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Effect of Garlic on Human Health

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ABSTRACT

This study aims to examine garlic's historical medical use as well as its function in the treatment and prevention of disease. One of the therapeutic herbs that have been studied the most is garlic. For a very long time, people have been aware of garlic's therapeutic benefits. Modern research is looking into the health benefits of garlic and tends to support many of the myths and beliefs held by ancient cultures. From Ancient times, people have consumed and used garlic as food and medicine. It is frequently advised to cure illness. Garlic has been shown to have beneficial effects "on the cardiovascular system, Alzheimer's disease, diabetes, wound healing, neuro/nephroprotection, osteoporosis, stress, and aging"; garlic and its preparations have been well recognised as agents for the prevention and treatment of cardiovascular and other metabolic illness, atherosclerosis, hyperlipidemia, thrombosis, hypertension, and diabetes. Garlic has considerable therapeutic potential to cure various conditions, as immunomodulatory benefits and prevention of viral acute respiratory illness have been seen. Alliin may be obtained by crushing garlic cloves. To properly utilize garlic and get the benefits to the fullest, scientists face a significant problem. Using current scientific understanding, the current study on garlic aims to investigate the historical uses of plants as medicines.

Keyword :- *Medical, modern, beliefs, Modern, Implication, herbs, Garlic,*

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Introduction:

Since ancient times, medicinal plants have been utilized to treat a variety of illnesses. These herbs have frequently been used for therapeutic purposes. They also serve as a source of raw materials for the creation of pharmaceuticals. Garlic is one of the most popular plants for culinary and medicinal purposes. "The Scientific name of garlic is Allium sativum, and it belongs to the family Liliaceae." The Latin name of garlic Allium, comes from "the Celtic word, which means pungent or flaming." [1] The word "sativum" for the species means "placed, cultivated, or sowed." The herbaceous plant garlic has bulbs of many fibres that are split and covered with yellowish skin. It also has 4-6 segments that have a distinct peppery flavour. This perennial herb has flat, sparse

leaves 2-3 cm broad and a 50 cm tall cylindrical stem. It has few flowers in the shape of a lilac or pink coarse, and occasionally the flowers are swapped out for bulbs. [2,3] garlic, "a member of the Liliaceae family, is one of nature's most diverse medicinal plants" and serves a multitude of functions. Garlic is well-recognized as a valuable spice and a well-liked remedy for a number of diseases and physiological conditions. Garlic farming is believed to "have spread from Central Asia through China, the Near East, and the Mediterranean region before heading west to central and southern Europe, Egypt, and Mexico. Nowadays, garlic is almost grown everywhere in the world." [1]

Taxonomical Position [4]

1. Kingdom:	Plantae
2. Clade:	Tracheophyta
3. Clade:	Angiosperm
4. Clade:	Monocot
5. Order:	Liliales
6. Family:	Liliaceae
8. Genus:	Allium
9. Species:	sativum
10. Binomial:	Allium sativum

"Medicinal Parts Used: Fresh bulbs, dried bulbs, and Garlic oil"

"Common Names (Synonyms): Garlic (Eng.), lasun (Hindi), Rasonam&Lahsuna (Sanskrit), Knoblauch (Ger), Knoblauchzweibel (Ger), da suan (Chin), taisan (Jap), inniku (Jap), taesan (Kor), tafanuwa (Hausa), ayoishi (Igbo), kitunguusumu (Swahili), ayu (Yoruba), lobha (Nepalese)" [5].

"Chemical Constituents of Allium sativum and its Nutritional Value"

Garlic has high concentrations of "phosphorus, potassium, sulphur, and zinc; moderate concentrations of selenium; low concentrations "of calcium, magnesium, sodium, iron, manganese, and B-complex vitamins"; and moderate concentrations of vitamin A and C. about 33 sulphur compounds, many enzymes, and [6] "Fresh, uncooked garlic bulbs contain more than 34 sulfur-containing chemicals and "just 66% water, 27% carbohydrates, 2.5% protein, 1.3% amino acids, 1.6% fibre", and trace minerals. [7] "Polyphenols, amino acids, benzenoids, sulfur-containing substances, fatty acyls, glycerophospholipids, heteroaromatic substances, indoles, phenol lipids, pyrrolizines, quinolines, steroid derivatives, tetrahydrofurans, and other substances make up the majority of the phytochemicals". [8]

"Garlic (Allium sativum L.) has significant immunomodulatory, anti-inflammatory, anti-cancer, anti-tumor, anti-diabetic, anti-atherosclerotic and cardioprotective properties because it contains phytochemicals that contain Sulphur", "Thiosulfates (allicin), S-allyl cysteine sulfoxide (alliin), ajoenes (E- and Z-ajoene), vinyldithiins (2vinyl-(4H)-1, 3-dithiin, 3-vinyl-(4H)-1,2-dithiin), and Diallyl (di and tri) sulphide make up the majority of the sulphur Garlic also contains certain organosulfur compounds (OSCs) generated from allin, such as Naphthalenylcysteine, Allylmercaptocysteine, and S-allylcysteine". [9]

Phytochemical Constituents of Garlic:

Molecules containing organosulfur, like "N-acetylcysteine (NAC). [10]

Minerals, enzymes like alliinase, peroxidases, and myrosinase as well as amino acids are present". [11]

The sulphur molecules that give garlic its medicinal properties—"allicin, diallyl disulfide, S-allylcysteine, and diallyltrisulfide"—are found in higher concentrations. Garlic is eaten "raw (fresh leaves or dried cloves) or processed (oil, extracts, and powder) with variable chemical makes beneficial and concentrations of bioactive ingredients. It has a long history of being a useful spice and a well-liked cure for a number of illness and physiological issues" [12, 13]. Allicin quickly breaks down to "allylsulfenic acid (2-propenethial) which then undergoes a series of reactions to produce alkyl disulfides like diallyl disulfide and other polysulfanes, vinyl, and vinyl sulphide".

Traditional use:

From ancient times, the leaves and cloves of the A. sativum plant have been used in the traditional medicine of several countries, including Iran. [15] In addition to this, garlic possesses a variety of chemopreventive and anti-tumor properties, such as the ability to suppress the proliferation of cancer cells. Garlic and its contents were found to suppress "the development of chemically generated cancers of the liver, colon, prostate, bladder, mammary glands, oesophagus, lungs, skin, and stomach in both animal and human trials. These cancers were caused by exposure to certain chemicals". [16] As a remedy for bronchopulmonary conditions in addition to asthma, it is frequently utilised because of its antiseptic and expectorant properties. It lowers blood pressure and acts as a vermifuge in addition to its other uses. [17] Maceration is the most often employed extraction technique. [18] "There is a growing body of research suggesting" that "plants play an important part in maintaining and enhancing human health" [19] According to the World Health Organization (WHO), more than 80 percent of the world's population relies on or "has used Traditional Medicine/Complementary and Alternative Medicine (TCAM)". TCAM is defined as "any practice, knowledge, or belief on health that includes treatments based on plants, animals, and/or minerals, spiritual therapies, manual techniques, and exercises used alone or in combination to maintain health". Traditional Medicine/Complementary and Alternative Medicine (TCAM) is defined as "any practice, knowledge, or belief on health" that garlic has been shown to be effective in treating a wide range of illnesses, including infections, high blood pressure, and even snake bites. "It has also been used in some cultures to ward off evil spirits, and it has antimicrobial properties. These are only two of its many uses". [22] It is especially beneficial to the cardiovascular system, the digestive tract, the circulatory system, and the lungs. garlic is considered to be "one of the most effective antibiotics". Because of its bactericidal and fungicidal properties, the bacteria that are responsible for vaginal pain, vaginitis, and vaginal flow can either be eradicated entirely, or their growth can have their rate slowed down significantly.

To treat the ailment, a significant number of garlic cloves were eaten. In addition to that, it may be utilized as a treatment for scabies. Vaginal discharge in women of reproductive age is frequently caused by "bacterial vaginosis, which is one of the most prevalent causes overall (BV)" The usage

of garlic is one of the natural treatments that may be used for BV. Gram-positive and Gram-negative bacterial growth was suppressed when it was tested in vitro using garlic extract. [23]

Medicinal uses:

Allicin, a 'biologically active component' of garlic, and its derivatives have been used as a medication for a significant amount of time "to treat a wide variety of ailments, including high blood pressure" and fungal infections, throughout the course of many years. [25] The medical professional suggested utilizing garlic oil to cure various diseases, including red eyes, pulmonary TB, sterility, and impotence. [26] In contrast, fructans are well-known for selectively boosting some beneficial bacteria in the colon and regulating various immune responses. [27] Garlic is a famous and potent anti-atherogenic agent [28]. Certain foods and herbs containing bioactive components with immunomodulatory, antioxidant, and antimicrobial properties may be able to provide "pre and post exposure prophylaxis by boosting the activity and quantity of lymphocytes, natural killer cells, macrophages, and cytokine suppressors. As a result, herbal products lessen the harmful effects of viruses by reducing the dose required, and they simultaneously improve the treatment and results by reducing inflammation". [29]. Due to "the presence of phytochemicals containing sulphur, garlic (Allium sativum L.) possesses immunomodulatory, anti-inflammatory, anti-cancer, anti-tumor, anti-diabetic, and cardioprotective effects" [30]

'The bulb of the garlic is the component of the plant' that is utilized most frequently. As previously established, garlic and more specifically, the cloves are thought to possess a variety of Medicinal Properties, from decreasing cholesterol and lowering high blood pressure (BP) to treating the common cold [31]. Worldwide, One billion people suffer from hypertension, with 65 million belonging to the United States. About 40% of deaths from cardiovascular causes have resulted from this [32].

It is known that humans can acquire more than 200 distinct varieties of cancer, some of which include lung cancer, colon cancer, breast cancer, and prostate cancer. It was estimated that 12 million individuals throughout the world were living with cancer in 2008, and it is expected that this number will climb to 21 million by the year 2030. Cancers of the colorectal and breast organs,

as well as cancers of the lungs, are the leading causes of death in relation to cancer [33]. Garlic and the metabolites that come from it have been shown to have a beneficial influence on testicular function. Garlic has beneficial benefits on the testicles, including the prevention of heat-induced hypogonadism and the protection against cadmium-induced testicular injury via the reversal of biochemical marker abnormalities. Garlic also protects against cadmium-induced damage to the testicles. [34] In addition to its many other advantages, it can improve testicular histology and reduce the dangerously excessive levels of free radicals found in the testicles. Due to its minimal or nonexistent toxicity, garlic has a tremendous potential to treat inflammatory illnesses like arthritis in humans [35].

Garlic possesses a wide variety of antimicrobial and antifungal characteristics, which can be beneficial in various ways. Research has shown that garlic oil can prevent the growth of the fungus Penicillium funiculosum. This may be accomplished by penetrating the fungus's cells and organelles or by rupturing the cell structure, which releases cytoplasm and macromolecules [36, 37].

Studies have shown that garlic has eleven positive effects on one's health, and scientists widely acknowledge these benefits. [38].

1. Compounds in garlic have powerful therapeutic effects.

2. Despite having relatively few calories, garlic is a very nutritious food

3. The common cold can be treated with garlic.

4. Garlic's active ingredients help lower blood pressure.

5. It may lower the chance of developing coronary heart disease.

6. Antioxidants have an essential role in the prevention of Alzheimer's disease and dementia.

7. It may prolong life.

8. It supplements may enhance athletic performance.

9. Its Consumption may aid in the body's detoxification of heavy metals.

10. It may be beneficial to the maintenance of bone health.

11. It has a flavour that will make your mouth wet and is not difficult to add to your diet.

Contraindications:

Those who have a known allergy to garlic should not take it. In addition, surgery, diabetes mellitus, and acquired immunodeficiency syndrome are contraindications (AIDS). Individuals with diabetes mellitus should exercise caution while consuming garlic-containing dietary supplements and stick to their regularly prescribed methods of blood glucose management until additional information is available. Antiplatelet effects of garlic need vigilance in people receiving anticoagulant or thrombolytic medications. (39) Body odour is caused by allyl methyl sulphide (AMS), which is absorbed into the blood during the metabolism of sulphur compounds formed from garlic and then moves to the lungs [40] and mouth. This is especially true when raw versions of the herbs are consumed, as this increases the amount of AMS in the bloodstream.

Conclusion:

This review has made an effort to include recent findings on the function of garlic. Garlic has demonstrated positive benefits on a number of clinically significant risk factors, According to the most recent evidence. Garlic is a commonly used spice with a distinctive smell. Garlic is utilized as medicine because it has a number of bioactive chemicals that are either non-toxic or have low toxicity. Garlic is therefore promising as a functional food for managing several ailments. Allium sativum, also known as garlic, is used in conventional and homeopathic treatments for various illnesses. Due to its chemical components, there will be many studies done in the future to identify new medications. For better verification of medicinal claims, garlic preparations need to be harmonized. Additionally, more clinical studies should be conducted to establish the health advantages of garlic for humans, with a particular focus on garlic's adverse effects and safety.

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