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Antioxidant And Anticarcinogenic Composite From Green Tea And Red Wine Lee As Food Additive

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The objective of the presented work is to investigate chemical composition as well as antioxidant and anti-carcinogenic activities of composite derived from green tea extract and red wine lee in order to use it as a food additive and to test its effect on the growth of experimental breast tumors (Guerin's carcinoma (GC) and Walker W-256 carcinosarcoma. Methods. The composite was prepared by extraction of green tea leaves with red wine lee at 70 0 C. Then the liquid extract was filtered, concentrated up to 25% dry matter and spray-dried. Chemical composition of the composite was determined by using common methods of chemical analysis. General methods of experimental oncology were used in experiments on the animals; methods of gel-electrophoresis, Western-blotting and Surface Plasmon Resonance (SPR) were used to determine transcription factor proteins NF- κ B (p50 and p65), as well as proteins such as ODC(ornithine decarboxylase, the key enzyme of polyamines biosynthesis), Bcl-XL, COX-2 etc. Antioxidant capacities of the samples were evaluated based on their ability to scavenge the 1,1-diphenyl-2-picryl-hydrazyl (DPPH) radical. Antioxidant efficiency was expressed as g antioxidant per kg DPPH(g/kg). Results. The chemical composition of this composite was found to be the following: phenolic compounds-17.3%, pectic substances-11.5%, free aminoacids-15.3%, soluble sugars-22.5%, organic acids-7.1%. The composite revealed high antioxidant activity. It twice diminished the W-256 yield (but not growth rate) and as a trend - the growth of GC. Tumor growth suppression was accompanied by the inhibition of the NF- κ B- transcription factor nuclear expression and the reduction of the level of ODC and proteins of NF- κ B-dependent oncogenes (bcl-XL, inos, cox-2). Conclusion. The composite of green tea and red wine lee which is rich in biologically active compounds, may be successively used in the food industry as a natural anticarcinogenic and antioxidant food additive. Antitumor effect of the composite may be mediated by polyamines- and NF- κ B-dependent signal pathways and indicated on their perspective using in the treatment and prevention of oncology diseases.

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