

Mini Review

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# Natural Antioxidants: Functions and Benefits- An Article

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Natural antioxidants possess strong potential to inhibit oxidative stress by controlling the formation and scavenging the free radicals, known as reactive oxygen species (ROS). The ROS is a collective term and including both oxygen radicals and several non-radical oxidizing agents that participate in the initiation and/or propagation of chain reaction [1,2].

Plants are potential sources for natural antioxidants. Phenolic compounds are considered as the main ones responsible for the potent antioxidant activity of plants. These compounds have been associated with their free radical scavenging capability, their potential chelation of pro-oxidant metals and their role as reducing agents and quenchers of ROS (Figure 1) [3,4].

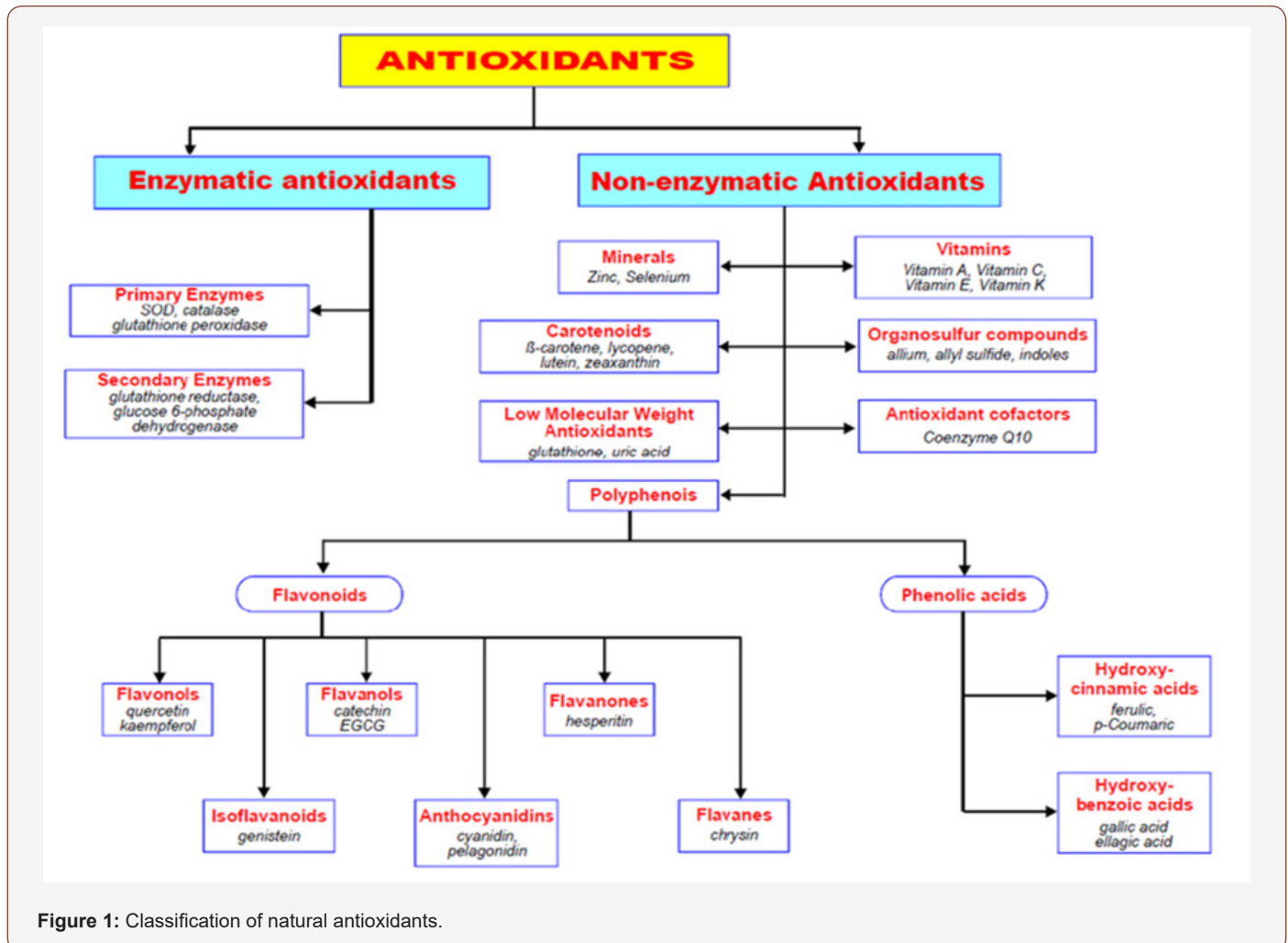


Figure 1: Classification of natural antioxidants.

It is worth to mention that synthetic antioxidants have been used for decades however, recently they have rejected in a favour of natural antioxidants (Back to Nature). Antioxidants interrupt the free radical-mediated chain reactions and thereby preventing the lipid peroxidation process. Antioxidants can decrease the deleterious effects of various oxidative stress induced pathological conditions. (Figure 2) shows the mode of action of antioxidants. It

is worth to mention that increase the concentration of free radicals results in elevation the oxidative stress on the living cell, and thereby is being fragile and susceptible for invasion by microorganisms including pathogenic ones. Moreover, high oxidative stress on the cell has been reported to be responsible for some degenerative diseases (Figure 2) [5,6].

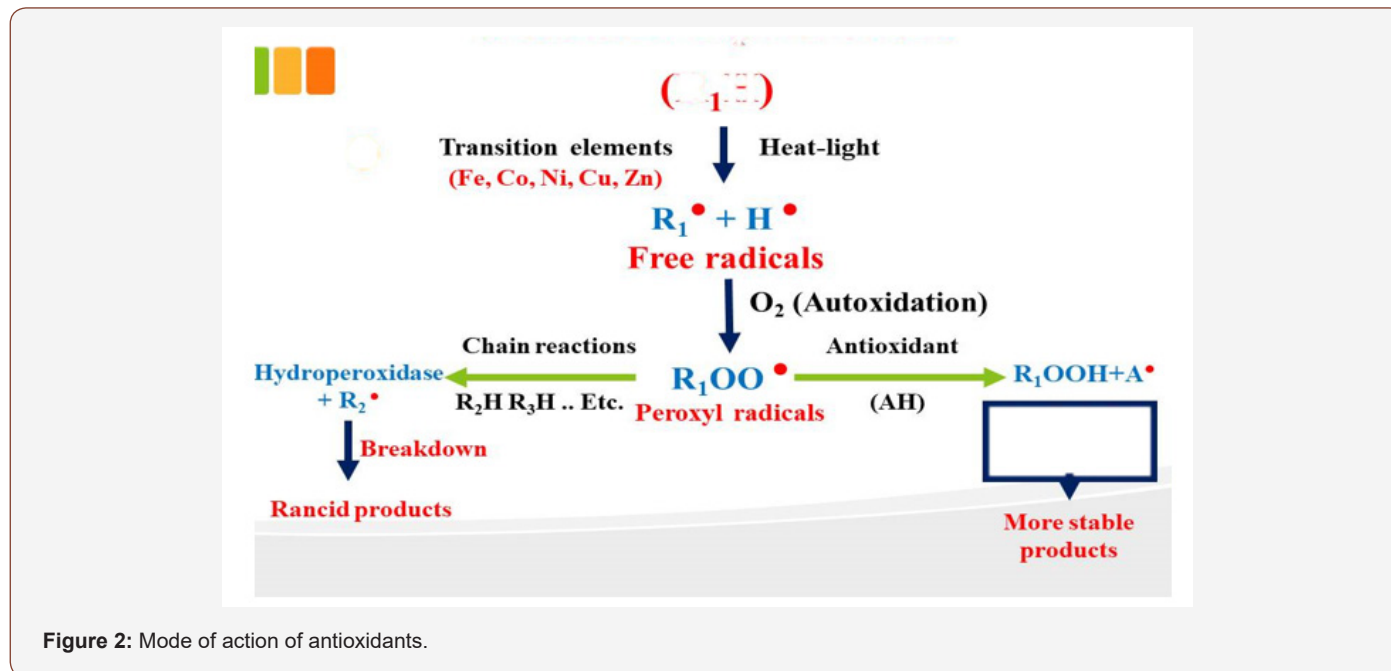


Figure 2: Mode of action of antioxidants.

There are two sources of free radicals, one from outside the living cell including: Stress, radiation exercise, smoke (active and passive) and pollution. The second source of free radicals is mitochondria inside the cell, since mitochondria is a factory of energy (ATP) and free radicals are the wastes of energy production process. Meanwhile, there are two sources of antioxidants, one inside the cell known as self-defense system including: Glutathion (GSH), superoxide dismutase and catalase while the second source of antioxidants is food [7,8]. Consequently, it is quite important to minimize the sources of free radicals and at the same time to increase the natural antioxidants present in a variety of food commodities.

### Acknowledgement

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### Conflict of Interest

No conflict of interest.

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