LETTER TO THE EDITOR

ANTIDIABETIC PROPERTY OF AZADIRACHTA INDICA; A MOLECULAR APPROACH

Diabetes mellitus (DM) is a metabolic syndrome, in which there is chronic high blood glucose level. Amongst non-communicable diseases (NCD), type II Diabetes Mellitus is not only the most prevalent disease but its global burden is increasing rapidly. If the blood glucose level is not maintained appropriately, there is a high probability of the development of both macro-vascular as well as microvascular complications[1,2]. Multiple antidiabetic drugs are in line, but they fail to give long-term control of hyperglycemia, on the other hand these drugs have side effects as well[3]. So there is a need to switch to natural products. The herbal extracts like Azadirachta indica (Neem) is well known for its powerful antioxidant, anti-inflammatory, antipyretic, antimicrobial and antidiabetic properties. It causes hypoglycemia and peroxidation of lipid metabolites while increasing the enzymatic activities of glutathione perox-idases, catalases and superoxide dismutases to enhance the antioxidation[4].

A study published in the Journal of Ayurveda & Integrative Medicine, found out the underlying molecular mechanism for antidiabetic property of A.indica. The study was conducted on diabetic rats, either having impaired glucose tolerance or reduced number and activity of signaling molecules of insulin or oxidation pathway of glucose. The therapy given was the extract of A. indica leaf at 400 mg/kg dose, which normalized the hyperglycemia and serum insulin level, while in lipid profile the quantity of HDL increased up to 21-folds. Looking over the insulin signaling molecules, the expression of receptors for insulin, receptor substrate-1 of insulin, phospho-IRS-1 Tyr 632, phospho-IRS-1 Ser 636, phospho-Akt Ser473 increased up to 2.24 folds while GLUT4 proteins expression increased up to 1.6 folds[5]. This study proves the therapeutic potential and cost effectiveness of A.indica in diabetes which opens a new window in pharmacological world for making better management plan in controlling hyperglycemia.

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