

In vitro* antiglycation and antioxidant activity of the aqueous extract of leaves of *Solanum torvum

F. A. Irfan¹, S. A. Deraniyagala^{2*}

¹College of Chemical Sciences, Institute of Chemistry Ceylon, Rajagiriya, CO 10107, Sri Lanka

²Department of Chemistry, Faculty of Science, University of Colombo, Sri Lanka

Protein Glycation, is a non-enzymatic process which forms Advanced Glycation End Products (AGEs). Accumulation of AGEs in the body causes health complications, especially those related to diabetes. Oxidative stress is also considered to be a contributing factor for such health complications. The present study was undertaken to look into the inhibitory potential on the formation of AGEs as well as the anti-oxidant potential of the aqueous extract of the leaves of the Sri Lankan variety of *Solanum torvum* (thibbatu) [AELST]. The extract was prepared according to the method of Kasaya preparation in Ayurveda medicine. Fructose mediated Protein Glycation was induced by using Bovine Serum Albumin and fructose in buffer of pH 7.4 to mimic AGE formation. The assay showed that AELST has a 7.7% - 85.1% inhibitory effect on AGE formation at a concentration range of 0.25 - 2.0 mg/mL. Amino guanidine which was the positive control, known to have much side effects showed AGE inhibition from 0% - 87.5% for the same concentration range. The plant extract showed the presence of phenols and flavonoids. AELST also showed a radical scavenging activity between 19.2% - 76.7% in the 2,2-diphenyl-1-picrylhydrazyl (DPPH) assay while the standard BHT showed a percentage inhibition of 13.2% - 83.5% for the concentration range of 25-200 µg/mL. In the hydroxyl radical scavenging assay AELST showed a percentage radical scavenging activity of 29.3% - 42.7% while the positive control ascorbic acid showed a percentage inhibition of 24.1% - 36.9% in a concentration range of 0.5 - 2.0 mg/mL. Hydroxyl radical is one of the potent reactive oxygen species in the biological system. The results show that AELST has the potential to be developed to suppress complications arising due to AGE formation in patients with chronic hyperglycemia and also as a remedy to prevent diseases in which radicals are implicated.

Keywords: Hyperglycemia, AGE formation, Free Radicals, *Solanum torvum*

*Corresponding author. Department of Chemistry, Faculty of Science, University of Colombo, Sri Lanka.
Email address: sd@chem.cmb.ac.lk