

International Conference on
Diabetes, Endocrinology and Metabolic Syndrome
&
Annual Summit on
Diabetes, Obesity & Heart

March 07-08, 2019 | London, UK



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Substituted Oxopropanylindole Hydrazones as potential lipid lowering, anti-oxidant and anti-hyperglycemic agents

The oxidative stress and hyperlipidemia are important factors in the pathogenesis and development of atherosclerosis and type 2 diabetes. The hydroxyl free radicals are involved in the peroxidative damage to lipoproteins in the blood leading to the development of atherosclerosis. Further, in hyperglycemic patients, the occurrence of several non-enzymatic glycosylations accompanied by glucose oxidation leading to the formation of OH^\bullet and O_2^\bullet radicals through catalysis by Cu^{2+} and Fe^{2+} ions is the major risk factor of cardiac disorder in these patients. Moreover, the decrease in the bioavailability of vascular nitric oxide due to chronic hyperglycemia, insulin resistance and abnormal lipoprotein profiles lead to the risk of atherosclerosis. Thus, an agent lowering the cholesterol along with anti-oxidant activity and anti-diabetic activity should be able to protect endothelial and myocardial function and thus may be a good anti-atherosclerotic agent. Tryptophan derivatives are known to stabilize cell membranes that help to resist free radical damage due to their function as a free radical scavenger and anti-oxidants. The hydrazones as well

as carboxamides have been versatile building blocks in the clinically used pharmaceuticals in the treatment of diabetes, obesity, metabolic syndrome (dyslipidemia) and CVD's. In view of above substituted oxopropanylindole hydrazones were synthesized and evaluated for anti-oxidant, anti-dyslipidemic, anti-adipogenic and anti-hyperglycemic activity where the most promising compound showed 44% reduction in lipid accumulation and 20.5% and 24.3% reduction in blood glucose at 5h and 24h respectively, as compared to standard drug metformin.

Speaker Biography

Mridula Saxena is currently working as Head of the Department of Chemistry, Amity University, India. She is actively involved in teaching and drug discovery research. She received her PhD degree at Central Drug Research Institute, Lucknow and has been associated both with teaching and research from the last 40 years. She has more than 32 papers and review/book articles in national and international journals, and 4 patents to her credit. She has visited many countries like, Germany, Hong Kong, China, Turkey, Slovenia, South Korea, Montenegro, Greece, Russia and Dubai for presenting her work.

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