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Abstract

Evaluation of Cytotoxic Effects of Carnosic Acid Alone and Combination with Cisplatin in HepG2 Cells †

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Abstract: Natural products are important in prevention and treatment of cancer because of their antitumor effect and reducing side effects of chemotherapeutic drugs. The aim of this study was to investigate the potential cytotoxic effecs of carnosic acid and in combination with cisplatin in liver cancer cells. Cytotoxicity was assessed using MTT assay for 24/48 hours. The intracellular ROS levels were determined using the oxidation-sensitive fluorescent probes DCFH-DA. Changes in the mitochondrial membrane potential (MMP) were detected using JC-1 commercial kit. Concentrations were selected for carnosic acid and cisplatin according to IC_{50} values. As a results, % cell viability decreased with concentration/time dependent and combination treatments showed potentiated effect at 48 hours exposure. According to DCFH-DA assay, it was observed that carnosic acid and combinations with cisplatin reduced intracellular ROS levels in presence of H_2O_2. Carnosic acid and its combinations reduced MMP. Our results showed that carnosic acid has the potential to inhibit growth in HepG2 cells without increasing ROS production. In conclusion, carnosic acid alone and combination with cisplatin may be promising for the prevention and treatment of liver cancer.

Keywords: carnosic acid; cisplatin; cytotoxicity; HepG2; MMP; ROS

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