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Isolation and characterization of protein from date palm fruit (*Phoenix dactylifera L.*)

Huda Mohammed Albarnawi and María Cruz Figueroa-Espinoza
Heriot-Watt University, UK

This study investigated the antioxidant, functional properties, and proximate analysis of date fruits protein isolate (DFPI) using standard analytical methods. In this study, the author extracts and determines the protein from date palm fruit (Shalaby) at the Tamar stages of maturity by three methods. The most efficient method resulted in a protein concentrate containing 5.42% of the protein of which the soluble fraction was 3.05% and insoluble protein was 2.37%. The protein extraction method improved to a level of 20% protein in solution as determined by the Kjeldahl method. The results detected that the antioxidant activity using the ferric reducing antioxidant potential assay (FRAP) showed a higher value for date fruit than ascorbic acid at 20 mg/ml versus 7.60 mmol/g. Proteomics analysis by Liquid-chromatography coupled mass spectrometry (LC-MSMS) showed that the major fractions were metabolism proteins (21%), protein related to energy (16%) and storage proteins 13%. Determination of the effect of pH and temperature on protein solubility of date and soy protein showed that both types of proteins were more soluble at pH 6 and 7. Maximum solubility at this pH range for DFPI was at 55°C, compared to 65°C for soy protein isolate (SPI). The functional properties determined (the emulsifying and foaming ability) of DFPI compared to that of SPI. The physicochemical properties measured electrophoretic pattern, turbidity, sulfhydryl groups and hydrophobicity of DFPI compared to that of SPI. The effect of heat treatment on the functional properties and physicochemical properties identified DFPI and SPI as a function of SH groups, hydrophobicity and turbidity.

Biography

Huda Mohammed Albarnawi is a Teaching Assistant at Umm Al-Qura University in Saudi Arabia in Makkah. She has completed her MSc in 2014 from Heriot Watt University. Currently she is pursuing her PhD from the same university.

hma31@hw.ac.uk