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In Vitro Antiinflammatory Activity of Siddha Drug Oma Kudineer by Protein (Albumin) Denaturation Assay

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D.S.LAVANYA[1]*, S.GANDHIMATHI[2], R.MEENAKUMARI[3]

[1]P. G. Scholar, P. G. Kuzhanthai Maruthuvam Dept . Govt. Siddha Medical College, Chennai, Tamilnadu, India*

[2]Guide, Govt. Siddha Medical College, Chennai, Tamilnadu, India

[3]H.O.D, P. G. Kuzhanthai Maruthuvam Dept . Govt. Siddha Medical College, Chennai, Tamilnadu, India

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ABSTRACT

Siddha system of medicine not only cures the diseases but also increases the immunity system. In this system, there is a unique method of treating pediatric groups. Since they are the pillars of upcoming centuries. The ancient Siddha medical system can handle diseases purely on herbs. The combinational blend of herbs acts in synergy to subside the infection with its own natural antibiotics. This scientific paper evaluates anti-inflammatory activity of oma kudineer to treat Acute naso pharyngitis (Neer kana mantham) in children. An anti-inflammatory is evaluated by protein (Albumin) denaturation assay with standard diclofenac sodium at the concentration of 100 mg/ml. The results reveal this Siddha drug possess convincing anti-inflammatory activity.

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INTRODUCTION

Acute naso pharyngitis is commonly known as cold. It is an inflammation of the mucous membranes of the upper pharynx, the naso pharynx or the naso pharyngeal duct, which extends between the oral and nasal palate. It is also referred as upper respiratory infection or rhinitis. It is very common pathology among children and adolescents. Most commonly prescribed medicines may produce side effects. Oma kudineer mentioned in Siddha pediatric book contains the following ingredients omam (*Carum copticum),* pepper (*Piper nigrum*), long pepper (*Piper longum*) and garlic (*Allium sativum*).

MATERIALS AND METHODS

The drugs were brought from Siddha drug shop, Chennai. The raw drugs were identified and authenticated by Siddha Central Research Institute (SCRI), Chennai-106.The drugs were cleaned and decoration was prepared using the procedure given in the Siddha pediatric book BALAVAGADAM.

Albumin Denaturation Assay Procedure

In-vitro anti-inflammatory activity Oma Kudineer (OK) was studied using albumin denaturation technique. The reaction mixture consisted of bovine serum albumin (5% aqueous solution) and test sample OK at varying concentration ranges from 100 to 500 mcg/ml and standard diclofenac sodium at the concentration of 100 mcg/ml of final volume. pH was adjusted by using a small amount of 1N Hydrochloric acid. The samples were incubated at 37^0C for 20 min and then heated at 57^0C for 3 min. After cooling the sample, 2.5 ml of phosphate buffer solution was added to each test tube. Turbidity developed was measured spectrophotometrically at 660 nm, for control, distilled water was used instead of test sample while product control tests lacked bovine serum albumin. The experiment was performed in triplicate.

The Percentage protection from denaturation is calculated by using the formulae

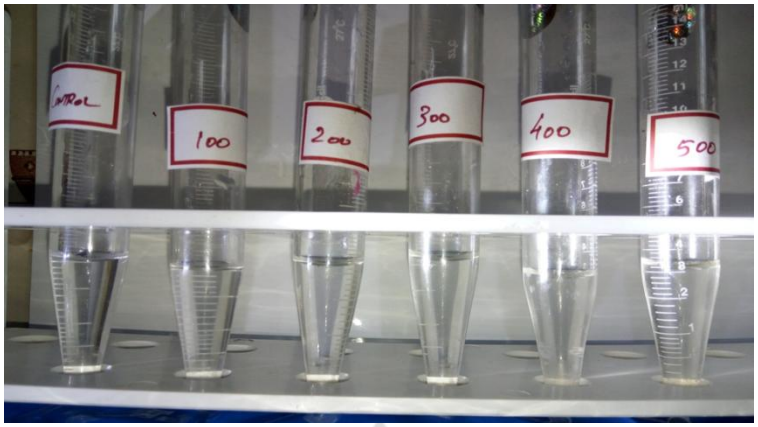
$$\left[\frac{(A)_{\text{control}} - (A)_{\text{sample}}}{(A)_{\text{control}}}\right] \times 100.$$

Statistical analysis

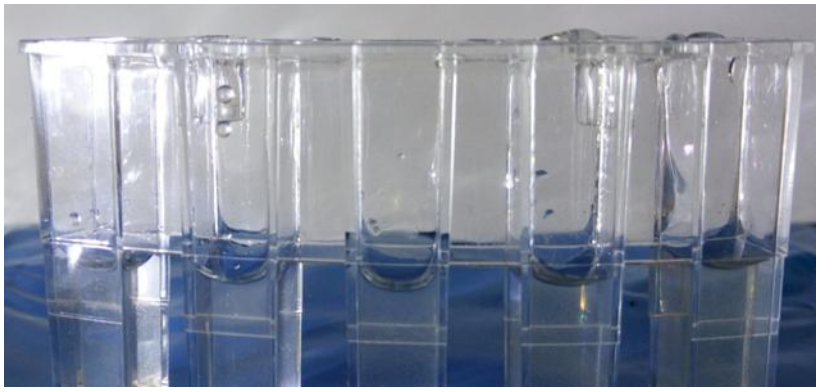
Results are expressed as Mean ± SD. One-Way Analysis of Variance (ANOVA) followed by Dunnet Multiple comparison tests compared the difference between experimental groups

Preparation of Test and control

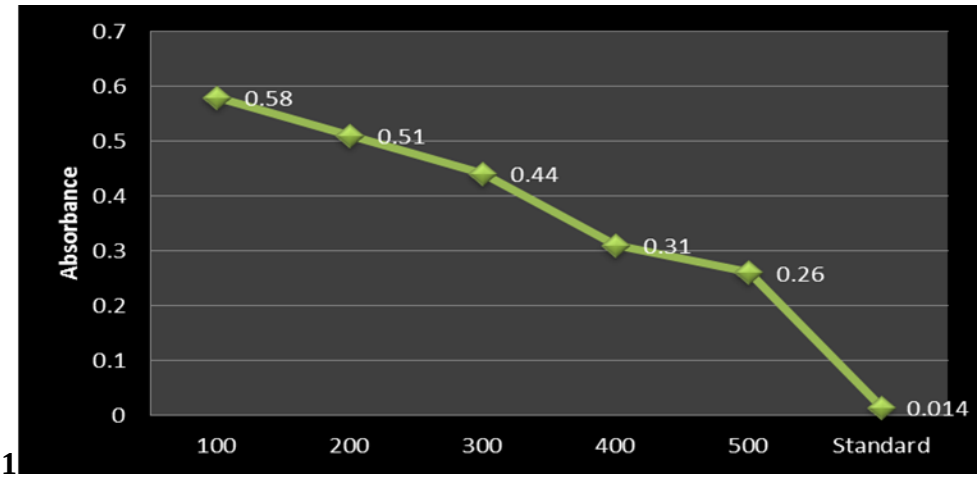
Absorbance of reaction mixture – Test Sample



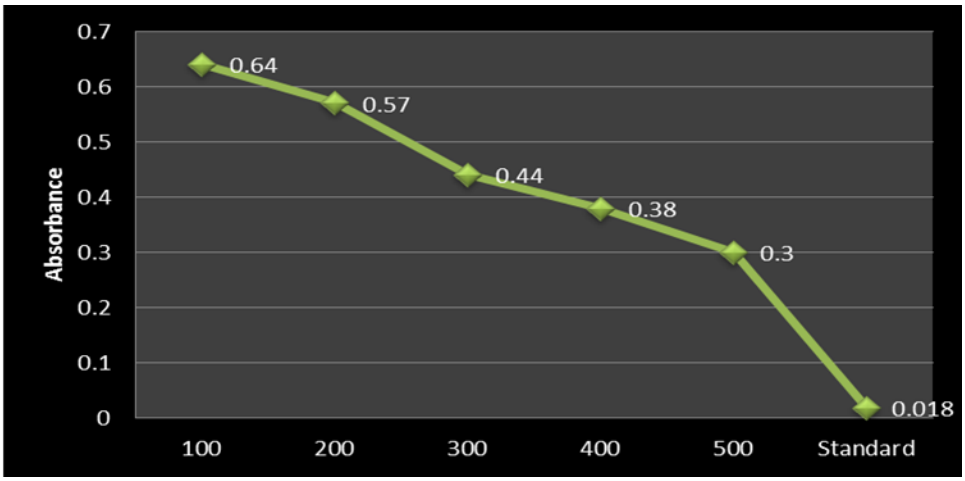
Absorbance of reaction mixture – Control and Standard



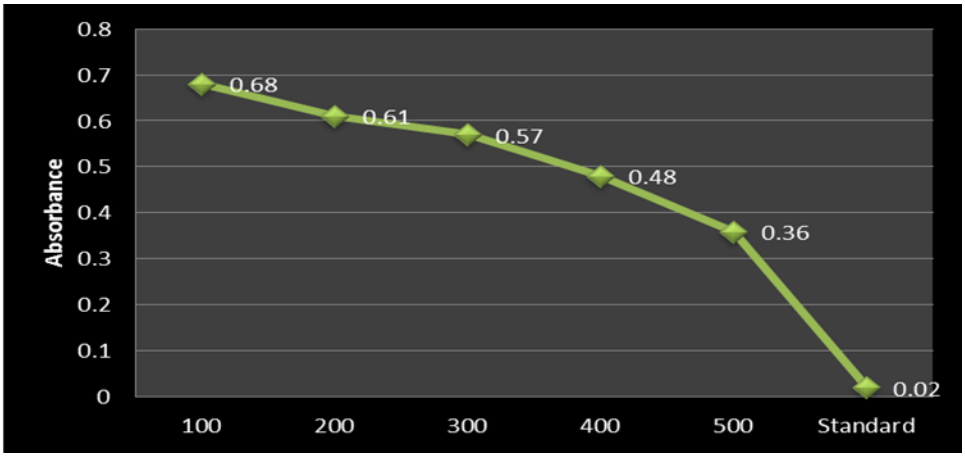
Absorbance Range of test and standard at Trial

1 

Absorbance Range of test and standard at Trial2



Absorbance Range of test and standard at Trial 3



RESULTS

Concentration in µg/ml	Absorbance
Control	0.83 ± 0.01
PKM 100	0.63 ± 0.05
PKM 200	0.56 ± 0.05
PKM 300	0.48 ± 0.07
PKM 400	0.39 ± 0.08
PKM 500	0.30 ± 0.05
Diclofenac sodium (100µg)	0.017 ± 0.003

Each value represents the mean ± SD. N=3

Concentration in µg/ml	Percentage Inhibition of Protein Denaturation
OK 100	7.823 ± 3.964
OK 200	16.2 ± 4.058
OK 300	25.81 ± 6.67
OK 400	36.99 ± 8.189
OK 500	46.93 ± 4.164
Diclofenac sodium (100 µg)	81.5 ± 1.087

Each value represents the mean ± SD. N=3

Result Analysis

The result obtained from the present clearly indicates that the test drug OK was effective in inhibiting heat induced albumin denaturation. Maximum percentage inhibition of about 46.93 % was observed at 500 µg/ml when compared to that of the Diclofenac sodium, a standard anti-inflammatory agent with the maximum inhibition 81.5 % at the concentration of 100 µg/ml.

CONCLUSION

From the result of the study, it was concluded that the test drug OK possess Convincing anti-inflammatory property in protein denaturation assay.

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