

DAFTAR PUSTAKA

- Adrikayana, E.S., Pratiwi, E., dan Putri, A.L., (2022) Pengaruh Penambahan Konsentrasi Ekstrak Bunga Telang (*Clitoria ternatea* L) Terhadap Sifat, Kimia dan Sensori Pada Puding Bunga Telang. Jurnal Teknologi Hasil Pertanian. 18 (2).
- Al-Majid, A., Alassiri, S., Rathnayake, N., Tervahartiala, T., Gieselmann, D.R., dan Sorsa, T., (2018) Matrix metalloproteinase-8 as an inflammatory and prevention biomarker in periodontal and peri-implant diseases. Int J Dent.
- Alfakry, H., Malle, E., Koyani, C.N., Pussinen, P.J., Sorsa, T., (2016) Neutrophil proteolytic activation cascades: a possible mechanistic link between chronic periodontitis and coronary heart disease. Innate Immun. 22(1): 85-99.
- Ambili, R. dan Janam, P., (2017) A critique on nuclear factor-kappa B and signal transducer and activator of transcription 3: The key transcription factors in periodontal pathogenesis. J Indian Soc Periodontol. 21(5): 350-356.
- Annisa, Z.U., Sulijaya, B., Tadjoeidin, E.S., Hutomo, D.I., Masulili, S.L., (2023) Effectiveness of chlorhexidine gels and chips in Periodontitis Patients after Scaling and Root Planing: a systematic review and Meta-analysis. BMC Oral Health. 23(1): 819.
- Anthika, B., Kusumocahyo, S.P., dan Sutanto, H., (2015) Ultrasonic approach in *Clitoria ternatea* (butterfly pea) extraction in water and extract sterilization by ultrafiltration for eye drop active ingredient. Procedia Chemistry. 16: 237-244.
- Assunção, M., Carneiro, V.M., Stefani, C.M., dan de Lima, C.L., (2021) Clinical efficacy of subgingivally delivered propolis as an adjuvant to nonsurgical periodontal treatment of periodontitis: A systematic review and meta-analysis. Phytothe Res. 35(10): 5584-5595.
- Balta, M.G., Papathanasiou, E., Blix, I.J., dan Van Dyke, T.E., (2021) Host modulation and treatment of periodontal disease. J Dent Res. 100(8): 798-809.
- Banerjee, K., Gujjari, S.K., dan Madhunapantula, S.V., (2023) Assessment of Wound Healing Using MMP-8 Levels in GCF of Diabetics With Chronic Periodontitis After Diode Laser Assisted Flap Surgery. Acta Inform Med. 31(3): 211-215.
- Bartold, P.M., dan Van Dyke, T.E., (2017) Host modulation: controlling the inflammation to control the infection. Periodontol 2000. 75(1): 317-329.

- Bullon, P., Newman, H.N., dan Battino, M., (2014) Obesity, diabetes mellitus, atherosclerosis and chronic periodontitis: a shared pathology via oxidative stress and mitochondrial dysfunction?. *Periodontol* 2000. 64(1): 139-153.
- Canakci, C.F., Cicek, Y., dan Canakci, V., (2005) Reactive oxygen species and human inflammatory periodontal diseases. *Biochemistry (Mos)*. 70(6): 619-628.
- Caton, J. dan Ryan, M.E., (2011) Clinical studies on the management of periodontal diseases utilizing subantimicrobial dose doxycycline. *Pharmacological Res*. 63: 114-120.
- Chakraborty, S., Sahoo, S., Bhagat, A., dan Dixit, S., (2017) Studies on antimicrobial activity, phytochemical screening tests, biochemical evaluation of *Clitoria ternatea* Linn. plant extracts. *Int J Res Granthaalayah*. 5: 197-208.
- Checchi, V., Maravic, T., Bellini, P., Generali, L., Consolo, U., Breschi, L., dan Mazzoni, A., (2020) The role of matrix metalloproteinases in periodontal disease. *Int J Environ Res Public Health*. 17(14): 4923.
- Chusak, C., Thilavech, T., Henry, C.J., Adisakwattana, S., (2018) Acute effect of *Clitoria ternatea* flower beverage on glycemic response and antioxidant capacity in healthy subjects: a randomized crossover trial. *BMC Complement Altern Med*. 18(1):6.
- Damrongrungruang, T. dkk., (2021) Anthocyanin complex niosome gel accelerates oral wound healing: In vitro and clinical studies. *Nanomedicine: NBM*. 37: 102423.
- Darveau, R.P., Hajishengallis, G., dan Curtis, M.A., (2012) *Porphyromonas gingivalis* as a potential community activist for disease. *J Dent Res*. 91(9): 816-820
- Dharmawati, I.G., (2019) Pocket measurement methods in wistar rats periodontitis induced by bacteria and the installation of silk ligature: An experimental studies. *Int J App Pharm*. 11(4): 71-74.
- Djunarko, I., Yanthre, D., Manurung, S., dan Sagala, N., (2016) Efek Antiinflamasi Infusa Bunga Telang (*Clitoria ternatea* L.) dan Kombinasi dengan Infusa Daun Iler (*Coleus atropurpureus* L. Benth) Dosis 140 mg/kg BB Pada Udemata Telapak Kaki Mencit Betina Terinduksi Karagenin. *Prosiding Rakernas dan Pertemuan Ilmiah Tahunan Ikatan Apoteker Indonesia*. 6–15.
- Franco, C., Patricia, H.R., Timo, S., Claudia, B., dan Marcela, H., (2017) Matrix metalloproteinases as regulators of periodontal inflammation. *Int. J. Mol. Sci*. 18(2): 440.
- Gokhale, S.R. dan Padhye, A.M., (2013) Future prospects of systemic host modulatory agents in periodontal therapy. *Br Dent J*. 214(9): 467-471.

- Gościński, A., Paczkowska-Walendowska, M., Skotnicka, A., Ruchała, M.A., dan Cielecka-Piontek, J., (2021) Can plant materials be valuable in the treatment of periodontal diseases? Practical review. *Pharmaceutics*. 13(12): 2185.
- Graziani, F., Karapetsa, D., Alonso, B., dan Herrera, D., (2017) Nonsurgical and surgical treatment of periodontitis: how many options for one disease?. *Periodontol 2000*. 75(1): 152-188.
- Gul, S.S., Zardawi, F.M., Abdulkareem, A.A., Shaikh, M.S., Al-Rawi, N.H., dan Zafar, M.S., (2022) Efficacy of MMP-8 Level in Gingival Crevicular Fluid to Predict the Outcome of Nonsurgical Periodontal Treatment: A Systematic Review. *J Environ Res Public Health*. 19(5): 3131.
- Gulati, M., Anand, V., Govila, V., dan Jain, N., (2014) Host modulation therapy: An indispensable part of perioceutics. *J Indian Soc Periodontol*. 18(3): 282-288.
- Gupta, A., Kaur, C.D., Jangdey, M., Saraf, S., (2014) Matrix metalloproteinase enzymes and their naturally derived inhibitors: novel targets in photocarcinoma therapy. *Ageing Res Rev*. 13: 65-74.
- Hajishengallis, G., Chavakis, T., Lambris, J.D., (2020) Current understanding of periodontal disease pathogenesis and targets for host-modulation therapy. *Periodontol 2000*. 84(1): 14-34.
- Hannas, A.R., Pereira, J.C., Granjeiro, J.M., dan Tjaderhane, L., (2007) The role of matrix metalloproteinases in the oral environment. *Acta Odontol Scand*. 65: 1-13.
- Havananda, T. dan Luengwilai, K., (2019) Variation in floral antioxidant activities and phytochemical properties among butterfly pea (*Clitoria ternatea* L.) germplasm. *Genet Resour Crop Evol*. 66: 645-658.
- Hendiani, I., Carolina, D.N., Arnov, S.T., Rusminah, N., Amaliya, A., Susanto, A., dan Komara, I., (2021) Effectiveness of Mangosteen (*Garcinia Mangostana* L.) Peel Gel on the MMP-8 Levels in Chronic Periodontitis Patients after Scaling and Root Planing. *J Int Dent Med Res*. 14(2): 654-659.
- Hendiani, I., Famtahani, M., Bawono, C.A., dan Prasetyo, B.C., (2023) The Effectiveness of Mangosteen Peel (*Garcinia Mangostana* L.) Extract Mouthwash on Reducing Gingival Inflammation. *J Int Dent Med Res*. 16(3):1206-1212.
- Isaac, C., Narayanaswamy, R., dan Vallivitan, K., (2021) Molecular docking analysis of selected clitoria ternatea constituents as matrix metalloproteinases (MMP 2 & MMP 9) inhibitors. *Rasayan J. Chem*. 14(1): 659-664.
- Jha, A., George, J.P., dan Chandrashekhar, G., (2019) Estimation and Correlation of MMP-8 Levels in GCF and Serum with Wound Healing and Clinical

Outcomes of Coronally Advanced Flap and Sub-Epithelial Connective Tissue Graft for Root Coverage—A Controlled Clinical Trial. *J Int Acad Periodontol.* 21: 11-19.

Jeyaraj, E.J., Lim, Y.Y., dan Choo, W.S., (2021) Extraction methods of butterfly pea (*Clitoria ternatea*) flower and biological activities of its phytochemicals. *J Food Sci Technol.* 58(6): 2054-2067.

Karina, V.M., Lastianny, S.P., dan Meiliyanawaty, R., (2021) Differences in effectiveness of ocimum-sanctum 4% gel and 25% metronidazole gel post scaling root-planing in chronic periodontitis. *Odonto Dental Journal.* 8(1): 141-146.

Kasuma, N., Oenzil, F., Darwin, E., dan Sofyan, Y., (2018) The analysis of matrix metalloproteinase-8 in gingival crevicular fluid and periodontal diseases. *Indian J Dent Res.* 29(4):450-4.

Kazuma, K., Noda, N., dan Suzuki, M., (2003) Flavonoid composition related to petal color in different lines of *Clitoria ternatea*. *Phytochemistry.* 64(6): 1133-1139.

Kim, H.N., (2022) Changes in salivary matrix metalloproteinase-3,-8, and-9 concentrations after 6 weeks of non-surgical periodontal therapy. *BMC Oral Health.* 22(1): 1-10.

Kinane, D.F., Darby, I.B., Said, S., Luoto, H., Sorsa, T., Tikanoja, S., dan Mäntylä, P., (2003) Changes in gingival crevicular fluid matrix metalloproteinase-8 levels during periodontal treatment and maintenance. *J Periodontol Res.* 38(4): 400-404.

Komala, O.N., Lessang, R., Sunarto, H., Bachtiar, B.M., dan Soeroso, Y., (2019) Effect of Scaling and Root Planing Based on MMP-8 mRNA Expression and Clinical Parameters in Periodontitis Patients. *J Int Dent Med Res.* 12(3): 1068-1073.

Konopka, Ł., Pietrzak, A., dan Brzezińska-Błaszczak, E., (2012) Effect of scaling and root planing on interleukin-1 β , interleukin-8 and MMP-8 levels in gingival crevicular fluid from chronic periodontitis patients. *J Periodontal Res.* 47(6): 681-688.

Kosai, P., Sirisidhi, K., Jiraungkoorskul, K., dan Jiraungkoorskul, W., (2015) Review on ethnomedicinal uses of memory boosting herb, butterfly pea, *Clitoria ternatea*. *Journal of Natural Remedies.* 15(2): 71-76.

Kraft-Neumärker, M., Lorenz, K., Koch, R., Hoffmann, T., Mäntylä, P., Sorsa, T., dan Netuschil, L., (2012) Full-mouth profile of active MMP-8 in periodontitis patients. *J Periodontal Res.* 47(1): 121-128.

- Lakshmi, C.H.N.D., Raju, B.P., Madhavi, T., dan Sushma, N.J., (2014) Identification of bioactive compounds by FTIR analysis and in vitro antioxidant activity of *Clitoria ternatea* leaf and flower extracts. *Indo American Journal of Pharm Research*. 4(9): 3894-3903.
- Limsitthichaikoon, S., Khampaenjiraroach, B., Damrongrungruang, T., Limphirat, W., Thapphasaraphong, S., dan Priprem, A., (2018) Topical oral wound healing potential of anthocyanin complex: animal and clinical studies. *Ther Deliv*. 9(5): 359-374.
- Luchian, I., Goriuc, A., Sandu, D., dan Covasa, M., (2022) The Role of Matrix Metalloproteinases (MMP-8, MMP-9, MMP-13) in Periodontal and Peri-Implant Pathological Processes. *Int J of Mol Sc*. 23(3): 1806.
- Maity, N., Nema, N.K., Sarkar, B.K., dan Mukherjee, P.K., (2012) Standardized *Clitoria ternatea* leaf extract as hyaluronidase, elastase and matrix-metalloproteinase-1 inhibitor. *Indian J Pharmacol*. 44(5): 584-587.
- Marcaccini, A.M. dkk., (2009) Circulating matrix metalloproteinase-8 (MMP-8) and MMP-9 are increased in chronic periodontal disease and decrease after non-surgical periodontal therapy. *Clin Chim Acta*. 409(1-2): 117-122.
- Marpaung, A.M., (2020) Tinjauan manfaat bunga telang (*Clitoria ternatea*, L.) bagi kesehatan manusia. *Journal of Functional Food and Nutraceutical*. 1(2): 63-85.
- Martínez-García, M. dan Hernández-Lemus, E., (2021) Periodontal Inflammation and Systemic Diseases: An Overview. *Front Physiol*. 12:709438.
- Miricescu, D., Totan, A., Calenic, B., Mocanu, B., Didilescu, A., Mohora, M., Spinu, T., dan Greabu, M., (2014) Salivary biomarkers: relationship between oxidative stress and alveolar bone loss in chronic periodontitis. *Acta Odontol Scand*. 72(1): 42-47.
- Morris, J.B., (2009) Characterization of butterfly pea (*Clitoria ternatea* L.) accessions for morphology, phenology, reproduction and potential nutraceutical, pharmaceutical trait utilization. *Genet Resour Crop Evol*. 56: 421-427.
- Moutsopoulos, N.M. dan Konkel, J.E., (2018) Tissue-specific immunity at the oral mucosal barrier. *Trends Immunol*. 39(4): 276-287.
- Mukherjee, P.K., Kumar, V., Kumar, N.S., dan Heinrich, M., (2018) The Ayurvedic medicine *Clitoria ternatea*--from traditional use to scientific assessment. *J Ethnopharmacol*. 120(3): 291-301.
- Mulyati, I. dan Yuliani, M., (2022) Pemanfaatan bungan telang dalam perawatan luka perineum ibu nifas di praktik bidan kota bandung. *Jurnal Riset Kesehatan Nasional*. 6(1): 25-30.

- Muna, N.I., (2022) Pengaruh Pemberian Ekstrak *Clitoria ternatea* terhadap ekspresi gen MMP-3 dan ekspresi gen α -SMA pada tikus model yang diinduksi UVB. Semarang: Tesis Fakultas Kedokteran Universitas Islam Sultan Agung
- Nadia, S., Sari, N., dan Hamsi, F., (2022) Antioxidant activity test of telang flower (*Clitoria ternatea* L.) in serum preparation with DPPH method. *Journal of Pharmaceutical and Sciences*. 5(2): 346-354.
- Novak, M.J., Dawson, D.R. 3rd, Magnusson, I., et al., (2008) Combining host modulation and topical antimicrobial therapy in the management of moderate to severe periodontitis: a randomized multicenter trial. *J Periodontol*. 79(1): 33-41.
- Nugraha, A.P., Rahmadhani, D., Puspitaningrum, M.S., Rizqianti, Y., Kharisma, V.D., dan Ernawati, D.S., (2021) Molecular docking of anthocyanins and ternatin in *Clitoria ternatea* as coronavirus disease oral manifestation therapy. *J Adv Pharm Technol Res*. 12: 362-367.
- Nwomeh, B.C., Liang, H.X., Diegelmann, R.F., Cohen, I.K. and Yager, D.R., (1998) Dynamics of the matrix metalloproteinases MMP-1 and MMP-8 in acute open human dermal wounds. *Wound Repair Regen*. 6(2): 127-134.
- Oguis, G.K., Gilding, E.K., Jackson, M.A., dan Craik, D.J., (2019) Butterfly Pea (*Clitoria ternatea*), a Cyclotide-Bearing Plant with Applications in Agriculture and Medicine. *Front Plant Sci*. 10: 645.
- Öztürk, V.Ö., Meriç, P., Sorsa, T., Tervahartiala, T., Bostanci, N., Nwhator, S.O., dan Emingil, G., (2021) Regulation of matrix metalloproteinases-8,-9 and endogenous tissue inhibitor-1 in oral biofluids during pregnancy and postpartum. *Arch Oral Biol*. 124:105065.
- Papapanou, P.N., Sanz, M., Buduneli, N., et al., (2018) Periodontitis: Consensus report of workgroup 2 of the 2017 World Workshop on the Classification of Periodontal and Peri-Implant Diseases and Conditions. *J Periodontol*. 89 Suppl 1: S173-S182.
- Pavithra, M.K.S., Ilakiya, S., dan Kavipriya, S., (2019) *Clitoria ternatea*-Phytochemical and pharmacological evaluation. *International Journal of Pharmaceutical Research* (09752366). 11(3).
- Pratap, G.M.S., Manoj, K.M., Sai, S.A., Sujatha, B., dan Sreedevi, E., (2012) Evaluation of three medicinal plants for anti-microbial activity. *Ayu*. 33(3): 423-428.
- Preshaw, P.M., Seymour, R.A., dan Heasman, P.A., (2004) Current concepts in periodontal pathogenesis. *Dent Update*. 31: 570-578.

- Preshaw, P.M., (2018) Host modulation therapy with anti-inflammatory agents. *Periodontol* 2000. 76(1): 131-149.
- Rai, B., Kharb, S., Jain, R., dan Anand, S.C., (2008) Biomarkers of periodontitis in oral fluids. *J Oral Sci.* 50(1): 53-56.
- Said, S. Mohd. H., Sander, L., Rönkä, H., Sorsa, T., dan Kinane, D.F., (1999) GCF levels of MMP-3 and MMP-8 following placement of bioresorbable membranes. *J Clin Periodontol.* 26(11): 757-763.
- Salvi, G. E. dan Lang, N. P., (2005) Host response modulation in the management of periodontal diseases. *J Clin Periodontol.* 32: 108-129.
- Santos, B.F.E., Souza, E.Q.M., Brigagão, M.R.P.L., LIMA, D.C.D., dan Fernandes, L.A., (2017) Local application of statins in the treatment of experimental periodontal disease in rats. *J Appl Oral Sci.* 25: 168-176.
- Sanz, I., Alonso, B., Carasol, M., Herrera, D., dan Sanz, M., (2012) Nonsurgical treatment of periodontitis. *J Evid Base Dent Pract.* 12(3): 76-86.
- Saritani, A.T.B., Wiraguna, A.A.G.P., dan Maker, L.P.I.I., (2021) *Clitoria ternatea* L. extract cream 5% inhibited the increase of MMP-1 levels and decrease of collagen amount in wistar rats (*Rattus norvegicus*) dermic skin exposed to ultraviolet B. *Neurologico Spinale Medico Chirurgico.* 4(3): 109-113.
- Scannapieco, F.A. dan Gershovich, E., (2020) The prevention of periodontal disease - An overview. *Periodontol* 2000. 84(1): 9-13.
- Shinwari, M.S., Tanwir, F., Hyder, P.R., dan Bin Saeed, M.H., (2014) Host modulation therapeutics in periodontics: role as an adjunctive periodontal therapy. *J Coll Physicians Surg Pak.* 24(9): 676-684.
- Skurska, A., Dymicka-Piekarska, V., Milewski, R., dan Pietruska, M., (2021) Dynamics of Matrix Metalloproteinase-1 and -8 Secretion in Gingival Crevicular Fluid after Gingival Recession Therapy via MCAT with Either Subepithelial Connective Tissue Graft or Collagen Matrix. *Biomolecules.* 11: 731.
- Sneha, K., Thakur, A.S., dan Jyostana, K., (2015). Immunomodulatory and antioxidative properties of *Clitoria ternatea*. *Internat J Plant Sci.* 10(2): 158-162.
- Socransky, S.S., Haffajee, A.D., Cugini, M.A., Smith, C., dan Kent, R.L. Jr., (1998) Microbial complexes in subgingival plaque. *J Clin Periodontol.* 25(2):134-144.
- Sopi, M., Koçani, F., Bardhoshi, M., dan Meqa, K., (2023) The Effect of Periodontal Therapy on the Level of MMP-8 in Patients with Chronic Periodontitis. *Eur J Dent.* 17: 70-75.

- Sorsa, T., dkk., (2020) Active MMP-8 (aMMP-8) as a grading and staging biomarker in the periodontitis classification. *Diagnostics (Basel)*. 10(2): 61.
- Srichaikul, B, (2018). Ultrasonication extraction, bioactivity, antioxidant activity, total flavonoid, total phenolic and antioxidant of *Clitoria Ternatea* linn flower extract for anti-aging drinks. *Pharmacognosy Magazine*. 14: 322 - 327.
- Subchan, P., Putri, R.S., Magdalena, C., dan Hidayah, N., (2022) Ekstrak Bunga Telang (*Clitoria ternatea* L.) Menghambat Peningkatan Ekspresi Gen MMP-1 pada Kulit Tikus Wistar yang Terpapar Sinar Ultraviolet B. *J Midwifery Health Sci Sultan Agung*. 1(2): 13-21.
- Subramanian, M.S. dan Prathyusha, P., (2011) Pharmaco-phytochemical characterization of *Clitoria ternatea* Linn. *International Journal of PharmTech Research*. 3(1): 606-612.
- Sulijaya, B., Takahashi, N., dan Yamazaki, K., (2019) Host modulation therapy using anti-inflammatory and antioxidant agents in periodontitis: A review to a clinical translation. *Archives of oral biology*. 105: 72-80.
- Tatakis, D.N. dan Kumar, P.S., (2005) Etiology and pathogenesis of periodontal diseases. *Dent Clin North Am*. 49(3): 491-516.
- Tonetti, M.S., Chapple, I.L. and Working Group 3 of the Seventh European Workshop on Periodontology, (2011) Biological approaches to the development of novel periodontal therapies—consensus of the Seventh European Workshop on Periodontology. *J Clin Periodontol*. 38: 114-118.
- Van Dyke, T.E., (2008) The management of inflammation in periodontal disease. *J Periodontol*. 79: 1601-1608.
- Vandooren, J., Van den Steen, P.E., dan Opdenakker, G., (2013) Biochemistry and molecular biology of gelatinase B or matrix metalloproteinase-9 (MMP-9): the next decade. *Critical reviews in biochemistry and molecular biology*. 48(3): 222-272.
- Vo, T.T.T., Chu, P.M., Tuan, V.P., Te, J.S.L., dan Lee, I.T., (2020) The promising role of antioxidant phytochemicals in the prevention and treatment of periodontal disease via the inhibition of oxidative stress pathways: updated insights. *Antioxidants*. 9(12): 1211.
- Widyarman, A., Sumadi, S., dan Agustin, T., (2018) Antibiofilm Effect of *Clitoria ternatea* Flower Juice on *Porphyromonas gingivalis* in vitro. *Journal Of Indonesian Dental Association*, 1(1): 7-12.
- Yakob, M., Kari, K., Tervahartiala, T., dkk., (2012) Associations of periodontal microorganisms with salivary proteins and MMP-8 in gingival crevicular fluid. *J Clin Periodontol*. 39(3): 256-263.

- Yang, D., Wang, J., Ni, J., Shang, S., Liu, L., Xiang, J., dan Li, C., (2013) Temporal expression of metalloproteinase-8 and-13 and their relationships with extracellular matrix metalloproteinase inducer in the development of ligature-induced periodontitis in rats. *J Periodont Res.* 48(4): 411-419.
- Keles Yucel, Z.P., Afacan, B., Emingil, G., Tervahartiala, T., Kose, T., dan Sorsa, T., (2020) Local and systemic levels of aMMP-8 in gingivitis and stage 3 grade C periodontitis. *J Periodontal Res.* 55(6): 887-894.
- Zarch, R. E., Askari, M., Boostani, H., dan Mirzaei-Dizgah, I., (2021) Effect of propolis extract on clinical parameters and salivary level of matrix metalloproteinase 8 in periodontitis patients: A randomized controlled clinical trial. *J Adv Periodontol Implant Dent.* 13(2): 84-89.
- Zhang, L., Li, X., Yan, H., dan Huang, L., (2018) Salivary matrix metalloproteinase (MMP)-8 as a biomarker for periodontitis: A PRISMA-compliant systematic review and meta-analysis. *Medicine.* 97(3): e9642.