

EXPLORING THE ANTI-CHOLESTEROL ACTIVITY OF A POLY-HERBAL SIDDHA FORMULATION

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ABSTRACT

Siddha system of medicine has its distinctive and remarkable strength in treating Lifestyle disorders. Siddhars have mentioned about many Lifestyle disorders and their treatment modalities in their age-old literatures. One among the lifestyle disorders which is threatening the human beings nowadays is hypercholesterolemia which is referred as *Athimetha Noi* in Siddha literatures. Elevated levels of cholesterol in the blood may be the consequence of sedentary lifestyle practices or some other diseases or may be familial. The prevalence of hypercholesterolemia is increasing day by day. In the high income countries, one-fourth of the adults are affected. Overall raised cholesterol is found to cause 2.6 million deaths (4.5% of total death) especially because of the consequences of hypercholesterolemia such as Cardio vascular ailments, Hyperglycemia etc. Hence an ideal solution for hypercholesterolemia is a requisite for today's world. Here in this work, we have made a Polyherbal Siddha Formulation based on the Siddha Basic Principles and subjected to in-vitro anticholesterol assay with special reference to inhibitory activity on the cholesterol esterase.

KEYWORDS

Siddha medicine, *Athimetha Noi*, Hypercholesterolemia, Anti-cholesterol drug, Lifestyle disorders

INTRODUCTION

Athimetha Noi (Hypercholesterolemia), being one of the Lifestyle disorders, is agitating the human population. The National Cholesterol Education Program suggests that a level more than 240 mg/dl is considered as high cholesterol. These high levels of blood cholesterol raises the risk of producing cardiac related problems like Atherosclerosis, Hyperglycemia, Cardiac Arrest, etc., The major risk factors of Hypercholesterolemia includes Obesity, sedentary lifestyle, genetic factors, etc., Though it is asymptomatic, it may ultimately lead to serious complications. Cholesteryl esterase is the enzyme responsible for the bio-availability of the dietary cholesterol. Inhibition of this significant enzyme could be a better line of treatment. Hence in this work, we have formulated a novel Siddha anti-cholesterol drug and the anti-cholesterol assay was carried out as described by Iswantini et. al., and Cholesterol Enzymatic Endpoint method.

HYPERCHOLESTEROLEMIA AS *ATHIMETHA NOI* IN SIDDHA

Hypercholesterolemia is mentioned in Classical Siddha Literatures as *Athimetha Noi*; the symptoms of which is found to be

- *Kozhuppu niraithal* (Increased amount of cholesterol in blood)
- *Metha akeetham* (Fatty infiltration) etc.

The consequences of *Metha Noi* (Hypercholesterolemia) is mentioned as

- *Athisthoola Noi* (Obesity)
- *Thamaraga Noi* (Cardiac ailments)

MATERIALS AND METHODS

Based on the Siddha basic principles, drugs were selected from the Literatures and made it as a powdered form. Then it is subjected to anti-cholesterol assay.

In-vitro anti cholesterol assay

Procedure

Cholesterol was dissolved in chloroform until achieving 25mg/10ml. 10 μ l of sample from a stock concentration of 10mg/ml was pipetted into micro titre plate followed by the addition of 2000 μ l of Randox reagent and 10 μ l of cholesterol. 20 μ l of distilled water and 2000 μ l of Randox reagent were used as blank. control comprised of 20 μ l cholesterol and 2000 μ l Randox reagent; standard comprised of 20 μ l simvastatin and 2000 μ l Randox reagent.

The contents were mixed and incubated for 10 minutes at room temperature. The absorbance was read at 500nm in a microplate reader against blank.

CALCULATION

% inhibition of Cholesteryl esterase = (OD of untreated control – OD of test/OD of untreated control)*100

RESULTS

| Sample code | OD Value I | OD Value II | Average OD | % inhibition of cholesterol esterase |
|-----------------------------|------------|-------------|------------|--------------------------------------|
| Control (Untreated control) | 0.2750 | 0.2817 | 0.2784 | |
| Blank | 0.1028 | 0.0815 | 0.0922 | 0 |
| Sample | 0.2124 | 0.2159 | 0.2142 | 23.0 |

Interpretation

Treatment with sample produced 23.0 % inhibition of cholesterol esterase activity

Conclusion

Since Cholesterol has its increased morbidity and mortality by its complications including Atherosclerosis, Thrombosis, etc., it is the need of the hour to find a better result for this major threatening problem. In this work, we have formulated a poly herbal formulation for the notable Life Style Disorder – *Athimetha Noi* (hypocholesteremia). The laboratory result of the in-vitro Anti-cholesterol activity study shows that our drug has 23% inhibition over the Cholesterol esterase. With this lead, we have to done for more work in future in this paper.

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