



CONTROL OF DIABETES MELLITUS BY THE USE OF POMEGRANATE RIND EXTRACT

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Abstract

Rind also known as trash, waste, garbage, junk, litter, is unwanted or useless materials. Waste is directly linked to human development, both technologically and socially. Waste is sometimes a subjective concept, because items that some people discard may have value to others. It is widely recognized that waste materials are a valuable resource. Such concepts are colloquially expressed in western culture by such idioms as

“One man’s trash is another man’s treasure.”

To prove this idiom, use of pomegranate rind extract is an appreciable effort. Proper utilization of rind is helpful in controlling diabetes and also leads to eco safe environment at no extra cost. Diabetes mellitus is a spectrum of inherited and acquired disorder that is characterized by elevated circulating blood glucose levels.

This study is divided into two phases- phase I include field survey of diabetes patients in which fifty respondents were selected by using the purposive sampling techniques and data were collected by questionnaire cum interview schedule, dietary survey is done by 24 hour recall method & anthropometric assessment is obtained to determine the nutritional status of diabetic patients. Phase II include experimental procedure in which pomegranate peel extract was prepared and distributed, recording of different parameters and analyzed statistically.

There was significant difference found before and after 10, 20, and 30 days of supplementation in fasting blood & post prandial glucose level in experimental group. There was significant coefficient correlation difference was found between fasting & post prandial blood glucose level after 10, 20 & 30 days of supplementation as calculated value (2.57) of this group is higher than standard “r” (0.8) value. So, it was positive correlated.

INTRODUCTION

Rind also known as trash, waste, garbage, junk, litter, is unwanted or useless materials. Waste is directly linked to human development, both technologically and socially. Waste is sometimes a subjective concept, because items that some people discard may have value to others. It is widely recognized that waste materials are a valuable resource. Such concepts are colloquially expressed in western culture by such idioms as

“One man’s trash is another man’s treasure.”

To prove this idiom, use of pomegranate rind extract is an appreciable effort. Proper utilization of rind is helpful in controlling diabetes and also leads to eco safe environment at no extra cost. Human body has to maintain the blood glucose level at a very narrow range, which is done with insulin and glucagons. Diabetes is a metabolic disorder where in human body does not produce or properly uses insulin, a hormone that is required to convert sugar, starches, and other food into energy.

TYPES OF DIABETES MELLITUS

1. Type I Diabetes Mellitus formally known as juvenile diabetes, in this type of diabetes the pancreas produces no insulin or only a small amount. This form is also called ‘Insulin Dependent Diabetes Mellitus (IDDM)’ because people who develop this type need to have daily injections of insulin.

2. Type II Diabetes Mellitus is the more common form of diabetes which formally Known as adult-onset diabetes. Fat, muscle, and liver cells develop resistance to insulin, and eventually the pancreas cannot keep up with insulin production. When insulin does not work the way it should, glucose stays in the blood, increasing blood sugar levels. This form also is called non – insulin dependent diabetes mellitus.

1. **Gestational Diabetes-** Another form of diabetes, called gestational diabetes, usually develop during pregnancy and generally resolves after the baby is delivered. This diabetic Condition develops during the second or third trimester of pregnancy in about 2% of pregnancies.

Diabetes Control by Pomegranate

Pomegranate rinds contain a particularly beneficial type of tannin called ellagitannin, which is water - soluble combination of Ellagic acid and glucose that is very digestible for ruminants. The combined compounds in pomegranate rind have shown to have an anti - diabetic effect. (Khalil, 2004)

Pomegranate juice and juice extracts are being proven helpful for type-2 diabetes around the world. Hundreds of human trials and studies show that pomegranate supplements (either the juice or extract concentrates) act in ways that are quite similar to many patented drugs to improve control of blood sugar, as well as improve patient's problems with other problems like hypertension and high cholesterol.

EXPECTED BENIFITS OF POMEGRANATE EXTRACT

- Improve control over blood sugar, hyperglycemia.
- Reductions in insulin resistance, improved insulin efficiency.
- Improve control over blood pressure, hypertension.
- Reductions in low density lipoprotein cholesterol and triglycerides.
- Increases in nitric oxide.
- Increase levels of high density lipoprotein cholesterol.
- Reductions in CRP, protein inflammatory markers.

OBJECTIVES OF THE STUDY

- To study the existing blood glucose level and dietary intake of NIDDM patient.
- To prepare and supplement the pomegranate peel extract to the patient.
- To observe the difference between blood glucose level before and after supplementation of pomegranates peel extract.
- To check the acceptability of supplement.

METHODOLOGY

50 NIDDM diabetic patients were selected for the study (18 female and 32 male). They belonged to the age group 40 - 60 year. All samples were free from serious complications. The samples were divided into two groups, Control group and experimental group. In the control group total numbers of samples were 25 out of which 11 were female and the remaining 14 were male. In the experimental group total numbers of samples were 25 out of which, 7 were female and the remaining 18 were male.

To elicit information questionnaire cum interview schedule was prepared. It consisted of three parts- (1) general information (2) detailed information regarding the Dietary intake pattern, Anthropometric measurements & (3) specific information such as- knowledge about the disease and diet. More over bio-chemical test were administered in which Bio-chemical parameters mainly blood glucose level both fasting and post prandial levels were estimated by “Pathology lab”.

PROCEDURE

Take 100 gm of pomegranate peel and 800ml of water



Boil the solution



Till the solution become 200ml in beaker



Strain the solution (separate peel from the Solution)



Keep solution in bottle

A bottle of pomegranate peel extract supplement contained 200ml of solution was given to subjects after every 10 days of the study. Every subject in the experimental group was recommended to take 10ml of pomegranate peel extract, before breakfast and 10ml after dinner regularly for a span of 30 days. Blood glucose level (fasting and post prandial) were recorded after 10days, 20 days, and 30 days of study period of both groups. Weight and B.M.I were

recorded after 30 days of study period of both groups. The collected data were analyzed with the help of appropriate statistical tools such as percentage, mean, standard deviation & 't' test (level 0.05 and 0.01).

RESULTS

“T” value of fasting glucose level before and after supplementation (exp. group)

S. No.	Level of significance	Before supplement	After 10 days	After 20 days	After 30 days
I.	Mean	89.28	85.96	83.33	81.59
II.	S.D.	99.27	93.15	90.25	88.79
III.	“t” test		4.61	4.62	4.64

The table reveals that, fasting blood glucose level of experimental group, before and after 10, 20 & 30 days of supplementation is significantly different, because the calculated value of 't' is higher than table value of 't' for all.

“t” and Coefficient of Correlation value of Post Prandial Glucose Level before and after Supplementation (Experimental Group)

S. No.	Level of significance	Before supplement	After 10 days	After 20 days	After 30 days
I.	Mean	139.2	133.2	129	126.1
II.	S.D.	158.8	148.8	144	140.9
III.	‘t’ test		4.48	4.49	4.50
IV.	‘r’		2.73	2.67	2.57

The table reveals that, post prandial blood glucose level of experimental group, of before supplementation and after 10, 20 & 30 days of supplementation is significantly different & positively co-related, because the calculated value of 't' is higher than table value of 't' for all these supplementation while control group showed improvement after medico treatment.

CONCLUSION

Good nutrition and natural treatment may lower the blood glucose level so that the individual enjoy with natural treatment and maintain their blood glucose level. High blood glucose level in studied respondents occurs either as a result of hormonal disturbances or heredity or due to improper food habits. Pomegranate peel extract is a preventive herbal medicine, which improves the health of a diabetic at initial stage by decreasing the blood glucose level.

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