International Journal of Pharmaceutical Sciences and Nanotechnology
Volume 10 • Issue 4 • July – August 2017
MS ID: IJPSN-03-28-17-SRUTHI

Review Article

Role of Antioxidants in the Management Diabetes Mellitus

G. Sruthi*, Haritha H. Pillai, Nisha Ullas, V. Jiju and Elessy Abraham

Nazareth College of Pharmacy, Othera, Thiruvalla, Kerala, India.

Received March 28, 2017; accepted May 29, 2017

ABSTRACT

Diabetes mellitus (DM), commonly referred to as diabetes, is a group of metabolic diseases in which there are high blood sugar levels over a prolonged period. Symptoms of high blood sugar include frequent urination, increased thirst and increased hunger. If left untreated, diabetes can cause many complications. Acute complications can include diabetic ketoacidosis, nonketotic hyperosmolar coma, or death. Serious long-term complications include heart disease, stroke, chronic kidney failure, foot ulcers, and damage to the eyes. Oxidative stress plays a major role in the pathogenesis and development of complications of both types of DM. However, the exact mechanism by which oxidative stress could contribute to and accelerate the development of complications in diabetic mellitus is only partly known and remains to be clarified. On the one hand, hyperglycemia induces free radicals; on the other hand, it impairs the endogenous antioxidant defense system in patients with diabetes. Endogenous antioxidant defense mechanisms include both enzymatic and non-enzymatic pathways. Their functions in human cells are to counter balance toxic reactive oxygen species (ROS). Common antioxidants include the vitamins A, C, and E, glutathione (GSH), and the enzymes superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GPx), and glutathione reductase (GRx). Many natural antioxidants can be used in lowering blood glucose level. This review describes the importance of natural antioxidants to be included in the diet to reduce the hyperglycemic effect.

KEYWORDS: Oxidative stress; oxygen radicals; Antioxidants; Diabetes; Diet.