BIO ACTIVE NANO HELMET FOR HAIRLOSS

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Abstract- Motorcyclists, usually have no tendency to wear a helmet when driving in cities and have several reasons. The aim of the present study was to investigate the effect of green synthesized silver nanoparticles for the treatment of hair loss due to prolonged helmet use. In the present study we, synthezied the AgNPs using polyherbs and characterized using UV, SEM and XRD analaysis. Further, the antimicrobial, anti-inflammatory and cytotoxicity analysis of AgNps was carried out by using agar well diffusion method, albumin denaturation method and MTT assay respectively. The results showed that the green synthesized silver nanoparticles possessed anti-bacterial activity against bacterial pathogens. Similarly, the albumin denaturation assay showed the anti-inflmmatory activity of silver nanoparticles. Moreover, the cytotoxicity analysis by MTT assay confirmed that, the green synthesized silver nanoparticles were found to be non – toxic to the cells. Taken together, these results, proven that, the green synthesized AgNps could be an excellent source of hair loss therapy.

Keywords: Helmet, hairloss, Silver nanoparticles, polyherbs, Cytotoxicity.

I.INTRODUCTION

Nanotechnology is technology which deals with nano – Sized objects (Feynman, 1991). At present, the nano material is the developing field both in commercial applications and in Scientific knowledge. Past days Nanoparticles studied because size dependent physical and chemical properties. (Murray et al., 2000). Nowadays nanotechnology entered to a commercial Exploration period (Mozzola, 2003).

Nanotechnology is the smallest functional organization at Least one dimension in the range of 1-100nm, One Billionth of a meter (Silva, 2004). In nature, there are numerous metals exist, but only few of the m such as palladium, silver, gold, and Platinum are synthesized in nanostructure form (Yoon, 2010).

Silver Nanoparticles are used for eliminating the microorganisms in hospital masks, implants and medical devices (Ansari. 2015). Without causing dangerous to human cells, bactericidal activity of silver Silver Nanoparticles can make a proper substitution for antibiotics (Modi, 2014).

II. STATEMENT OF PROBLEM

Motorcyclists, usually have no tendency to wear a helmet when driving because of the hairloss, along with microbial actions due to prolonged helmet use.

III. OBJECTIVE OF THE STUDY

- In this project, we design a helmet for the alopecia(Hairloss).
- Thus, these persons were not having the problem of hairloss and microbial actions like dandruff.
- Hence, there is no hesitation for wearing helmet while driving and the number of accidents can be reduced.

IV. METHODOLOGY

This diagram consists all the methods that we have followed.

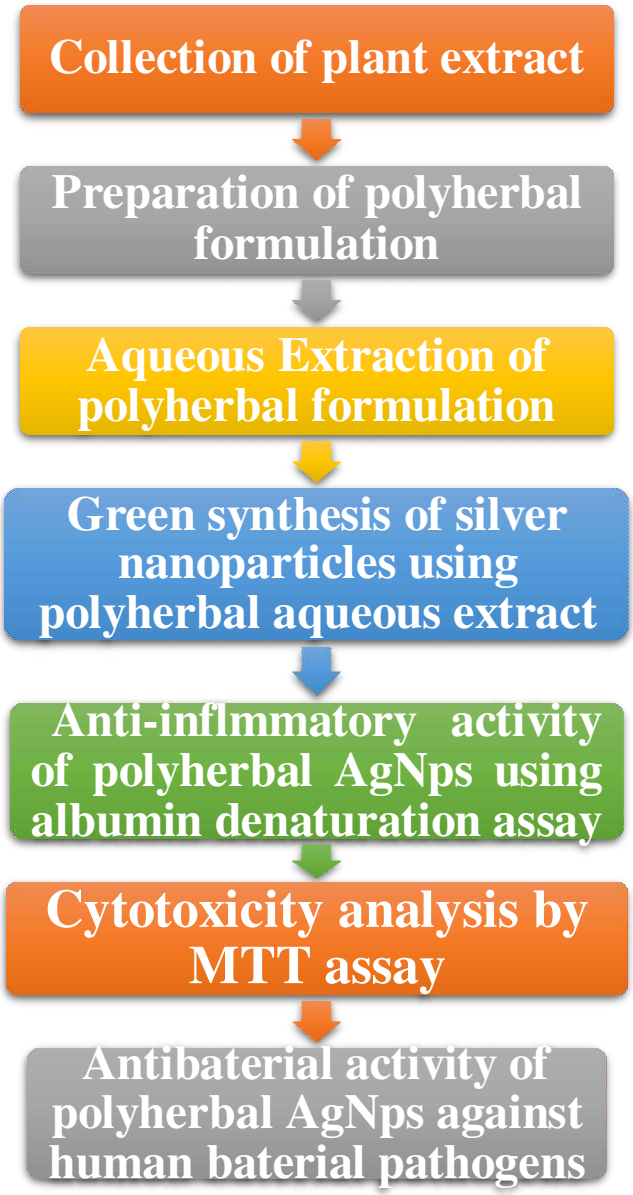

Fig 1. Work flow

IV. MATERIALS

POLYHERBS- This includes 3 natural herbs named, Hibiscus rosa sinensis, Aloe vera, Murraya koenigii. These are very important for hair related issues.

SILVER NANOPARTICLES-It have high anti-bacterial activity against human pathogens without causing dangerous to human cells .

HELMET-This is the major component which undergoes all the process

CLOTH- It is fixed inside the helmet after undergoing various processes

ACETYL SALICYLIC ACID -It is also known as Aspirin .It is a medication used to reduce pain, fever or inflammation .aspirin given shortly after a heart attack decreases the risk of death

PETRI DISH- It is alternatively known as petri plate or cell culture dish .It is a shallow transparent lidded dish that biologists use to hold broth medium in

which cells can be cultured ,originally ,cells of bacteria ,fungi and small mosses.

NUTRIENT BROTH-Nutrient broth was prepared by dissolving 2.8g of commercially available nutrient medium in 100ml of distilled water and boiled to dissolve the medium completely.

NUTRIENT AGAR MEDIUM- The medium was prepared by dissolving2.8 g of commercially available nutrient agar medium in 100ml of distilled water..

CELL CULTURE**-** Vero (African green monkey kidney cells) cell line was obtained from the National Center for Cell Sciences, Pune, Maharashtra. The MCF-7 cells were cultured in liquid medium (DMEM) supplemented 10% Fetal Bovine Serum (FBS), 100 u/ml penicillin and 100 µg/ml streptomycin, and maintained under an atmosphere of 5% CO_2 at 37^{o}C.

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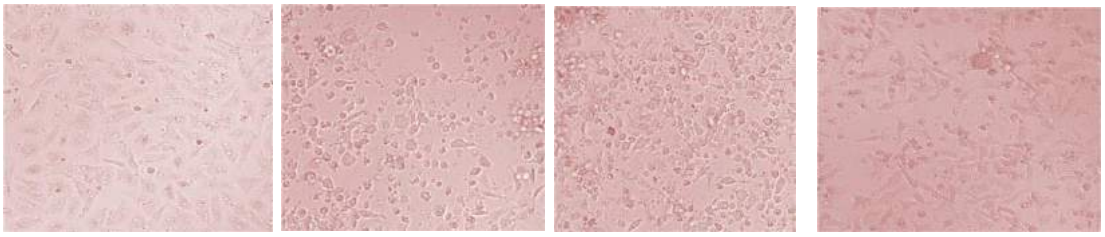
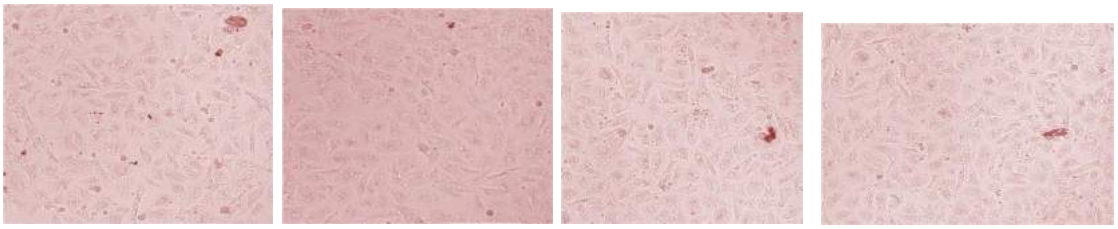
EXPERIMENTAL INVESTIGATION

Images for control cells and AgNPs treated cells



Control cell AgNPs 500 µg/ml AgNPs 300 µg/ml AgNPs 100 µg/ml



AgNPs 80 µg/ml AgNPs 40 µg/ml AgNPs 20 µg/ml AgNPs 10 µg/ml

PROCEDURE

- Collection of plant extract
- Preparation of polyherbal formulation
- Aqueous extraction of polyherbal formulation
- Green synthesis of silver nanoparticles using polyherbal aqueous extract
- Anti-inflammatory activity of polyherbal AgNPs using albumin denaturation assay
- Cytotoxicity analysis by MTT assay
- Antibacterial activity of polyherbal AgNPs against human bacterial pathogens

VI. CONCLUSION

Hence, In this project work, an attempt to design a helmet for the treatment of hairloss using silver nanoparticles. This proposed idea will be useful for the people who are suffering from hairloss and microbial actions due to prolonged use of helmet

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