reduced significantly due to the administration of standard drug indomethacin.

But administration of earthworm extract was found to exhibit better results in a dose dependent manner. Administration of 200 mg/ kg earthworm extract was found to reduce the above parameters and brought to near normalcy and this results was found to be followed by administration of 50 and 100 mg /kg, respectively.

Di Long “earth dragon” extract in traditional Chinese medicine (TCM) is made from red earthworms (*Lumbricus rubellus*). This TCM preparation is used empirically to treat high fever with convulsion and inflammatory joint pain. The ethanolic extract of *L. rubellus* powder contains notable amounts of phenolic acid and shows an antioxidant effect *in vitro*. *L. rubellus* powder can be potentially used as a natural antioxidant source to treat disorders associated with inflammation and oxidative stress.

***Aduthinna paalai (Aristolochia bracteata)*¹³**

The ethanolic extract of the shade dried leaves of *A. bracteata* was evaluated for its anti inflammatory activity in wistar rats by using the carrageenan induced left hind paw edema method. Significant reduction of edema volume was observed in the drug treated group when compared with the standard and untreated control. Antioxidant investigation of the ethanol extract along with its two successive fractions using nitric oxide and 1,1-diphenyl-2 picrylhydrazyl (DPPH)-induced free radical assay methods showed good free radical scavenging activity, thereby supporting its anti inflammatory properties.

Anti Pyretic Activity

***Poonagam (Earthworm)*¹¹**

M. Balamurugan et al., studied the anti pyretic activity of earthworm extract by using the Brewer’s yeast induced pyrexia in rats. The subcutaneous injection of yeast suspension markedly elevated the rectal temperature after 24h of administration to rats. Treatments with earthworm extracts at the doses of 50, 100, and 200 mg/ kg decreased the rectal temperature in a dose dependent manner. The anti pyretic effect started from the first hour and was maintained for

4h, after administration of earthworm extract. The result obtained from both paracetamol and earthworm extract treated rats were compared with the control group and a significant reduction in the yeast induced elevated rectal temperature was observed.

***Aduthinna paalai (Aristolochia bracteata)*¹⁴**

Pet. ether and acetone extracts of *A. bracteata* was investigated for their anti pyretic activity . Pet. ether and acetone extracts of the plant *A. bracteata* were prepared using Soxhlet extraction. Pyrexia produced in rats by injecting 20ml/kg (s.c) of 20% aqueous suspension of Brewer’s yeast suspension. Extracts at 250 mg/kg exhibited significant anti pyretic activity. Aspirin (300mg/kg) was used as standard for which Pet. Ether extracts was found to be more effective than acetone extract.

Anti microbial Activity

***Poonagam (Earthworm)*¹⁵**

Lumbricus rubellus the ubiquitous earthworm containing antimicrobial peptide named Lumbricin-1. The results showed that *L. rubellus* powder in each of the concentrations of 100 mg, 200 mg, 300 mg, 400 mg and 500 mg obtained an average inhibition zone of 14.33 mm, 14.17 mm, 14.00 mm, 15.00 mm and 13.00 mm respectively against MDR *P. aeruginosa*; 16.75 mm, 18.50 mm, 18.75 mm, 16.75 mm and 17.25 mm against MRSA; 16.50 mm, 18.00 mm, 17.50 mm, 17.75 mm and 16 mm against Fluconazole resistant *C. albicans*. Statistical analysis revealed that *Lumbricus rubellus* powder in the tested concentrations showed significant broad spectrum antimicrobial activity against drug resistant microbes ($p < 0.05$).

Conclusion

From this literature review it is evident that the ingredients of *Poonaga parpam* has pharmacological activity like Broncho dilator, anti inflammatory, anti pyretic, and anti microbial studies which are responsible for its therapeutic activity claimed in literature. Therefore, it seems

that physicians can rely on this Siddha preparation *Poonaga parpam*, at least as complementary therapeutics, along with current bronchodilator, mast cell stabilizer drugs to improve management of asthmatic patients.

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