

Title Health benefits of fruits, vegetables and whole grains: Mechanism of action
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Abstract

Epidemiological studies have consistently shown that regular consumption of fruits, vegetables, and whole grains is strongly associated with reduced risk of developing chronic diseases, such as cancer and cardiovascular disease. Work performed by our group and others have shown that fruit and vegetable phytochemical extracts exhibit strong antioxidant and antiproliferative activities. We proposed that the additive and synergistic effects of phytochemicals in fruits and vegetables are responsible for these potent antioxidant and anticancer activities, and that the benefit of a diet rich in fruits and vegetables is attributed to the complex mixture of phytochemicals present in whole foods. This presentation will cover our current research on the health benefits of phytochemicals from fruits, vegetables and whole grains in the prevention of cancer, and focus on the mechanisms of action of phytochemicals in the regulation of cell cycle, apoptosis and gene expression. The Bioactivity Index (BI) for dietary cancer prevention will also be discussed. BI was calculated based on both total antioxidant activity and antiproliferative activity to provide a simple reference for consumers to choose fruits and vegetables in accordance with their beneficial activities. We believe that the BI could be a new alternative biomarker for future epidemiological studies in dietary cancer prevention and health promotion.