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α -Amylase And α -Glucosidase Inhibitors: A Novel Approach To Treat Diabetes

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Objectives: Diabetes is one of the major medical complications; characterized by abnormally high plasma glucose levels, leading to major complications such as diabetic neuropathy, retinopathy, and cardiovascular diseases.

Methods: Pancreatic α–amylase, hydrolyzed the starch and absorbed as glucose in the small intestine by α–glucosidases, leads to hyperglycemic condition. So inhibitions of carbohydrate hydrolyzing enzymes (such as α-glucosidase and α-amylase) have been useful as oral drugs for the control of hyperglycemia especially in patients with type II diabetes mellitus can be determined spectrophotmetrically. Also some medicinal plants which have α- amylase and α-glucosidase enzyme inhibitory effect.

Results: Enzymes such as DPP4, aldose reductase and angiotensin converting enzyme also play an important role in diabetes. Cassia fistula, Emblica officinalis, Mangifera indica, Murraya koenigii, Ocimun sanctum, Terminalia chebula, Tinospora cordifolia, Allium sativum, Allium cepa, Andrographis paniculata, Azardirachta indica, Bergenia ciliate, Centella asiatica, are some medicinal plants which have α- amylase and α-glucosidase enzyme inhibitory effect.

Conclusions: Multiple pathophysiological disturbances comprise type 2 diabetes. It is imperative that agents continue to be developed as the epidemic of diabetes continues and is likely to worsen during the next several decades.