

DAFTAR PUSTAKA

- [FAO/WHO] Food Agricultural Organization/ World Health Organization. 2006. *Probiotic in Food, Health and Nutritional Properties and Guidelines for Evaluation*. p. 1-18.
- Ahirrao, S. P., Gide, P. S., Shrivastav, B., and Sharma, P. 2013. Ionotropic Gelation: A Promising Cross Linking Technique for Hydrogels. *Research and Review: Journal of Pharmaceutics and Nanotechnology*, Vol. 2(1).
- Ahmed, Shakeel. 2019. *Alginates: Applications in The Biomedical and Food Industries*. p. 3-6,
- Allen. 2009. *Handbook of Pharmaceutical Excipients*. Sixth Edition. Rowe R. C., Sheskey, P. J., and Queen, M. E., (Editor). London: Pharmaceutical Press and American Pharmacists Assosiation. p. 622-624.
- Bakry, A. M., Abbas, S., Ali, B., Majeed, H., Abouelwafa, M. Y., Mousa, A., and Liang, Li. 2016. Microencapsulation of Oils: A Comprehensive Review of Benefits, Techniques, and Applications. *Comprehensive Reviews in Food Science and Food Safety*, 15(1), p. 143–182.
- Basu, S., Banerjee, D., Chowdhury, R., and Bhattacharya, P. 2018. Controlled Release of Microencapsulated Probiotics in Food Matrix. *Journal of Food Engineering*, p. 1-25.
- Bidoret, A., Martins, E., Poncelet De Smet, B., and Poncelet, D. 2017. Cell Microencapsulation: Dripping Methods. Opara, E. C (Editor). *Cell Microencapsulation: Methods and Protocols*.
- Burgain, J., Gaiani, C., Linder, M., and Scher, J. 2011. Encapsulation of Probiotic Living Cells: From Laboratory Scale to Industrial

- Applications. *Journal of Food Engineering*, 104. p. 467-483.
- Chuang, J. J., Huang, Y. Y., Lo, S. H., Hsu, T. F., Huang, W.Y., Huang, S. L., and Lin, Y. S. 2017. Effects of pH on the Shape of Alginate Particles and Its Release Behavior. *International Journal of Polymer Science*, 2017, p. 1–9.
- Coghetto, C. C., Brinques, G. B., Siqueira, N. M., Pletsch, J., Soares, R. M. D., Ayub, M. A. Z. 2016. Electrospraying Microencapsulation of *Lactobacillus plantarum* Enhances Cell Viability Under Refrigeration Storage and Simulated Gastric and Intestinal Fluids. *Journal of Functional Foods*, Vol. 24, p. 316-326.
- Cremon, C., Barbaro¹, M. R., Ventura, M., and Barbara, G. 2018. Pre and Probiotic Overview. *Current Opinion in Pharmacology*, 43, p. 87-92.
- Das, A., Ray, S., Raychaudhuri, U., and Chakraborty, R. 2014. Microencapsulation of Probiotic Bacteria and its Potential Application in Food Technology. *International Journal of Agriculture, Environment and Biotechnology*, 6(1), p. 63-69.
- Diana A., Purwanti, T., and Isnaeni. 2019. Utilization of *Lactobacillus acidophilus* FNCC-0051 Microencapsulation: Potential Benefit of Giving Combination of Sodium Alginate and Gelatin to Attributes and Role of Probiotic Against *Staphylococcus aureus*. *Indian Journal of Public Health Research & Development*, Vol 10 (9), p. 448-453.
- Duchesneau, C. T., Saha, S., Malhotra, M., Kahouli, I., and Prakash, S. 2013. Microencapsulation for the Therapeutic Delivery of Drugs, Live Mammalian and Bacterial Cells, and Other Biopharmaceutics: Current Status and Future Directions. *Journal of Pharmaceutics*, Vol. 2013, p. 1-19.
- El-Sherbiny, I. M., El-Baz, N. M., and Yacoub, M. H. 2015. Inhaled Nano- and Microparticles For Drug Delivery. *Global Cardiology Science and Practice*, 2015 (1).

- Galgano, F., Condelli, N., Caruso, M. C., Colangelo, M. A., and Favati, Fabio. 2015 Probiotics and Prebiotics in Fruits and Vegetables: Technological and Sensory Aspects. *Beneficial Microbes in Fermented and Functional Foods*, Chapter 10. p. 189-206.
- Garg, T., Goyal, A. K., Rath, G., and Murthy, R. S. R. 2015. Spray-dried Particle as Pulmonary Delivery System of Anti-Tubercular Drugs: Design, Optimization, In Vitro, and In Vivo Evaluation. *Pharmaceutical Development and Technology*. Vol. 21(8). p. 951-960.
- Gueimonde, M., and Sánchez, B. 2012. Enhancing Probiotic Stability in Industrial Processes. *Microbial Ecology in Health and Disease*, Vol. 23.
- Gul, Osman and Dervisoglu, Muhammet. 2016. Application of Multicriteria Decision Technique to Determine Optimum Sodium Alginate Concentration For Microencapsulation of *Lactobacillus Casei* Shirota by Extrusion and Emulsification. *Journal of Food Engineering*, p. 1-10.
- Hariyadi, D. M., Hendradi, E., Piay, O. L. V., and Ramadani C. N. 2013. Optimasi Mikrosfer Ovalbumin-Alginat yang Diproduksi dengan Teknik Aerosolisasi. *PharmaScientia*, Vol. 2, No. 1, p. 21-30.
- Hariyadi, D M., Hendradi, E., Kurniawan, T. D. 2019. Alginate Microsphere Encapsulating Ciprofloxacin HCl : Characteristics, Release, and Antibacterial Activity. *International Journal of Pharma Research and Health Science* 7 (4), p. 3020-3027.
- Hariyadi, D. M. and Hendradi, E. 2020. Application of Multicriteria Decision Technique to Determine Optimum Sodium Alginate Concentration For Microencapsulation of *Lactobacillus Casei* Shirota by Extrusion and Emulsification. *International Journal of Drug Delivery Technology (IJDDT)*, Vol 10 (2), p. 89-94.

- Holkem, A. T., Raddatz, G. C., Nunes, G. L., Cichoski, A. J., Jacob-Lopez, E., Grosso, C. R. F., and de Menezes, C. R. 2016. Development and Characterization of Alginate Microcapsules Containing *Bifidobacterium* BB-12 Produced by Emulsification/Internal Gelation Followed by Freeze Drying. *LWT-Food Science and Technology Journal*, Vol 71, p. 302-308.
- Jain, R. R., Mehta, M. R., Bannaliker, A. R., and Menon, M.D. 2010. Alginate Microparticles Loaded With Lipopolysaccharide Subunit Antigen For Mucosal Vaccination Against *Klebsiella Pneumoniae*. *Biologicals Journal XXX*, p. 1-7.
- Jeyakumari, A., Parvathy, U., Murthy L. Narasimha., and Visnuvinayagam, S. 2016. Spray Drying: Application in Microencapsulation of Food Ingredient. *Everyman's Science*, Vol. LI, No.4.
- Jin, Meixia., Zheng, Yanping., and Hu, Qiaohong. 2009. Preparation And Characterization of Bovine Serum Albumin Alginate/Chitosan Microspheres for Oral Administration. *BSA Alginate/Chitosan Microspheres/Asian Journal of Pharmaceutical Sciences*, 2009, 4(4), p. 215-220.
- Kadam and Survana. 2015. Microsphere: A Brief Review. *Asian Journal of Biomedical and Pharmaceutical Science*, Vol. 5 (47), p. 13-19.
- Khalighi, A., Behdani, R., and Kouhestani, S. 2016. Probiotics: A Comprehensive Review of Their Classification, Mode of Action and Role in Human Nutrition. *Probiotics and Prebiotics in Human Nutrition and Health*.
- Lahtinen, S., Ouwehand, A. C., Salminen, S., and Wright, A. V. 2012. *Lactic Acid Bacteria: Microbiological and Functional Aspects*, 4th ed.
- Mahmoud, A. A., Elkasabgy, N. A., and Abdelkhalek, A. F. A. 2018. Design and Characterization of Emulsified Spray Dried Alginate

- Microparticles As A Carrier For The Dually Acting Drug Roflumilast. *European Journal of Pharmaceutical Sciences*.
- Manjanna, K. M., Kumar, T. M. P., and Shivakumar, B. 2010. Calcium Alginate Cross-Linked Polymeric Microbeads For Oral Sustained Drug Delivery In Arthritis. *Drug Discoveries & Therapeutics* 4(2), p. 109-122.
- Mao, Like., Roos, Yrjo H., and Miao, Song. 2015. Effect of Maltodextrins on The Stability and Release of Volatile Compounds of Oil-In-Water Emulsions Subjected To Freeze–Thaw Treatment. *Food Hydrocolloids*, 50. p. 219–227.
- Martin, Maria Jose., Lara-Villoslada, Federico., Ruiz, Maria Adolfin., and Morales, Maria Encarnacion. 2014. Microencapsulation of Bacteria : A Review of Different Technologies and Their Impact on the Probiotic Effect. *Innovative Food Science & Emerging Technologies*, 27, p. 15-25.
- Meghna, K.S., Pillai, Krishna., Giridas, Sreedevi., Sreelakshmi,C., and Vijayakumar B. 2017. *International Journal of Novel Trends in Pharmaceutical Sciences*, Vol. 7, Num. 4. p. 109-118.
- Moghanjoug, Z. M., Bari, M. R., Khaledabad, M. A., Almasi, H., and Amiri, S. 2019. Bio-Preservation of White Brined Cheese (Feta) by Using Probiotic Bacteria Immobilized in Bacterial Cellulose: Optimization by Response Surface Method and Characterization. *LWT-Food Science Technology*, Vol. 117, p. 1-11.
- Mortaz, E., Adcock, I. M., Folkerts, G., Barnes, P. J., Vos, A. P., and Garssen, J. 2013. Probiotics in the Management of Lung Disease. *Mediators of Inflammation*, Vol. 2013, p. 1-10.
- Ngamtrakulpanit, L., Yu, Y., Adjei, A., Amoah, G., Gaston, B., and Hunt, J. F. 2010. Identification of Intrinsic Airway Acidification in Pulmonary Tuberculosis. *Global Journal of Health Science*, 2(1), p. 106-110.

- Patil, J. S., Devi, K., Devi Kshama., and Suresh Sarasija. 2015. Formulation and Evaluation of Novel Spray-dried Alginate Microspheres as Pulmonary Delivery Systems of Rifampicin in Rats. *Indian Journal of Pharmaceutical Education and Research*, Vol 49, Issue 4, p. 320-328.
- Prat, Christina and Lacoma, Alicia. Bacteria in the respiratory tract—how to treat? Or do not treat? *International Journal of Infectious Diseases*, 51. p. 133-122.
- Purwanti, T., Puspita, R., and Erawati, T. 2019. Pengaruh Matriks Kombinasi Alginat:Gelatin (2%:1%) terhadap Karakteristik dan Aktivitas Antibakteri Mikrosfer Probiotik *Lactobacillus acidophilus*. *Jurnal Farmasi dan Ilmu Kefarmasian Indonesia*, Vol. 6 No. 1, p. 44-50.
- Qu, F., Zhao, M., Fang, Y., Nishinari, K., O Phillips, G, Wu, Z., and Chen, C. 2016. Effect of Acidification on The Protection of Alginate-Encapsulated Probiotic Based on Emulsification/Internal Gelation. *Journal of the Science of Food and Agriculturei*, p. 1-9.
- Raghu, S and Pennathur, G. 2018. Enhancing The Stability of A Carboxylesterase by Entrapment in Chitosan Coated Alginate Beads. *Turkish Journal of Biology*, Vol 42, p. 307-318.
- Rathore, S., Desai, P.M., Liew, C. V., Chan, L. W., and Heng, P. W. S. 2013. Microencapsulation of Microbial Cells. *Journal of Food Engineering* 110, p. 369-381.
- Saikiran, K. CH. S., Perli, M., Reddy, N. S., and Venkatachalapathy, N. 2018. Mechanical Methods of Microencapsulation: A Review. *International Journal of Current Microbiology and Applied Science* 7(11), p. 1251-1260.
- Santos, E., Zarate, J., Orive, G., Hernandez, R. M., and Pedraz, J. L. 2010. Biomaterials in Cell Microencapsulation. Orive, G and Pedraz, J. L. *Therapeutic Application s of Cell Microencapsulation*.

- Schoubben, A., Blasi, P., Giovagnoli, S., Rossi, C., and Ricci, M. 2010. Development of A Scalable Procedure For fine Calcium Alginate Particle Preparation. *Chemical Engineering Journal*, Vol. 160, p. 363-369.
- Seth, D., Mishra, H. N., and Deka, S. C. 2017. Effect of Microencapsulation Using Extrusion Technique on Viability of Bacterial Cells During Spray Drying of Sweetened Yoghurt. *International Journal of Biological Macromolecules*, p.1-27.
- Shaji, J and Shaikh, M. 2016. Current Development in the Evaluation Methods of Pulmonary Drug Delivery System. *Indian Journal of Pharmaceutical Science*.
- Sharma, Maya., Choudhury., and Dev, S. K. 2017. Formulation And In-Vitro-In Vivo Evaluation of Alginate-Chitosan Microspheres of Glipizide by Ionic Gelation Method. *Asian Journal of Pharmaceutical and Clinical Research*, Vol. 10, Issue 7, 2017. p. 385-390.
- Song, H., Yu, W., Gao, M., Liu, X., and Ma, X. 2013. Microencapsulated Probiotics Using Emulsification Technique Coupled With Internal or External Gelation Process. *Carbohydrate Polymer Journal*, Vol 96, p. 181-189.
- Sornplang, P., and Piyadeatsoontorn, S. 2016. Probiotic Isolates from Unconventional Sources: A Review. *Journal of Animal Science and Technology*. Vol. 58 (2).
- Subedi, G., Shrestha, Ashwinee Kumar., and Shakya, Shailendra. 2016. Study of Effect of Different Factor in Formulation of Micro and Nanospheres with Solvent Evaporation Technic. *Open Pharmaceutical Science Journal*. Vol. 6, p. 182-195.
- Sumanti, Debby M., Kayaputri, Indira Lanti., Hanidah, In-in., Sukarminah, Een., Pakel, Michelle Monique. 2017. *Effect of Alginate*

- Concentrations on Characteristics of Lactobacillus acidophilus and Their Viability*. KnE Life Sciences, 2(6). p. 494-505.
- Suprapti, B., Suharjono., Raising, R., Yulistiani., Izzah, Z., Nilamsari, W. P., Wulaningrum, P. A., and Bachtiar, Arif. 2018. Effect of Probiotics and Vitamin B Supplementation on INF- γ and IL-12 Levels During Intensive Phase Treatment of Tuberculosis. *Indonesian J. Pharm.* Vol. 29, No.2, p. 80-85.
- Szekalska, M., Puciłowska, A., Szymańska, E., Ciosek, P., and Winnicka, K. 2016. Alginate: Current Use and Future Perspectives in Pharmaceutical and Biomedical Applications. *International Journal of Polymer Science*. 2016, p. 1–17.
- Teanpaisan, R., Chooruk, A., Wannun, A., Wichienchot, S., and Piwat, S. 2012 Survival Rates of Human-Derived Probiotic *Lactobacillus paracasei* SD1 in Milk Powder Using Spray Drying. *Songklanakarin Journal of Science and Technology*, Vol. 34 (3), p. 241-245.
- Usmiati, Sri., Richana, Nur., Mangunwidjaja, Djumali., Noor, Erliza., and Prangdimurti, Endang. 2014. The Using of Ionic Gelation Method Based on Polysaccharides for Encapsulating the Macromolecules– A Review. *International Conference on Food Security and Nutrition IPCBEE* Vol. 67, p. 79-84.
- Vaghasiya, K., Eram, A., Sharma, A., Ray, E., Adlakha, S., Verma, R. K. 2019. Alginate Microspheres Elicit Innate M1-Inflammatory Response in Macrophages Leading to Bacillary Killing. *AAPS PharmSciTech Journal* 20:241, p. 1-10.
- Venkatesan, P., Manavalan and Valliapan, K. 2009. Microencapsulation: A Vital Technique in Novel Drug Delivery System. *Journal of Pharmaceutical Science and Research*, Vol. 1(4), p. 26-35.
- Verica, M., Branko, B., and Viktor, N. 2013. *Immobilized Cells*. Michael, F (Editor). *Upstream Industrial Biotechnology*.

- Williams, Nancy Toedter. 2010. Probiotics. *American Journal of Health-System Pharmacy*, Vol. 67 (6), p. 449–458.
- Zhao, R., J. Xu., B. Guo. 2017. Preparation and In Vitro Evaluation of Biodegradable Microspheres with Narrow Size Distribution for Pulmonary Delivery. *Indian J. Pharm Sci.* Vol. 79 (6), p. 930-938.
- Zhou, Qi (Tony)., Leung, Sharon Shui Yee., Tang, Patricia, Parumasivam, Thaigarajan., Loh, Zhi Hui., and Chan, Hak-Kim. 2015. Inhaled Formulations and Pulmonary Drug Delivery Systems for Respiratory Infections. *Advanced Drug Delivery Reviews* Vol. 85, p. 83-99.