



## Review on Activity of Natural Antioxidants from Plant Resources on Free Radicals

Rukshar Fakira\*, Sneha Verma, S.A. Mankar and Z.N. Kashmiri

Department of Biochemistry, Dada Ramchand Bakhru Sindhu Mahavidyalaya, Panchpaoli, Nagpur  
ruksharfakira@gmail.com

### Abstract:

In India, ayurveda one of the oldest medical system in the world, practices medicines using plants extract over major diseases from ancient period to till today. Parts of plants and plant extract are widely used as medicine in all over world. Various plant species have been utilized as traditional medicines by Indian people. Most of the varieties of medicinal plants are used as medicine for almost all major diseases like jaundice, tuberculosis, cancer, skin rashes, body ache, wounds, bacterial infection, heat strokes, etc. Many herbs and plants have been exploited commercially either as antioxidants or nutritional supplements and majority of the diseases are mainly linked to oxidative stress due to free radicals.

Mung bean is an important source of vegetable protein for the growing population in many developing countries of South East Asia. Thirty seven diverse genotypes of *Vigna mungo* and three of *V. radiate* resembling to *V. mungo*, belonging to the *Fabaceae* family for seed characters and their antibacterial activities of extracts were studied by many researchers.

The potential of the seed or plants extracts as a basis of antioxidants or nutraceuticals with possible use to reduce oxidative stress with consequent health advantages for human kind.

**Keywords :** Antioxidant, free radical, antibacterial, *Vigna mungo*.

### Introduction:

The Indian people have over many years of knowledge of flora and fauna as sources of food, therapeutic agents, and other resources. Indian healthcare consists of medical pluralism and ayurveda still remains dominant compared to modern medicine, particularly for treatment of a variety of chronic disease conditions (**Waxler-Morrison 1988**). India has about 45,000 plant species; medicinal properties have been assigned to several thousands. About 2000 are found in the literature; indigenous systems commonly employ about 500–700 (**Patwardhan et al. 2004**).

An antioxidant is any substance that, when present at low concentrations significantly delays or prevents oxidation of cell content like proteins, lipids, carbohydrates and DNA. Antioxidants can be classified into three main types: first line defence antioxidants, second line defence antioxidants and third line defence antioxidants. Several studies have shown that plant derived antioxidant nutraceuticals scavenge free radicals and modulate oxidative stress-related degenerative effects (**Ames et. al. 1993, Joseph et al. 1999**). Reviewer Khaled Rashed also mentioned 18 herbs that are medicinal plants for antioxidant. An antioxidant is a molecule capable of slowing or preventing the oxidation of other molecules and protect cells from damage. Antioxidants terminate these chain reactions by removing free radical intermediates, and inhibit other oxidation reactions by being oxidized themselves. Free radicals are fundamentals to

any biochemical process and represent an essential part of aerobic life and metabolism. Medicinal plants have been also found to possess free radical scavenging activity (Polyphenols, alkaloids and terpenoids). Low levels of one or more of the essential antioxidants have been shown to be associated with many disorders including cancer, inflammation, atherosclerosis, coronary heart disease and diabetes (**Khaled Rashed;2014**). Besides well known and traditionally used natural antioxidants from wine, teas, fruits, vegetables and spices are already exploited commercially either as antioxidants or nutritional supplements (**Schuler 1990; Chu 2000; Hamburger 2002**).

**Review :** Mung bean is an important source of vegetable protein for the growing population in many developing countries of South East Asia. Thirty seven diverse genotypes of *Vigna mungo* and three of *V. radiate* resembling to *V. mungo* for seed characters were studied to determine the extent of genetic variation based on morphological characters. In addition, 4 black seeded genotypes in each species and 8 green seeded *V. radiate* genotypes were included for SDS-PAGE analysis. (Menancio-Hautea et al.) The antibacterial potentials of chloroform and methanol extracts of mung bean sprout (MBS) or *Vigna radiata*(L) Wilzeck extracts were evaluated against *Pseudomonas aeruginosa*, *Escherichia coli*, *Klebsiella pneumonia* and *Salmonella* spp. using agar disk diffusion method and minimum

inhibitory concentration (MIC) assessment(Siti Nazrina et al 2013).

Hafidh et al. explored the anticancer and immunomodulatory activity of mung bean sprouts (MBS) and the underlying mechanisms against human cervical and hepatocarcinoma cancer cells. The mung bean (*Vigna radiata*) has been consumed as a common food in China for more than 2,000 years. It is well known for its detoxification activities and is used to refresh mentality, alleviate heat stroke, and reduce swelling in the summer. The study by Jaya Prakash Priya et al. (2012) revealed that the antibacterial potential using solvent extracts were studied by agar well diffusion and broth dilution method against antibiotic resistant food borne or food spoilage pathogenic bacteria. This study assumes much significance in finding antibacterial phytochemicals from the sprouts of *V. radiata*.

**Conclusion:**

Natural antioxidants are extracted from plant and related resources to scavenge free radicals which form during metabolism and other activities in living organisms. Drug discovery related with major diseases should go parallel for natural antioxidant. Presently there has been an amplified interest worldwide to identify antioxidants compounds which are pharmacologically effective or have low or no side effects for use in preventive medicines and mung plant is one of the best natural resources to fulfill the need. The literature reveals that these natural antioxidants represent a potentially side effect-free alternative to synthetic antioxidants in the food processing industry and for use in preventive medicine. The main goal of researchers today is to find natural gas antioxidant that will replace the synthetic ones in the food, pharmaceutical and cosmetic industries.

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