# DAFTAR PUSTAKA

Afianti, H. P., & Murrukmihadi, M. (2015). Pengaruh Variasi Kadar Gelling Agent terhadap Sifat Fisik dan Aktivitas Antibakteri Sediaan Gel Ekstrak Etanolik Daun Kemangi (Ocimum basilicum L. forma citratum Back.). *Majalah Farmaseutik*, *11*(2), 307–315. https://jurnal.ugm.ac.id/majalahfarmaseutik/article/view/24121/15777

Ahmad, Z., & Damayanti. (2018). Penuaan Kulit: Patofisiologi dan Manifestasi Klinis. *Berkala Ilmu Kesehatan Kulit Dan Kelamin*, *30*(3), 208–215. https://doi.org/10.20473/bikk.V30.3.2018.208-215

Aprilia, C., Faisal, M., & Prasetya, F. (2022). Formulasi dan Optimasi Basis Serum *Xanthan gum* dengan Variasi Konsentrasi. *Proceeding of Mulawarman Pharmaceuticals Conferences*, *15*, 30–34. https://doi.org/10.25026/mpc.v15i1.613

Apristasari, O. (2019). *Pengaruh Perbandingan Natrium Benzoat dan DMDM Hydantoin terhadap Stabilitas Fisik dan Mikrobiologi Sediaan Semprot Wajah Ekstrak Bengkuang dan Ekstrak Kubis Ungu.* [Universitas Muhammadiyah Prof. DR. HAMKA.]. http://repository.uhamka.ac.id/id/eprint/20245

Aryanti, R., Perdana, F., & Syamsudin, R. A. M. R. (2021). Telaah Metode Pengujian Aktivitas Antioksidan pada Teh Hijau (Camellia sinensis (L.) Kuntze). *Jurnal Surya Medika*, *7*(1), 15–24. https://doi.org/10.33084/jsm.v7i1.2024

Aziza, N. A., Riyanta, A. B., & Purgiyanti. (2022). The Effect of HPMC-Chitosan Concentration on Physical and Antioxidant Properties of Serum Pegagan Extract (Centella asiatica L. Urban). *Jurnal Insan Cendekia*, *9*(1), 9–19. https://doi.org/10.35874/jic.v9i1.953

Bajwa, G. S., Sammon, C., Timmins, P., & Melia, C. D. (2009). Molecular and mechanical properties of hydroxypropyl methylcellulose solutions during the sol:gel transition. *Polymer*, *50*(19), 4571–4576. https://doi.org/10.1016/j.polymer.2009.06.075

Baskara, I. B. B., Suhendra, L., & Wrasiati, L. P. (2020). Pengaruh Suhu Pencampuran dan Lama Pengadukan terhadap Karakteristik Sediaan Krim. *Jurnal Rekayasa Dan Manajemen Agroindustri*, *8*(2), 200. https://doi.org/10.24843/JRMA.2020.v08.i02.p05

BPOM RI. (2022). Peraturan Badan Pengawas Obat Dan Makanan Nomor 17 Tahun 2022 Tentang Perubahan Atas Peraturan Badan Pengawas Obat Dan Makanan Nomor 23 Tahun 2019 Tentang Persyaratan Teknis Bahan Kosmetika. In *Badan Pengawas Obat Dan Makanan*.

Cahyani, N. W. D., Siampa, J. P., & Mansauda, R. L. K. (2024). Formulasi dan Uji Efektivitas Antioksidan Sediaan Hidrogel Ekstrak Etanol Daun Miana (

Coleus Scutellarioides (L.) Benth). *Jurnal Kesehatan Tambusai*, *5*(3), 6653–6660. https://journal.universitaspahlawan.ac.id/index.php/jkt/article/download/32072/22202/110927

Carrer, V., Alonso, C., Pont, M., Zanuy, M., Córdoba, M., Espinosa, S., Barba, C., Oliver, M. A., Martí, M., & Coderch, L. (2020). Effect of Propylene Glycol on The Skin Penetration of Drugs. *Archives of Dermatological Research*, *312*(5), 337–352. https://doi.org/10.1007/s00403-019-02017-5

Chen, H. J., Lee, P. Y., Chen, C. Y., Huang, S. L., Huang, B. W., Dai, F. J., Chau, C. F., Chen, C. S., & Lin, Y. S. (2022). Moisture Retention of Glycerin Solutions with Various Concentrations: a Comparative Study. *Scientific Reports*, *12*(1), 1–7. https://doi.org/10.1038/s41598-022-13452-2

Di Meo, S., & Venditti, P. (2020). Evolution of the Knowledge of Free Radicals and Other Oxidants. *Oxidative Medicine and Cellular Longevity*, *2020*, 9829176. https://doi.org/10.1155/2020/9829176

Faizah, N., Sartini, Aliyah, Subehan, Latifah, & Risfah. (2023). Pengaruh Bahan Peningkat Penetrasi Kombinasi Propilenglikol dan Gliserin terhadap Kestabilan Fisik dari Gel Antibakteri Ekstrak the Hijau (Camellia sinensis L.). In *Majalah Farmasi dan Farmakologi* (Vol. 27, Issue 1, pp. 22–26).

Fauzah, Noval, & Rohama. (2024). Formulasi Sediaan Serum dari Ekstrak Labu Kuning (Cucurbita Moschata) dengan Variasi Konsentrasi Basis *Xanthan gum* sebagai Antioksidan. *Jurnal Surya Medika*, *10*(1), 277–287. https://doi.org/10.33084/jsm.v10i1.7229

Fiume, M. M., Bergfeld, W. F., Belsito, D. V, Hill, R. A., Klaassen, C. D., Liebler, D., Marks, J. G., Shank, R. C., Slaga, T. J., Snyder, P. W., & Andersen, F. A. (2012). Safety Assessment of Propylene Glycol, Tripropylene Glycol, and PPGs as Used in Cosmetics. *International Journal of Toxicology*, *31*(Supplement 2), 245S-260S. https://doi.org/10.1177/1091581812461381

Fiume, M. M., Heldreth, B., Bergfeld, W. F., Belsito, D. V., Hill, R. A., Klaassen, C. D., Liebler, D. C., Marks, J. G., Shank, R. C., Slaga, T. J., Snyder, P. W., Andersen, F. A., & Gill, L. J. (2016). Safety Assessment of Microbial Polysaccharide Gums as Used in Cosmetics. *International Journal of Toxicology*, *35*(Supplement 1), 5S-49S. https://doi.org/10.1177/1091581816651606

Food and Drug Administration. (n.d.). *Food and Drug Administration Cosmetic Labeling Guide*.

Food and Drug Administration. (2025). *Cosmetics & U.S. Law*. Food and Drug Administration. https://www.fda.gov/cosmetics/cosmetics-laws-regulations/fda-authority-over-cosmetics-how-cosmetics-are-not-fda-approved-are-fda-regulated

Furtado, I. F. S. P. C., Sydney, E. B., Rodrigues, S. A., & Sydney, A. C. N. (2022). *Xanthan gum*: Applications, Challenges, and Advantages of This Asset of Biotechnological Origin. *Biotechnology Research and Innovation*, *6*(1), e202204. https://doi.org/10.4322/biori.202205

Garg, A., Aggarwal, D., Garg, S., & Singla, A. K. (2002). Spreading of semisolid formulations: An update. *Pharmaceutical Technology North America*, *26*(9), 84–105. https://alfresco-static-files.s3.amazonaws.com/alfresco_images/pharma/2014/08/22/c0e3f115-2d30-47c3-8a80-c478037fd1cf/article-30365.pdf

Haerani, A., Chae*run*isa, A. Y., & Subranas, A. (2018). Antioksidan untuk Kulit. *Farmaka*, *16*(2), 135–151. https://jurnal.unpad.ac.id/farmaka/article/view/17789

Hansan, M., Raneesha, P., P, S. M., Dilip, D., K, M. N., & Serene, E. (2024). Breakthroughs in Facial Serum Innovation and Skin Absorption Techniques. *Journal of Pharmaceutical Sciences and Research*, *16*(7), 47–52. https://www.jpsr.pharmainfo.in/Documents/Volumes/vol16issue07/jpsr16072401.pdf

Hidayat, I. R., Zuhrotun, A., & Sopyan, I. (2021). Design-Expert Software sebagai Alat Optimasi Formulasi Sediaan Farmasi. *Majalah Farmasetika*, *6*(1), 99–120. https://doi.org/10.24198/mfarmasetika.v6i1.27842

Information, N. C. for B. (2025). *DMDM Hydantoin*. Pubchem. https://pubchem.ncbi.nlm.nih.gov/compound/22947

Jomova, K., Alomar, S. Y., Alwasel, S. H., Nepovimova, E., Kuca, K., & Valko, M. (2024). Several Lines of Antioxidant Defense Against Oxidative Stress: Antioxidant Enzymes, Nanomaterials with Multiple Enzyme-Mimicking Activities, and Low-Molecular-Weight Antioxidants. In *Archives of Toxicology* (Vol. 98, Issue 5). Springer Berlin Heidelberg. https://doi.org/10.1007/s00204-024-03696-4

Joshi, S., Joshi, H., & Kamal, S. (2024). Unlocking the Power of Nature : A Comprehensive Review of Herbal Face Serums. *International Journal of Pharmaceutical Sciences*, *2*(4), 1106–1122. https://doi.org/10.5281/zenodo.11074180

Kammeyer, A., & Luiten, R. M. (2015). Oxidation Events and Skin Aging. *Ageing Research Reviews*, *21*, 16–29. https://doi.org/10.1016/j.arr.2015.01.001

Kumar, A., Rao, K. M., & Han, S. S. (2018). Application of *Xanthan gum* as Polysaccharide in Tissue Engineering: A Review. *Carbohydrate Polymers*, *180*, 128–144. https://doi.org/10.1016/j.carbpol.2017.10.009

Liandhajani, Fitria, N., & Padua Ratu, A. (2022). Karakteristik dan Stabilitas Sediaan Serum Ekstrak Buah Kersen (Muntingia calabura L.) dengan Variasi Konsentrasi. *Jurnal Farmamedika (Pharmamedica Journal)*, *7*(1), 17–27.

https://doi.org/10.47219/ath.v7i1.140

Malau, C. W. (2021). *Narrative Review: Penggunaan Xanthan gum sebagai Emulgator dalam Formulasi Kosmetik* [Universitas Gadjah Mada]. https://etd.repository.ugm.ac.id/penelitian/detail/200742

Mangle, A. P., Bakal, R. L., Hatwar, P. R., Vaishnavi, S., & Jumde, K. S. (2024). The Role of Serums in Addressing Skin Concerns : Exploring Efficacy, Safety and Trends in Beauty and Skincare. *GSC Biological and Pharmaceutical Sciences*, *29*(02), 066–076. https://doi.org/10.30574/gscbps.2024.29.2.0400

Mankar, S., & Vaidya, S. (2024). Review on Face Serum. *Asian Journal of Pharmaceutics*, *18*(3), 740–749. http://www.asiapharmaceutics.info/index.php/ajp/article/view/5626/1664

Mardhiani, Y. D., Yulianti, H., Azhary, D., & Rusdiana, T. (2018). Formulasi dan Stabiltas Sediaan Serum dari Ekstrak Kopi Hijau (Coffe canephora var. Robusta) sebagai Antioksidan. *Indones Natural Research Pharmaceutical Journal*, *2*(2), 19–33. https://journal.uta45jakarta.ac.id/index.php/INRPJ/article/view/910

Martemucci, G., Portincasa, P., Di Ciaula, A., Mariano, M., Centonze, V., & D'Alessandro, A. G. (2022). Oxidative Stress, Aging, Antioxidant Supplementation and Their Impact on Human Health: An Overview. *Mechanisms of Ageing and Development*, *206*, 111707. https://doi.org/10.1016/j.mad.2022.111707

Masita, M., Sulaiman, T. N. S., Wibowo, W. A., & Daryono, B. S. (2024). Pembuatan Sediaan Serum dari Ekstrak Gama Melon Parfum (GMP) di Laboratorium Farmasi Universitas Gadjah Mada. *Filogeni: Jurnal Mahasiswa Biologi*, *4*(1), 13–18. https://doi.org/10.24252/filogeni.v4i1.34997

Masyitoh, A. N. (2019). *Optimasi Formula Lotion Tetrahidropentagamavunon-5 (THPGV-5) dengan Kombinasi Trietanolamin-Stearat dan Setil Alkohol serta Uji Aktivitas Formula Optimum sebagai Antioksidan* [Universitas Gadjah Mada]. https://etd.repository.ugm.ac.id/penelitian/detail/177459

Mazidah, S. L. (2024). *Optimasi Karbopol dan HPMC Sebagai Gelling Agent Serta Uji Aktivitas Gel Pentagamavunon-5 Sebagai Tabir Surya Secara In Vitro* [Universitas Gadjah Mada]. https://etd.repository.ugm.ac.id/penelitian/detail/234478

Meščić Macan, A., Gazivoda Kraljević, T., & Raić-Malić, S. (2019). Therapeutic Perspective of Vitamin C and Its Derivatives. *Antioxidants*, *8*(8), 247. https://doi.org/10.3390/antiox8080247

Michalak, M. (2022). Plant-Derived Antioxidants: Significance in Skin Health and the Ageing Process. *International Journal of Molecular Sciences*, *23*(585), 1–29. https://doi.org/10.3390/ijms23020585

Molyneux, P. (2004). The Use of the Stable Free Radical Diphenylpicrylhydrazyl

(DPPH) for Estimating Antioxidant Activity. *Journal of Science Technology*, *26*(2), 211–219. https://www.thaiscience.info/journals/article/song/10462423.pdf

Nandkumar, C. P., Waghmare, K. D., & A, G. S. Y. S. G. (2024). Review on Face Serum. *International Journal of Scientific Research and Engineering Development*, *7*(2), 605–609. https://ijsred.com/volume7/issue2/IJSRED-V7I2P88.pdf

Nugraheni, T. S., Setiawan, I., Putri, A. A., Sukmawati, A. W., Khasanah, L. N., Nisa, L. K., Putri, L. N. H., Wulandari, S. K., & Riswana, S. A. (2024). Macam-Macam Metode Pengujian Aktivitas Antioksidan. *Journal of Pharmacy*, *13*(1), 39–50. https://doi.org/10.37013/jf.v13i1.240

Nurlely, Rahmah, A., Ratnapuri, P. H., Srikartika, V. M., & Anwar, K. (2021). Uji Karakteristik Fisik Sediaan Gel Ekstrak Daun Kirinyuh (Chromolaena odorata L.) dengan Variasi Karbopol dan HPMC. *Jurnal Pharmascience*, *8*(2), 79. https://doi.org/10.20527/jps.v8i2.9346

Papaccio, F., D'arino, A., Caputo, S., & Bellei, B. (2022). Focus on the Contribution of Oxidative Stress in Skin Aging. *Antioxidants*, *11*(6), 1121. https://doi.org/10.3390/antiox11061121

Perez-Robles, S., Carotenuto, C., & Minale, M. (2022). Effect on the Thermo-Gelation Process of the Degree and Molar Substitution of HPMC Polymer Hydrogels. *Macromolecular Symposia*, *405*(1), 2–5. https://doi.org/10.1002/masy.202100277

Petruk, G., Giudice, R. Del, Rigano, M. M., & Monti, D. M. (2018). Antioxidants from Plants Protect Against Skin Photoaging. *Oxidative Medicine and Cellular Longevity*, *2018*, 1454936. https://doi.org/10.1155/2018/1454936

Pratiwi, C. N. (2015). *Formulasi Sediaan Serum Alpha Arbutin sebagai Whitening Agent dengan Variasi Konsentrasi Peningkat Penetrasi Gliserin serta Uji Penetrasinya Secara In Vitro* [Sekolah Tinggi Ilmu Farmasi Bhakti Pertiwi]. https://elibrary.stifibp.ac.id/index.php?p=show_detail&id=2899&keywords=

Pratiwi, P. D., & Arnas, D. L. (2024). Aplikasi Simplex Lattice Design untuk Optimasi Emulgator dalam Krim Minyak Atsiri Kulit Jeruk Manis. *Sinteza*, *4*(2), 85–93. https://doi.org/10.29408/sinteza.v4i2.26539

Primasari, A. (2015). Stabilitas Fisik dan pH Sediaan Gel Anti Jerawat Menggunakan Hydroxyethyl Cellulose dan Polyacrilamide-C13-14 Isoparafin-Laurenth-7 sebagai Basis Gel. *Jurnal Ilmiah Mahasiswa Universitas Surabaya*, *4*(2), 1. http://repository.ubaya.ac.id/25165/

Ramadhani, R. A., Riyadi, D. H. S., Triwibowo, B., & Kusumaningtyas, R. D. (2017). Review Pemanfaatan Design Expert untuk Optimasi Komposisi Campuran Minyak Nabati sebagai Bahan Baku Sintesis Biodiesel. *Jurnal Teknik Kimia Dan Lingkungan*, *1*(1), 11–16.

https://doi.org/10.33795/jtkl.v1i1.5

Riaz, T., Iqbal, M. W., Jiang, B., & Chen, J. (2021). A Review of the Enzymatic, Physical, and Chemical Modification Techniques of *Xanthan gum*. *International Journal of Biological Macromolecules*, *186*, 472–489. https://doi.org/10.1016/j.ijbiomac.2021.06.196

Rowe, R. C., Sheskey, P. J., & Owen, S. C. O. (2009). Handbook of Pharmaceutical Excipients Sixth Edition. In R. C. Rowe, P. J. Sheskey, & S. C. O. Owen (Eds.), *Pharmaceutical Press and American Pharmacists Association* (6th ed.). Pharmaceutical Press.

Rowe, R. C., Sheskey, P. J., & Owen, S. C. O. (2020). Handbook of Pharmaceutical Excipients Fifth Edition. In R. C. Rowe, P. J. Sheskey, & S. C. O. Owen (Eds.), *Pharmaceutical Press and American Pharmacists Association* (9th ed.). Pharmaceutical Press.

Rubianti, M. A., & Rosita, C. (2019). Profil Pasien Dermatitis Kontak Alergi akibat Kosmetik. *Berkala Ilmu Kesehatan Kulit Dan Kelamin*, *31*(1), 35–41. https://doi.org/10.20473/bikk.V31.1.2019.35-40

Sardjiman, Reksohadiprodjo, M. S., Hakim, L., Van Der Goot, H., & Timmerman, H. (1997). 1,5-Diphenyl-1,4-pentadiene-3-ones and cyclic analogues as antioxidative agents. Synthesis and structure-activity relationship. *European Journal of Medicinal Chemistry*, *32*(7–8), 625–630. https://doi.org/10.1016/S0223-5234(97)83288-6

Saryanti, D., Nugraheni, D., Astuti, N. S., & Pertiwi, N. I. (2019). Optimasi Karbopol Dan HPMC Dalam Formulasi Gel Antijerawat Nanopartikel Ekstrak Daun Sirih (Piper betle Linn). *Jurnal Ilmiah Manuntung*, *5*(2), 192–199. https://doi.org/doi.org/10.51352/jim.v5i2.293

Satria, E. H. (2023). *Proteksi Senyawa Analog Kurkumin, Pentagamavunon-5 (PGV-5), terhadap Akumulasi ROS Intraseluler Sel Human Dermal Fibroblasts yang Diinduksi UVA-Photoaging* [Universitas Gadjah Mada]. https://etd.repository.ugm.ac.id/penelitian/detail/222806

Sawiji, R. T. (2024). Pengaruh Variasi Konsentrasi Gelling Agent (*Xanthan gum* dan Carbopol) pada Sediaan Serum dengan Bahan Aktif Retinoic Acid. *Acta Holistica Pharmaciana*, *6*(1), 1–10. https://doi.org/10.62857/ahp.v6i1.157

Setiawan, P. A., Rahmawanty, D., & Sari, D. I. (2023). Formulasi dan Evaluasi Sifat Fisik Sediaan Serum Wajah Ekstrak Daun Singkong (Manihot esculenta) dengan Variasi Konsentrasi *Xanthan gum*. *Jurnal Pharmascience*, *10*(2), 394–404. https://doi.org/10.20527/jps.v10i2.15214

Shin, S. H., Lee, Y. H., Rho, N. K., & Park, K. Y. (2023). Skin Aging from Mechanisms to Interventions: Focusing on Dermal Aging. *Frontiers in Physiology*, *14*, 1195272. https://doi.org/10.3389/fphys.2023.1195272

Shofiani, D., Tanjung, Y. P., & Akmal, T. (2025). Optimasi Formula Sediaan

Losion Ekstrak Bunga Rosella ( Hibiscus sabdariffa L .) dengan Box-Behnken Design Formula Optimization of Lotion with Roselle ( Hibiscus sabdariffa L .) Flower Extract Using Box-Behnken Design. *Jurnal Farmasi (Journal of Pharmacy)*, *14*(1), 1–14. https://ojs.stikesnas.ac.id/index.php/jf/article/view/368

Silva, S. A. M., Michniak-Kohn, B., & Leonardi, G. R. (2017). An Overview about Oxidation in Clinical Practice of Skin Aging. *Anais Brasileiros de Dermatologia*, *92*(3), 367–374. https://doi.org/10.1590/abd1806-4841.20175481

Dewan Standardisasi Nasional. (1996). *SNI 16-4399-1996. Sediaan Tabir Surya.* (pp. 1–4).

Statista. (2024). *Revenue of the furniture market in Indonesia in 2023, by segment*. https://www-statista-com.upm.remotlog.com/forecasts/1451030/indonesia-furniture-market-revenue-by-segment

Sutjahjokartiko, S. (2017). Pengaruh Konsentrasi Pengawet DMDM Hydantoin terhadap Karakteristik, Stabilitas Fisika & pH pada Water Based Pomade yang Mengandung Ekstrak Aloe Vera. *Jurnal Ilmiah Mahasiswa Universitas Surabaya*, *6*(2), 553–566. https://journal.ubaya.ac.id/index.php/jimus/article/view/939

Sutriningsih, & Astuti, I. W. (2016). Uji Antioksidan dan Formulasi Sediaan Masker Peel-Off dari Ekstrak Biji Alpukat (Persea americana Miil.) dengan Perbedaan Konsentrasi PVA (Polivinil Alkohol). *Indonesi Natural Research Pharmaceutichal Journal*, *1*(2), 67–75. https://journal.uta45jakarta.ac.id/index.php/INRPJ/article/view/906/614

Suwanti, I. S. (2015). *Sintesis dan Uji Antioksidan Senyawa Tetrahidropentagamavunon-5 dengan Metode Penangkapan Radikal DPPH dan Reduksi Ion Feri* [Universitas Gadjah Mada]. https://etd.repository.ugm.ac.id/penelitian/detail/85570

Sworn, G. (2009). *Xanthan gum*. In *Food Stabilisers, Thickeners and Gelling Agents* (pp. 325–342). Wiley. https://doi.org/10.1002/9781444314724.ch17

Syach, M. F., Zulkarnain, A. K., & Ritmaleni. (2024). *Formulasi dan Uji Stabilitas Fisik Sediaan Krim Tabir Surya Pentagamavunon- 5 Serta Uji Aktivitasnya Secara In Vitro*. *20*(2), 145–153. https://doi.org/10.22146/farmaseutik.v20i2.95459

Tranggono, R. I., & Latifah, F. (2007). *Buku Pegangan Ilmu Pengetahuan Kosmetik*. PT Gramedia Pustaka Utama

Wahidah, S., Saputri, G. A. R., & Nofita, N. (2024). Formulasi dan Uji Stabilitas Sediaan Gel Ekstrak Etanol Daun Asam Jawa (Tamarindus indica L.) dengan Variasi Gelling Agent. *Jurnal Mandala Pharmacon Indonesia*, *10*(2), 508–518. https://doi.org/10.35311/jmpi.v10i2.623

Walters, R. M., Khanna, P., Hamilton, M., Mays, D., & Telofski, L. (2015). Human Cumulative Irritation Tests of Common Preservatives Used in Personal Care Products: A Retrospective Analysis of Over 45 000 Subjects. *Toxicological Sciences*, *148*(1), 101–107. https://doi.org/10.1093/toxsci/kfv158

Warraich, U. e. A., Hussain, F., & Kayani, H. U. R. (2020). Aging - Oxidative stress, antioxidants and computational modeling. *Heliyon*, *6*(5), e04107. https://doi.org/10.1016/j.heliyon.2020.e04107

Wiegand, T. J. (2023). Propylene Glycol. *Encyclopedia of Toxicology, Fourth Edition*, *7*, 981–986. https://doi.org/10.1016/B978-0-12-824315-2.01179-9

Winarta, N. P. P. R. W. (2023). *Formulasi Emulgel Tabir Surya Pentagamavunon 5 dan Uji Stabilitas Sediaan* [Universitas Gadjah Mada]. https://etd.repository.ugm.ac.id/penelitian/detail/234500

Wiyono, A. S., Lestari, T. P., & Wardani, V. S. (2020). Pengaruh HPMC sebagai Gelling Agent pada Optimasi Formula Gel Ekstrak Kasar Bromelin Kulit Nanas (*Ananas comossus* L . Merr). *Jurnal Sintesis: Penelitian Sains, Terapan Dan Analisisnya*, *1*(2), 52–59. https://jurnal.iik.ac.id/index.php/jurnalsintesis/article/view/10

Zam Zam, A. N., & Musdalifah, M. (2022). Formulasi dan Evaluasi Kestabilan Fisik Krim Ekstrak Biji Lada Hitam (Piper nigrum L.) Menggunakan Variasi Emulgator. *Journal Syifa Sciences and Clinical Research*, *4*(2), 304–313. https://doi.org/10.37311/jsscr.v4i2.14146

Zubaydah, W. O. S., Novianti, R., & Indalifiany, A. (2022). Pengembangan dan PengujianGSifat Fisik Sediaan Spray gel darı Ekstrak Etanol Batang Etlıngera rubroloba Menggunakan Basıs Gel Na-CMC. *Journal Borneo*, *2*(2), 38–49. https://doi.org/10.57174/jborn.v2i2.27