DAFTAR PUSTAKA

[1] K. A. Cook, E. Martinez-Lozano, R. Sheridan, E. K. Rodriguez, A. Nazarian, and M. W. Grinstaff, "Hydrogels for the management of second-degree burns: currently available options and future promise," *Burn. Trauma*, vol. 10, 2022, doi: 10.1093/burnst/tkac047.

[2] A. A. W. Perkasa-hendropriyono and I. D. Saputro, "Contribution of SIRS and sepsis on the outcomes of patients with burn injuries in Dr . Soetomo Teaching Hospital," vol. 14, no. 1, pp. 197–202, 2025, doi: 10.15562/bmj.v14i1.5406.

[3] A. Wardhana and G. A. Winarno, "Epidemiology And Mortality Of Burn Injury In Ciptomangunkusumo Hospital, Jakarta: A 5 Year Retrospective Study," *J. Plast. Rekonstruksi*, vol. 6, no. 1, pp. 234–242, 2020, doi: 10.14228/jpr.v6i1.270.

[4] H. Wang *et al.*, "Antibacterial polysaccharide-based hydrogel dressing containing plant essential oil for burn wound healing," *Burn. Trauma*, vol. 9, pp. 1–14, 2021, doi: 10.1093/burnst/tkab041.

[5] W. Shu, Y. Wang, X. Zhang, C. Li, H. Le, and F. Chang, "Functional Hydrogel Dressings for Treatment of Burn Wounds," *Front. Bioeng. Biotechnol.*, vol. 9, no. December, pp. 1–18, 2021, doi: 10.3389/fbioe.2021.788461.

[6] J. Xiao, Y. Liang, T. Sun, M. Liu, and X. He, "A functional dual responsive CMC/OHA/SA/TOB hydrogel as wound dressing to enhance wound healing," *Sci. Rep.*, vol. 14, no. 1, p. 26854, 2024, doi: 10.1038/s41598-024-78044-8.

[7] A. Surowiecka, J. Strużyna, A. Winiarska, and T. Korzeniowski, "Hydrogels in Burn Wound Management—A Review," *Gels*, vol. 8, no. 2, 2022, doi: 10.3390/gels8020122.

[8] Y. Hong, Z. Lin, Y. Yang, T. Jiang, J. Shang, and Z. Luo, "Biocompatible Conductive Hydrogels: Applications in the Field of Biomedicine," *Int. J. Mol. Sci.*, vol. 23, no. 9, 2022, doi: 10.3390/ijms23094578.

[9] C. Xie *et al.*, “Synthesis and Properties of Injectable Hydrogel for Tissue Filling,” *Pharmaceutics*, vol. 16, no. 3, 2024, doi: 10.3390/pharmaceutics16030430.

[10] H. Li *et al.*, “Injectable, self-healing, antibacterial, and hemostatic N,O-carboxymethyl chitosan/oxidized chondroitin sulfate composite hydrogel for wound dressing,” *Mater. Sci. Eng. C*, vol. 118, no. August 2020, p. 111324, 2021, doi: 10.1016/j.msec.2020.111324.

[11] Y. C. Huang, K. Y. Huang, B. Y. Yang, C. H. Ko, and H. M. Huang, “Fabrication of Novel Hydrogel with Berberine-Enriched Carboxymethylcellulose and Hyaluronic Acid as an Anti-Inflammatory Barrier Membrane,” *Biomed Res. Int.*, vol. 2016, 2016, doi: 10.1155/2016/3640182.

[12] W. Zhang, Y. Liu, Y. Xuan, and S. Zhang, “Synthesis and Applications of Carboxymethyl Cellulose Hydrogels,” *Gels*, vol. 8, no. 9, 2022, doi: 10.3390/gels8090529.

[13] A. Song, “Exploring Hyaluronic Acid as a Potential Standard Dressing for Burn Wound,” *Int. J. Med. Sci. Clin. Res. Stud.*, vol. 02, no. 08, 2022, doi: 10.47191/ijmscrs/v2-i8-13.

[14] A. W. Paramadini, P. Chinavinijkul, A. Meemai, P. Thongkam, A. Apasuthirat, and N. Nasongkla, “Fabrication and in vitro characterization of zinc oxide nanoparticles and hyaluronic acid-containing carboxymethylcellulose gel for wound healing application,” *Pharm. Dev. Technol.*, vol. 28, no. 1, pp. 95–108, 2023, doi: 10.1080/10837450.2022.2164304.

[15] S. Deng, X. Li, W. Yang, K. He, and X. Ye, “Injectable in situ cross-linking hyaluronic acid/carboxymethyl cellulose based hydrogels for drug release,” *J. Biomater. Sci. Polym. Ed.*, vol. 29, no. 13, pp. 1643–1655, 2018, doi: 10.1080/09205063.2018.1481005.

[16] D. M. Varma, G. T. Gold, P. J. Taub, and S. B. Nicoll, “Injectable carboxymethylcellulose hydrogels for soft tissue filler applications,” *Acta Biomater.*, vol. 10, no. 12, pp. 4996–5004, 2014, doi: 10.1016/j.actbio.2014.08.013.

[17] 2020 Gopinathan Janarthanan, "Self-crosslinking hyaluronic acid-carboxymethylcellulose hydrogel enhances multilayered 3D printed construct shape integrity and mechanical stability for soft tissue engineering," pp. 0–7, 2018.

[18] M. Babaluei, *Injectable hydrogel based on silk fibroin/carboxymethyl cellulose/agarose containing polydopamine functionalized graphene oxide with conductivity, hemostasis, antibacterial, and anti-oxidant properties for full-thickness burn healing*. 2023.

[19] T. Augmentation, "A Covalently Cross-Linked Hyaluronic Acid / Carboxymethyl Tissue Augmentation," 2024.

[20] D. Mubarak, "Perawatan Luka Dengan Modern Dressing," pp. 1–23, 2016.

[21] F. Fayyazbakhsh, M. J. Khayat, and M. C. Leu, "3D-Printed Gelatin-Alginate Hydrogel Dressings for Burn Wound Healing: A Comprehensive Study," *Int. J. Bioprinting*, vol. 8, no. 4, pp. 274–291, 2022, doi: 10.18063/ijb.v8i4.618.

[22] C. Xie, J. Hu, Y. Cheng, and Z. Yao, "Researches on cognitive sequelae of burn injury: Current status and advances," *Front. Neurosci.*, vol. 16, no. November, pp. 1–14, 2022, doi: 10.3389/fnins.2022.1026152.

[23] Y. Wang *et al.*, "Burn injury: Challenges and advances in burn wound healing, infection, pain and scarring," *Adv. Drug Deliv. Rev.*, vol. 123, pp. 3–17, 2018, doi: 10.1016/j.addr.2017.09.018.

[24] M. D. Peck, "Epidemiology of burns throughout the world. Part I: Distribution and risk factors," *Burns*, vol. 37, no. 7, pp. 1087–1100, 2011, doi: 10.1016/j.burns.2011.06.005.

[25] D. Saputra, "Tinjauan Komprehensif tentang Luka Bakar Dan Penanganannya," *J. Sci. Univ. Andalas Padang*, pp. 207–218, 2023, [Online]. Available: http://journal.scientic.id/index.php/sciena/issue/view/12

[26] A. K. Zusandy, Arwi Amiruddin, Andi Sastri Z, Lisa Yuniati, and Andi Miranti, "Gambaran dan Karakteristik Pasien Luka Bakar," *Fakumi Med. J. J. Mhs. Kedokt.*, vol. 4, no. 5, pp. 412–422, 2024, doi: 10.33096/fmj.v4i5.455.

[27] Y. R. S. Dewi, "Konsep Umum dan Investigasi Berbasis Klinis Luka Antemortem dan Postmortem," *E-Jurnal Med. Udayana*, vol. 2, no. 3, pp. 1–11, 2013.

[28] M. G. Jeschke, M. E. van Baar, M. A. Choudhry, K. K. Chung, N. S. Gibran, and S. Logsetty, "Burn injury," *Nat. Rev. Dis. Prim.*, vol. 6, no. 1, 2020, doi: 10.1038/s41572-020-0145-5.

[29] G.-E. Ja *et al.*, "Burns: Definition, Classification, Pathophysiology and Initial Approach," no. June, 2020, doi: 10.4172/2327-5146.1000298.

[30] H. M. Nguyen, T. T. Ngoc Le, A. T. Nguyen, H. N. Thien Le, and T. T. Pham, "Biomedical materials for wound dressing: recent advances and applications," *RSC Adv.*, vol. 13, no. 8, pp. 5509–5528, 2023, doi: 10.1039/d2ra07673j.

[31] R. C. Opt Veld, X. F. Walboomers, J. A. Jansen, and F. A. D. T. G. Wagener, "Design Considerations for Hydrogel Wound Dressings: Strategic and Molecular Advances," *Tissue Eng. - Part B Rev.*, vol. 26, no. 3, pp. 230–248, 2020, doi: 10.1089/ten.teb.2019.0281.

[32] V. Brumberg, T. Astrelina, T. Malivanova, and A. Samoilov, "Modern wound dressings: Hydrogel dressings," *Biomedicines*, vol. 9, no. 9, 2021, doi: 10.3390/biomedicines9091235.

[33] J. Fu and M. In Het Panhuis, "Hydrogel properties and applications," *J. Mater. Chem. B*, vol. 7, no. 10, pp. 1523–1525, 2019, doi: 10.1039/c9tb90023c.

[34] E. Rezvani Ghomi, S. Khalili, S. Nouri Khorasani, R. Esmaeely Neisiany, and S. Ramakrishna, "Wound dressings: Current advances and future directions," *J. Appl. Polym. Sci.*, vol. 136, no. 27, pp. 1–12, 2019, doi: 10.1002/app.47738.

[35] E. Caló and V. V. Khutoryanskiy, "Biomedical applications of hydrogels: A review of patents and commercial products," *Eur. Polym. J.*, vol. 65, no. April, pp. 252–267, 2015, doi: 10.1016/j.eurpolymj.2014.11.024.

[36] H. Haryanto, "Pengaruh Kitosan Terhadap Karakterisasi Hidrogel Film PVA Untuk Aplikasi Pembalut Luka," *Techno (Jurnal Fak. Tek. Univ. Muhammadiyah Purwokerto)*, vol. 22, no. 2, p. 123, 2021, doi:

10.30595/techno.v22i2.11593.

[37] E. M. Ahmed, “Hydrogel: Preparation, characterization, and applications: A review,” *J. Adv. Res.*, vol. 6, no. 2, pp. 105–121, 2015, doi: 10.1016/j.jare.2013.07.006.

[38] T. C. Ho *et al.*, “Hydrogels: Properties and Applications in Biomedicine,” *Molecules*, vol. 27, no. 9, pp. 1–29, 2022, doi: 10.3390/molecules27092902.

[39] Z. Ahmad *et al.*, “Versatility of Hydrogels: From Synthetic Strategies, Classification, and Properties to Biomedical Applications,” *Gels*, vol. 8, no. 3, 2022, doi: 10.3390/gels8030167.

[40] Y. M. T. Silaen, “Sintesis dan Karakterisasi Injectable Hydrogel Biokomposit Alginat/PVA/rGO Untuk Aplikasi Rekayasa Jaringan,” *Tugas Akhir*, 2019.

[41] J. M. Alonso, J. A. Del Olmo, R. P. Gonzalez, and V. Saez-martinez, “Injectable hydrogels: From laboratory to industrialization,” *Polymers (Basel).*, vol. 13, no. 4, pp. 1–24, 2021, doi: 10.3390/polym13040650.

[42] R. NURLAILA, “Pemanfaatan Jerami Padi (Oryza Sativa L.) Sebagai Bahan Baku Dalam Pembuatan CMC (Carboximetil Cellulose),” *J. Rekayasa Proses*, vol. 15, no. 2, p. 194, 2021, doi: 10.22146/jrekpros.69569.

[43] M. Vivi Purwandari, Mahyuni Harahap1, Liver Imam Putra Zai1 and A. Mubarakh1, “Jurnal Kimia Saintek dan Pendidikan,” *J. Kim. Saintek dan Pendidik.*, vol. 7, no. 1, pp. 72–78, 2023.

[44] V. Kanikireddy, K. Varaprasad, T. Jayaramudu, C. Karthikeyan, and R. Sadiku, “Carboxymethyl cellulose-based materials for infection control and wound healing: A review,” *Int. J. Biol. Macromol.*, vol. 164, pp. 963–975, 2020, doi: 10.1016/j.ijbiomac.2020.07.160.

[45] I. Widia, M. Abdassah, A. Y. Chaerunisaa, T. Rusdiana, F. Farmasi, and U. Padjadjaran, “Farmaka Farmaka,” *Farmaka*, vol. 15, no. 1, pp. 37–46, 2018.

[46] M. S. Rahman *et al.*, “Recent developments of carboxymethyl cellulose,” *Polymers (Basel).*, vol. 13, no. 8, 2021, doi: 10.3390/polym13081345.

[47] T. I. Sari, P. Susmanto, M. H. Dahlan, N. I. Kamega, and A. Pratiwi, “Jurnal Integrasi Proses Website: http://jurnal.untirta.ac.id/index.php/jip Pembuatan Hidrogel Berbasis Polivinil Alkohol (PVA)/Karboksimetil Selulosa

(CMC)/Minyak Asiri Serai menggunakan Metode Chemical Crosslinked," *J. Integr. Proses*, vol. 13, no. 1, pp. 43–51, 2024, [Online]. Available: http://jurnal.untirta.ac.id/index.php/jip

[48] M. G. Neuman, R. M. Nanau, L. Oruña-Sanchez, and G. Coto, "Hyaluronic acid and wound healing," *J. Pharm. Pharm. Sci.*, vol. 18, no. 1, pp. 53–60, 2015, doi: 10.18433/j3k89d.

[49] O. Dereure, M. Czubek, and P. Combemale, "Efficacy and safety of hyaluronic acid in treatment of leg ulcers: A double-blind RCT," *J. Wound Care*, vol. 21, no. 3, pp. 131–139, 2012, doi: 10.12968/jowc.2012.21.3.131.

[50] X. Yang *et al.*, "Hyaluronic Acid-Based Injectable Hydrogels for Wound Dressing and Localized Tumor Therapy: A Review," *Adv. NanoBiomed Res.*, vol. 2, no. 12, 2022, doi: 10.1002/anbr.202200124.

[51] A. Yasin, Y. Ren, J. Li, Y. Sheng, C. Cao, and K. Zhang, "Advances in Hyaluronic Acid for Biomedical Applications," *Front. Bioeng. Biotechnol.*, vol. 10, no. July, pp. 1–12, 2022, doi: 10.3389/fbioe.2022.910290.

[52] Y. Dong *et al.*, "Conformable hyaluronic acid hydrogel delivers adipose-derived stem cells and promotes regeneration of burn injury," *Acta Biomater.*, vol. 108, pp. 56–66, 2020, doi: 10.1016/j.actbio.2020.03.040.

[53] M. M. Dalmedico, M. J. Meier, J. V. C. Felix, F. S. Pott, F. de F. C. Petz, and M. C. Santos, "Hyaluronic acid covers in burn treatment: A systematic review," *Rev. da Esc. Enferm.*, vol. 50, no. 3, pp. 519–524, 2016, doi: 10.1590/S0080-623420160000400020.

[54] M. Antoszewska, E. M. Sokolewicz, and W. Barańska-Rybak, "Wide Use of Hyaluronic Acid in the Process of Wound Healing—A Rapid Review," *Sci. Pharm.*, vol. 92, no. 2, 2024, doi: 10.3390/scipharm92020023.

[55] S. Pokhrel, "Uji Stabilitas Fisik Sediaan Emulgel Ekstrak Daun Ketepeng (Cassia alata L.) Berbasis Hidroxy Propyl Methyl Cellulose (HPMC) Sebagai Antiskabies," *Αγαη*, vol. 15, no. 1, pp. 37–48, 2024

[56] M. Khairati, "Pemurnian Gliserol," *J. Jejaring Mat. dan Sains*, vol. 4, no. 2, pp. 35–40, 2022, [Online]. Available: https://doi.org/10.36873/jjms.2022.v4.i2.706

[57] G. A. Wulandari, P. V. Y. Yamlean, and S. S. Abdullah, "Pengaruh Gliserin

Terhadap Stabilitas Fisik Gel Ekstrak Etanol Sari Buah Tomat (Solanum lycopersicum L.)," *J. Kesehat. Tambusai*, vol. 4, no. 3, pp. 2383–2391, 2023, doi: 10.31004/jkt.v4i3.16601.

[58] L. Widyaningsih, "Pengaruh Penambahan Kosolven Propilen Glikol Terhadap Kelarutan Asam Mefenamat," *Univ. Muhammadiyah Surakarta*, p. 1, 2009.

[59] S. Pokhrel, "Uji Stabilitas Fisik Sediaan Emulgel Ekstrak Daun Ketepeng (Cassia alata L.) Berbasis Hidroxy Propyl Methyl Cellulose (HPMC) Sebagai Antiskabies," *Αγαη*, vol. 15, no. 1, pp. 37–48, 2024.

[60] A. F. Tsabitah, A. K. Zulkarnain, M. S. H. Wahyuningsih, and D. A. A. Nugrahaningsih, "Optimasi Carbomer, Propilen Glikol, dan Trietanolamin Dalam Formulasi Sediaan Gel Ekstrak Etanol Daun Kembang Bulan (Tithonia diversifolia)," *Maj. Farm.*, vol. 16, no. 2, p. 111, 2020, doi: 10.22146/farmaseutik.v16i2.45666.

[61] E. M. Idzati, A. B. Yudhistira, and F. Kurniawansyah, "Pra Desain Pabrik Propilen Glikol melalui," *J. Fundam. Appl. Chem. Eng.*, vol. 1, no. 2, pp. 25–28, 2020.

[62] A. D. Djajanti, I. N. P. Sumule, Firmansyah, and Rusli, "Formulation And Physical Stability Test Of Celery Leaf Extract Gel (*Apium graveolens* L .) With Variations Concentration Of *Hydroxy Propyl Methyl Cellulose* And Carbopol," *3rd Int. Conf. Urban Heal. Covid-19 Pandemic amd Urban Heal. Issues*, vol. 3, no. 1, pp. 54–63, 2021.

[63] W. Wulandari, D. E. Ermawati, and A. Yugatama, "Optimization SNEDDS (Self-Nano Emulsifying Drug Delivery System) of ZnO that dispersed into Hydrogel Matrix as UV-Protective," *IOP Conf. Ser. Mater. Sci. Eng.*, vol. 578, no. 1, 2019, doi: 10.1088/1757-899X/578/1/012058.

[64] Raharjo and Mugi, "Panduan Pengukuran Viskositas Fluida Menggunakan Viscometer Brookfield," *Lab. Ind.*, p. 9, 2019.

[65] A. Aliyah, W. W. Oktaviana, K. S. Dwipayanti, A. P. Erdiana, R. N. Utami, and A. D. Permana, "Enhanced skin localization of doxycycline using microparticles and hydrogel: Effect of oleic acid as penetration enhancer," *Pharmaciana*, vol. 11, no. 2, p. 239, 2021, doi:

10.12928/pharmaciana.v11i2.21044.

[66] A. K. Umar, M. Butarbutar, S. Sriwidodo, and N. Wathoni, “Film-forming sprays for topical drug delivery,” *Drug Des. Devel. Ther.*, vol. 14, pp. 2909–2925, 2020, doi: 10.2147/DDDT.S256666.

[67] S. Url, C. Press, T. J. Archive, and T. J. Archive, *Encyclopedia of Geoarcheology*, vol. 23, no. 1998. 2007.

[68] “(Characterization) 88550_BS EN13726-1 2002 (002).”

[69] J. Grip *et al.*, “Development of a novel beta-glucan supplemented hydrogel spray formulation and wound healing efficacy in a db/db diabetic mouse model,” *Eur. J. Pharm. Biopharm.*, vol. 169, no. October, pp. 280–291, 2021, doi: 10.1016/j.ejpb.2021.10.013.

[70] J. K. Indonesia and N. A. Sayuti, “Artikel Riset Formulasi dan Uji Stabilitas Fisik Sediaan Gel Ekstrak Daun Ketepeng Cina (Cassia alata L .) Formulation and Physical Stability of Cassia alata L . Leaf Extract Gel penyakit yang menyerang pada permu- Malassezia furfur . Penyakit yang diseb,” vol. 5, no. 2, pp. 74–82, 2015.

[71] A. Indalifiany, M. Hajrul Malaka, A. Fristiohady, R. Andriani, and M. Harul Malaka, “Jurnal Farmasi Sains dan Praktis Formulasi dan Uji Stabilitas Fisik Nanoemulgel Ekstrak Etanol Spons Petrosia Sp. Formulation and Physical Stability Test of Nanoemulgel Containing Petrosia Sp. Ethanolic Extract,” *Jfsp*, vol. 7, no. 3, pp. 2579–4558, 2021, [Online]. Available: http://journal.ummgl.ac.id/index.php/pharmacy

[72] T. Imanto, R. Prasetiawan, and E. R. Wikantyasning, “Formulasi dan Karakterisasi Sediaan Nanoemulgel Serbuk Lidah Buaya (Aloe Vera L.),” *Pharmacon J. Farm. Indones.*, vol. 16, no. 1, pp. 28–37, 2019, doi: 10.23917/pharmacon.v16i1.8114.

[73] Yenny Harliantika and Noval, “Formulasi dan Evaluasi Hidrogel Ekstrak Etanol Daun Gaharu (Aquilaria malacensis Lamk.) dengan Kombinasi Basis Karbopol 940 dan HPMC K4M,” *J. Pharm. Sci.*, vol. 6, no. 1, pp. 37–46, 2021, doi: 10.53342/pharmasci.v6i1.208.

[74] B. Szulc-Musioł, W. Siemiradzka, and B. Dolińska, “Formulation and Evaluation of Hydrogels Based on Sodium Alginate and Cellulose

Derivatives with Quercetin for Topical Application," *Appl. Sci.*, vol. 13, no. 13, 2023, doi: 10.3390/app13137826.

[75] M. Diki Wahyudi *et al.*, "Formulasi dan Uji Stabilitas Fisik Gel Ekstrak Batang Pisang Mauli (Musa acuminata)," *Dentin J. Kedokt. Gigi*, vol. 2022, no. 3, pp. 161–165, 2022.

[76] NA Sayuti, "Formulasi dan Uji Stabilitas Fisik Sediaan Gel Ekstrak Daun Ketepeng Cina (Cassia alata L.)," *J. Kefarmasian Indones.*, vol. 5, no. 2, pp. 74–82, 2015.

[77] H. M. Wijaya and R. N. Lina, "Formulasi Dan Evaluasi Fisik Sediaan Suspensi Kombinasi Ekstrak Biji Pepaya (Carica Papaya L.) Dan Umbi Rumput Teki (Cyperus Rotundus L.) Dengan Variasi Konsentrasi Suspending Agent Pga (Pulvis Gummi Arabici) Dan Cmc-Na (Carboxymethylcellulosum Natrium)," *Cendekia J. Pharm.*, vol. 5, no. 2, pp. 166–175, 2021, doi: 10.31596/cjp.v5i2.160.

[78] M. S. Ågren, "An amorphous hydrogel enhances epithelialisation of wounds," *Acta Derm. Venereol.*, vol. 78, no. 2, pp. 119–122, 1998, doi: 10.1080/000155598433449.

[79] D. Dominica, Y. Harianti, R. Versita, and F. Shufyani, "Original Article Effect of palm leaf extract (Elaeis Guineensis Jacq .) addition on the viscosity of anti-acne sunscreen cream Pengaruh penambahan ekstrak kental daun kelapa sawit (Elaeis Guineensis Jacq .) terhadap viskositas krim tabir surya antijera," vol. 1, pp. 181–186, 2025.

[80] A. Widyasanti, M. Indriyani, S. H. Putri, and F. Fillianty, "Kajian Stabilitas Losion Berbasis Minyak Kelapa dengan Kombinasi Surfaktan Tween 80 dan Setil Alkohol," *Teknotan*, vol. 17, no. 1, p. 33, 2023, doi: 10.24198/jt.vol17n1.5.

[81] D. Chandra, "Uji Fisikokiimia Sediaan Emulsi, Gel, Emulgel Ekstrak Etanol Goji Berry," *Jayapangus Press*, vol. 11, no. 2, pp. 219–228, 2022.