

## DAFTAR PUSTAKA

- Abd El-Hack, M.E., El-Saadony, M.T., Shafi, M.E., Zabermawi, N.M., Arif, M., Batiha, G.E., Khafaga, A.F., Abd El-Hakim, Y.M. dan Al-Sagheer, A.A., (2020) Antimicrobial and Antioxidant Properties of Chitosan And Its Derivatives And Their Applications: A Review. *International Journal of Biological Macromolecules*. 164(2020): 2726-2744.
- Abranches, J., Zeng, L., Kajfasz, J.K., Palmer, S., Chakraborty, B., Wen, Z., Richards, V.P., Brady, L.J. dan Lemos, J.A., (2018) Biology of Oral Streptococci. *Microbiology Spectrum*. 6(5): 1-12.
- Abourehab, M.A.S., Pramanik, S., Abdelgawad, M.A., Abualsoud, B.M., Kadi, A., Ansari, M.J. dan Deepak, A., (2022) Recent Advances of Chitosan Formulations in Biomedical Applications. *International Journal of Molecular Sciences*. 23(18).
- Acevedo, A., (2016) Role of Fluoride in Dental Caries and Risk Management. *Journal of Clinical Dentistry*. 5(1): 1-2.
- Afriani, Y., Fadli, A., Maulana, S. dan Karina, I., (2016) Sintesis, Kinetika Reaksi dan Aplikasi Kitin dari Cangkang Udang: Review. *Seminar Nasional Teknik Kimia-Teknologi Oleo Petro Kimia Indonesia*. pp. 184-196.
- Aliasghari, A., Khorasgani, M.R., Vaezifar, S., Rahimi, F., Younesi, H. dan Khorousi M., (2016) Evaluation of antibacterial efficiency of chitosan and chitosan nanoparticles on cariogenic streptococci: An *in vitro* study. *Iranian Journal of Microbiology*. 8(2): 93–100.
- American Type Culture Collection (ATCC)., *Streptococcus mutans* Clarke (ATCC® 25175™), <https://www.atcc.org/products/25175> diakses pada 18/01/2024.
- Aranaz, I., Alcántara, A.R., Civera, M.C., Arias, C., Elorza, B., Caballero, A.H. dan Acosta, N. (2021) Chitosan: An Overview of Its Properties and Applications. *Polymers*. 13(19): 1-27.
- Armbruster, C.R. dan Parsek, M.R., (2018) New Insight into the Early Stages of Biofilm Formation. *The Proceedings of the National Academy of Sciences*. 115(17): 4317-4319.
- Attamimi, F.A. dan Yuda, I.P. (2022) Aktivitas Antibakteri Terpenoid dari Umbi Sarang Semut (*Myrmecodina pedens*) terhadap *Streptococcus sanguinis* ATCC 10556. *Yarsi Journal of Pharmacology*. 3(2): 76-84.
- Azizati, Z., (2019) Pembuatan dan Karakterisasi Kitosan Kulit Udang Galah. *Walisongo Journal of Chemistry*. 2(1): 10-16.

- Bowen, W.H. dan Koo, H., (2011) Biology of *Streptococcus mutans*-Derived Glucosyltransferases: Role in Extracellular Matrix Formation of Cariogenic Biofilms. *Caries Research*. 2011(45): 69-86.
- Brookes, Z.L.S., Belfield, L.A., Ashworth, A., Casas-Agustench, P., Raja, M., Pollard, A.J. dan Bescos, R., (2021) Effect of chlorhexidine mouthwash on the oral microbiome. *Journal of Dentistry*. 113. 1-25.
- Carrouel, F., Conte, M.P., Fisher, J., Goncalves, L.S., Dussart, C., Llodra, J.C. dan Bourgeois, D., (2020) COVID-19: A Recommendation to Examine the Effect of Mouthrinses with  $\beta$ -Cyclodextrin Combined with Citrox in Preventing Infection and Progression. *Journal of Clinical Medicine*. 9(4): 1126.
- Chen, X., Daliri, E.B., Kim, N., Kim, J., Yoo, D. dan Oh, D., (2020) Microbial Etiology and Prevention of Dental Caries: Exploiting Natural Products to Inhibit Cariogenic Biofilms. *Pathogens*. 9(569): 1-15.
- Chen, X., Daliri, E.B., Tyagi, A. dan Oh, D.H., (2021) Cariogenic Biofilm: Pathology-Related Phenotype and Targeted Therapy. *Microorganism*. 9(6): 1-14.
- Endriani, R., Siregar, F.M., Rafni, E., Kemal, R.A. dan Jefrizal., (2021) Identification of *Streptococcus mutans* cariogenic gene glucosyltransferase (gtf) in dental caries patient. *Jurnal Kedokteran Gigi Universitas Padjadjaran*. 33(1): 14-16.
- Erlangga., (2016) Distribusi Induk Udang Galah (*Macrobrachium rosenbergii*) Di Pantai Timur Aceh. *Berkala Perikanan Terubuk*. 44(1): 56–68.
- Fakhri, E., Eslami, H., Maroufi, P., Pakdel, F., Taghizadeh, S., Ganbarov, K., Yousefi, M., Tanomand, A., Yopusefi, B., Mahmoudi, S. dan Kafil, H.S., (2020) Chitosan Biomaterials Application in Dentistry. *International Journal of Biological Macromolecules*. 162: 956-974.
- Goy, R.C., Morais, S.T.B. dan Assis, O.B.G., (2016) Evaluation of the Antimicrobial Activity of Chitosan and Its quaternized Derivative on *E. coli* and *S. aureus* Growth. *Revista Brasileira de Farmacognosia*. 26: 122-127.
- Guo, L., McLean, J.S., Lux, R., He, X. dan Shi, W., (2015) The well-coordinated linkage between acidogenicity and aciduricity via insoluble glucans on the surface of *Streptococcus mutans*. *Scientific Reports*. 18015: 1–11.
- Hakim, E.R., (2022) *Efek Nanokitosan Kulit Udang Galah Sebagai Antibiofilm Streptococcus mutans ATCC 25175*. Yogyakarta: Tesis Fakultas Kedokteran Gigi Universitas Gadjah Mada. pp 21-22.
- Hakim, E.R., (2017) *Efek Kitosan Ekstrak Kulit Udang Galah sebagai Bahan Penghambat Perlekatan Bakteri Streptococcus mutans ATCC 25175 in vitro*

*in vitro*. Yogyakarta: Skripsi Fakultas Kedokteran Gigi Universitas Gadjah Mada. pp. 22.

- Ham, S.Y., Kim, H.S., Cha, E., Lim, T., Byun, Y. dan Parl, H.D., (2022) Raffinose Inhibits *Streptococcus mutans* Biofilm Formation by Targeting Glucosyltransferase. *Microbiology spectrum*. 10(3): 1-13.
- Haniastuti, T., Puspasari, T.A., Hakim, E.R. dan Tandelilin, R.TC., (2023) Potential Effect of Giant Freshwater Prawn Shell Nano Chitosan in Inhibiting the Development of *Streptococcus mutans* and *Streptococcus sanguinis* Biofilm *in Vitro*. *International Journal of Dentistry*. 2023.
- Hosney, A., Ullah, S. dan Barčauskaitė, K., (2022) A Review of the Chemical Extraction of Chitosan from Shrimp Wastes and Prediction of Factors Affecting Chitosan Yield by Using an Artificial Neural Network. *Marine Drugs*. 20(11): 1-19.
- Indarjo, A., Salim, G., Anggoro, S., Nugraeni, C.D., Ransangan, J. dan Firdaus, M., (2021) *Bioekologi dan Bioteknologi Udang Galah (Macrobrachium rosenbergii) Estuaria*. 1st ed. Banda Aceh: Syiah Kuala University Press. pp. 1-2.
- Ischak, N.I., Salimi, Y.K., Botutihe, D.N., (2017) *Biokimia Dasar*. 1st ed. Gorontalo: UNG Press. pp. 87-90.
- James, P., Worthington, H.V., Harding, M., Lamont, T., Cheung, A., Whelton, H. dan Riley, P., (2017) Chlorhexidine mouthrinse as an adjunctive treatment for gingival health. *Cochrane Database of Systematic Reviews*. 2017(3).
- Ju, W., Ji, M. dan Park, R., (2012) Characterization of *Streptococcus mutans* Ingbritt Sucrose-glucan Glucosyltransferase and the Inhibition Effect of Chitin Derivatives on Its Activity. *Journal of Applied Biological Chemistry*. 55(3): 173-178.
- Ke, C.L., Deng, F.S., Chuang, C.Y. dan Lin, C.H., (2021) Antimicrobial Actions and Applications of Chitosan. *Polymers*. 13(6): 1-21.
- Kementrian Kelautan dan Perikanan (KKP)., (2015) Keputusan Menteri Kelautan dan Perikanan Republik Indonesia Nomor 25/Kepmen-KP/2015 tentang Pelepasan Udang Galah Siratu. *Kementrian Kelautan dan Perikanan*. Jakarta.
- Khaled, A.M., (2021) A Review on Natural Biodegradable Materials: Chitin and Citosan. *Chemistry of Advanced Materials*. 6(1): 1-5.
- Khan, F., Nguyen Pham, D.T., Oloketuyi, S.F., Manivasagan, P., Oh, J. dan Kim, Y.M., (2020) Chitosan and their derivatives: Antibiofilm drugs against pathogenic bacteria. *Colloids and Surfaces B: Biointerfaces*. 185(2019): 1-16.

- Kim, Y., Jang, S.J., Kim, H.R. dan Kim, S.B., (2017) Deorizing, Antimicrobial and Glucosyltransferase Inhibitory Activities of Polyphenolic from Bio Source. *Korean Journal of Chemical Engineering*. 34(3): 1-5.
- Kim, Y., Zharkinbekov, Z., Raziyeva, K., Tabyldiyeva, L., Berikova, K., Zhumagul, D., Temirkhanova, K. dan Saparov, A., (2023) Chitosan-Based Biomaterials for Tissue Regeneration. *Pharmaceutics*. 15(3): 807.
- Kong, M., Chen, X.G., Xing, K. Dan Park, H.J., (2010) Antimicrobial Properties of Chitosan and Mode of Action: A State of the Art Review. *International Journal of Food Microbiology*. 144: 51-63.
- Krzyściak, W., Jurezak, A., Kościelniak, D., Bystrowska, B. dan Skalniak, A., (2014) The Virulence of *Streptococcus mutans* and the Ability to Form Biofilm. *European Journal of Clinical Microbiology & Infectious Diseases*. 33(2014): 499-515.
- Kumari, S., Annamareddy, S.H.K., Abanti, S. dan Rath, P.K., (2017) Physicochemical properties and characterization of chitosan synthesized from fish scales, crab and shrimp shells. *International Journal of Biological Macromolecules*. 104: 1697-1705.
- Kuspradini, H., Mitsunaga, T. dan Ohashi, H., (2009) Antimicrobial activity against *Streptococcus sobrinus* and glucosyltransferase inhibitory activity of toxifolin and some flavanonol rhamnosides from kempas (*Koompassia malaccensis*). *Japan Wood Research Society Conference*. 55: 308-313.
- Lamont, R.J., Koo, H.M., Hajishengalis, G.N. dan Jenkinson, H.F., (2019) *Oral Microbiology and Immunology*. 3th ed. Washington DC: ASM Press. pp. 108, 272-273.
- Lemos, J.A., Palmer, S.R., Zeng, L., Wen, Z.T., Kajfasz, J.K., Freires, I.A., Abranches, J. dan Brady, L.J., (2019) The Biology of *Streptococcus mutans*. *Microbiology Spectrum*. 7(1): 1-18.
- Li, F.L., Shi, Y., Zhang, J.X., Gao, J. dan Zhang, Y.W., (2018) Cloning, expression, characterization and homology modeling of a novel water-forming NADH oxidase fro, *Streptococcus mutans* ATCC 25175. *International Journal of Biological Macromolecules*. 113: 1073-1079.
- Liu, N., Chen, X.G., Park, H.J., Liu, C.G., Liu, C.S., Meng, X.H. dan Yu, L.J., (2006) Effect of MW and Concentration of Chitosan on Antibacterial Activity of *Escherichia coli*. *Carbohydrate Polymers*. 64(1): 60-65.
- Liu, Y., Huang, Y., Fan, C., Chi, Z., Bai, M., Sun, L., Yang, L., YU, C., Song, Z., Yang, X., Yi, J., Wang, S., Liu, L., Wang, G. dan Zheng, L., (2021) Ursolic Acid Targets Glucosyltransferase and Inhibits Its Activity to Prevent *Streptococcus mutans* Biofilm Formation. *Frontiers in Microbiology*. 12: 743305: 1-9.

- Mathur, V.P. dan Dhillon, J.K., (2018) Dental Caries: A Disease Which Needs Attention. *Indian Journal of Pediatrics*. 85(3): 202–206.
- Matica, M.A., Aachmann, F.L., Tendervik, A., Sletta, H. dan Ostafe, V., (2019) Chitosan as A Wound Dressing Starting Material: Antimicrobial Properties and Mode of Action. *International Journal of Molecular Science*. 20(23): 1-33.
- Matsumoto-Nakano, M., (2018) Role of *Streptococcus mutans* surface proteins for biofilm formation. *Japanese Dental Science Review*. 54(1): 22-29.
- Meyer-Lückel, H., Paris, S. dan Ekstrand, K., (2015) *Caries Management – Science and Clinical Practice*. New York: Thieme Stuttgart. Pp. 22-24.
- Muddathir, A.M., Mohieldin, E.A.M. dan Mitsunaga, T., (2020) In vitro activities of *Acacia nilotica* (L.) Delile bark factions againts Oral Bacteria, Glucosyltransferase and as antioxidant. *BMC Complementary Medicine and Therapies*. 20:360.
- Nugrahani, N.A., Kunarti, S. dan Setyowati, L. (2016) Konsentrasi Efektif Daya Antibiofilm Kitosan Cangkang Udang Terhadap *Streptococcus viridans*. *Conservative Dentistry Journal*. 6(2): 47–51.
- Peres, M.A., Macpherson, L. MD., Weyant, R.J., Daly, B., Venturelli, R., Mathur, M.R., Listl, S., Celeste, R.K., Guarnizo-Herreno, C.C., Kearns, C., Benzian, H., Allison, P. dan Watt, R.G., (2019) Oral Diseases: A Global Public Health Challenge. *The Lancet*. 394(10194): 249-260.
- Pericic, T.P., Worthington, H.V., Johnson, T.M., Sambunjak, D., Imai, P., Clarkson, J.E. dan Tugwell, P., (2019) Interdental brushing for the prevention and control of periodontal diseases and dental caries in adults. *Cochrane Database of Systematic Reviews*, 2019(4): 1-53.
- Petroni, S., Tagliaro, I., Antonini, C., D’Arienzo, M., Orsini, S.F., Mano, J.F., Brancato, V., Borges, J. dan Cipolla, L., (2023) Chitosan-Based Biomaterials: Insights into Chemistry, Properties, Devices, and Their Biomedical Application. *Marine drugs*. 13(19): 3256.
- Philip, N., Suneja, B. dan Walsh, L., (2018) Beyond streptococcus mutans: Clinical implications of the evolving dental caries aetiological paradigms and its associated microbiome. *British Dental Journal*. 224(4): 219–225.
- Pitt, S.J., (2018) *Clinical Microbiology for Diagnostic Laboratory Scientists*. New Jersey: Wiley Blackwell. pp. 66.
- Pujoharjo, P. dan Herdiyati, Y., (2018) Efektivitas Antibakteri Tanaman Herbal Terhadap *Streptococcus Mutans* Pada Karies Anak. *Journal of Indonesian Dental Association* 1(1): 51–56.

- Rachfa, M.A.F., Putri, D.K.T. dan Dewi, R.K., (2021) Uji Kitosan Sisik Ikan Haruan (*Channa striata*) Terhadap Aktivitas Enzim Glukosiltransferase *Streptococcus mutans*. *Dentin: Jurnal Kedokteran Gigi*. 5(2): 87-91.
- Rahayu, D. P., Draheim, R., Lalatsa, A. dan Roldo, M., (2022) Harnessing the Antibacterial Properties of Fluoridated Chitosan Polymers against Oral Biofilms. *Pharmaceutics*. 14(3): 1-15.
- Rahim, Z.H. dan Thurairajah, N., (2011) Scanning Electron Microscopic study of *Piper betle* L. leaves extract effect againts *Streptococcus mutans* ATCC 25175. *Journal Applied Oral Science*. 19(2): 137-146.
- Rainey, K., Michalek, S.M., Wen, Z.T. dan Wu, H., (2019) Glycosyltransferase-Mediated Biofilm Matrix Dynamics and Virulence of *Streptococcus mutans*. *Applied and environmental microbiology*, 85(5): 1-15.
- Ray, R.R., Nag, M. dan Lahiri, D., (2021) *Biofilm-Mediated Disease: Causes and Controls*. Springer: Singapore. pp. 5.
- Ren, Z., Cui, T., Zeng, J., Chen, L., Zhang, W., Xu, X., Cheng, L., Li, M., Li, J., Zhou, X. dan Li, Y., (2016) Molecule Targeting Glucosyltransferase Inhibits *Streptococcus mutans* Biofilm Formation and Virulence. *Antimicrobial Agents and Chemotherapy*. 60(1): 126-135.
- Riset Kesehatan Dasar (Riskesdas). (2018). Badan Penelitian dan Pengembangan Kesehatan Kementerian RI tahun 2018. [http://labdata.litbang.kemkes.go.id/images/download/laporan/RKD/2018/Laporan\\_Nasional\\_RKD2018\\_FINAL.pdf](http://labdata.litbang.kemkes.go.id/images/download/laporan/RKD/2018/Laporan_Nasional_RKD2018_FINAL.pdf) – Diakses Januari 2023.
- Suratri, M.A.L., Jovina, T.A. dan Notohartoyo, I.T., (2018) Hubungan Kejadian Karies Gigi dengan Konsumsi Air Minum pada Masyarakat di Indonesia. *Media Penelitian dan Pengembangan Kesehatan*. 28(3): 211–218.
- Suwartiningsih, N., Trijoko. dan Handayani, N.S., (2017) Variasi Morfologis Udang Galah (*Macrobrachium rosenbergii* de Man, 1879) Hasil *Inbreeding* dan *Outbreeding* Populasi Probolinggo dan Mahakam. *Journal of Tropical Biodiversity and Biotechnology*. 2(2): 57-63.
- Tareq, A., Alam, M., Raza, S., Sarwar, T., Fardous, Z., Chowdury, A.Z., dan Hossain, S., (2013) Comparative Study of Antibacterial Activity of Chitin and Chemically Treated Chitosan Prepared from Shrimp (*Macrobrachium rosenbergii*) Shell Waste. *Journal of Virology & Microbiology*. 1–9.
- Tatar, G., Salmanli, M., Dogru, Y. dan Tuzuner, T., (2022) Evaluation of Effects of Chlorhexidine and Several Flavonoids as Antiviral Purposes on SARS-CoV-2 main Protease: Molecular Docking, Molecular Dynamics Simulation Studies. *Journal of Biomolecular Structure and Dynamics*. 40(17): 7656-7665.

- Wunder, D. dan Bowen, W.H., (1999) Action of Agents on Glucosyltransferases from *Streptococcus mutans* in Solution and Adsorbed to Experimental Pellicle. *Archives of Oral Biology*. 44: 203-214.
- Xu, R., Yang, W., Niu, K. dan Wang, W., (2018) An Update on the Evolution of Glucosyltransferase (Gtf) Genes in *Streptococcus*. *Frontiers in Microbiology*. 9: 1-14.
- Xuedong, Z., (2016) *Dental Caries: Principles and Management*. Chengdu: Springer. pp. 33, 72.
- Yadav., M., Kaushik., B., Rao, G.K., Srivastava, C.M. dan Vaya, D., (2023) Advances and Challenges in the Use of Chitosan and Its Derivates in Biomedical Fields: A Review. *Carbohydrate Polymer Technologies and Applications*. 5(100323): 1-22.
- Zhang, Q., Ma, Q., Wang, Y., Wu, H. dan Zou, J., (2021) Molecular mechanisms of inhibiting glucosyltransferases for biofilm formation in *Streptococcus mutans*. *International Journal of Oral Science*. 13(1): 1–8.
- Zhang, Q., Nijampatnam, B., Hua, Z., Nguyen, T., Zou, J., Cai, X., Michalek, S.M., Velu, S.E. dan Wu, H., (2017) Structure-Based Discovery of Small Molecule Inhibitors of Cariogenic Virulence. *Scientific Reports*. 7(5974): 1-10.