

## V. KESIMPULAN DAN SARAN

### 5.1. Kesimpulan

- a. *Starch particles* 1(SP1) dan SP2 masing-masing berukuran rata-rata 9,698  $\mu\text{m}$  dan 179,27  $\mu\text{m}$  menghasilkan nilai *creaming index* (CI) dan viskositas yang lebih rendah pada SP1.
- b. Penambahan konsentrasi SP jagung yang semakin tinggi dapat menurunkan nilai CI dan meningkatkan viskositas susu kacang tanah.
- c. Konsentrasi SP jagung yang tersarang pada ukuran diameter SP memberikan pengaruh nyata terhadap nilai CI dan viskositas susu kacang tanah.

### 5.2. Saran

Diameter SP yang dihasilkan belum mencapai ukuran nanometer sehingga masih perlu penelitian lebih lanjut supaya bisa menghasilkan pati berukuran nanometer seperti mengurangi jumlah HCl. Selain itu dapat ditambahkan beberapa parameter seperti pengukuran nilai zeta potensial untuk mengetahui gaya elektrostatisnya yang berkaitan dengan kecenderungan partikel untuk agregasi dan sudut kontak antara partikel-fase air-fase minyak untuk mengetahui tingkat hidrofobisitas SP.

## DAFTAR PUSTAKA

- Abdjul, S. N. L. (2017). Perbandingan Tepung Kacang Tanah dengan Tepung Ubi Jalar Merah dan Suhu Pemanggangan Terhadap Karakteristik Biskuit, *Skripsi S-1*, Fakultas Teknik, Universitas Pasundan, Bandung.
- Adhika D. R., Anindyam, A. L., Tanuwijaya, V. V., Rachmawati, H. (2018, Desember). Teknik Pengamatan Sampel Biologi dan Non-Konduktif Menggunakan Scanning Electron Microscopy, *Seminar National Instrumental, Kontrol, dan Otomasi*. Bandung, 10-11 Desember 2018
- Ahmad, M., Gani, A., Hassan, I., Huang, Q., Shabbir, H. (2020). Production and Characterization of Starch Nanoparticles by Mild Alkali Hydrolysis and Ultra-Sonication Process. *Scientific Reports*, 10, 1-11
- Ahmad, M., Mudgil, P., Gani, A., Hamed, F., Masoodi, F. A., Maqsood S. (2019). Nano Encapsulation of Catechin in Starch Nanoparticles: Characterization: Release Behavior and Bioactivity Retention During *in-vitro* Digestion, *Food Chemistry*, 270, 95-104
- Aidah, S. N. & Tim Penerbit KBM Indonesia. (2020). *Ensiklopedi Kacang Tanah*. Penertbit KBM Indonesia
- Badan Standardisasi Nasional. 1995. SNI Susu Kedelai. *SNI 01-3830-1995: Susu Kedelai* [https://kupdf.net/download/sni-01-3830-1995-susu-Kedelai\\_pdf](https://kupdf.net/download/sni-01-3830-1995-susu-Kedelai_pdf). Tanggal akses 16 Agustus 2021.
- Chen, Q., Gruber, H., Pakenham, C., Ratnayake, W. M. N., Scoggan, K. A. (2009). Dietary Phytosterols and Phytostanols Alter the Expression of Sterol-Regulatory Genes in SHRSP and WKY Inbred Rats, *Annals of Nutrition and Metabolism*. 55, 341-350
- Choi, H. D, Hong, J. S., Pyo, S. M., Ko, E. B., Shin, H. Y., Kim. J. Y. (2020). Starch Nanoparticles Produced via Acidic Dry Heat Treatment as A Stabilizer for A Pickering Emulsion: Influence of the Physical Properties of Particles. *Carbohydrate Polymers*, 239, 1-7
- Gama, A. P, Hung, Y. C., Adhikari, K. (2019). Optimization of Emulsifier and Stabilizer Concentrations in a Model Peanut-Based Beverage System: A Mixture Design Approach. *Foods*, 8(4), 1-11

- Hispratin, Y. & Nuwarda, R. F. (2018). Review: Perbedaan Emulsi dan Mikroemulsi Pada Minyak Nabati. *Farmaka Suplemen*, 16(1), 133-140
- Hosseini, A., Jafari, S. M., Mirzaei, H., Asghari, A., Akhavan, S. (2015). Application of Image Processing to Assess Emulsion Stability and Emulsification Properties of Arabic Gum. *Carbohydrate Polymers*, 126, 1-8
- Johnstone, M. & Campbell, B. J. (2019). Food additives, Assessing the Impact of Exposure to Permitted Emulsifiers on Bowel and Metabolic Health – Introducing the FADiets Study. *Nutrition Bulletin*, 44: 329–349.
- Li, C., Li, Y., Sun, P., Yang, C. (2013). Pickering Emulsions Stabilized by Native Starch Granules. *Colloids and Surfaces A: Physicochemical and Engineering Aspect*, 431, 142-149
- Liu, Y., Xie, H., Shi, M. (2015). Effect of Ethanol-Water Solution on The Crystallization of Short Chain Amylose From Potato Starch. *Starch*, 68(7), 683-690
- Marefati, A. (2018). Starch Pickering Emulsion: Process and Encapsulation Stability, *PhD Dissertation*, Department of Food Technology, Lund University, Sweden.
- Masruroh, H., Masruroh, U. D., Nugraheni, F. S., Paramita, V. (2018). Analisa Kadar Lemak Dalam Susu Perah Sapi menggunakan Gaya Sentrifugasi. *Jurnal Metana*, 14(1), 25-30
- Matos, M., Marefati, A., Gutierrez, G., Wahlgren, M., Rayner, M. (2016). Comparative Emulsifying Properties of Octenyl Succinic Anhydride (OSA)-Modified Starch: Granular Form vs Dissolved State. *PLOS ONE*, 1, 1-16
- Miskeen, M., Park, E. Y., Kim, J. Y. (2018). Controlled Fragmentation of Starch Into Nanoparticles Using A Dry Heating Treatment Under Mildly Acidic Conditions. *International Journal of Biological Macromolecules*, 123, 810-816
- Mulja, M. G., Sargiman, K., Rochiman, T., & Susanto. (2004). Penetapan Kadar Asam-asam Lemak Pada Biji Kacang Tanah dengan Metode Kromatografi Gas. *Airlangga Journal of Pharmacy*, 4(2), 1-7
- Pawlik, A. K., Fryer, P. J., Norton, I. T. (2013). *Formulation Engineering of Foods*. Wiley Blackwell
- Pratita, N. (2012). Isolasi dan Identifikasi Kapang Mikotoksin Pada Biji Kacang Tanah yang Dijual Di Pasar Tradisional Pulo

- Brayan Medan, *Skripsi S-I*, Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Negeri Medan, Medan.
- Pudjihastuti, I. & Sumardiono, S. (2011, Februari). Pengembangan Proses Inovatif Kombinasi Reaksi Hidrolisis Asam dan Reaksi Photokimia UV untuk Produksi Pati Termomodifikasi dari Tapioka. *Prosiding Seminar Nasional Teknik Kimia Kejuangan*, Yogyakarta, 22 Februari 2011, 1-6.
- Putri, W. D. R. & Zubaidah, E. (2017). Pati, Modifikasi dan Karakterisasinya. Tim UB Press
- Rayner, M., Marku, D., Eriksson, M., Sjoo, M., Dejmek, P., Wahlgren, M. (2014). Biomass-based Particles for The Formulation of Pickering Type Emulsions in Food and Topical Applications, *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 458, 48-62
- Rayner, M., Tingren, A., Sjoo, M., Dejmek, P. (2012). Quinoa Starch Granules: A Candidate for Stabilising Food-grade Pickering Emulsions. *Journal of the Science of Food and Agriculture*, 92(9), 1841-1947
- Restu, W. K., Sampora, Y., Meliana, Y., Haryono, A. (2015). Effect of Accelerated Stability Test on Characteristics of Emulsion Systems with Chitosan as a Stabilizer. *Procedia Chemistry*, 16, 171-176
- Sandhu, K. S. & Singh, N. (2007). Some Properties of Corn Starches II: Physicochemical, Gelatinization, Retrogradation, Pasting and Gel Textural Properties. *Food Chemistry*, 101, 1499-1507
- Santoso, H. & Moulina, M. A. (2017). Analisis Mutu Susu Tempe Dengan Variasi Jenis Kacang dan Zat Penstabil. *Agritepa*, 4(1), 38-52
- Sethi, S., Tyagi, S. K., Anurag, R. K. (2016). Plant-based Milk Alternatives An Emerging Segment of Functional Beverages: A Review. *Journal of Food Science Technology*, 53, 3408-3423
- Siddeeg, A., Salih, Z. A., Ammar, A. F., Saeed, N. S. M., Howladar, S. M., Alzahrani, F. O. (2020). Production of Peanut Milk and Its Functional, Pysiochemical, Nutritional and Sensory Characteristics. *Annual Research and Review in Biologi*, 35(8), 79-88
- Singh, J., Kaur, L., Singh. H., (2013). Food Microstructure and Starch Digestion, *Advances in Food and Nutrition Research*, 70, 137-179

- Sono, R., Sakamoto, S., Hamaguchi, N., Tebayashi, S., Kim, C. S., Koh, H. S.m & Horiike, M. (2002). Heat Deterioration of Phospholipids. II. Isolation and Identification of New Thermally Deteriorated Products from Soybean Lecithin. *Journal of Oleo Science*, 51(3), 191-202.
- Todica, M., Nagy, E. M., Niculaescu, C., Stan, O., Cioica, N., Pop, C. V. (2016). XRD Investigation of Some Thermal Degraded Starch Based Materials. *Journal of Spectroscopy*, 2016, 1-6
- Vaclavic, V. A & Christian, E. W. (2007). *Essentials of Food Science*. Texas: Springer
- Wijayanto, S. O. & Bayuseno, A. P. (2014). Analisis Kegagalan Material Pipa *Ferrule Nickel Alloy* N06025 Pada *Waste Heat Boiler* Akibat Suhu Tinggi Berdasarkan Pengujian: Mikrografi dan Kekerasan. *Jurnal Teknik Mesin*, 2(1), 33-39
- Winarno, F. G., (2003). *Kimia Pangan dan Gizi*. Jakarta: Gramedia Pustaka Utama
- Xiao, J., Li, Y., Huang, Q. (2016). Recent Advances on Food-grade Particles Stabilized Pickering Emulsions: Fabrication, Characterization and Research Trends, *Trends in Food Science and Technology*, 55, 48-60
- Yang, Y., Fang, Z., Chen, X., Zhang, W., Xie, Y., Chen, Y., Liu, Z., Yuan, W. (2017). An Overview of Pickering Emulsions: Solid-Particle Materials, Classification, Morphology, and Applications, *Frontiers in Pharmacology*, 8(287), 1-20
- Zhu, F. (2019). Starch Based Pickering Emulsions: Fabrication Properties, and Applications, *Trends in Food Science and Technology*, 85, 129-137.