

MAESTRÍA EN CIENCIAS Y TECNOLOGÍA DE ALIMENTOS FUNCIONALES

Productos académicos 2021

Artículos de investigación

Rocha-Guzmán NE., Cháirez-Ramírez MH., Pérez-Martínez JD., Rosas-Flores W., Iruelas-Paz JJ., Moreno-Jiménez MR., González-Laredo RF., Gallegos-Infante JA. Use of organogel-based emulsions (o/w) as a tool to increase the bioaccessibility of lupeol, curcumin, and quercetin. *Journal of the American Oil Chemists' Society*, 2021, 1-12- 2021

Velázquez-Quiñones SE., Moreno-Jiménez MR., Gallegos-Infante JA., González-Laredo RF., Álvarez SA., Rosales-Villarreal MC., Cervantes-Cardoza V., & Rocha-Guzmán NE. Apple tepache fermented with tibicos: Changes in chemical profiles, antioxidant activity and inhibition of digestive enzymes. *Journal of Food Processing and Preservation*, 45 (7), e15597. 2021

Álvarez SA., Rocha-Guzmán NE., Moreno-Jiménez MR., Gallegos-Infante, JA., Pérez-Martínez JD. & Rosas-Flores W. Functional fermented beverage made with apple, tibicos, and pectic polysaccharides from prickly pear (*Opuntia ficus-indica* L. Mill) peels. *Journal of Food Processing and Preservation*, 45 (9), e15745. 2021

Martínez-Meza Y., Pérez-Jiménez J., Rocha-Guzmán NE., Rodríguez-García ME., Alonzo-Macias M., & Reynoso-Camacho R. Modification on the polyphenols and dietary fiber content of grape pomace by instant controlled pressure drop. *Food Chemistry*, 360, 130035. 2021.

Reynoso-Camacho R, Sotelo-González AM, Patiño-Ortiz P, Rocha-Guzmán NE, Pérez-Ramírez IF. Berry by-products from a decoction process are a rich source of low- and high-molecular weight extractable and non-extractable polyphenols. *Food and Bioproducts Processing*, 127, 371-378. 2021

Rubio-Rodríguez JC, Reynoso-Camacho R, Rocha-Guzmán N, Salgado LM. Functional beverages improve insuline resistance and hepatic steatosis modulating lysophospholipids in diet-induced obese rats. *Food Science & Nutrition*, 00,1-11. 2021

Escobar-Ortiz A, Castaño-Tostado E, Rocha-Guzmán NE, Gallegos-Infante JA, Reynoso-Camacho R. Anthocyanins extraction from *Hibiscus sabdariffa* and identification of phenolic compounds associated with their stability. *J. Sci. Food Agric*, 101, 110-119. 2021

Javier Isaac Contreras-Ramírez, Ignacio Villanueva-Fierro, Rubén Francisco González-Laredo, Jorge Fernando Toro-Vázquez, Jaime David Pérez-Martínez, Walfred Rosas-Flores, José Alberto Gallegos-Infante*. (2021) Study of the relationship of hydrogen bonding and hydrophobic interactions in W/O organogel emulsions by Raman microspectroscopy. *Advanced Colloid and Interface Communications*. Accepted.

Cordero-Soto, I. N., Castillo-Araiza, C. O., Rutiaga-Quiñones, O. M., Moussa, M., Béal, C., Gallegos-Infante, A., ... & Huerta-Ochoa, S. (2021). Intensification of 2-phenylethanol production using an aerated system assisted by a membrane-based solvent extraction technique. *Revista Mexicana de Ingeniería Química*, 20(2), 739-750.

Contreras-Ramírez, J. I., Patel, A. R., Gallegos-Infante, J. A., Toro-Vázquez, J. F., Pérez-Martínez, J. D., Rosas-Flores, W., & González-Laredo, R. F. (2021). Organogel-Based Emulsified Systems, Food Applications, Microstructural and Rheological Features-A Review. *Biointerface Research in Applied Chemistry*, 12 (2), 1601 – 1627

Rios-Romero, E. A., Ochoa-Martínez, L. A., Bello-Pérez, L. A., Morales-Castro, J., Quintero-Ramos, A., & Gallegos-Infante, J. A. (2021). Effect of ultrasound and steam treatments on bioaccessibility of β -carotene and physicochemical parameters in orange-fleshed sweet potato juice. *Heliyon*, 7(4), e06632.

Peña-Cháidez, J. E., Rosas-Flores, W., Salazar-Montoya, J. A., Morales-Contreras, B. E., Gallegos-Infante, J. A., Morales-Castro, J., & Medrano-Roldán, H. (2021). Rheological and thermal characterization of pinto saltillo bean (*Phaseolus vulgaris* L.) protein isolates/sodium alginate gels. *LWT*, 146, 111419.

Contreras-Ramírez, J. I., Gallegos-Infante, J. A., Rosas-Flores, W., González-Laredo, R. F., Toro-Vázquez, J. F., & Pérez-Martínez, J. D. (2021). Relationship of rheological and thermal properties in organogel emulsions (W/O): Influence of temperature, time, and surfactant concentration on thermomechanical behavior. *Journal of Molecular Liquids*, 337, 116403.

Rodríguez-Hernández, A. K., Pérez-Martínez, J. D., Gallegos-Infante, J. A., Toro-Vázquez, J. F., & Ornelas-Paz, J. J. (2021). Rheological properties of ethyl cellulose-monoglyceride-candelilla wax oleogel vis-a-vis edible shortenings. *Carbohydrate Polymers*, 252, 117171.

Loera-Sánchez JM, Ramírez-Aldaba H, Meléndez-Soto A, García-Montiel E, González-Laredo RF. Aplicaciones geoestadísticas para la evaluación de la contaminación por ozono en la ciudad de Durango, México. *Nova Scientia. Revista de Investigación de la Universidad de la Salle Bajío* 13(3):1-33. 2021 ISSN 2007-0705

Herrera-Rocha KM, Larrosa M, Rocha-Guzmán NE, Gallegos-Infante JA, González-Laredo RF, Moreno-Jiménez MR. Effect of high-resistance training at intestinal level, morphological and systemic changes, consumption of natural sources as a therapeutic alternative. *TIP Revista Especializada en Ciencias Químico-Biológicas* 24:1–11. 2021 ISSN 2395-8723

Rocha-Guzman NE, Cháirez-Ramírez MH, Pérez-Martínez JD, Rosas-Flores W, Ornelas-Paz JdJ, Moreno-Jiménez MR, González-Laredo RF, Gallegos-Infante JA. Use of organogel-based emulsions (o/w) as a tool to increase the bioaccessibility of lupeol, curcumin, and quercetin. *Journal of the American Oil Chemists' Society* 2021:1–12. 2021 ISSN1558-9331

Rosales-Villarreal MC, Rocha-Guzmán NE, Gallegos-Infante JA, Moreno-Jiménez MR, Reynoso-Camacho R, Pérez-Ramírez IF, Tsao R, González-Laredo RF. Antioxidant phytochemicals and modulation of oxidative stress from infusions and ultrasound-assisted extractions of *Coffea* leaves. *Revista Chapingo Serie Ciencias Forestales y del Ambiente* 28(1): xx (en prensa dic 2021)

Bermúdez-Quiñones, Gabriela; Ochoa-Martínez, Luz Araceli; Gallegos-Infante, Jose; Rutiaga Quiñones , Olga; Lara-Ceniceros, Tania; Delgado, Efrén ; González-Herrera, Silvia. (2021). Synbiotic microcapsules using agavins and inulin as wall materials for *Lactobacillus casei* and *Bifidobacterium breve*: Viability, physicochemical properties, and resistance to invitro oro-gastrointestinal transit. *Journal of Food Processing and Preservation*. . DOI: 10.1111/jfpp.16106. ISSN 1745-4549.

Wendy Guadalupe García-Villalba , Raúl Rodríguez Herrera, Luz Araceli Ochoa-Martínez, Olga Miriam Rutiaga-Quiñones, Verónica Cervantes Cardoza, Silvia Marina González Herrera. (2021). Sweet potato–

Apple snack functionalized with agavins for children's consumption. *Journal of Food Processing and Preservation*. DOI: 10.1111/jfpp.15325.vol 45 No. 4. ISSN 1745-4549.

Aarón Casas-Acevedo, Fabiola Veana, Didier Montet, Cristóbal N. Aguilar, Olga Miriam Rutiaga-Quiñones & Raúl Rodríguez-Herrera (2021) Microbial and chemical changes during the production of sotol: a Mexican alcoholic beverage, *Food Biotechnology*, 35: 1, 67-90, Published online: 28 Jan 2021 ISSN impreso : 0890-5436 ISSN en línea: 1532-4249

E. Martínez-Herrera, María E. Alemán-Huerta, Paola Flores-Rodríguez, Verónica Almaguer-Cantú, Roberto Valencia-Vázquez, Walfred Rosas-Flores, Hiram Medrano-Roldán, Luz A. Ochoa-Martínez, O. Miriam Rutiaga-Quiñones (2021). Utilization of *Agave durangensis* leaves by *Bacillus cereus* 4N for polyhydroxybutyrate (PHB) biosynthesis *International Journal of Biological Macromolecules* Available online 3 February 2021

Blanca E. Garcia, Emmanuel Rodriguez, Yolocuauhtli Salazar *, Paule A. Valle *, Adriana C. Flores, O. Miriam Rutiaga-Quiñones, Raul Rodriguez. 2021. Primary Model for Biomass Growth Prediction in Batch Fermentation. *Symmetry* 2021, 13, 1468

E. Martínez-Herrera, Rutiaga-Quiñones, O.M. María E. Alemán-Huerta Integration of Agave plants into the polyhydroxybutyrate (PHB) production: A gift of the ancient Aztecs to the current Bioworld *Industrial Crops & Products*. *Industrial Crops and Products* Volume 174, 15 December 2021, 114188 <https://doi.org/10.1016/j.indcrop.2021.114188>

Moran-Espituñan Manuel Alejandro, Adame-Soto Pablo Jaciel, Flores-Maciel Hillary Alexia, Ochoa-Martínez Luz Araceli, Rutiaga-Quiñones Olga Miriam. La bebida espirituosa del siglo XXI, una revisión del Mezcal en Durango. *Revista Sapiens*. Aceptado.

Azucena Rodríguez-Mena, Luz Araceli Ochoa-Martínez*, Silvia Marina González- Herrera, Olga Miriam Rutiaga-Quiñones, Juliana Morales-Castro (2021). Degradation kinetics and thermodynamic analysis of betalains on microencapsulated beetroot juice using maltodextrin and sweet potato starch. *Scientia Agropecuaria*, 12(3): 311-317

Nallely Ortiz Romero, Luz Araceli Ochoa Martínez*, Silvia Marina González Herrera, Olga Miriam Rutiaga Quiñones, José Alberto Gallegos Infante (2021). Avances en la investigaciones de la gelación iónica: Una revisión sistemática. *Revista Tecnológicas*, Vol. 24(32): e1962

Luz Araceli Ochoa Martínez, Hector Alejandro Luna Solís, Gabriela Bermúdez Quiñones (2021). Almidón de camote: modificaciones enzimáticas, química y físicas: Una Revisión *Tecnociencia Chihuahua*, Vol XV (6): 221-233.

García Villalba, et al., 2021. "Sweet potato-apple snack functionalised with agavins for children's consumption. *Journal of Food Processing and Preservation*" *Journal of Food Processing and Preservation*.

Velázquez-Quiñones, et al., 2021 "Apple Tepache fermented with tibicos: Changes in chemical profiles, antioxidant activity and inhibition of digestive enzymes" *Journal of Food Processing and Preservation*.
Montalvo-González, E., Morales-Castro, J. and Gil, J.M. 2021. Editorial: Exploration of Underutilized Food Sources and By-products to Reduce Food Losses and Waste. *Frontiers in Nutrition/ Nutrition and Sustainable Diets*.

Guerrero-Romero, F., Simental-Mendía, L.E., Guerra-Rosas, M.I., Sayago-Monreal, V.I., Morales-Castro, J., Gamboa-Gómez, C.I. 2021. Hypoglycemic and antioxidant effects of green tomato (*Physalis ixocarpa* Brot) calyxes's extracts. *Journal of Food Biochemistry*. Vol. 45, Issue 4, e13678; IF: 1. 662; Wiley.

<https://doi.org/10.1111/jfbc.13678>; ISSN:1745-4514. First published in 24 February 2021 and final in April 2021

Portillo López, R., Morales-Contreras, B.E., Lozano-Guzmán, E., Basilio-Heredia, J., Muy Rangel, M.D., Ochoa Martínez, L.A., Rosas Flores, W., Morales Castro Juliana. 2021. Vegetable oils as green solvents for carotenoid extraction from pumpkin (*Cucurbita argyrosperma* Huber) byproducts: Optimization of extraction parameters. *Journal of Food Science*, 86(8): 1-15. ISSN: 1750-3841 IF: 2.479

Productos académicos 2020

Artículos de investigación

Barragán-Zúñiga, J., Rocha-Guzmán, N. E., Montoya-Ayón, J. B., Gallegos-Infante, J. A., Moreno-Jiménez, M. R., Sigala-Rodríguez, J. Á., & González-Laredo, R. F. (2020). Propagación *in vitro* de *Quercus sideroxylla* a partir de bellotas maduras. *Agrociencia*, 54(1), 129-145.

Macías-Cortés, E., Gallegos-Infante, J. A., Rocha-Guzmán, N. E., Moreno-Jiménez, M. R., Medina-Torres, L., & González-Laredo, R. F. (2020). Microencapsulation of phenolic compounds: technologies and novel polymers. *Revista Mexicana De Ingeniería Química*, 19(2), 491-521.

Morales-Contreras, B. E., Wicker, L., Rosas-Flores, W., Contreras-Esquivel, J. C., Gallegos-Infante, J. A., Reyes-Jaquez, D., & Morales-Castro, J. (2020). Apple pomace from variety "Blanca de Asturias" as sustainable source of pectin: Composition, rheological, and thermal properties. *LWT*, 117, 108641.

González-Herrera, S. M., Bermúdez-Quinones, A., Ochoa-Martinez, L. A., Rutiaga-Quinones, O. M., & Gallegos-Infante, J. A. (2020). Synbiotics: a technological approach in food applications. *JOURNAL OF Food Science and technology-mysore*. Aceptado

García-Andrade, M., González-Laredo, R. F., Rocha-Guzmán, N. E., Rosas-Flores, W., Moreno-Jiménez, M. R., Peña-Ramos, E. A., & Gallegos-Infante, J. A. (2020). Influence of ethyl cellulose in a multicomponent mixture (sorbitan monopalmitate-vegetable oils) on physicochemical properties of organogels. *Revista Mexicana De Ingeniería Química*, 19(2), 953-968.

Nuria Elizabeth Rocha-Guzmán, Manuel Humberto Chairez-Ramirez, Javier Isaac Pérez-Martínez, Jaime David Pérez-Martínez, Walfred Rosas-Flores, José de Jesús Ornelas-Paz, Martha Rocio Moreno-Jiménez, Rubén Francisco González-Laredo, José Alberto Gallegos-Infante (2020). Physical characterization and permeability of lupeol by use of organogel-based emulsions (o/w). *Letters in Applied BioNanoScience* 1(2), 15-22.

Flores-Villegas MY, González-Laredo RF, Pompa-García M, Ordaz-Díaz LA, Prieto-Ruiz JA, Dominguez-Calleros PA. Uso de plaguicidas y nuevas alternativas de control en el sector forestal. *Foresta Veracruzana* 21(1):29-38. 2020 ISSN 1405-7247

Ceja-Medina LI, Ortiz-Basurto RI, Medina-Torres L, Bernad-Bernad MJ, Calderas F, Gonzalez-Laredo RF, Ragazzo-Sanchez JA, Calderón-Santoyo M, Gonzalez-Avila M, Andrade-González I, Manero O. Microencapsulation of *Lactobacillus plantarum* by spray drying with mixtures of Aloe vera mucilage and Agave

fructans as wall materials. *Journal of Food Process Engineering* (aceptado 2020)
<https://doi.org/10.1111/jfpe.13436>

Hernández-Guzmán C., Prado-Barragán A., Gimeno M., Román-Guerrero A., Rutiaga-Quiñones O.M., Rocha-Guzmán N.E., Huerta-Ochoa S. (2020). Whole-cell bioconversion of naringenin to high added value hydroxylated compounds using *Yarrowia lipolytica* 2.2ab in surface and liquid cultures. *Bioprocess and Biosystems Engineering*. (Article in press).

Damazo-Lima M., Rosas-Pérez G., Reynoso-Camacho R., Pérez-Ramírez I.F., Rocha-Guzmán N.E., De los Ríos E.A., Ramos-Gómez M. (2020). Chemopreventive effect of the germinated Oat and its phenolic-AVA extract in azoxymethane/dextran sulfate sodium (AOM/DSS) model of colon carcinogenesis in mice. *Foods*. 9(2):9020169.

García-Merino J.A., Moreno-Pérez D., de Lucas B., Montalvo-Lominchar M.G., Muñoz E., Sánchez L., Nacleiro F. Herrera-Rocha K.M., MorenoJiménez M.R., Rocha-Guzmán N.E., Larrosa M. (2020). Chronic flavanolrich cocoa powder supplementation reduces body fat mass in endurance athletes by modifying the follistatin/myostatin ratio and leptin levels. *Food&Function*. (Article in press)

Villegas-Novoa C., Moreno-Jiménez M.R., Rocha-Guzmán N.E. (2020). Infusión de la planta medicinal *Buddleja scordiodes* Kunth utilizada para tratar la inflamación intestinal. *CienciaUAT*. 14(2):21-33.

Koh J., Morales-Contreras, B.E., Guerra-Rosas, M.I., Osorio-Hernández, E., Culver, C.A., Morales-Castro, J., Wicker, L. 2020. Huanglongbing disease and quality of pectin and fruit juice extracted from Valencia Oranges. *LWT-Food Science and Technology*. 131: 109692. <https://doi.org/10.1016/j.lwt.2020.109692>.

Morales-Contreras, B.E., Wicker, L., Rosas-Flores, W., Contreras-Esquivel, J.C., Gallegos-Infante, J.A., Reyes-Jaquez, D., Morales-Castro, J. 2020. Apple Pomace from variety "Blanca de Asturias" as sustainable source of pectin: Composition, rheological and thermal proper

Raul E. Martínez-Herrera, María E. Alemán-Huerta, Verónica Almaguer-Cantú, Walfred Rosas-Flores, Víctor J. Martínez-Gómez, Isela Quintero-Zapata, Gildardo Rivera, O. Miriam Rutiaga-Quiñones (2020) Efficient recovery of thermostable polyhydroxybutyrate (PHB) by a rapid and solvent-free extraction protocol assisted by ultrasound. *International Journal of Biological Macromolecules*. Available online 16 July 2020. <https://doi.org/10.1016/j.ijbiomac.2020.07.101>

Christian Hernández-Guzmán, Arelly Prado-Barragán, Miquel Gimeno, Angélica Román-Guerrero, Olga Miriam Rutiaga-Quiñones, Nuria Elizabeth Rocha Guzmán, Sergio Huerta-Ochoa (2020). Whole-cell bioconversion of naringenin to high added value hydroxylated compounds using *Yarrowia lipolytica* 2.2ab in surface and liquid cultures. *Bioprocess Biosyst Eng.*;43(7):1219-1230. <http://doi.org/10.1007/s00449-020-02316-6>

Contreras-Ramírez J.I., Gallegos-Infante J.A., Pérez-Martínez J.D., Divildox-Alvarado E., Rocha-Guzmán N.E., Moreno-Jiménez M.R., González-Laredo R.F., Rosas-Flores W. (2020). Influence of vegetable oil, monoglycerides and polyglycerol polyricinoleate into the physical stability of organogel-emulsion (w/o) System. *SN Applied Sciences*. 2(8). 1-11.

Productos académicos 2019

Artículos de investigación

Rosales-Villarreal M.C., Rocha-Guzmán N.E., Gallegos-Infante J.A., Moreno-Jiménez M.R., Reynoso-Camacho R., Pérez-Ramírez I.F., González-Laredo R.F. (2019). Significance of bioactive compounds, therapeutic and agronomic potential of non-commercial parts of the *Coffea* tree. *Biotecnia/XXI*(3). 143-153.

Ojeda-Serna I.E., Rocha-Guzmán N.E., Gallegos-Infante J.A., Cháirez-Ramírez M.H., Rosas-Flores W., Pérez-Martínez J.D., Moreno-Jiménez M.R., González-Laredo R.F. (2019). Water-in-oil organogel based emulsions as a tool for increasing bioaccessibility and cell permeability of poorly water-soluble nutraceuticals. *Food Research International*. 120. 415-424.

Díaz-Rivas J.O., Esparza-Carrillo C., Gallegos-Infante J.A., Rocha-Guzmán N.E., González-Laredo R.F., Moreno-Jiménez M.R. (2019). Empleo de un evaporador de película descendente agitada y su efecto sobre el perfil polifenólico de infusiones de salvilla (*Buddleja scordioides*). *Biotecnia*. 21(2). 106-113.

Cháirez-Ramírez M.H., Pérez-Martínez J.D., Rosas-Flores W., Ornelas-Paz J.J., Moreno-Jiménez M.R., Morales-Castro J., González-Laredo R.F., Rocha-Guzmán N.E., Gallegos-Infante J.A. (2019). Development of organogel-based emulsions (o/w) to improve bioaccessibility and intestinal permeability of poor water-soluble nutraceuticals. *Food Structure*. (artículo en prensa).

González-Herrera S.M., Simental-Mendía L.E., López M.G., Rocha-Guzmán N.E., Rutiaga-Quiñones O.M., Rodríguez-Herrera R., Gamboa-Gómez C.I. (2019). Effect of agave fructans on the production of short chain fatty acid in mice. *Food Sci Biotechnol*. 28(5), 1493-1498.

Mejía-Teniente L., Durán-Flores B.A., Torres-Pacheco I., González-Chavira M.M., Rivera-Bustamante R.F., Feregrino-Pérez A.A., Pérez-Ramírez I., Rocha-Guzmán N.E., Reynoso-Camacho R., Guevara-González R.G. (2019). Hydrogen peroxide protects Pepper (*Capsicum annuum* L.) against pepper golden mosaic geminivirus (PepGMV) infections. *Physiological and Molecular Plant Pathology*. 106. 23-29

Pérez-Ramírez I.F., Gallegos-Corona M.A., González-Dávalos M.L., Mora O., Rocha-Guzmán N.E., Reynoso-Camacho R. (2019). Mechanisms associated with the effect of *Hypericum perforatum* and *Smilax cordifolia* aqueous extracts on hepatic steatosis in obese rats: a lipidomic approach. *European Journal of Lipid Science and Technology*. 121. 1-12.

Cháirez-Ramírez M.H., Gallegos-Infante J.A., Moreno-Jiménez M.R., González-Laredo R.F., Rocha-Guzmán N.E. (2019). Absorption and distribution of lupeol in CD-1 mice evaluated by UPLC-APCI+-MS/MS. *Biomedical Chromatography*. 33 (3). E4432 1-7.

Villegas-Novoa C., Gallegos-Infante J.A., González-Laredo R.F., García-Carrancá A.M., Herrera-Rocha K.M., Jacob-Karam J.S., Moreno-Jiménez M.R., Rocha-Guzmán N.E. (2019). Acetone effects on *Buddleja scordioides* polyphenol extraction process and assessment of their cellular antioxidant capacity and anti-inflammatory activity. *Medicinal Chemistry Research*. 28 (12). 2218-2231.

González-Herrera S.M., Rocha-Guzmán N.E., Simental-Mendía L.E., Rodríguez-Herrera R., Aguilar C.N., Rutiaga-Quiñones O.M., López M.G., Gamboa-Gómez C.I. (2019). Dehydrated apple-based snack supplemented with Agave fructans exerts prebiotic effect regulating the production of short-chain fatty acid in mice. *Journal of Food Processing and Preservation*. 43(8),e14026.

García-García A.B., Ochoa-Martínez L.A., Lara-Ceniceros T.E., Rutiaga-Quiñones O.M., Rosas-Flores W., González-Herrera S.M. (2019). Changes in the microstructural, textural, thermal and sensory properties of apple leathers containing added agavins and inulin. *Food Chemistry*, <https://doi.org/10.1016/j.foodchem.2019.03.143>
ISSN: 0308-8146