

CHANGES IN THE BLOOD LIPID PROFILE AFTER ADMINISTRATION OF *OCIMUM SANCTUM* (TULSI) LEAVES IN THE NORMAL ALBINO RABBITS

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(Received on April 22, 1993)

Abstract: Administration of fresh leaves of *Ocimum sanctum* (Tulsi) mixed as 1 g and 2 g in 100 gms of diet given for four weeks, brought about significant changes in the lipid profile of normal albino rabbits. This resulted in significant lowering in serum total cholesterol, triglyceride, phospholipid and LDL-cholesterol levels and significant increase in the HDL-cholesterol and total faecal sterol contents.

Key words: *Ocimum sanctum* total cholesterol triglyceride

INTRODUCTION

The genus *Ocimum* is a group of aromatic plants, distributed mainly in the tropical and subtropical regions of the world. The species *O. sanctum* is considered to be highly sacred, medicinal and finds extensive application in the indigenous system of medicine of many Asian, African and South American countries (1). Physiological and pharmacological (2, 3) studies carried out by various workers during the last few decades have reported antistress, anabolic, hypotensive and cardiac depressant properties of this plant.

The effect of *Ocimum sanctum* and eugenol (the major ingredient of the active principles) on biochemical parameters, enzyme activities, electrolytes and cell membrane dynamics had been studied in normal and stressed rats (4).

In the present study, effect of Tulsi leaves on serum total cholesterol, triglycerides, phospholipid, HDL and LDL-cholesterol and faecal total sterols has been studied in normal healthy albino rabbits.

METHODS

Sixteen healthy male albino rabbits weighing 1.5-

2.0 kg were divided into two groups of eight each. One group was used as control and the other group was administered the experimental diet. Each rabbit was lodged in a separate metabolic cage having free access to food and water and was fed 100 g Hindustan Gold Mohr (HGM) rabbit feed daily for a month. Fasting blood samples were drawn from the central ear vein at the end of fourth week and analysed for serum total cholesterol (5), triglyceride (6), phospholipid (7), HDL-cholesterol (8) and LDL-cholesterol (9). Twentyfour hours faecal pellets were carefully picked, dried in an incubator at 37°C, weighed, powdered and analysed for total sterols (5).

Fresh Tulsi leaves were collected, cleaned, weighed and mixed with HGM feed. Thereafter, 100 g experimental diet (99/98 g HGM feed + 1 g/2 g fresh leaves) was given to each of eight rabbits of the experimental group daily for 30 days. The animals consumed entire food in the course of 24 hours. Fasting blood specimens and 24 hrs faecal pellets were collected at weekly intervals for four weeks and analysed.

The data were statistically analysed by applying paired sample 't' test (10).

RESULTS AND DISCUSSION

Fresh leaves of Tulsi administered regularly at 1 g and 2 g percent doses in diet have been found to affect blood lipids and faecal sterols significantly from the very first week (Table I). The total cholesterol, triglyceride, phospholipid, LDL-cholesterol were progressively decreased ($P < .01$) while HDL-cholesterol and faecal sterol excretion were found to be progressively increased ($P < .01$). No significant

difference was noticed in these parameters when Tulsi leaves were increased in diet from 1 g to 2 g percent.

It is evident from the data that Tulsi leaves exert hypocholesterolemic, hypotriglyceridemic and hypophospholipidemic effects in the normal albino rabbits. They also increase HDL-cholesterol, lower LDL-cholesterol and increase faecal sterol excretion.

TABLE I: Effect of administration of *Ocimum sanctum* fresh leaves (1 g percent in diet) on serum lipids (mg/dl) and faecal sterols (mg/24 hrs).

Parameters	Control group	Experimental group (n=8)			
		Weeks			
		1	2	3	4
Serum total cholesterol	90.94 ± 8.01	90.94 ± 6.24* (7.44)	84.17 ± 7.18* (17.69)	74.86 ± 7.56* (24.37)	62.55 ± 5.62* (31.23)
HDL-cholesterol	24.03 ± 2.82	26.56 ± 2.62* (10.53)	30.45 ± 2.67* (26.72)	33.30 ± 3.02* (38.58)	35.70 ± 3.25* (48.56)
LDL-cholesterol	36.76 ± 9.33	29.93 ± 7.79** (18.55)	21.48 ± 4.63* (41.57)	14.74 ± 5.51* (59.90)	9.49 ± 5.45* (64.18)
Serum triglycerides	150.75 ± 12.59	138.39 ± 10.95* (8.20)	127.13 ± 9.88* (15.67)	116.21 ± 9.45* (22.91)	99.28 ± 10.58* (34.14)
Serum phospholipids	105.73 ± 5.89	103.56 ± 5.69 (2.05)	101.72 ± 5.66 (3.79)	99.76 ± 5.81 (5.65)	96.83 ± 6.02 (8.42)
Faecal Sterols	73.12 ± 3.28	75.04 ± 2.91* (2.63)	76.78 ± 2.67* (5.01)	78.21 ± 2.90* (6.96)	79.67 ± 3.39* (8.96)

Figures in parenthesis indicate percentage change.

P = * < 0.001;

** < 0.01

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