Review Article

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A Review on Pharmacological Actions of Herbs Used In Siddha Formulations

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ABSTRACT

Siddha system of medicine is a distinct therapeutic science with many single or compound formulations. In Siddha system medicine is classified into 32 internal and 32 external types of medicines. In that medicines were predominantly made up of herbs. These herbal and herbo-mineral medicines has a great therapeutic value against various aliments because of their naturally occurring active principles, Many pharmacological and phytochemical studies were proven that the following herbs Andrographis paniculata (Nilavembu), Cypreus rotundus (Koraikkizhangu), Sida acuta (vattatiruppi), Rotheca serrata (siruthekku), Anacyclus pyrethrum (akrakaram) has various chemical constituents such as alkaloids, flavonoids, amides, terpinoids, steroids etc., these biologically active substance cures various ailments such as fever (suram), leucoderma (ven-kustam), sinusitis (pinisam), Arthritis (keel vatham) when it was added in the siddha medicinal formulations in an appropriate ratio. In this article discussing about the pharmacologically active substance of siddha herbs and their bioactivity on the living organisms and herbal siddha preparation were also listed with a proper references.

KEY WORDS: ***Siddha medicine, Siddha herbs, Pharmacological actions, Bioactivity***

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1. Introduction

Siddha system of medicine is the oldest traditional system of healing that originate in southern part of India. It is based on the combination of medicinal practice and spiritual disciplines. Siddha medicine were derived from the nature sources i.e either herbs or metalo-mineral forms, Primarily herbal preparation were predominantly used to heal the disease. The World Health Organization (WHO) has listed 21,000 plants, which are used for medicinal purposes around the world. Among these 2500 species are in India, out of which 150 species are used commercially on a fairly large scale. India is the largest producer of medicinal herbs and is called as botanical garden of the world [1].

The current review focuses on pharmacological actions of herbs used in siddha formulations. These herbs were used in the preparation of herbal and herbo-mineral medicines with great therapeutic value.

2. Materials and Methods

2.1. Study design

A literature review on pharmacological actions of herbs used in siddha formulations.

2.2. Data collection

The information were collected by referring the authorised articles published in well classed journal's and siddha literatures by using electronic search.

2.3. Words used for citation

Botanical names of the corresponding plants, distribution, pharmacological actions, constituent etc

2.4. Review of herbs

Medicinal plants are considered a repository of numerous types of bioactive compounds possessing varied therapeutic properties. According to the World Health Organisation survey report approximately 80% of the people in developing countries depend on traditional herbal related formulations to cure diseases [2]

Table 1: Herbs used in siddha formulations

S.no	Botanical name	Tamil name	Family	Part used
1.	*Andrographis paniculata*	Nilavembu	Acanthaceae	Whole plant
2.	*Cypreus rotundus*	Koraikkizhangu	Cyperaceae	Rhizome
3.	*Sida acuta*	Vattatiruppi	Malvaceae	Root
4.	*Rotheca serrata*	Siruthekku	Verbenaceae	Root
5.	*Anacyclus pyrethrum*	Akarakaram	Asteraceae	Root

2.5. *Andrographis paniculata*

Kingdom : Plantae
Division : Tracheophyta
Class : Magnoliopsida
Order : Lamiales
Family : Acanthaceae
Genus : Andrographis
Species : Andrographis paniculata

A.Paniculata (Acanthaceae) is known as Nilavembu in siddha is a herb reaching upto a heigth of 30-110 cm with glaborous leaves and white flowers with purple spotted petals. It is seen as a common weed in South India and also present in states of Assam, Missoram and Himachal Pradesh [3]. It is used to cure malaria, leucoderma, jaundice, abscess, wounds and eczema [4]. Diterpenoids andrographolide are major bioactive components. The compounds from the plant have been reported to have anti-inflammatory [5], anti-cancer [6], antimicrobial [7] and hepatoprotective [8], anti-viral activities [9].

Major Siddha formulations using A. paniculata as an ingredient includes kabasura kudineer, Nilavembu kudineer, vathasura Kudineer [10].

Taste: Bitter [65]

Therapeutic uses: Arthritis, fever, sinusitis, syncope [65]

Table 2: Pharmacological actions of *Andrographis paniculata*

S.no	Constituents	Class	Bioactivity	Reference
1.	Bis-andrographolide	Terpene	Anti-HIV	11
2.	Ninandrographolide	Terpene	Immunostimulant	12
3.	Oxygenatedflavones	Flavonoid	Anti-bacterial	13
4.	OroxylinA	Flavonoid	Anti-cancer	14

5.	Andrographolide	Diterpene	Anti-inflammatory, anti-cancerous, anti-microbial and hepatoprotective	5,8

2.6.*Cypreus rotundus*

Kingdom : Plantae
Division : Tracheophyta
Class : Magnoliopsida
Order : Poales
Family : Cyperaceae
Genus : Cypreus
Species : Cypreus rotundus

C. rotundus (Cyperaceae) is a perennial sedge plant and is known as Koraikkizhangu in Siddha This is seen distributed all over India [15]. The drug is used as anti microbial, cytotoxic, larvicidal [16], anti-inflammatory [17]and anti-malarial activities [18]. This drug also possess analgesic, antispasmodic, astringent, diaphoretic, diuretic properties and is used as tonic and vermifuge [15]. Major Siddha formulations using C. rotundus as an ingredient includes Athimathura mathirai, Adathodai chooranam, sivathai chooranam, sukkutailam, Sanjeevi theneer, Chandraprakasa mathirai, kabasura kudineer, Thathu busti kuligai, Parangipattai chooranam, Milagu thailam [10].

Taste : Bitter [65]

Therapeutic uses : Hypertension, fever, thirst [65]

Table 3: Pharmacological actions of *Cypreus rotundus*

S.no	Constituents	Class	Bioactivity	Reference
1.	Vitexin	Flavonoid	Anti-viral, anti-cancerous	19,20
2.	Cyperene	Sesquiterpene	Apoptotic, anti-oxidant, anti-bacterial	21,22
3.	Kobusone	Sesquiterpene	Anti-inflammatory, analgesic	16
4.	Cyperenone	Sesquiterpene	Antiulcer	17
5.	Eugenol	Ether-alcohol	Antiseptic	18

2.7. *Sida acuta*

Kingdom : Plantae
Division : Tracheophyta
Class : Magnoliopsida
Order : Malvales
Family : Malvaceae
Genus : Sida
Species : Sida acuta

S. acuta (Malvaceae) and is known as Vattatiruppi in siddha. This is a common weed of waste plains and grows gregariously and is present in the tropical regions in India. The whole plant is effective in treating snake bites and haemorrhagic effects of Bothrops atrox venom [23], and is also used for the treatment of urinary infections [35]. The drug possess antimalarial activity [24], anti-ulcer [25], hepatoprotective activity [26], cardiovascular activity [27], anticancer [28] and anti-inflammatory activities [29].

The phytochemical present in this species are vasicine, ephedrine and cryptolepine, ecdysterone, β-sistosterol, stigmaterol, campesterol, tannins, phenolic compounds, evofolin-A and B, scopoletin, loliolid and 4-ketopinoresinol, polyphenol, sesquiterpene and flavonoids [30-33]. Tannin obtained from this plant is used to cure ailments like leucorrhoea, rhinorrhea and diarrhea [34].

Major Siddha formulations using S. acuta as an ingredient is Kabasura Kudineer [10].

Taste : Astringent [65]

Therapeutic uses : Arthritis, diarrhea, fever, itching, scabies [65]

Table 4: Pharmacological actions of *Sida acuta*

S.no	Constituents	Class	Bioactivity	Reference
1.	Vasicine	Alkaloid	Antibacterial	35
2.	Sistosterol	Steroid	Cytotoxic, anti-microbial	36
3.	Evofolin	Phenyl propene	Anti-microbial	37
4.	4-ketopinoresinol	Lignan	Anti-oxidant	38
5.	Loliolid	Monoterpenoidhydroxylactone	Oxidative stress protection, anti melanogenic	39

2.8. *Rotheca serrata*

Kingdom : Plantae
Division : Tracheophyta
Class : Magnoliopsida
Order : Lamiales
Family : Lamiaceae
Genus : Rotheca
Species : Rotheca serrata

R. serrata (syn. Clerodendrum serratum), (Verbenaceae) is a shrub and is known as Ciruteku in Siddha. It is found upto an altitude of 1200m in lower Himalayas distributed in Kumaun, West Bengal and Bihar [40]. The major chemical constituents present are D-Mannitol, gamma-sitosterol, stigmasterol, glucose, oleanolic, queretaroic and serratagenic acid [41-45]. It shows antiasthamatic, antispasmodic [46], antiinflammatory and antipyretic activities [47].

Major Siddha preparations using R. serrata as an ingredient includes Sarabungavilvathi ilakam, Rasakanthi melugu, kabasura Kudineer , Notchi thailam, Parankipattai rasayanam, vadha sura Kudineer [10].

Taste : slightly bitter [65]

Therapeutic uses : Asthma, fever, myalgia, sinusitis [65]

Table 5: Pharmacological actions of *Rotheca serrata*

S.no	Constituents	Class	Bioactivity	Reference
1.	D-Mannitol	Alcohol	Diuretic	48
2.	Serratagenic acid	Triterpenoid	Antibacterial	49
3.	Stigmasterol	Steroid alcohol	Anti-inflammatory	50
4.	Oleanolic acid	Triterpenoid	Anti-tumour, anti-fungal,anti inflammatory	51
5.	Verbacoside	Sterol	Anti proliferative	52

2.9. *Anacyclus pyrethrum*

Kingdom : Plantae
Division : Tracheophyta
Class : Magnoliopsida
Order : Asterales
Family : Asteraceae
Genus : Anacyclus
Species : Anacyclus pyrethrum

A.Pyrethrum (Asteraceae) is known as Akarakaram in siddha. It is perennial procumbent herb native to North Africa and is cultivated at the elevation of 900m in Jammu and Kashmir [53]. The phyto constituents present in this drug beolongs to the class of amides, isoflavones and alkaloids [54-57]. The drug possesses immunomodulatory [58], anticonvulsant [59], antidepressant [60], antidiabetic [61]and antibacterial activities [62].

Major Siddha formulations using A. pyrethrum as an ingredient includes Sarabungavilvathi ilakam, kabasura Kudineer, korosanai mathirai, nanthi mezhugu, thuthulai nei , vasanthakusmagaram mathirai [10].

Taste : sweet [65]

Therapeutic uses : Arthritis, dental problem, dryness of tongue, epilepsy, fever, tonsillitis [65]

Table 6: Pharmacological actions of *Anacyclus pyrethrum*

S.no	Constituents	Class	Bioactivity	Reference
1.	Pellitorine	Alkaloid	Anti-diabetic, anti-cancerous, anti-bacteria, anti-inflammatory	61
2.	Anacyclin	Amide	Anti-inflammatory	56
3.	Sesamin	Amide	Anti-cancerous	56
4.	Genistein	Isoflavone	Anti-cancerous	63
5.	Biochanin	Isoflavone	Anti-inflammatory, neuroprotective	64

3. Conclusion

According to the findings, herbs taken to the study has a diverse pharmacologically active substances and those components has a marked value of bioactivity in human being. Either the herb used singly or in a formulation has a wide range of therapeutic value in curing diseases

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