



Antimicrobial Activity of *Cuminum cyminum*

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INTRODUCTION

Natural resources have provided ample therapeutic substances, and the use of medicinal plants, particularly in traditional medicine, is well known and well-established. Antibiotic resistance has recently become an international issue. It is a serious problem while treating different diseases because pathogen resistance to various medications is fairly widespread.

The main causes of medication resistance are inappropriate use of widely available antibiotics, extended hospital stays, and inadequate infection control procedures. The hunt for new, risk-free antibacterial medicines that are also efficient and reliable has been prompted by this. The physiological activity of medicinal plants can be demonstrated through the extraction of several bioactive components. Additionally, it makes pharmacological research easier and makes it possible to synthesise more powerful drugs with lower toxicity. Additionally, herbal products active ingredients benefit from being blended with other compounds that appear to be inactive, and these complimentary ingredients give the plant as a whole safety and efficacy that are far superior to those of its separated and pure active components. Utilizing phytochemicals and plant extracts, both of which have proven antibacterial characteristics, can be quite important in therapeutic procedures. The food business is also searching for food preservatives or additives, which are preferred since they are safer, flavour enhancers, and have no negative side effects in comparison to synthetic or chemical additives.

In addition to being used in food preparations all over the world for flavour and taste, spices are also known for their medicinal, antioxidant, antibacterial, and food stabilising capabilities.

It has been claimed that a number of medicinal plants and spices can stop the growth of germs.

India, South East Asia, and Arabia all frequently utilise the spice condiment cumin (*Cuminum cyminum*). The family Apiaceae includes cumin, often known as Kashmiri jeera or jeera in other regions. Cumin is well-known for its astringent, antispasmodic, diuretic, emmanogic, carminative, and stimulating effects.

Many pathogens, including *Escherichia coli*, *Staphylococcus aureus*, *Salmonella* species, *Bacillus cereus*, and *Aspergillus niger*, are said to be inhibited by the aqueous extract of cumin. The composition, ingredient concentration, and extraction process are a few variables that impact how effective the extract is.

Cumin, a widely used spice, is high in iron, a crucial mineral for immune system health. Additionally, cumin has a long history of being used to aid digestion, and early

research suggests that this history may be true. Due to its antioxidant content and capacity to boost the liver's detoxifying enzymes, cumin may offer anti-carcinogenic effects that guard against the growth of stomach and liver tumours, according to animal studies. Additionally, it has been claimed that cumin seeds have antibacterial properties against a variety of pathogens, including bacterial strains, yeasts, and fungi.

For a variety of disorders, including viral infections, folk medicines have been developed from medicinal plant compounds. Since antiviral medications are losing their effectiveness, researchers must look for novel substances to treat viral infections. Traditional plant extracts have been tested for their antiviral activity and found to have anti-infective properties.