S.B. Sharma et al., J Diabetes Metab 2012, 3:8
http://dx.doi.org/10.4172/2155-6156.S1.018

OMICS Group Conferences
Accelerating Scientific Discovery

3rd World Congress on
Diabetes & Metabolism

September 24-26, 2012 Marriott Convention Center, Hyderabad, India

Protective effect of active compound isolated from Eugenia jambolana on altered insulin signaling and glucose disposal in STZ induced diabetic rats

S.B. Sharma[1], R.S. Tanwar[1] and S. K. Bansal[2]
[1]Department of Biochemistry, UCMS, University of Delhi, India
[2]Department of Biochemistry, V.P .Chest Institute, University of Delhi, India

The persistence of hyperglycemic state during diabetes leads to overactivation of DAG-responsive protein kinase C (PKC) which results in attenuation of insulin receptor tyrosine kinase activity and hence blocks downstream insulin-signaling. The aim of the present study was to examine the effect of an antidiabetic compound (FIIc) isolated from aqueous extract of fruit-pulp of Eugenia jambolana on altered insulin signaling by estimation of PKC activity and receptor tyrosine kinase activity in streptozotocin-induced diabetic rats. Toxicological evaluation of FIIc was also done to study its safety profile. The rats were rendered diabetic by STZ (45 mg/kg body weight, i.p.). The compound was orally administered to diabetic rats at a dose of 15 mg/kg body weight per day for a period of 30 days. At the end of experimental period, blood was drawn to determine fasting blood glucose (FBG), glycosylated haemoglobin (GHb), insulin levels and liver function test. Thereafter, the animals were anaesthetized. Liver and adipose tissues were excised and processed to determine total PKC activity and Tyrosine kinase activity. Liver and pancreas were processed for histopathological examination. A significant ($P < 0.001$) fall in the levels of FBG and GHb with a concomitant elevation in insulin levels were observed in diabetic rats treated with active compound. The compound exhibited significant ($P < 0.001$) reduction in total PKC activity in liver and adipose tissue of diabetic rats. Protein tyrosine kinase activity was also significantly ($P < 0.001$) improved after FIIc treatment. Biochemical and histopathological studies suggest that FIIc is not having any acute and sub-chronic effect in treated animals compared to healthy control. The reversal of PKC activity and PTK activity towards normal following treatment with FIIc depicts its role in improving insulin signaling and thus insulin action, which consequently normalizes the glucose homeostasis and is relatively safe when administered orally.

Biography

Sharma is Prof. in Department of Biochemistry, University College of Medical sciences, University of Delhi. She is actively involved in teaching and research from last 25 years. She has published more than 55 papers & review article in reputed journals. Her area of interest involves purification of herbal compound from medicinal plants/ herb and assess for their anti-diabetic activity. She has been granted 3 patents including US patent. She is serving as an editorial board member/ reviewer of many reputed journals including OMICS group. She has done supervision of many PhD and MD students.

drsbs08@hotmail.com