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In-vitro Anti-Inflammatory Activity of siddha formulation Amirthathi Nei by Protein (Albumin) denaturation Assay

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Abstract

Background: Siddha medicines is composed of ideology of nature remedy in the path of treating various ailments and chronic diseases. It is believed as one of the ancient and traditional medicinal practice followed and created by siddhars more specifically for childrens. Among them amirthathi nei which is mentioned in agasthiyar 2000 which is used in treatment of sinusitis in children. This formulation of Siddha drug composed of 11 herbal drugs.These Siddha preparations are clinically attempted on proven their anti inflammatory activity possessed by the 11 herbal drug such as seenthil kodi, nilapanai kilanghu, koraikilanghu, nilakumil ver, poongaganni ver, thoothuvelai ver, nilavembu,sivanarvembu,Thamarai elai surool, sitamutti, peramutti are effective against the inflammatory reaction in the diseases of surapeenisam (sinusitis in children).

Methods: The drug was screened for Anti –inflammatory activity

Results: The result obtained from the present clearly indicates that the test drug ATN was effective in inhibiting heat induced albumin denaturation. Maximum percentage inhibition of about 59.15 ± 3.0 % was observed at 500 µg/ml when compare to that of the Diclofenac sodium, a standard anti-inflammatory agent with the maximum inhibition 95.91± 3.979 at the concentration of 100 µg/ml.

Conclusion: From the results of the study it was evident that the Siddha formulation amirthathi nei complies with the standard and may be used for clinical management of surapeenisam.But further studies on anti-inflammatory activity for the disease of surapeenisam it will be used. From the result of the study it was concluded that the test drug ATN possess promising anti-inflammatory property in protein denaturation assay.

Keywords: Anti-inflammatory activity, amirthathi nei, surapeenisam activity,

Introduction

Siddha medicine is believed as one of the potential way of treatment on curing certain ailments. Though it is curable but this system of medicine still trying to proven their drug effectiveness through the standardization methods. In this study amirthathi nei was selected and screened for standardization methods as per procedure the medicine composed of drugs such as *Tinospora cordifolia, Indigofera aspalathoides, Solanum procumbens, Andrographics paninculata, Curculigo orchioides, Gmelina asiatica, Sida cordifolia, Cyperus rotundus, Alternanthera sessilis, Nelumbo nucifera,Pavonia odorata*. These drug possess the anti inflammatory, anti microbial, anti oxidant property. It is effective against in the treatment of surapeenisam (sinusitis in children).It is most common upper respiratory tract infection affected from the age of 7 years the frontal sinuses are developed it occurs with the symptoms of headache, sneezing repeatedly at early morning, facial odema, pain present in the face fever. It classified in to acute and chronic sinusitis due to dust allergy, food allergy, immune suppressed, family history with allergy are highly at risk to develop this condition.

Materials and Methods

Albumin Denaturation method.

Albumin Denaturation Assay Procedure

In-vitro anti-inflammatory activity ATN as studied using albumin denaturation technique. The reaction mixture consisted of bovine serum albumin (5% aqueous solution) and test sample chloroform extract of ATN at varying concentration ranges from 100 to 500 µg/ml along with standard Diclofenac sodium at the concentration of100 µg /ml of final volume. pH was adjusted by using a small amount of 1N Hydrochloric acid. The samples were incubated at 37°C for 20 min and then heated at 57°C for 3 min. After cooling the sample, 2.5 ml of phosphate buffer solution was added into 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. The difference between experimental groups was compared by One-Way Analysis of Variance (ANOVA) followed by Dunnet Multiple comparison test.

Results

The result obtained from the present clearly indicates that the test drug ATN was effective in inhibiting heat induced albumin denaturation. Maximum percentage inhibition of about 59.15 ± 3.0 % was observed at 500 µg/ml when compare to that of the Diclofenac sodium, a standard anti-inflammatory agent with the maximum inhibition 95.91± 3.979 at the concentration of 100 µg/ml.

Table 1 Percentage Inhibition

Concentration in µg/ml	Percentage Inhibition of Protein Denaturation
ATN 100	7.414 ± 5.409
ATN 200	18.07 ± 6.4
ATN 300	29.77 ± 5.233
ATN 400	47.09 ± 4.792
ATN 500	59.15 ± 3.009
Diclofenac sodium (100 µg)	95.91 ± 3.979

Each value represents the mean ± SD. N=3

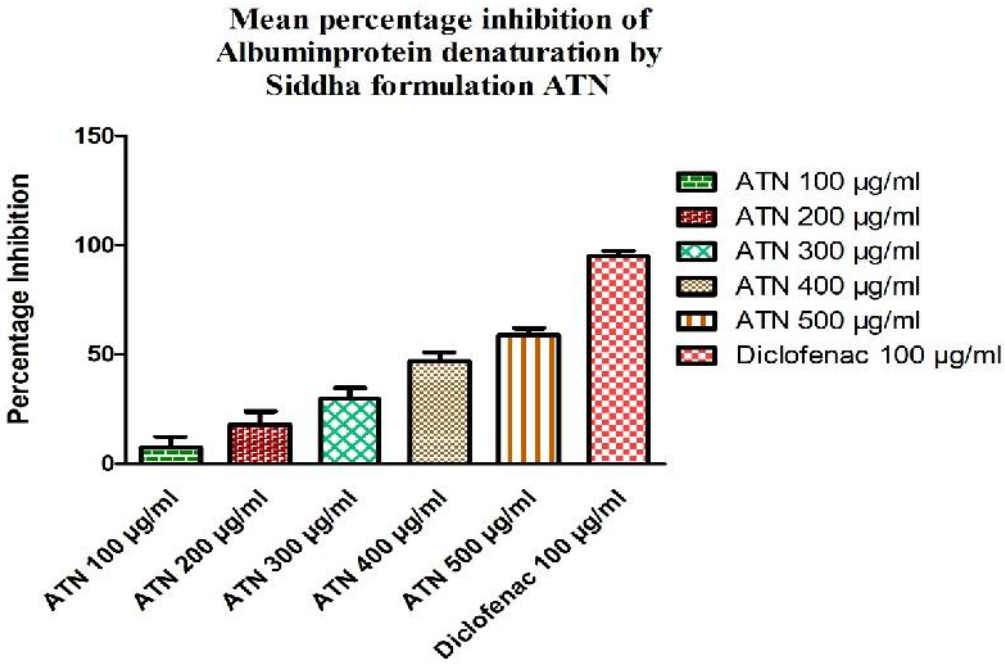

Figure 1 Protein Denaturation by ATN and Standard

Conclusion

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

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