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Microorganisms the Major Sources of Naturally Available Antimicrobial Substances

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Description

The development of nanoparticles with a variety of chemical compositions and sizes, as well as their utilization for human benefit in health science, is the focus of the emerging field of nanotechnology. Using the Brine Shrimp lethality assay, we examined the mouthwash's cytotoxicity as well as its antimicrobial activity against oral pathogens. Eco-friendly environmental decisions are now much easier to make, and the current trend is to live a life that respects the earth by using eco-friendly products. Interestingly, consumers have begun to notice an increase in the use of synthetic-based antimicrobials in consumer products. Chemical preservatives like benzoate, propionate, sorbate, nitrate, nitrite, and sulfites are often used as antimicrobials. However, these additives can have long-term negative health effects like damage to the liver, asthma, many allergic reactions, and even cancer, which is why natural antimicrobials should be used more often. Natural antimicrobial substances are thought to come primarily from animals, plants, and microorganisms. Includes active ingredients like 3-phenylprop-2-enal and 5-isopropyl-2-methylphenol, among others. That demonstrates a potent antimicrobial property.

Cinnamon is a tropical Asian spice that comes from the inner bark of several trees in the genus *Cinnamomum*. It is a Sri Lankan native plant. There are many different species of cinnamon, all of which are common spices that are used in both traditional and modern medicine all over the world. Zaika first demonstrated cinnamon's potent antimicrobial properties against a variety of microorganisms in 1988. On the other hand, clove (*Syzygium aromaticum*) is a plant that is widely grown in the spice Islands, Indonesia, Pemba, and Zanzibar. However, the plant was originally grown in China. Due to its antimicrobial properties, clove contains eugenol, oleic acids, and lipids. Additionally, it is well-known that the essential oil of clove has antimicrobial properties against a variety of pathogenic bacteria, including *S. aureus, E. coli, L. monocytogenes*, and *S. typhimurium*. Gold is one of the popular materials used in dentistry and the Gold Nanoparticles (AuNPs) are important components for biomedical applications. It is highly biocompatible and has antimicrobial properties that are well-known and as gold is converted to nanoparticles, its properties strengthen even further. Since Gold Nanoparticles (AuNP) have a high surface conduction electron resonance and surface ratio, they can help in the movement of any biomolecules that come into contact with them. Thus, Gold Nanoparticles (AuNP) are used to mediator in this study to fabricate a mouthwash using cinnamon and clove. One of the critical aspects of staying healthy is to maintain a good oral hygiene and that is possible with various oral cleansing agents. Mouthwashes are one such agent but it's unaware that artificial mouthwashes can kill harmful bacteria while also killing your mouth's natural flora, exacerbating the problem and also alcohol in commercial mouthwashes will dry out your mouth. So, this research is aimed to fabricate a mouthwash using natural products.

The cinnamon and clove were gathered, ground, and ground into a powder. Each powder was accurately weighed and added to 100 milliliters of double-distilled water, which was then boiled for 30 minutes at 70 degrees Celsius. The powder's phytochemicals can be activated as a result of this. The final formulation was filtered by adding 20 milliliters of plant formulation to 80 milliliters of distilled water containing 1 mM gold chloride. Gold (III) chloride served as the added active ingredient. 0.001 grams of sodium benzoate, 0.3 grams of sucrose, and 0.3 grams of sodium lauryl sulfate were also added. For the purpose of nanoparticle synthesis, the prepared AuNP mouthwash was kept in an orbital shaker. Photographs were taken as well as periodic observations and records of the color shift. The UV visible spectroscopy was used to analyze the synthesized nanoparticles. The prepared AuNP mouthwash solution was taken in a cuvette and scanned in double beam UV visual spectrophotometer from 400-650 nm wavelengths. The results were recorded and graphical analysis was done [1-5].

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Conflict of Interest

The author declares there is no conflict of interest associated with this manuscript.

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