Plant Polyphenol Antioxidants and Oxidative Stress

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Abstract

In recent years there has been a remarkable increment in scientific articles dealing with oxidative stress. Several reasons justify this trend: knowledge about reactive oxygen and nitrogen species metabolism; definition of markers for oxidative damage; evidence linking chronic diseases and oxidative stress; identification of flavonoids and other dietary polyphenol antioxidants present in plant foods as bioactive molecules; and data supporting the idea that health benefits associated with fruits, vegetables and red wine in the diet are probably linked to the polyphenol antioxidants they contain.In this review we examine some of the evidence linking chronic diseases and oxidative stress, the distribution and basic structure of plant polyphenol antioxidants, some biological effects of polyphenols, and data related to their bioavailability and the metabolic changes they undergo in the intestinal lumen and after absorption into the organism.Finally, we consider some of the challenges that research in this area currently faces, with particular emphasis on the contributions made at the International Symposium "Biology and Pathology of Free Radicals: Plant and Wine Polyphenol Antioxidants" held July 29-30, 1999, at the Catholic University, Santiago, Chile and collected in this special issue of Biological Research.