



# Food Processing Impact on Antioxidants with Significance to Human Health

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## DESCRIPTION

Fruits and vegetables are the best sources of antioxidants, which have been shown to improve health and quality, notably by lowering the risk of chronic degenerative diseases including cardiovascular diseases. The presence of bioactive antioxidant molecules has been related to their protective benefits (i.e. carotenoids, and other dietary antioxidants), as these are thought to reduce cell damage through synergistic interactions. These products can also be valuable sources of antioxidants various processing methods on the other hand, can have a significant impact on fruit and vegetable antioxidants, and hence on the health-promoting qualities of the final food products.

### Dietary antioxidants and health effects

This has led to nutritional studies in which our foods are being analyzed for their protective and disease prevention potential. Fruits and vegetables have received a higher standing in the human diet as potential "functional foods" as a result of this research. Due to their potentially health-promoting antioxidant contents, these foods can provide extra physiological benefits, such as avoiding or delaying the onset of a variety of chronic diseases. These bioactive components have received considerable attention because of their health-promoting effects as antioxidants and have been identified as strong candidates in the prevention of human cancer, cardiovascular disease, and some pathological conditions such as gastric and duodenal ulcers, allergies, vascular fragility, and viral and bacterial infection are all examples of diseases. For example, quercetin (one of the major plant flavones) consumption has been found to be inversely related to total and Low-Density-Lipoprotein (LDL) cholesterol levels in human plasma. In addition, anthocyanin consumption has also recently been related to several health-promoting effects, including anti-obesity and the regulation of plasma cholesterol and lipid levels. Several other health-related effects of anthocyanin, including inhibition of tumor development and

prevention of certain cardiovascular risk factors.

### Changes in antioxidant during food processing

It has been suggested that consuming natural antioxidants through foods that are naturally high in these bioactive chemicals is preferable than taking dietary supplements or tablets. Furthermore, it has been pointed out that food composition tables, which are tools used in epidemiological and nutritional studies, generally only include information on the consumption of raw state foodstuffs, despite the fact that food processing is known to have a significant impact on nutritional properties and biological activity.

Food processing is a ranging from simple to rather complex, depending on the desired final product. Fresh produce, for example, may require non-thermal treatments at the point of sale, such as washing, selection, packaging, transportation, and storage. Washing, selection, cutting, removal of the seed and skin, blanching, roasting, evaporation, pasteurization, canning, and prolonged storage, on the other hand, are common non-thermal and thermal procedures used in the creation of fully processed products. Complex production procedures including multiple processes have a high risk of affecting the nutritional status of the final product, especially if diverse heat treatments are used. Fruit and vegetable processing has long been known to result in the loss of antioxidants as well as a reduction in bioactivity in processed goods when compared to fresh equivalents. This is thought to be due to oxidation, non-enzymatic conversion, thermal degradation, leaching, and other processes that take place during processing. Food processing, on the other hand, does not always have a detrimental impact on the functional qualities of food components, as revealed by recent research. Following food processing techniques that include moderate heating or enzymatic rupture of cell wall several recent investigations have indicated that chemicals with antioxidative properties may arise in greater quantities and with enhanced bioavailability.

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