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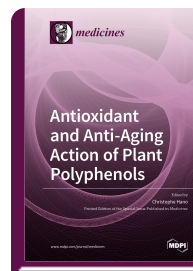
Antioxidant and Anti-Aging Action of Plant Polyphenols

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Polyphenols are plant non-nutrient natural products, or plant secondary metabolites, found in fruits, vegetables and seeds that we consume daily. Their intakes from fruit, vegetables, seeds, and nuts are associated with lower risks of chronic and age-related degenerative diseases. Aging is a dynamic and complex biological process involving multiple actors and subject to a number of genetic and/or environmental influences. The famous free radical theory of aging proposed by Prof. Harman in 1956 states that free radicals lead to oxidative damage, causing cellular dysfunction and physiological decline, and are responsible for aging, with the appearance of degenerative diseases and eventually death. From this hypothesis, antioxidant molecules are capable of slowing down the aging process through the successful scavenging of radical oxygen and nitrogen species. Polyphenols have been shown to prolong the lifespan of different model species operating through a well-conserved antioxidant mechanism. This collection of research and review articles covers the most recent advances in the use of plant polyphenols, ranging from their biological properties and possible functions as medicines, the importance of traditional medicines as a source of inspiration, the rationalization of new uses of plant extracts which lead to applications in modern medicine, the status of modern green-chemistry extraction methods, to some reflections on future prospects.



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