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EFFECT OF SUPPLEMENTATION OF "MURRAYA KOENIGII" AND "OCIMUM SANCTUM LEAVES" IN NIDDM SUBJECTS



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Abs tract:-Globally the number of people with diabetes is increasing due to population growth, aging, urbanization, and increasing prevalence of obesity and physical inactivity. Quantifying the prevalence of diabetes and the number of people affected by diabetes, now and in the future is important to allow rational planning to control and prevent. India has long passed the stage of a diabetes epidemic. The problem has now reached, in scientific language, "pandemic" proportions. To put it simply, it has crossed the dividing line in which it is a problem associated with individuals, no matter how large this number may be, and is now a very large public health problem, growing astronomically year after year.

To begin with, curry leaves are anti-oxidants, anti-diabetic, anti- microbial, anti-inflammatory, and protect from various diseases cutting the risk of cancer plus lowering the risk of diabetes by stimulate the pancreas for secretion of insulin, prevention and control of diabetes. The commonly used spice curry pater (Murrayakoenigii) is traditionally consumed by diabetics in southern part of India. The curry leaves could control the amount of glucose entering the bloodstream. Similarly Tulasi leaves also are effective in treatment for diabetes by reducing blood glucose levels and significant reduction in total cholesterol levels. It acts as antioxidant, antibacterial, ant diabetic, antiviral, adaptogenic, and immune enhancing properties. Keeping this in view, the present study was designed to investigate the beneficial effect of the leaves of Murrayakoenigii and Ocimum Sanctum leaves on diabetes. The study revealed that there is a significant change in the FBS, PPBS and Lipid profiles of subjects who were supplemented with food mix (Curry leaves powder and Tulasi leaves powder). Hence it can be concluded that adequate intake of curry leaves powder and Tulasi leaves powder. The diet has impact on FBS, PPBS peak and lipid profile there is a 1 percent level of significance.

Keyw ords:Diabetesmellitus, Murrayakoenigii, Ocimum Sanctum, dietaryfibre, antioxidant, anti-diabetic.

INTRODUCTION

Diabetes mellitus is a group of metabolic disease characterized by high blood sugar (glucose) levels that result from defects in insulin secretion, or action or both. Normally, blood glucose levels are tightly controlled by insulin, a hormone produced by the pancreas. Insulin lowers the blood glucose level. When the blood glucose elevates (for example, after eating food), insulin is released from the pancreas to normalize the glucose level. More than a matter of individual health and wellbeing, the pandemic cells for an effort in which attention must be paid not only to treating a patient with diabetes. It involves a collective response which includes the setting up of a complete infrastructure which involves attention to prevention as well as making diabetes care "Available, Accessible and Affordable" to all persons with diabetes. Ruchi Mathur et. al (2010)

Nature has been a potential source of a variety of plant with diversified medicinal values and herbs used for the treatment of various aliment for thousands of years and plant based drugs continue to play an essential role in the primary health care of 80 percent of the world's under developed and

developing countries. Along with all these many herbal products, ayurvedic medicines have been released into the market for controlling diabetes such products are Curry leaves and Tulasi leaves, which has become more popular to reduce many disorders in humans along with diabetes. (Grover and Vats,2001)

In the present study, Murrayakoenigii was chosen since it is one of the most widely acclaimed remedies for the treatment of diabetes. Murrayakoenigii leaves are used as flavoring, condiment and folk medicine for the treatment of various metabolic and infectious diseases. It is also called sweet neem leaves. Curry leaves powder is known as nutritional power house. It is a good source of dietary fibre. Dietary fibre helps in reducing blood sugar levels. They are extremely high in antioxidants, plant sterols, amino acids, glycosides, proteins and flavonoids. Which aid in maintaining normal glucose level in the blood. The pancreatic alpha amylase is responsible for diabetes when we consume curry leaves it trigger the secretion of this pancreatic alpha-amylase enzyme curry leaves are known to control diabetes by regulating the breakdown of

carbohydrates. By consuming curry leaves, the liver and kidney function normally. Garcot et.al (2008)

"Tulasi" the most sacred herb of India is known as the queen of herbs. Tulasi leaves contain chlorophyll and many other phytonutrients. Thus helps in maintaining blood sugar level, cholesterol level. It has anti-septic, anti-biotic and anti-diabetic properties. Tulasi leaves are full of eugenol (1-hydroxyl-2-methoxy-4-allylbenzene) due to which these leaves have the power to reduce blood sugar levels which eventually treats diabetes. (Arulselvam & Subramanin, 2007) Tulasi also helps in balancing the digestion metabolism process as it is pure & rich in anti-oxidants. Bhagava & Sengh (1981) Keep in this view the present study was conducted to effect of supplementation of "MurrayaKoenigii" and an "OcimumSanctum leaves" on NIDDM subjects.

MATERIALS AND METHODS

SELECTION OF SAMPLE

Sixty NIDDM subjects in the age group of 35-75 years were selected at random through door to door survey from Mahanadu, urban area in Guntur dist. The investigator found general information, health status, biochemical and diet survey for subjects. The selected Sixty NIDDM subjects are divided into 3 groups as, experimental groups(I& II) and control group 20 in each group.

PREPARATION OF THE PRODUCT

The fresh MurrayaKoenigii and Ocimum Sanctum leaves were collected from Prathuru village in Mahanadu region, Guntur dist. They were washed thoroughly in cold water and blanched for 5 minutes. The curry leaves were then dried in a sun shade for 7 days and Tulasi leaves were dried for 3 days. The dried leaves were made into fine powder and stored in air tight glass container until supplementation.

SUPPLEMENTATION OF THE PRODUCT FOR 2 MONTHS

The present study was undertaken to see the effect of curry leaf powder and Tulasi leaf powder on diabetic (NIDDM) subjects. To the experimental group I, 10 g of Curry leaves powder and for experimental group II 5 g of Tulasi leaves powder was made into supplemented for 2 months by incorporating in chapatti or chutney powder along with rice.

PRE AND POST BIO CHEMICAL ANALYSIS

The pre and post biochemical analysis was carried for the subjects before and after supplementation.

RESULTS

Table no:1 show the comparison of mean blood sugar levels in experimental groups(I &II) and control group before and after supplementation.

Type of group	Gender		Mean mg/dl	± SD	t-Value
FBS	Experimental Group I	Male n=10	BF 154.00	± 28.425	6.139**
		AF 113.00	± 16.401		
		Female n=10	BF 138.60	± 20.888	6.277**
		AF 110.60	± 11.632		
	Experimental Group II	Male n=10	BF 143.20	± 23.700	7.626**
		AF 119.40	± 19.308		
		Female n=10	BF 144.80	± 19.829	5.152**
		AF 120.80	± 12.235		
	Control Group	Male n=10	BF 142.40	± 22.431	1.232
		AF 138.60	± 16.641		
Female n=10		BF 136.90	± 20.529	1.991	
AF 134.00		± 17.120			
PPBS	Experimental Group I	Male n=10	BF 266.20	± 62.404	3.644**
		AF 210.80	± 36.561		
		Female n=10	BF 232.80	± 30.557	29.000**
		AF 198.00	± 32.027		
	Experimental Group II	Male n=10	BF 226.80	± 22.027	19.690**
		AF 197.20	± 19.136		
		Female n=10	BF 235.60	± 24.966	8.734**
		AF 198.40	± 17.558		
	Control Group	Male n=10	BF 258.70	± 40.039	4.633
		AF 280.20	± 49.495		
Female n=10		BF 245.90	± 43.242	1.772	
AF 239.90		± 37.138			

*Indicates significant at 5 percent level

**indicates significant at 1 percent level

BF= Before supplementation

AF= After supplementation

Table no:2 shows the comparison of mean lipid profile levels in experimental groups(I&II) and control groups before and after supplementation.

S.No.	Type of group	Gender	Mean mg/dl	± SD	t-value
2(a)	Total Cholesterol				
2(a)	Experimental Group - I	Male n=10	BF 202.00	± 37.822	2.433
		AF 181.40	± 21.790		
		Female n=10	BF 199.60	± 46.155	2.768*
		AF 178.40	± 33.975		
	Experimental Group - II	Male n=10	BF 195.20	± 45.659	5.535**
		AF 183.20	± 41.602		
		Female n=10	BF 200.00	± 43.087	5.352**
		AF 187.00	± 39.281		
	Control Group	Male n=10	BF 205.30	± 31.906	4.586**
		AF 191.20	± 35.705		
		Female n=10	BF 180.90	± 29.842	2.60
		AF 181.80	± 27.800		
2(b)	Triglycerides				
2(b)	Experimental Group - I	Male n=10	BF 193.60	± 111.576	1.143
		AF 164.00	± 54.534		
		Female n=10	BF 160.20	± 101.317	0.931
		AF 146.80	± 71.179		
	Experimental Group - II	Male n=10	BF 201.20	± 95.816	1.544
		AF 185.80	± 75.827		
		Female n=10	BF 170.00	± 87.764	1.146
		AF 144.60	± 40.918		
	Control Group	Male n=10	BF 211.90	± 76.835	1.440
		AF 203.20	± 67.905		
		Female n=10	BF 190.00	± 75.748	0.804
		AF 186.50	± 65.717		
2(c)	High Density Lipoprotein (HDL)				
2(c)	Experimental Group - I	Male n=10	BF 46.60	± 6.877	8.835**
		AF 60.40	± 4.015		
		Female n=10	BF 64.20	± 13.828	8.900**
		AF 72.20	± 13.664		
	Experimental Group - II	Male n=10	BF 42.40	± 1.817	14.063**
		AF 50.6	± 2.702		
		Female n=10	BF 60.20	± 12.276	3.723**
		AF 67.40	± 10.065		
	control Group	Male n=10	BF 43.20	± 8.967	0.896
		AF 44.20	± 6.233		
		Female n=10	BF 37.70	± 10.034	3.337**
		AF 41.60	± 7.877		
2(d)	Low Density Lipoprotein (LDL)				
2(d)	Experimental Group - I	Male n=10	BF 111.48	± 29.304	3.447**
		AF 88.200	± 20.4880		
		Female n=10	BF 103.40	± 18.703	13.070**
		AF 76.840	± 16.6646		
	Experimental Group - II	Male n=10	BF 113.20	± 29.778	16.478**
		AF 95.440	± 30.551		
		Female n=10	BF 103.60	± 26.726	4.847**
		AF 88.200	± 22.9201		
	control Group	Male n=10	BF 119.040	± 38.5567	3.487**
		AF 101.500	± 42.2963		
		Female n=10	BF 103.580	± 35.0401	0.664
		AF 101.92	± 35.172		

2(e)	Very Low Lipoprotein(VLDL)	Density				
	Experimental Group - I	Male	BF	43.92	± 16.868	4.002**
			AF	32.909	± 10.909	
		Female	BF	32.00	± 20.285	0.913
			AF	29.360	± 14.258	
	Experimental Group - II	Male	BF	41.60	± 17.018	4.972**
			AF	37.160	± 15.167	
		Female	BF	36.20	± 15.865	2.947**
			AF	31.320	± 13.0174	
	control Group	Male	BF	43.060	± 13.8343	1.361
			AF	40.640	± 13.5810	
		Female	BF	39.580	± 12.5947	0.430
			AF	40.180	± 11.8259	
2(f)	Hemoglobin levels					
	Experimental Group - I	Male	BF	11.50	± 0.906	15.221**
			AF	13.620	± 0.9338	
		Female	BF	9.9166	± 1.52017	13.058**
			AF	13.140	± 1.0621	
	Experimental Group - II	Male	BF	9.640	± 1.6697	11.104**
			AF	12.766	± 2.0007	
		Female	BF	9.800	± 1.3266	6.159**
			AF	12.320	± 2.0664	
	control Group	Male	BF	11.110	± 1.4393	3.269**
			AF	11.490	± 1.1484	
		Female	BF	10.520	± 1.0475	5.293**
			AF	11.480	± 1.4566	

*Indicates significant at 5 percent level

**indicates significant at 1 percent level

BF= Before supplementation

AF= After supplementation

Data in table no: 1 reveals that the fasting blood sugar levels in experimental group I before and after supplementation. There is a significant decrease from 154.00mg/dl to 113.00mg/dl for males and 138.60 mg/dl to 110.61mg/dl in females respectively (1 percent level).

Fasting blood sugar levels in experimental group II before and after supplementation indicated a significant decrease from 143.20mg/dl to 119.40mg/dl for males and 144.80 mg/dl to 120.81mg/dl in females respectively.

The post prandial blood sugar levels in experimental group I showed a significant reduction with supplementation of Curry leaves powder from 266.20mg/dl to 210.80mg/dl in males and 232.80mg/dl to 198.00 mg/dl in females respectively when compared to control group. In experimental group II significant reduction with supplementation of Tulasi leaves powder from 226.80mg/dl to 197.20 mg/dl in males and 235.60 mg/dl to 198.40 mg/dl in females respectively when compared to control group.

Data in table no: 2 reveal the lipid profile levels in experimental group I before and after supplementation. There is significant decrease in the total cholesterol, triglycerides, low density lipo protein and very low density lipo protein levels. The total cholesterol level decreased from 202.00mg/dl to 181.40 mg/dl in males and 199.60mg/dl to 178.40 mg/dl in females. The triglycerides level from 193.60mg/dl to 164.00mg/dl in males and 160.20mg/dl to 146.80mg/dl in females. Similar decrease observed in low density lipo protein level and Very low density lipo protein level in both male and females. Dietary fibre and antioxidants in curry leaves and tulsi leaves increased the in high density lipo protein. High density lipo protein level increased from 46.60 mg/dl to 60.40mg/dl in males and 45.85mg/dl to 52.mg/dl in females. Similarly Hemoglobin level from 11.11g to 13.62g in males and 9.93 g to 13.14g in females increased in experimental groups due to high iron levels in green leaves. Similar trend was observed even in the experimental group II before and after supplementation in case of all aspects.

There was a significant levels of reduction in FBS, PPBS, Total cholesterol, LDL, VLDL. and there is increase in the HDL and Hb among the experimental group I and experimental group II in both males and females after

supplementation of Curry leaves and Tulasi leaves powder for 2 months. Oxidative stress is the damage caused to cells by free radicals, which are produced as a result of cellular metabolism. Antioxidants bind to these free radicals and render them powerless in their attack on cells. The antioxidant property of curry leaves and tulsi might have reduced the death of pancreatic cells. This is important since pancreatic cells produce insulin and are therefore involved in control of diabetes. This is due to the components such as high concentrations of chlorophyll active enzymes. In Tulasi leaves chlorophyll has been proven to have cleansing effect on the blood, which means that it can help the body rid of harmful toxins. It also increases the production of hemoglobin in blood and helps in strengthening the immune system.

CONCLUSION

It can be concluded from the study that there is an effectiveness of Curry leaves and Tulasi leaves for NIDDM subjects. It can be said that this results has been a thorough influx of relief for diabetes.

REFERENCES

- I.Arulselvan S, Subramanian;(2007), Effect of MurrayaKoenigii Leaf Extract on Carbohydrate Metabolism Studied in Streptozotocin Induced Diabetic Rats; International Journal of Biological Chemistry".
- II.Bhargava KP, Singh N; (1981), Anti-stress activity of Ocimum sanctum Linn. Indian J.Med. Res.
- III.Garcotk,Raj MN, Peter KV, Nybe EV; (2008), Spices, New India Publishing, Vol5, 170.
- IV.Grover JK, Vats V (2001). Shifting parading from conventional to alternative medicine. An introduction on traditional Indian medicine. Asia pacific biotechnology.new, 5:28.
- V.Rajesh kumarV; (2011), How to control diabetes and lower blood sugar levels naturally .
- VI.RuchiMathur M,Bergenstal RM; (2010) Effectiveness of sensor-augmentedinsulin-pumptherapyin type 1 diabetes. NEnglJMed. 363(4):311.

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