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Rendition perspective and effectiveness of natural products in cancer chemoprevention

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The role of natural products as the valuable source of structurally diverse compounds possessing therapeutic potential for the treatment of human diseases and disorders has gained incredible interest in the last few decades. More and more doctors, researchers and scientists are looking for novel compounds focusing on plants used in traditional medicine. Recently a large number of studies have been reported on the benefits of natural products which are present in high quantities in medicinal and aromatic plants, fruits and vegetables. This harangue will concentrate on an assortment of theme related to the use of natural products in cancer chemoprevention, distinct chemical substances derived from plants that are considered as anticancer agent, simple synthetic modifications or copies of the naturally occurring substances, structural optimization of derivatives or analogues to stop carcinogenesis, association of anti-inflammatory, antioxidant and radical scavenging properties of natural products with reduced risk of cancer and innovation and extent of natural products to act as potential chemopreventive and/or chemotherapeutic agents. In addition, attendees of this talk will be accustomed with the efficacy of natural products against carcinogenesis, latest research in cancer chemoprevention and treatment using natural products, pertinent molecular mechanisms involved in the pharmacological effects of natural products, challenges and opportunities.

Biography

Suaib Luqman has extensively studied the role of molecules/natural products from medicinal and aromatic plants for their cancer chemopreventive and/or chemotherapeutic efficacy. He has authored more than 60 peer-reviewed papers, 2 book chapters and 70 presentation at various symposia/ conferences and seminars. Luqman is a member on the editorial boards for the Annals of Phytomedicine and Conference Papers in Pharmacology. He has served as a member of National Advisory Committee for VIII National Conference on Biotechnology, Biodiversity & Environment and numerous selection and assessment committees for CSIR-CIMAP and various universities, including his current membership with the National Academy of Sciences, India.

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Synthesis and antiproliferative activity of novel aminofurfurylpyrimidinimino isatin Mannich bases

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Aim: A new series of aminofurfurylpyrimidinimino isatin Mannich bases were designed and synthesized to meet the structural requirement essential for cytotoxicity.

Methods: Aminofurfurylpyrimidinimino isatin mannich bases were synthesized using 2, 4-diamino-5-furfurylpyrimidine as a starting material. All the compounds were confirmed by means of IR, ^{1}H NMR, ESIMS and elemental analysis and evaluated *in vitro* for their growth inhibition against estrogen dependent human breast cancer cell line (MCF-7) using MTT assay method. Further it evaluated survival time and changes in haematological parameters against Dalton's ascitic lymphoma (DAL) cells.

Result: Among the tested compounds, benzylpiperazine derivative of aminofurfurylpyrimidinimino isatin Mannich bases showed higher cytotoxicity about IC_{50} 12.47 µM. However rest of the compounds showed moderate cytotoxic activity, and postulated their SAR study. Moreover the compound benzylpiperazine derivative of aminofurfurylpyrimidinimino isatin Mannich bases showed significant enhancement of mean survival time in DAL bearing mice was found with respect to control group. It was also able to reverse the changes in the haemotological parameters in DAL bearing mice.

Conclusion: Benzylpiperazine derivative of aminofurfurylpyrimidinimino isatin Mannich bases showed higher cytotoxicity activity against human breast cancer cell (MCF-7). It significantly increased life span as well as was able to reverse the changes in the haematological parameters in DAL bearing mice.

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