جامعة الإمارات العربية المتحدة
United Arab Emirates University

UAEU

The College of Graduate Studies and the College of Science Cordially Invite You to a

Master Thesis Defense

Entitled

IN VIVO ASSESSMENT OF SAFRANAL'S NOVEL THERAPEUTIC EFFECTS ON CHEMICALLY INDUCED HEPATIC NEOPLASIA

By

Ameera Ali Mohammed AlMansoori

Faculty Advisor

Prof. Amr Amin, Department of Biology
College of Science

Date & Venue

3:00 PM
Sunday, 18 November 2018
Room 0040, F3 Building

Abstract

Chronic liver insult leads to fibrosis, which often ends up causing cirrhosis and most of the time that progresses into hepatic neoplasms (early Hepatocellular carcinoma; HCC). HCC is the fifth most common cancer, and the third cause of cancer-related deaths. Chemotherapy is the most common treatment of cancer patients. HCC is however, chemo-resistant, and the side-effects of chemotherapy are typically exhausting to the patient. Sorafenib is the only anti-HCC drug approved by the U.S Food and Drug Administration. It is a multikinase inhibitor that blocks tumor cells proliferation and angiogenesis. Although sorafenib is successful treating early and mid HCC lesions, it is not efficient in advanced HCC cases. Safranal, a major biomolecule of saffron "stigmas of the flowers of *Crocus sativus L.*", is known for its anti-oxidant, proapoptotic and anti-inflammatory effects against different cancer types. Compared with monotherapy, combination therapy (safranal + sorafenib) targeting multiple signaling pathways offered a better treatment alternative potentially abolishing resistance, feedback activation, and compensatory activation of survival pathways. This study investigated the therapeutic effect of safranal on DEN-induced HCC, *in vivo*, using male Wistar rats. Safranal was found to be involved in cell cycle arrest particularly at G_2/M phase, and to induce the intrinsic, mitochondrial, apoptotic pathway leading to cell death. This study highlights safranal's therapeutic potential against HCC and introduces it as a novel natural therapeutic and adjuvant agent against HCC.

Keywords: Hepatocellular carcinoma, safranal, sorafenib, apoptosis, cell cycle arrest.