

عنوان مقاله:

Comparative study on the effects of crocin and crocetin on p21 expression in NMU-induced breast cancer in female rats

محل انتشار:

نهمین کنگره بین المللی سرطان پستان (سال: 1392)

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خلاصه مقاله:

Saffron stigma, contain some chemical substances such as crocin and crocetin that show the beneficial effects against some diseases, especially cancer. On the other hand breast cancer is the second leading cause of cancer related death among women and about 70% of these cancers are estrogen -dependent for growth [2]. Induction of mammary tumors following the administration of NMU in rat is a preferred model of breast cancer induction in the experimental animals for investigating on estrogen-dependent breast cancer in women [3]. Cell cycle progression in mammalian cells is regulated by the interactions of cyclins, cyclin-dependent kinases (CDK), and CDK inhibitors. P21 as a member of Cip/Kip family from CDK inhibitors, inhibits the kinase activities of pre-activated G1 cyclin E-CDK2, cyclin D-CDK4/6, and other cyclins. Previously we reported that, there is higher expression of p21 in breast tumors in comparison to normal tissue of breast. It is consistent with the theory that abnormal cells increase p21 in an attempt to brake the process of cellular proliferation at the G1 checkpoint. In the present research, with regard to anticancer effects of crocin and crocetin, the effects of these compounds on p21 expression in NMU-induced breast cancer in female rats are reported. Methods: At first, purification of crocin and crocetin from saffron was performed [5]. Then, breast cancer was induced by intraperitoneal injection of NMU (50 mg/kg bw) at different ages of rats. The animals were weekly weighed and palpated in order to record the number, location and size of tumors. After appearance of tumors and its suitable size (1.5 cm) , treatment was began by i.p. injection of effective dose of crocin and crocetin. Then all mammary tumors and normal mammary glands of the control group were dissected and immediately frozen in liquid nitrogen and stored at -70 for RT-PCR and Western blot analysis. Results: The results showed that crocin decreased the p21 expression in treated tumors in comparison to untreated tumors, but crocetin markedly increased the expression of p21 in comparison to untreated tumors. Thus crocin (a carotenoid with di-gentiobiosyl ester at each end of molecule) exerts its anticancer effects in another manner than crocetin (a carotenoid with di-carboxylic acid at each end of molecules).

کلمات کلیدی:

Crocin, Crocetin, Breast cancer, N-nitroso-methyl urea(NMU), P21

