

Texture Profile Analysis (TPA) of the jelly dessert prepared from halal gelatin extracted using High Pressure Processing (HPP)

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Abstract
High Pressure Processing (HPP) is a novel extraction method. This technique increases the yield of gelatin and enhances its properties. In this study, the performance of the gelatin extracted from red tilapia fish skin treated with HPP was evaluated using the Texture Profile Analysis (TPA) method, in comparison with the commercial fish gelatin. Based on the Total Soluble Solid (TSS) results, the jelly prepared with HPP-treated gelatin has a longer shelf life. The sensory textures of the lychee jelly were described based on the force-time plot. The results showed that the hardness, adhesiveness, gumminess and chewiness of the jelly prepared using HPP-treated gelatin are higher compared with the commercial gelatin while the cohesiveness and the springiness are similar for both jellies. In conclusion, the jelly prepared using gelatin treated with HPP is preferable compared to the commercial gelatin because it is more rigid, firm and adhesive.

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1. [EXTRACTION AND PHYSICOCHEMICAL CHARACTERIZATION OF GELATIN FROM CHICKEN BY-PRODUCT](#)
By: Almeida, Poliana Fernandes; da Silva Lannes, Suzana Caetano
JOURNAL OF FOOD PROCESS ENGINEERING Volume: 36 Issue: 6 Pages: 824-833 Published: DEC 2013

Times Cited: 22

2. Title: [not available]
Group Author(s): AOAC
Official Methods of Analysis of the Association of Official Analytical Chemists Published: 1990

Times Cited: 5,796

3. **Gelatin: The Paramount food additive** Times Cited: 55
By: Baziwane, D; He, QA
FOOD REVIEWS INTERNATIONAL Volume: 19 Issue: 4 Pages: 423-435 Published: 2003
4. Title: [not available] Times Cited: 1
By: Benet, G. U.
High-pressure low-temperature processing of foods: Impact of metastable phases on process and quality parameters Published: 2005
Unpublished doctoral dissertation
Publisher: Berlin University of Technology, Berlin, Germany
5. **TEXTURE PROFILE ANALYSIS** Times Cited: 1,840
By: BOURNE, MC
FOOD TECHNOLOGY Volume: 32 Issue: 7 Pages: 62 -& Published: 1978
6. **Methods for sampling and testing gelatin (Physical and chemical methods)** Times Cited: 1
Group Author(s): British Standards Institution
BS 757(1975) Published: 1975
7. **Modification of gelatin functionality for culinary applications by using transglutaminase** Times Cited: 6
By: Calvarro, Julia; Perez-Palacios, Trinidad; Ruiz, Jorge
INTERNATIONAL JOURNAL OF GASTRONOMY AND FOOD SCIENCE Volume: 5-6 Pages: 27-32 Published: OCT-DEC 2016
8. **Effect of combined high pressure-temperature treatments on color and nutritional quality attributes of pineapple (Ananas comosus L.) puree** Times Cited: 31
By: Chakraborty, Snehasis; Rao, Pavuluri Srinivasa; Mishra, Hari Niwas
INNOVATIVE FOOD SCIENCE & EMERGING TECHNOLOGIES Volume: 28 Pages: 10-21 Published: MAR 2015
9. 超高压处理对牛半腱肌肌束膜和肌内膜胶原蛋白热力学特性影响 Times Cited: 3
Effect of High Pressure Processing on Thermal Characteristics of Perimysium and Endomysium Collagen from Beef semitendinosus Muscle
By: Chang Haijun; Niu Xiaoying; Tang Cui; et al.
By: 常海军; 牛晓影; 唐翠; et al.
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Food Science Volume: 34 Issue: 13 Pages: 14-18 Article Number: 1002-6630(2013)34:13<14:EOHPP0>2.0.TX;2-H Published: 2013
10. **Optimization of pretreatment by ultra-high pressure during production of gelatin from pig-skin** Times Cited: 5
By: Chen, L. Q.; Zhang, Y. H.; Zhou, M. R.; et al.
Transactions of the Chinese Society of Agricultural Engineering Volume: 28 Pages: 262-269 Published: 2012
[\[Show additional data\]](#)
11. **Effects of pressure on gelatinization of collagen and properties of extracted gelatins** Times Cited: 27
By: Chen, Liqing; Ma, Liang; Zhou, Mengrou; et al.
FOOD HYDROCOLLOIDS Volume: 36 Pages: 316-322 Published: MAY 2014
12. **Physicochemical and sensory characteristics of fish gelatin** Times Cited: 186
By: Choi, SS; Regenstein, JM
JOURNAL OF FOOD SCIENCE Volume: 65 Issue: 2 Pages: 194-199 Published: MAR 2000
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14. **Processing potential of jellies from subtropical loquat cultivars** Times Cited: 5
By: Curi, Paula Nogueira; Nogueira, Paulyene Vieira; de Almeida, Aline Botelho; et al.
FOOD SCIENCE AND TECHNOLOGY Volume: 37 Issue: 1 Pages: 70-75 Published: JAN-MAR 2017
15. **Physical Cross-linkers: Alternatives to Improve the Mechanical Properties of Fish Gelatin** Times Cited: 6
By: da Silva, Roberto S. G.; Pinto, Luiz A. A.
FOOD ENGINEERING REVIEWS Volume: 4 Issue: 3 Pages: 165-170 Published: SEP 2012
16. Title: [not available] Times Cited: 1
By: Daryaei, H.
Application of high pressure processing for extending the shelf-life of fresh lactic curd cheese Published: 2008
Unpublished doctoral dissertation
Publisher: RMIT University, Melbourne, Australia
17. **Determining the minimum drying time of gummy confections based on their mechanical properties** Times Cited: 11
By: Delgado, P.; Banon, S.
CYTA-JOURNAL OF FOOD Volume: 13 Issue: 3 Pages: 329-335 Published: 2015
18. **Gelatin structure and composition linked to hard capsule dissolution: A review** Times Cited: 113
By: Duconseille, Anne; Astruc, Thierry; Quintana, Naira; et al.
FOOD HYDROCOLLOIDS Volume: 43 Pages: 360-376 Published: JAN 2015
19. **Effect of formulation variables on rheology, texture, colour, and acceptability of apple jelly: Modelling and optimization** Times Cited: 23
By: Garrido, J. I.; Lozano, J. E.; Genovese, D. B.
LWT-FOOD SCIENCE AND TECHNOLOGY Volume: 62 Issue: 1 Pages: 325-332 Part: 1 Published: JUN 2015