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A Review of Herbs to Treat Skin Disorders in Traditional Siddha Medicine.

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Review Article

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ABSTRACT

Medicinal plants are sources of great economical value in Indian subcontinent. In recent years the importance and value of Herbal remedies for all sorts of diseases are being discussed widely. Herbal remedies have their origin in the household of Indians. People are well aware about the medicinal properties of the ingredients of their daily diet. Medicinal plants are naturally gifted with invaluable bio active compounds which form the back bone of Traditional medicines. Many infectious diseases have been known to be treated with herbal remedies throughout the history of mankind. This action is due to the presence of phyto-chemical components like glycosides, tannins, alcohols, aldehydes etc., those chemical components are not only for the discovery of therapeutic agents but are also an asset for the future genera. Due to the fast phased lifestyle and polluted atmosphere people are exposed to many lifestyle disorders especially skin diseases. This review paper deals with the single herbs and prepared medicines documented in Traditional Siddha Indian Medicine as potent remedies for Skin diseases.

Skin diseases in Traditional Siddha Medicine

Traditional Indian Medicine is being widely practiced in Tamilnadu and Tamil speaking areas of the World. Skin diseases are classified into eighteen types in Siddha. It includes the whole range of dermatological complaints arising out of the moods of the human mind to the various micro-organisms, vast external environment and complex endocrine and metabolic transitions within the body [36]. Fungal infection, eczema, lecoderma, leprosy are all included within this classification. The herbs and medicines are given in two tables, the first one containing the common name of the Herbs, along with their Botanical name and family, their uses in Siddha Medicine. The second table contains the names of the Medicines (herbal, metal & mineral origin), their main ingredients, indications and the references.

List of Herbs:[2,3,35]

The common names are mentioned below with their Tamil names within the brackets.

The herbs which treat skin disorders are as follows,

- Worm killer (*Adu theenda palai*)
- The Bishop's weed (*Omam*)
- Wild turmeric (*Kasthuri manjal*)
- True indigo (*Sivanar vembu*)
- Black cumin (*Karun Seeraham*)
- China root (*Paranki pattai*)
- Sweet obtuse leaved mimusops (*Theem palai*)
- Indian beech (*Pungu*)
- Indian bdellium tree (*Valenthira bolam*)
- Indian mulberry (*Nuna*)

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- Snake wood (*Etti*)
- The Portia tree (*Poovarasu*)
- Balloon plant (*Mudakku aruthan*)
- Smooth Volkameria(*Isangu*)
- Ivy gourd (*Kovai*)

Table 1: Information about individual herbs effective in Skin diseases.

Common Name	Botanical Name/ Family	Parts Used	Uses in Siddha
Worm killer	Aristolochia bracteolata/ Aristolochiaceae	Rhizome Root Seeds	Anti toxic Anti periodic
The Bishops weed	Carum copticum/ Apiaceae	Seeds	Cholera Indigestion Cough
The round zeodary	Curcuma aromatica/ Zingiberaceae	Rhizome	APD Skin wound
Tellicherry bark	Holarrhena pubescens/ Apocynaceae	Bark	Diabetes Dysentery
Ivy gourd	Coccinia grandis/ Cucurbitaceae	Fruit Rhizome Leaf	Ulcers in tongue Diabetes Skin disorders
True Indigo	Indigofera aspalathoides/ Fabaceae	Root	Dental problems
Black cumin	Nigella sativa/ Ranunculaceae	Seed	Rhinitis Aphrodisiac
China root	Smilax china/ Smilacaceae	Bark	Leucorrhea Indigestion ,Diabetes
Sweet obtuse leaved mimusops	Wattakaka volubilis/ Asclepiadaceae	Fruit	Antidote Febrifuge
Indian beech	Pongamia pinnata/ Fabaceae	Flower Root Seed Leaf	Ulcers Anemia Leucorrhea Indigestion
Indian bdellium tree	Commiphora myrrha/ Burseraceae	Whole plant	Amenorrhea Anemia
Indian mulberry	Morinda tinctoria/ Rubiaceae	Root Bark	APD Pharyngitis
Snake wood	Strychnos-nux-vomica/ Loganiaceae	Seeds	Nervine disorders Uterine fibromas Epilepsy
The Portia tree	Thespesia populnea/ Malvaceae	Bark Flower Seeds	Anti inflammatory Vitiligo Ascites
Balloon plant	Cardiospermum halicacabum/ Sapindaceae	Leaf Root	Chronic cough Amenorrhea

Review of In-vitro studies of individual herbs

Worm Killer (*Aristolochia bracteolata*)

It is used in constipation, inflammation, foul ulcers, boils, syphilis, Gonorrhea, Eczema, Intermitted fevers. The methanol extract has poor antibacterial property against gram positive bacteria and reliable anti bacterial property against gram negative bacteria and also posses anti fungal property [4].

The methanol extract where more potent than acetone extract. There are report in the literature that methanol is the better solvent for consistent extraction of anti microbial substances from medicinal plants. Bracteolata leaves are subjected to antibacterial activity on disc diffusion method which shows sufficient Bacterial sensitivity.

The ethanol extracts of *A. bracteolata* was study antifungal activity using disc diffusion method the ethanol extract is effective against *Trichiophyton rubrum* and *Microsporum canis*. Bio active principles present in the extract is responsible in the treatment of ringworm infection [5].

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Table 2: Siddha Medications to cure Skin disorders (of Herbal, Metal and Mineral origin) [1,3]

Name of the Medicine and their physical form.	Main Ingredients	Uses	Reference
Parangipattai chooranam (Powder)	Smilax china	Leucoderma, Taenial infections	*Siddha vaithiya thirattu Theryar tharu*
Kendhi mezhugu (Internal medicine)	Purified sulphur Ginger juice	Scabies, Utricaria, Polyuria Leucoderma	*Siddha vaithiya thirattu*
Mahaveera mezhugu (Internal medicine)	Hydragyrum perchloride, Cinnabar, Juice of Morinda.	Leucoderma Parkinsonism Rheumatoid arthritis.	*Siddha vaithiya thirattu*
Nandhi mezhugu (Internal medicine)	Semecarpus, anacardium Strychnos-nux-vomica	Oliguria Eczema APD,Antidote	*Siddha vaithiya thirattu*
Rasagandhi mezhugu (Internal medicine)	Purified sulphur Purified mercury	Abscess Tumor, Cataract	*Pulipani vaithiyan 500*
Kizhinjal mezhugu (external use)	Oyster shell Amla juice	Foot cracks	*Gunapadam materia medica*
Vellai mezhugu (External use)	White arsenic	Bubo	*Gunapadam materia medica*
Karappan thailam (Medicated oil – Exernal use)	Eletaria cardamomum	Eczema Leucoderma	*Therayar thaila vargam*
Punga thailam (Medicated oil – Exernal use)	Hydragyrum subchloride Pongamia pinnata	Suppurative lesion Scabies	*Imcops*
Kandhaga sudar thailam (Oil- Internal & External use)	Purified sulphur Potassium nitrate	Leprosy Leucoderma APD, Tuberculosis	*Agasthiyar pooranam 400*
Meganadha thailam (Medicated oil – Exernal use)	Pongamia pinnata Strychnos-nux-vomica	Pain Skin diseases Rheumatic disorders	*Siddha vaithiya thirattu*
Sirattai thailam (Medicated oil – Exernal use)	Coconut Kernel	Scabies Skin disorders	*Imcops*
Kundhriga thailam (Medicated oil – Exernal use)	Shorea robusta	Inflammation Antispasmodic	*Imcops*
Matthan thailam (Medicated oil – Exernal use)	Datura leaf extract Purified copper sulphate	Scabies Skin disorder, Abscess	*Imcops*
Kandhaga parpam (Calx – Internal use)	Purified sulphur	Taenia Diabetes Ulcers, Leucoderma	*Abdullavin anubava vaithiya navaneedham*
Muthu chippi parpam (Internal use)	Mytilus margaritiferus Pearl oyster shell	Tuberculosis Fistula Pain, Skin disorders APD	Imcops *Siddha vaithiya thirattu*
Sangu parpam (Internal use)	Turbinella rapa Conch shell	Pain Skin disorders APD	*Siddha vaithiya thirattu*
Siddhadhi ennai (Oil-Internal use)	Sodium chloride impura	Fistula Scabies,Antispasmodic	*Agasthiyar sillarai kovai*
Garudan kilangu ennai (Oil-Internal use)	Corallocarpus epigaeus	Bubo Antidote	*Siddha vaithiya thirattu* *Agasthiyar sillarai kovai*
Vanga vennai (Ointment – External use)	Lead Purified copper sulphate	Skin diseases	*Siddha vaithiya thirattu*
Kungiliya vennai (Butter – both internal & external use)	Shorea robusta	Leucorrhea Tuberculosis	Siddha vathiya thirattu
Amirdha vennai (Ointment – External use)	Hydraargyrum perchloride	Cervical adenitis (*Kandamalai*)	*Agathiyar vaithiya kaviyam 1500*
Irunelli karpam (Internal medicine)	Amla	Scabies	*Dr. S. Krishna rao anubava*
Serangkottai nei	Semicarpus anacardium	Skin disorders Leucoderma Tuberculosis	*Siddha vaithiya thirattu*
Parangi rasayanam	Smilax china Withania somnifera.	Pain Cervical adenitis	*Agasthiyar vaithiya rathina churukkam 360*
Parangi pattai padhangam	Smilax china Purified sulphur	Pain Cervical adenitis Skin disorders	*Pulipani vaidhiyam 500*
Padai sangaaran (Ointment – External use)	Alangium salvifolium	Scabies Eczema	*Siddha vaithiya thirattu*

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The Bishop's Weed (*Carum copticum*)

The essential oils of *Carum copticum* exhibited inhibitory and bactericidal against standard strains of *S.enterica* and *S. flexneri* at concentrations ranging from 0.5 to 8 at 1 to 64 µ L / ml. The antibacterial effect against *S. typhimurium* from the essential oils of *C.copticum* [6].

One of the gram negative bacteria examined, *P. aeruginosa*, is an opportunistic bacterium with low susceptibility to many antibiotics [7]. The essential oils of *C. copticum* exhibited anti bacterial activity against standard and clinical isolates of P. aeruginosa at concentrations ranging from 8 to 32 µ L / ml [8].

The essential oils present in seeds of C.copticum shows inhibitory effect against fungal growth and aflatoxin production by A. parasiticus. The Minimum Inhibitory Concentration (MIC) of *A.fumigates* and *A.flavus* at concentrations ranging from 1to 4µl/Ml [9].

Wild Turmeric (*Curcuma aromatica*)

Curcuma rhizome has potent anti microbial activity against various strains of micro organisms. Hydro ethanolic extract of curcuma effective against *Bacillus cereus* and moderate against *Klebsiella pneumonia*. In the case of MIC, hydro ethanolic extract inhibits *Bacillus cereus* at 15.625 µ g /ml *Klebsiella pneumonia* inhibited by 62.5 µ g / ml.

Hydro ethanolic extract shows moderate effect against *Candida albicans*. The MIC of *Candida albicans* is 125µg/Ml [10].

True Indigo (*Indigofera aspalathoides*)

Anti microbial activity was screened by augur well diffusion method. The methanolic root extract of Indigofera aspalathoides inhibited the growth of bacterial and fungal pathogens. Maximum zone of inhibition was measured in Klebsiella pneumonia (1.8 cm) while it is minimal in fungal pathogens zone of inhibition in *Aspergillus fumigates* (1.6 cm) , *A. niger* (0.6 cm) , *A.flabus* (0.5 cm) , *C. albicans* (0.4 cm) [11]

Methanol extract showed maximum inhibitory activity against

- *C.albicans* (13 mm zone of inhibition)
- *C.parapsinosis* (14 mm zone of inhibition)
- *C. tropicalis* (16 mm zone of inhibition)

Ethyl acetate showed maximum inhibitory activity against 13 mm, 15 mm, 16 mm.
Hexane extract showed maximum inhibitory activity against 15 mm, 16 mm, 18 mm [12].

Black Cumin (*Nigella sativa*)

Methanol extract of Nigella sativa exhibited higher anti bacterial activity against aqueous extract methanol extract of N. sativa at 20 mg/ml is effective against *Streptoccocus pyogenes* (10 mm zone of inhibition). At 100 mg/ml is effective against *Streptococcus pneumonia, Pseudomonas aeruginosa and Proteus vulgaris* (15 mm zone of inhibition).

Aqueous of N.sativa at 100 mg/ml is effective against *Pseudomonas aeruginosa* (20 mm), *Streptococcus pyogenes* (15 mm). At concentration of 50 mg/ml is effective against *Streptocccus pyogenes* (10 mm), *Proteus vulgaris* (12 mm), *Klebsiella pneumonia* (11 mm) [13].

China Root (*Smilax china*)

Antibacterial activity of the extract was determined by agar diffusion assay[14]. Strains of *B.subtilis* is more susceptible to ethanol extracts of S.china(root).Ethanol extract is also effective against *E.coli* (11mm), *P. aeruginosa* (13mm), *B. subtilis* (20mm). While methanol extract is effective against *S.aureus*(12mm),*P.aeruginosa* (12mm), *Shigella* (13mm).

The crude ethanol and methanol extract showed most significant zone of inhibition against almost all bacterial strains. These results can be compared with Ciproflaxin(standard antibiotic)[15]

Sweet Obtuse Leaved Mimusops (*Wattakaka volubilis*)

The Antibacterial activitiy was performed by using well diffusion method and tube dilution method. The ethanolic extract of W.volubilis posses potential antibacterial activity against *S.aureus, B.subtilis, S.typhimurium, E.coli, P.aeruginosa, Klebsiella species*.

The anti fungal activity was also performed by agar well diffusion merthod. The ethanolic extract shows inhibitory effect against *Aspergillus niger* and *Claviceps purpurea*. The MIC ranged from500-1000µg/ml.

From the literature survey it was found that the ethanolic extract of the leaves possess antibacterial [16] and aqueous, petroleum ether, methanol, ethyl acetate extract of the plant possess antibacterial and antifungal properties [17].It is interesting to know that cultures like *S.aureus, P.aeruginosa* were inhibited by the extract which are often the causative agent for boils and abcesses [18]. The plant has been traditionally used in the treatment of boils and abcesses [19].

Indian Beech (*Pongamia pinnata*)

Anti bacterial activity of flower pigment extract of *P.pinnata* was carried out by agar well diffusion method [20]. The crude extract, showed maximum inhibition for the species *S. aureus* (24 mm) and *B.cereus* (23 mm) which almost equal to antibiotic Streptomycin inhibition followed by *E.coli* (22 mm) , *B.subtilis* (19 mm), *E.aerogenes* (19 mm) , *K.pneumoniae* (17 mm) at the concentration of 1600 µ g Chloroform extract of *P.pinnata* bark showed an inhibition zone of 14.51 mm in *S.aureus*, 14.18 mm in *B.subtilis*, 9.38 mm in *E.coli* at concentration of 1000 µg / ml[21].

At the same time petroleum ether extract of P.pinnata leaves showed an inhibition zone of 11 mm in *E.coli*, 14 mm in *E. aerogenes*. Crude P.pinnata flower extract showed a minimum inhibition at 400 µ g in *B.subtilis* (6 mm) , *S.aureus* (10 mm), *E.aerogenes* (7 mm) the results are similar to that of crude ethanol flower extract of Rumex vesicarius [22]. The finding reviewed that the floral extracts showed better inhibition activity than bark extracts (chloroform) of *P.pinnata*.

Indian Bdellium Tree (*Commiphora myrrha*)

The resin extracted from *Commiphora myrrha* is currently used in the treatment of UTI diseases and in the therapeutic formulae [23].The flavonoids present in C.myrrha is responsible for its anti bacterial, anti fungal, anti pathogenic activity. In the current study the methanolic extract of C.myrrha extract showed the zone of inhibition of at least 12mm against *P.aeruginosa* which is better than Cefotaxime(24mm) and exhibits 14mm against *E.coli* which is better than cefotaxime(16mm). Enterococci species is more sensitive to C,myrrha.The result signifies that the MIC against enterococci is high (3.12 mg/mL). The ether extract is effective against *C.albican*. The minimum inhibitory concentration (MIC) of *C.albicans* is found to be 10mg/ml [24].

Indian Mulberry (*Morinda tinctoria*)

M.tinctoria has excellent anti microbial activity against human and plant pathogenic bacteria and fungi. The chloroform fruit extract of M. tinctoria exhibited high anti microbial activity against the human pathogens such as *P. aeruginosa, S.aureus, E.coli and C.albicans* [25].

Further the same extract also significantly inhibited the spore germination and mycelial growth of plant pathogenic fungi. A compound isolated from their roots named 1- nephoxy – 2 – fornyn – 3 – hydroxyl anthraquinone suppressed the cytopathic effect of HIV infected MT – 4 cells, without inhibiting cell growth it is also found to kill *M.puverculosix*. a concentration of extract of leaves killed 89 of the bacteria in a test tube, almost as effective as a leading anti – TB Drug (rifampicin).

Strychnine Tree (*Strychnos nux vomica*)

The studies indicate strychnos-nux-vomica has anti-bacterial, anti fungal and spermaticidal properties [26]. The invitro anti microbial activity was carried out by agar well diffusion method.The anti bacterial activity of strychnos-nux-vomica extracted from n-butanol, methanol, distilled water were tested. Maximum zone of inhibition against *S.aureus* (15mm) and *Salmonella*(13mm).

The anti-fungal activity of strychnos-nux-vomica extracted from n-butanol,methanol,distilled water were tested.Maximum zone of inhibition against *A.terreus*(20mm).But the aqueous extract has no anti microbial activity [27].

The Portia Tree (*Thespesia populnea*)

The anti microbial activity was carried out by agar well diffusion method. Petroleum ether extract at 25mg/ml and 50mg/ml were found to have significant anti bacterial activity against *S.aureus* and *S.pyogenes, E.coli, P.aeruginosa.* Ethanolic extract was found to have moderate and aqueous extract was found to have mild activity [28].

The petroleum ether extract at 25mg/ml and 50mg/ml were effective against *C.albicans* and *A.flavus*. While ethanol and aqueous extract have less potent anti fungal activity. The responsibility of the plant's anti microbial activity is due to the presence of naphthoquinones [29].

Balloon Plant (*Cardiospermum halicacabum*)

The process was carried out by other well diffusion method. The ethyl acetate extract of *C.halicacabum* exhibited maximum zone of inhibition against *Bacillus* (17 mm), *Brochothrix* (18 mm), *Ancyclobacter* (20 mm), *Clavibacter* (16 mm) were observed. The n – butanol extract of C.halicacabum showed maximum zone of inhibition against *Bacillus* (25 mm),*Borchothrix* (30 mm), *Ancyclobacter* (25 mm), *Clavibacter* (30 mm) Ethanolic extracts of leaf and stem against *S.aureus* with a maximum inhibitory zone of 3 mm each followed by benzene 2 mm each, acetone 1 mm and 2 mm, chloroform 0 mm and 1 mm, aqueous 0.5 mm and 0 mm [30].

Garden Quinine (*Clerodendrum inerme*)

In the present investigation,in-vitro anti microbial efficacy of the crude extracts of *C.inerme* (leaves and roots) was quantitatively assessed on the inhibition zone and MIC. The MIC of crude extracts of leaves and roots was determined at the concentrations ranging from 0.078 to0.625 mg/ml.The most susceptible bacteria and fungi are *S.aureus* and *A.niger*.The inhibition zones ranges from 7.0±0.0 to 16±0.47 for the most of tested strains [31]. The ethyl acetate and methanol extract was found to be effective against, *P.aeruginosa, S.typhi, S.dysentriae.*

The ethyl acetate extract of *C.inerme* was effective against *T. mentegrophytes, T. rubrum* and *T.tonsurans*.The leaf and stem extracts of *C.inerme* revealed that they are more effective agaist plant pathogens than human pathogens [32].

Ivy Gourd (*Coccinia grandis*)

The antibacterial activity was carried out by well diffusion technique. Ampicillin and amoxicillin are used as nutrient agar medium. Water extract of leaves and ethanol extract of stem showed high activity against *Shigella boydi* and *P. aeruginosa*.

Water extract of leaves showed moderate activity against *Salmonella typhi,Klebsiella pneumonia, Pseudomonas aeruginosa*. Hexane extract of leaves were active against all. Gram positive and gram negative bacteria ethyl actetate fraction of stem showed moderate activities against all bacteria except *Staphylococcus aureus*.

Ethanol extract effective against *Pseudomonas aeruginosa* (9 mm zone of inhibition) ethyl acetate and hexane extract effective against *Salmonella typhi*, *Pseudomonas aeruginosa, Staphylococcus pyogenes, Salmonella typhi* (7 mm zone of inhibition) water extract effective against *Shigella boydii* (11 mm zone of inhibition) [33].

Ethanol extract is more significant in producing anti fungal activities. Aqueous extract is effective against both strains are *Candida albicans*. Ethanolic extract is effective against *Aspergillus niger* and both strains of *Candida albicans* [34].

DISCUSSION

Unlike other chronic diseases, skin disorders are unique in the sense; they carry a high level of morbidity than mortality. Remissions and recerbations are common with dermatological conditions. Medicines which are potent, time tested, economical and without drastic side effects is need of the hour. In that way, a list of single herbs and medicines which are popular in traditional Siddha medicines are being reviewed and documented. Recent in-vitro study results conducted throughout the World gives more evidence regarding the efficacy of the single herbs which has been in use from time immemorial. So it is concluded that the Medicine preparations documented centuries back by our Great Siddhars are relevant even today which is evident through the in-vitro studies carried out with Universal parameters.

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