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Anti-carcinogenic effect of co-administration of α-β unsaturated compounds and quercetin

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The effect of co-administration of α-β unsaturated compounds derivatives of benzoic acid and the flavonoid quercetin were evaluated in a variety of established human cancer cell lines. The synergic effect of these two chemicals showed anti-proliferative activity in cancer liver cells of 90% and in cancer cervical cells of 60% at 48 hour post-treatment. Additionally significant events of apoptosis were observed in 90% of the cell population, when benzoic acid and quercetin were administered together. Independent treatments, quercetin or α-β unsaturated compounds decrease the migratory ability of HepG2, HuH7 and HeLa, however the co-administration of both, exerted a higher effect. It is suggested by *in silico* studies of α- β unsaturated compounds, that through 1, 4-addition reactions Michael type, they can selectively react with glutathione (GSH). High levels of GSH participate as a defence mechanism characteristic of cancer cells, thereby, inhibiting free radical induced cell death. Summarizing the co-administration of these compounds induce programmed cell death, probably by disrupting the cellular redox homeostasis, so further studies of the effect of independent or co-administration of these compounds, will give us the best way to use them as chemotherapeutic agents.

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Electrochemical response characteristics of Pralidoxime on graphene nanosheets film nanosensor

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A graphene nanosheets (GNS) based nanosensor to study the electrochemical response characteristics of pralidoxime has been developed. The fabricated nanosensor was characterized by scanning electron microscopy, electrochemical impedance spectroscopy, square wave voltammetry and cyclic voltammetry. The proposed electrochemical sensor exhibited good analytical performance including high sensitivity and selectivity as compared to bare glassy carbon electrode (GCE). Different electrochemical parameters such as charge transfer resistance (Rct), surface area (A) were also calculated. The sensor shows an excellent performance for pralidoxime sensing with good reproducibility and stability of the developed method. The fabricated GNS/GCE sensor shows great promise for simple, sensitive, quantitative screening of pralidoxime using voltammetric techniques.

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