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ASSESSMENT OF ANTI-OXIDANT POTENTIAL OF SIDDHA MEDICINE *SINGI CHENDURAM* BY DPPH FREE RADICAL SCAVENGING ASSAY

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ABSTRACT
Siddha medicines are always unique because of its high therapeutic potentials. Some specialised form of medicinal preparations like *Chunnam*, *Parpam*, *Chenduram* in Siddha system of medicine potentiates their efficacy by having admirable properties especially of its anti-oxidant nature. Likewise, *Singi chenduram* is one of the herbo-metallic preparations was indicated in Siddha text for its rejuvenating potency. In this present study *Singi chenduram* was screened to assess the anti-oxidant activity by DPPH free radical scavenging assay. The study evaluates that the drug *Singi chenduram* possess strong antioxidant activity. Though synthetic antioxidants are available many toxic effects also regarded towards it, so pharmacologically potent drug which has antioxidant on the same time it will help to cure the diseases in an effective way.

KEYWORDS: *Singi*, Anti-oxidant, Siddha drug, Rejuvenator, Herbomineral.

INTRODUCTION
Oxidation is a process for producing the free radical in our body. When these free radicals once produced they can start chain reactions. While these chain reactions are started it causes further damage to the cells. Hence its leads to various kinds of diseases also. An antioxidant is a substance which terminates the oxidation process. Anti-oxidants remove free radicals and inhibit the oxidation reactions. The role of anti-oxidants in the management of threatful diseases are very essential.

For example: Vitamins like E and C having antioxidant properties. These anti-oxidant property of vitamins helps in the protection against age related macular degeneration.[1]

Since time immemorial Siddha medicines are in use for anti-aging. *Karpam* is a specialised mode of Siddha medicine plays a major role as rejuvenators. *Chenduram*, *Parpam*, *Chunnam* are some specialised Siddha Preparatory form of medicines having antioxidant potential in a wider range. These kind of *Chenduram*, *Parpams* Plays a major role in the treatment of chronic and dreadful diseased conditions.

Likewise, *Singi Chenduram* is a wonderful drug mentioned in Siddha literature *Yaakoebu loga chenduram* 300 for the treatment of Tuberculosis, Diabetic Neuropathy and Skin Ailments. Still there are no scientific documentation available regarding the anti oxidant property of *Singi Chenduram*. Thus the novel Siddha formulation *Singi chenduram* was subjected into screening for the evaluation of its Anti-Oxidant Activity by using DPPH free radical scavenging assay.

MATERIALS AND METHODS
Collection of the drugs
All the ingredients were obtained from Country drug shop, Ramasamy chetti, Parrys, Chennai. The herbals was collected from in and around Kanchipuram district.

Ingredients of *Singi Chenduram*
The ingredients of the Siddha formulation *Singi Chenduram* are the following.

They are.
1. Purified Galena sulphide of lead (*Miruthar singi*)
2. Yellow arsenic trisulphide (*Thaalagam*)
3. Lemon juice *Citrus limon* juice (*Ezhumichai saaru*)
4. Extract of *Euphorpia antiquorum* (*Sathurak kalli*)
5. Extract of *Opuntia delenii* (*Sappathuk kalli*)

6. Oyster shell *Chaeyaneer* (*Kilinjal chaeyaneer*)

Method of Preparation

All the above mentioned ingredients were identified and authenticated by the experts of Post Graduate department of *Gunapadam* in Government Siddha Medical College, Chennai. The above mentioned minerals *Miruthar singi and Thaalagam* were purified and incorporated by using these herbal juices. Then it was subjected into *pudam* for incineration. Finally, the prepared Siddha medicine *Singi Chenduram* was obtained.

The medicine *Singi chenduram* was prepared step by step according to classical Siddha text *Yaakoebu Loga Chenduram* 300. Then it was subjected into DPPH free radical scavenging assay to evaluate its antioxidant nature.

Qualitative analysis of antioxidant activity of *Singi chenduram* extract

The antioxidant activity of *Singi chenduram* extract was determined by following the method as described by George *et al.,* (1996); Samundeeswari *et al.,* (2013).

Quantitative analysis of free radical scavenging activity of *Singi chenduram* extract

The antioxidant activities were determined using DPPH (Sigma-Aldrich) as a free radical. 100µl of *Singi chenduram* extract were mixed with 2.7ml of methanol and then 200µl of 0.1 % methanolic DPPH was added. The suspension was incubated for 30 minutes in dark condition. Initially, absorption of blank sample containing the same amount of methanol and DPPH solution was prepared and measured as a control (Lee *et al.,* 2005). Subsequently, at every 5 min interval, the absorption maxima of the solutions were measured using a UV double beam spectra scan (Chemito, India) at 517nm. The antioxidant activity of the sample was compared with known synthetic standard of 0.16% Butylated Hydroxy Toluene (BHT).

The experiment was carried out in triplicates. Free radical scavenging activity was calculated by the following formula.

$$\% \text{ DPPH radical-scavenging} = \frac{\text{(Absorbance of control-Absorbance of test Sample)}}{\text{(Absorbance of control)}}$$

RESULTS

Effect of *Singi Chenduram* on DPPH radical scavenging assay

The results of DPPH radical scavenging activity shows that the percentage inhibition of *Singi chenduram* ranges from 87.5 to 91.07% in which the highest activity was detected at the time of 30th minute. Similarly the percentage inhibition of standard BHT ranges from 87.5 to 98.2%.

The results were tabulated in Table 1.

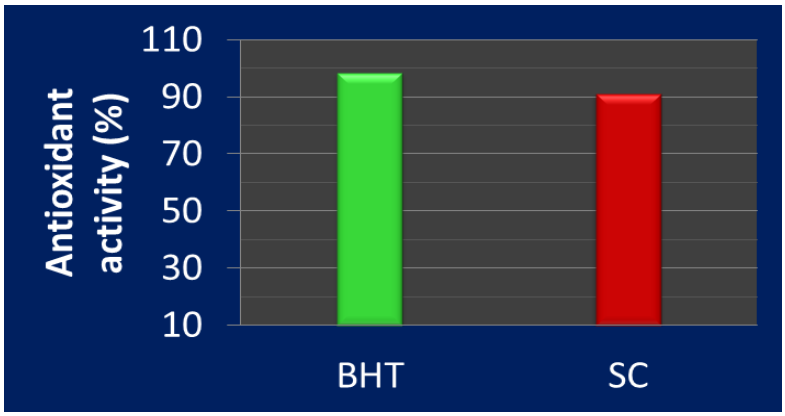

Figure 1: Percentage of Anti-oxidant activity of *Singi chenduram.*

Table 1: Percentage inhibition of *Singi chenduram* on DPPH radical scavenging assay.

Sl.no.	Time in Minutes	Absorbance of *Singi Chenduram*	Absorbance of Standard BHT	Percentage Inhibition of *Singi Chenduram*	Percentage Inhibition of Standard BHT
1	0	0.14	0.14	87.5	87.5
2	5	0.13	0.11	88.39	90.1
3	10	0.12	0.09	89.29	91.6
4	15	0.11	0.07	90.17	93.75
5	20	0.11	0.06	90.17	94.6
6	25	0.10	0.04	91.07	96.4
7	30	0.10	0.02	91.07	98.4

The drug *Singi Cheduram* was subjected for the evaluation of antioxidant activity by DPPH (1, 1-Diphenyl-2-picryl-hydrazyl) radical scavenging assay. The sample was observed for the colour change from purple to yellow, in this assessment it was completely changed into yellow colour and hence it was considered as strong positive effect. *Singi Chenduram* possess 91.4% antioxidant activity when compared with that of synthetic antioxidant BHT as a positive control (98.36%).

DISCUSSION

From the above obtained results of the anti oxidant assessment of the Siddha drug *Singi Chenduram using* DPPH assay, we can confirmed that its possess high levels of antioxidant potential. This antioxidant nature of drug is responsible for body immune enchancement and psycho- intellectual activities. This study shows the evidence of antioxidant potential of the Siddha drug *singi chenduram*. This antioxidant property of the drug *Singi Chenduram* may be due to the presence of the plants and mineral ingredients in it and their major change in its preparatory phase as per the Siddha literature. Because of our changing lifestyles, nowadays we are facing challenges in our day to day life against the severity of many dreadful diseases. So the life time expectancy of humans are greatly reduced. The observed antioxidant property of the drug *Singi Chenduram* helps to rejuvenate the damaged tissues of the body will helps for the treatment of chronic diseases like Tuberculosis, Diabetes and chronic skin ailments.

CONCLUSION

This study results concludes that the antioxidant property of *Singi Chenduram* was validated. One study concludes, in TB patients free radical activity is quite high and antioxidant levels are low. A suitable antioxidant therapy is needed along anti - tuberculosis drugs for fast recovery. In Siddha texts *Kaya Karpa* is responsible for immortality of the human body.

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