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Review on the Antioxidant Property of the Medicinal Plants in Uran Area

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Abstract: *Antioxidants and oxidation inhibitors are compounds that prevent or delay oxidation and prolong the life of oxidizable substances. Oxidative stress caused by free radicals is the primary cause of the vast majority of illnesses and disorders. Free radicals are reactive entities with a limited half-life and a destructive effect on macromolecules such as proteins, DNA, and lipids. In general, circulating reactive oxygen species interact with the electrons of other molecules in the body, affecting a variety of enzyme systems and causing damage that can lead to cancer, ischemia, ageing, and respiratory discomfort in adults. A plant-based diet protects against oxidative stress-induced chronic illnesses. Plant meals include numerous chemical types and quantities of antioxidants. According to one theory, antioxidants in plants may add to the health benefits of consuming plants. This paper investigates antioxidants/antiradicals, their importance to the human body, and the antioxidant content of spices and herbs.*

Keywords: Antioxidants,Hearbs,Plants.

I. INTRODUCTION

Reactive oxygen species (ROS) can be produced internally, including through fat oxidation and the mitochondrial electron transport chain. electromagnetic radiation, cosmic rays, UV light, ozone, cigarette smoke, and low-frequency radio waves are examples of exogenous sources. Electromagnetic radiation. Pro-oxidants are chemical compounds and interactions that have the capacity to generate potentially dangerous oxygen species or free radicals. [1-5] Antioxidants are substances and chemical reactions that eliminate, stop, or diminish the production of reactive oxygen species. Free radicals destroy macromolecules, such as proteins, DNA, and lipids that are harmful to cells and tissues. The ratio of pro-oxidants to antioxidants is ideal in a healthy cell. This equilibrium may shift to the pro-oxidant side, however, if the synthesis of oxygen species increases or the number of antioxidants decreases. This condition, referred to as "oxidative stress," can cause severe cell damage if it is extreme or persistent. Alternative medicinal systems in India have used herbal antioxidants to help patients feel better for the past six to eleven millennia. [6-12].

II.COMMONLY USED HERBAL ANTIOXIDANTS

1] Cocculus Hirsutus:

Reactive oxygen species (ROS) can be produced internally, including through fat oxidation and the mitochondrial electron transport chain. electromagnetic radiation, cosmic rays, UV light, ozone, cigarette smoke, and low-frequency radio waves are examples of exogenous sources. Internally, reactive oxygen species (ROS) can be created, for example through the mitochondrial electron transport chain and lipid oxidation. Examples of external sources include electromagnetic radiation, cosmic rays, UV light, ozone, cigarette smoke, and low-frequency radio waves. [12-15]

2] Ashwagndha (WithaniaSomnifera)

It is a member of the Solanaceae family and has been used for centuries in Indian alternative medicine systems to treat a number of ailments. It is frequently referred to as Indian ginseng since its therapeutic value is akin to that of ginseng, which is recognised for its ability to treat stress-related diseases. The majority of ashwagandha's therapeutic properties are derived from its tuberous roots, from which extracts are widely available as over-the-counter herbal supplements. Adaptogens, such as ashwagandha, are thought to improve homeostasis by controlling stress-induced physiological

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and biochemical changes. The anti-inflammatory, anti-cancer, and immunomodulatory effects of Ashwagandha justify its widespread usage in longevity enhancement. The antioxidant activity of ashwagandha shows that a single molecular mechanism may account for all of its health advantages. [16]

3] Zingiber Officinale (Ginger):

Ginger is a common element in international cuisines. The rhizome of the plant belonging to the Zingiberaceae family is Zingiber officinale. It is widely used in alternative medical practises such as Chinese medicine, Ayurveda, Siddha, and Unani due to its many therapeutic characteristics. According to traditional Indian medicine, ginger is a rejuvenator, or kaya karpam. Fresh or dried, it is used to treat nausea and vomiting, osteoarthritis and rheumatoid arthritis, diabetes, digestive issues, and some cardiovascular disorders. Several research have demonstrated ginger's antioxidant, anti-inflammatory, anti-cancer, and antibacterial properties. [17]

4] AzardirachtaIndica or Neem,

A huge evergreen tree that belongs to the Meliaceae family and has multiple therapeutic use. The leaves, flowers, seeds, roots, and bark of the neem tree are used as traditional cures for a variety of diseases in Indian alternative medicine systems. In contrast to other tree parts, neem leaves have numerous medicinal applications. Several research have shown that neem leaves are antibacterial, anti-inflammatory, analgesic, anti-diabetic, immunomodulatory, antioxidant, and anticancer. Neem leaves are utilised as kaya karpam 18 to increase longevity due to their various pharmacological properties. [18]

5] BenincasaHispida:

Phytochemicals, including alkaloids, saponins, steroids, carbohydrates, and flavonoids, were analysed for their presence and identification in methanolic and aqueous extracts of Benincasahispida utilising conventional techniques. The antioxidant activity of the extracts was evaluated in vitro based on the results. This study aimed to investigate the phytochemical screening and free radical scavenging capacity of aqueous and methanol extracts of mature, dried Benincasahispida peels. Using DPPH (1.1,-diphenyl-2-picrylhydrazyl) the capacity to neutralise free radicals was measured.[19-20]

6] Sonchus Asper:

Evaluation of the phenolic content and antioxidant activity of different Sonchus asper (L.) Hill solvent extracts. With IC50 values in the micrograms per millilitre range, SA extracts revealed an extraordinary ability to eliminate all reactive species tested. In addition to the greatest TPC and lowest IC50 values for chelating efficiency, SAME exhibited the most effective radical scavenging properties for superoxide, hydrogen peroxide, and hydroxyl radicals. These results imply that S. asper could be used to prevent oxidative damage caused by free radicals. [21-23]

7] Moringa Oleifera:

Moringa oleifera (M oleifera) (Moringaceae) bark extracts were evaluated in vitro for their phytochemical composition, total phenolic content, cytotoxicity, and antioxidant activity. Using shrimp lethality (BSL) assay, cytotoxic effects were studied. This study aims to explore the in vitro antioxidant activity of aqueous and methanol extracts of Momordica charantia leaves by utilising DPPH radical scavenging and nitric oxide radical scavenging. [25-26]. the antioxidant and ABTS procedures employing ascorbic acid and gallic acid as standards.

8] Asparagus Racemosus:

Components of its antioxidant action include free radical scavenging, superoxide anion radical scavenging, hydrogen peroxide scavenging, metal chelating nitric oxide scavenging, reducing power, and prevention of lipid peroxidation in rats. It contains alkaloids, polyphenols, flavonoids, and vitamin in addition to saponins. [27].

9] Origanum Dictamnus:

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It is referred to frequently as yastimadhu. The extract's ability to reduce radiation-induced lipid peroxidation in rat liver microsomes is being evaluated. Chemical components' capacity to absorb free radicals enables them to do so. In addition, it has diuretic, relaxing, and tonic properties. Flavonoids and phenolic acids compose the plant's oxygen-reducing components. The aqueous extract absorbs the free radicals produced by the Fenton reaction.[28]

10) Annona Squamosal:

It is often referred to as "custard apple or Sitaphal." Utilized were diabetic rats generated by streptozotocin. It diminishes lipid peroxidation and enhances the activity of antioxidant enzymes, radical scavengers, and singlet oxygen quenchers. The constituent compounds are flavonoids through [29- 31].

III. CONCLUSION

Recent research reveals several applications of antioxidant/free radical modulation in illness prevention and control. Antioxidant properties have been attributed to dietary components, including Indian plants and medicinal herbs. Including more antioxidants in the diet can aid in the maintenance of a healthy body. Humans have developed a highly sophisticated and intricate antioxidant defense mechanism to protect their cells and organ systems against reactive oxygen species.

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