

3rd International Summit on **GNP, GCP & Quality Control** September 25-26, 2014 Valencia Convention Centre, Spain

Preventive effects of crocin against hepato cellular carcinoma

Amr Amin¹ and Sayel Daoud² ¹UAE University, UAE ²Twaam Hospital, UAE

This is a follow up on our study that documented the anti-cancer potential of saffron. We show here preventive actions and mechanisms of saffron-based bioactive ingredient; crocin, against diethylnitrosamine (DEN)-induced liver cancer in rats. Administration of crocin at 100 and 200 mg/kg body wt per day started two weeks prior to the DEN injection and was continued for 22 weeks. Crocin reduced the number and the area of placental glutathione-S-transferase-positive (GST) foci in livers of DEN-treated rats. Furthermore, crocin counteracted DEN-induced oxidative stress in rats as assessed by restoration of superoxide dismutase, catalase, and GST levels and diminishing of myeloperoxidase activity, malondialdehyde and protein carbonyl formation in liver. The results of immunohistochemical staining of rat liver showed that crocin inhibited the DEN-mediated elevations in numbers of cells positive for Ki-67, cyclooxygenase 2, inducible nitric oxide synthase, nuclear factor-kappa Bp-65 and the phosphorylated tumor necrosis factor receptor. Crocin also blocked the depleted numbers of cells positive for TUNEL and M30 CytoDeath in livers of DEN-treated rats. *In vitro* experiments carried out using HepG2 cells also confirmed these findings and showed inhibition of NFkB activation, increased cleavage of caspase-3, and DNA damage and cell cycle arrest upon crocin treatment. The present study provides evidence that crocin exerts a significant chemopreventive effect against liver cancer through inhibition of cell proliferation and induction of apoptosis. We also show some evidence that crocin protects rat liver from cancer via modulating oxidative damage and suppressing inflammatory response.

Biography

Amr Amin is a graduate faculty at UAE University who supervised many graduate theses. He earned his PhD from University of Illinois at Chicago and received a postdoctoral training at University of Pennsylvania School of Medicine. Preventive medicine is his main research interest now. His lab studies roles of natural products in the protection against cancer. He published over 50 research articles, reviews and book chapters in reputable journals. He serves on the editorial boards and as a reviewer of many international journals. He is also the recipient of many national and international awards.

a.amin@uaeu.ac.ae