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# OXIDATIVE STRESS MEDIATED DISEASE COMPLICATIONS AND AMELIORATIVE EFFECT OF NATURAL PRODUCTS

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Oxidative stress affects the pro-oxidants and antioxidants equilibrium in biological system which leads to the modification of DNA, proteins, carbohydrates and lipids. Free radical induced oxidative damage has long been thought to be the most important cause of many diseases such as hepatic diseases, diabetes, cardiovascular diseases, stroke, cancer and aging. Free radicals attack the unsaturated fatty acids in the biomembranes, resulting in lipid peroxidation, decrease in fluidity, loss of enzymes and receptor activity, damage to membrane proteins and ultimately leading to cell inactivation. Exposure to toxic chemicals, environmental pollutants and drugs can cause cellular injuries and hepatotoxicity through metabolic activation of reactive oxygen species. Many active plant extracts are frequently utilized to treat a wide variety of clinical conditions including hepatic anomalies. It is widely known that antioxidants acting as radical scavengers protect the human body against free radicals that may cause pathological conditions. Present communication reports the biological efficacy of Cinnamomum spp., Bauhinia variegata, Piper longum, and Tinospora cordiafolia etc. These plants are rich sources of phytochemicals and have shown variety of biological activities during in vitro and in vivo experiments including antioxidant, hepatoprotective and cytotoxic effects. Extracts and pure phytochemicals including cinnamaldehyde derived from these plants exerted protective effect on liver against xenobiotic (drug, metal, dyes) induced oxidative stress and hepatotoxicity in mammalian model. Rats treated with test compounds exhibited restorative effect on the biomarkers of hepatatotoxicity and oxidative stress in serum and tissue homogenate. A positive effect was also observed on kidney function. The biological activities of the natural products have been attributed to the presence of various secondary metabolites which acted as radical scavengers, reducing agents and chelators of metal ions and thereby performed antioxidant action. This communication highlighted the ameliorative effect of the plant products in xenobiotic induced oxidative stress and hepatotoxicity.

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