



Review Article

HERBOMINERAL FORMULATION'S SAFETY AND EFFICACY EMPLOYED IN SIDDHA SYSTEM OF MEDICINE: A REVIEW

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ABSTRACT

Siddha is an ancient holistic system of medicine that gives importance to physical, mental as well as the spiritual wellbeing of mankind. This system has been developed by Siddhars, ancient supernatural, spiritual saints in the south India, particularly in Tamilnadu. The formulations of Siddha medicine consist of substances from herbal, mineral/metal and animal origins which are processed pharmaceutically to have therapeutic effects. Among three sources Siddhars widely used metals and minerals, owing to their characters like longer shelf life, greater efficacy with smaller dose and the potential therapeutic value compared to herbal formulations alone. Present review focuses on composition, traditional uses and scientific work done on herbomineral formulations of Siddha system of medicine. The information on Siddha herbomineral formulations was acquired from prehistoric Siddha books and by literature searching in electronic databases such as Science Direct, Pub Med, Pub Med Cochrane and Google-Scholar for publications up to August 2018. Thirteen herbomineral formulations have been identified and most frequently used metals in these formulations are Iron, Mercury, Sulphur, Silver, Gold, Zinc and Arsenic. Here in more than 40 references have been cited. The current review provides a background for toxicity and efficacy studies on Siddha mineral preparations, particularly focusing on scientific validation of these formulations in the treatment of various diseases.

Keywords: Herbomineral formulations, Minerals, Siddha, Traditional medicine.

INTRODUCTION

Traditional Systems of medicines are playing a key role in meeting the global health care needs. India has different recognized systems of medicine. They are Ayurveda, Siddha, Unani, Yoga, Naturopathy Homoeopathy and Sowa Rigpa ¹. Among them Siddha is the unique system of medicine which is originated from Tamil nadu and has its origins in Tamil language ². Literally the word “Siddha” means “established truth”³. Siddha system of medicine is claimed to alleviate the root cause of the diseases by maintaining the ratio of Vatham, Pitham and Kapham. The origin of the Siddha system of medicine is attributed from ancient saint called Siddhars⁵.

According to Siddha system of medicine, health is defined as the state of physical, mental, social and spiritual wellbeing of human ⁶. Siddha system believes that, the universe is composed of five primordial elements which are called Panchaboothams, namely Earth, Water, Fire, Air and Sky. Among metals, Gold is considered as earth, Lead as water, Copper as fire, Iron as air and Zinc as space in Siddha system of medicine. Any changes in these Panchaboothams are known to reflect on human's physical, mental and spiritual health ⁴. Apart from these metals Mercury, Sulphur and Copper are some of the most important metals employed in Siddha system of medicine. Metals and Minerals employed in Siddha medicine have advantages like efficacy at small doses, lack of unpleasant odour or taste, faster action and shelf life of hundreds of years compared to plant origin medicines alone and they does not lose their potency on long time storage ⁷.

In this system of medicine the commonly used formulations in combination with minerals are Parpam (mineral/metallic oxides),

Chendhooram (mineral/metallic sulphides), Chunnam (caustic or major oxides) and Pathangam (sublimation). Among them Parpam and Chendhooram type of medicines are widely used, having potential therapeutic values². Parpam retains their potency (shelf life) for 100 years and chendhooram for 75 years ⁷.

Thus the current review aims to explore about herbomineral formulations used in Siddha system of medicine with emphasis on purification, composition, traditional uses and toxicity and efficacy studies done on herbomineral formulations.

Purification and Detoxification of Metals for Siddha Medicinal Preparations /Formulations

Iron

Pulverized powders of *Lilium* root (280 gm) and *Alexandrian laurel* roots (280 gm) were mixed with iron (35 gm), kept the mixture in a new mud pot closed with proper mud lid. This pot was heated followed by the addition of fermented old rice water for day and night. In between the heating old rice water was added to compensate the loss on heat. Finally cooled the pot and purified and detoxified iron was collected ⁷.

Lead

Molten lead was poured in a pot containing a mixture of turmeric powder and juice of five leaved *Vitex negundo*. Repeated the same procedure for two times and purified lead was collected. The stool of bandicoot can also be used for the purification of lead ⁷.

Copper

The copper was made into thin sheets which are looking like the wings of white ant. These sheets were heated and soaked individually in *Dolichus biflorus* decoction, leaves juice of *Tamarindus indicus*, juice of Indian *Aloe vera*, sour butter milk and juice of *Alternanthera sessilis* plant for seven times ⁷.

Zinc

157.50 gm of *Rosary* nut was prepared as paste by rubbing on the rough surface. 39.40 gm of honey obtained from flowers of *Alexandrian laurel* along with its pollen grains, 35 gm of Zinc powder, *Rosary nut* paste were mixed together and insolated (insolated means exposed to the rays of the sun; or simply sun dried) for one month to get purified and detoxified Zinc ⁷.

Gold

Gold was made into sheets and the paste of red earth soil was applied on the gold sheets. Gold sheets were placed in earthen vessel, heated and washed. Same process was repeated for six times and purified gold was collected ⁷.

Silver

The melted silver was made into thin sheets. Those sheets were heated and soaked in the juice of *Solanum nigrum* or the juice of *Mimusops elengi* flower or *Argemone Mexicana* or *Momordica hispida* for several times to collect the purified silver ⁷.

HERBOMINERAL FORMULATIONS IN SIDDHA SYSTEM OF MEDICINE

The formulations mentioned below are the herbomineral preparations. They are namely;

Table 1: Herbomineral formulations used in Siddha system of medicine

S. No.	Name of the Formulation
1.	Gowri chinthamani chendooram
2.	Ayaveera chendooram
3.	Kaala mega naarayana chendooram
4.	Chandra rasa parpam
5.	Padikapoongavi chendooram
6.	Arumuga chendooram
7.	Ayakantha chendooram
8.	Namachivaya chendooram
9.	Aya Mezhu
10.	Ilinkac centuram/ Linga chendooram
11.	Iracac centuram/Rasa chendooram
12.	Tanka uram
13.	Vediuppu chendooram

Gowri Chinthamani Chendooram (GCC)

The ingredients of Gowri chinthamani chendooram are as follows ⁸

Table 2: Ingredients of Gowri chinthamani chendooram

S. No.	Name of the metal		Quantity
	Siddha name	Scientific name	
1.	Rasam	Elementary Mercury	33.33 %
2.	Gandhakam	Elementary Sulphur	33.33 %
3.	Vengaram	Sodium tetra borate	33.33 %

Dosage

100 mg of Gowri chinthamani chendooram twice in a day after food with sufficient amount of honey and or other adjuvants like Thirikatugu choornam ^{7,8}.

Traditional Uses

Gowri chinthamani chendooram and Thirikatugu choornam were grounded along with sufficient amount of honey and this preparation is known to cure 18 types of colic, 16 types of gastritis, chronic fevers, rat bite, pneumonia, bronchitis, dyspnoea, Tuberculosis (TB), bronchial asthma, piles, jaundice, inflammation of male and female genital organs accompanied by severe pain, pain in the tongue and ulcerative bites ⁹. GCC and Chooram composed of *Myristica fragrans*, *Syzygium aromaticum* and *Annona squamosa* along with honey is the excellent preparation for irritative stomach and 12 types of diarrhea. GCC, wild *Amorphophallus*, *Chebulicmyrobalan*, dry *Gingiber officinale* and *Piper longum* along with honey is employed to cure all types of piles and fistula ¹⁰. 18 types of urinary obstructions by the growth of small tissues, 20 types of poly urea and excessive heat are alleviated by GCC along with destructive distillation oil of *Tanner's cassia* ¹¹.

Dietary Instructions

Patients are advised to avoid salt, tamarind, sour diet, alcohol, tobacco, bitter gourd and non-vegetarian foods during treatment ⁸.

Earlier Data Published on Gowri Chinthamani Chendooram

- V. Velpandian *et al* conducted a clinical study to evaluate the efficacy and safety of GCC in the treatment of osteoarthritis. 50 arthritic subjects of either sex were selected for clinical trials and were given a dose of 100 – 200 mg thrice a day with Thirikadugu Chooram and sufficient amount of honey after meal for 30-60 (depends upon the severity) days. The formulation was observed to significantly reduce pain, inflammation, joint movements and joint swelling in majority of the patients without any adverse effects ¹².
- GCC showed antimicrobial activity against Gram-negative organisms such as *Neisseria mucosa*, *Klebsiella pneumonia*, *Pseudomonas aeruginosa* at minimum inhibitory concentrations (MIC) of 100µg/ml, 150µg/ml and 150µg/ml respectively by agar well diffusion method ¹³.
- The anti-cancer activity of GCC was evaluated by Mantela D and his colleagues in Govt. Siddha Medical College, Chennai. They found that GCC is a potential anti-cancer agent against human cancer cell lines called *HeLa* by methylthiazolyl diphenyl- tetrazolium bromide (MTT) assay. The IC₅₀ value of the GCC was found to be less than 50 µg/ml ¹⁴.
- The acute and chronic toxicity studies in wistar albino rats were conducted by Shanmugapriya P. *et al.* and they concluded that single dose of GCC up to 640 mg/100gm body weight did not reveal either mortality or any adverse effects and no behavioral changes. Chronic toxicity studies revealed that GCC at 160 mg/100gm body weight for 90 days caused the renal and hepatic changes ¹⁵.

Ayaveera Chendooram (AVC)

The ingredients of Ayaveera chendooram are as follows ⁸

Table 3: Ingredients of Ayaveera chendooram

S. No.	Name of the metal		Quantity (%)
	Siddha name	Scientific name	
1.	<i>Ayapodi</i>	Elemental Iron	25
2.	<i>Rasam</i>	Elemental Mercury	25
3.	<i>Veeram</i>	Mercuric chloride	25
4.	<i>Nattu navacharam</i>	Ammonium chloride	25

Dosage

50 mg of Ayaveera chendooram twice a day with honey or palm jaggery or palm sugar before food is advisable ⁸.

Traditional Uses

Ayaveera chendooram is used to cure colic, arthritis, rheumatism, leprosy and poisonous bites⁸.

Dietary Instructions

No dietary instructions were found.

Earlier Data Published on Ayaveera Chendooram

1. Vathasthambam or sciatica is a nerve dysfunction caused by compression of one or more lumbar or sacral nerve roots from a spinal disc herniation. Aya veera chendooram at dose of 130 mg twice a day with 5 ml of honey gives relief from pain present in lumbar region, buttock, hip and leg which are the major symptoms of vathasthambam (Sciatica) ¹⁶.
2. Sangeetha D., *et al* conducted acute toxicity study for 1 days and sub-acute toxicity study for 28 days in Swiss albino rats. They revealed that AVC was well tolerated, non-toxic and safe up to the dose of 400 mg/kg of b.w. in animals ¹⁷.

Kaalamega Naarayana Chendooram (KMC)

The ingredients of Kaalamega naarayana chendooram are as follows⁸.

Table 4: Ingredients of Kaala mega naarayana chendooram

S.No.	Name of the metal		Quantity (%)
	Siddha name	Scientific name	
1.	Vaalairasam	Mercury distilled out from cinnabar	42
2.	Lingam	Mercuric sulphide	21
3.	Aritharam or Thalagam	Arsenic trisulphide	14
4.	Gandhakam	Elemental sulphur	17
5.	Manosalai	Arsenic disulphide	6
6.	Vediuppu cheyaner	Potassium nitrate	Q.S

Q.S=Quantity Sufficient

Dosage

Kaalamega naarayana chendooram should be given after food at a dose of 25-50 mg twice in a day with honey or any suitable adjuvants like Thoothu valai gritham, Pancha deepakkini legium⁸.

Traditional Uses

15 days daily consumption of Kaalamega naarayana chendooram along with Thoothuvalai gritham is known to cure 20 types of kapha disseses. The Chendooram along with Pancha deepakkini legiyam effectively treats 8 types of gastritis. KMC given with honey 21 types of meganoigal will be cured ⁸.

Dietary Instructions

During treatment with KMC patients are advised to avoid salt, tamarind, sour diet, alcohol, tobacco, bitter gourd and non-vegetarian foods ⁸.

Earlier Data Published on Kaala Mega Narayana Chendooram

1. G.Seethalakshmi *et al* used kalamega narayana chendooram to treat Sciatica. KMC at 50 -100 mg and 1-2 gm of Thirikadugu chooranam along with 5ml honey twice a day was found to reduce the pain in lumbar region, numbness and burning sensation which are commonly observed in vathasthambam (sciatica) ¹⁶.
2. Ramkumar G G., *et al* performed the acute toxicity study of KMC in Kodiveli Verpattai Chooranam (KVC) on female Wistar albino rats and 28 days repeated oral toxicity studies on both sex of Wistar albino rats. Acute oral toxicity study revealed no mortality at the dose of 2000 mg/kg body and 28 days repeated oral toxicity studies also revealed no mortality and no specific changes are observed in haematological, hepatic, renal and other biochemical parameters. No gross morphological and histological changes are observed in the organs. Finally they concluded that KMC in KVC is the safest drug for humans up to 565 mg/kg b.w. as illustrated in the literature ¹⁸.

Chandra Rasa Parpam (CRP)

Ingredients of Chandra rasa parpam are as follows ⁸.

Table 5: Ingredients of Chandra rasa parpam.

S. No.	Name of the metal		Quantity (%)
	Siddha name	Scientific name	
1.	Purified jathilingam	Red sulphide of Mercury	8
2.	Purified Vediuppu	Potassium nitrate	24
3.	Purified Indhuppu	Sodium chloride (impura)	16
4.	Purified Sotruppu	Sodium chloride	8
5.	Purified Navacharam	Ammonium chloride	20
6.	Purified Annapethi	Ferrous sulphate	2
7.	Purified Thurusu	Copper sulphate	2
8.	Purified Padikaram	Ammonium potassium sulphate	6
9.	Purified Poneer	Fuller's earth	6
10.	Purified Venkaaram	Sodium baborate	8

Dosage

CRP at a dose of 16.25 -65 mg should be administered along with palm jaggery only once in the morning for 3-5 days according to the toleration of patient or as directed by the physician ⁸.

Traditional Uses

Chandra rasa parpam is known to be effectively employed in the treatment of anemia, dropsy, jaundice, ascities, neuralgia of the abdomen, gonorrhea, leprosy, anuria, oliguria, chronic fever joint infections and eight types of peptic ulcers ¹⁹.

Dietary Instructions

Patients are instructed to take Salt free diet and milk during medication ⁸.

Earlier Data Published on Chandra Rasa Parpam

No earlier data is available on Chandra rasa parpam.

Padika Poongavi Chendooram (PPC)

Ingredients of the Padika poongavi chendooram are as follows ⁹

Table 6: Ingredients of Padika poongavi chendooram

S.No.	Name of the metal		Quantity (%)
	Siddha name	Scientific name	
1.	Purified Kavikkal	Aluminium silicate	63
2.	Porintha padikaram	Aluminium potassium sulphate	37

Dosage

PPC should be given at a dose of 200-400 mg twice a day with cane sugar, ghee, butter or milk after food ⁸.

Traditional Uses

Padika poongavi chendooram is known to be effectively employed in the treatment of menorrhagia ⁸.

Dietary Instructions

No dietary instructions were found.

Earlier Works Done on Padika Poongavi Chendooram

No earlier studies done on Padika poongavi chendooram.

Arumuga Chendooram (AC)

Formulation of Arumuga chendooram contains the following ingredients ²⁰

Table 7: Ingredients of Arumuga chendooram

S. No.	Name of the metal		Quantity (parts)
	Siddha name	Scientific name	
1.	Venkaram	Borax	8
2.	Gandhakam	Sulphur	9
3.	Rasam	Iron metal	5
4.	Kaantham	Magnetic oxide of iron	7
5.	Ayapodi	Elemental iron	12
6.	Induppu	Rock salt	4

NA= Not Available

Dosage

Arumuga chendooram should be given at a dose of 260 mg with honey once in a day ²¹.

Traditional Uses

It is mainly used to treat arthritis²⁰.

Dietary Instructions

No dietary instructions were found.

Earlier Work Done on Arumuga Chendooram

1. Albert Santhanaraj Deepak *et al.*, evaluated the nephroprotective activity of Arumuga chendooram in Methimazole induced hypothyroid rats. The hypothyroid

and its associated problems were ameliorated by supplementation of Arumuga chendooram. It also restored the kidney markers. Finally they concluded that the Arumuga chendooram possesses potential renoprotective effects²².

2. Acute and sub- acute toxicity studies were performed by Ramamurthy Murugan *et al.* Acute oral toxicity study was done in female rats at 2 g/kg b.w. and sub-acute chronic study was performed at 12 mg/kg b.w., 24 mg/kg b.w. and 48 mg/kg b.w. AC did not produced mortality even at higher dose also and no abnormal changes were observed in haematological, biochemical and histopathological parameters ²¹.

Namachivaya chendooram (NCC)

Ingredients of Namachivaya chendooram are as follows ⁷

Table 8: Ingredients of Namachivaya chendooram.

S. No.	Name of the metal		Quantity (g)
	Siddha name	Scientific name	
1.	Rasam	Mercury	35
2.	Saathilingam	Cinnabar	35
3.	Veeram	Perchloride of mercury	35
4.	Pooram	Calomel	35
5.	Thalagam	Yellow arsenic	35
6.	Kaantham	Magnetic oxide of iron	8.75

Dosage

65 mg of NCC twice in a day with *Aloe vera* juice or honey is advisable ⁷.

Traditional Uses

Namachivaya chendooram is known to cure venereal diseases, cervical cancer and penile cancer ⁷.

Dietary Instructions

No dietary instructions were found.

Earlier Work Done on Namachivaya Chendooram:

SiHa cells were treated with Namachivaya chendooram and the cell viability was measured. 80 µg/ml concentration of NCC greatly inhibited the growth of cancer cell lines. Dr. S. Saraswathy concluded that Namachivaya chendooram can be used as Anti-cancer agent against invasive cervical cell lines ²³.

Ayakaantha Chendooram (AKC)

The composition of Ayakaantha chendooram is as follows ⁸.

Table 9: Ingredients of Ayakaantha chendooram

S. No.	Name of the metal		Quantity (g)
	Siddha name	Scientific name	
1.	Ayapodi	Elemental Ironk	35
2.	Gandhakam	Sulphur	35
3.	Saathilingam	Cinnabar	5.1
4.	Venkaram	Borax	5.1
5.	-	Alum	5.1
6.	Indhuppu	Common salt	5.1
7.	Purified Navacharam	Ammonium chloride	5.1
8.	Kaantham	Magnet	8.75
9.	Purified Pooneer	Fuller's earth	5.1
10.	Soodan	Camphor	5.1

Dosage

Ayakaantha chendooram should be given at a dose of 100-200 mg twice in a day along with sufficient amount of honey, ghee or Pancha deepankkani choornam before food ⁷.

Diet Instructions

Patients are instructed to avoid foods like non-vegetarian foods, bitter gourd, agathi, tamarind, alcohol and tobacco during the treatment⁸.

Traditional Uses

Ayakaantha chendooram will be used to cure all types of anemia ⁸.

Dietary Instructions

No dietary instructions were found.

Earlier Work Done

Gayathri Devi V et al evaluated the physico-chemical properties of Ayakaantha chendooram by using various characterization techniques like Fourier transform infrared spectroscopy (FTIR), Raman Spectroscopy, X – ray diffraction (XRD) and Scanning Electron Microscope (SEM) with X-ray (EDAX). AKC has particles in nano size ²⁴.

Aya Mezhu (AM)

Aya mezhu contains the following ingredients ⁷

Table 10: Ingredients of Aya mezhu

S. No.	Name of the metal		Quantity (g)
	Siddha name	Scientific name	
1.	Ayapodi	Elemental Iron	70
2.	Venkaram	Fried Borax	35
3.	Purified Navacharam	Ammonium chloride	8.75

Dosage

Aya mezhu should be given at a dose of 2-4 gm with honey or decoction of *Foeniculum vulgare* seeds (anise seed) or dried *Zingiber officinale* decoction or ghee ⁷.

Traditional Uses

AM is known to be effectively employed in the treatment of eight types of paandu (anemia), jaundice, dropsy and gleet ⁷.

Dietary Instructions

Foods to be avoided during medication are *Onion*, *Indian hemp*, *Opium*, *Coconut* toddy, alcohol, butter milk, fermented old rice water, tamarind, and gooseberry. It is also advisable to avoid sexual contact during medication ⁷.

Earlier Data Published on Aya Mezhu

No earlier data is available on Aya mezhu.

Ilinkac Centuram (LC)/ Linga Chendooram

Ingredients of Ilinkac centuram are as follows ¹².

Table 11: Ingredients of Ilinkac centuram

S. No.	Name of the metal		Quantity
	Siddha name	Scientific name	
1.	Ilinkam	Cinnabar	1 lump
2.	Campirani	Benzoin	1 lump
3.	Karpuram	Camphor	NA

NA= Not Available

Dosage

Ilinkac centuram should be given at a dose of 65-130 mg along with honey or *Zingiber officinale* juice ¹².

Traditional Uses

Ilinkac centuram is known to cure delirium, dizziness, flatulence, stomach pain and anemia ¹².

Dietary Instructions

No dietary instructions were found.

Earlier Data Published on Ilinkac Centuram

- N.R. Pillai conducted the anti-pyretic, hypothermic and analgesic activity of LC at different dose levels. Linga chendooram at 100 mg/kg showed significant anti-pyretic activity against Brever's Yeast induced pyrexia when compared with the standard drugs acetyl salicylic acid and paracetamol in albino rats. LC upto 200 mg/kg did not show hypothermic effect in rats. LC showed analgesic activity against hot plate induced algesia at 100 mg/kg b.w. But LC at 200 mg/kg b. w. the drug did not show ed significant increase in activity ²⁵.
- A.Punitha et al evaluated the toxicity of LC in mice. In acute toxicity study, the animals treated with LC at a dose of 1000mg/kg were shown tolerance with negligible toxic signs. In sub acute toxicity study, the animals treated with 50,100,200 mg/kg of LC were shown significant changes in body weight, haematological parameters and in biochemical parameters during the dosing period of 28 days ²⁶.

Iracac Centuram (IRC)/ Rasa Chendooram

Ingredients of Iracac centuram are as follows ¹²

Table 12: Ingredients of Iracac centuram

S. No.	Name of the metal		Quantity (g)
	Siddha name	Scientific name	
1.	Iracam	Mercury	140
2.	Kantakam	Sulphur	35
3.	Talakam	Yellow arsenic	8

Dosage

Iracac centuram at a dose of 65-130 mg once in a day for 10 days along with sufficient amount of honey is advisable. Amukkara chooranam is also be used as adjuvant for IRC ¹².

Traditional Uses

Iracac centuram known to be effectively employed in the treatment of diabetes and piles ¹².

Dietary Instructions

Patients are advised to avoid tobacco and tamarind during medication ¹².

Earlier Data Published on Iracac Centuram

1. M. Jayabharathi *et al.*, conducted the acute and sub-acute toxicity studies of Iracac centuram in swiss albino rats. Single oral administration of IRC at 100 mg/kg b.w. revealed no toxicity and no mortality. 50 mg/kg b.w. and 100 mg/kg b.w. of IRC for 28 days revealed no sign of behavioral changes, hematological and biochemical abnormalities ²⁷.

Tanka Uram (TU):

Ingredients of Tanka uram are as follows ¹²

Table 13: Ingredients of Tanka uram.

S. No.	Name of the metal		Quantity
	Siddha name	Scientific name	
1.	Navaccaram	Ammonium chloride	NA
2.	Velvankam	Tin	NA
3.	Kantakam	Sulphur	NA
4.	Iracam	Mercury	NA
5.	Vetiupput tiravakam	Potassium nitrate	NA

NA= Not Available

Dosage

130-260 mg of Tanka uram with honey or pulverized *Withania somnifera* is advisable ¹².

Traditional Uses

Tanka uram is used to treat male and female reproductive disorders and white discharge on females ¹².

Dietary Instructions

No dietary instructions were found.

Earlier Data Published on Tanka Uram

No earlier data is available on Tanka uram.

Vediuppu Chendooram (VC)

The ingredients of Vediuppu chendooram are as follows ²⁸.

Table 14: Ingredients of Vediuppu chendooram

S. NO.	Name of the metal		Quantity
	Siddha name	Scientific name	
1.	Saltpetre	Salt of Potassium Nitrate	NA

NA= Not available

Dosage

The intended human dose of Vediuppu chendooram with water is 520 mg – 1040 mg per day ²⁸.

Traditional Uses

Vediuppu chendooram is used to treat eight types of abdominal disorders, uterus fibroids, urinary tract infections, dysuria, menopausal disorders, anorexia, anemia, ascitis and asthma. It can improve fertility in women. The vediuppu chendooram is also effective in the treatment of fever, swellings, rheumatic disorders, hemorrhage, gonorrhea, eye diseases and sore throat ²⁸.

Dietary Instructions

No dietary instructions were found.

Earlier Data Published on Vediuppu Chendooram

1. V. Thanigavelan *et al* did the acute and sub-acute toxicity studies in albino wistar rats. They concluded that Vediuppu chendooram is safe up to 300 mg/kg body weight in acute oral toxicity study. Repeated toxicity study of VC has revealed that up to 200mg/kg body weight all the treated animals have survived throughout the dosing period of 28 days found no toxicity. Whereas at the dose of 400mg/kg, exhibits mortality on 21st day of treatment ²⁸.

CONCLUSION

In India, Siddha and Ayurveda systems of medicine share similar concepts, except in the Siddha medicine the use of metal and minerals are predominant. Metals possess longer shelf life, greater efficacy with little dose and the potential therapeutic efficacy. The purification of these metals in Siddha system of medicine cuts toxicity and enhances efficacy. But due to myth of metal toxicity among public their clinical usage is minimal. And also minimal scientific validation has been carried out on these formulations as evident from the current review. Thus there is a strong need of preclinical and clinical evaluation of these formulations for their wide spread acceptance among public and scientific community.

Table 15: Various Herbomineral formulations in Siddha system of medicine

S. No	Name	Dosage	Vehicle/Adjuvants	Earlier Work Done	Reference
1.	Gowri chinthamani chendooram	100 mg twice in a day ⁷ .	Honey and other adjuvants like Thirikatugu are suitable vehicles for GCC ^{7,8} .	1. Clinical evaluation of Siddha drug Gowri chinthamani chendooram in the management of osteoarthritis. 2. In vitro evaluation of anti-cancer activity of Gowri chinthamani chendooram, Siddha medicine against HeLa cells. 3. Screening of common Siddha formulations for antimicrobial activity against respiratory pathogens. 4. Toxicological Screening of 'Gowri chinthamani chendooram'- a siddha metallic preparation.	V.Velpandin <i>et al.</i> , 2003. Mantela D <i>et al.</i> , 2015. Rajalakshmi sivaraman <i>et al</i> .,2016. Shanmugapriya <i>et al</i>

2.	Ayaveera chendooram	50 mg twice in a day ⁸ .	Suitable vehicles for AVC are honey, palm jaggery and palm sugar ⁸ .	1. Siddha system of medicine for treating Vathasthambam. 2. Acute and sub acute toxicity study on siddha formulation Ayaveera chendurum.	G.Seetha lakshmi <i>et al.</i> ,2017. Sangeetha D <i>et al.</i> ,2014.
3.	Kaalamega naarayana chendooram	25-50 mg twice in a day ⁸ .	Honey or adjuvants like Thoothu valai gritham, Pancha deepakkini legium are vehicles for KMC ⁸ .	1. Siddha system of medicine for treating Vathasthambam. 2. Acute and 28 days repeated oral toxicity studies of s Siddha drug Kalamega narayana chendooram in Kodiveli verpattai chooranam on wistar albino Rats.	G.Seetha lakshmi <i>et al.</i> , 2017. Ramkumar G G <i>et al.</i> , 2014.
4.	Chandra rasa parpam	16.25-65 mg once in a day ⁸ .	Palm jiggery is the best vehicle for CRP ⁸ .	No studies.	-
5.	Padika poongavi chendooram	200-400 mg once in a day ⁸ .	Suitable vehicles for PPC are cane sugar, ghee, butter or milk ⁸ .	No studies.	-
6.	Arumuga chendooram	260 mg per day with honey.	Honey is the ideal vehicle for AC ²¹ .	1. Nephro protective effect of Arumuga Chendooram in experimental hypothyroid rats. 2. Toxicological study of a Siddha sastric formulation Arumuga chenduram in rat model.	R. Albert Santhanaraj Deepak <i>et al.</i> , 2015. Ramamurthy Murugan <i>et al.</i> , 2016.
7.	Namachivaya chendooram	65 mg of NCC twice daily ⁷ .	<i>Aloe vera</i> juice or honey is the vehicles for NC ⁷ .	1. Anti-cancer activity of Namachivaya chendooram in <i>in-vitro</i> cell line models against invasive cervical carcinoma.	S.Saraswathy <i>et al.</i> ,2016.
8.	Ayakaantha chendooram	100-200 mg/kg twice daily ⁷ .	Honey, ghee or Pancha deepankkani chooranam are the widely used vehicles for AKC ⁷ .	1. Characterisation of Ayakantha chenduram, a mineral formulation using modern techniques.	Gayatri Devi <i>et al.</i> , 2018.
9.	Aya mezhugu	2-4 gm once in a day ⁷ .	Honey or decoction of <i>Foeniculum vulgare</i> seeds (anise seed) or dried <i>Zingiber officinale</i> decoction or ghee is the suitable vehicles/adjuvants for AM ⁷ .	No studies.	-
10.	Ilinkac centuram	65-130 mg per day ¹² .	Honey or <i>Zingiber officinale</i> juice ¹² .	1.Pharmacological Investigations on Linga chendooram, a Siddha drug - part I.	N.R. Pillai <i>et al.</i> , 1979.
11.	Iracac centuram	65-130 mg per day ¹² .	Suitable vehicles for IRC are honey or Amukkara chooranam ¹² .	Acute and sub acute toxicity study on Siddha drug Rasa chendooram.	M. Jayabharathi <i>et al.</i> ,2017
12.	Tanka uram	130-260 mg per day ¹² .	Honey or pulverized <i>Vithania somnifera</i> are the vehicles for TU ¹² .	No studies.	-
13.	Vediuppu chendooram	562-1040 mg/kg per day ²⁸ .	Water is the ideal vehicle for VC ²⁷ .	Vediuppu chenduram: Oxide form of saltpetre and it's in vivo toxicological profile.	V. Thanigaveeln <i>et al.</i> , 2011.

Table 16: Siddha herbomineral preparations and importance of metals/minerals.

Metal/Mineral	Siddha metallic preparations													Importance of metal	Antidote for metal poisoning
	G C C	A V C	K N C	C R P	P P C	A C	N C C	A C C	A M	L C	I R C	T U	V C		
Mercury	√	√	√	√	-	√	√	-	-	-	√	√		It has longer shelf life. Mercurial Siddha preparations are used in anaemia, dyspnoea, cough, tuberculosis and jaundice. Inorganic mercury is used in vaccines and mascara preparations ²⁹ .	1. The powder of <i>Saya pattai</i> along with jaggery. 2. Stem juice of <i>Coccina indica</i> ⁷ .
Sulphur	√	-	√	-	-	√	-	√	-	-	√	√		It has potential therapeutic effects in the treatment of leucoderma, flatulence, hepatomegaly, ascites, gastric ulcers and eye diseases. It is also used to treat chronic fever, skin	There is no specific antidote for the poisoning of sulphur dioxide but administration of beclomethasone improves the respiratory and cardiovascular functions ³⁹ .

																diseases, diarrhoea, urinary tract disorders ³⁰ .	
Borate/Borax	✓	-	-	-	-	✓	-	✓	✓	-	-					Borax powder along with honey improves the healing of wounds and reduces the pain. Borax in the form of bhasma is used for productive cough, breathing problems, wheezing, bronchitis, abdominal pain, dysmenorrhoea, dandruff, and bad breath ³¹ .	There is no specific antidote for boric acid poisoning; excess borax is removed by hemodialysis ⁴⁰ .
Elemental Iron	-	✓	-	✓	-	✓	✓	✓	✓	-	-					Total 85 formulations contain nano particles of iron are currently using in Ayurveda and Siddha to treat diseases like anaemia, chronic fevers, piles, and inflammatory disorders ³² .	15 mg/kg/h intra venous infusion of deferoxamine is the best antidote for iron poisoning ⁴¹ .
Ammonium chloride	-	✓	-	✓	-	-	-	✓	✓	-	-	✓				Siddha preparations contains ammonium chloride are used as a diuretic for people with oedema (9 gm/day) and also used as expectorant to irritate the bronchial mucosa ³³ .	No specific antidote was found for ammonium chloride poisoning.
Arsenic	-	-	✓	-	-	-	✓	-	-	-	✓	-				Arsenic derivatives are effective in the treatment of digestive disorders, food poisoning, insomnia allergies, anxiety and depression ³⁴ .	1. Antidote for arsenic tri oxide is the decoction of cardamom (4.2 g) and root of <i>Bryonia scabrella</i> (4.2 g) along with sugar and alum twice a day for 40 days and Pepper decoction. 2. Antidote for Gowri (arsenic penta sulphide) is the decoction of root bark of <i>Premna integrifolia</i> along with culinary salt and palm sugar twice daily for 48 days ⁷ .
Potassium nitrate	-	-	✓	✓	-	-	-	-	-	-	-	✓	✓			Potassium nitrate is also named as Kanmada bhasmam. 250-500mg of Kanmada bhasmam along with milk, butter, honey, sugar, and ghee or turmeric juice twice or thrice daily is used in the treatment of gonorrhea, diabetes, leucorrhea and painful micturition ³⁵ .	Usually Potassium nitrate poisoning leads to hypotension and methemoglobinemia. Treat hypotension with supine positioning, intravenous crystalloid fluid and Severe methemoglobinemia in infants not responsive to methylene blue therapy ⁴² .
Tin	-	-	-	-	-	✓	-	-	-	-	-	✓				Tin is drug of choice for prameha (diabetes) in Siddha at dose of 120-250 mg. also beneficial in diseases like T.B, dyspnoea, anaemia ³⁶ .	Dimercaprol is the widely used antidote for tin poisoning ^{43,44} .
Fuller's earth	-	-	-	✓	-	-	-	✓	-	-	-					Fuller's earth is one of the Mother Nature's gifts to mankind. Edible variety of fuller's earth is claimed to be strong detoxifying agent, nutrient and antibacterial agent. It is also used as laxative, and ointments treating bedsores and joint pains ^{37,38} .	Fuller's earth may cause slight irritation to eyes and skin. No specific toxic or poisonous qualities are noted ³⁸ .

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