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EFFECT OF FEEDING *TRIGONELLA FOENUM GRACECUM* (METHI) LEAVES ON SERUM CHOLESTEROL, TRIGLYCERIDES AND HIGH DENSITY LIPOPROTEIN CHOLESTEROL IN THE NORMAL RABBITS

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THE seeds and leaves of *Trigonella foenum gracecum* (Methi) are reported to have carminative, anthelmintic, antipyretic, suppurative, diuretic,

aphrodisiac and emmenagogue properties useful for treatment of dropsy, chronic cough, enlargement of spleen, liver and heart diseases¹. The seeds of fenugreek are reported to have hypocholesterolemic activity¹⁻⁵.

The aim of the present study is to find out the effect of oral administration of the green leaves of methi on serum lipids in normal albino rabbits, whose correlation with cardiovascular system is well established^{6,7}.

Fresh green leaves of 'methi' bought daily from the local market, were washed and cooked in steam. Sixteen normal adult male albino rabbits were maintained on Hindustan Gold Mohr rabbit feed for a month. After this period, serum lipids were estimated twice to check constancy of their levels, which was followed by feeding of experimental diet containing 10 g cooked green leaves along with basal diet *ad libitum* for eight weeks to the experimental group animals, consisting of eight rabbits, whereas the other group of remaining eight rabbits was kept on only control diet throughout. The animals had free access to food and water, however, their daily food consumption was between 95 and 100 g. Fasting blood samples were drawn at the end of first week, second week, fourth week and eighth week,

Table 1 Effect of feeding *Trigonella foenum gracecum* green leaves (10 g/day) in cooked form for eight weeks on serum total cholesterol, triglyceride (TG) and high density lipoprotein (HDL) cholesterol in normal rabbits. (Values are mean \pm SD, expressed in mg/day)

	Control group ⁺	Experimental group ⁺			
		1st Wk	2nd Wk	3rd Wk	4th Wk
Body weight (in kg)	1.5150 ± 0.127	1.5340 $\pm 0.120^{**}$ (1.25)	1.5540 $\pm 0.117^{**}$ (2.57)	1.5760 $\pm 0.104^*$ (4.03)	1.6220 ± 0.136 (7.06)
Cholesterol	102.01 ± 9.07	96.15 $\pm 8.73^{***}$ (5.74)	91.12 $\pm 10.87^{**}$ (10.68)	85.57 $\pm 12.60^{**}$ (16.12)	79.27 $\pm 9.62^*$ (22.29)
Triglycerides	202.03 ± 9.04	187.14 $\pm 14.64^{**}$ (7.37)	149.47 $\pm 23.21^*$ (26.02)	137.95 $\pm 15.06^*$ (31.72)	123.39 $\pm 14.16^*$ (38.92)
HDL-Cholesterol	37.15 ± 4.24	40.70 ^{**} ± 4.12 (9.56)	46.12 $\pm 4.66^*$ (24.15)	49.84 $\pm 3.67^*$ (34.16)	51.67 $\pm 3.55^*$ (39.08)

+ Sample size in each case was 8. Figures in parentheses indicate per cent change. * $P < 0.001$; ** $P < 0.01$; *** $P < 0.05$.

while feeding experimental diet and analysed for serum cholesterol⁸, triglyceride⁹ and high density lipoprotein cholesterol¹⁰. Body weight was recorded in the beginning and at the end of 1st, 2nd, 4th and 8th weeks.

The data were statistically evaluated by applying students *t* test.

Analysis of blood samples after feeding leaves of *Trigonella foenum graecum* 10 g daily to the normal albino rabbits at the end of 1st, 2nd, 4th and 8th week revealed that there occurred a continuous lowering in serum cholesterol and triglyceride. On the other hand, HDL-cholesterol showed a continuously rising pattern. Body weight showed an increasing pattern during experiments. Upon statistical evaluation of the data, the observed changes have been found to be highly significant ($P < 0.01$ to < 0.001) (table 1).

Trigonella foenum graecum leaves form part of spices and are consumed as a vegetable in the Indian dietaries. Though there are reports regarding the hypocholesterolemic effect of its seeds, no studies have yet been made on the biochemical effects caused by administration of the leaves in the body as both seeds and leaves possess almost the same composition¹¹.

The present study shows that the daily addition of cooked leaves to the diets of normal rabbits within eight weeks can produce significant lowering of cholesterol and triglycerides in circulation. The high density lipoprotein cholesterol is significantly increased. Obviously, the low density lipoprotein cholesterol must decline since total cholesterol shows an overall decrease. Fall in circulatory cholesterol and triglycerides brought about by the administration of fenugreek leaves is probably due to both fibre and saponin^{2,5,12,13}.

Biochemically, lowering of the total cholesterol, triglycerides, low density lipoprotein cholesterol and rise in high density lipoprotein cholesterol on *Trigonella foenum graecum* containing diet could provide a valuable tool for maintaining cardiovascular system in healthy conditions^{6,7,14}.

Financial assistance from ICMR, New Delhi is gratefully acknowledged.

18 September 1986

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LEVELS OF ARGINASE AND TRANSAMINASES IN POLYCHLORINATED DIBENZOFURAN (PCDFs) FED RATS

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THE chlorinated dibenzofurans (PCDFs) have received wide publicity and attention in recent years as potential toxic environmental pollutants. Polychlorinated dibenzofurans are found as contaminants in commercial polychlorinated biphenyls¹, chlorinated phenol mixtures² as well as in certain trichlorophenol derived herbicides³. PCDF administered rats showed decrease in body weight⁴. The liver was the major depot of PCDFs, where they were metabolized and excreted mainly through the feces⁵. Since, the liver plays an important role in synthesis, degradation and detoxification pathways, special attention was focussed to study the effect of PCDFs on liver metabolism in rats. In the present investigation a few important enzymes of protein catabolism and blood urea have been studied.

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