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To Study the Antimicrobial Garlic Properties

Deepak Rai

Dronacharya PG College of Education, Rait, Kangra, HP

Abstract: *Although studies into the mechanism of action of garlic have just recently been conducted, the herb has been used for its therapeutic benefits for thousands of years. In addition to having antibacterial, antiviral, antifungal, and antiprotozoal properties, garlic also has advantageous effects on the cardiovascular and immunological systems. The resurgence of natural herbal remedies has elevated the role of medicinal plants in pharmacological research, leading to the discovery of numerous novel medications. In addition to discussing the sulphur chemistry of garlic and its historical uses, this review intends to lay the groundwork for future investigations into the antimicrobial effects of garlic. [1].*

Keywords: Garlic

I. INTRODUCTION

Antioxidants found in garlic (*Allium sativum*) help the body's defences against oxidative damage. Garlic supplements at high doses have been demonstrated to considerably lower oxidative stress in persons with high blood pressure and enhance antioxidant enzymes in humans.

As a member of the Allium family, garlic is related to onions, rakkyo (an Asian onion), scallions, chive, leeks, and shallots. It has been utilized by humans for thousands of years, and Ancient Egyptians employed it for both culinary and medicinal uses.

Garlic has been utilized as medicine for many years in many different nations. Both raw and cooked garlic may provide a variety of health advantages. It might have important antibacterial qualities.

According to Richard S. Rivlin's article in the Journal of Nutrition, the "father of Western medicine" and ancient Greek physician Hippocrates (460–370 BC) recommended garlic for a variety of ailments. Garlic was recommended by Hippocrates as a remedy for respiratory issues. [2]

II. MATERIALS AND METHODS

2.1 Test Organism

Fresh strains of *Staphylococcus aureus*, *Escherichia coli, Streptococcus pyogen, and Klebsiella pneumoniae* were obtained from the laboratory of the microbiology department.

2.2 Preparation of Extract

10-15 cloves of garlics were peeled off and washed properly. After that it is crushed using finely a mortar and pestle and its liquid is extracted and transferred to a clean container.

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2.3 Media

A. Sterile Mueller–Hinton Agar

Agar, casein acid hydrolysate, starch, and beef extract are the main ingredients in Mueller Hinton Media. Beef extract and acid hydrolysate of casein supply essential elements such nitrogen, vitamins, carbon, amino acids, sulphur, and carbon. Starch is added to absorb any potentially hazardous metabolites produced. When starch is hydrolyzed, dextrose is created, and it is a source of energy. Agar serves as the solidifying agent.

The Mueller-Hinton agar is a medium for determining the susceptibility of microorganisms.

B. Miscellaneous

1. Test tubes
2. Sterile petri plates
3. Sterile cotton swabs
4. Mortar and pestle
5. Garlic

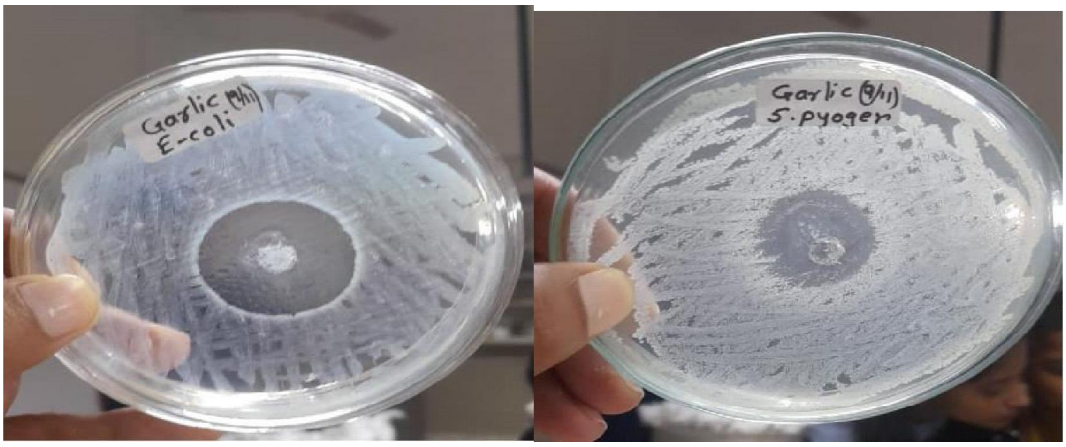
III. ANTIMICROBIAL ACTIVITY OF GARLIC

Garlic must first be well cleaned before being carefully peeled off. The garlic cloves were then assembled and added to the mortar. The garlic was continuously pounded in a mortar with a pestle to extract the juice. Using filter paper, the fresh garlic juice was collected and purified. This garlic juice was extracted and placed in a clean test tube.

IV. OBSERVATION

Determine the antibacterial activity of garlic extracts was the aim of this investigation on garlic. At higher doses, it demonstrated a greater zone of inhibition, and when concentrations are lowered, a smaller zone of inhibition.

Staphylococcus aureus (49 mm), *Escherichia coli (*30 mm), *Streptococcus pyogen* (25 mm), and *Klebsiella pneumoniae* (22mm) all displayed the zone of inhibition in response to the concentrated garlic extract.



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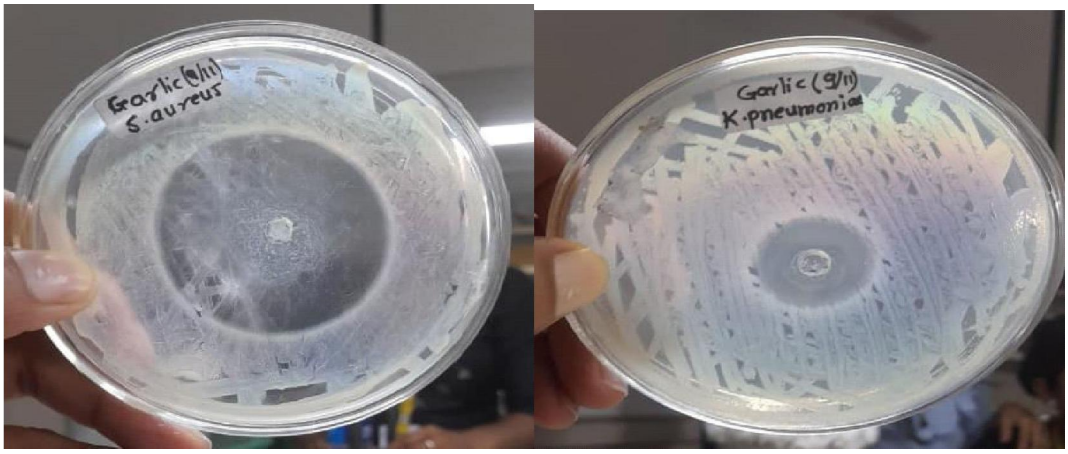

Escherichia coli ***Streptococcus pyogen***

Staphylococcus aureus ***Klebsiella pneumoniae***

SAMPLE	ZONE OF INHIBITION DIAMETER(mm)
Staphylococcus aureus	49mm
Escherichia coli	30mm
Streptococcus pyogen	25mm
Klebsiella pneumoniae	22mm

Table 1: Antimicrobial activity of garlic

V. DISCUSSION

A member of the Allium (onion) family, garlic is a plant. It shares a family tree with leeks, shallots, and onions. A clove is one of the names for each part of a garlic bulb. Depending on how you count, a single bulb contains 10–20 cloves. Due to its powerful aroma and mouth- watering flavour, garlic is a widely used cooking ingredient and grows in many regions of the world. However, throughout antiquity, the primary uses of garlic were for its therapeutic and health benefits (many significant civilizations, such as the Egyptians, Babylonians, and Chinese, have left detailed records of their usage of it). [3]

VI. RESULT AND CONCLUSION

This study showed how natural items can help to lessen the harm that antibiotic-resistant bacteria represent to human health. As a result, it's critical that senior management in underdeveloped countries prioritise the study of therapeutic plants with atypical qualities because inhabitants there occasionally cannot afford pricey orthodox medicine. Several secondary metabolites in the garlic were found in this investigation. According to study, plant extracts can also be utilized to treat a

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variety of diseases, including infections spread through the skin. The research supports the traditional usage of garlic to treat microbial infections and raises the possibility that it could be used to create brand-new antibacterial medications.

VII. ACKNOWLEDGEMENT

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