

## New Age Antioxidants for Better Living

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**Abstract** - Antioxidants are important for the human body which have the potential to inhibit oxidation of free radicals inside the body. The antioxidants may be synthesized and found in nature by the plants. Antioxidants are widely used as ingredients in dietary supplements and have been studied for the prevention of various diseases such as heart diseases, cancer and other human ailments. In the present article some of plant antioxidants are reviewed.

**Keywords** – Antioxidants, Plant Extract, Ingredients, Oxidation.

### I. INTRODUCTION

Plants and plant products are part of the vegetarian diet and a number of them exhibit medicinal properties. The medicinal properties of several Indian plants have been documented in ancient Indian texts and the preparations have been found to be effective in the treatment of diseases [1-3]. Recent reports indicated that there is an inverse relationship between the dietary intake of antioxidant-rich foods and the incidence of human diseases [4-5]. There are some reports which suggests that botanical antioxidants work synergistically when used as a combination. Now a day's consumers are frightened of using synthetic antioxidants so industries prefer using natural antioxidants in their products. Hence search for new natural antioxidants is essential. Although investigation focused on isolation of pure compounds as an antioxidant, recent emphasis is more on natural formulations [6-7]. It has been found that compound in their natural formulations are more active than their isolated form [8]. Hence, the antioxidant activity of some plant extracts commonly used in Ayurvedic medicines [9-19] is reviewed.

Flavonoids represent the largest group of plant polyphenols. Their dietary intake through fruits and vegetables has been associated with a lower incidence of cardiovascular disease [20]. Further study suggests that dietary Flavonoids may have beneficial effects on human health and disease prevention, which is primarily attributed to their antioxidant properties. While commonly occurring flavonols have received much attention as natural antioxidants, only a few studies have reported on the antioxidant effects of prenylated Flavonoids, probably because of their low dietary intake compared to flavonols and anthocyanins [21].

It was suggested recently that generation of free radicals plays a major role in the progression of a wide range of pathological disturbance such as brain dysfunction cancer, and cardiovascular disease and inflammation [22-23]. In food industries, free radicals are found to be responsible for lipid oxidation, which is a major determinant in the deterioration of foods during processing and storage [24-26]. Due to this fact, considerable interest has been given to the addition of antioxidants in food and biological systems to scavenge free radicals. A lot of natural compounds have been found to be antioxidants including vitamin E, phenolic acid, chlorophyll, carotenoids and flavonoids [27]. Polyphenols from grapes, EGC (epigallocatechin) from tea leaves, curcumin from turmeric and rosmarinic acid from rosemary extract are used as antioxidant for herbal preparation and cosmetic. Recently resveratrol a natural product derived from grapes, was found to be antioxidative, antimutagenic and an inducer of phase II drug-metabolizing enzymes [28]. Resveratrol belongs to a class of compounds

called stilbenes, which are widely distributed in nature. Synthesis of stilbene compounds are of great interest from the discovery of many natural stilbene compounds as antioxidative, antifungal, ichthyotoxic, and antileukemic agents [29-31].

Since people are particularly concerned about the quality and the safety of their food, only selected food additives are added for protecting them from off-flavour. Antioxidants are often used in oils and fatty foods to retard their autoxidation. The synthetic antioxidants were widely used, but now avoided due to their possible toxic effects [32]. So, industries have focused on natural antioxidants [33, 34]. Indian medicine herbs and spices are a major source of natural antioxidants. Indian traditional medicinal plants and 700 species of herbs were screened for natural antioxidants. Among them, 64 were found to possess obvious antioxidant activities, and 24 showed strong antioxidant activities [35-37].

All know that food spoils by oxidation reaction due to the presence of atmospheric oxygen. Thus the food which contains antioxidant in good amount spoils later. Benzoic acid and ascorbic acid are also good example of antioxidant compounds. Fruits and vegetables contain many chemical substances having antioxidant properties. The main advantages of antioxidants are they scavenge free radicals. Thus the natural food antioxidants have anticancer properties or they protected against cancer. Some of the examples of antioxidants are being given below.

1. Lycopene - Red Colour of Tomatoes.
2. Beta Carotene - Pigment in Carrots
3. Resveratrol - Red Wine Pigment
4. Flavonoids - Tea Leaves
5. Quercetin - Red Anions, apples
6. Proanthocyanidins - Colour of Many Fruits
7. Catechins Stem Bark - Oak Tree

Recent studies showed that antioxidants are useful in lowering the incidence of cardiovascular diseases and are good anticancer agents. They also prevent aging

such as atherosclerosis, coronary artery diseases. Antioxidants are beneficial for our better living and thus average human life span would be extended some more active years. The list of some antioxidant plants and their active constituents are being given in Table 1.

## II. CONCLUSION

Various antioxidants useful for human being are reviewed here. This paper will help the researchers to find antioxidant activity present in the various plants.

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TABLE I  
Plants Having Antioxidant Activity

S. No.	Name of Plant	Part of Plant	Active Principle/extract	Ref.
1.	Acacia catechu	Whole plant	Aqueous extract, acid resin, flavones, coumarins, catechu tannic acid, catechin, red tannin, quarcetin	38
2.	Acacia senegal	Bark and heart wood	Gum acacia	39,40
3.	Anadenantra perigrina	Bark	Tryptamines	41
4.	Avena sativa	Cereal grains	Water and 80% methanolic extract	42,43
5.	Coptis spp.	Root	Berberine, palmatine	44-47
6.	Dioscorea spp.	Rhizomes	Diosgenin, dioscorin, Spirostanol, saponin	48-51
7.	Eleutherococcus senticosus	-	Eleutheroside	52
8.	Fogophyrum esculentum	Seeds	Rutin	53,54
9.	Gaultheria procumbens	-	Aesculetin	55
10.	Glycyrrhiza glabra	Whole plant	Aqueous extract, Glycyrrhizin, asparagin	38
11.	Hydrastic Canadensis	-	Hydrastine, canadaline, berberine, canadine, -hydrastine	56-59
12.	Justica adhatoda	Leaves	Vasicine, ethanolic extract	60
13.	Larrea divarticata	-	Nordihydroguaiaretic acid	61-64
14.	Melissa officinalis	-	Rosmarinic acid	65-67
15.	Momordica charantia Linn.	Whole plant	Aqueous extract, glucosides, albuminoids, chasantin,	38
16.	Mucuna pruriens	Seeds	Bufotenine, L-dopa alcohol extract	68-70
17.	Paullinia cupana	-	Caffeine	71
18.	Peumus boldus	Leaves	Boldine, benzylbenzoate	72-74
19.	Prunues domestics	Leaves	Methanolic extract, prunetin, genistein, quercetin	75
20.	Prosalea corylifolia	Seed, Leaves	Psoralen, bakuchicol, isopsoralin, corylin, bevachin, alcoholic extract	76-79
21.	Punica granatum	Seed	Methanolic extract & tannin	80-82
22.	Soppura pachycarpa	-	Pachycarpine, flavonol, triglycoside, vexibinol	83-85
23.	Tabebuia spp.	Bark	Lapachol, elemicin, transanetheol, aqueous and methanolic extract	86-88
24.	Terminalia chebula	Whole plant	Tannin, gallic acid, chebulinic acid	38
25.	Vaccinium myrtillus	-	Anthocynosides, flavonoides	89-90