

Ora-pro-Nobis protein techno-functional properties evaluation for developing new food ingredients

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The *Pereskia aculeata* Miller, commonly called by Ora-pro-Nobis (OPN) is a non-conventional plant, native from South America that has unexplored potential. Their leaves have been gaining recognition due to their protein amount (19.6 - 26 %), being popularly known as "meat of poor". Therefore, the aim of this work was to evaluate the physical-chemical composition and techno-functional properties of OPN protein. The zeta potential and protein solubility were determined as a function of pH (2 to 10). Emulsion activity index (EAI) and emulsion stability index (ESI) were determined in sunflower oil/water emulsion with different protein concentrations (0.25, 0.50 and 1.0%). Furthermore, the foaming capacity (FC) and foam stability (FS) properties of OPN protein were also investigated. The solubility and zeta potential were correlated and the isoelectric point (pI) observed was around pH 2. The results showed that an increase in pH (pH 8.0) enhanced the protein solubility by almost 15% when compared to pH 6.0. The OPN protein solubility observed was lower than soy commercial protein, however, it is still higher than pea and wheat commercial protein at the same pH and concentration. At the lowest protein concentration (0.25%) it was observed an increase in the effect on the EAI (10.65 m²/g). In addition, at the highest concentration (1.0%) the EAI suppressed diminished (EAI =4.26 m²/g), which is probably due to the saturation of the oil interface by the proteins. The ESI varied from 46.08 to 73.91 min, by increasing the protein concentration. The FC was 50.0% and FS was 51.04% for 30 minutes and 38.40% for 60 minutes. Overall, the results indicated that OPN protein could be a great alternative for developing new food ingredients used in a wide range of food products including that plant-based.