Nanocomposite Effect Based on Silver Nanoparticles and Anemposis Californica Extract as Skin Restorer

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Abstract : Background: Anemopsis californica, also called (tame grass) belongs to the Saururaceae family small, green plant. The blade is long and wide. Gives a white flower. The plant population is only found in humid, swampy habitats, it grows where there is water, along the banks of streams and water holes. In the winter, it dries up. The leaves, rhizomes, or roots of this plant have been used to treat a range of diseases. Some of its healing properties are used to treat wounds, cold and flu symptoms, spasmodic cough, infection, pain and inflammation, burns, swollen feet, as well as lung ailments, asthma, circulatory problems (varicose veins), rheumatoid arthritis, purifies blood, helps in urinary and digestive tract diseases, sores and healing, for headache, sore throat, diarrhea, kidney pain. The tea made from the leaves and roots is used to treat uterine cancer, womb cancer, relieves menstrual pain and stops excessive bleeding after childbirth. It is also used as a gynecological treatment for infections, hemorrhoids, candidiasis and vaginitis. Objective: To study the cytotoxicity of gels prepared with silver nanoparticles in AC extract combined with chitosan, collagen and hyaluronic acid as an alternative therapy for skin conditions. Methods: The Ag NPs were synthesized according to the following method. A 0.3 mg/mL solution is prepared in 10 ml of deionized water, adjust to pH 12 with NaOH, stirring is maintained constant magnetic and a temperature of 80 °C. Subsequently, 100 ul of a 0.1 M $AgNO_3$ solution and kept stirring constantly for 15 min. Once the reaction is complete, measurements are performed by UV-Vis. A gel was prepared in a 5% solution of acetic acid with the respective nanoparticles and AC extract of silver in the extract of AC. Chitosan is added until the process begins to occur gel. At that time, collagen will be added in a ratio of 3 to 5 drops, and later, hyaluronic acid in 2% of the total compound formed. Finally, after resting for 24 hours, the cytotoxic effect of the gels was studied. in the presence of highly positive bacteria Staphylococcus aureus and highly negative for Escherichia coli. Cultures will be incubated for 24 hours in the presence of the compound and compared with the reference. Results: Silver nanoparticles obtained had a spherical shape and sizes among 20 and 30 nm. UV-Vis spectra confirm the presence of silver nanoparticles showing a surface plasmon around 420 nm. Finally, the test in presence of bacteria yield a good antibacterial property of this nanocompound and tests in people were successful. Conclusion: Gel prepared by biogenic synthesis shown beneficious effects in severe acne, acne vulgaris and wound healing with diabetic patients.

Keywords : anemopsis californica, nanomedicina, biotechnology, biomedicine
Conference Title : ICABS 2023 : International Conference on Applied Biomedical Science
Conference Location : Venice, Italy
Conference Dates : August 10-11, 2023