

Antimicrobial activity of Zinc nanoparticles with Lepidium Sativum Seeds Extract for mouthwash

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Abstract:- According my knowledge on Zinc nanoparticles with the Lepidium Sativum seeds extract i like to discuss the precise synthesis and characterization of Zinc nanoparticles by using the extract of Lepidium Sativum seeds. as it will may be cover the proper methodology, results and findings relating to the nanoparticles properties, such for size, shape and stability. It will be additionally about my research might be touch upon the potential applications and more benefits of my invented nanoparticles in various fields, considering about the unique properties be a part by the Lepidium Sativum seeds extract. The Zinc nanoparticles with Lepidium Sativum seeds extract for my invented mouthwash like to highlights the development and proper evaluation for a novel mouthwash formulation. As my study more explore about the synthesis of Zinc nanoparticles by using about the Lepidium Sativum seeds extract and their proper incorporation into a mouthwash preparation. As antimicrobial activity i tested in this research by formulated mouthwash preparation.

I. INTRODUCTION

For my research antimicrobial activity of Zinc nanoparticles mixed with Lepidium Sativum seeds extract i studied for the potential use in my invented mouthwash formulations. This zinc nanoparticles with plant extracts have shown the perfect promising results by inhibiting the growth of various oral pathogens, and making them a very potential alternative for mouthwash to promote the oral health. Further others research is needed to understand their proper efficacy and safety of clinical trials for practical application as for animal after human trial.

II. MATERIALS I USED WITH PROPER METHODS

I purchased Lepidium Sativum seeds extract by Shibanjan Paul Roy sir through online. as i follow the methods for plant extract.

A. Preparation of Zinc nanoparticles with Lepidium Sativum Seeds Extract

As first i take zinc nitrate hexahydrate was properly allowed and react with 100ml of Lepidium Sativum seeds extract. After i constantly heated 59°C for 2hr30sec. After 41min, my solution turned may be white coloured precipitated.

B. Characterization of Lepidium Sativum Seeds extract with zinc nanoparticles-

➤ Zinc nanoparticles with Lepidium Sativum seeds extract optical characteristics

By reducing zinc ions synthesis of zinc nanoparticles with the Lepidium Sativum seeds extract to proper optical characteristics of by using UV-Visible Spectrophotometer and i recorded the absorption spectra. As i dispersed UV-Vis methanol with help of sonicator. After at room temperature the spectrum properly recorded.

➤ Mouthwash Preparation

As I follow the technique and using which i learned from my research teacher Mr. Shibanjan Paul Roy about copper nanoparticles mouthwash of lepidium sativum seed extract.

➤ Lepidium Sativum seeds extract with Zinc nanoparticles of mouthwash's antimicrobial activity

For this antimicrobial activity i follow agar diffusion method and used the bacterial strains of Escherichia Coli and Staphylococcus Aureus. In this research positive control group cefodoxime 50mg/ml with my formulation.

➤ Antimicrobial Activity

As I follow this method and used the bacterial strains of Escherichia coli and pseudomonas aeruginosa and I used solution of 39.5µL, 73.5 µL and 96.5 µL and I use standard cefuroxime.

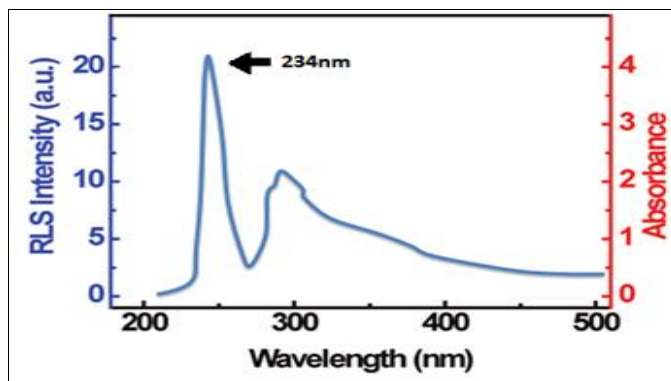


Fig 1 UV-Vis Spectrum of Zinc Nanoparticle with Lepidium sativum Seeds Extract

Table 1 Zone of Inhibition in mm

Organisms	Zone of Inhibition in mm			Cefuroxime
	39.5µL	73.5µL	96.5µL	
Escherichia coli	6.9 ±1.12	12.7 ±1.11	18.3 ±1.07	20.84 ±1.13
Pseudomonas aeruginosa	11.22 ±1.17	18.46 ±1.89	22.74 ±1.69	23.07 ±1.54

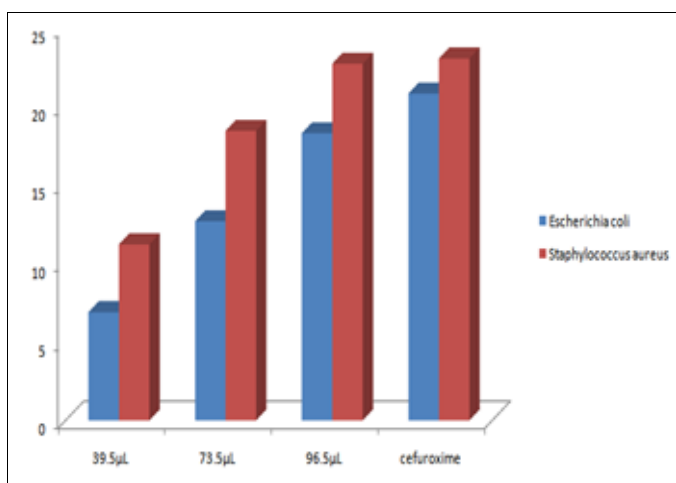


Fig 2 Zone of Inhibition in mm

III. RESULT AND DISCUSSION

➤ *UV-Vis Spectrum of Zinc Nanoparticles with Lepidium Sativum Seeds Extract*

The result will be 234nm as shown in Fig-1.

➤ *Antimicrobial Activity*

It will be shown in the fig2. By this result I know that it has high toxicity against gram +ve and gram -ve by I used well diffusion method. As my created formulated mouthwash based on nanotechnology shown a good promising result and antibacterial activity but I recommended further research needed for the clinical trials like animal trial and after human trial.

IV. CONCLUSION

In this medical field of nanoscience with biotechnology for the development of ecofriendly processes of the zinc nanoparticles. According to my report zinc nanoparticles in a proper way synthesis and the formulation prepared perfectly.

ACKNOWLEDGEMENT

Shyam Prakash Rai is a Young Scientist who did this research second time individually who is a Former Principal of (ITI College) now working as a Lecturer of HGEA College of Pharmacy. He is also an Assistant Rising Star Researcher and he is inspired by his Research-Teacher-in-Charge cum Guide Mr. Shibanjan Paul Roy, a Research Guide cum Scientist living in Race Course Para, Jalpaiguri.

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