



## DAFTAR PUSTAKA

- Abdullah, Weiss, J., Ahmad, T., Zhang, C. dan Zhang, H. (2020). A review of recent progress on high internal-phase Pickering emulsions in food science. *Trends in Food Science and Technology* **106**: 91-103.
- Adebayo, S.A., Brown-Myrie, E. dan Itiola, O.A. (2008). Comparative disintegrant activities of breadfruit starch and official corn starch. *Powder Technology* **181**: 98–103.
- Adebawale, K.O., Olu-Owolabi, B.I., Olawumi, E.k. dan Lawal, O.S. (2005). Functional properties of native, physically and chemically modified breadfruit (*Artocarpus altilis*) starch. *Industrial Crops and Products* **21**: 343–351.
- Adebawale, O.J., Salaam, A., Komolafe, M., Adebiyi, T.A. dan Ilesanmi, I.O. (2017). Quality characteristics of noodles produced from wheat flour and modified starch of African breadfruit (*Artocarpus altilis*) Blends. *Journal of Culinary Science and Technology* **15**: 75-88.
- Agama-Acevedo, E. dan Bello-Perez, L.A. (2017). Starch as an emulsions stability: the case of octenyl succinic anhydride (OSA) starch. *Current Opinion in Food Science* **13**: 78–83.
- Ahmad, M., Mudgil, P., Gani, A., Hamed, F., Masoodi, F.A. dan Maqsood, S. (2019). Nano-encapsulation of catechin in starch nanoparticles: characterization, release behavior and bioactivity retention during simulated in-vitro digestion. *Food Chemistry* **270**: 95-104.
- Ai Mey, C., Takashi, K., Isao, K. dan Mitsutoshi, N. (2009). Effect of chitosan on the stability and properties of modified lecithin stabilized oil-in-water monodisperse emulsion prepared by microchannel emulsification. *Food Hydrocolloids* **23**: 600-610.
- Ai, Y. dan Jane, J-L. (2018). Understanding Starch Structure and Functionality. Dalam: Sjoo, M. dan Nilsson, L. (ed.). *Starch in Food: Structure, function, and applications*, 2<sup>nd</sup> edn, hal 151-178. Woodhead Publishing, United Kingdom.



- Akanbi, T.O., Nazamid, S. dan Adebawale, A.A. (2009). Functional and pasting properties of a tropical breadfruit starch from Ile-Ife, Osun State, Nigeria. *International Food Research Journal* **16**: 151–157.
- Alcazar-Alay, S.C. dan Meireles, M.A.A. (2015). Physicochemical properties, modifications and applications of starches from different botanical sources. *Food Science and Technology* **35**: 215-236.
- Andrade, I.H.P., Otoni, C.G., Amorim, T.S., Camilloto, G.P. dan Cruz, R.S. (2020). Ultrasound-assisted extraction of starch nanoparticles from breadfruit (*Artocarpus altilis* (Parkinson) Fosberg). *Colloids and Surfaces A* **586**: 124277.
- Anwar, S.H., Rahmah, M., Safriani, N., Hasni, D., Rohaya, S. dan Winarti, C. (2016). Exploration of Breadfruit, Jicama, and Rice Starches as Stabilizer in Food Emulsion. *International Journal on Advanced Science Engineering Information Technology* **6**: 141-145.
- Anwar, S.H., Safriani, N., Asmawati, Zainal Abiddin, N.F. dan Yusoff, A. (2017). Application of modified breadfruit (*Artocarpus altilis*) starch by Octenyl Succinic Anhydride (OSA) to stabilize fish and microalgae oil emulsions. *International Food Research Journal* **24**: 2330-2339.
- AOAC. (2005). *Official Methods of Analysis* 18<sup>th</sup> ed. Association of Official Analytical Chemist International, Maryland.
- Appelqvist, I.A.M. dan Debet, M.R.M. (1997). Starch-biopolymer interactions - a review. *Food Reviews International* **13**: 163-224.
- Araiza-Calahorra, A., Akhtar, M. dan Sarkar, A. (2018). Recent advances in emulsion-based delivery approaches for curcumin: From encapsulation to bioaccessibility. *Trends in Food Science & Technology* **71**: 155–169.
- Arditty, S., Whitby, C.P., Binks, B.P., Schmitt, V. dan Leal-Calderon, F. (2003). Some general features of limited coalescence in solid-stabilized emulsions. *European Physics Journal E* **11**: 273–281.
- Arditty, S., Schmitt, V., Giermanska-Kahn, J. dan Leal-Calderon, F. (2004). Materials based on solid-stabilized emulsions. *Journal of Colloid and Interface Science* **275**: 659-664.



- Arditty, S., Schmitt, V., Lequeux, F. dan Leal-Calderon, F. (2005). Interfacial properties in solid-stabilized emulsions. *European Physics Journal B* **44**: 381–393.
- Aveyard, R., Binks, B.P. dan Clint, J.H. (2003). Emulsions stabilised solely by colloidal particles. *Advance Colloid Interface Science* **100–102**: 503–546.
- A'yuni, N.R., Marsono, Y., Marseno, D.W. dan Triwitono, P. (2021). Composition, structure, and physicochemical characteristics of pigeon pea (*Cajanus cajan*) starches from Indonesia. *Biodiversitas* **22**: 3430-3439.
- Baldwin, P.M. (2001). Starch granule-associated proteins and polypeptides: a review. *Starch/Starke* **53**: 475–503.
- Ball, S., Guan, H-P., James, M., Myers, A., Keeling, P., Mouille, G., Buleon, A., Colonna, P. dan Preiss, J. (1996). From glycogen to amylopectin: A model for the biogenesis of the plant starch granule. *Cell* **86**: 349–352.
- Bashiri, S., Ghanbarzadeh, B., Ayaseh, A., Dehghannya, J. dan Ehsani, A. (2020). Preparation and characterization of chitosan-coated nanostructured lipid carriers (CH-NLC) containing cinnamon essential oil for enriching milk and anti-oxidant activity. *LWT-Food Science and Technology* **119**: 108836.
- Bertoft, E. 2017. Understanding Starch Structure: Recent Progress. *Agronomy* **7**: 56.
- Bertoft, E. (2018). Analyzing Starch Molecular Structure. Dalam: Sjoo, M. dan Nilsson, L. (ed.). *Starch in Food: Structure, function, and applications*, 2<sup>nd</sup> edn, hal 97-150. Woodhead Publishing, United Kingdom.
- Berton-Carabin, C.C. dan Schroen, K. (2015). Pickering emulsions for food applications: background, trends, and challenges. *Annual Review of Food Science and Technology* **6**: 263-297.
- Besheer, A., Hause, G., Kressler, J. dan Mader, K. (2007). Hydrophobically modified hydroxyethyl starch: synthesis, characterization, and aqueous self-assembly into nano-sized polymeric micelles and vesicles. *Biomacromolecules* **8**: 359-367.



- Bhat, F.M. dan Riar, C.S. (2016). Effect of amylose, particle size & morphology on the functionality of starches of traditional rice cultivars. *International Journal of Biological Macromolecules* **92**: 637-644.
- Bhatnagar, S. dan Hanna, M.A. (1994). Amylose lipid complex formation during single-screw extrusion of various corn starches. *Cereal Chemistry* **71**: 582–587.
- Bhavaniramya, S., Vishnupriya, S., Al-Aboody, M.S., Vijayakumar, R. dan Baskaran, D. (2019). Role of essential oils in food safety: Antimicrobial and antioxidant applications. *Grain & Oil Science and Technology* **2**: 49–55.
- Biliaderis, C.G. (1991). The structure and interactions of starch with food constituents. *Canadian Journal of Physiology and Pharmacology* **69**: 60-78.
- Binks, B.P. (ed.). (1998). *Modern aspects of emulsion science*. The Royal Society of Chemistry, London.
- Binks, B.P. (2002). Particles as surfactants—similarities and differences. *Current Opinion in Colloid & Interface Science* **7**: 21–41.
- Binks, B.P. dan Horozov, T.S. (ed.). (2006). *Colloidal particles at liquid interfaces*. Cambridge University Press, United Kingdom.
- Binks, B.P. dan Lumsdon, S.O. (2000). Influence of particle wettability on the type and stability of surfactant-free emulsions. *Langmuir* **16**: 8622–8631.
- Binks, B.P. dan Whitby, C.P. (2005). Nanoparticle silica-stabilised oil-in-water emulsions: improving emulsion stability. *Colloids Surface A* **253**: 105–115.
- Blennow, A., Bay-Smidt, A.M., Wischmann, B., Olsen, C.E. dan Lindberg-Møller, B. (1998). The degree of starch phosphorylation is related to the chain length distribution of the neutral and the phosphorylated chains of amylopectin. *Carbohydrate Research* **307**: 45-54.
- Blennow, A., Bay-Smidt, A.M. dan Bauer, R. (2001). Amylopectin aggregation as a function of starch phosphate content studied by size exclusion chromatography and on-line refractive index and light scattering. *International Journal of Biological Macromolecules* **28**: 409-420.
- Boostani, S. dan Jafari, S.M. (2021). A comprehensive review on the controlled release of encapsulated food ingredients; fundamental concepts to design and applications. *Trends in Food Science & Technology* **109**: 303–321.



- Botet, R. dan Roger, K. (2016). How do interactions control droplet size during nanoprecipitation? *Current Opinion in Colloid & Interface Science* **22**: 108–112.
- Bruschi, M.L. (2015). *Strategies to modify the drug release from pharmaceutical systems*. Woodhead Publishing, United Kingdom.
- Budiarti, I.D.S., Swastawati, F. dan Rianingsih, L. (2016). Pengaruh perbedaan lama perendaman dalam asap cair terhadap perubahan komposisi asam lemak dan kolesterol belut (*monopterus albus*) asap. *Jurnal Pengolahan dan Bioteknologi Hasil Perikanan* **5**: 125-135.
- Buonocore, G.G., Del Nobile, M.A., Panizza, A., Corbo, M.R. dan Nicolais, L. (2003). A general approach to describe the antimicrobial agent release from highly swellable films intended for food packaging applications. *Journal of Controlled Release* **90**: 97–107.
- Buzea, C., Pacheco, I.I. dan Robbie, K. (2007). Nanomaterials and nanoparticles: sources and toxicity. *Biointerphases* **2**: 17-71.
- Calo, J.R., Crandall, P.G., O'Bryan, C.A. dan Ricke, S.C. (2015). Essential oils as antimicrobials in food systems – a review. *Food Control* **54**: 111–119.
- Cameron, R.E. dan Donald, A.M. (1992). A small angle X-ray scattering study of the annealing and gelatinization of starch. *Polymer* **33**: 2628–2635.
- Campelo, P.H., Sant'Ana, A.S. dan Clerici, M.T.P.S. (2020). Starch nanoparticles: production methods, structure, and properties for food applications. *Current Opinion in Food Science* **33**: 136-140.
- Cao, G. (2004). *Nanostructure & Nanomaterials: Synthesis, properties, and applications*. Imperial College Press, London.
- Cava, R., Nowak, E., Taboada, A. dan Marin-Iniesta, F. (2007). Antimicrobial activity of clove and cinnamon essential oils against *listeria monocytogenes* in pasteurized milk. *Journal of Food Protection* **70**: 2757-2763.
- Carbinatto, F.M., de Castro, A.D., Evangelista, R.C. dan Cury, B.S.F. (2014). Insights into the swelling process and drug release mechanisms from cross-linked pectin/high amylose starch matrices. *Asian Journal of Pharmaceutical Sciences* **9**: 27-34.



- Chang, Y., McLandsborough, L. dan McClements, D.J. (2012). Physical properties and antimicrobial efficacy of thyme oil nanoemulsions: influence of ripening inhibitors. *Journal of Agriculture & Food Chemistry* **60**: 12056–12063.
- Chang, Y., Yan, X., Wang, Q., Ren, L., Tong, J. dan Zhou, J. (2017). High efficiency and low-cost preparation of size-controlled starch nanoparticles through ultrasonic treatment and precipitation. *Food Chemistry* **227**: 369–375.
- Charitidis, C.A., Georgiou, P., Koklioti, M.A., Trompeta, A-F. dan Markakis, V. (2014). Manufacturing nanomaterials: from research to industry. *Manufacturing Review* **1**: 19 pages.
- Chen, H., Hu, X., Chen, E., Wu, S., McClements, D.J., Liu, S., Li, B. dan Li, Y. (2016). Preparation, characterization, and properties of chitosan films with cinnamaldehyde nanoemulsions. *Food Hydrocolloids* **61**: 662-671.
- Chevalier, Y. dan Bolzinger, M.A. (2013). Emulsions stabilized with solid nanoparticles: Pickering emulsions. *Colloids and Surface A* **439**: 23–34.
- Chivero, P., Gohtani, S., Yoshii, H. dan Nakamura, A. (2016). Assessment of soy soluble polysaccharide, gum arabic and OSA-starch as emulsifiers for mayonnaise-like emulsions. *LWT-Food Science and Technology* **69**: 59–66.
- Chomto, P. dan Nunthanid, J. (2017). Physicochemical and powder characteristics of various citrus pectins and their application for oral pharmaceutical tablets. *Carbohydrate Polymers* **174**: 25–31.
- Chin, S.F., Pang, S.C. dan Tay, S.H. (2011). Size controlled synthesis of starch nanoparticles by a simple nanoprecipitation method. *Carbohydrate Polymers* **86**: 1817–1819.
- Chuesiang, P., Siripatrawan, U., Sanguandeekul, R., Yang, J.S., McClements, D.J. dan McLandsborough, L. (2019). Antimicrobial activity and chemical stability of cinnamon oil in oil-in-water nanoemulsions fabricated using the phase inversion temperature method. *LWT - Food Science and Technology* **110**: 190–196.
- Claesson, P.M., Blomberg, E. dan Poptoshev, E. (2004). Surface forces and emulsion stability. Dalam: Friberg, S.E., Larsson, K. dan Sjöblom, J. (ed). *Food emulsions* 4<sup>th</sup> edn, hal. 257–297. Marcel Dekker, New York.



- Condes, M.C., Anon, M.C., Dufresne, A. dan Mauri, A.N. (2018). Composite and nanocomposite films based on amaranth biopolymers. *Food Hydrocolloids* **74**: 159–167.
- Cooke, D. dan Gidley, M.J. (1992). Loss of crystalline and molecular order during starch gelatinisation: Origin of the enthalpic transition. *Carbohydrate Research* **227**: 103–112.
- Copeland, L., Blazek, J., Salman, H. dan Tang, M.C. (2009). Form and functionality of starch. *Food Hydrocolloids* **23**: 1527–1534.
- Crank, J. (1975). *The mathematics of diffusion*. Clarendon Press, Bristol.
- Cui, H.Y., Zhou, H., Lin, L., Zhao, C.T., Zhang, X.J., Xiao, Z.H. dan Li, C.Z. (2016). Antibacterial activity and mechanism of cinnamon essential oil and its application in milk. *The Journal of Animal & Plant Sciences* **26**: 532-541.
- D'addio, S.M. dan Prud'homme, R.K. (2011). Controlling drug nanoparticle formation by rapid precipitation. *Advance Drug Delivery Reviews* **63**: 417–426.
- de Fransisco, E.V. dan Garcia-Estepa, R.M. (2018). Nanotechnology in the agrofood industry. *Journal of Food Engineering* **238**: 1–11.
- de Oliveira, A.M., Jager, E., Jager, A., Stepanek, P. dan Giacomelli, F.C. (2013). Physicochemical aspects behind the size of biodegradable polymeric nanoparticles: A step forward. *Colloids and Surfaces A: Physicochemical and Engineering Aspects* **436**: 1092–1102.
- de Souza, A.G., Ferreira, R.R., Aguilar, E.S.F., Zanata, L. dan Rosa, D.d.S. (2021). Cinnamon essential oil nanocellulose-based pickering emulsions: processing parameters effect on their formation, stabilization, and antimicrobial activity. *Polysaccharides* **2**: 608-625.
- Departemen Pertanian. (2008). *Outlook Komoditas Pertanian*. Pusat Data dan Informasi Pertanian, Jakarta.
- Desai, K.G.H. dan Park, H.J. (2005). Recent developments in microencapsulation of food ingredients. *Drying Technology* **23**: 1361–1394.
- Dias, D.d.O., Colombo, M., Kelmann, R.G., Kaiser, S., Lucca, L.G., Teixeira, H.F., Limberger, R.P., Veiga Jr, V.F. dan Koester, L.S. (2014). Optimization of



Copaiba oil-based nanoemulsions obtained by different preparation methods.

*Industrial Crops & Products* **59**: 154-162.

Dickinson, E. (1992). *An introduction to food colloids*. University Press, Oxford.

Dickinson, E. (2003). Hydrocolloids at interfaces and the influence on the properties of dispersed systems. *Food Hydrocolloids* **17**: 25-39.

Dickinson, E. (2010). Food emulsions and foams: Stabilization by particles.

*Current Opinion in Colloid & Interface Science* **15**: 40–49.

Dickinson, E. (2012). Use of nanoparticles and microparticles in the formation and stabilization of food emulsions. *Trends in Food Science & Technology* **24**: 4–12.

Dickinson, E. (2015). Structuring of colloidal particles at interfaces and the relationship to food emulsion and foam stability. *Journal of Colloid and Interface Science* **449**: 38-45.

Dickinson, E. (2016). Exploring the frontiers of colloidal behaviour where polymers and particles meet - Review. *Food Hydrocolloids* **52**: 497-509.

Dickinson, E. (2017). Biopolymer-based particles as stabilizing agents for emulsions and foams. *Food Hydrocolloids* **68**: 219-231.

Ding, Y. dan Kan, J. (2017). Optimization and characterization of high pressure homogenization produced chemically modified starch nanoparticles. *Journal of Food Science and Technology* **54**: 4501-4509.

Dong, H., Zhang, Q., Gao, J., Chen, L. dan Vasanthan, T. (2021). Comparison of morphology and rheology of starch nanoparticles prepared from pulse and cereal starches by rapid antisolvent nanoprecipitation. *Food Hydrocolloids* **119**: 106828.

Donovan, J.W. (1979). Phase transitions of the starch-water system. *Biopolymers* **18**: 263–275.

Donsì, F., Sessa, M., Mediouni, H., Mgaidi, A. dan Ferrari, G. (2011). Encapsulation of bioactive compounds in nanoemulsion-based delivery systems. *Procedia Food Science* **1**: 1666-1671.

El-Sheikh, M.A. (2017). New technique in starch nanoparticles synthesis. *Carbohydrate Polymers* **176**: 214–219.

Esmaili, A. dan Gholami, M. (2015). Optimization and preparation of nanocapsules for food applications using two methodologies. *Food Chemistry* **179**: 26–34.



- Fang, Y-Y., Wang, L-J., Li, D., Li, B-Z., Bhandari, B., Chen, X.D. dan Mao, Z-H. (2008). Preparation of crosslinked starch microspheres and their drug loading and releasing properties. *Carbohydrate Polymers* **74**: 379-384.
- Fang, Z. dan Bhandari, B. (2010). Encapsulation of polyphenols – a review. *Trends in Food Science and Technology* **21**: 510-523.
- Farrag, Y., Ide, W., Montero, B., Rico, M., Rodriguez-Llamazares, Barral, L. dan Bouza, R. (2018). Preparation of starch nanoparticles loaded with quercetin using nanoprecipitation technique. *International Journal of Biological Macromolecules* **114**: 426–433.
- Fasihi, H., Noshirvani, N., Hashemi, M., Fazilati, M., Salavati, H. dan Coma, V. (2019). Antioxidant and antimicrobial properties of carbohydrate-based films enriched with cinnamon essential oil by Pickering emulsion method. *Food Packaging and Shelf Life* **19**: 147–154.
- Fathi, M., Mozafari, M.R. dan Mohebbi, M. (2012). Nanoencapsulation of food ingredients using lipid based delivery systems. *Trends in Food Science and Technology* **23**: 13–27.
- Feng, Y. dan Lee, Y. (2016). Surface modification of zein colloidal particles with sodium caseinate to stabilize oil-in-water Pickering emulsion. *Food Hydrocolloids* **56**: 292–302.
- Feng, K., Wen, P., Yang, H., Li, N., Lou, W.Y., Zong, M.H. dan Wu, H. (2017). Enhancement of the antimicrobial activity of cinnamon essential oil-loaded electrospun nanofilm by the incorporation of lysozyme. *RSC Advances* **7**: 1572–1580.
- Feng, X., Sun, Y., Yang, Y., Zhou, X., Cen, K., Yu, C., Xu, T. dan Tang, X. (2020). Zein nanoparticle stabilized Pickering emulsion enriched with cinnamon oil and its effects on pound cakes. *LWT - Food Science and Technology* **122**: 109025.
- Fernández-Pan, I., Maté, J.I., Gardrat, C. dan Coma, V. (2015). Effect of chitosan molecular weight on the antimicrobial activity and release rate of carvacrol-enriched films. *Food Hydrocolloids* **51**: 60–68.



- Fessi, H., Puisieux, F., Devissaguet, J.P., Ammoury, N. dan Benita, S. (1989). Nanocapsule formation by interfacial polymer deposition following solvent displacement. *International Journal of Pharmacy* **55**: R1–R4.
- Fleer, G.J., Cohen Stuart, M.A., Scheutjens, J.M.H.M., Cosgrove, T. dan Vincent, B. (1993). *Polymers at interfaces*. Chapman & Hall, London.
- French, A.D. (1979). Allowed and preferred shapes of amylose. *Bakers Digest* **53**: 39–46.
- French, A.D. dan Murphy, V.G. (1977). Computer modeling in the study of starch. *Cereal Foods World* **22**: 61–70.
- Friedman, M., Kozukue, N. dan Harden, L.A. (2000). Cinnamaldehyde content in foods determined by gas chromatography-mass spectrometry. *Journal of Agricultural and Food Chemistry* **48**: 5702-5709.
- Galliard, T. dan Bowler, P. (1987). Morphology and composition of starch. Dalam: Galliard, T. (ed.). *Starch: Properties and potential*, hal 55–78. John Wiley and Sons, Brisbane.
- Ganje, M., Jafari, S.M., Tamadon, A.M., Niakosari, M. dan Maghsoudlou, Y. (2019). Mathematical and fuzzy modeling of limonene release from amylose nanostructures and evaluation of its release kinetics. *Food Hydrocolloids* **95**: 186-194.
- Gautier, F., Destribats, M., Perrier-Cornet, R., Dechélèelles, J-F., Giermanska, J., Héroguez, V., Ravaine, S., Leal-Calderon, F. dan Schmitt, V. (2007). Pickering emulsions with stimulable particles: from highly- to weakly-covered interfaces. *Physical Chemistry Chemical Physics* **9**: 6455–6462.
- Gbadamosi, S.O. dan Oladeji, B.S. (2013). Comparative studies of the functional and physico-chemical properties of isolated Cassava, Cocoyam and Breadfruit starches. *International Food Research Journal* **20**: 2273-2277.
- Ge, S., Xiong, L., Li, M., Liu, J., Yang, J., Chang, R., Liang, C. dan Sun, Q. (2017). Characterizations of Pickering emulsions stabilized by starch nanoparticles: Influence of starch variety and particle size. *Food Chemistry* **234**: 339–347.
- George, S.C. dan Thomas, S. (2001). Transport phenomena through polymeric systems. *Progress in Polymer Science* **26**: 985–1017.



- Gernat, C., Radosta, S., Anger, H. dan Damaschun, G. (1993). Crystalline parts of three different conformations detected in native and enzymatically degraded starches. *Starch/Stärke* **45**: 309–314.
- Gessler, K., Uson, I., Takaha, T., Krauss, N., Smith, S.M., Okada, S., Sheldrick, G.M. dan Saenger, W. (1999). V-Amylose at atomic resolution: X-ray structure of a cycloamylose with 26 glucose residues (cyclomaltohexaicosose). *Proceedings of the National Academy of Science of the United States of America* **96**: 4246-4251.
- Godet, M.C., Bizot, H. dan Buléon, A. (1995). Crystallization of amylose–fatty acid complexes prepared with different amylose chain lengths. *Carbohydrate Polymers* **27**: 47–52.
- Gong, B., Liu, W.X., Tan, H., Yu, D.H., Song, Z.P. dan Lucia, L.A. (2016). Understanding shape and morphology of unusual tubular starch nanocrystals. *Carbohydrate Polymers* **151**: 666-675.
- Gudmundsson, M. dan Eliasson, A-C. (2006). Starch: Physicochemical and Functional Aspects. Dalam: Eliasson, A-C. (ed.). *Carbohydrates in Food (Food Science and Technology)*, hal 391–469. Taylor and Francis, Boca Raton.
- Guida, C., Aguiar, A.C. dan Cunha, R.L. (2021). Green techniques for starch modification to stabilize Pickering emulsions: a current review and future perspectives. *Current Opinion in Food Science* **38**: 52-61.
- Gulotta, A., Saberi, A.H., Nicoli, M.C. dan McClements, D.J. (2014). Nanoemulsion-based delivery systems for polyunsaturated (omega-3) oils: formation using a spontaneous emulsification method. *Journal of Agriculture & Food Chemistry* **62**: 1720-1725.
- Gwinn, M.R. dan Vallyathan, V. (2006). Nanoparticles: health effects—pros and cons. *Environmental Health Perspective* **114**: 1818–1825.
- Haaj, S.B., Magnin, A., Pétrier, C. dan Boufi, C. (2013). Starch nanoparticles formation via high power ultrasonication. *Carbohydrate Polymers* **92**: 1625–1632.



- Haaj, S.B., Magnin, A. dan Boufi, S. (2014). Starch nanoparticles produced via ultrasonication as a sustainable stabilizer in Pickering emulsion polymerization. *RSC Advances* **4**: 42638–42646.
- Hebeish, A., El-Rafie, M.H., El-Sheikh, M.A. dan Naggar, M.E. (2014). Ultra-fine characteristics of starch nanoparticles prepared using native starch with and without surfactant. *Journal of Inorganic and Organometallic Polymers* **24**: 515–524.
- Heurtault, B., Saulnier, P., Pech, B., Proust, J.E. dan Benoit, J.P. (2003). Physicochemical stability of colloidal lipid particles. *Biomaterials* **24**: 4283–4300.
- Hizukuri, S., Tabata, S. dan Nikuni, Z. (1970). Studies on starch phosphate. Part 1. Estimation of glucose-6-phosphate residues in starch and the presence of other bound phosphate(s). *Starch/Sta rke* **22**: 338-343.
- Hsieh, Y.H.P. dan Ofori, J.A. (2007). Innovation in food technology for health. *Asia Pacific Journal of Clinical Nutrition* **16**: 65-73.
- Hunter, T.N., Pugh, R.J., Franks, G.V. dan Jameson, G.J. (2008). The role of particles in stabilising foams and emulsions. *Advances in Colloid and Interface Science* **137**: 57–81.
- James, M.G., Denyer, K. dan Myers, A.M. (2003). Starch synthesis in the cereal endosperm. *Current Opinion of Plant Biology* **6**: 215-222.
- Jane, J-L. (2006). Current understanding on starch granule structures. *Journal of Applied Glycoscience* **53**: 205-213.
- Jayaprakasha, G.K., Rao, L.J. dan Sakariah, K.K. (2002). Chemical composition of volatile oil from *Cinnamomum zeylanicum* buds. *Zeitschrift fur Naturforschung C* **57**: 990–993.
- Jayaprakasha, G.K. dan Rao, L.J.M. (2011). Chemistry, biogenesis, and biological activities of *Cinnamomum zeylanicum*. *Critical Reviews in Food Science and Nutrition* **51**: 547-562.
- Jenkins, P.J. dan Donald, A.M. (1997). Breakdown of crystal structure in potato starch during gelatinization. *Journal of Applied Polymer Science* **66**: 225–232.



- Jenkins, P.J. dan Donald, A.M. (1998). Gelatinisation of starch – a combined WAXS/SAXS/DSC and SANS study. *Carbohydrate Research* **308**: 133–147.
- Jiang, Y., Wang, D., Li, F., Li, D. dan Huang, Q. (2020). Cinnamon essential oil Pickering emulsion stabilized by zein-pectin composite nanoparticles: Characterization, antimicrobial effect and advantages in storage application. *International Journal of Biological Macromolecules* **148**: 1280–1289.
- Jo, Y.J. dan Kwon, Y.J. (2014). Characterization of b-carotene nanoemulsions prepared by microfluidization technique. *Food Science and Biotechnology* **23**: 107-113.
- Jones, A.M.P., Ragone, D., Tavana, N.G., Bernotas, D.W. dan Murch, S.J. (2011). Beyond the Bounty: Breadfruit (*Artocarpus altilis*) for food security and novel foods in the 21st Century. *Ethnobotany Research & Applications* **9**: 129-149.
- Joye, I.J. dan McClements, D.J. (2013). Production of nanoparticles by anti-solvent precipitation for use in food systems. *Trends in Food Science and Technology* **34**: 109–123.
- Kaushik, V. dan Roos, Y.H. (2007). Limonene encapsulation in freeze-drying of gum Arabic–sucrose–gelatin systems. *LWT* **40**: 1381–1391.
- Kawaguchi, M. (2016). Silicone oil emulsions stabilized by polymers and solid particles. *Advances in Colloid and Interface Science* **233**: 186–199.
- Kawatra, P. dan Rajagopalan, R. (2015). Cinnamon: Mystic powers of a minute ingredient. *Pharmacognosy Research* **7**: S1-S6.
- Ke, J., Xiao, L., Yu, G., Wu, H., Shen, G. dan Zhang, Z. (2019). The study of diffusion kinetics of cinnamaldehyde from corn starch-based film into food simulant and physical properties of antibacterial polymer film. *International Journal of Biological Macromolecules* **125**: 642–650.
- Kim, H.Y., Lee, J.H., Kim, J.Y., Lim, W.J. dan Lim, S.T. (2012). Characterization of nanoparticles prepared by acid hydrolysis of various starches. *Starch/Stärke* **64**: 367-373.
- Kim, H.Y., Park, D.J., Kim, J.Y. dan Lim, S.T. (2013). Preparation of crystalline starch nanoparticles using cold acid hydrolysis and ultrasonication. *Carbohydrate Polymers* **98**: 295-301.



- Kim, H-Y., Park, S.S. dan Lim, S-T. (2015). Preparation, characterization and utilization of starch nanoparticles - A review. *Colloids and Surfaces B: Biointerfaces* **126**: 607–620.
- Klech, C.M. dan Simonelli, A.P. (1989). Examination of the moving boundaries associated with non-Fickian water swelling of glassy gelatin beads: Effect of solution pH. *Journal of Membrane Science* **43**: 87–101.
- Koh, S.P. dan Long, K. (2012). Comparison of physical, chemical and functional properties of broken rice and breadfruit starches against cassava starch. *Journal of Tropical Agriculture and Food Science* **40**: 211– 219.
- Kosmidis, K., Argyrakis, P. dan Macheras, P. (2003a). A Reappraisal of Drug Release Laws Using Monte Carlo Simulations: The Prevalence of the Weibull Function. *Pharmaceutical Research* **20**: 988-995.
- Kosmidis, K., Argyrakis, P. dan Macheras, P. (2003b). Fractal kinetics in drug release from finite fractal matrices. *Journal of Chemical Physics* **119**: 6373– 6377.
- Kralchevsky, P.A., Ivanov, I.B., Ananthapadmanabhan, K.P. dan Lips, A. (2005). On the thermodynamics of particle stabilized emulsions: curvature effects and catastrophic phase inversion. *Langmuir* **21**: 50-63.
- Kumari, S., Yadav, B.S. dan Yadav, R.B. (2020). Synthesis and modification approaches for starch nanoparticles for their emerging food industrial applications: A review. *Food Research International* **128**: 108765.
- Lamanna, M., Morales, N.J., García, N.L. dan Goyanes, S. (2013). Development and characterization of starch nanoparticles by gamma radiation: potential application as starch matrix filler. *Carbohydrate Polymer* **97**: 90-97.
- Lammers, K., Arbuckle-Keil, G. and Dighton, J. (2009). FT-IR study of the changes in carbohydrate chemistry of three New Jersey pine barrens leaf litters during simulated control burning. *Soil Biology and Biochemistry* **41**: 340-347.
- Langenbucher, F. (1972). Linearization of dissolution rate curves by the Weibull distribution. *Journal of Pharmacy and Pharmacology* **24**: 979-981.



- Larasati, M.L., Supriyanto, dan Supriyadi. (2018). Pengaruh perlakuan steam explosion terhadap kelarutan, higroskopisitas dan viskositas pati sukun. Fakultas Teknologi Pertanian, Universitas Gadjah Mada, Yogyakarta.
- Larsen, F.H., Kasprzak, M.M., Laerke, H.N., Knudsen, K.E.B., Pedersen, S., Jorgensen, A.S. dan Blennow, A. (2013). Hydration properties and phosphorous speciation in native, gelatinized and enzymatically modified potato starch analyzed by solid-state MAS NMR. *Carbohydrate Polymers* **97**: 502–511.
- Le Bail, P., Bizot, H., Ollivon, M., Keller, G., Bourgoux, C. dan Buleon, A. (1999). Monitoring the crystallization of amylose-lipid complexes during maize starch melting by synchrotron x-ray diffraction. *Biopolymers* **50**: 99-110.
- Ledezma, C.C.Q. (2018). Starch Interactions With Native and Added Food Components. Dalam: Sjoo, M. dan Nilsson, L. (ed.). *Starch in Food: Structure, function, and applications*, 2<sup>nd</sup> edn, hal 769-804. Woodhead Publishing, United Kingdom.
- Lee, Y-S., Tarte, R. dan Acevedo, N.C. (2021). Synergistic effects of starch nanoparticles and chitin nanofibers on the stability of oil-in-water Pickering emulsions. *Food Chemistry* **363**: 130301.
- Levine, S., Bowen, B.D. dan Partridge, S.J. (1989). Stabilization of emulsions by fine particles I. Partitioning of particles between continuous phase and oil/water interface. *Colloids and Surface* **38**: 325–343.
- Li, P-H. dan Lu, W-C. (2016). Effects of storage conditions on the physical stability of D-limonene nanoemulsion. *Food Hydrocolloids* **53**: 218-224.
- Li, J., McClements, D.J. dan McLandsborough, L.A. (2001). Interaction between emulsion droplets and *Escherichia coli* cells. *Journal of Food Science* **66**: 570-574.
- Li, C., Li, Y., Sun, P. dan Yang, C. (2013). Pickering emulsions stabilized by native starch granules. *Colloids and Surfaces A* **431**: 142-149.
- Li, X., Qin, Y., Liu, C., Jiang, S., Xiong, L. dan Sun, Q. (2016). Size-controlled starch nanoparticles prepared by self-assembly with different green surfactant: The effect of electrostatic repulsion or steric hindrance. *Food Chemistry* **199**: 356–363.



- Li, J., Xu, X., Chen, Z., Wang, T., Lu, Z., Hu, W. dan Wang, L. (2018). Zein/gum Arabic nanoparticle-stabilized Pickering emulsion with thymol as an antibacterial delivery system. *Carbohydrate Polymers* **200**: 416–426.
- Lindeboom, N., Chang, P.R. dan Tyler, R.T. (2004). Analytical, biochemical and physicochemical aspects of starch granule size, with emphasis on small granule starches: a review. *Starch/Staerke* **56**: 89–99.
- Liu, D., Wu, Q., Chen, H. dan Chang, P.R. (2009). Transitional properties of starch colloid with particle size reduction from micro to nanometer. *Journal of Colloid and Interface Science* **339**: 117–124.
- Liu, C.Z., Qin, Y., Li, X.J., Sun, Q.J., Xiong, L. dan Liu, Z.Z. (2016). Preparation and characterization of starch nanoparticles via self-assembly at moderate temperature. *International Journal of Biological Macromolecules* **84**: 354-360.
- Liu, X., Chen, L., Kang, Y., He, D., Yang, B. dan Wu, K. (2021). Cinnamon essential oil nanoemulsions by high-pressure homogenization: Formulation, stability, and antimicrobial activity. *LWT-Food Science and Technology* **147**: 111660.
- Lv, P., Wang, D., Chen, Y., Zhu, S., Zhang, J., Mao, L., Gao, Y. dan Yuan, F. (2020). Pickering emulsion gels stabilized by novel complex particles of high-pressure-induced WPI gel and chitosan: Fabrication, characterization and encapsulation. *Food Hydrocolloids* **108**: 105992.
- Ly, M.H., Aguedo, M., Goudot, S., Le, M.L., Cayot, P., Teixeira, J.A., Le, T.M., Belin, J-M. dan Wache, Y. (2008). Interactions between bacterial surfaces and milk proteins, impact on food emulsions stability. *Food Hydrocolloids* **22**: 742-751.
- Maher, P.G.G. (1983). Alkali gelatinization of Starches. *Starch/Staerke* **35**: 226-234.
- Malvern Instruments Limited. (2015). A basic guide to particle characterization. Malvern, United Kingdom.
- Mao, L. dan Miao, S. (2015). Structuring food emulsions to improve nutrient delivery during digestion. *Food Engineering Review* **7**: 439-451.



- Marefati, A., Bertrand, M., Sjöö, M., Dejmek, P. dan Rayner, M. (2017). Storage and digestion stability of encapsulated curcumin in emulsions based on starch granule Pickering stabilization. *Food Hydrocolloids* **63**: 309–320.
- Marinopoulou, A., Papastergiadis, E., Raphaelides, S.N. dan Kontominas, M.G. (2016). Morphological characteristics, oxidative stability and enzymic hydrolysis of amylose-fatty acid complexes. *Carbohydrate Polymers* **141**: 106–115.
- Marku, D., Wahlgren, M., Rayner, M., Sjoo, M. dan Timgren, A. (2012). Characterization of starch Pickering emulsions for potential applications in topical formulations. *International Journal of Pharmaceutics* **428**: 1–7.
- Masghati, S. dan Ghoreishi, S.M. (2018). Supercritical CO<sub>2</sub> extraction of cinnamaldehyde and eugenol from cinnamon bark: Optimization of operating conditions via response surface methodology. *The Journal of Supercritical Fluids* **140**: 62–71.
- Matos, M., Laca, A., Rea, F., Iglesias, O., Rayner, M. dan Gutiérrez, G. (2018). O/W emulsions stabilized by OSA-modified starch granules versus non-ionic surfactant: Stability, rheological behaviour and resveratrol encapsulation. *Journal of Food Engineering* **222**: 207–217.
- McClements, D.J. (2005). *Food emulsions: principles, practices, and techniques*, 2<sup>nd</sup> edn. CRC Press, Boca Raton.
- McClements, D.J. (2010). Emulsion design to improve the delivery of functional lipophilic components. *Annual Review of Food Science and Technology* **1**: 241–269.
- McClements, D.J. (2011). Edible nanoemulsions: fabrication, properties, and functional performance. *Soft Matter* **7**: 2297–2316.
- McClements, D.J. (2015a). *Food emulsions: Principles, practices, and techniques*, 3<sup>rd</sup> edn. CRC Press, Boca Raton.
- McClements, D.J. (2015b). Reduced-fat foods: the complex science of developing diet-based strategies for tackling overweight and obesity. *Advance Nutrition* **6**: 338S–352S.



- McClements, D.J. dan Rao, J. (2011). Food-grade nanoemulsions: formulation, fabrication, properties, performance, biological fate, and potential toxicity. *Critical Review of Food Science & Nutrition* **51**: 285–330.
- McClements, D.J. dan Gumus, C.E. (2016). Natural emulsifiers — Biosurfactants, phospholipids, biopolymers, and colloidal particles: Molecular and physicochemical basis of functional performance. *Advances in Colloid and Interface Science* **234**: 3–26.
- McClements, D.J., Decker, E.A. dan Weiss, J. (2007). Emulsion-based delivery systems for lipophilic bioactive components. *Journal of Food Science* **72**: R109–124.
- McPherson, A.E. dan Jane, J. (1999). Comparison of waxy potato with other root and tuber starches. *Carbohydrate Polymers* **40**: 57-70.
- Merkel, T., Graf, V., Walz, E. dan Schuchmann, H.P. (2015). Production of particle stabilized non-spherical emulsion drops in simple shear flow. *Chemical Engineering & Technology* **38**: 1490-1493.
- Mircioiu, C., Voicu, V., Anuta, V., Tudose, A., Celia, C., Paolino, D., Fresta, M., Sandulovici, R. dan Mircioiu, I. (2019). Mathematical Modeling of Release Kinetics from Supramolecular Drug Delivery Systems. *Pharmaceutics* **11**: 140.
- Missaoui, W.N., Arnold, R.D., dan Cummings, B.S. (2018). Toxicological status of nanoparticles: What we know and what we don't know. *Chemico-Biological Interactions* **295**: 1–12.
- Moraru, C.I., Panchapakesan, C.P., Huang, Q., Takhistov, P., Liu, S. dan Kokini, J.L. (2003). Nanotechnology: a new frontier in food science. *Food Technology* **57**: 24-29.
- Morrison, W.R. (1988). Lipids in cereal starches: a review. *Journal of Cereal Science* **8**: 1–15.
- Morrison, W.R., Law, R.V. dan Snape, C.E. (1993a). Evidence for inclusion complexes of lipids with V-amyllose in maize, rice and oat starches. *Journal of Cereal Science* **18**: 107–109.



- Morrison, W.R., Tester, R.F., Gidley, M.J. dan Karkalas, J. (1993b). Resistance to acid hydrolysis of lipid complexed amylose and free amylose in ligninised waxy and non-waxy barley starches. *Carbohydrate Research* **245**: 289–302.
- Morrison, W.R., Tester, R.F., Snape, C.W., Law, R. dan Gidley, M.J. (1993c). Swelling and gelatinisation of cereal starches. IV. Effects of lipid complexed amylose and free amylose in waxy and normal barley starches. *Cereal Chemistry* **70**: 385–391.
- Morrison, W.R. (1995). Starch lipids and how they relate to starch granule structure and functionality. *Cereal Foods World* **40**: 437-446.
- Mortazavi, N. dan Aliakbarlu, J. (2019). Antibacterial effects of ultrasound, cinnamon essential oil, and their combination against *Listeria monocytogenes* and *Salmonella typhimurium* in milk. *Journal of Food Science* **84**: 3700-3706.
- Muhoza, B., Xia, S., Cai, J., Zhang, X., Duhoranimana, E. dan Su, J. (2019). Gelatin and pectin complex coacervates as carriers for cinnamaldehyde: Effect of pectin esterification degree on coacervate formation, and enhanced thermal stability. *Food Hydrocolloids* **87**: 712–722.
- Murray, B.S. (2019). Pickering emulsions for food and drinks. *Current Opinion in Food Science* **27**: 57–63.
- Mwangi, W.M., Lim, H.P., Low, L.E., Tey, B.T. dan Chan, E.S. (2020). Food-grade Pickering emulsions for encapsulation and delivery of bioactives. *Trends in Food Science and Technology* **100**: 320-332.
- Nabavi, S., Di Lorenzo, A., Izadi, M., Sobarzo-Sanchez, E., Daglia, M. dan Nabavi, S. (2015). Antibacterial effects of Cinnamon: From farm to food, cosmetic and pharmaceutical industries. *Nutrients* **7**: 7729-7748.
- Nayak, A.P., Tiyaboonchai, W., Patankar, S., Madhusudhan, B. dan Souto, E.B. (2010). Curcuminoids-loaded lipid nanoparticles: Novel approach towards malaria treatment. *Colloids and Surfaces. B: Biointerfaces* **81**: 263–273.
- Ngwabhebhoh, F.A., Erdagi, S.I. dan Yildiz, U. (2018). Pickering emulsions stabilized nanocellulosic-based nanoparticles for coumarin and curcumin nanoencapsulations: In vitro release, anticancer and antimicrobial activities. *Carbohydrate Polymers* **201**: 317-328.



- Nicel, W.B. (1957). Infrared spectra of carbohydrates. *Dalam: Melville, L.W. dan Tipson, R.S. (ed.). Advances in carbohydrate chemistry*, vol. 12, hal 13–33. Academic Press, United States.
- Nikfarjam, N., Qazvini, N.T. dan Deng, Y. (2014). Cross-linked starch nanoparticles stabilized Pickering emulsion polymerization of styrene in w/o/w system. *Colloid and Polymer Science* **292**: 599–612.
- Niroula, A., Gamot, T.D., Ooi, C.W. dan Dhital, S. (2021). Biomolecule-based pickering food emulsions: Intrinsic components of food matrix, recent trends and prospects. *Food Hydrocolloids* **112**: 106303.
- Nonomura, Y. dan Kobayashi, N. (2009). Phase inversion of the Pickering emulsions stabilized by plate-shaped clay particles. *Journal of Colloid and Interface Science* **330**: 463–466.
- Nwokocha, L.M. dan Williams, P.A. (2011). Comparative study of physicochemical properties of breadfruit (*Artocarpus altilis*) and white yam starches. *Carbohydrate Polymers* **85**: 294–302.
- Oboh, G., Ademosum, A.O., Akinleye, M., Omojokun, O.S., Boligon, A.A. dan Athayde, M.L. (2015). Starch composition, glycemic indices, phenolic constituents, and antioxidative and antidiabetic properties of some common tropical fruits. *Journal of Ethnical Foods* **2**: 64-73.
- Okechukwu, P.E. dan Rao, M.A. (1996). Kinetics of cornstarch granule swelling in excess water. *Dalam: Phillips, G.O., Williams, P.A. dan Wedlock, D.J. (ed.). Gums and stabilizers for the food industry* 8, hal 49-57. Oxford University Press, Oxford.
- Oliveira, A.V., Silva, A.P.M., Barros, M.O., Filho, M.d.M.S., Rosa, M.F. dan Azeredo, H.M.C. (2018). Nanocomposite films from mango kernel or corn starch with starch nanocrystals. *Starch/Stärke* **70**: 1800028.
- Oosten, B.J. (1982). Tentative hypothesis to explain how electrolytes affect the gelatinization temperature of starches in water. *Starch/Stärke* **34**: 233–239.
- Oosten, B.J. (1983). Explanations for phenomena arising from starch–electrolytes interactions. *Starch/Stärke* **35**: 166–169.



- Oosten, B.J. (1990). Interactions between starch and electrolytes. *Starch/Stärke* **42**: 327–330.
- Owens, C., Griffin, K., Khouryieh, H. dan Williams, K. (2018). Creaming and oxidative stability of fish oil-in-water emulsions stabilized by whey protein-xanthan-locust bean complexes: Impact of pH. *Food Chemistry* **239**: 314–322.
- Palupi, N.W. dan Pranoto, Y. (2020). Pembuatan nanopartikel pati jagung dengan teknologi fotooksidasi dan ultrasonikasi serta pengujinya pada sistem emulsi dan aqueous larutan garam. Fakultas Teknologi Pertanian, Universitas Gadjah Mada, Yogyakarta.
- Papadopoulou, V., Kosmidis, K., Vlachou, M. dan Macheras, P. (2006). On the use of the Weibull function for the discernment of drug release mechanisms. *International Journal of Pharmaceutics* **309**: 44–50.
- Paramita, V.D. dan Kasapis, S. (2019). Molecular dynamics of the diffusion of natural bioactive compounds from high-solid biopolymer matrices for the design of functional foods. *Food Hydrocolloids* **88**: 301–319.
- Paredes-Lopez, O. dan Hernandez-Lopez, D. (1991). Application of differential scanning calorimetry to amaranth starch gelatinization-Influence of water, solutes and annealing. *Starch/Stärke* **43**: 57–61.
- Paris, M.J., Ramirez-Corona, N., Palou, E. dan Lopez-Malo, A. (2020). *Journal of Food Engineering* **282**: 110024.
- Park, S., Mun, S. dan Kim, Y-R. (2018). Emulsifier Dependent in vitro Digestion and Bioaccessibility of β-Carotene Loaded in Oil-in-Water Emulsions. *Food Biophysics* **13**: 147-154.
- Pathakoti, K., Manubolu, M. dan Hwang, H-M. (2017). Nanostructures: Current uses and future applications in food science. *Journal of Food and Drug Analysis* **25**: 245-253.
- Peppas, N.A. (1985). Analysis of Fickian and non-Fickian drug release from polymers. *Pharmaceutica Acta Helveticae* **60**: 110–111.
- Peppas, N.A. dan Narasimhan, B. (2014). Mathematical models in drug delivery: How modeling has shaped the way we design new drug delivery systems. *Journal of Controlled Release* **190**: 75–81.



- Peppas, N.A. dan Peppas, L.B. (1994). Water diffusion and sorption in amorphous macromolecular systems and foods. *Journal of Food Engineering* **22**: 189–210.
- Perevyazko, I.Y., Vollrath, A., Pietsch, C., Schubert, S., Pavlov, G.M. dan Schubert, U.S. (2012). Nanoprecipitation of poly (methyl methacrylate)-based nanoparticles: Effect of the molar mass and polymer behavior. *Journal of Polymer Science Part A: Polymer Chemistry* **50**: 2906–2913.
- Perez-Cordoba, L.J., Norton, I.T., Batchelor, H.K., Gkatzionis, K., Spyropoulos, F. dan Sobral, P.J.A. (2018). Physico-chemical, antimicrobial and antioxidant properties of gelatinchitosan based films loaded with nanoemulsions encapsulating active compounds. *Food Hydrocolloids* **79**: 544-559.
- Perez, S. dan Bertoft, E. (2010). The molecular structures of starch components and their contribution to the architecture of starch granules: a comprehensive review. *Starch/Stärke* **62**: 389-420.
- Pickering, S.U. (1907). Emulsions. *Journal of Chemical Society* **91**: 2001-2021.
- Ping, H., Zhang, G. dan Ren, G. (2010). Antidiabetic effects of cinnamon oil in diabetic KK-A<sup>y</sup> mice. *Food and Chemical Toxicology* **48**: 2344-2349.
- Przygodzka, M., Zielinska, D., Ciesarova, Z., Kukurova, K. dan Zielinski, H. (2014). Comparison of methods for evaluation of the antioxidant capacity and phenolic compounds in common spices. *LWT - Food Science and Technology* **58**: 321-326.
- Putaux, J.L., Molina-Boisseau, S., Momaur, T. dan Dufresne, A. 2003. Platelet nanocrystals resulting from the disruption of waxy corn starch granules by acid hydrolysis. *Biomacromolecules* **4**: 1198-1202.
- Qian, C. dan McClements, D.J. (2011). Formation of nanoemulsions stabilized by model food-grade emulsifiers using high-pressure homogenization: factors affecting particle size. *Food Hydrocolloids* **25**: 1000-1008.
- Qian, C., Decker, E.A., Xiao, H. dan McClements, D.J. (2012). Nanoemulsion delivery systems: influence of carrier oil on beta-carotene bioaccessibility. *Food Chemistry* **135**: 1440-1447.



- Qin, Y., Liu, C.Z., Jiang, S.S., Xiong, L. dan Sun, Q.J. (2016). Characterization of starch nanoparticles prepared by nanoprecipitation: influence of amylose content and starch type. *Industrial Crops and Products* **87**: 182-190.
- Qiu, C., Qin, Y., Zhang, S.L., Xiong, L. dan Sun, Q.J. (2016). A comparative study of size-controlled worm-like amylopectin nanoparticles and spherical amylose nanoparticles: their characteristics and the adsorption properties of polyphenols. *Food Chemistry* **213**: 579-587.
- Qiu, C., Hu, Y., Jin, Z., McClements, D.J., Qin, Y., Xu, X. dan Wang, J. (2019). A review of green techniques for the synthesis of size-controlled starch-based nanoparticles and their applications as nanodelivery systems. *Trends in Food Science and Technology* **92**: 138–151.
- Quanhong, L. dan Caili, F. (2005). Application of response surface methodology for extraction optimization of germinant pumpkin seeds protein. *Food Chemistry* **92**: 701–706.
- Ragheb, A.A., El-Thalouth, I.A. dan Tawfik, S. (1995). Gelatinization of starch in aqueous alkaline solutions. *Starch/Staerke* **46**: 338-345.
- Ragone, D. (2009). Farm and forestry production and marketing profile for breadfruit (*Artocarpus altilis*). Specialty Crops for Pacific Island Agroforestry. <http://agroforestry.net/scps>.
- Rajput, N. (2015). Methods of preparation of nanoparticles - a review. *International Journal of Advance Engineering Technology* **7**: 1806–1811.
- Ramsden, W. (1904). Separation of solids in the surface-layers of solutions and ‘suspensions’ (observations on surface-membranes, bubbles, emulsions, and mechanical coagulation)—Preliminary account. *Proceeding of Royal Society London* **72**: 156–164.
- Rao, P.V. dan Gan, S.H. (2014). Cinnamon: A Multifaceted Medicinal Plant. *Evidence-Based Complementary and Alternative Medicine* **2014**: 12 pages.
- Razavi, M.S., Golmohammadi, A., Nematollahzadeh, A., Fiori, F., Rovera, C. dan Farris, S. (2020). Preparation of cinnamon essential oil emulsion by bacterial cellulose nanocrystals and fish gelatin. *Food Hydrocolloids* **109**: 106111.



- Rezaei, A., Fathi, M. dan Jafari, S.M. (2019). Nanoencapsulation of hydrophobic and low-soluble food bioactive compounds within different nanocarriers. *Food Hydrocolloids* **88**: 146–162.
- Ribeiro-Santos, R., Andrade, M., Madella, D., Martinazzo, A.P., Garcia Moura, L.d.A., de Melo, N.R. dan Sanches-Silva, A. (2017). Revisiting an ancient spice with medicinal purposes: Cinnamon. *Trends Food Science and Technology* **62**: 154-169.
- Ritger, P.L. dan Peppas, N.A. (1987). A simple equation for description of solute release: I. Fickian and non-Fickian release from non-swellable devices in the form of slabs, spheres, cylinders or discs. *Journal of Controlled Release* **5**: 23–36.
- Rivas, C.J.M., Tarhini, M., Badri, W., Miladi, K., Greige-Gerges, H., Nazari, Q.A., Rodriguez, S.A.G., Roman, R.A., Fessi, H. dan Elaissari, A. (2017). Nanoprecipitation process: From encapsulation to drug delivery. *International Journal of Pharmaceutics* **532**: 66–81.
- Robins, M.M. (2000). Emulsions - creaming phenomena. *Current Opinion in Colloid and Interface Science* **5**: 265-272.
- Romero-Bastida, C.A. Bello-Perez, L.A., Garcia, M.A., Martino, M.N., Solorza-Feria, J. dan Zaritsky, N.E. (2005). Physicochemical and microstructural characterization of films prepared by thermal and cold gelatinization from non-conventional sources of starches. *Carbohydrate Polymers* **60**: 235-244.
- Saari, H., Fuentes, C., Sjoo, M., Rayner, M. dan Wahlgren, M. (2017). Production of starch nanoparticles by dissolution and non-solvent precipitation for use in food-grade Pickering emulsions. *Carbohydrate Polymers* **157**: 558–566.
- Saari, H., Rayner, M. dan Wahlgren, M. (2019). Effects of starch granules differing in size and morphology from different botanical sources and their mixtures on the characteristics of Pickering emulsions. *Food Hydrocolloids* **89**: 844–855.
- Saberi, A.H., Fang, Y. dan McClements, D.J. (2013). Fabrication of vitamin E-enriched nanoemulsions: factors affecting particle size using spontaneous emulsification. *Journal of Colloid and Interface Science* **391**: 95-102.



- Sadeghi, R., Daniella, Z., Uzun, S. dan Kokini, J. (2017). Effects of starch composition and type of non-solvent on the formation of starch nanoparticles and improvement of curcumin stability in aqueous media. *Journal of Cereal Science* **76**: 122-130.
- Sagalowicz, L. dan Leser, M.E. (2010). Delivery systems for liquid food products. *Current Opinion in Colloid and Interface Science* **15**: 61–72.
- Salvia-Trujillo, L., Rojas-Graü, M.A., Soliva-Fortuny, R. dan Martín-Belloso, O. (2013). Effect of processing parameters on physicochemical characteristics of micro-fluidized lemongrass essential oil-alginate nanoemulsions. *Food Hydrocolloids* **30**: 401-407.
- Sanguansri, P. dan Augustin, M.A. (2006). Nanoscale materials development: a food industry perspective. *Trends Food Science and Technology* **17**: 547-556.
- Sanjaya, I.G.M.H. dan Puspita, T. (2011). PKM: Pengaruh penambahan khitosan dan plasticizer gliserol pada karakteristik plastik biodegradable dari pati limbah kulit singkong. Jurusan Teknik Kimia Fakultas Teknik Industri, Institut Teknologi Sepuluh Nopember: 1-6.
- Santana, J.S., Costa, E.K.d.C., Rodrigues, P.R., Correia, P.R.C., Cruz, R.S. dan Druzian, J.I. (2019). Morphological, barrier, and mechanical properties of cassava starch films reinforced with cellulose and starch nanoparticles. *Journal of Applied Polymer Science* **136**: 47001.
- Santoyo-Aleman, D., Sanchez, L.T. dan Villa, C.C. (2019). Citric-acid modified banana starch nanoparticles as a novel vehicle for  $\beta$ -carotene delivery. *Journal of the Science of Food and Agriculture* **99**: 6392-6399.
- Sarkar, A., Murray, B., Holmes, M., Ettelaie, R., Abdalla, A. dan Yang, X. (2016). In vitro digestion of Pickering emulsions stabilized by soft whey protein microgel particles: Influence of thermal treatment. *Soft Matter* **12**: 3558–3569.
- Sathe, P.M., Tsong, Y. dan Shah, V.P. (1996). In-vitro dissolution profile comparison: statistics and analysis, model dependent approach. *Pharmaceutical Research* **13**: 1799–1803.



- Scherman, P. dan Parkinson, C. (1978). Mechanism of temperature induced phase inversion in O/W emulsions stabilised by O/W and W/O emulsifier blends. *Progress in Colloid Polymers Science* **63**: 10–14.
- Schirmer, M., Hochstotter, A., Jekle, M., Arendt, E. dan Becker, T. (2013). Physicochemical and morphological characterization of different starches with variable amylose/amyllopectin ratio. *Food Hydrocolloids* **32**: 52-63.
- Schmidt, U.S., Koch, L., Rentschler, C., Kurz, T., Endreß, H.U. dan Schuchmann, H.P. (2014). Effect of molecular weight reduction, acetylation and esterification on the emulsification properties of citrus pectin. *Food Biophysics* **10**: 217–227.
- Setiani, W., Sudiarti, T. dan Rahmidar, L. (2013). Preparasi dan karakterisasi edible film dari poliblend pati sukun-kitosan. *Valensi* **3**: 100-109.
- Shah, B.R., Li, Y., Jin, W., An, Y., He, L., Li, Z., Xu, W. dan Li, B. (2016). Preparation and optimization of Pickering emulsion stabilized by chitosan-tripolyphosphate nanoparticles for curcumin encapsulation. *Food Hydrocolloid* **52**: 369-377.
- Shahidi, F. dan Han, X.Q. (1993). Encapsulation of food ingredients. *Critical Reviews in Food Science and Nutrition* **33**: 501-547.
- Shan, B., Cai, Y.Z., Brooks, J.D. dan Corke, H. (2007). Antibacterial properties and major bioactive components of cinnamon stick (*Cinnamomum burmanii*): Activity against foodborne pathogenic bacteria. *Journal of Agricultural and Food Chemistry* **55**: 5484-5490.
- Shao, P., Zhang, H., Niu, B. dan Jin, W. (2018). Physical stabilities of taro starch nanoparticles stabilized Pickering emulsions and the potential application of encapsulated tea polyphenols. *International Journal of Biological Macromolecules* **118**: 2032-2039.
- Shi, A.M., Wang, L.J., Li, D. dan Adhikari, B. (2012). The effect of annealing and cryoprotectants on the properties of vacuum-freeze dried starch nanoparticles. *Carbohydrate Polymers* **88**: 1334-1341.
- Siahaan, R.A., Nurminah, M. dan Lubis, Z. (2021). Cookies from composite flour and starch (mocaf, breadfruit flour, orange sweet potato flour, breadfruit starch



and orange sweet potato starch). IOP Conference Series: Earth and Environmental Science **782**: 032077, Medan.

Siepmann, J. dan Siepmann, F. (2008). Mathematical modeling of drug delivery. *International Journal of Pharmaceutics* **364**: 328–343.

Siepmann, J. dan Siepmann, F. (2012). Modeling of diffusion controlled drug delivery. *Journal of Controlled Release* **161**: 351–362.

Sievert, D. dan Wursch, P. (1993). Amylose chain association based on differential scanning calorimetry. *Journal of Food Science* **58**: 1332-1334.

Sikarwar, M.S., Hui, B.J., Subramaniam, K., Valeisamy, B.D., Yean, L.K. dan Balaji, K. (2014). A Review on *Artocarpus altilis* (Parkinson) Fosberg (breadfruit). *Journal of Applied Pharmaceutical Science* **8**: 91-97.

Singh, N., Singh, J., Kaur, L., Singh Sodhi, N. dan Singh Gill, B. (2003). Morphological, thermal and rheological properties of starches from different botanical sources. *Food Chemistry* **81**: 219-231.

Singh, G., Maurya, S., DeLampasona, M.P. dan Catalan, C.A.N. (2007). A comparison of chemical, antioxidant and antimicrobial studies of cinnamon leaf and bark volatile oils, oleoresins and their constituents. *Food and Chemical Toxicology* **45**: 1650-1661.

Siswoyo, T.A. dan Morita, N. (2010). Influence of annealing on gelatinization properties, retrogradation and susceptibility of breadfruit starch (*Artocarpus communis*). *International Journal of Food Properties* **13**: 553–561.

Sivakumar, Gowder, J.T. dan Devaraj, H. (2006). Effect of the food flavour cinnamaldehyde on the antioxidant status of rat kidney. *Basic & Clinical Pharmacology & Toxicology* **99**: 379–382.

Sjoo, M., Emek, S.C., Hall, T., Rayner, M. dan Wahlgren, M. (2015). Barrier properties of heat-treated starch Pickering emulsions. *Journal of Colloid and Interface Science* **450**: 182-188.

Soltys, A., Hronsky, V., Smidova, N., Olcak, D., Ivanic, F. dan Chodak, I. (2019). Solid-state <sup>1</sup>H and <sup>13</sup>C NMR of corn starch plasticized with glycerol and urea. *European Polymer Journal* **117**: 19–27.



- Song, D., Thio, Y.S. dan Deng, Y. (2011). Starch nanoparticle formation via reactive extrusion and related mechanism study. *Carbohydrate Polymers* **85**: 208-214.
- Song, X., Pei, Y., Qiao, M., Ma, F., Ren, H. dan Zhao, Q. (2015). Preparation and characterizations of Pickering emulsions stabilized by hydrophobic starch particles. *Food Hydrocolloid* **45**: 256–263.
- Sperling, L.H. (2006). *Introduction to physical polymer science*, 4<sup>th</sup> edn. John Wiley & Sons, Inc, New Jersey.
- Sun, Q. (2018). Starch Nanoparticles. Dalam: Sjoo, M. dan Nilsson, L. (ed.). *Starch in Food: Structure, function, and applications*, 2<sup>nd</sup> edn, hal 691-746. Woodhead Publishing, United Kingdom.
- Sun, H., Li, S., Chen, S., Wang, C., Liu, D. dan Li, X. (2020). Antibacterial and antioxidant activities of sodium starch octenylsuccinate-based Pickering emulsion films incorporated with cinnamon essential oil. *International Journal of Biological Macromolecules* **159**: 696-703.
- Suryanti, V., Wibowo, F.R., Khotijah, S. dan Andalucki, N. (2018). Antioxidant Activities of Cinnamaldehyde Derivatives. IOP Conference Series: Materials Science and Engineering 333: 012077. Surakarta.
- Sutaphit, P. dan Chitprasert, P. (2014). Optimisation of microencapsulation of holy basil essential oil in gelatin by response surface methodology. *Food Chemistry* **150**: 313–320.
- Tadros, T. (2004). Application of rheology for assessment and prediction of the longterm physical stability of emulsions. *Advances in Colloid and Interface Science* **108-109**: 227-258.
- Tampau, A., Gonzalez-Martinez, C. dan Chiralt, A. (2018). Release kinetics and antimicrobial properties of carvacrol encapsulated in electrospun poly-(ε-caprolactone) nanofibres. Application in starch multilayer films. *Food Hydrocolloids* **79**: 158-169.
- Tan, Y., Xu, K., Niu, C., Liu, C., Li, Y., Wang, P. dan Binks, B.P. (2014). Triglyceride-water emulsions stabilized by starch-based nanoparticles. *Food Hydrocolloids* **36**: 70-75.



- Tan, X., Li, X., Chen, L., Xie, F., Li, L. dan Huang, J. (2017). Effect of heat-moisture treatment on multi-scale structures and physicochemical properties of breadfruit starch. *Carbohydrate Polymers* **161**: 286–294.
- Tang, M.C. dan Copeland, L. (2007). Analysis of complexes between lipids and wheat starch. *Carbohydrate Polymers* **67**: 80–85.
- Tappiban, P., Smith, D.R., Triwitayakorn, K. dan Bao, J. (2019). Recent understanding of starch biosynthesis in cassava for quality improvement: A review. *Trends in Food Science and Technology* **83**: 167–180.
- Tavernier, I., Wijaya, W., Van der Meer, P., Dewettinck, K. dan Patel, A.R. (2016). Food-grade particles for emulsion stabilization - Review. *Trends in Food Science & Technology* **50**: 159–174.
- Tennesen, H.H., Karlsen, J. dan van Henegouwen, G.B. (1986). Studies on curcumin and curcuminoids. VIII. Photochemical stability of curcumin. *Zeitschrift für Lebensmittel Untersuchung und Forschung* **183**: 116–122.
- Tennesen, H.H., Másson, M. dan Loftsson, T. (2002). Studies of curcumin and curcuminoids. XXVII. Cyclodextrin complexation: Solubility, chemical and photochemical stability. *International Journal of Pharmaceutics* **244**: 127–135.
- Tester, R.F., Karkalas, J. dan Qi, X. (2004). Starch—composition, fine structure and architecture. *Journal of Cereal Science* **39**: 151–165.
- Tetlow, I.J. dan Emes, M.J. (2014). A review of starch-branching enzymes and their role in amylopectin biosynthesis. *IUBMB Life* **66**: 546–558.
- Thomas, D.J. dan Atwell, W.A. (1999). *Starches*. Eagan Press, United states.
- Thomas, J. dan Duethi, P.P. (2001). Cinnamon. Dalam: Peter, K.V. (ed.). *Handbook of herbs and spices*, hal 70018-70024. Woodhead Publishing Limited, Cambridge.
- Thomas, J. dan Kuruvilla, K.M. (2012). Cinnamon. Dalam: *Handbook of herbs and spices*, hal. 182-196. Woodhead Publishing Limited, Cambridge.
- Tikekar, R.V., Pan, Y. and Nitin, N. (2013). Fate of curcumin encapsulated in silica nanoparticle stabilized Pickering emulsion during storage and simulated digestion. *Food Research International* **51**: 370-377.



- Timgren, A., Rayner, M., Sjoo, M. dan Dejmek, P. (2011). Starch particles for food based Pickering emulsions. *Procedia Food Science* **1**: 95–103.
- Tufvesson, F. dan Eliasson, A-C. (2000). Formation and crystallization of amylose-monoglyceride complex in a starch matrix. *Carbohydrate Polymers* **43**: 359-365.
- Tufvesson, F., Wahlgren, M. dan Eliasson, A-C. (2003). Formation of amylose-lipid complexes and effects of temperature treatment. Part 1. Monoglycerides. *Starch/Stärke* **55**: 61-71.
- Tumaalii, F. dan Wootton, M. (1988). Properties of starches isolated from Western Samoan breadfruit using a traditional method. *Starch/Stärke* **40**: 7–10.
- Tunç, S. dan Duman, O. (2011). Preparation of active antimicrobial methyl cellulose/carvacrol/montmorillonite nanocomposite films and investigation of carvacrol release. *LWT - Food Science and Technology* **44**: 465–472.
- Uragoda, C.G. (1984). Asthma and other symptoms in cinnamon workers. *British Journal of Industrial Medicine* **41**: 224-227.
- Van Haute, S., Raes, K., Van der Meeren, P. dan Sampers, I. (2016). The effect of cinnamon, oregano and thyme essential oils in marinade on the microbial shelf life of fish and meat products. *Food Control* **68**: 30-39.
- Vangalapati, M., Sree Satya, N., Surya Prakash, D. dan Avanigadda, S. (2012). A review on pharmacological activities and clinical effects of cinnamon species. *Research Journal of Pharmaceutical, Biological and Chemical Sciences* **3**: 653–663.
- Vasanthan, T. dan Hoover, R. (1992). A comparative study of the composition of lipids associated with starch granules from various botanical sources. *Food Chemistry* **43**: 19–27.
- Vasanthan, T. dan Bhatty, R.S. (1996). Physicochemical properties of small- and large- granule starches of waxy, regular, and high amylose barleys. *Cereal Chemistry* **73**: 199–207.
- Vos, P., Faas, M.M., Spasojevic, M. dan Sikkema, J. (2010). Review: Encapsulation for preservation of functionality and targeted delivery of bioactive food components. *International Dairy Journal* **20**: 292-302.



- Waigh, T.A., Kato, K.L., Donald, A.M., Gidley, M.J., Clarke, C.J. dan Riekel, C. (2000). Side-chain liquid-crystalline model for starch. *Starch/Stärke* **52**: 450–460.
- Walker, R.M., Gumus, C.E., Decker, E.A. dan McClements, D.J. (2017). Improvements in the formation and stability of fish oil-in-water nanoemulsions using carrier oils: MCT, thyme oil, & lemon oil. *Journal of Food Engineering* **211**: 60-68.
- Wandrey, C., Bartkowiak, A. dan Harding, S.E. (2009). Materials for Encapsulation. Dalam: Zuidam, N.J. dan Nedovic, V.A. (ed.). *Encapsulation Technologies for Food Active Ingredients and Food Processing*. Springer, Netherlands.
- Wang, Y.J., Truong, V.D. dan Wang, L. (2003). Structures and rheological properties of corn starch as affected by acid hydrolysis. *Carbohydrate Polymers* **52**: 327–333.
- Wang, X., Chen, L., Li, X., Xie, F., Liu, H. dan Yu, L. (2011). Thermal and Rheological Properties of Breadfruit Starch. *Journal of Food Science* **76**: 55-61.
- Wang, M.S., Chaudhari, A., Pan, Y., Young, S. dan Nitin, N. (2014). Controlled release of natural polyphenols in oral cavity using starch Pickering emulsion. *MRS Online Proceedings Library* **1688**: 7-11.
- Wang, L.J., Hu, Y.Q., Yin, S.W., Yang, X.Q., Lai, F.R. dan Wang, S.Q. (2015). Fabrication and characterization of antioxidant pickering emulsions stabilized by zein/chitosan complex particles (ZCPs). *Journal of Agricultural and Food Chemistry* **63**: 2514–2524.
- Wang, S., Wang, J., Yu, J. dan Wang, S. (2016). Effect of fatty acids on functional properties of normal wheat and waxy wheat starches: A structural basis. *Food Chemistry* **190**: 285–292.
- Wang, Y., Zhang, Y., Shi, Y-q., Pan, X-h., Lu, Y-h. dan Cao, P. (2018). Antibacterial effects of cinnamon (*Cinnamomum zeylanicum*) bark essential oil on *Porphyromonas gingivalis*. *Microbial Pathogenesis* **116**: 26-32.



- Wasan, D.T., Nikolov, A.D. dan Aimetti, F. (2004). Texture and stability of emulsions and suspensions: role of oscillatory structural forces. *Advances in Colloid and Interface Science* **108/109**: 187-195.
- Wiley, R.M. (1954). Limited coalescence of oil droplets in coarse oil-in-water emulsions. *Journal of Colloid Science* **9**: 427–437.
- Wirakartakusumah, M.A. (1981). Kinetics of starch gelatinization and water absorption in rice (Ph.D. thesis). Department of Food Science, University of Wisconsin, Madison, Wisconsin.
- Wooster, T.J., Golding, M. dan Sanguansri, P. (2008). Impact of oil type on nanoemulsion formation and Ostwald ripening stability. *Langmuir* **24**: 12758–12765.
- Wu, X., Chang, Y., Fu, Y., Ren, L., Tong, J. dan Zhou, J. (2016). Effects of non-solvent and starch solution on formation of starch nanoparticles by nanoprecipitation. *Starch/Stärke* **68**: 258–263.
- Xiao, J., Li, C. dan Huang, Q. (2015). Kafirin nanoparticle-stabilized pickering emulsions as oral delivery vehicles: Physicochemical stability and in vitro digestion profile. *Journal of Agricultural and Food Chemistry* **63**: 10263–10270.
- Xiao, J., Li, Y. dan Huang, Q. (2016a). Recent advances on food-grade particles stabilized Pickering emulsions: Fabrication, characterization and research trends. *Trends in Food Science and Technology* **55**: 48–60.
- Xiao, J., Wang, X.A., Perez Gonzalez, A.J. dan Huang, Q. (2016b). Kafirin nanoparticles stabilized Pickering emulsions: Microstructure and rheological behavior. *Food Hydrocolloids* **54 (Part A)**: 30–39.
- Xu, T., Gao, C., Yang, Y., Shen, X., Huang, M., Liu, S. dan Tang, X. (2018). Retention and release properties of cinnamon essential oil in antimicrobial films based on chitosan and gum arabic. *Food Hydrocolloids* **84**: 84–92.
- Yamamoto, H., Isozumi, N. dan Sugitani, T. (2005). A concavity property of the viscosity growth curve during alkali gelatinization of rice starch. *Carbohydrate Polymers* **62**: 379–386.



- Yamamoto, H., Makita, E., Oki, Y. dan Otani, M. (2006). Flow characteristics and gelatinization kinetics of rice starch under strong alkali conditions. *Food Hydrocolloids* **20**: 9-20.
- Yamamoto, H., Sawai, N. dan Seo, K. (2013). Classification and kinetic analysis of viscosity growth processes for NaOH-gelatinized rice starches. *Carbohydrate Polymers* **97**: 558–564.
- Yamamoto, H. (2017). Nonuniform kinetic method applied to evolutionary process of a rate constant in NaOH-gelatinization of rice starch. *Food Hydrocolloids* **73**: 141-152.
- Yang, K., Liu, A., Hu, A., Li, J., Zen, Z., Liu, Y., Tang, S. dan Li, C. (2021). Preparation and characterization of cinnamon essential oil nanocapsules and comparison of volatile components and antibacterial ability of cinnamon essential oil before and after encapsulation. *Food Control* **123**: 107783.
- Yano, H., Fukui, A., Kajiwara, K., Kobayashi, I., Yoza, K., Satake, A. dan Villeneuve, M. (2017). Development of gluten-free rice bread: Pickering stabilization as a possible batter-swelling mechanism. *LWT-Food Science and Technology* **79**: 632–639.
- Yao, M., Xiao, H. dan McClements, D.J. (2014). Delivery of lipophilic bioactives: assembly, disassembly, and reassembly of lipid nanoparticles. *Annual Review of Food Science and Technology* **5**: 53-81.
- Ye, F., Miao, M., Jiang, B., Campanella, O.H., Jin, Z. dan Zhang, T. (2017). Elucidation of stabilizing oil-in-water Pickering emulsion with different modified maize starch-based nanoparticles. *Food Chemistry* **229**: 152–158.
- Yoo, S-H. dan Jane, J. (2002). Structural and physical properties of waxy and other wheat starches. *Carbohydrate Polymers* **49**: 297–305.
- Zeeman, S.C., Kossmann, J. dan Smith, A.M. (2010). Starch: Its metabolism, evolution, and biotechnological modification in plants. *Annual Review of Plant Biology* **61**: 209–234.
- Zhang, B., Huang, Q., Luo, F. dan Fu, X. (2012). Structural characterizations and digestibility of debranched high-amylose maize starch complexed with lauric acid. *Food Hydrocolloids* **28**: 174–181.



- Zhang, R. dan McClements, D.J. (2016). Enhancing nutraceutical bioavailability by controlling the composition and structure of gastrointestinal contents: Emulsion-based delivery and excipient systems. *Food Structure* **10**: 21–36.
- Zhou, L., Nyberg, K. dan Rowat, A.C. (2015). Understanding diffusion theory and Fick's law through food and cooking. *Advances in Physiology Education* **39**: 192-197.
- Zhou, W., Song, J., Zhang, B., Zhao, L., Hu, Z. dan Wang, K. (2019). The impacts of particle size on starch structural characteristics and oil-binding ability of rice flour subjected to dry heating treatment. *Carbohydrate Polymers* **223**: 115053.
- Zhu, F. (2017). NMR spectroscopy of starch systems. *Food Hydrocolloids* **63**: 611-624.
- Zhu, F. (2019). Starch based Pickering emulsions: Fabrication, properties, and applications - Review. *Trends in Food Science and Technology* **85**: 129–137.
- Zuhra, C.F., Gea, S., Ginting, M., Marpongahtun dan Lenny, S. (2018). Acetylation of breadfruit starch by using acetic anhydride. IOP Conference Series: Journal of Physics: Conference Series **1116**: 042047, Medan.
- Zuhra, C.F. dan Amanda, V.F. (2021). Preparation and characterization edible film from native breadfruit (*Artocarpus altilis*) starch and breadfruit starch. AIP Conference Proceedings **2342**: 030005, Medan.