

DAFTAR PUSTAKA

- Abdikheibari, S., Parvizi, R., Moayed, M. H., Zebarjad, S. M., dan Sajjadi, S. A. 2015. Beeswax-Colophony Blend: A Novel Green Organic Coating for Protection of Steel Drinking Water Storage Tanks. *Metals*, Vol. 5: 1645-1664.
- Abdolmaleki, K., Alizadeh, L., Nayebzadeh, K., Hosseini, S. M., & Shahin, R. (2020). Oleogel production based on binary and ternary mixtures of sodium caseinate, xanthan gum, and guar gum: Optimization of hydrocolloids concentration and drying methode. *Journal of Texture Studies*, 51(2), 290-299. <https://doi.org/10.1111/jtxs.12469>
- Abdollahi, M., Sayed, A. H. G., & Nafiseh, S. 2019. Physicochemical properties of foam-templated oleogel based on gelatin and xanthan gum. *European Journal Lipid Science and Technology*. DOI: 10.1002/ejlt.201900196
- Albrand, P., Carine, J., Florian, V., & Anne-Marie, B. (2021). Sunflower oil hydrogenation mechanism and kinetics. *Chemical Engineering Journal*, 420.
- Alvarez-Ramirez, J., Vernon-Carter, E. J., Carrera-Tarela, Y., Garcia, A., & Roldan-Cruz, C. 2020. Effects of candelilla wax/canola oil oleogel on the rheology, texture, thermal properties and in vitro starch digestibility of wheat sponge cake bread. *LWT*, 130. <https://doi.org/10.1016/j.lwt.2020.109701>
- AOCS. AOCS Official Method Cd 3d-63 acid value.
- AOCS. AOCS Official Method Cd 8-53 peroxide value – acetic acid – chloroform method.
- Aryana, K.J. A.V.A Resurreccion, M.S. Chinnan, & L.R. Beuchat. (2003). Functionality of palm oil as a stabilizer in peanut butter. *Journal of Food Science*, Vol. 68(4): 1301-1307.
- Blake, A. I., Edmund, D. Co., & Alejandro, G. M. (2014). Structure and physical properties of plant wax crystal networks and their relationship to oil binding capacity. *Journal Am Oil Chem Soc*.

- Bogdanov, S. 2016. *Bee Product Science*. Muehlethurnen.
- Buchwald, R., Michael, D. B., Louis, B., Bruce, E. H., & Alan, R. G. 2009. The role of fatty acids in the mechanical of beeswax. *Apidologie*, Vol. 40: 585-594.
- Chauhan, Pranav & Pradhan, Soubhagya & Bandyopadhyay, Samiran & Das, Arun. (2018). Inhibition of lipid and protein oxidation in raw ground pork by Terminalia arjuna fruit extract during refrigerated storage. *Asian Australasian Journal of Animal Sciences*. 32. 10.5713/ajas.17.0882.
- Chaves, K.F., Arellano, D.B., & Ribeiro, A.P.B. 2018. Potential Application of Lipid Organogels for Food Industry. *Food Research International*, Vol. 105: 863-872.
- Clark. (2003).
<https://www.mashed.com/232864/why-you-might-want-to-throw-away-your-peanut-butter-if-it-has-this-ingredient/>
- Co, E.D., dan Marangoni, A.G. 2012. Organogels: An Alternative Edible Oil-Structuring Method. *Journal of the American Chemical Society*, Vol. 89: 749-780.
- Dassanayake, L. S. K., Dharma, R. K., Ueno, S., Sato, K. 2009. Physical properties of rice bran wax in bulk and organogels. *J Am Oil Chem*, Vol. 86: 1163-1173.
- Davidovich-Pinhas, M. 2018. Oleogels. *Polymeric Gels*, 231-249.
- Demirkesen, I. dan Mert, B. 2019. Utilization of Beeswax Oleogel-Shortening Mixtures in Gluten-Free Bakery Products. *Critical Reviews in Foods Science and Nutrition*, Vol. 60(14): 2460-2479.
- Doan, C. D., To, C. M., De Vrieze, M., Lynen, F., Danthine, S., Brown, A., & Patel, A. R. 2017a. Chemical profiling of the major components in natural waxes to elucidate their role in liquid oil structuring. *Food Chemistry*, 214:717-725.
- Doan, C. D., Iris, T., Sabine, D., Tom, R., & Koen, D. 2017b. Physical

- compatibility between wax esters and triglycerides in hybrid shortenings and margarines prepared in rice bran oil. *J Sci Food Agric*. DOI: 10.1002/jsfa.8553
- EFSA. (2007). Beeswax (E 901) as a glazing agent and as carrier for flavours. Scientific opinion of the panel on food additives, flavourings, processing aids and materials in contact with food (afc) on a request from the commission on the safety in use of beeswax. *EFSA J* 615:1–28.
- Fatmala, R. 2022. Efek penyimpanan terhadap oksidasi selai kacang tanah oleogelasi menggunakan *beeswax*. *Skripsi*. Repository UGM.
- FDA. (2014). Water activity in Foods.
- Fratini, F., Giovanni, C., Barbara, T., & Antonio, F. 2016. Beeswax: a minireview of its antimicrobial activity and its application in medicine. *Asian Pacific Journal of Tropical Medicine*, Vol. 9(9): 839-843.
- Frolova, Y. V., Sobolev, R. V., Sarkisyan, V. A. & Kochetkova, A. A. 2021. Approches to study the oxidative stability of oleogels. *IOP Conference Science: Earth and Enviromental Science*, Vol: 677.
- FSSAI. 2020. Food Safety and Standards (Foods Products Standards and Food Additives) Regulations, 2011. Compendium of Food Additives Regulations.
- Gao, Y., Yujie, L., Yuehan, W., Hongshan, L., Jing, L., Yan, L., Bin, L., Xiaogang, L., & Shinlin, L. 2021a. Beeswax: A potential self-emulsifying agent for the construction of thermal-sensitive food W/O emulsion. *Food Chemistry*, Vol. 349.
- Gao, Y., Minghua, L., Li, Z., Zhuo, W., Qunli, Y., & Ling, H. 2021b. Preparation of rapeseed oil oleogels based on beeswax and its application beef heart patties to replace animal fat. *LWT-Food Science and Technology*, 149, 111986. doi: 10.1016/j.lwt.2021.111986
- Ghazani, S. M., Stacie, D., & Alejandro, G. M. (2022). Hardness, plasticity, and oil binding capacity of binary mixture of natural waxes in olive oil. *Food Science*, Vol. (5): 998-1008.
- Gill, P., Tahereh, T. M., & Bijan, R. 2010. Differential Scanning Calorimetry

Techniques: Applications in Biology and Nanoscience. *Journal of Biomolecular Techniques*, Vol. 21: 167-193.

- Gills, L.A. dan Resurreccion, A.V.A. 2000. Sensory and physical properties of peanut butter treated with palm oil and hydrogenated vegetable oil to prevent oil separation. *Journal of Food Science*, Vol. 65(1): 173-180.
- Gupta, Monoj K. (2017). *Practical Guide to Vegetable Oil Processing // Hydrogenation*. AOCS Press.
- Han, W., Xiuhang, C., Yuanfa, L., Yongjiang, X., Ching-Ping, T. 2022. Crystal network structure and stability of beeswax-based oleogels with different polyunsaturated fatty acid oils. *Food Chemistry*, Vol. 381
- He, Y., Li, Y., Salazar, J. K., Yang, J., Tortorello, M. L., & Zhang, W. 2013. Increased Water Activity Reduces the Thermal Resistance of Salmonella enterica in Peanut Butter. *Food Microbiology*, Vol. 79(15).
- Holey, S. A., Kanaparedu, P. C. S., Shalini, S. M., Sanjit, K., Rati, R. N. 2021. Sunflower Wax-Based oleogel emulsions: physicochemical characterizations and food applications. *ACS Food Science and Technology*, Vol. 1: 152-164.
- Huang, Z., Guo, B., Deng, C., Luo, S., Liu, C., & Hu, X. (2020). Stabilization of peanut butter by rice bran wax. *Journal of Food Science*, 85(6), 1793-1798.
- Hughes, N.E., Marangoni, A.G., Wright, A.J., Rogers, M.A., & Rush, J.W.E. 2009. Potential Food Applications of Edible Oil Organogels. *Trends in Food Science & Technology*, 20: 470-480.
- Hwang, H., Matthew, F., Jill, K. W. M., & Sean, X. L. 2018a. Oxidation of fish oil oleogels formed by natural waxes in comparison with bulk oil. *European Journal of Lipid Science and Technology*, Vol. 120(5)
- Hwang, H. S., Gillman, J. D., Winkler-Moser, J. K., Kim, S., Singh, M., Byars, J. A., dan Evangelista, R. L. 2018b. Properties of Oleogels formed with high-stearic soybean oils and sunflower wax. *JAOCs, Journal of the American Oil Chemists' Society*, Vo. 95(5): 557-569.
- Jana, S. dan Martini, S. 2014. Effect of High-Intensity Ultrasound and Cooling

Rate on the Crystallization Behavior of Beeswax in Edible Oils. *Journal of Agricultural and Food Chemistry*, Vol. 62: 10192-10202.

- Jang, A., Bae, W., Hwang, H. S., Lee, H. G. and Lee, S. 2015. Evaluation of canola oil oleogels with candelilla wax as an alternative to shortening in baked goods. *Food Chem.* 187:525–529. doi: 10.1016/j.foodchem.2015.04.110
- Juniar, V. & Wulandari, N. 2021. Sifat fisik oleogel dari minyak kelapa sawit fraksi olein dan minyak kelapa murni. *UT-Food Science and Technology*. IPB University.
- Kim, J. Y., Lim, J., Lee, J., Hwang, H. S. and Lee, S. 2017. Utilization of oleogels as a replacement for solid fat in aerated baked goods: Physicochemical, rheological, and tomographic characterization. *J. Food Sci.* 82 (2):445–452. doi: 10.1111/1750-3841.13583.
- Lee, S. (2020). Getting The Kinks Out: The End of Partially Hydrogenated Oils. <https://medium.com/swlh/getting-the-kinks-out-dc166248e185>. [Diakses 30 November 2022]
- Lodhi, M. A., Abbasi, M. A., Choudhary, M. I., dan Ahmad, V. U. 2005. Kinetics Studies on Triaccontanyl Palmitate: A Urease Inhibitor. *Natural Product Research*, Vol. 21(8): 721-725.
- Manzoor, S., Masoodi, F. A., Farah, N., & Rubiya, R. 2022. Oleogels: Promising alternatives to solid fats for food applications. *Food Hydrocolloids for Health*, Vol. 2, 100058. doi: 10.1016/j.fhfh.2022.100058
- Martins, A. J., Vicente, A. A., Cunha, R. L., dan Cerqueira, M. A. 2018. Edible Oleogels: an Opportunity for Fat Replacement in Foods. *Food and Function*, 9: 758-773.
- Martins, A. J., Cerqueira, M. A, Fasolin, L. H., Cunha, R. L., dan Vicente, A. A. 2016. Beeswax Organogels: Influence of Gelator Concentration and Oil Type in the Gelation Process. *Food Research International*, Vol. 84: 170-179.
- Mattice, K.D. dan Marangoni, A.G. 2018. *Reference module in Food Science : Oleogels in Food*. Elsevier. Canada.
- McCoy, Stephen A. (1982). *Peanut Butter Stabilizer*. United State Patent

Documents.

- Moghtadaei, M., Nafiseh, S., dan Sayed, A.H.G. (2018). Production of sesame oil oleogels based on beeswax and application as partial substitutes of animal fat in beef burger. *Food Research International*, Vol. 108: 368-377.
- Mokrzycki, W. dan Tatol, M. 2011. Color Difference Delta E- a survey. *Machine Graphics and Vision*, Vol. 20(4): 383-411.
- Öğütcü, M., & Yilmaz, E. 2014. Oleogels of virgin olive oil with carnauba wax and monoglyceride as spreadable products. *Grasas y Aceites*, 65(3). <https://doi.org/10.3989/gya.0349141>
- Öğütcü, M., Arifoğlu, N., & Yılmaz, E. 2015. Preparation and Characterization of Virgin Olive Oil-Beeswax Oleogel Emulsion Products. *Journal of the American Oil Chemists' Society*, 92(4), 459–471.
- Oh, I. K., Amoah, C., Lim, J., Jeong, S. and Lee, S. 2017. Assessing the effectiveness of wax-based sunflower oil oleogels in cakes as a shortening replacer. *LWT*, 86:430–437. doi: 10.1016/j.lwt.2017.08.021
- Olaimat, A. N., Osaili, T. M., Al-Holy, M. A., Al-Nabulsi, A. A., Obaid, R. S., Alaboudi, A. R., Ayyash, M., & Holley, R. 2020. Microbial safety of oily, low water activity food products: A review. *Food Microbiology*, Vol. 92.
- Ophardt, C. (2003). *Virtual Chembook - Hydrocarbon Boiling Points* [Online]. <http://www.elmhurst.edu/~chm/vchembook/501hcboilingpts.html> [Diakses pada 30 November 2022].
- Pan, H., Xinlei, X., Ziqi, Q., Haun, C., Xuemin, S., Shiguo, C., & Xingqian, Y. 2021. Xanthan gum-assisted fabrication of stable emulsion-based oleogel structured with gelatin and proanthocyanidins. *Food Hydrocolloids*, 115: 106596. DOI: 10.1016/j.foodhyd.2021.106596
- Paradiso, V. M., Gomes, T., Nasti, R., Caponio, F., & Summo, C. 2010. Effects of free fatty acids on the oxidative processes in purified olive oil. *Food Research International*, Vol. 43(5): 1389-1394.
- Park, H. W., Xu, J., Balasubramaniam, V. M., & Snyder, A. B. 2021. The effect of water activity and temperature on the inactivation of *Enterococcus faecium* in peanut butter during superheated steam sanitation treatment. *Food Control*, Vol. 125.

- Patel, A.R., Cludts, N., Sintang, M.D, Lesaffer, A., & Dewettinck, K. 2014. Edible Oleogels Based on Water Soluble Food Polymers: Preparation, Characterization and Potential Application. *Royal Society of Chemistry*, 5: 2833-2841
- Rozalli, N. H., Chin, N. L., & Yusof, Y. A. 2015. Particle size distribution of natural peanut butter and its dynamic rheological properties. *International Journal Food Properties*, Vol. 18(9): 1888-1894.
- Rozalli, N. H., Chin, N. L., & Yusof, Y. A. 2016. Quality changes of stabilizer-free natural peanut butter during storage. *J Food Sci Technol*, Vol. 53(1): 694-702. DOI: 10.1007/s13197-015-2006-x
- Sarkisyan, V., Roman, S., Yuliya, F., Alexey, M., Maria, M., & Alla, K. 2020. Beeswax fractions used as potential oil gelling agents. *Journal of American Oil Chemist*, Vol. 98: 281-296.
- Shibli, S., Farzana, S., Saeeda, R., Zaheer, A., & Irum, R. 2019. Chemical composition and sensory analysis of peanut butter from indigenous peanut cultivars of Pakistan. *Pakistan Journal of Agricultural Research*, Vol. 32(1): 159-169. DOI: 10.17582/journal.pjar/2019/32.1.159.169
- Sinaga, A. S. 2019. Segementasi Ruang Warna $L^* a^* b^*$. *Jurnal Mantik Penusa*, Vol. 3(1):43-46.
- Singh, D., Rezac, M. E., Pfromm, P. H. 2009. Partial Hydrogenation of Soybean Oil Minimal *Trans* Fat Production Using a Pt-Decorated Polymeric Membrane Reactor. *J Am Oil Chem Soc*, Vol. 86: 93-101. 10.1007/s11746-008-1321-z
- Sithole, T. R., Yu-Xiang, M., Zhao, Q., Hua-Min, L., & Xue-De, W. 2022. Influence of peanut varieties on the sensory quality of peanut butter. *Foods* (11). DOI: 10.3390/foods11213499
- Sobolev, R., Yu, F., Sarkisyan, V., Makarenko, M., & Kochetkova, A. 2022. Effect of beeswax and combinations of its fractions on the oxidative stability of oleogel. *Food Bioscience*, Vol. 48(101744).
- Sudarmadji, S., Bambang, H., & Suhardi. 1997. *Prosedur Analisa untuk Bahan Makanan dan Pertanian*. Liberty. Yogyakarta.
- Standar Nasional Indonesia (SNI 01-2979-1992). *Mutu dan Cara Uji Mentega*

Kacang. Jakarta.

- Stephanie. 2013. Pembuatan Selai Kacang Tanah (*Arachis Hypogaea L.*) Berbentuk Lembaran dengan Pemanfaatan Tepung Agar-agar Sebagai Texturizer. Makalah. Universitas Katolik Widya Mandala Surabaya.
- Tabel Komposisi Pangan Indonesia (2017). Kementerian Kesehatan Republik Indonesia. 2018.
- Talbot, G. 2015. Specialty Oils and Fats in Food and Nutritio: Properties, Processing, and Applications. Woodhead Publishing; 1st Edition.
- Tanti, R., Shai Barbut, & Alejandro G. M. (2016). Oil stabilization of natural peanut butter using food grade polymers. *Food Hydrocolloids*, Vol. 61: 399-408.
- Temkov, M. & Mureşan, V. Tailoring the structure of lipids, Oleogels and fat replacers by different approaches for solving the *trans*-Fat issue—A Review. *Foods*, 10, 1376. doi: 10.3390/foods10061376
- Tirgarian, B., Hoda, Y., Ali, B., Elnaz, N., Mohsen, M., & Jamshid, F. 2023. Reduced-fat chocolate spreads develop by water-in-oleogel emulsions. *Journal of Food Engineering*, 337.
- Totlani, V. M. dan Chinnan, M. S. (2007). Effect of stabilizer levels and storage conditions on texture and viscosity of peanut butter. *Peanut Science*, 34(1): 1-9.
- Vessel, M. (2019). Viscosity's Testing Role in Maintaining High-Quality Food Production. <http://coleparmer.com/tech-article/viscosity-in-food-manufacturing/>. [Diakses pada 12 Desember 2022]
- Vintiloiu, A. dan Leroux, J.C. 2008. Organogels and their use in The Drug Delivery – a review. *Journal of Controlled Release*, Vol. 125(3): 179-192.
- Wan, W., Lijuan, H., Guoqin, L., & Xinqi, L. 2014. Effect of Storage conditions on apparent viscosity of oleogel developed by β -sitosterol and lecithin with sunflower oil. *Adavanced Materials Research*, Vol. (1004-1005), 903-907.
- Winkler-Moser, J. K., Julie, A., Jeffrey, A. B., Mukti, S., & Hong-Sik, H. 2019.

Evaluation of beeswax, candelilla wax, rice bran wax, and sunflower wax as alternative stabilizers for peanut butter. *J Am Oil Chem Soc.* DOI: 10.1002/aocs.12276

Winkler-Moser, J. K., Julie, A. A., & Hong-Sik, H. 2022. Texture and flavor evaluation of peanut butter stabilized with natural wax. *Journal of Food Science*, Vol. 87(4): 1355-1916. DOI: 10.1111/1750-3841.16118

Wirawan dan Mushollaeni W. (2008). Optimasi lama *blanching* pengolahan selai kacang tanah metode regresi kuadratik. *Buana Sains*, Vol. 8 No. 1: 73-80.

Yenrina, R. 2015. *Metode Analisis Bahan Pangan dan Komponen Bioaktif*. Andalas University Press. Padang.

Yilmaz, E. & Ögütçü, Mustafa. 2014. Comparative Analysis of Olive Oil organogels Containing Beeswax and Sunflower Wax with Breakfast Margarine. *Journal of Food Science*, Vol. 79(9): 1732-1738.

Zhang, R., Zhang, T., Hu, M., Xue, Y., dan Xue, C. 2021. Effect of Oleogels Prepared With Fish Oil and Beeswax on the Gelation Behaviors of Protein Recovered from Alaska Pollock. *LWT: Food Science and Technology*, Vol. 137.

Zetzi, A. K. dan Marangoni, A. G. 2011. Novel Strategies for Nanostructuring Liquid Oils into Functional Fats. *Edible Oleogels: Structure and Health Implications*. America.