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Antibacterial activities and *In-Vitro* Anticancer on human breast and liver cell cancer based on Silver Nanoparticles Biosynthesized from Marine Crab.

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ABSTRACT

AgNPs were synthesized from the whole body of marine crab crude extract and analysed by UV-Visible spectrophotometric. Antibacterial study was assayed by biochemical properties while cytotoxicity assay was completed using cancer cell lines. Biosynthesized AgNPs was attained by the addition of silver nitrate (1mM) to the marine crab crude extract supernatant and monitored for colour change after incubation. AgNPs formation was characterized by UV-Visible spectrophotometer analysis which displayed absorbance peak of 420nm to 440nm. Transmission Electron Microscopy (TEM) revealed that AgNPs were spherical and ranged in size from 5nm to 25nm, having an average size of 15nm. Fish pathogen testing showed that biosynthesized AgNPs inhibited growth of all tested pathogens including; *Streptococcus agalactiae*, *Edwardsiella tarda*, *Streptococcus iniae*, *Encherichia coli* and *Vibrio parahaemolyticus*. AgNPs application at 250µg/mL displayed greater prevalence than Oxytetracycline in inhibiting *Streptococcus agalactiae-1* and *Edwardsiella tarda*. The cytotoxicity study of AgNPs exhibited anticancer activity against MCF-7 cells, human breast adenocarcinoma cell-line at IC₅₀ of 46.77 µg/mL and HepG2, human liver carcinoma cells at IC₅₀ of 30.19µg/mL, after 72h. This study indicates the great potential AgNPs has as an antibacterial and anticancer agent. Marine crab crude extracts could be used efficiently as a greener route in AgNPs synthesis.

Keywords: Marine Crab, UV-Vis Spectroscopy, Cytotoxicity, Silver nanoparticles AgNPs, Antibacterial activity, MCF-7 and HepG2 cells

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