جامعة الفيوم
كليه العلوم
قسم علم الحيوان

ملخص البحث رقم (٦)

PHYTOTHERAPY RESEARCH; Phytother. Res. (2015); Published online in Wiley Online Library (wileyonlinelibrary.com) DOI: 10.1002 /ptr. 5310

Protective Effects of Turbinaria ornata and Padina pavonia against Azoxymethane-Induced Colon Carcinogenesis through Modulation of PPAR Gamma, NF-κB and Oxidative Stress

Ayman M. Mahmoud,1* Ehab M. Abdella,2 Azza M. El-Derby2 and Eman M. Abdella 3

The aim of this study was to investigate the antiproliferative and protective effects of the brown seaweeds, Turbinaria ornata and Padina pavonia, against azoxymethane (AOM)-induced colon carcinogenesis in mice.

Both algal extracts showed anti-proliferative effects on the human carcinoma cell line HCT-116 in vitro, with T. ornata demonstrating a more potent effect. Male albino Swiss mice received intraperitoneal injections of AOM (10mg/kg) once a week for two consecutive weeks and 100mg/kg of either T. ornata or P. pavonia extracts. AOM-induced mice exhibited alterations in the histological structure of the colon, elevated lipid peroxidation and nitric oxide, declined glutathione content and reduced activity of superoxide dismutase and glutathione peroxidase. In addition, AOM induced downregulation of peroxisome proliferator activated receptor gamma (PPARγ) and p53 mRNA expression, with concomitant upregulation of nuclear factor-kappa B (NF-κB) in colon tissue. Administration of either algal extract markedly alleviated the recorded alterations. In conclusion, the current study suggests that T. ornata and P. pavonia, through their antioxidant and anti-inflammatory effects, are able to attenuate colon inflammation by down regulating NF-κB expression. Furthermore, the protective effects of both algae against AOM-initiated carcinogenesis were attributed, at least in part, to their ability to upregulate colonic PPARγ and p53 expression.