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A SHORT REVIEW ON ANTIDIABETIC ACTIVITY OF BITTER GOURD

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Abstract: Diabetes is the metabolic disorder occurs due to the defects of Insulin in secretion and/or insulin sensitivity of tissue. Most common type-2 diabetes linked to high consumption of caloric rich diet, obesity, and secondary life style and it is associated with complication like oxidative stress. Synthetic hypoglycemic agent can be used in treatment but it have the undesirable effects like hypoglycemia, anorexia, brain abnormality and fatty liver. So it is the need of recent to use the natural product which has less or no undesirable effect. Bitter gourd (*Momordica charantia*) have antidiabetic activity. Beside this effect it also have anticancer activity. The constituents of bitter gourd, vicine, charantin and polypeptide-p have the antidiabetic effect where as steroidal saponin have sugar lowering effect.

Keywords: Metabolic disorder, Madhumeha, *Momordica charantia*, Perennial plant



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INTRODUCTION

Diabetes is the group of metabolic disorders resulting from the defects of insulin secretion or reduced sensitivity of the tissue to insulin action or both¹. Generally 85-95% of diabetic patient suffering from type-2 diabetes (non insulin-dependent diabetes mellitus), This type is very common in people over 40 years of age and the cause has been linked to the high consumption of calorie-rich diet, obesity and secondary life style². Diabetes mellitus of long duration is associated with several complications such as artherosclerosis, myocardial infarction and neuropathy etc. These complications have been long term assumed to be related to chronically elevated glucose level and subsequent. Oxidative stress there is a need for drugs, which lowers the elevated blood glucose level and also reduces oxidative stress to prevent long term complication³. There are about 40 millions cases in India alone⁴. Many traditional plant treatments for diabetes mellitus are used throughout the world⁵. Few of the traditional plant treatment for diabetes has received scientific scrutiny⁶. In India number of plants is mentioned in incient literature (Ayurveda) for the cure of diabetic condition known as 'madhumeha' and some of them have been experimentally evaluated and the active principles were isolated⁷. Moreover, undesirable effect such as hypoglycemic, anorexia, brain atrophy and fatty liver appear during the uptake of oral hypoglycemic synthetic drugs⁸. Therefore there is need safer and

more effective antidiabetic and ameliorative drugs⁹. Bitter melon also known as bitter gourd (Karela, balsam pear and momordica charantia) is a perennial plant that grows in tropical and subtropical region of Asia, South America, East Africa and Carribean¹⁰. Bitter gourd is a common tropical vegetable that has also been used in traditional medicine. Bitter gourd shows anti diabetic, anti bacterial, antiviral, and anticancer activities. That activities have been scientifically demonstrated in past decades¹¹⁻¹². Also shows ameliorate metabolic syndrome (mets) in animal studies¹³.

Mechanism of action:

In bitter gourd at least three different groups of constituent have been reported. These include a mixture of steroidal saponins for the blood sugar lowering the activity¹⁴. Mainly vicine, charantin and polypeptide-p three known compound present in bitter gourd responsible for its antidiabetic properties. Possible mechanism includes increased insulin secretion, tissue glucose uptake liver muscle glycogen synthesis, decrease hepatic gluconeogenesis^{15, 10}.

In clinical study of momordica charantia in diabetic patient, hypoglycemic effects where accompanied by significant adaptogenic properties indicated by a delay in appearance of cataracts and other secondary complications of diabetes¹⁶.

Conclusion:

Administration of herbal or traditional preparation for to cure the diabetes is the very need of recent world due to undesirable effect from the allopathic hypoglycemic agents. This article supporting the inclusion of plant for the herbal or traditional antidiabetic preparation. As per past decades of scientific research on bitter gourd (*Momordica charantia*) shows safer activity of antidiabetic as a traditional plant.

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