

Improving insulin resistance using natural molecules: Developing Insulin sensitizing agents to Ameliorate insulin resistance

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Insulin resistance, a decreased response to the normal concentration of insulin, is the main pathophysiological precursor and predictor of type 2 diabetes. Defects in insulin-stimulated glucose disposal in peripheral tissues like skeletal muscle and fat are critical components of insulin resistance. Glucose uptake is the rate-limiting step in glucose utilization and is depressed in case of insulin resistance, due to defective translocation of GLUT4 to the cell surface. As this is the major abnormality in type 2 diabetes, there has been considerable interest in identifying insulin mimetic and insulin sensitizing agents to counteract insulin resistance. Any compound that increases the exocytosis and/or decreases the endocytosis will result in increased GLUT4 level on plasma membrane and ultimately enhances glucose absorption. Current therapeutics for type 2 diabetes are often associated with undesirable side effects and in many cases the precise mechanism of action remains to be completely clarified.

Therefore with this aim we tried to identify and characterize compounds from natural sources that can modulate GLUT4 translocation and elucidate the molecular mechanism underlying the process. Pongamol from *Pongamia pinnata*, karanjin from *Pongamia pinnata* and 4-hydroxyisoleucine from *Trigonella foenum-graecum* were found to stimulate Glut4 translocation leading to increased glucose uptake in muscle cells. Results indicate that such compounds can lead to the development of new insulin sensitizing agents to ameliorate insulin resistance.

Biography

I am Natasha Jaiswal, a research scholar at Central Drug Research Institute, Lucknow. Presently I am working on Insulin resistance linked to type 2 diabetes. I have completed M.Sc. in Biochemistry from University of Allahabad, Uttar Pradesh. I have qualified the CSIR-NET JRF fellowship and have GATE score card. I have good academic record. During my research I have 8 Publications.

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