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## Effect of the selected secondary metabolites of *Terminalia Arjuna* (ROXB.) wight & arn. on oxidative stress and inflammation

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Plants with medicinal plants have been used for millennia in traditional medical practises across the world to treat, manage, and prevent a variety of illnesses. Medicinal plants are rich in chemical compounds some of which are being developed as drug molecules. Atherosclerosis, a major cardiovascular disease (CVD) and is characterized as a blood vessel wall disease and is developed due to oxidative stress, inflammation and thrombosis. Imbalance in production and accumulation of reactive oxygen species (ROS) in the body can lead to the oxidative stress. Oxidative stress translocate transcription factor NF- $\kappa$ B (nuclear factor-  $\kappa$ B) and AP-1 (activator protein-1) into the nucleus and activates proinflammatory cytokines (TNF- $\alpha$ , MCP-1 IL-6, IL-8) and adhesion molecules like vascular cell adhesion molecule-1 (VCAM-1), intracellular adhesion molecule-1 (ICAM-1), endothelial selectin (E-Selectin). These activated molecules accelerate atherosclerosis by stimulating adhesion of neutrophils to endothelium via endothelial

dysfunction. H<sub>2</sub>O<sub>2</sub> is a potent member of the ROS family which induces diverse set of physiological response. Catalase (CAT) enzyme has proven to be a primary enzyme that scavenges intracellular H<sub>2</sub>O<sub>2</sub> and converts it into water and oxygen. In this study oxidative stress in the cells was investigated by detecting H<sub>2</sub>O<sub>2</sub> using the fluorescence probe 2,7-dichlorofluorescein diacetate (H<sub>2</sub>DCFDA). Arachidonic acid (AA) was used to induce ROS. TNF- $\alpha$ , MCP-1 IL-6, IL-8 multifunctional cytokine produced by various cell types is involved in immune defense mechanism against infection and is strongly involved manifestation of chronic inflammatory condition and are key factor involved in atherogenesis. In the present work, a few selected metabolites of *R. serpentina* root extracts and selected metabolites are studied to evaluate their effect in scavenging AA induced ROS and attenuation of Pro-inflammatory markers in lipopolysaccharides (LPS) induced human monocytic (THP-1) cells.

### Biography

Prof. Tetali has more than thirty years of experience in research and development. She has worked in several areas of Biology, including Metabolomics of medicinal and spice plants and their Pharmacological activities against cardiovascular diseases, human clinical nutrition- postprandial state and cardio-vascular inflammation, Micro-Algal biotechnology towards improved photosynthetic efficiency and biomass production.

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