Accepted Manuscript

Effect of pH and holding time on the characteristics of protein isolates from *Chenopodium* seeds and study of their amino acid profile and scoring

Nisar A Mir, Charanjit S Riar, Sukhcharn Singh

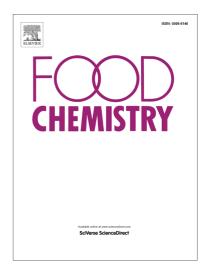
PII: S0308-8146(18)31449-3

DOI: https://doi.org/10.1016/j.foodchem.2018.08.048

Reference: FOCH 23389

To appear in: Food Chemistry

Received Date: 27 March 2018 Revised Date: 29 July 2018 Accepted Date: 9 August 2018



Please cite this article as: Mir, N.A., Riar, C.S., Singh, S., Effect of pH and holding time on the characteristics of protein isolates from *Chenopodium* seeds and study of their amino acid profile and scoring, *Food Chemistry* (2018), doi: https://doi.org/10.1016/j.foodchem.2018.08.048

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Effect of pH and holding time on the characteristics of protein isolates from Chenopodium

seeds and study of their amino acid profile and scoring

Nisar A Mir¹, Charanjit S Riar^{1*}, Sukhcharn Singh¹

¹Department of Food Engineering & Technology, Sant Longowal Institute of Engineering &

Technology, Longowal, Sangrur, Punjab, 148106, India

*Corresponding Author: Dr Charanjit S Riar

Email address: csriar@sliet.ac.in; Tel: +9815969140

Running Title: Functional & nutritional characteristics of *Chenopodium* protein isolates

Abstract

Alkali extraction and acid precipitation methods were adopted to isolate protein from

quinoa and album seeds of variety Chenopodium. Different pH dispersions (3-11) of isolated

proteins were prepared and effects of pH and holding time on protein characteristics were

evaluated. The pH-10 of extraction medium was found suitable for protein extraction on the

basis of yield, purity, solubility and colour having isoelectric pH of 4.5. Yield and purity of

protein isolates (PI) of quinoa and album varied from 8.12-12.22%; 74.19-85.07% and 7.71-

10.98%; 77.16-86.12%, respectively. Overall, pH and time had significant effect on functional

properties of PI of both seeds. Quinoa PI had higher emulsifying activity, emulsion stability,

water binding capacity and dispersibility, whereas, foaming capacity and stability were higher

for album PI. Nutritional indices were 64.20 and 64.58 for quinoa and album PI, respectively,

whereas, amino acid scoring (FAO, 2013) indicated, isoleucine, leucine and valine as the

limiting amino acids.

Key words: Protein purity; particle size; functional properties; isoelectric pH; protein quality;

nutritional profile

1. Introduction

Download English Version:

https://daneshyari.com/en/article/7583741

Download Persian Version:

https://daneshyari.com/article/7583741

<u>Daneshyari.com</u>