

The Understanding of Biochemical and Molecular Analysis of Diabetic Rats Treated with *Andrographis paniculata* and *Erythrina indica* Methanol Extract

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Abstract : Diabetes mellitus describes a metabolic disorder of multiple aetiology characterized by chronic hyperglycaemia with disturbances of carbohydrate, fat and protein metabolism resulting from defects in insulin secretion and its action. The objective of present study was alloxan induced diabetes in S.D (Sprague Dawley) rats, treated with leaf extract of *Andrographis paniculata* and bark extract of *Erythrina indica*. Plant extract treated rats were analyzed biochemically and molecularly. on normal and diabetic rats. The changes in MDA (lipid peroxidation) and glucose (by GOD method) levels in blood of both normal and diabetic rat were analyzed. Diabetes induced rats were treated with methanolic extracts of *Andrographis paniculata* leaf and *Erythrina indica* bark which are of medicinal importance. Later after inducing diabetes the rats were treated with medicinal plant extracts, *Andrographis paniculata* leaf and *Erythrina indica* bark which are well known for their anti diabetic and antioxidative property in order to control the glucose and MDA levels. The blood plasma of diabetic and normal rats was analyzed for the levels of MDA (lipid peroxidation) and glucose levels. Results of this study suggested that the *Andrographis paniculata* leaf and *Erythrina indica* can be used as a potential natural antidiabetic agent for treating and postponing the appearance of complications that arise due to Diabetes. Molecular study deals with the analysis of binding mechanism of 2 selected natural compounds from *Andrographis* and *Erythrina* extracts against the novel target for type T2D namely PPAR- γ compared with Rosiglitazone (standard compound). The results revealed that most of the selected herbal lead compounds were effective targets against the receptors. These compounds showed favorable interactions with the amino acid residues thereby substantiating their proven efficacy as anti-diabetic compounds.

Keywords : *andrographis paniculata*, *erythrina indica*, alloxan, lipid peroxidation, blood glucose level, PPAR- γ

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