

Effect of Jambu Fruit Pulp (*Eugenia jambolana* Lam.) on Blood Sugar levels in Healthy Volunteers and Diabetics

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Received on May 6th, 1981

Jambu (Eugenia jambolana) is traditionally used for the treatment of Diabetes Mellitus. Effect of Jambu fruit pulp was investigated in seven nondiabetics and five diabetic subjects. Blood sugar was estimated basally and 1,2 and 3 hours after administration of Jambu fruit pulp orally (107 to 120 gms) in over night fasting subjects. Blood sugar was estimated on Auto-analyzer using Hoffmans micromethod for this study. In nondiabetics there was small but significant drop in the blood sugar ($p < 0.05$) while there was increase in blood sugar in diabetics which was statistically insignificant. Jambu fruit does not seem to have significant role in the management of diabetes.

Introduction

Ayurveda has described various dietetic articles with their therapeutic activities (Charak 1941). Clinical data on the usefulness of these dietary substances is scanty. *Jambu (Eugenia jambolana)* is used for the treatment of diabetes. Pharmacological and clinical studies of *Jambu* seeds have been reported. (D.S. Antarkar, 1955, G.S. Sepha, 1956, D.S. Shrotri, 1963 *et al*). *Jambu* fruit pulp is also used in diabetic patients traditionally. However there are no studies on the effect of *Jambu* fruit pulp on blood sugar. We were therefore interested in determining the effect of fruit pulp on blood sugar levels in diabetics and healthy volunteers. Results of the study are reported in this paper.

Materials and Methods

Seven healthy volunteers and five

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maturity onset diabetic subjects were studied. All seven non-diabetics were male and out of five diabetics, two were male and three female. Diabetic patients were selected irrespective of their fasting blood sugar level, age or duration of the disease. The mean age of non-diabetics was 25 yrs. (range 22-34 yrs.) and of diabetics was 46 yrs. (range 25-70 yrs.). Subjects were fasted overnight. They were given measured amount of fresh *Jambu* fruits (150 gms) and were instructed to eat only the pulp. Seeds were collected from each of them and weighted. The quantity of pulp consumed was then determined. The average pulp consumption was 114 gm. (range 107 to 120 gms) per subject. One non-diabetic subject consumed 184 gm of pulp out of 300 gms of fruits. Blood samples for the estimation for sugar were collected basally, one hour, two hours and 3 hours after ingestion of *Jambu* pulp. Blood sugar was estimated by Hoffmans micro-method on Auto-analyzer (Auto—Technicon R). Study was carried out at a fixed time (7.30 A.M.) to exclude circadian variations (Aiman 1958 *et al.*) Wilcoxon signed rank test was utilised for calculating statistical significance. (Segal 1955).

Results and Discussion

In the non-diabetics *Jambu* fruit pulp induced a small but statistically significant drop ($P < 0.05$) in blood sugar at 3 hrs. (Table—I). One subjects ATJ who consumed 184 gms of pulp did not show dose-related drop in blood sugar. In the diabetic patients, there was a small increase in the blood sugar levels following fruit pulp ingestion (Table—II). However this increase was not statistically significant ($P > 0.2$ & 0.5). Shrotri *et al.*, G.S. Sepha *et al* reported 20 to 50% increase in blood sugar of the Alloxan rabbits following 50ml extract of *Jambu* pulp orally. Our study showed a small but statistically significant drop in nondiabetic subjects while increase in blood sugar in diabetics was statistically insignificant. *Jambu* fruit does not seem to have significant role in the management of diabetes.

Acknowledgement

Thanks are due to Director, C.C.R.A.S., New Delhi and Dean R.A. Podar Hospital, Bombay for giving facilities for the work. Thanks are also due to Director Ciba-Geigy Research Centre, Bombay for his assistance in these studies.

EFFECT OF *Jambu* ON BLOOD SUGAR LEVELS IN DIABETICS

Table—I

Blood Sugar Levels in Six Non-diabetics with Pulp of 150gm of *Jambu* Fruit

Sl. No.	Initials of volunteers	Quantity of pulp ingested from 150 gms of fruit	Blood Sugar levels in mg. per 100 ml			
			Fasting	1 hour	2 hours	3 hours
1.	P.M.K.	113.5 gm	80	63	70	68
2.	S.Y.N.	115.5 gm	76	62	64	66
3.	V.S.C.	106.5 gm	67	68	67	69
4.	V.G.B.	117 gm	72	76	71	68
5.	A.S.S.	119 gm	85	70	68	75
6.	M.B.G.	120 gm	72	70	68	64
		115.2 gm	75.3 ± 2.63SE	68.1 ± 3.75SE	67.1 ± 4.65SE	68.3 ± 2.11SE
7.	A.T.J.	184 gm	99	101	99	100

Table—II

Blood Sugar Levels in Five Diabetics with Pulp of 150 gm of Fruit

Sl. No.	Initials of volunteers	Quantity of pulp in 150 gm of fruit	Blood Sugar levels in gm per 100 ml			
			Fasting	1 hour	2 hours	3 hours
1.	G.B.B.	120 gm	178	236	216	232
2.	S.T.D.	113.5 gm	226	212	332	440
3.	S.M.J.	109 gm	112	128	118	106
4.	S.V.B.	110 gm	332	324	262	260
5.	G.M.S.	108 gm	352	372	355	325
		112.1 gm	240 ± 44.3SE	254.4 ± 12.6SE	256.6 ± 18.6SE	272.6 ± 49.67SE

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