Wheatgrass extract increases proliferation of RAW 264.7 macrophages induced by hydrogen peroxide (H_2O_2) or lipopolysaccharide (LPS). Ozkân T., Karaboy AZA, Koç A, Karadag A ©, Aydos S.  
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Wheatgrass, the young grass of Triticum aestivum L., contains chlorophyll, amino acids, minerals, vitamins, and enzymes and acclaimed to have antioxidant properties. In RAW 264.7 macrophages, a high level of NO production accompanied by cell apoptosis was achieved with LPS treatment (1). Direct treatment of cells with oxidants such as hydrogen peroxide (H_2O_2) was thought to exclusively cause necrosis and apoptosis (2). Therapies aimed to inhibit NO-dependent cell apoptosis and oxidative stress mediated cell toxicity may contribute to improving the outcome of various diseases. In this study, the effect of wheatgrass extract on proliferation of RAW 264.7 macrophages induced with H_2O_2 or LPS was tested. RAW 264.7 cells seeded in 96 well plates were incubated with (positive controls) or without (negative controls) different concentrations of wheatgrass extracts dissolved in water, LPS (1 μg/ml) and 10 μg/ml) or H_2O_2 (500 μM) for 24 h. To test the effect of wheatgrass extract on proliferation, cells were pre-treated with different concentrations of wheatgrass extract for 1 h and then incubated with LPS or H_2O_2 for 24 h. At the end of the incubation period cell proliferation was estimated by MTT test and the statistical significance of differences was evaluated using one-way ANOVA. After 24 h of incubation with LPS (1 μg/ml and 10 μg/ml) and H_2O_2 (500 μM) cell proliferation decreased significantly (p < 0.0001) and wheatgrass extract increased cell proliferation in both LPS and H_2O_2 induced cells. The effective proliferative doses of wheatgrass extract in H_2O_2 and LPS induced cells were found to be 0.5%, 1.5%, 2.5%, 3.5%, 5%, 7.5%, 10%v/v with p values of < 0.0001 and ≤ 0.001 respectively. Our previous research has demonstrated that wheatgrass extract induced apoptosis and decreased proliferation in various cancer cell lines (3). While wheatgrass has an anti-proliferative effect on leukemia cells, it protects macrophages which are one of the immune system cells against death. References: [1] Slo-miany, B.L. et al. (1998) Mol. Biol. Int. 46:1063 – 1070. [2] Zhan, Y. et al. (2005) Apoptosis 10:545 – 556. [3] Karadag, A. et al. (2007) Planta Med. 73:991 – 992.

Topical anti-inflammatory effects of Ocimum basilicum leaf extract in the phorbol-12,13-dibutyrate model of mouse ear inflammation

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Ocimum basilicum L. Family Lamiaceae is a well-known traditional medicinal plant in the Indian subcontinent. The wound healing activity of the leaves has been reported in our earlier work [1]. In search of possible mode of action for wound healing activity, the topical anti-inflammatory property of the ethanol-water (25%) extract of leaves in mice has been carried out. Swiss albino mice of 22 – 25 g of weight were used and approved by the ethical committee of the institute. Mice were divided into four groups (n = 5) viz. Normal, toxin control, positive control and treated group. Animals of each group except normal group were applied phorbol-12,13-dibutyrate (1 μg daily) on the right ear for 5 days as toxin. After 30 min of toxin application, the animals of Group III were applied 20 mg of cream formulation of indomethacin and Group IV animals were applied OB extract (4 mg) daily. On the 5th day, all the animals were sacrificed and their ears were separated for the estimation of various parameters viz. ear weight, lipid peroxidation, interleukin-1β, interleukin-6 and tumor necrosis factor-α. OB extract significantly (p < 0.05) reduced the ear weight variation (difference in the weight of right and left ear of animals), levels of LPO (malonaldehyde), IL-1β, IL-6 and TNF-α when compared with toxin group using ANOVA test and as shown in table.