



Evaluation of antioxidant activity of *Nilapanai kizhangu chooranam* through DPPH Scavenging Assay

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Abstract

Nowadays Peoples all over the world are turned their attention towards Siddha medicine because of its wonderful therapeutic effects. Male infertility is one of the highly prevalenced medical condition which affects the society worldwide. The herbals such as *Mucuna pruriens*, *Bombax malabaricum*, *Tribulus terrestris* which was mentioned in Siddha text because of its beneficial medicinal effect to treat male infertility. The Siddha herbal formulation *Nilapanai kizhangu chooranam* was evaluated for its antioxidant potential through DPPH Scavenging assay. The study results confirmed that the drug *Nilapanai kizhangu chooranam* has promising therapeutic antioxidant activity when compared with the standard drug BHT. This research work can help for medical practitioners to use this herbal compound for the treatment of male infertility in a progressive way.

Keywords: Infertility, Herbal Medicine, Antioxidant, *Chooranam*, Herbal Drug

Introduction

Siddha system is one of the most conservative medical system in the world. Herbals plays a vital role in Siddha medicinal preparations. According to World Health Organisation Infertility is defined as 'The inability of a sexually active non-contracepting couple to achieve spontaneous in one year'. Nearly 30 million men worldwide are infertile^[1]. In 40% to 50% of infertile males, the aetiology is unknown^[2].

In biological systems the oxidative stress is induced because of the generation of the free radicals which results in causing many diseases^[3]. Antioxidants play a role in the removal of free radicals and protect human cells from damage. Though there are so many synthetic antioxidants are available, natural antioxidants are always have more significance. Plants are rich in having antioxidant property.

So, the antioxidant property of the Siddha drug *Nilapanai kizhangu chooranam* was studied.

Materials and Methods

Details regarding the sample:

“*Nilapanai Kizhangu Choornam*”, a poly herbal formulation, indicated in “*Kannusamy parambaraivaithiyam*” to treat male infertility. The ingredients are *Nilapanai kizhangu (Curculigo orchioides)*, *Nerunjil (Tribulus terrestris)*, *Nelli vatral (Phyllanthus emblica)*, *Poonakaali vidhai (Mucuna pruriens)*, *Seendhil sarkarai (Tinospora cordifolia)*, *Mul Ilavam pisin (Bombax malabaricum)*, *Karkandu (Saccharum officinarum)*. The drug was purchased from authorized country Raw Drug Store in Chennai. The collected raw materials and plants were identified and authenticated by Botanist and faculties of *Gunapadam* department, Government Siddha Medical College Chennai, Tamilnadu. The Siddha Drug “*Nilapanai Kizhangu Choornam*” was prepared as per the siddha text “*Kannusamy parambaraivaithiyam*”

Results

Anti-oxidant activity of NPKC

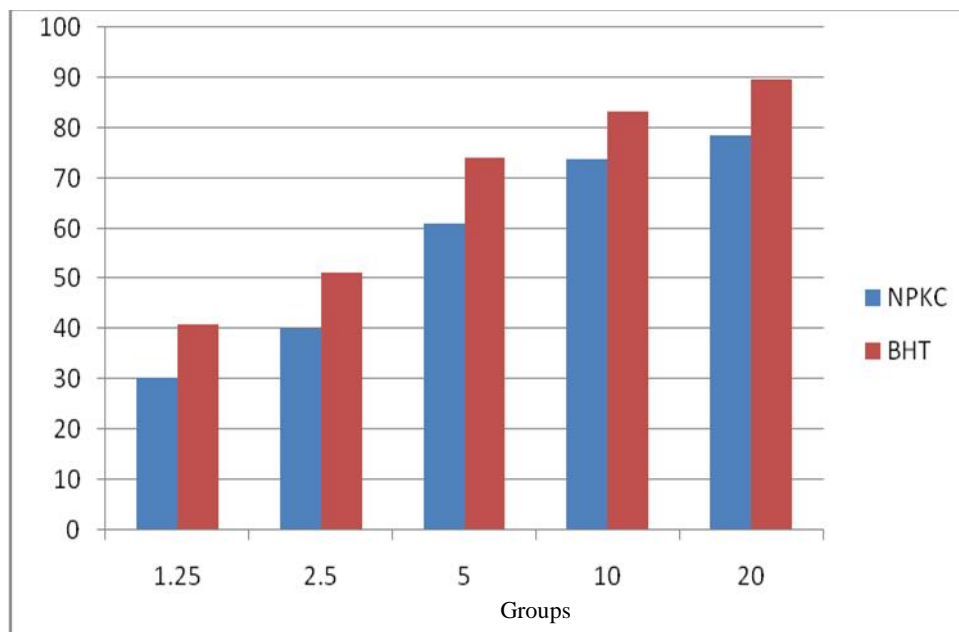
Sample concentration (µg/ml)	Absorbance		Percentage of Inhibition	
	Drug	Standard	Drug	Standard
Control	0.5271	0.312	-	-
1.25	0.1952	0.278	30.26	40.89
2.50	0.1678	0.202	40.22	51.25
5	0.1489	0.084	61.06	74.07
10	0.1295	0.052	73.78	83.33
20	0.1069	0.034	78.66	89.62

Details regarding the experiment:

The antioxidant activity of *Nilapanai kizhangu chooranam* was determined using the 1, 1-diphenyl-2-picrylhydrazyl (DPPH) free radical scavenging assay^[4]. 100µl of *Nilapanai kizhangu chooranam* extract was 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 subsequently, at every 5 min interval, the absorption maximum 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^[5,6]. Free radical scavenging activity was calculated by the following formula:

$$\% \text{ Inhibition} = \frac{(\text{Abs of Control} - \text{Abs of Test})}{\text{Abs of Control}} \times 100$$

Antioxidant Activity of NPKC by DPPH Assay



Discussion

From the investigation of DPPH radical scavenging assay of NPKC it was concluded that the test drug has shows promising antioxidant activity and exhibits significant percentage inhibition against DPPH radicals when compared to that of standard BHT. Because of this high antioxidant therapeutic nature the drug *Nilapanai Kizhangu Chooranam* will helps to treat the male infertility. Antioxidants play a major role in the treatment of male infertility^[7]. So the presence of antioxidant property of NPKC will be highly useful for the treatment of male infertility.

Conclusion

Our human lifestyles were changed in last decades from healthy to unhealthy. So, we are facing challenges to treat the severity of diseases. Though several advanced medicines are available to treat diseases, adverse effects and resistance for those drugs also seen. The drug which has antioxidant property will help in the treatment of diseases in a fast recovered manner. The evaluated antioxidant property of this herbal formulation *Nilapanai kizhangu chooranam* will help to treat male infertility in most successive aspects. Further clinical study will be carried out regarding this Siddha herbal drug *Nilapanai kizhangu chooranam*.

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