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Phytochemical Analysis of selected Anti-Leucoderma Siddha Formulations with special reference to terpenoids

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ABSTRACT

Nature can do more than physicians. Likewise our traditional Siddha medicine also has more power to heal various diseases. The study deals with two Siddha formulations containing Terpenoids and their therapeutic potential for Leucoderma. Leucoderma has emerged as a threatening disease especially in the tropical countries, where pigmentation cells, called melanocytes stop producing melanin for skin. It is also evident that those who suffer from leucoderma develop inferiority complex.

Traditionally, plant based terpeniods that have been used by humans in the food, pharmaceutical, and chemical industries are more recently have been exploited in the development of biofuel products.

Several studies including in vitro, preclinical and clinical have confirmed that this class of compounds displays a wide array of very important pharmacological properties. In this paper, we have made a literature review on *Venpadai* (Leucoderma), role of terpenoids on *Venpadai*Phytochemical analysis of Siddha drugs especially for the presence of terpenoids.

KEYWORDS

Siddha Medicine, Terpenoids, leucoderma, melanocytes, two samples.

INTRODUCTION

Siddha system of medicine is very ancient with spiritual qualities. The classical siddha literatures have mentioned about many unique qualities of plants in treating the skin disorders. This can be scientifically proven with phytochemicals and plant based compounds. There are many different classes of naturally occurring compounds. Terpenoids also form a group of naturally occurring compounds majority of which occurs in plants, a few of them have also been obtained from other sources. Terpenoids are volatile substances which give fragrance for plants and flowers.

According to modern concept, terpenoids are hydrocarbons of plant origin of the general formula $(C_5 H_8)_n$ as well as their oxygenated, hydrogenated and dehydrogenated derivatives.

In this paper, we have made a literature review on Venpadai (Leucoderma), role of terpenoids on Venpadai, phytochemical analysis of Siddha drugs especially for the presence of terpenoids.

LITERATURE REVIEW

Incidence of venpadai

India – 0.25-2.5%

Worldwide – 0.1-2%

Leucoderma in Siddha

Skin diseases are one among the major diseases for which largely traditional medicinesare utilized. Vitiligo or Leucoderma is characterised by skin depigmentation which causes the appearance of patches caused by melanocyte dysfunction. The exact cause of vitiligo remains unclear and it is likely to be multifactorial involving genetic and autoimmune factors, nrural or viral sources, oxidative stress. Vitiligo prevalence varies with age, and there is no significant differences seen between genders.

The term vitiligo refers to “venpullinoi” or “venpadai”. The classification of vitiligo according to siddha system of medicine is “vadha venpadai”, “pitha venpadai” and “kabha venpadai”.”Megha venpadai” is another type of venpadai which is transmitted sexually.

VathaVenpadai

In this type of venpadai, the patches appear rough, slight blackish and reddish in nature.

PithaVenpadai

In this type of venpadai, the patches are red coloured like the petals of lotus. It is quite irritating and cause hair loss.

Kabhavenpadai

In this type of venpadai, the patches look like the flower of*Leucasaspera,* it is itchy in nature and spreads with swelling.

Meghavenpadai

It is caused by Venereal disease. After Venereal exposure it develops in 4 to 6 months. In the chronic stages of vitiligo, Syphilis develop. It occurs initially in the neck and adjoining spaces, and then gradually spreads in the shoulder joints and back of the trunk.

The patches are small in number, pale in colour light turmeric in colour or dark colour and margins are marked by hyper pigmentation. These lesions are circumscribed with 2mm to 3mm diameter or above. Females are more prone to Megha venpadai than males and treatment takes longer period. The anti-syphilitic therapy is mandatory in the early period of the treatment.

In some cases of Meghavenpadai, they are sensitive to sunlight this symptom resembles Albinism.

Literature Evidence

"Thadipagathavalaniram pol veluthu

Sarvangamumveluthaarandriuirumbum

Madipagamayirveluthuasathiyamakum

Variuthaduullangaikuthamkuyyamthaan

Nedipaganeruppupattathupolpunnai

Niramirunthalasathiyamendruuraikalagum

Vedipagameniyellamvelluthuveengill

Vensuvethakuttamendrevilampalamye"

-*Yugi sinthamani*-800.(pg:No:198)

BIOLOGICAL ROLE OF TERPENOIDS

Eating terpenoids and daily benefits

The plants containing terpenoids play an effective role in metabolism. According to researches at Kyoto University, Japan. Terpenoids can balance the activities of ligand dependent transcription factors importantly PPARs(Peroxiisome Proliferator Activated Receptors), which has an action on the regulation of genes in the metabolism of fat and glucose. PPARs activation has a favorable effect on bloodpressure, diabetes, heart disease, stroke and cholesterol.

Daily intake of terpenoids is useful for the management of obesity induced metabolic disorders, like type-2 diabetes,Cardiovascular diseases, Hyperlipidemia, Insulin resistance as PPARs are dietary lipid sensors that control energy homeostasis.

TERPENOIDS-CANCER FIGHTING ANTIOXIDANT

Several classes of terpenoids include monoterpenes, diterpenes, triterpenes, and tetraterpenes, the latter of which contain the more familiar cacotenoids, like lutein and lycopene. Lycopene play a major role in the prevention of breast and prostate cancer.

Terpenoids have potential to prevent and treat liver cancer. In the journal of hepatology, large number of terpenoids exhibit cytotoxicity against a variety of tumour cells and cancer preventive as well as anticancer efficacy in preclinical animal models.

Terpenoids also have the following beneficial properties

- Analgesic (pain relieving)
- Anti-inflammatory
- Anti-microbial
- Anti-fungal
- Antiviral
- Anti-parasite

Study in British Journal of pharmacology

Terpenoids display unique therapeutic effects that may contribute meaningfully to the entourage effects of cannabis based medicinal extracts.

Phytocannabinoid-terpenoid interactions helpful in the treatment of pain, inflammation, depression, anxiety, addiction, epilepsy, cancer, fungal and bacterial infections (Including methicillin–resistant staphylococcus aureus)

Black cumin containing the thymoquinone found to be effective against cancers in the blood, lung, kidney, liver, prostrate, breast, cervix, colon and skin.

MATERIALS AND METHODS

Drug Preparation

The test drugs are prepared as per SOP (Standard Operating Procedures) by traditional purification and preparatory methods.

PHYTOCHEMICAL ANALYSIS OF TWO FORMULATIONS

Sample 1 and sample 2 contains, test drug

Test for Qualitative analysis:

i) Carbohydrate

BENEDICT'S TEST

ii) Tannin

LEAD ACETATE TEST

iii) Terpenoid

TEST FOR TRITERPENOIDS

Result of Qualitative analysis

Carbohydrate, tannin and terpenoid are present

Quantitative analysis

TEST(Compounds in milligram/gram)	SAMPLE 1	SAMPLE 2
Carbohydrate mg/gm	46.8± 0.69	44.5±0.70
Tannin mg/gm	23±0.36	25.5±0.33
Terpenoid mg/gm	55±0.40	48.4±0.30

DISCUSSION

Herbal medicines have attained greater importance as an alternative to conventional therapy. The main priority of this study is to minimize the side effects of treatments and therapies in patients of all age groups.

The present study has clearly shown that the "Terpenoids" in two samples have enormous therapeutic potential for leucoderma. The siddha system of medicine is very vibrant, scientific, time tested. The medicines of siddha system are holistic in means they could prevent the disease, promote health and cure diseases. Siddha drugs not just work at the symptoms but also with the root of the diseases Tridosha(Vadha, Pitha, Kabha), Aaruaadharas (Six chakras of the body), aanmaudal (Soul).

Siddha is the most sacred science of life, beneficial to humans both in this world and the world beyond. If the world passionately and prudently follows Siddha, the people can not only live "disease free life" but also can possibly attain eternity and salutation.

CONCLUSION

In this paper, we analyzed the two samples which contain terpenoid that act against leucoderma. We mentioned that the dietary terpenoids which activate PPARs, which may be valuable for the contol of carbohydrate and lipid disorders. Medicinal properties of terpenoids need to be extensively evaluated for their Anti-Cancerous, Anti-inflammatory, Anti-hyperglycemic, Anti-

tumour and Neuropsychological disorders. This is only the preliminary study of terpenoids in leucoderma, the further study will be done in coming days

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