

Accepted Manuscript

Molecular forces and gelling properties of heat-set whole chicken egg protein gel as affected by NaCl or pH

Junhua Li, Mengqi Zhang, Cuihua Chang, Luping Gu, Ning Peng, Yujie Su, Yanjun Yang

PII: S0308-8146(18)30512-0

DOI: <https://doi.org/10.1016/j.foodchem.2018.03.079>

Reference: FOCH 22622

To appear in: *Food Chemistry*

Received Date: 23 November 2017

Revised Date: 26 February 2018

Accepted Date: 19 March 2018

Please cite this article as: Li, J., Zhang, M., Chang, C., Gu, L., Peng, N., Su, Y., Yang, Y., Molecular forces and gelling properties of heat-set whole chicken egg protein gel as affected by NaCl or pH, *Food Chemistry* (2018), doi: <https://doi.org/10.1016/j.foodchem.2018.03.079>

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.



Molecular forces and gelling properties of heat-set whole chicken egg
protein gel as affected by NaCl or pH

Junhua Li^{a,b,#}, Mengqi Zhang^{a,b,#}, Cuihua Chang^{a,b}, Luping Gu^{a,b}, Ning Peng^{a,b}, Yujie
Su^{a,b,*}, Yanjun Yang^{a,b,*}

^aState Key Laboratory of Food Science and Technology, Jiangnan University, Wuxi,
Jiangsu, 214122, PR China

^bSchool of Food Science, Jiangnan University, Wuxi, Jiangsu, 214122, PR China

*Corresponding author: suyujie@jiangnan.edu.cn; yangyj@jiangnan.edu.cn;
812024915@qq.com(first author)

Tel.: +86 0510 85329080; Fax: +86 0510 85329080

[#]These authors contributed equally.

ABSTRACT

Effects of NaCl concentrations and pH on the intermolecular forces and gel properties of whole chicken egg protein dispersions were studied via solubility, surface hydrophobicity, intermolecular forces, texture analysis, low-field nuclear magnetic resonance (LF-NMR) and colour analysis. Results showed that the intermolecular forces involved in the formation of egg gel were regulated by NaCl/pH. The results of gel fracture analysis suggested that the changes of fracture strength and strain were closely related with the internal balance of gel molecular forces. Moreover, a negative/positive correlation existed in the free water/bound water relaxation proportion and fracture strength. These findings provide an important theoretical basis for the innovation of heat-induced egg gel products.

Keywords: whole egg proteins, surface hydrophobicity, intermolecular forces, texture properties, low-field nuclear magnetic resonance

Chemical compounds studied in this article: 8-anilino-1-naphthalenesulfonate (PubChem CID: 1549065); Hydrochloric acid (PubChem CID: 313); Sodium

Download English Version:

<https://daneshyari.com/en/article/7584859>

Download Persian Version:

<https://daneshyari.com/article/7584859>

[Daneshyari.com](https://daneshyari.com)