Natural Products: An Indian Journal

Extended Abstract | Vol 17 Issue 3

Enzymology & Mol. Biology 2017: New and bioactive compounds from Hawaiian microorganisms

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Abstract

Curcumin and tannic acid which are naturally occurring dietary polyphenols, have exerted and found to be chemo-preventative against cancer in various animal models. This study was carried out on 220 (12-14 weeks old, 25-30 g each) female mice. Mice were classified into two main large experiments. Experiment 1: Non-tumor bearing mice (NTB) included 100 animals and divided into four groups, each one comprised 25 mice. Group 1: NTB- control saline treated. Group 2: NTB-treated with curcumin orally (350 mg/kg/day) for 6 weeks. Group 3: NTB-treated with tannic acid orally (160 mg/kg/day) for 6 weeks. Group 4: NTB-treated with curcumin and tannic acid orally at ratio (50%:50%) for 6 weeks. Experiment 2: Tumor bearing (TB) mice. The total 120 animals were divided into four groups, each one comprised of 30 mice. Group 1: TBM-control saline treated. Group 2: TBM-treated with curcumin orally (350 mg/kg/day) for 6 weeks. Group 3: TBM-treated with tannic acid orally (160 mg/kg/day) for 6 weeks. Group 4: TBM-treated with curcumin and tannic acid orally at ratio (50%:50%) for 6 weeks. Blood samples were collected from all animal groups after 2, 4 and 6 weeks from treatment. Serum were separated and processed directly for glucose, insulin, total cholesterol, triacylglycerol, total protein determination. The obtained results revealed that, a highly significant decrease in serum glucose, total cholesterol, total protein concentration, meanwhile, a highly significant increase in serum triacylglycerol concentration was also observed. But a nonsignificant decrease in serum insulin levels were observed in tumor bearing mice when compared with control. The results of this study indicated that curcumin, tannic acid and their combination treatment have potential benefits in cancer treatment.

This study evaluated the ameliorative potential of grape seed extract (GSE) against Ehrlich solid tumor (EST)–induced hepatic tissue alterations in mice. The control group was infused with physiological saline. The second group received GSE (50 mg/kg day by day orally) for 2 weeks. The third group was subcutaneously injected with 2.5 million of EST cells. The fourth group was injected with EST cells and treated with GSE extract simultaneously. The fifth group was injected with EST cells and kept for 2 weeks until the appearance of a solid tumor, then treated with GSE for 2 weeks. The phytochemical analysis of GSE revealed the presence of total phenols (17.442 mg GAE/g) and total flavonoid (6.687 mg CE/g) with antioxidant activity of 81.506 mg TE/g DPPH. The Ehrlich solid tumor significantly raised the activities of ALT, AST, and ALP; the level of alpha fetoprotein (AFP) in serum; and the protein expressions of hepatic proliferating cell nuclear antigen (PCNA) and tumor suppressor protein (P53), as well as induced DNA damage and pathological alterations in liver tissue. However, it significantly reduced serum albumin and total protein levels. In contrast, the co- or post-treatment of EST-bearing mice with GSE reduced the activities of ALT, AST, and ALP; the level AFP in serum; and hepatic P53 and PCNA protein expressions. In addition, it reduced EST-induced hepatic DNA damage and pathological alterations, while it increased serum albumin and total protein levels. This study suggested that GSE is a potent hepatoprotective agent and both co- and post-treatment of EST-bearing mice with GSE almost had the same effects. Graphical abstract.

ISSN: 0974-7508