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Antimicrobial activity of biosynthesized silver nanoparticles against some pathogenic microbes

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Synthesis of silver nanoparticles is of much interest due to their wide range of applications. Because of their unique properties such as chemical stability, good conductivity, catalytic and most important antibacterial, anti-viral, antifungal in addition to anti-inflammatory activities which can be incorporated into composite fibres, cryogenic superconducting materials, cosmetic products, food industry and electronic components. Synthesis of silver nanoparticles using fungal or plant extracts is very cost effective, and therefore can be used as an economic and valuable alternative for the large-scale production of metal nanoparticles. Extracts from plants may act both as reducing and capping agents in nanoparticle synthesis. The bioreduction of metal nanoparticles by combinations of biomolecules found in plant extracts (e.g. enzymes, proteins, amino acids, vitamins, polysaccharides, and organic acids such as citrates) is environmentally benign, yet chemically complex. Silver nanoparticles are well recognized for its remarkable antimicrobial activity, especially against pathogenic microbes due to their large surface area to volume ratio, which is of interest for researchers due to the growing microbial resistance against metal ions, antibiotics and the development of resistant strains. Among the all noble metal nanoparticles, silver nanoparticle is an arch product from the field of nanotechnology which has gained boundless interests.

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Is tooth extraction a risk factor for HCV infection? Studying RNA and genotypes

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Background: Hepatitis C virus (HCV) is a major public health problem, it has been estimated that 130-200 million people worldwide are infected. The medical risk factor associated with HCV infection such as blood transfusion and surgery had been intensely studied in many countries. Up to 40% of HCV patients may have non identifiable routes of viral acquisition. Tooth extraction may be one of these risk factors. The purpose of the present study was to determine the existence of infection and the predominated HCV genotype among subjects with tooth extraction.

Material & Methods: A case-control study was conducted involving 776 pregnant women with and 2715 without history of tooth extraction. HCV antibodies (anti-HCV) were tested using subsequently third generation enzyme immunoassay (EIA-3) and immunoblot assay (Lia Tek-111). In addition, 94 serum samples were subjected to molecular analysis using RT-PCR and DNA enzyme immunoassay (DEIA) method for HCV-RNA and genotypes.

Results: Positive anti-HCV rate was significantly higher (6.3%) among women with tooth extraction (cases) than their counter group (control) (2.63%) ($p=0.00001$). Tooth extraction act as significant risk factor for HCV infection ($OR=2.73$; 95% $CI=1.8-3.9$). HCV-RNA was found to be significantly higher (74.6%) in cases than (38.7%) control group ($p=0.0016$). No significant association between HCV genotypic and the history of tooth extraction but HCV-1b showed higher rate (90%) among tooth cases.

Conclusion: Our study showed that tooth extraction acts as a risk factor for acquiring HCV. Complete sterilization and cleaning of equipment is necessary.

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