

Accepted Manuscript

Title: Pectin from Husk Tomato (*Physalis ixocarpa* Brot.):
Rheological behavior at different extraction conditions

Authors: B.E Morales-Contreras, W Rosas-Flores, J.C
Contreras-Esquivel, L Wicker, J Morales-Castro



PII: S0144-8617(17)31139-6
DOI: <https://doi.org/10.1016/j.carbpol.2017.09.097>
Reference: CARP 12842

To appear in:

Received date: 7-7-2017
Revised date: 26-9-2017
Accepted date: 28-9-2017

Please cite this article as: Morales-Contreras, BE., Rosas-Flores, W., Contreras-Esquivel, JC., Wicker, L., & Morales-Castro, J., Pectin from Husk Tomato (*Physalis ixocarpa* Brot.): Rheological behavior at different extraction conditions. *Carbohydrate Polymers* <https://doi.org/10.1016/j.carbpol.2017.09.097>

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.

Pectin from Husk Tomato (*Physalis ixocarpa* Brot.): Rheological behavior at different extraction conditions

Morales-Contreras B.E.¹, Rosas-Flores W.¹, Contreras-Esquivel J.C.², Wicker L.³, Morales-Castro J.¹✉

¹TECNM/Instituto Tecnológico de Durango, Blvd. Felipe Pescador 1803, Nueva Vizcaya, 34080 Durango, Dgo., México

²Universidad Autónoma de Coahuila, Facultad de Ciencias Químicas, Ing J. Cárdenas Valdez, República, Saltillo, Coah., México

³School of Nutrition and Food Sciences. Louisiana State University Agricultural Center, Baton Rouge, LA 70808, USA. Formerly: Department of Food Science and Technology. University of Georgia, Athens, GA 30602-7610, USA

Corresponding author: jmorales@itdurango.edu.mx

HIGHLIGHTS

- Rheological behavior of a novel pectin from husk tomato (*Physalis ixocarpa* Brot) is presented
- Pectin husk tomato dispersions showed shear-thinning behavior and a good fit to Cross Model
- Pectin gels extracted with HCl were more elastic than those obtained with citric acid
- Husk tomato Pectin gels exhibited thermal stability in the temperature range studied
- HCl extracted pectin gels, showed stronger structure than citric acid gels

Abstract

A rheological study was carried out to evaluate formulations of test dispersions and gels of high methoxyl pectins (HTHMP) obtained at different conditions from husk tomato waste (*Physalis ixocarpa* Brot.). The effect of extraction agent (hydrochloric acid or citric acid), blanching time (10 or 15 min) and extraction time (15, 20 or 25 min) on the rheology of the tested samples was evaluated. Flow behavior and activation energy were evaluated on the test dispersions, while (E_a) frequency sweeps, temperature sweep, creep-recovery test and penetration test were performed on the gels. HTHMP dispersions showed shear thinning flow behavior, while showing a good fit to Cross model. Extraction agent, blanching time and extraction time did not have effect on Cross parameters (η_z , η_∞ , C, and m). E_a decreased as blanching time and extraction time increased. Frequency sweeps revealed high dependence on frequency for both G' and G'' , while temperature

Download English Version:

<https://daneshyari.com/en/article/5156413>

Download Persian Version:

<https://daneshyari.com/article/5156413>

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