



Comparative Analysis of Antioxidant Behavior of *Salacia Oblonga* and Mangiferin in Tobacco Smoke Oxidatively Stressed In Vitro Model (L6 Cell Line)

Sujata Basu, Mamta Pant, Rachana *

Department of Biotechnology, Jaypee Institute of Information Technology, A-10, Sector-62, Noida-201307, Uttar Pradesh, India

Address for Correspondence: Rachana; rachana.dr@iitbombay.org

ABSTRACT: Tobacco smoking and diabetes are shown to be highly associated with each other. Smoking is reported to generate oxidative stress in biological system. Present study attempts to investigate this effect (high glucose + tobacco smoke) on skeletal muscle cell line (L6) through MTT assay, morphological analysis and, oxidant and antioxidant molecules and enzymes assays. Tobacco Smoke Concentrate (TSC) + glucose decreased the cell viability to a considerable extent. When the cells pre-exposed to *Salacia oblonga* extract (SOE) or Mangiferin (Mag) before smoke concentrate the toxicity was much lower than TSC alone. Morphological analysis also showed that, TSC + glucose decreased the cell number and altered the morphology. SOE and Mag increased the cell number and regained the cellular morphology, comparable to control. TSC + glucose brought about an enormous increase in nitrite level which proves the extent of oxidative stress generated by these stressors inside skeletal muscle cells. Pre-treatment with Mangiferin decreased the nitrite level more than SOE. Further, SOD activity analysis showed that, the stressors induced the enzyme activity more than control. Pre-treatment with SOE showed further increase in enzyme activity whereas, Mangiferin did not show much effect, in comparison to stressed cells. Thus, it can be suggested that *Salacia oblonga* and its active polyphenolic compound Mangiferin, both can help skeletal muscle cells overcome the TSC + glucose induced stress which have further implications in diabetic smokers. © 2014 iGlobal Research and Publishing Foundation. All rights reserved.

Conference Proceedings: International Conference on Life Sciences, Informatics, Food and Environment; August 29-30, 2014

Indo Global Journal of Pharmaceutical Sciences(ISSN 2249 1023 ; CODEN- IGJPAI; NLM ID: 101610675) indexed and abstracted in EMBASE(Elsevier), SCIRUS(Elsevier),CABI, CAB Abstracts, Chemical Abstract Services(CAS), American Chemical Society(ACS), Index Copernicus, EBSCO, DOAJ, Google Scholar and many more. For further details, visit <http://iglobaljournal.com>