

BAB 5

KESIMPULAN DAN SARAN

5.1 Kesimpulan

1. Peningkatan konsentrasi ekstrak bunga telang (10%, 15% dan 20%) pada sediaan pemerah pipi atau *rouge* dalam bentuk stik memenuhi uji mutu fisik (organoleptis, homogenitas, pH, titik leleh), uji efektivitas (daya lekat, daya oles) dan aktivitas antioksidan.
2. Formula dengan hasil terbaik pada sediaan pemerah pipi atau *rouge* dalam bentuk stik yang memenuhi uji mutu fisik (organoleptis, homogenitas, pH, titik leleh), uji efektivitas (daya lekat, daya oles) dan aktivitas antioksidan adalah formula III (20% ekstrak bunga telang).

5.2 Saran

Pada penelitian selanjutnya disarankan untuk mempertimbangkan bentuk sediaan yang dipilih. Ekstrak bunga telang yang merupakan senyawa polar kurang kompatibel dengan basis sediaan yang berupa lilin atau wax yang memerlukan pemanasan tinggi dalam formulasinya sehingga kestabilan ekstrak dalam bentuk stik akan menurun dan menyebabkan hasil uji antioksidan menjadi kurang akurat.

DAFTAR PUSTAKA

- Akhila, J. B., Subash, C. M. P., Prasobh, G. R., Renjini, A. S., Sahishna, S. S. and Rejakumar P. 2022, An Overview on Loose Blush Powder, *International Journal of Pharmaceutical Research and Applications*, **7(2)**: 1036-1042.
- Al-shboul, T., Sagala, F. and Nassar, N. N. 2023. Role of surfactants, polymers, nanoparticles, and its combination in inhibition of wax deposition and precipitation: A review, *Advances in Colloid and Interface Science*, **315(1)**: 102-904.
- Anilkumar, V. and Dhanaraju, M. D. 2021, A Review on Herbal lipsticks, *Journal of Pharmaceutical Advanced Research*, **4(4)**: 1179-1190.
- Anonim, 2017. *European Patent Application : Lipstick Formulation*, Jouve: Paris
- Anonim, 2019. *Draft East African Standard : Lipstick Specification 1st Edition*, Tanzania: East African Community
- Badan Pengawas Obat dan Makanan Republik Indonesia (BPOM RI). 2021, *Bentuk dan Jenis Sediaan Kosmetika Tertentu yang Dapat Diproduksi Oleh Industri Kosmetika yang Memiliki Sertifikat Produksi Kosmetika Golongan B*, Jakarta: Badan Pengawas Obat dan Makanan.
- Badan Pengawas Obat dan Makanan Republik Indonesia (BPOM RI). 2022, *Perubahan atas Peraturan Badan Pengawas Obat dan Makanan Nomor 23 Tahun 2019 Tentang Persyaratan Teknis Bahan Kosmetika*, Jakarta: Badan Pengawas Obat dan Makanan.
- Badan Pengawas Obat dan Makanan Republik Indonesia (BPOM RI). 2019, *Pedoman Cara Pembuatan Kosmetika yang Baik*, Jakarta: Badan Pengawas Obat dan Makanan.
- Bala, R., Dixit, A., Pareek, B., Arora, A. K., Chaundary, A. and Jaswal, V. S. 2021, A Review on Zinc Oxide Nanoparticles and Their Applications, *International Journal of Research in Engineering & Advanced Technology*, **8(6)**: 36-43.
- Barel, A. O., Paye, M., & Maibach, H. I. 2014, *Handbook of Cosmetic Science and Technology*. CRC Press

- Bergfeld, M.D., Donald V. B., Ronald A. H., Klaassen C. D., Liebler D. C., Marks J. G., Shank R. C, Slaga T. J., and Snyder P. W. 2019, *Cosmetic Ingredient Review: Safety Assessment of Glycerin as Used in Cosmetics*, Washington DC
- Bollag, W. B., Aitkens, L., White, J. and Hyndman, K. A. 2020, Review: Aquaporin-3 in the epidermis: more than skin deep, *American Journal of Physiology-Cell Physiology*, **318(6)**: 1144 – 1153.
- Budiarti, N. T., Ayuningtyas, N. D. dan Pitarisa, A. P. 2023. Formulasi dan Evaluasi Sediaan Lipbalm Ekstrak Bunga Telang (*Clitoria ternatea* L.) dengan Variasi Beeswax, *Jurnal Farmasi Indonesia*, **1(2)**: 1–9.
- Butarbutar, M. E. T. dan Chaerunnisa, A. Y. 2021. Peran Pelembab dalam Mengatasi Kulit Kering, *Majalah Farmasetika*, **6(1)**: 56-69.
- Butler H. 1993, *Poucher's Perfumes, Cosmetics and Soaps Volume 3 Ninth Edition*, Hong Kong: Springer Science Business Media Dordrecht.
- European Directorate for the Quality of Medicines and HealthCare. 2023, *European Pharmacopoeia 11th Edition*, France: Council of Europe
- Dewi, G. K., Widyorini, R. and Lukmandaru, G. 2022, Application of Maltodextrin-based Adhesive on Particleboard Made From *Salacca* Frond, *BioResources*, **17(1)**: 190-206
- Direktorat Jenderal Kefarmasian dan Alat Kesehatan. 2017, *Farmakope Herbal Indonesia Edisi II*, Jakarta: Kementerian Kesehatan Republik Indonesia.
- Direktorat Jenderal Kefarmasian dan Alat Kesehatan. 2020, *Farmakope Indonesia Edisi VI*, Jakarta: Kementerian Kesehatan Republik Indonesia.
- Direktorat Jenderal Pengawasan Obat dan Makanan Republik Indonesia. 2000, *Parameter Standar Umum Ekstrak Tumbuhan Obat*, Jakarta: Departemen Kesehatan Republik Indonesia.
- Direktorat Jenderal Pengawasan Obat dan Makanan Republik Indonesia. 1979, *Farmakope Indonesia Edisi III*, Jakarta: Departemen Kesehatan Republik Indonesia.
- Draelos, Z. D. and Thaman, L. A. 2006, *Cosmetic Formulation of Skin Care Products*, Taylor & Francis Group: New York
- Dukre, T. P., Sangale, S. S., Shelke, A. K., Thorat, P. S. and Vaidya, K. D. 2023, Overview on herbal lipstick: Benefits, method of preparation

and evaluation parameters, *International Journal of Pharmacognosy and Pharmaceutical Sciences*, **5(2)**: 32-35.

Escudero, F. R., Gonzales, S. C., Gurrea, M. L. C., Chavez, K. C., Atencio, J. B., Ordonez, E. S., Munoz, A. M. and Carretero, A. S. 2023, Optimizing vacuum drying process of polyphenols, favanols and DPPH radical scavenging assay in pod husk and bean shell cocoa, *Scientific Reports*, **13(1)**: 1 – 15.

Esposito, C. L. and Kirilov, P. 2021, Preparation, Characterization and Evaluation of Organogel-Based Lipstick Formulations: Application in Cosmetics, *Gels*, **7(97)**: 1 – 15.

European Commission. 2021, "Regulation (EC) No 1223/2009 of the European Parliament and of the Council on cosmetic products" Retrieved from: European Commission - Cosmetic Regulation

Fikayuniar, L., Kuswanti, A., Rahmawati, E. S., Immelia, R. P. dan Ismayanti, S. 2023, *Literature Review : Identifikasi Parameter Nonspesifik Ekstrak Etanol Bunga Telang (Clitoria Ternatea L.)*, *Jurnal Ilmiah Wahana Pendidikan*, **9 (16)**: 502-508.

Food and Drug Administration (FDA). 2023, "Color Additives: D&C Red No. 6 and D&C Red No. 7." Retrieved from: FDA Color Additives

Fu, X., Wu, Q., Wang, J., Chen, Y., Zhu, G., Zhu, Z. 2021, Spectral Characteristic, Storage Stability and Antioxidant Properties of Anthocyanin Extracts from Flowers of Butterfly Pea (*Clitoria ternatea* L.), *Molecules*, **26(7000)**: 1-12

Gamage, G.C.V.G., Lim, Y.Y. and Choo, W.S. 2021, Anthocyanins from *Clitoria ternatea* Flower: Biosynthesis , Extraction, Stability, Antioxidant Activity, and Applications. *Frontiers in Plant Sciences*, **12(1)**: 1-17.

Ghildiyal, J. C., Tewari, L., Juyal, P., Rajwar, G. S. and Kandpal, H. 2021, *Taxonomy of Angiosperms and Biodiversity*, pp. 140–145, Haldwani: Department of Botany School of Sciences.

Gilchrist, A. J. 2023, *Making Quality Cosmetics : Good Manufacturing Practice and ISO 22716:2007*, United Kingdom: Royal Society of Chemistry

Hakim, A. R. dan Saputri, R. 2020, Narrative Review: Optimasi Etanol Sebagai Pelarut Senyawa Flavonoid Dan Fenolik, *Jurnal Surya Medika*, **6(1)**: 177 – 180.

- Handito, D., Basuki, E., Saloko, S., Dwikasari, L. G. and Triani, E. 2022, Analisis Komposisi Bunga Telang (*Clitoria ternatea L.*) sebagai Antioksidan Alami pada Produk Pangan, *Prosiding SAINTEK*, **4(1)**: 64-70.
- Hidayat, R. and Wulandari, P. 2021, Methods of Extraction: Maceration, Percolation and Decoction, *Eureka Herba Indonesia*, **2 (1)**: 68-74.
- Husain, A., Chanana, H., Khan, S. A., Dhanalekshmi, U. M., Ali, M., Alghamdi, A. A. and Ahmad, A. 2022, Chemistry and Pharmacological Actions of Delphinidin a Dietary Purple Pigment in Anthocyanin Forms, *Journal Frontiers in Nutrition*, **9(1)**: 1 – 24.
- Hutajulu, T. F., Sari, R. dan Djumarman, 2008, Identifikasi Senyawa Fenol dan Delfinidin pada Kembang Telang (*Clitoria ternatea L.*) Serta Uji Efektivitasnya Terhadap *Staphylococcus aureus* Penyebab Radang Mata, *Journal of Agro-based Industry*, **25(2)**: 35-44.
- Huynh, A., Maktabi, B., Reddy, C. M., O'Neil, G. W., Chandler, M. and Baki, G. 2020, Evaluation of alkenones, a renewably sourced, plant-derived wax as a structuring agent for lipsticks, *International Journal of Cosmetic Science*, **42(1)**: 146–155.
- Jeyaraj, E. J., Lim, Y. Y., Choo, W. S. 2021, Extraction Methods of Butterfly Pea (*Clitoria ternatea*) Flower and Biological Activities of Its Phytochemicals, *Journal Food Science Technology*, **58(6)**: 2054–2067.
- Junio, E. J. M. R., Stephen, J. R. V., Muthuvvel, M., Roy, A., Rodrigue, P. A., Filho, M. J. A., Teixeria, R. A., Barbosa, A. P. and Benjamin, S. R. 2022, *Chemistry, Biological Activities, and Uses of Carnauba Wax*, Springer Nature, Switzerland
- Kirkbride, L., Humphries, L., Kozielska, P. and Curtis, H. 2021, Designing a Suitable Stability Protocol in the Face of a Changing Retail Landscape, *Cosmetics*, **8 (64)**: 1 – 8.
- Li, N., Wang, Q., Zhou, J., Li, S., Liu, J. and Chen, H. 2022, *Review: Insight into the Progress on Natural Dyes: Sources, Structural Features, Health Effects, Challenges, and Potentia*, *Molecules*, **27(3291)**: 1 - 34.
- Lim, K. M. 2021, Skin Epidermis and Barrier Function, *International Journal of Molecular Sciences*, **22(3035)**: 1 – 3.

- Lim, Z. H., Al-salim, H. S., Ridzuan, N., Nguele, R. and Sasaki, K. 2018. Effect of surfactants and their blend with silica nanoparticles on wax deposition, *Petroleum Science*, **15(1)**: 577–590.
- Lundanes, E., Reubaet, L. and Greibrokk, T. 2014, *Chromatography Basic Principles, Sample Preparations and Related Methods*, Wiley-Verlag, Germany
- Marpaung, A. M. 2020, Tinjauan Manfaat Bunga Telang (*Clitoria ternatea L.*) Bagi Kesehatan Manusia, *Journal of Functional Food and Nutraceutical*, **1(2)**: 1-23.
- Mawazi, S. M., Aqilah, N., Othman, N. and Alolayan, S. O. 2022, Lipsticks History, Formulations, and Production: A Narrative Review, *Cosmetics*, **9(25)**: 1 – 19.
- Mithal, B. M and Saha, R. N. 2000, *A Handbook of Cosmetics Chapter 1: An Introduction*, Vallabh Prakashan, New Delhi
- Mitsui, T. 1997, *New Cosmetic Science*, Elsevier Science, New York, pp: 370 – 389.
- Mittal, K. L. and Bui, H. S. 2021, *Surface Science and Adhesion in Cosmetics 1st edition*, Wiley Scrifener Publishing, USA
- Multinosa, R. R., Shirodkar, S., Arnold, M. and Michalowska, A. G. 2023, Review: *Clitoria ternatea* Flower and Its Bioactive Compounds: Potential Use as Microencapsulated Ingredient for Functional Foods, *Applied Sciences*, **13(1)**: 1-24.
- Mustapha, S., Tijani, J. O., Ndamitso, M. M., Abdulkareem, S. A., Shuaib, D. T., Mohammed, A. K. and Sumaila, A. 2020, The role of kaolin and kaolin/Z nanoadsorbents in adsorption studies for tannery wastewater treatment, *Scientific Reports*, **10 (13068)**: 1-22.
- Nassour, R., Ayash, A. and Al-Tameemi, K. 2020, Anthocyanin pigments: Structure and biological importance, *Journal of Chemical and Pharmaceutical Sciences*, **13(4)**: 45 – 57.
- Novianti, W. 2022, Formulasi dan Evaluasi Sediaan Lip Balm Ekstrak Bunga Telang (*Clitoria ternatea L.*) Sebagai Pewarna Alami, *Skripsi*, Program Studi S1 Farmasi Fakultas Farmasi Universitas Bakti Tunas Husada: Tasikmalaya.
- Nurapni, D., Risma, K., Musa, K. A. E., Ardianti, R. and Dalimunthe, Y. A. S. 2023, Comparison of Standardization of Ash Content of Butterfly

Pea Simplicia (*Clitoria ternatea* L.): A Systematic Literature Review, *Eureka Herba Indonesia*, **4(3)**: 259 – 262.

Ocal, S. K., Kiremitler, N. B., Yazici, A. F., Celik, N., Mutlugun, E. and Onses, M. S. 2022, Natural Wax-Stabilized Perovskite Nanocrystals as Pen-on-Paper Inks and Doughs, *ACS Applied Nano Materials*, **5(5)** : 6201-6212.

Oliveira, R., Ferreira, J., Azevedo, L. F. and Almeida, I. F. 2023, An Overview of Methods to Characterize Skin Type: Focus on Visual Rating Scales and Self-Report Instruments, *Cosmetics*, **10(14)**: 1 – 15.

Purba, E. C. 2020, Kembang Telang (*Clitoria ternatea* L.): Pemanfaatan dan Bioaktivitas, *Jurnal EduMatSains*, **4 (2)**: 111-124.

Purwaniati, Arif, A. R., Yuliantini, A. 2020, Analisis Kadar Antosianin Total Pada Sediaan Bunga Telang (*Clitoria ternatea*) Dengan Metode pH Diferensial Menggunakan Spektrofotometri Visible, *Jurnal Farmagazine*, **7(1)**: 18 – 23.

Purwanto, U. M. S., Aprilia, K. dan Sulistiyan. 2022, Antioxidant Activity of Telang (*Clitoria ternatea* L.) Extract in Inhibiting Lipid Peroxidation, *Current Biochemistry*, **9(1)**: 26-37.

Putri, P. S., Chatri, M., Advinda, L. dan Violita. 2023, Characteristics of Saponin Secondary Metabolite Compounds in Plants, *Serambi Biologi*, **8 (2)**: 251-258.

Putri, R. S., Susilowati, A. dan Mudyantini, W. 2022, Antibacterial Activity and TLC-Biotography Profile of The Ethyl Acetate Fraction of Asian Pigeonwings Flower (*Clitoria ternatea*) Against Escherichia coli, *Journal of Biodiversity and Biotechnology*, **2(2)**: 70–75.

Rejakumar, P., Subash, C. M. P., Prasobh, G. R., Renjini, A. S., Sahishna, S. S. and Akhila, J. B. 2022, An Overview on Cream Blush, *International Journal of Pharmaceutical Research and Applications*, **7(2)**: 1659 – 1667.

Rieger, M. M. 2000, *Harry's Cosmeticology 8th Edition Volume 1*, Chemical Publishing Company, New York.

Rifqi, M. 2021, Ekstraksi Antosianin Pada Bunga Telang (*Clitoria ternatea* L.), *Pasundan Food Technology Journal*, **8(2)**: 45-50.

- Sarstedt, M and Mooi, E. 2019, *A Concise Guide to Market Research: The Process, Data and Methods Using IBM SPSS Statistics 3rd Edition*, Springer-Verlag, Germany
- Sentosa, A. F., Santoso, J. dan Purgiyanti, 2024, Uji Aktivitas Antioksidan *Body Butter* Dari Ekstrak Bunga Telang (*Clitoria ternatea L.*), *Jurnal Ilmiah Indonesia*, **9(6)**: 2468 – 2480.
- Sheskey, P. J., Cook, W. G. and Cable, C. G. 2017. *Handbook of Pharmaceutical Excipient 8th Edition*, Pharmaceutical Press, Washington DC.
- Silver, J. 2020. Let Us Teach Proper Thin Layer Chromatography Technique, *Journal of Chemical Education*, **97(1)**: 4217 – 4219.
- Suarna, I. W. and Wijaya, I. M. S. 2021, Butterfly Pea (*Clitoria ternatea L.*) and It's Morphological Variations in Bali, *Journal of Tropical Biodiversity and Biotechnology*, **6(2)**: 1-12.
- Sugiarto, B., Rirung, Y., Ardiyani, A. N. and Achmad, Z. 2022, Extraction of Natural Color of Butterfly Pea (*Clitoria ternatea L.*) With Variables pH-Temperature and Concentration For Food Coloring, *Journal Techno*, **8(1)**: 75 – 82.
- Surya, M. and Gunasekaran, S. 2021, A Review on Recent Scenario of Cosmetics, *International Journal of Pharmaceutical Sciences Review and Reserch*, **68(1)**: 190 – 197.
- Tambare, P., Tamboli, F. A. and More, H. N. 2021, Standardization of herbal drugs: An overview, *International Journal of Pharmacognosy and Pharmaceutical Sciences*, **3(1)**: 9 – 12.
- Taylor, K.M.G and Aulton, M.E. 2022, *Aulton's Pharmaceutics The Design and Manufacture of Medicines Sixth Edition*. China : Elsevier.
- Timilsena, Y.P., Phosanam, A. and Stockmann, R. 2023, Perspectives on Saponins: Food Functionality and Applications, *International Journal of Molecular Sciences*, **24(13.538)**: 1-22.
- Tortora, G. J. and Derrickson, B. H. 2020, *Principles of Anatomy and Physiology 16th Edition*, John Wiley and Sons Inc., United States of America.
- Umamaheswari, D., Muthuraja, R., Kumar, M. and Venkateswarlu, B. S. 2021, Standardization of Herbal Drugs An Overview, *International Journal of Pharmaceutical Sciences Review and Research*, **68(1)**: 213 – 219.

- Vigneshwara, L. V., Khaseera, F., Khairunnisa, T., Amritha, P. P., Sebastin, V. and AjithBabu, T. K. 2023, Approaches to Minimize the Defects in Lipstick Formulations, *International Journal of Pharmaceutical and Biological Science Archive*, **11 (4)**: 71 – 77.
- Weerasinghe, T., Perera, D., Silva, N. D., Poogoda, D. and Swarnathilaka, H. 2022, Butterfly pea: An emerging plant with applications in food and medicine, *The Pharma Innovation Journal*, **11(6)**: 625-637.
- Yalapuspita, D. C., Mursyanti, E. dan Hartini, Y. S. 2022, Formulasi Sediaan Eyeshadow Dari Ekstrak Mahkota Bunga Telang (*Clitoria ternatea Linn.*) Sebagai Agen Pewarna Alami, *Buletin Penelitian Tanaman Rempah dan Obat*, **(33)1**: 1 – 10.
- Yuanda, K. E., Audina, M. dan Alawiyah, T. 2023, Formulasi dan Uji Aktivitas Antioksidan Sediaan Serum Ekstrak Bunga Telang (*Clitoria ternatea L.*) Sebagai Anti Aging, *Journal of Social Science Research*, **3(6)**: 8301-8313.
- Yuniarsih, N., Putriana, A., Ariyanti, D. K., Nurunnisa, I., Gilang, M., Setiawan, S., Putri, T. dan Laelasari, T. 2023, Review Artikel: Formulasi Lipstik Dengan Menggunakan Bahan Alam Sebagai Pewarna Alami, *Journal of Pharmaceutical and Sciences*, **6(2)**: 831-837.