



Exploring Antioxidant and Anti-apoptotic Mechanisms of *Tinospora cordifolia*

Rawat Avantika, Sharma Jahnvi, Singh Srishti, 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: Revelation to ionizing radiations and other environmental and biological stresses generates momentous alterations in the oxidative state of a biological system resulting in increased oxidative stress. Oxidative stress is described generally, as a condition under which elevated production of free radicals, reactive species and oxidant-related reactions occur and results in deleterious consequences on different organ systems. Over production of Reactive Oxygen Species (ROS) leads to oxidative damage to bio-molecules (DNA, proteins and lipids), their normal function, which leads towards abnormal cell metabolism, inflammation, cell death and so occurrence of many diseases. People in various countries have been using natural products, like plant extracts, as anti-oxidants to deal with kind of such diseases, since ancient time, unknowingly. Anti-oxidants play a role in eliminating oxidative stress by inhibiting or delaying the oxidative chain reactions. Deleterious effects of ROS also include: opening of the mitochondrial permeability transition pore, loss of the mitochondrial transmembrane potential and release of pro-apoptotic proteins into the cytosol which lead to apoptosis. *Tinospora cordifolia* herb is effective in elevating GSH levels, expression of the gamma-glutamylcysteine ligase and Cu-Zn SOD genes which get oxidised by ROS. The present study discusses the molecular mechanism of action of ROS and role of *Tinospora cordifolia* in restoring the same. © 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>