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The Anticancer and Therapeutic Potential of Plant-Derived Nutraceuticals from Mediterranean Diet †

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Abstract: The association between diet and the development and progression of different malignancies has already been demonstrated. According to numerous current studies, about 35% of all cancer-related deaths are linked to diet, and several cancer forms are preventable with balanced nutrition and dietary compounds being able to reverse epigenetic abnormalities. The Mediterranean diet shows inverse associations with metabolic diseases, cardiovascular pathologies, and various types of cancer. Many bioactive nutrients of the Mediterranean diet have been identified as protective factors against these pathologies. The epigenome has been identified as the primary goal of modulations in gene expression related to these molecular nutrients. In fact, they can modify the epigenome and be incorporated into the 'epigenetic diet', which translates into a diet regimen that can be used therapeutically for health or preventative purposes. It has been demonstrated that nutraceuticals such as curcumin, curcumin, resveratrol, sulforaphane, indole-3- carbinol, quercetin, astaxanthin, epigallocatechin-3-gallatte, and lycopene have enhanced effect on epigenetic changes and positively modulate the epigenome, reducing cancer incidence. Understanding the mechanisms by which nutraceuticals influence gene expression will allow their incorporation into an "epigenetic diet" that could be further capitalized in cancer therapy.

Keywords: nutraceuticals; gene expression; epigenetic therapy; cancer.

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Conflicts of Interest

The authors declare no conflict of interest.