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Preparation and functional characterization of fish bone gelatin and comparison with commercial gelatin

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In the present study, gelatin extraction from the bone of freshwater catfish (*Clarias gariepinus*) was conducted and the functional properties of gelatin was determined and compared with bovine gelatin (commercial gelatin). Result showed that the catfish bone gelatin had high content of protein of 82.10%. Catfish bone gelatin exhibited greater viscosity (4.64 mPa.s) than bovine gelatin (3.17 mPa.s). The viscoelastic properties of bovine gelatin were higher than catfish bone gelatin. Gelling and melting point of bovine gelatin (20.6, 27.5°C) were higher than catfish bone gelatin (17.8, 25.1°C). SDS-PAGE of bone gelatin contained α -chain and β -components. The isoionic points of gelatin extracted of catfish bone (8.71) were higher than bovine gelatin (5.35). FTIR spectra of catfish bone gelatin exhibited major adsorption bands in amide band region. The major absorption bands of catfish bone gelatin were found at 3309–3310cm⁻¹ (amide A), 2926–2929cm⁻¹ (amide B), 1644–1645cm⁻¹ (amide I), 1550–1563cm⁻¹ (amide II) and 1240–1241cm⁻¹ (amide III). The results of this experiment showed the potential of catfish bone as raw material for gelatin production

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Carica papaya leaf: Potent source of antimicrobial nanoparticles

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The field of nanotechnology is one of the most active areas of research in modern materials science. Nanoparticles exhibited completely new or improved properties based on specific characteristics such as size, distribution and morphology. The use of environmentally benign materials like plant leaf extract, bacteria, fungi and enzymes for the synthesis of silver nanoparticles offers numerous benefits of eco-friendliness and compatibility for pharmaceutical and other biomedical applications as they do not use toxic chemicals for the synthesis protocol. The synthesis of metal nanoparticles using biological systems is an expanding research area due to the potential applications in nanomedicines. In the present study, *Carica papaya* leaf extract were treated with the 25 to 100 μ m solution of silver nitrate. They resulted into the formation of silver nanoparticles of about 60 nm diameter. The silver nanoparticles were then centrifuged and a thin film is prepared for TEM evaluation which showed presence of silver nanoparticles. The UV-Vis spectrophotometer analysis also showed the presence of silver nanoparticles by showing absorption peak on 450 nm that is due to the SPR (Surface Plasmon Resonance) of silver nanoparticles. Using Agar disc method, 20-25 ml of crude extract of *Carica papaya* leaf using hot percolation method was used against clinically isolated pathogens. On other hand, 2.5-4.5 μ l of silver nanoparticles obtained from crude extract *Carica papaya* leaf on subjection to different reaction conditions show clear 14 mm zone of inhibition against clinically isolated pathogens.

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