

## DAFTAR PUSTAKA

- Aliyu, R.S., Lawal, A.M., Chasta, P. & Sharma, G.K., 2020, Capsules: Types, Manufacturing, Formulation, Quality Control Tests and, Packaging and Storage-a Comprehensive Review, *World J Pharm Life Sci*, **6** (8), 93-104.
- Allen, L. & Ansel, H.C., 2013, *Ansel's pharmaceutical dosage forms and drug delivery systems*, Lippincott Williams & Wilkins.
- Ambarsari, L. & Purwoto, H., 2016, Optimization of Formula Film based on Amylopectin Cassava Starch and Carrageenan as a Raw Materials of Capsule Shell, *Current Biochemistry*, **3** (1), 20-32.
- Anonim, 2020, *Farmakope Indonesia Edisi VI*, Departemen Kesehatan Republik Indonesia, Jakarta.
- Basiak, E., Lenart, A., & Debeaufort, F., 2018, How glycerol and water contents affect the structural and functional properties of starch-based edible films, *Polymers*, **10** (4), 412.
- Bodini, R.B., Guimarães, J.D.G.L., Monaco-Lourenço, C.A. & de Carvalho, R.A., 2019, Effect of starch and hydroxypropyl methylcellulose polymers on the properties of orally disintegrating films, *Journal of Drug Delivery Science and Technology*, **51**, 403-410.
- Dagadiye, R.B., Kajale, A.D., Mahajan, V.K. & Joshi, M.H., 2012, Advancement in manufacturing of non-gelatin capsule shell-a review, *International Journal of Advances in Pharmaceutical Research*, **3** (10), 1178-1187.
- Dewi, S.P., Devi, S. & Ambarwati, S., 2022, Pembuatan dan uji organoleptik eco-enzyme dari kulit buah jeruk, In *Prosiding Seminar Nasional Hukum, Bisnis, Sains dan Teknologi*, **2** (1), 649-649.
- Dobariya, U., Dhulia, I., Sarvaiya, S., Pardeshi, N. & Chauhan, N., 2021, Vegetable capsule shell: types and regulation, *International Journal of Drug Regulatory Affairs*, **9** (3), 9-15.
- Eslami, Z., Elkoun, S., Robert, M., & Adjallé, K., 2023, A review of the effect of plasticizers on the physical and mechanical properties of alginate-based films, *Molecules*, **28** (18), 6637.
- Fauzi, M.A.R.D., Pudjiastuti, P., Hendradi, E., Widodo, R.T. & Amin, M.C.I.M., 2020, Characterization, Disintegration, and Dissolution Analyses of Carrageenan-Based Hard-Shell Capsules Cross-Linked With Maltodextrin as a Potential Alternative Drug Delivery System, *International Journal of Polymer Science*, **2020** (1), 3565931.
- Fatonah, I.S., Kadarusman, S.F., Nurulaeni, S., Delilah, G.G.A. & Setiadji, S., 2024, Studi Awal Pembuatan Cangkang Kapsul dari Komposit Pati Garut (*Maranta Arundinacea* L.) dan Karagenan, In *Gunung Djati Conference Series*, **44**, 66-74.
- Fernández, N.L., Yamul, D.K., & Navarro, A.S., 2025, Physicochemical and mechanical properties of cassava starch films containing honey and glycerol

- as co-plasticisers, *International Journal of Food Science and Technology*, **60** (1), vvae017.
- Figuroa-Lopez, K. J., Villabona-Ortiz, Á., & Ortega-Toro, R., 2024, Sustainable starch-based films from cereals and tubers: A comparative study on cherry tomato preservation. *Polymers*, **16** (20), 2913.
- Frangopoulos, T., Marinopoulou, A., Goulas, A., Likotrafiti, E., Rhoades, J., Petridis, D., & Karageorgiou, V., 2023, Optimizing the functional properties of starch-based biodegradable films, *Foods*, **12** (14), 2812.
- Ghadermazi, R., Hamdipour, S., Sadeghi, K., Ghadermazi, R., & Khosrowshahi Asl, A., 2019, Effect of various additives on the properties of the films and coatings derived from hydroxypropyl methylcellulose—A review, *Food science & nutrition*, **7** (11), 3363-3377.
- Gullapalli, R.P., & Mazzitelli, C.L., 2017, Gelatin and non-gelatin capsule dosage forms, *Journal of pharmaceutical sciences*, **106** (6), 1453-1465.
- Hamdan, M. A., Najwa, M. A. K., Jose, R., Martin, D., & Adam, F., 2021, Tuning mechanical properties of seaweeds for hard capsules: a step forward for a sustainable drug delivery medium, *Food Hydrocolloids for Health*, **1**, 100023.
- Harimurti, S., Mulyanti, A.N.A., Kusnindiyasita, A., Widada, H., Febriansah, R., Suwanda, T., & Muhtadi, M., 2023, Sago Starch and Sodium Alginate As Natural Crosslinking For Capsule Alternatives, *Jurnal Farmasi Sains dan Praktis*, 212-222.
- Harimurti, S., Rahma, N.K., Sukamdi, D.P., Widada, H., Makiyah, S.N.N., Kesetyaningsih, T.W., & Susanti, H., 2025, Simplex lattice design for the development of arrowroot starch and sodium alginate with calcium chloride crosslinker as a capsule shell alternative, *Journal of Advanced Pharmaceutical Technology & Research*, **16** (3), 125-132.
- Hoag, S.W., 2017, Capsules dosage form: formulation and manufacturing considerations, In *Developing solid oral dosage forms*, 723-747.
- Kalmer, R.R., Karimi, A., Ramezanalizadeh, H., Ghanbari, M., Samandarian, D., Sadjadinia, A., & Moosavi, S., 2024, Design and preparation of a novel pullulan hard capsule formulation: A promising green candidate and study of crucial capsule features, *Heliyon*, **10** (7).
- Kathpalia, H., Sharma, K., & Doshi, G., 2014, Recent trends in hard gelatin capsule delivery system, *J. Adv. Pharm*, **4**.
- Kay, D.E., 1973, Root Crops. TPI Crop and Product Digest, *Tropical Products Institute, London*, 129-239.
- Khairunnisa, A., Viogenta, P., Kartinah, N., & Azzahra, D.A., 2025, The Characterization of Capsule Shell from Acid-Hydrolyzed Palm Oil Starch, *ALCHEMY Jurnal Penelitian Kimia*, **21** (1), 72-81.
- Legowo, W.P., Ferdiansyah, R., & Tristiyanti, D., 2024, Aplikasi dan Evaluasi Karagenan dari Rumput Laut Asli Indonesia sebagai Bahan Baku Cangkang

- Kapsul Keras, In *Perjuangan Nature Pharmaceutical Conference*, **1** (1), 18-135.
- Lestari, I.T., Putri, A.A.A., Fajriah, F.N., Awaluddin, R., & Rahma, A., 2021, Formulasi dan karakterisasi cangkang kapsul dari pati kulit kentang (*Solanum tuberosum* L.) dan madu sebagai plasticizer. *Journal Food and Pharmaceutical Sciences*, **9** (03), 503-512.
- Lismeri, L., Darni, Y., Abrar, A., & Darmansyah, D., 2024, Pengaruh Suhu dan Lama Waktu Pengeringan Terhadap Karakteristik Cangkang Kapsul Berbasis Hydroxypropyl Methylcellulose (HPMC), *Jurnal Teknologi dan Inovasi Industri (JTII)*, **5** (2).
- Majee, S.B., Avlani, D., & Biswas, G.R., 2017, HPMC as capsule shell material: physicochemical, pharmaceutical and biopharmaceutical properties, *Int J Pharm Pharm Sci*, **9** (10), 1-6.
- Malki, M.K.S., Wijesinghe, J.A.A.C., Ratnayake, R.H.M.K., & Thilakarathna, G.C., 2023, Characterization of arrowroot (*Maranta arundinacea*) starch as a potential starch source for the food industry, *Heliyon*, **9** (9).
- Malviya, R. & Srivastava, P., 2011, Preparation, characterization and application of chitosan–alginate based polyelectrolyte complex as fast disintegrating drug delivery carrier, *Polimery w medycynie*, **41** (3), 45-54.
- Markl, D., & Zeitler, J.A., 2017). A review of disintegration mechanisms and measurement techniques, *Pharmaceutical research*, **34** (5), 890.
- Matta F.F., Nogueira, G.F., de Oliveira, R.A., & Velasco, J.I., 2019, Bioactive edible films based on arrowroot starch incorporated with cranberry powder: Microstructure, thermal properties, ascorbic acid content and sensory analysis, *Polymers*, **11** (10), 1650.
- Palomero-Hernández, F.J., Caballo-González, M.Á., de la Mata, F.J., & García-Gallego, S., 2025, Sustainable Shell Formulations as Alternative to the Conventional Soft Gelatin Capsules in Pharmaceutical and Nutraceutical Applications, A Review, *Macromolecular Materials and Engineering*, 2500003.
- Polnaya, F.J., Tengker, M., & Lawalata, V.N, 2023, Utilization of Sago Starch in Capsule Processing with Addition of Glycerol, *Jurnal Teknologi Hasil Pertanian*, **16** (1), 65-74.
- Ramadita, A., & Ariyanto, H.D., 2024, Effect of Corn Starch and Glycerol Additions on the Characteristics of Capsule Shells from Seaweed Carrageenan, *Journal of Food and Pharmaceutical Sciences*, 141-148.
- Rizal, R., Salman, S., & Wulandari, E., 2023, Formulasi Cangkang Kapsul dari Pektin Kulit Buah Nangka (*Artocarpus Heterophyllus* Lam) Dan Uji Waktu Hancur Kapsul, *Jurnal Ilmiah Farmasi Farmasyifa*, **6** (2).
- Rowe, R.C., Paul, J.S., & Maria, E.Q., 2009, *Handbook of Pharmaceutical Excipients, Edisi ke-6*, Pharmaceutical Press, London.
- Sanyang, M.L., Sapuan, S.M., Jawaid, M., Ishak, M.R., & Sahari, J., 2016, Effect of plasticizer type and concentration on physical properties of biodegradable

- films based on sugar palm (*Arenga pinnata*) starch for food packaging, *Journal of food science and technology*, **53** (1), 326-336.
- Stegemann, S., Connolly, P., Matthews, W., Barnett, R., Aylott, M., Schrooten, K., & Bresciani, M., 2014, Application of QbD principles for the evaluation of empty hard capsules as an input parameter in formulation development and manufacturing, *AAPS PharmSciTech*, **15** (3), 542-549.
- Sumiati, T., Ratnasari, D., Setiadji, A., & Hanapiah, S.R., 2020, SINTESIS DAN KARAKTERISASI CANGKANG KAPSUL KERAS DARI GELATIN TULANG IKAN LELE DUMBO (*CLARIAS GARIEPINUS*), *Jurnal Farmamedika (Pharmamedika Journal)*, **5** (2), 45-51.
- Tabasum, S., Younas, M., Zaeem, M.A., Majeed, I., Majeed, M., Noreen, A., & Zia, K.M., 2019, A review on blending of corn starch with natural and synthetic polymers, and inorganic nanoparticles with mathematical modeling, *International journal of biological macromolecules*, **122**, 969-996.
- Tafa, K.D., Satheesh, N., & Abera, W., 2023, Mechanical properties of tef starch based edible films: Development and process optimization, *Heliyon*, **9** (2).
- Tarique, J.S.M.S., Sapuan, S.M., & Khalina, A., 2021<sup>a</sup>, Effect of glycerol plasticizer loading on the physical, mechanical, thermal, and barrier properties of arrowroot (*Maranta arundinacea*) starch biopolymers, *Scientific reports*, **11** (1), 13900.
- Tarique, J., Sapuan, S.M., Khalina, A., Sherwani, S.F.K., Yusuf, J., & Ilyas, R.A., 2021<sup>b</sup>, Recent developments in sustainable arrowroot (*Maranta arundinacea* Linn) starch biopolymers, fibres, biopolymer composites and their potential industrial applications: A review, *Journal of Materials Research and Technology*, **13**, 1191-1219.
- Torpac, 2025, Torpac size chart, <https://www.torpac.com/Reference/Torpac%20Size%20Chart.pdf> 2 Oktober 2025.
- Wahyurini, E., Danang, Y., & Ridki, I.P., 2019, Tanaman Garut, Budidaya & Pemasaran secara Online, LPPM UPN Veteran Yogyakarta, Yogyakarta.
- Wang, Y., Wang, J., Sun, Q., Xu, X., Li, M., & Xie, F., 2022, Hydroxypropyl methylcellulose hydrocolloid systems: Effect of hydroxypropyl group content on the phase structure, rheological properties and film characteristics, *Food Chemistry*, **379**, 132075.