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Polyphenols or the Elixir of Eternal Youth?

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Pollutants are ubiquitous nowadays regarding the increase of industrialization worldwide. In fact, the economic indicators have been considered as the principal criteria for measuring local progress, despite the environmental and health problems outcoming from industrialization. Elderly and infants are undoubtedly the most suitable age groups to pollution threats [1]. As shown by Cunha and colleagues [2], elderly people often suffer from malnutrition condition and decrease of polyphenols intake due to anorexia and dysphagia predominance can increase the susceptibility to other pathogenic agents [3,4]. Still, the increase in chronical diseases, such as metabolic and neurodevelopmental disorders, cardiovascular disease and some cancer types [5] affect also young and middle age people [1]. Evidences from manifold studies suggest that most of these chronical diseases can be counteracted by polyphenols intake [6].

To prevent cell damages food selection is important. Epidemiological data found on most cancer sites suggest that ingestion of plant foods rich in antioxidants such as vitamins, selenium and polyphenols, might slow or prevent the appearance of cancer [7]. The intake of food plants rich in polyphenols reduce type 2 diabetes incidence and associated diseases [5,8,9]. Furthermore, nutrients and nutritional status can modulate the process from toxic environmental exposures to health outcomes at different stages. As proposed by Lagoa and colleagues [5] in their revision report, dietary polyphenols can modulate several cellular and molecular mechanisms induced by toxicant exposure partially reducing cell injuries and therefore play a crucial role in the maintenance of a healthy condition.

Polyphenols are major components of culinary herbs and spices and due to the abundance in active compounds these foods are used since ancient times both for culinary and medicinal uses [10 and papers therein]. Nevertheless, despite the beneficious effect of polyphenols on health, well documented in innumerable manuscripts, the bioavailability and effects of polyphenols greatly depend on their transformation by gut microbiota [10]. As suggested in the short report of Opara [11] culinary herbs and spices have a significant importance to play in the maintenance of health but a multifaceted approach is required to elucidate their role.

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