

ABSTRACT

Quinoa is a grain found in the plant *Chenopodium quinoa Willd.* which is resistant to many environmental stresses and is able to grow in tough conditions with nutritional value which include balanced amino acid composition compared to other plant/grain based protein. The protein of the quinoa itself can be found in protein bodies of the seed radicle and endosperm which are bound to starch or cellulose structures which could be better released during extraction with enzymatic treatment. The objective of this study is to observe the effect of enzymatic pretreatment using Viscozyme L towards the functional properties of quinoa protein from defatted quinoa flour. The functional properties analysed in this study involves the analysis of solubility, water holding capacity, foaming capacity and stability and emulsion capacity and stability along with compositional analysis which includes protein, fat and carbohydrate content. The statistical analysis in this experiment was carried out using non-parametric tests which are Kruskal-Wallis test and Friedman test in order to determine differences between samples produced using conventional methods (NE-PS) and enzymatic methods (E-PS). E-PS samples observed increase in solubility, foaming capacity and emulsion capacity along with a decrease in water holding capacity and emulsion stability and foaming stability compared to NE-PS. Effect of enzymatic pretreatment resulted in significant differences in functional properties as a result of different compositional and structural properties of the protein samples in NE-PS and E-PS with each protein characteristic being suitable for distinct food applications depending on its functionality.

Keywords: Quinoa Protein Isolate, Solubility, Water Holding Capacity, Emulsion Capacity, Foaming Capacity, Enzymatic Treatment, Viscozyme L