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A QUASI EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF SPROUTED FENUGREEK SEEDS ON REDUCTION OF BLOOD GLUCOSE LEVEL AMONG CLIENTS WITH TYPE 2 DIABETES MELLITUS AT SELECTED RURAL AREA IN KRISHNAGI.

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ABSTRACT:

Diabetes mellitus is a common non communicable disorder of the developing countries. The worldwide prevalence of Diabetes mellitus has arisen dramatically over the past two decades, Diabetes Mellitus is a group of metabolic diseases in which a person has high blood sugar, either because the pancreas does not produce enough insulin, or because cells do not respond to the insulin that is produced. All forms of diabetes increase the risk of long-term complications. These typically develop after many years, but may be the first symptom in those who have otherwise not received a diagnosis before that time. The research approach selected for the study is Quasi experimental research design [one group pre and post test with control group]. 60 patients were selected through Nonprobability - Convenient Sampling Technique. In that 30 were assigned as experimental and 30 were assigned as control group. The tool developed and used for data collection was structured interview and observation schedule. First data was collected from experimental group and then followed by control group. Pre test fasting and post prandial blood sugar was measured in experimental and control group before intervention. 25 gm of sprouted fenugreek seeds was administered in early morning before breakfast for clients in experimental group for 28 days.

The conceptual framework based on modified J.M.Kenny's open system model. The collected data were analysed based on the above mentioned objectives using descriptive and inferential statistics. The findings of the study showed that there was a significant (P<0.001) reduction in blood glucose level after administering sprouted fenugreek seeds in experimental group.

Key words: sprouted fenugreek seeds, blood glucose level, type 2 diabetes mellitus.

INTRODUCTION:

Diabetes mellitus is a multi-system disease related to abnormal insulin production, impaired insulin utilization, or both. Diabetes mellitus is serious problem throughout the world. About one third of the people with diabetes mellitus are not diagnosed, and these individuals are unaware that they have the disease. Although Type II was previously called non-insulin dependent diabetes mellitus, patients with Type II diabetes mellitus may require insulin as a part of their management plans, either initially or later the course of disease. The sprouted (germinated) seeds of the fenugreek contain many of the effective compounds with their medicinal, therapeutic and pharmaceutical applications. The chemical and medicinal components of fenugreek seed include vitamin A, vitamin B1, vitamin C&E, phosphates, flavonoids, saponins, trigonelline, alkaloids, flavonoids, steroids, saponins, polyphenolic substances, carbohydrates, flavonoids (apigenin, luteolin, orientin, quercetin, vitexin and isovitexin) free amino acids, such as 4-hydroxyisoleucine, arginine, histidine and lysine, saponins, glycosides etc. Fenugreek seed also known as Trigonella foenum-graecum is commonly used in India in kitchens. It has been commonly used as herbal preparation for diabetes treatment. Multiple mechanisms are suggested for its efficacy in diabetes population. Soluble fibers in fenugreek including glucomannan fiber delays intestinal absorption of ingested sugars and alkaloids such as fenugrecin and trigonelline have demonstrated to possess hypoglycemic action, and 4 hydroxyisoleucine (4-OH Ile) amino acids act on pancreas to release insulin. The present study evaluated antidiabetic properties of this medication on diabetes control in tertiary care hospital based in rural India in Telangana region.

OBJECTIVES:

1. To assess the levels on reduction of blood glucose level among clients with type 2 diabetes mellitus.
2. To evaluate the effectiveness of sprouted fenugreek seeds on reduction of blood glucose level among clients with type 2 diabetes mellitus.
3. To associate the effectiveness of sprouted fenugreek seeds on reduction of blood glucose level among clients with type 2 diabetes mellitus with the selected demographic variables.

HYPOTHESES:

H1: There will be a significant difference between pre and post test scores of sprouted fenugreek seeds on reduction of blood glucose level among clients with type 2 diabetes mellitus in experimental group.

H2: There will be a significant difference between pre and post test scores of sprouted fenugreek seeds on reduction of blood glucose level among clients with type 2 diabetes mellitus in experimental group and control group.

H3: There will be a significant association between the effectiveness of sprouted fenugreek seeds on reduction of blood glucose level among clients with type 2 diabetes mellitus with the selected demographic variables.

CONCEPTUAL FRAMEWORK:

This study based on **Modified "J.M.KENNY'S OPEN SYSTEM MODEL"** all living system are open in that there is a continuous exchange of matter, energy and information open system have varying degree of interaction with the environment from which the system input, output and gives back output in the form of matter, energy and information. The main concept of the open system model all inputs, throughput, output and feedbacks in open system theory.

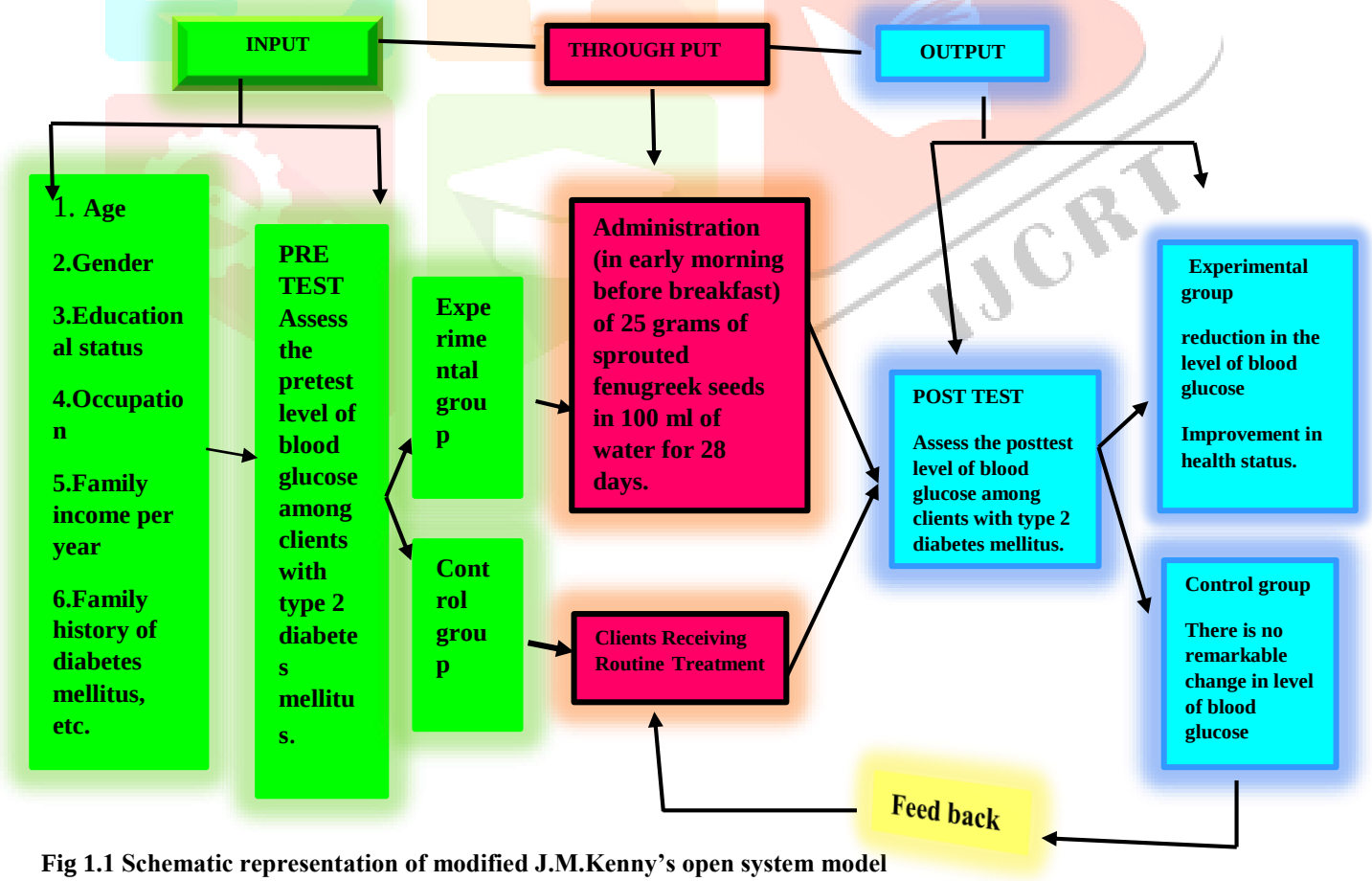

Fig 1.1 Schematic representation of modified J.M.Kenny's open system model

RESEARCH METHODOLOGY:

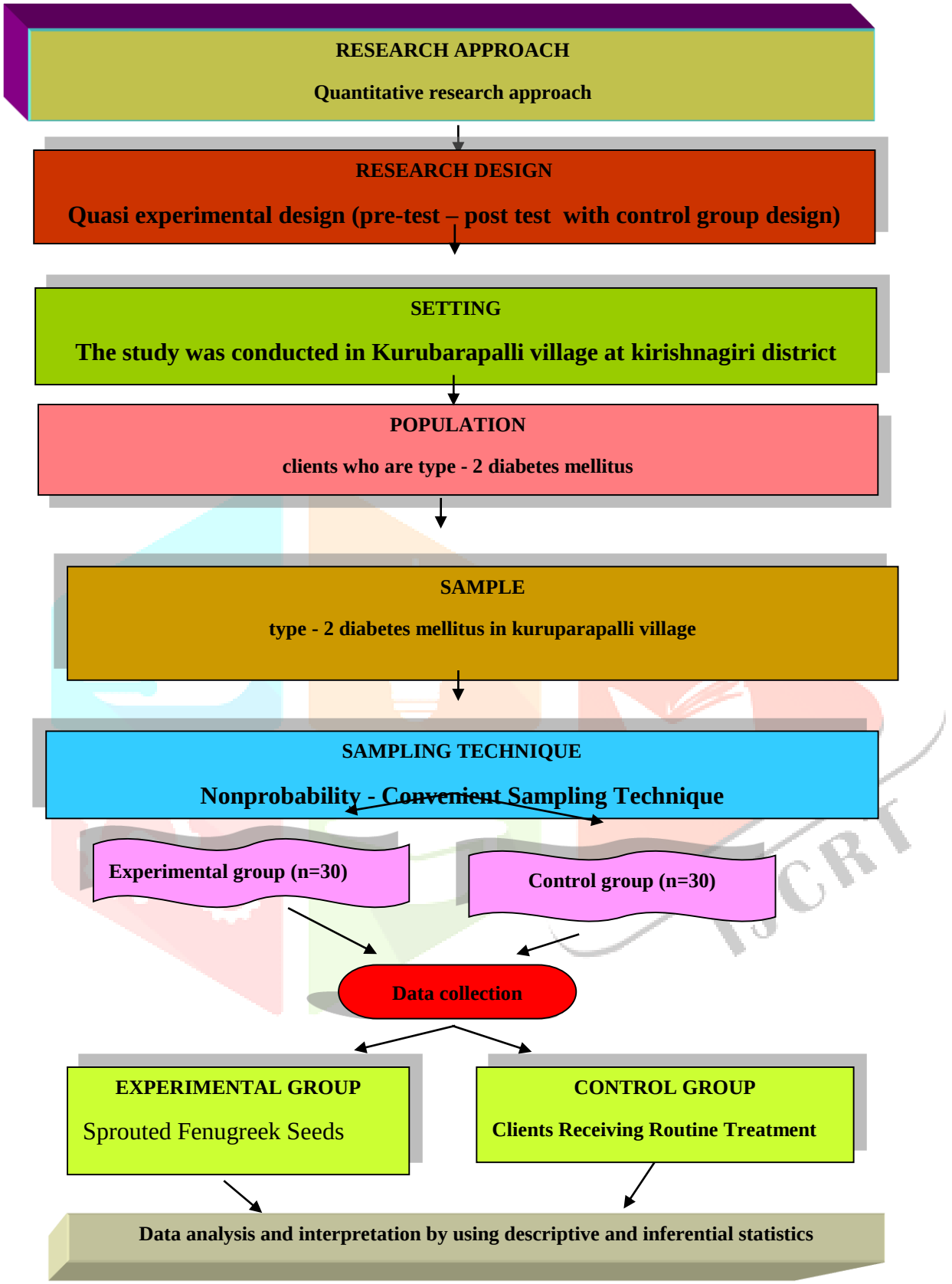

FIGURE 1.2: SCHEMATIC REPRESENTATION OF RESEARCH METHODOLOGY

DEVELOPMENT AND DESCRIPTION OF THE TOOL:

This consists of two sections

Section – A: Demographic variables data of type 2 diabetes mellitus.

Section– B: Observation schedule on blood sugar.

TABLE 1.1 BLOOD GLUCOSE LEVEL

S.NO	BLOOD SUGAR	BEFORE INTERVENTION	AFTER INTERVENTION
1.	**Fasting**		
2.	**Post Prandial**		

RESULTS AND DISCUSSION:

Comparison between pre and post blood glucose level in experimental group.

TABLE 1.2: Comparison between pre and post blood glucose level in experimental group.

(n=60)

S.NO	TEST	N	MEAN	S.D	"t" test value (paired)
1.	Before intervention fasting blood glucose level	30	124.83	1.487	19.029*
	After intervention fasting blood glucose level	30	110.30	3.687	
2.	Before intervention postprandial blood glucose level	30	257.33	6.391	14.931*
	After intervention postprandial blood glucose level	30	174.93	29.518	

* - Significant at 0.001 level

The above table -1.2 elicits that the obtained "t" values were19.029, 14.931. The findings implies that there is a significant difference between fasting and postprandial blood glucose level before and after intervention. The mean score of fasting and postprandial blood glucose level 124.83, 110.30, 257.33, 174.93 respectively from pre intervention to post intervention depicts the effectiveness of the intervention as the mean score decreased.

(n=60)

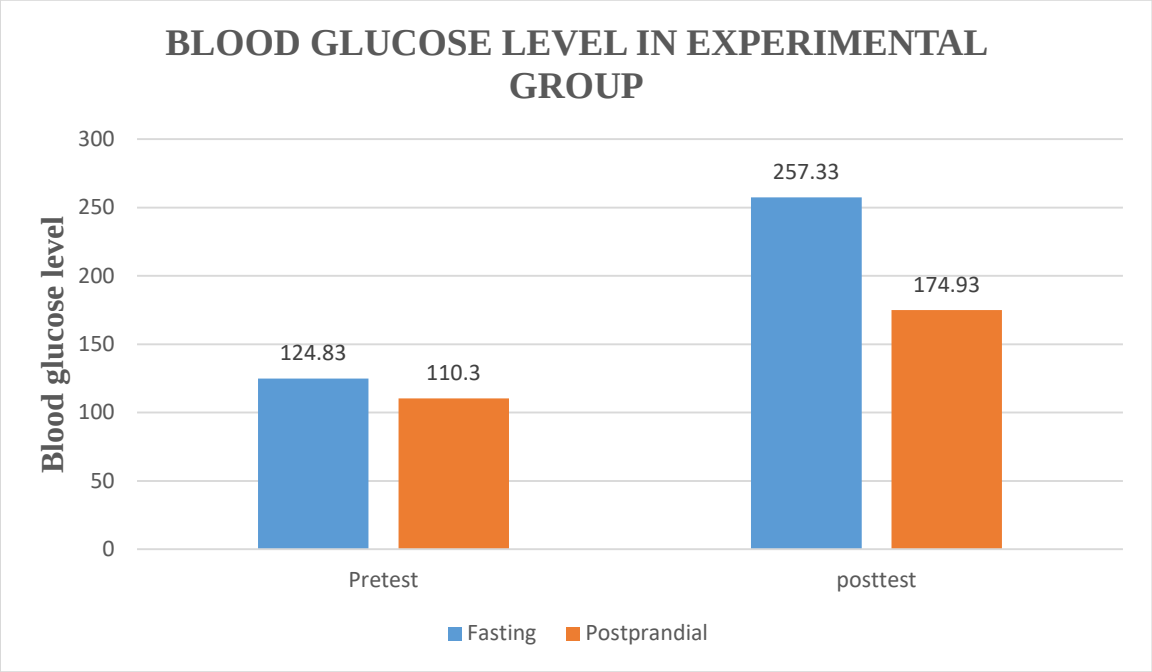

Figure 1.3: shows the comparison of blood glucose level in experimental group.

Table – 1.3 : Association between effectiveness of sprouted fenugreek seeds with the selected demographic variables.

(n=60)

Demographic variables	Positive response		Negative response		Chi-square test
	n	%	n	%	
1. Diet					
Vegetarian	16	53.3	1	3.3	χ^2 = 1.88 P = 3.84
Non vegetarian	10	33.3	3	10	NS
2. Green leaf vegetable					
Twice in a week	3	10	2	6.66	χ^2 = 4.072
Once in a week	17	56.7	1	3.3	P = 5.99
Never	6	20	1	3.3	NS
3. Exercise					
Regular	7	23.3	1	3.3	χ^2 = 0.004
Irregular	19	63.3	3	10	P = 3.84 NS
4. Sleep pattern					
>8 hours	22	73.3	2	6.7	
More than 8 hours	3	10	2	6.7	χ^2 = 2.59

<8 hours	1	3.3	0	0	P = 3.84 NS

Table – 1.3: It shows that there was no satisfactory significant association between percentage of marks scored with mean pretest level of sprouted fenugreek seeds on reduction of blood glucose level among clients with type 2 diabetes mellitus. Thus it was considered as non significant. It reveals that in the demographic variable had not shown any statistically significant association with the level of sprouted fenugreek seeds on reduction of blood glucose level among clients with type 2 diabetes mellitus. It may be due to the sample size.

(n=60)

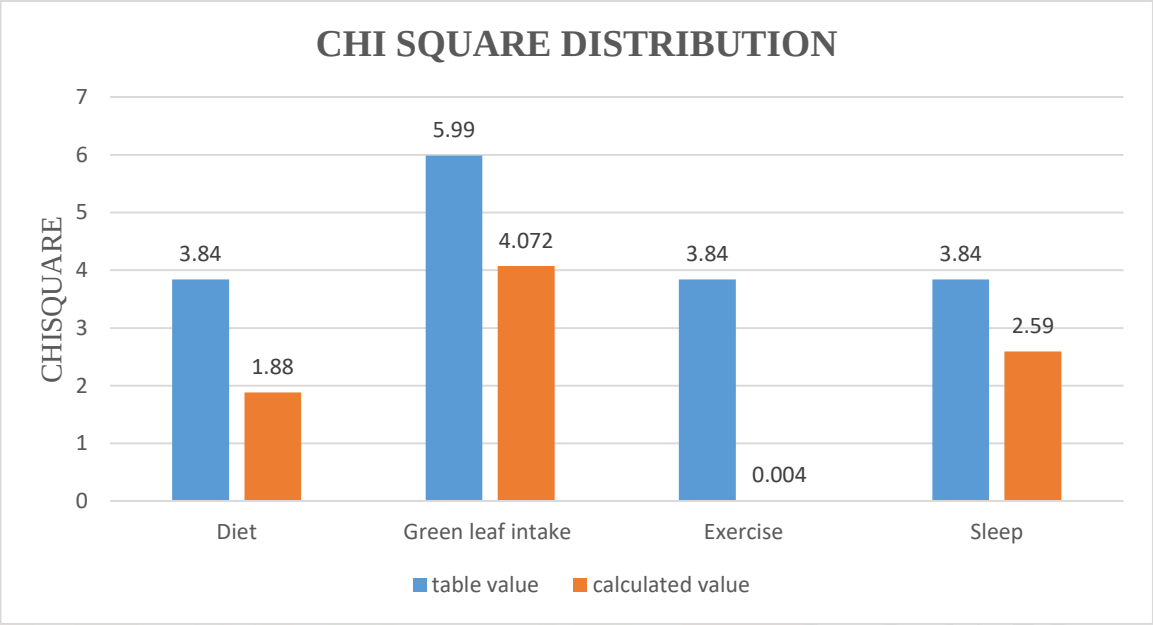

Figure 1.4 : shows the chi square distribution of selected demographic variables.

CONCLUSION:

It was identified that sprouted Fenugreek Seeds was effective in reducing blood glucose level. It improves the general well being of client, prevents them from developing complications and reduces the dosage of drugs. Sprouted fenugreek seeds improves glycemic control and decreases insulin resistance in clients with type 2 diabetes mellitus. There is also a favourable in reducing their economic burden.

REFERENCES:

1. B K Mahajan., (1999). **Methods in Biostatistics** (6th ed). New Delhi: Jaypee Brothers Publications.
2. Basvanthappa, B. T.,(2008). **Nursing Research** (1st ed.). New Delhi: Jaypee Brothers Publications.
3. Beare, P.G., et al., (1998). **Adult Health Nursing** (3rd ed.). Phiadelphia: Mosby Publications.
4. Black, J.M. & Hawks, J.H. (2009). **Medical-Surgical Nursing: Clinical Management for Positive Outcomes** (8th ed.). Philadelphia: Elsevier/Saunders Publications.
5. Abdel-Barry J. A., et.al., Hypoglycaemic effect of aqueous extract of the leaves of Trigonella foenum-graecum in healthy volunteers. East Mediterr Health J., 6(1), 83-88, 2005.
6. Bantle JP, Wylie-Rosett J, Albright AL et al. Nutrition Researchition recommendations and interventions for diabetes--2006: a position statement of the American Diabetes Association. Diabetes Care 2006; 29:2140-2157.
7. Berman BM, Swyers JP, Kaczmarczyk J. Complementary and alternative medicine: herbal therapies for diabetes. J Assoc Acad Minor Phys 2007; 10:10-14.
8. Blumenthal M, Busse WR, Goldberg A, et al. (eds). The Complete Commission E Monographs: Therapeutic Guide to Herbal Medicines. Boston, MA:Integrative Medicine Communications, 2006, 130.
9. Sharma RD, Sarkar A, Hazra DK, et al. Use of fenugreek seed powder in the management of non-insulin dependent diabetes mellitus. Nutrition Research 2001;16(8):1331-1339.
10. Sharma RD. Effect of fenugreek seeds and leaves on blood glucose and serum insulin responses in human subjects. Nutrition Research 2001; 6:1353- 1364.
11. Sharma, R., et.al., Hypolipidemic effect of Fenugreek seeds: a Chronic study in non-insulin dependent diabetic patients, Phytotherapy Research, 10, 332-334 2001.
12. Sowmya P, Rajyalakshmi P. Hypocholesterolemic effect of germinated fenugreek seeds in human subjects. Plant Foods Hum Nutrition Research 2001;53:359–65.
13. Turner RC, Cull CA, Frighi V, Holman RR. Glycemic control with diet,sulfonylurea, metformin, or insulin in patients with Type II diabetes mellitus - Progressive requirement for multiple therapies (UKPDS 49). J Am Med Assoc 2003; 281:2005-2012.
14. World Health Organization. The World Health Statistics 2008.
15. Yeh GY, Eisenberg DM, Davis RB, Phillips RS. Use of complementary and alternative medicine among persons with diabetes mellitus: results of a national survey. Am J Public Health 2002; 92:1648-1652.
16. Yeh GY, Eisenberg DM, Davis RB, Phillips RS. Use of complementary and alternative medicine among persons with diabetes mellitus: results of a national survey. Am J Public Health 2002; 92:1648-1652.
17. Youngren JF. Exercise and the regulation of blood glucose. In: Degroot L, Goldfine ID,

Rushakoff RJ, editors. Endotext.org: Diabetes and Carbohydrate Metabolism.

18. Zimmet P, Alberti KG, Shaw J. Global and societal implications of the diabetes epidemic. Nature 2001; 414:782-787.