

Hypoglycemic Effect of Bitter Gourd (*Momordica Charantia* L) among Prediabetics in India: A Randomized Placebo Controlled Cross Over Study

M. Amirthaveni¹, Gomathi² and Ray-yu³

¹Avinashilingam University for Women, India

²Sri Sarada college for Women, India

³The World Vegetable Center, Taiwan

Background: In India, the recent ICMR study revealed that the prevalence of diabetes (both known and newly diagnosed) in 4 regions of the country: 10.4 per cent in Tamil Nadu, 8.4 per cent in Maharashtra, 5.3 per cent in Jharkhand, and 13.6 per cent in Chandigarh (Anjana *et al.*, 2011). High prevalence of prediabetes observed in many South Asian countries highlights a potential indicator of further progression of the diabetic epidemic in the region. Unless appropriate action is taken, this will place an economic burden. Hence a food based approach was planned to reduce the incidence of prediabetics. The main aim of the present study was to investigate the hypoglycemic effect of bitter gourd (*Momordica Charantia* L.) among prediabetics.

Materials and Methods: A single blinded, placebo-controlled, randomized, cross-over designed intervention study was conducted with freeze dried bitter gourd powder (2.5 g) to find out its hypoglycemic effect. In the first phase Group 1 (AB) started the bitter gourd juice (A) intervention followed by placebo(B), while the Group 2 (BA) started the supplementation with placebo(B) followed by bitter gourd(A). The intervention continued for a period of eight weeks. Between the two arms, 4 weeks were left as wash-out period. This is to minimize the carry-over effect of one phase to the other. Cross over was done after this washout period.

Results: The mean initial fasting blood glucose level of prediabetics in AB group was 110.66 mg/dl which got reduced significantly ($p < 0.01$) to 99.86 mg/dl at the end of bitter gourd intervention. In the case of BA group the placebo treatment did not bring forth any appreciable change in FBG where as the bitter gourd treatment was found to have a significant ($p < 0.01$) impact. No serious adverse effects were observed.

Conclusions: The present study proves that the consumption of bitter gourd juice prepared with 2.5 g freeze-dried bitter gourd powder (50g of the vegetable) reduced the fasting blood glucose and total cholesterol level among the prediabetics.

Keywords: Hypoglycemia, prediabetes, bitter gourd, diabetes.

Biography:

Dr. M. Amirthaveni is a Professor and Head, Department of Food Science and Nutrition and has 42 years of teaching and research experience in Avinashilingam University, Coimbatore. She has completed Post Doctoral Fellowship training at Asian Vegetables Research and Development Centre (AVRDC), Taiwan during 1998. She has guided about 8 Ph.D. dissertations and 64 post graduate students. To her credit, she has completed 4 international research projects and 3 national projects. She has authored 2 books and published 20 international and 60 national level articles in refereed journals. Has also participated and presented papers in conferences at Japan, Tanzania and Taiwan. She is appointed as JRM team member for the Midday Meal Evaluation Committee by Ministry of Human Resource Development, Government of India. Member in various committees and boards of national standards like Nutrition Society of India, Home Science Association of India and Indian Dietetic Association.