Abstract

Two nanoparticles were prepared from gelatin and BSA at two different pH of 7 and 9 by desolvation method. Effect of NaCl was also investigated for the synthesis of nanoparticles. Addition of NaCl also affected the particle size as increase in NaCl content enhanced the hydrophobicity leading to larger particle size and this could be correlated with the SEM micrographs. The nanoparticles were loaded with two antioxidant i.e water extract of Indian gooseberry and ethyl acetate extract of Indian gooseberry. The nanoparticles produced at pH 9 was found stable during the 30 days storage when compared to the nanoparticles prepared at pH 7. The nanoparticles prepared were used as a potential edible coating material in banana chips. The stored nanoparticles were dried and then dissolved in distilled water. The banana slices were blanched in 0.5% CaCl$_2$ for 3s and then dipped in nanoparticle coating for 2 mins. It was dried at 105°C for 10 mins and fried in coconut oil for 3 mins at 140°C.It was then packed and analysed for moisture content, fat uptake, peroxide value, TBA, colour, texture and sensory attributes. The moisture content of the banana chips coated with gelatin based nanoparticles prepared at pH 9 was found to be higher than the control and banana chips coated with nanaoparticles prepared at pH 7. The banana chips coated with nanaoparticles loaded with water extract of Indian gooseberry was most effective and was capable of reducing the oxidation of the banana chips and maintained the stability of the oil. The banana chips coated with nanoparticle prepared at pH 9 also showed significant less oil uptake(10%))than the control(37.8) and those banana chips coated with nanoparticle prepared at pH 7(21.5%). The colour, texture anf flavor was acceptable by the panel members after the banana chips were coated with gelatin nanoparticle. However the BSA nanoparticle was not found very effective in terms of the storage stability of banana chips.

Key word: gelatin, BSA, nanoparticle, desolvation