



POLYHERBAL SIDDHA FORMULATION PARANGIPATTAI KUDINEER : A REVIEW

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ABSTRACT

The Siddha system of medicine is one of the most ancient traditional medical system was popular in ancient Southern part of India. Parangipattai Kudineer is one among the poly herbal formulation contains 10 ingredients. 'Parangipattai Kudineer is Siddha poly herbal formulation which is mentioned in Siddha text book of Pharmacopoeia of hospital of Indian medicine. This drug used for all kind of skin diseases, insect bites, etc. The drug review of 'Parangipattai Kudineer', a poly herbal formulation gives evidence for its therapeutic action mentioned in literature. This review describes the phytochemicals, and medicinal uses of the part of each ingredient used in this formulation. Ingredients of the formulation and their pharmacological action in various research studies are discussed in this review.

KEYWORDS: Parangipattai Kudineer, Polyherbal formulation, Skin diseases, Siddha medicine.

INTRODUCTION

The Siddha system of medicine originated from the Southern part of India is one the traditional medical system in the world and deals with physical, psychological, social and spiritual well-being of an individual. The roots of this system are intertwined with the culture of ancient Tamil civilization. The system aims in attaining Eternal bliss and to defeat mortality. However to attain this one should possess enough physical and mental strength. Thus Siddha system emerged as a holistic / complete medical system in on these lines.^[1]

The Siddha system of medicine is 32 forms of internal medicine were described in Siddha text. Kudineer (Decoction) is the one form of internal medicine in which powdered plants or parts of plants added with specific quantity of water prescribed, be boiled upto 1/4, 1/8, 1/16, 1/24th of the initial quantity and taken after filtering it or prepared in a specific process if mentioned.^[2] Parangipattai Kudineer is one among the poly herbal formulation contains 10 ingredients which is mentioned in siddha text book of Pharmacopoeia of hospital of Indian medicine. This drug use for all kind of skin diseases, insect bites, etc.^[3] The drug review of 'Parangipattai Kudineer' is a poly herbal formulation gives evidence for its therapeutic action mentioned in literatures. The major ingredients of this drug are

Parangipattai (Smilax china.Linn), Seendhil (Tinospora cordifolia. Miers), Manjitti (Rubia cordifolia. Linn). This review describes the phytochemicals, action and medicinal uses of the part of each ingredient used in this formulation. Ingredients of the formulation and their pharmacological action in various research studies are discussed in this review.

INGREDIENTS OF PARANGIPATTAI KUDINEER



1. *Smilax china*.Linn^[4] 2. *Picrorhiza kurroa*.Royle^[5] 3. *Rubia cordifolia*.Linn^[6]
 4. *Coscinium fenestratum*.Colebr^[7] 5. *Terminalia chebula*.Retz^[8] 6. *Terminalia bellerica*.Roxb^[9]
 7. *Acorus calamus*.Linn^[10] 8. *Pimpinella anisum*.Linn^[11] 9. *Azhadirachta indica*.A.Juss^[12]
 10. *Tinospora cordifolia*.Miers^[13]

Figure 1: Image of ingredients of Parangipattai Kudineer.

Parangipattai kudineer is a polyherbal Siddha formulation containing 10 ingredients of plants origin their specific and individual locality names, action, phytochemistry and siddha medicinal uses are tabulated below in Table 1.

Table 1: Information about ingredients of Parangipattai kudineer.^[14]

| S. No | Botanical name | Tamil name/ English name | Parts used | Phytochemistry | Action | Medicinal uses in Siddha |
|-------|---|-----------------------------------|------------|--|---|---|
| 1. | <i>Smilax china</i> . <i>Linn</i> | Parangipattai/ China root | Root | Flavonoids, Saponins, Sterols, Tannins, Proteins And Carbohydrates ^[15] | Alterative, Antisyphilitic, Depurative, Aphrodisiac | Skin diseases, Inflammations, Diabetic |
| 2. | <i>Picrorhiza kurroa</i> . <i>Royle</i> | Kadugu Rohini/ Picrorhiza | Root | Pikuroside, Veronicoside, Phenol Glycosides, Kutkoside ^[16] | Anthelmintic, Stomachic, Cathartic, Antiperiodic | Skin diseases, Ulcer |
| 3. | <i>Rubia cordifolia</i> . <i>Linn</i> | Manjitti/ Indian madder | Root | Purpurin, Alizarin, Mollugin, Manjistin ^[17] | Emmenagogue | Skin diseases, Wound, Inflammation, Diabetic |
| 4. | <i>Coscinium fenestratum</i> . <i>Colebr</i> | Maramanjai/ Tree-Turmeri | Bark | Berberine, Ceryl alcohol, Sitosterol, Palmatic acid, Oleic acid, and Saponin ^[18] | Tonic, Stomachic, Febrifuge | Skin diseases, Wound, Inflammations |
| 5. | <i>Terminalia chebula</i> . <i>Retz</i> | Kadukkai/ Chebulic Myrobalan | Fruit | Chebulinic acid, Tannic acid, Ellagic acid, Ethaedioic acid, 4,2,4 chebulyl-d-glucopyranose, Gallic acid, Corilagin ^[19] | Tonic Astringent, Stomachic, Laxative | Blood purifier, Skin diseases, Nervous disorder |
| 6. | <i>Terminalia bellerica</i> . <i>Roxb</i> | Thandrikai/ Belleric Myrobalan | Fruit | Ellargic Acid, Gallic Acid, Tannins, Ethyl Chebulaginic Acid, β -Sitosterol ^[20] | Tonic, Laxative, Expectorant, Astringent | Wound Ulcer Brain tonic |
| 7. | <i>Acorus calamus</i> . <i>Linn</i> | Vasambu/ Sweet-flag | Root | Methyleugenol, Asaronaldehyde, Terpinolene ^[21] | Anthelmintic, Antiperiodic, Stomachic, Disinfectant Germicide | Carminative, Emetic, Inflammations |
| 8. | <i>Pimpinella anisum</i> . <i>Linn</i> | Sombu/Anise seeds | Seed | Eugenol transanethole, Anisaldehyde, Estragole, Coumarins, Scopoletin, Umbelliferone, Estrols, Terpene, Hydrocarbons ^[22] | Carminative Stomachic | Carminative, Disinfectant, Sleeplessness, cough |
| 9. | <i>Azadirachta indica</i> . <i>A. Juss</i> | Vembu/ Neem tree | Bark | Tannins, Saponins, Phlobatanins, Flavanoids, Cardiac glycosides and Alkaloids ^[23] | Tonic, Antiperiodic, Astringent | Skin diseases, Fissure in foot |
| 10. | <i>Tinospora cordifolia</i> . <i>Miers</i> | Seendhil/ Gulancha tinospora | Stem | Tinosporin, Giloinin, Berberine, Glucoside. ^[24] | Tonic, Antiperiodic, Alterative Demulcent | Wound Ulcer, Inflammations |

Pharmacological activity of herbs in Parangipattai Kudineer

The efficacy of all ingredients of Parangipattai Kudineer was proved through the following research studies.

Smilax china.*Linn*

Ethyl acetate fraction of *Smilax china* rhizome showed good **anti-Psoriatic activity** in the mouse tail test, **anti-proliferent activity** and nitric oxide inhibition assay. The plant *Smilax china* rhizome possesses anti-psoriatic activity which is in agreement with its traditional use.^[15,25] *Smilax china* has **anti-inflammatory activity**.

Its decoction (90 and 180 mg/kg; p.o) could significantly inhibit inflammatory swelling on adjunctive arthritis mouse.^[26] The methanol extract of *Smilax china* exhibit antimicrobial activity²⁷. In vitro antimicrobial activity of *Smilax china* was reported.^[28]

Picrorhiza kurroa.*Royle*

Immunomodulatory activity

The effect of an ethanolic extract of root of the *Picrorhiza kurroa*.*Royle* was studied on delayed type hypersensitivity, humoral responses to sheep red blood

cells, skin allograft rejection, and phagocytic activity of the reticuloendothelial system in mice.^[16]

Anti-inflammatory activity

Picrorhiza kurroa. Royle's root has apocynin. Apocynin concentration dependently inhibited the formation of thromboxane A₂, where as the release of prostaglandins E₂ and F₂ was stimulated. Apocynin inhibited arachidonic acid induced aggregation of bovine platelets, possibly through inhibition of thromboxane formation. The rhizome of *Picrorhiza* is used to treat inflammatory diseases as a traditional medication.^[16]

Antidiabetic activity

Extract of *Picrorhiza* was found to lower blood glucose in laboratory animals. Chronic administration of the extract significantly reduced blood sugar in alloxan-induced diabetic rats for 10 days. The extract was also used to reduce the increased blood urea nitrogen and serum lipid peroxides in alloxan-induced diabetic animals and to inhibit the body weight reduction and leukopenia induced by alloxan administration.^[16]

In the streptozotocin induced diabetic rats, treated with a gavage of ethanol extraction of *Picrorhiza* herbal formulation. It reduced NADPH - oxidase dependent superoxide generation and decreased expression of malondialdehyde and advanced oxidation protein products in diabetic kidney. So, extraction of *Picrorhiza* improves diabetic nephropathy through inhibition of redox sensitive inflammation.^[16]

Rubia cordifolia. Linn

Anti-Inflammatory Effect

Rubia cordifolia, Linn. (Indian Manjishtha), was studied for the anti-inflammatory effect in rats with carrageenan paw oedema.^[17]

Antibacterial Activity

The antibacterial activity of the extracts of *Rubia cordifolia* root was significantly active against *B. subtilis* and *S. aureus* compared with streptomycin and penicillin G used as standards.^[17]

Anti-proliferating Property

Ethyl acetate fraction of the root of *Rubia cordifolia*. L inhibits keratinocyte proliferation in vitro and promotes keratinocyte differentiation in vivo.^[17]

Anti-adipogenic activity of 2-carbomethoxy-2, 3-epoxy-3-prenyl-1, 4-naphthoquinone (CMEP-NQ) isolated from the roots of *Rubia cordifolia*. L., its effects on cell viability, apoptosis, and adipogenesis in 3T3-L1 preadipocytes were investigated.^[17]

Coscinium fenestratum. Colebr

immunomodulatory activity

The assessment of immunomodulatory activity of ethanolic extract (Crude extract), alkaloid fraction and non-alkaloid fraction of stem bark of *Coscinium*

fenestratum was carried out by performing hemagglutinating antibody titer (H.A.).^[18]

Anti-Depression

Coscinium fenestratum is a common medicinal plant widely used in the Indochina region, but scientific data on its safety is very limited. Oral administration of plant alcoholic extract at dosages of 5, 10 and 20 mg/kg BW for 14 days increased the rats body weight and decreased the neuron density in the cerebral cortex, hippocampus and striatum. The plant extract significantly increased stereotyped behavior in licking but did not cause anxiolytic activity, anti-depression, sensory motor coordination impairment and ataxia.^[29]

Terminalia chebulla. Retz

Pharmacological investigations for **antimutagenic**,^[30] **immunomodulatory** effect,^[31] **antibacterial**,^[32,33] **antifungal**^[34] of different biological activities of *Terminalia chebulain* various in vivo and in vitro test models have been carried out based on the presence of chemical ingredients. The ethanolic extract of *Terminalia chebula* fruits possesses analgesic and **anti-inflammatory** activities in mice and rats at the doses of 250 mg/kg and 500 mg/kg and, 300 mg/kg respectively.^[35]

Terminalia bellerica. Roxb

Pharmacological activities such as **antimicrobial**, **antioxidant**, **immunomodulatory**, **antispasmodic** of different biological activities of *Terminalia bellerica* in various in vivo and in vitro test models have been carried out based on the presence of chemical ingredients.^[20]

Acorus calamus. Linn

Anti-inflammatory

Anti-inflammatory activity on keratinocyte hacat cells HaCaT cells induced the pro-inflammatory cytokines, interleukin-8 (IL-8) and interleukin-6 (IL-6) expressions after treatment with polyI:C or PGN. ACL inhibited the expression of IL-8 and IL-6 RNA and protein levels, and attenuated the activation of NF-κB and IRF3 after polyI:C treatment. ACL also inhibited expression of IL-8 and activation of NF-κB following PGN induction. ACL inhibits the production of pro-inflammatory cytokines through multiple mechanisms and may be a novel and effective anti-inflammatory agent for the treatment of skin diseases.^[21]

Anti-cellular and immunosuppressive properties

Modulation of immune response to alleviate disease has been of interest since long. Plant extracts have been widely investigated for possible immunomodulatory properties. The anti-cellular and immunomodulatory property of ethanolic extract of *Acorus calamus* rhizome has been evaluated. This extract inhibited proliferation of mitogen (phytohaemagglutinin; PHA) and antigen (purified protein derivative; PPD)-stimulated human peripheral blood mononuclear cells (PBMCs). In

addition, *A. calamus* extract inhibited growth of several cell lines of mouse and human origin. It also inhibited production of nitric oxide (NO), interleukin-2 (IL-2) and tumor necrosis factor- α (TNF- α). Intra cytoplasmic interferon-gamma (IFN-gamma) and expression of cell surface markers, CD16 and HLA-DR, on human PBMC, were not affected on treatment with *A. calamus* extract but CD25 expression was down Regulates.^[36]

Pimpinella anisum. Linn

Pharmacological properties of *Pimpinella anisum* such as **antimicrobial, antifungal, antiviral, antioxidant**, and insecticidal effects have been reported of aniseeds.^[22]

Azadirachta indica. A. Juss

The extracts showed potential **antimicrobial activities** against thirteen different strains of microorganisms. Secondly, they were screened in vitro for cytotoxicity test by brine shrimp lethality bioassay and results illustrated significant ($p < 0.05$) cytotoxicity against Artemiasalina. To test the analgesic properties of ethanol extract of *Azadirachta indica*, hot plate and acetic acid induced writhing methods were used. At two different doses (250 and 500 mg/kg body weight), the analgesic tests were performed on Swiss Albino mice. Also, the anti-inflammatory tests were performed by carrageenan induced paw edema method on long Evans rats at the two different doses of 250 and 500 mg/kg body weight using ethanol extract. Our results indicated that *Azadirachta indica* possesses remarkable **analgesic and anti-inflammatory activity**.^[37] **Antibacterial activity**^[38] also present in *Azadirachta indica*.

Tinospora cordifolia. Miers

Tinospora cordifolia has an importance in traditional medicine used for ages in the treatment of fever, jaundice, chronic diarrhea, cancer, dysentery, bone fracture, pain, asthma, skin disease, poisonous insect bite, snake bite, eye disorders. Pharmacological activities such as **antimicrobial, antioxidant, antispasmodic**, of different biological activities of *Tinospora cordifolia* in various in vivo and in vitro test models have been carried out based on the presence of chemical ingredients.^[24]

Tinospora cordifolia also have pharmacological activities of **immunomodulatory**^[39] **anti-inflammatory activity**.^[40]

CONCLUSION

Herbal decoctions are most popular form of traditional medicine. The ingredients present in this formulation "**Parangipattai Kudineer**" have effective in the treatment of all skin diseases. Based on this evidence of Siddha literature and the modern scientific research studies also provide keyhole which result are **Anti-Psoriatic, Immunomodulator, Anti-Inflammatory activities** most presents of ingredients.

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