

Natural Antioxidants that is Crucial to Combat Different Chronic Diseases

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Description

Antioxidants play a vital role in the protection of body cells from the free radicals that cause various pathological and physiological problems such as cancer, cardiovascular disease, and arthritis. Several secondary metabolites are known for their antiradical scavenging and antioxidant properties. Most of the flavonoid and phenolic compounds include flavonoids, organic acids, tocopherols, and polyphenols. Flavonoids and phenolic compounds extracted from plant sources are widely used for pharmacological activities such as anticancer, antioxidant, antimicrobial, anti-inflammatory, and antidiuretic. Phenolic compounds have the potential to hinder oxidative degradation along with showing biochemical activities including ant carcinogenic, antioxidant and ant mutagenic. Flavonoids are polyphenol compounds that possess the properties of free radical scavenging, anti-inflammatory actions, and inhibition of oxidative enzymes. Both flavonoids and phenolic from plants are a rich source of natural antioxidants that is crucial to combat different chronic diseases.

Chronic Diseases

Moringa oleifera is one of the most important specie of the Moringaceae family. Moringa oleifera belongs to the family Moringaceae which has 13 species included in it and among these, Moringa is the most widely studied, cultivated, and used plant. Universally, Moringa oleifera is called the miracle tree. It has been widely used as a supplement for nutrition and a remedy for many chronic diseases. This plant is native to India, Afghanistan, Bangladesh, and Pakistan. The leaves of Moringa contain proteins, minerals, vitamins, and many bioactive compounds such as alkaloids, flavonoids, isothiocyanates, tannins, saponins, and oxalates which are of great importance for medicinal uses. Due to its nutritional and therapeutic potential, fresh leaves of Moringa oleifera can be eaten, and cooked and can also be stored as a powder for a much longer period without loss of their nutritive value. Almost every part of this plant from seed to leaves, trunks, and flowers has been used for different purposes. For the current study leaf powder of the moringa plant is used. This plant is very rich in nutrients such as vitamins, polyphenols, and tannins which it is used as a supplement to treat malnutrition among infants and children.

The leaves of this plant are reported to have a great number of nutrients such as vitamin C, E, and A, and other bioactive compounds such as Potassium, proteins, phenols, Iron, and magnesium. The leaves M. oleifera also contain phytochemicals such as Ascorbic acid and carotenoids. Moringa Leaves are known to contain a variety of bioactive compounds which are involved in the homeostasis of lipids. Flavonoids and Phenolic compounds play a very crucial role in the regulation of lipids in the human body. The Botanical or taxonomic classification of Moringa oleifera is given by Fahey, 2005. The taxonomic classification of Moringa oleifera is Kingdom; Plantae, Subkingdom; Tracheobionta, Division; Magnoliophyta, Class; Magnoliopsida, Order; Brassicales, Family; Moringaceae, Genus; Moringa, Specie; oleifera.

Bioactive Components

The second leaves used were leaves of Lagerstroemia speciosa. The name Lagerstroemia is given to this plant after its recognition and identification by Swedish naturalist Magnus von Lagerstroemt. In India it is called "Pride of India" and in its common name in English is banana plant. Traditionally various parts of this plant have been used for ailments and remedies for chronic diseases. This plant is also known to possess antidiabetic potential. This plant is native to Southeast Asia. The leaves of this plant have been used to treat diabetes in the Philippines for a long. The plant is rich in phytochemicals and many bioactive compounds which make it a potent source of the drug to be used for the treatment of many chronic diseases. The bioactive components of the banana plant are Lagerstroemia and Corosolic Acid which were considered to be the basic agent to affect diabetes earlier. Recent studies suggest that many other constituents of this plant such as Tannins are more effective in showing activities similar to that of insulin. The cause of insulin-like activity shown by Lagerstroemia speciosa has been revealed to occur because of ellagitannins present in it. These Ellagitannins are also responsible for anti-inflammatory action and other activities such as the regulation of glucose. The taxonomic classification of Lagerstroemia speciosa is Kingdom; Plantae, Subkingdom; Tracheobionata, Phylum; Spermatophyta, Division; Magnoliophyta, Class; Magnoliopsida, Order; Myrtales, Family; Lythraceae, Genus; Lagerstroemia, Specie; speciosa.