

DAFTAR PUSTAKA

- Abdelhamid, A.G., El-Dougdoug, N.K., (2020) Controlling foodborne pathogens with natural antimicrobials by biological control and antivirulence strategies. *Heliyon*, 6(9): 5020.
- Afriani, N., Yusmarini, Y., Pato, U., (2017) Aktivitas antimikroba *Lactobacillus plantarum* 1 yang diisolasi dari industri pengolahan pati sagu terhadap bakteri patogen *Escherichia coli* FNCC-19 dan *Staphylococcus aureus* FNCC-15, Disertasi Doktoral, Universitas Riau, 1-12.
- Arifin, W.N. Zahiruddin, W.M., (2017) Sample size calculation in animal studies using resource equation approach. *MJMS*, 24(5): 101.
- Asri, M., Auliah, N., (2019) Pengujian Anti Aging Sediaan Krim Cangkang Bekicot (*Achatina funica*) pada Kelinci (*Oryctolagus cuniculus*) yang Dipapar Sinar UV. *Medkes. Poltekes. Mks.*, 14(2): 146-151.
- Azhar, L.M., Adnan, M.M., Rahman, N.A., (2022) Knowledge and Attitude towards Dental Unit Waterline System Decontamination among Undergraduate and Postgraduate Dental Students in Universiti Sains Malaysia. *MJMHS*, 18(4): 50-61.
- Aziz, W.W., Bakar, M.A., Bakar, F.A., Dheyab, A.S., Sabran, S.F., Kormin, F., (2021) Anti-gout potential of selected Malaysian local fruits. *IOP Conf. Ser.: EES*, 736(1): 12069.
- Bader, M., Stolle, T., Jennerwein, M., Hauck, J., Sahin, B., Hofmann, T., (2018) Chemosensate-induced modulation of the salivary proteome and metabolome alters the sensory perception of salt taste and odor-active thiols. *JAFCAU*, 66(29): 7740-7749.
- Badshah, S.L., Faisal, S., Muhammad, A., Poulson, B.G., Emwas, A.H., Jaremko, M., (2021) Antiviral activities of flavonoids. *Biomed Pharmacother*, 140: 111596.
- Bala, N., Saha, S., Chakraborty, M., Maiti, M., Das, S., Basu, R. Nandy, P., (2015) Green synthesis of zinc oxide nanoparticles using *Hibiscus subdariffa* leaf extract: effect of temperature on synthesis, anti-bacterial activity and anti-diabetic activity. *RSC Adv*, 5(7): 4993-5003.
- Chandrasekaran, M., Kim, K.D., Chun, S.C., (2020) Antibacterial activity of chitosan nanoparticles: a review. *Processes*, 8(9): 1173.
- Chang, S.H., Lin, H.T.V., Wu, G.J., Tsai, G.J., (2015) pH Effects on solubility, zeta potential, and correlation between antibacterial activity and molecular weight of chitosan. *Carbohydr Polym*, 134: 74-81.
- Chen, F., Kowaleguet, M.G.G.M., Shi, W., Zhang, S., Dai, J., Ban, Z., Wang, L., Wu, Y., Wang, H., (2022) Associating chitosan and nanoemulsion as a delivery system of essential oil; the potential on quality maintenance of minimally processed produce. *LWT*, 155: 112925.

- Cheung, G.Y., Bae, J.S., Otto, M., (2021) Pathogenicity and virulence of *Staphylococcus aureus*. *Virulence*, 12(1): 547-569.
- Coban, H. B., (2020) Organic acids as antimicrobial food agents: applications and microbial productions. *BBE*, 43(4): 569-591.
- Costa, E.M., Silva, S., Vicente, S., Neto, C., Castro, P.M., Veiga, M., Madureira, R., Tavarria, F., Pintado, M.M., (2017) Chitosan nanoparticles as alternative anti-staphylococci agents: Bactericidal, antibiofilm and antiadhesive effects. *MSEC*, 79: 221-226.
- Dantas, A.G.B., de Souza, R.L., de Almeida, A.R., Xavier Júnior, F.H., Pitta, M.G.D.R., Rêgo, M.J.B.D.M., Oliveira, E.E., (2021) Development, characterization, and immunomodulatory evaluation of carvacrol-loaded nanoemulsion. *Molecules*, 26(13): 3899.
- da Silva, B.D., Rosario, D.K.A.D., Conte-Junior, C.A., (2023) Can droplet size influence antibacterial activity in ultrasound-prepared essential oil nanoemulsions?. *Crit. Rev. Food Sci. Nutr.*, 63(33): 12567-12577.
- Dental Didactics CE, (2022) Dental Waterline Safety 2022:2 hours. <https://www.dentaldidacticsce.com/dental-waterline-safety-2022-2-hours/>
- Deus, F.P., Ouanounou, A., (2022) Chlorhexidine in dentistry: pharmacology, uses, and adverse effects. *IDJ*, 72(3): 269-277.
- Dziedzic, I., Kertmen, A., (2023) Methods of chitosan identification: history and trends. *Lett. Appl. NanoBioSci*, 12: 94
- Elshamy, S., Khadizatul, K., Uemura, K., Nakajima, M., Neves, M.A., (2021) Chitosan-based film incorporated with essential oil nanoemulsion foreseeing enhanced antimicrobial effect. *JFST*, (58): 3314-3327.
- Fan, M., Yuan, S., Li, L., Zheng, J., Zhao, D., Wang, C., Wang, H., Liu, X., Liu, J., (2023) Application of terpenoid compounds in food and pharmaceutical products. *Fermentation*, 9(2): 119.
- Farha, A.K., Yang, Q.Q., Kim, G., Li, H.B., Zhu, F., Liu, H.Y., Gan, R.Y., Corke, H., (2020) Tannins as an alternative to antibiotics. *Food Bioscience*, 38: 100751.
- Firoozi, M., Rezapour-Jahani, S., Shahvegharasl, Z., Anarjan, N., (2020) Ginger essential oil nanoemulsions: Preparation and physicochemical characterization and antibacterial activities evaluation. *JFPE*, 43(8): 13434.
- Flores, R.M., Havill, N.L., Bouttaphom, L., Carlin, C., Zimkus, J., (2023) The Importance of a Dental Water Management Plan in the Prevention of Disease Transmission During Dental Procedures. *AJIC*, 51(7): 58.
- Fujii, J., Osaki, T., Bo, T., (2022) Ascorbate is a primary antioxidant in mammals. *Molecules*, 27(19): 6187.
- Ganeshpurkar, A., Thakur, A., Jaiswal, A., (2020) Ginger in oral care. *Natural Oral Care in Dental Therapy*, 329-343.

- Ge, Y., Wu, Y., Aihaiti, A., Wang, L., Wang, Y., Xing, J., Zhu, M., Hong, J., (2025) The Metabolic Pathways of Yeast and Acetic Acid Bacteria During Fruit Vinegar Fermentation and Their Influence on Flavor Development. *Microorganisms*, 13(3): 477.
- Giraldo, J.D., Rivas, B.L., (2021) Direct ionization and solubility of chitosan in aqueous solutions with acetic acid. *Polymer bulletin*, 78: 1465-1488.
- González-Peña, M.A., Ortega-Regules, A.E., Anaya de Parrodi, C., Lozada-Ramírez, J.D., (2023) Chemistry, occurrence, properties, applications, and encapsulation of carotenoids—A review. *Plants*, 12(2): 313.
- Grytsai, O., Myrgorodska, I., Rocchi, S., Ronco, C., Benhida, R., (2021) Biguanides drugs: Past success stories and promising future for drug discovery. *EJMECH*, 224: 113726.
- Gurpreet, K., Singh, S.K., (2018) Review of nanoemulsion formulation and characterization techniques. *IJPS*, 80(5).
- Håkansson, A., Rayner, M., (2018) General principles of nanoemulsion formation by high-energy mechanical methods. *Nanoemulsions*, 103-139. Academic Press.
- Halstead, F.D., Rauf, M., Moiemmen, N.S., Bamford, A., Wearn, C.M., Fraise, A.P., Lund, P.A., Oppenheim, B.A., Webber, M.A., (2015) The antibacterial activity of acetic acid against biofilm-producing pathogens of relevance to burns patients. *PloS one*, 10(9): 0136190.
- Harper, R.A., Shelton, R.M., James, J.D., Salvati, E., Besnard, C., Korsunsky, A.M., Landini, G., (2021) Acid-induced demineralisation of human enamel as a function of time and pH observed using X-ray and polarised light imaging. *Acta Biomater*, 120: 240-248.
- Hayati, I., Hartana, A., Djuita, N.R., Ariyanti, N.S., (2022) Morphological variation of kedondong (*Spondias dulcis* Parkinson) in central part of Sumatra. *Floribunda*, 6(8): 315-323
- Hayatillah, R., Hapsari, W.K., (2023) Anti-Inflamasi Tanaman Kedondong (*Spondias Dulcis* G. Forst.). *JSPB*, 2(1): 63-69.
- Hendrika, Y., Aulia, Z., Mardhiyani, D., (2023) Formulation and Characterization of Nanoemulsion Turmeric oil. *JPK*, 12(2): 156-162.
- Hoogenkamp, M.A., Brandt, B.W., de Soet, J.J., Crielaard, W., (2020) An in-vitro dynamic flow model for translational research into dental unit water system biofilms. *JMM*, 171: 105879.
- Jadhav, A.L., Khetre, S.M., (2020) Antibacterial activity of LaNiO₃ prepared by sonicated sol-gel method using combination fuel. *INL*, 10: 23-31.
- Jayarathna, P.L., Jayawardena, J.A.E., Vanniarachchy, M.P.G., (2020) Identification of physical, chemical properties and flavor profile of *Spondias dulcis* in three maturity stages. *IRJAES*, 5(1): 208-211.

- Ji, X.Y., Fei, C.N., Zhang, Y., Zhang, W., Liu, J., Dong, J., (2016) Evaluation of bacterial contamination of dental unit waterlines and use of a newly designed measurement device to assess retraction of a dental chair unit. *IDJ*, 66(4): 208-214.
- Jiménez-Gómez, C.P., Cecilia, J.A., (2020) Chitosan: a natural biopolymer with a wide and varied range of applications. *Molecules*, 25(17): 3981.
- Kawengian, S.A., Wuisan, J., Leman, M.A., (2017) Uji daya hambat ekstrak daun serai (*Cymbopogon citratus* L) terhadap pertumbuhan *Streptococcus mutans*. *e-GIGI*, 5(1): 7-11.
- Ke, C.L., Deng, F.S., Chuang, C.Y., Lin, C.H., (2021) Antimicrobial actions and applications of chitosan. *Polymers*, 13(6): 904.
- Keim, K.C., Horswill, A.R., (2023) *Staphylococcus aureus*. *Trends Microbiol.*, 31(12): 1300-1301.
- Kiyama, R., (2020) Nutritional implications of ginger: chemistry, biological activities and signaling pathways. *JNB*, 86: 108486.
- Koubala, B.B., Kansci, G., Ralet, M.C., (2018) *Ambarella—Spondias cytherea*. In *Exotic fruits* (15-22). Academic Press.
- Kumar, M., Bishnoi, R.S., Shukla, A.K., Jain, C.P., (2019) Techniques for formulation of nanoemulsion drug delivery system: A review. *PNF*, 24(3): 225.
- Kumar, P.S., Subramanian, K., (2020) Demystifying the mist: sources of microbial bioload in dental aerosols. *JPER*, 91(9): 1113-1122.
- Kundukad, B., Udayakumar, G., Grela, E., Kaur, D., Rice, S.A., Kjelleberg, S., Doyle, P.S., (2020) Weak acids as an alternative anti-microbial therapy. *Biofilm*, 2: 100019.
- Lee, S.Y., Nam, E.J., (2022) Clinical efficacy of 1% CHX gluconate gel and 0.12% CHX solution: a randomized controlled trial. *IJERPH*, 19(15): 9358.
- Lin, Y.C., Tsai, C.F., Huang, H.L., (2023) Effects of hypochlorous acid mouthwash on salivary bacteria including *Staphylococcus aureus* in patients with periodontal disease: a randomized controlled trial. *BMC Oral Health*, 23(1): 698.
- Lunardi, C.N., Gomes, A.J., Rocha, F.S., De Tommaso, J., Patience, G.S., (2021) Experimental methods in chemical engineering: Zeta potential. *CJCE*, 99(3): 627-639.
- Maisaroh, Atmaji, P., Setianto, W.B., Restiawaty, E., Bindar, Y., (2025) April. Headspace Gas Chromatography/Mass Spectroscopy Analysis of Volatile Organic Compounds in Red Ginger (*Zingiber officinale* var. *Rubrum*): Effects of Drying on Chemical and Functional Properties. *IOP Conf. Ser.: EES*, 1477(1): 12068.

- McCormack, M.G., Smith, A.J., Akram, A.N., Jackson, M., Robertson, D., Edwards, G., (2015) *Staphylococcus aureus* and the oral cavity: an overlooked source of carriage and infection?. *AJIC*, 43(1): 35-37.
- Milanes-Baños, N.A., (2024) Step-by-step one-way ANOVA analysis with the Jamovi Program. *MJMR ICSA*, 12(23): 22-26.
- Minkiewicz-Zochniak, A., Jarzynka, S., Iwańska, A., Strom, K., Iwańczyk, B., Bartel, M., Mazur, M., Pietruczuk-Padzik, A., Konieczna, M., Augustynowicz-Kopeć, E., Olędzka, G., (2021) Biofilm formation on dental implant biomaterials by *Staphylococcus aureus* strains isolated from patients with cystic fibrosis. *Materials*, 14(8): 2030.
- Mooi, E., Sarstedt, M., Mooi-Reci, I., Mooi, E., Sarstedt, M., Mooi-Reci, I., (2018) Hypothesis testing & ANOVA. *Market Research: The Process, Data, and Methods Using Stata*, 153-214.
- Moradnia, M., Mousavi, S., Darvishmotevalli, M., Karimi, H., Qazvini, F.F., (2024) Identification of Infectious Bacteria in Dental Units. *IJEHE*, 13(1): 28.
- Moradnia, M., Noorisepehr, M., Ghaderi, S., Salari, M., Darvishmotevalli, M., (2021) Investigation of microbial contamination in surfaces and waterlines of dental units in terms of *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Escherichia coli*, and coliforms. (Abstr.).
- Negi, A., Kesari, K.K., (2022) Chitosan nanoparticle encapsulation of antibacterial essential oils. *Micromachines*, 13(8): 1265.
- Noorbakhsh, F., Ghasemi, M.M., Maghbool, M., Sorouri, M., Firoozian, S., Osanloo, M., (2025) Preparation, Characterization, and Antibacterial Evaluation of Nanoemulsions and Chitosan Nanoparticles Containing Lemongrass Essential Oil and Citral against *Staphylococcus aureus* and *Pseudomonas aeruginosa*. *BioNanoScience*, 15(1): 210.
- Nugrahani, H. N., Apriyani, I., Bahri, S., (2021) Analisis Kadar Asam Asetat Hasil Fermentasi Buah Kedondong (*Spondias dulcis* Parkinson) dengan Metode Titrasi Alkalimetri. *Sainstech Farma: Jurnal Ilmu Kefarmasian*, 14(2): 97-101.
- Oktavia, I., (2022) Aktivitas Antioksidan Dari Ekstrak Senyawa Bioaktif Karotenoid Buah Pepaya (*Carica Papaya*) Menggunakan Metode DPPH. *JPB*, 2(2): 16-23.
- Onaizi, S.A., (2022) Effect of oil/water ratio on rheological behavior, droplet size, zeta potential, long-term stability, and acid-induced demulsification of crude oil/water nanoemulsions. *J. Pet. Sci. Eng.*, 209: 109857.
- Pal, M., Kerorsa, G.B., Marami, L.M., Kandi, V., (2020) Epidemiology, pathogenicity, animal infections, antibiotic resistance, public health significance, and economic impact of *staphylococcus aureus*: a comprehensive review. *AJPHR*, 8(1): 14-21.

- Panyod, S., Wu, W.K., Hsieh, Y.C., Tseng, Y.J., Peng, S.Y., Chen, R.A., Huang, H.S., Chen, Y.H., Shen, T.C.D., Ho, C.T., Liu, C.J., (2024) Ginger essential oil prevents NASH progression by blocking the NLRP3 inflammasome and remodeling the gut microbiota-LPS-TLR4 pathway in mice. *Nutr. Diabetes*, 14(1): 65.
- Patil, R., Hindlekar, A., Jadhav, G.R., Mittal, P., Humnabad, V., Di Blasio, M., Cicciù, M., Minervini, G., (2023) Comparative evaluation of effect of sodium hypochlorite and chlorhexidine in dental unit waterline on aerosolized bacteria generated during dental treatment. *BMC Oral Health*, 23(1): 865.
- Peh, E., Kittler, S., Reich, F., Kehrenberg, C., (2020) Antimicrobial activity of organic acids against *Campylobacter* spp. and development of combinations—A synergistic effect?. *Plos one*, 15(9): 239312.
- Pongsumpun, P., Iwamoto, S., Siripatrawan, U., (2020) Response surface methodology for optimization of cinnamon essential oil nanoemulsion with improved stability and antifungal activity. *Ultrason. Sonochem.*, 60: 104604.
- Prihantini, M., Zulfa, E., Prastiwi, L.D. Yulianti, I.D., (2020) Pengaruh Waktu Ultrasonikasi Terhadap Karakteristik Fisika Nanopartikel Kitosan Ekstrak Etanol Daun Suji (*Pleomele angustifolia*) Dan Uji Stabilitas Fisika Menggunakan Metode Cycling Test. *JIFFK*, 16(02): 125-133.
- Qin, Y., Li, P., (2020) Antimicrobial chitosan conjugates: Current synthetic strategies and potential applications. *IJMS*, 21(2): 499.
- Qureshi, S., Milić, L., Petrović, B., Vejin, M., Kojić, S., Jarić, S., Stojanović, G., (2022) The measurement of contact angle, pH, and conductivity of artificial saliva and mouthwashes on enamel, glass-ionomer, and composite dental materials. *Materials*, 15(13): 4533.
- Radice, M., Maddela, N.R., Scalvenzi, L., (2022) Biological activities of zingiber officinale Roscoe essential oil against *Fusarium* spp.: a Minireview of a promising Tool for biocontrol. *Agronomy*, 12(5): 1168.
- Rehman, T., Arshad, M.U., Ahmad, R.S., Rasool, B., Hussain, G., Saeed, F., Shahbaz, M., Ahmed, A., Imran, M., Khan, M.A., Faiz, F., (2019) Reconnoitring the impact of different extraction techniques on ginger bioactive moieties extraction, antioxidant characterization and physicochemical properties for their therapeutic effect. *PJPS*, 32(5): 2223-2236.
- Rempe, C.S., Burriss, K.P., Lenaghan, S.C., Stewart Jr, C.N., (2017) The potential of systems biology to discover antibacterial mechanisms of plant phenolics. *FMICB*, 8: 422.
- Rosada, K.K., (2018) Enhanced acetic acid production from manalagi apple (*Malus sylvestris* mill) by mixed cultures of *Saccharomyces cerevisiae* and *Acetobacter aceti* in submerged fermentation. *JPCS*, 1013(1): 012171

- Santos, É.M.D., Ataide, J.A., Coco, J.C., Fava, A.L.M., Silvério, L.A.L., Sueiro, A.C., Silva, J.R.A., Lopes, A.M., Paiva-Santos, A.C., Mazzola, P.G., (2023) *Spondias* sp: shedding light on its vast pharmaceutical potential. *Molecules*, 28(4): 1862.
- Sharma, K., Kaur, R., Kumar, S., Saini, R.K., Sharma, S., Pawde, S.V., Kumar, V., (2023) Saponins: A concise review on food related aspects, applications and health implications. *Food Chem Adv*, 2: 100191.
- Sinan, K.I., Zengin, G., Zheleva-Dimitrova, D., Gevrenova, R., Picot-Allain, M.C.N., Dall'Acqua, S., Behl, T., Goh, B.H., Ying, P.T.S., Mahomoodally, M.F., (2021) Exploring the chemical profiles and biological values of two *Spondias* species (*S. dulcis* and *S. mombin*): Valuable Sources of Bioactive Natural Products. *Antioxidants*, 10(11): 1771.
- Singh, A., Mittal, A., Benjakul, S., (2021) Chitosan nanoparticles: Preparation, food applications and health benefits. *Sci. Asia*, 47(2021): 1-10.
- Škubník, J., Pavličková, V., Rimpelová, S., (2021) Cardiac glycosides as immune system modulators. *Biomolecules*, 11(5): 659.
- Souza, E.T.D., Siqueira, L.M., Almeida, R.N., Lucas, A.M., Silva, C.G.F.D., Cassel, E., Vargas, R.M.F., (2020) Comparison of different extraction techniques of *Zingiber officinale* essential oil. *BABT*, 63: 20190213.
- Sterer, N., Rosenberg, M., Sterer, N., Rosenberg, M., (2020) History of Breath Odors. *Breath Odors: Origin, Diagnosis, and Management*, 97-101.
- Van Swaaij, B.W.M., Slot, D.E., Van der Weijden, G.A., Timmerman, M.F., Ruben, J., (2024) Fluoride, pH value, and titratable acidity of commercially available mouthwashes. *IDJ*, 74(2): 260-267.
- Vinh, R., Azzolin, K.A., Stream, S.E., Carsten, D., Eldridge, L.A., Estrich, C.G., Lipman, R.D., (2024) Dental unit waterline infection control practice and knowledge gaps. *JADA*, 155(6): 515-525.
- Wang, X., Shen, Y., Thakur, K., Han, J., Zhang, J.G., Hu, F., Wei, Z.J., (2020) Antibacterial activity and mechanism of ginger essential oil against *Escherichia coli* and *Staphylococcus aureus*. *Molecules*, 25(17): 3955.
- Wardaniati, I., Gusmawarni, V., (2021) Uji aktivitas antibakteri ekstrak etanol propolis terhadap *Streptococcus mutans*. *JFH*, 13(2): 115-123.
- Wattimena, M.T.G.E., (2023) Efektivitas Ekstrak Jahe (*Zingiber officinale* Rosc) Terhadap Penurunan Kadar Bau Mulut (Halitosis). Universitas Hassanudin. (Abstr.).
- Wijaya, H., Jubaidah, S., Agustina, S., (2023) Potential Antioxidant Activity of Kedondong Leaves (*Spondias dulcis* Forst.) Using DPPH Method (1, 1-Diphenyl-2-Pikril Hidrazil). *IJALSR*, 42-47.

- Xue, F., Zhao, M., Liu, X., Chu, R., Qiao, Z., Li, C., Adhikari, B., (2021) Physicochemical properties of chitosan/zein/essential oil emulsion-based active films functionalized by polyphenols. *Future Foods*, 3: 100033.
- Yan, Y., Li, X., Zhang, C., Lv, L., Gao, B., Li, M., (2021) Research progress on antibacterial activities and mechanisms of natural alkaloids: A review. *Antibiotics*, 10(3): 318.
- Yang, X.L., Xu, X.X. and Wang, H.F., (2022) The complete plastome of *Spondias dulcis* (Anacardiaceae): an edible deciduous tree species from South America. *Mitochondrial DNA Part B*, 7(10):1766-1767.
- Yeo, S.K., Ali, A.Y., Hayward, O.A., Turnham, D., Jackson, T., Bowen, I.D., Clarkson, R., (2016) β -Bisabolene, a sesquiterpene from the essential oil extract of opoponax (*Commiphora guidottii*), exhibits cytotoxicity in breast cancer cell lines. *PTR*, 30(3): 418-425.
- Yiek, W.K., Coenen, O., Nillesen, M., van Ingen, J., Bowles, E., Tostmann, A., (2021) Outbreaks of healthcare-associated infections linked to water-containing hospital equipment: a literature review. *ARIC*, 10: 1-19.
- Zhang, K., Zhang, T.T., Guo, R.R., Ye, Q., Zhao, H.L., Huang, X.H., (2023) The regulation of key flavor of traditional fermented food by microbial metabolism: A review. *Food Chemistry*: X, 19: 100871.
- Zhang, M., Zhao, R., Wang, D., Wang, L., Zhang, Q., Wei, S., Lu, F., Peng, W., Wu, C., (2021) Ginger (*Zingiber officinale* Rosc.) and its bioactive components are potential resources for health beneficial agents. *Phytotherapy Research*, 35(2): 711-742.
- Zhang, S., Kou, X., Zhao, H., Mak, K.K., Balijepalli, M.K., Pichika, M.R., (2022a) *Zingiber officinale* var. *rubrum*: Red ginger's medicinal uses. *Molecules*, 27(3): 775.
- Zhang, Y., Cai, P., Cheng, G., Zhang, Y., (2022b) A brief review of phenolic compounds identified from plants: Their extraction, analysis, and biological activity. *NPC*, 17(1): 1-14.