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DPPH Assay Comparison ELISA Plate Wells with Different Concentrations

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Abstract

Surface engineering of nanoparticles has contributed to the advancement of nanoscience and nanotechnology by creating novel materials with a variety of functional properties and applications that are based on their surface modifier. Dispersed nanoparticles can alter the interfacial properties of a liquid-liquid system in the aqueous phase if their surface is altered by an ionic surfactant. The interfacial energy of the nanoparticle brine system and ions tend to alter pore channel transport and improve recovery. The ability to easily counterbalance gravity's force with induced sedimentation stability is one of the advantages of using particles suspended at nanoscales. This was made possible by their nanosize, nanostructure, high volume to surface ratio, and strong interaction with rock fluids.

Keywords: Nano scales • Nanoparticles • Antimicrobial • Liquid-liquid system • Ionic surfactant

Introduction

One of the most active areas of modern material science research is nanotechnology. Over the past few years, nanotechnology has been one of the sciences that have grown the fastest. This is a new area of modern research that focuses on the synthesis and design of particle structures with sizes between about 100 and 1000 nm. As a new technology, nanotechnology has a lot of potential for dental and medical applications. It continues to have an impact on a number of upcoming orthodontic and dental developments. It is known that nanoparticles improve cell targeting, increase bioactivity, and reduce toxicity. Metal and metal oxide nanoparticles, such as silver, zinc oxide, zirconium oxide, copper oxide, gold, selenium, hydroxyapatite, titanium oxide, and copper sulfide, have been used in numerous medical applications, particularly for cancer detection, screening, drug delivery systems, applications for antisense and gene therapy, and tissue engineering. Silver Nanoparticles (AgNPs) have a wide range of medicinal and diagnostic uses. Silver is one of the most common metal nanoparticles, owing to its antimicrobial and pharmaceutical properties. New and innovative strategies are of potential interest for the synthesis of Silver Nanoparticles (AgNPs), which are used in a huge range of consumer products [1-3].

Literature Review

One of the most active areas of modern material science research is nanotechnology. Over the past few years, nanotechnology has been one of the sciences that have grown the fastest. This is a new area of modern research that focuses on the synthesis and design of particle structures with sizes between about 100 and 1000 nm. As a new technology, nanotechnology has a lot of potential for dental and medical applications. It continues to have an impact on a number of upcoming orthodontic and dental developments. It is known that nanoparticles improve cell targeting, increase bioactivity, and reduce toxicity. Metal and metal oxide nanoparticles, such as silver, zinc oxide, zirconium oxide, copper oxide, gold, selenium, hydroxyapatite, titanium oxide, and copper sulfide, have been used in numerous medical applications, particularly for cancer detection, screening, drug delivery systems, applications for antisense and gene therapy, and tissue engineering. Silver Nanoparticles (AgNPs) have a wide range of medicinal and diagnostic uses. Silver is one of the most common metal nanoparticles, owing to its antimicrobial and pharmaceutical properties. New and innovative strategies are of potential interest for the synthesis of Silver Nanoparticles (AgNPs), which are used in a huge range of consumer products.

This herb's various components have been utilized in traditional Indian medicine. Numerous phytochemicals can be found in the plant. Compounds known as antioxidants may protect cells from free radicals, which have been linked to a variety of diseases, including heart disease and cancer. Free radicals are produced when food is broken down by the body or when you are exposed to radiation or cigarette smoke. Our team has a lot of research experience and a lot of knowledge, which has resulted in high-quality publications. Because the research is new, there isn't much available as a reference.

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The use of Lawsonia Alba as a source of silver nanoparticles has been the subject of very few studies. The synthesis of metal nanoparticles from herbal sources is also tedious and time-consuming. Previous literature majorly focused on Lawsonia inermis mediated silver nanoparticles and their antimicrobial activity, the present study aims to evaluate the antioxidant activity of Lawsonia Alba mediated silver nanoparticles. The antioxidant capacity of biogenic synthesized silver nanoparticles was evaluated using a DPPH assay. Lawsonia Alba extract-mediated silver nanoparticles were mixed with 1 ml of 0.1 mM DPPH in methanol and 450 ml of 50 mM Tris HCl buffer (pH 7.4) at various concentrations (2-10 g/ml) and incubated for 30 minutes. Later, the absorbance at 517 nm was used to determine how much less DPPH free radicals were present. Vitamin C served as the control. The following equation was used to calculate the percentage of inhibition [4].

Herb's components have been utilized in traditional Indian medicine

In the last few years there has been an exponential growth in the field of herbal medicine and these drugs are gaining popularity both in developing and developed countries because of their natural origin and less side effects. Many traditional medicines in use are derived from medicinal plants, minerals and organic matter. A number of medicinal plants, traditionally used for over 1000 years named rasayana are present in herbal preparations of Indian traditional health care systems. In Indian systems of medicine most practitioners formulate and dispense their own recipes. The World Health Organization (WHO) has listed 21,000 plants, which are used for medicinal purposes around the world. Among these 2500 species are in India, out of which 150 species are used commercially on a fairly large scale. India is the largest producer of medicinal herbs and is called as botanical garden of the world. The current review focuses on herbal drug preparations and plants used in the treatment of diabetes mellitus, a major crippling disease in the world leading to huge economic losses [5].

Discussion

Permanent Magnet Synchronous Motor (PMSM) servo drive system has been widely used for industrial sewing machines. The conventional control method is PID, which has some disadvantages such as large overshoot, bad robustness. In this paper, a servo control of the industrial sewing machine system based on the Active Disturbance Rejection Control (ADRC) is proposed, which can arrange the transient process, estimate and compensate the uncertain internal and external disturbance. It can highly enhance the dynamic performances of the system. Based on the Matlab/simulink software, the simulation results of the industrial sewing machine control system proved the effectiveness and robustness of the ADRC control strategy.

Conclusion

Additionally, it affects the stability of the emulsion and alters the surface characteristics of the surfactant and polymer contained within the rock in a porous medium. Some of the problems with traditional EOR processes have been solved by using nanoscience applications because of their ability to reverse wettability, improve formation fluid rheology, and reduce interfacial tension at low to ultra-low levels. When compared to conventional EOR, the large specific surface area, high reactivity, toughness, and other properties of nanoparticles can significantly increase oil mobility. The most recent review, experimental evidence, and reinterpretation of previous research data and applications are updated in this paper in relation to silica and titanium dioxide nanoparticles in various environments within surfactant(s), polymer(s), and polymer-surfactant EOR processes.

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Conflict of Interest

The authors declare that there was no conflict of interest in the present study.

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