

## DAFTAR PUSTAKA

- Abd-El Aal, A. M., El-Hadidy, M. R., El-Mashad, N. B., & El-Sebaie, A. H. (2007). Antimicrobial effect of bee honey in comparison to antibiotics on organisms isolated from infected burns. *Annals of burns and fire disasters*, 20(2), 83–88.
- Abderrahim, L. A., Taïbi, K., Ait Abderrahim, N., Boussaid, M., Rios-Navarro, C., & Ruiz-Sauri, A. (2019). Euphorbia honey and garlic: Biological activity and burn wound recovery. *Burns*, 45(7), 1695–1706. <https://doi.org/10.1016/j.burns.2019.05.002>.
- Adjeso, T., Dzogbefia, M., & Dzantor, E. K. (2020). Deep neck space infections in northern Ghana. *JAMMR*, 265–270.
- Ahmad, T., Putri, N. M., Sudjatmiko, G., Surachman, A., & Dachlan, I. (2012). Application of honey and transparent *dressing* to split thickness skin graft donor site and its effect on epithelialization rate. *Journal of Plastic Reconstructive Surgery*, 1.
- Ahmed, A.-S. A.-A., Eltregy, S., & Kandil, M. I. (2022). Honey *dressing*: A missed way for orthopaedic wound care. *International Orthopaedics (SICOT)*, 46(11), 2483–2491.
- Alias, K., Colbert, R., & Devakumari, S. (2013). Diagnosis and management of deeper neck infections - A review. *IOSR Journal of Dental and Medical Sciences*, 9(4), 36–41.
- Almasaudi S. (2021). The antibacterial activities of honey. *Saudi journal of biological sciences*, 28(4), 2188–2196. <https://doi.org/10.1016/j.sjbs.2020.10.017>
- Almuqamam, M., Gonzalez, F. J., & Kondamudi, N. P. (2024). Deep neck infections. In *StatPearls*. StatPearls Publishing.
- Alvarez-Suarez, J. M., Tulipani, S., Díaz, D., Estevez, Y., Romandini, S., Giampieri, F., Damiani, E., Astolfi, P., Bompadre, S., & Battino, M. (2010). Antioxidant and antimicrobial capacity of several monofloral Cuban honeys and their correlation with color, polyphenol content and other chemical compounds. *Food and chemical toxicology : an international journal*

*published for the British Industrial Biological Research Association, 48(8-9),  
2490–2499. <https://doi.org/10.1016/j.fct.2010.06.021>*

Al-Waili, N., Salom, K., & Al-Ghamdi, A. A. (2011). Honey for wound healing, ulcers, and burns; data supporting its use in clinical practice. *The Scientific World Journal, 11*, 766–787. <https://doi.org/10.1100/tsw.2011.78>

Atrott, J., & Henle, T. (2009). Methylglyoxal in manuka honey–correlation with antibacterial properties. *Czech Journal of Food Sciences, 27*(Spec. Issue), S163–S165. [doi:10.17221/911-CJFS](https://doi.org/10.17221/911-CJFS)

Aziz, Z., & Hassan, B. A. R. (2017). The effects of honey compared to silver sulfadiazine for the treatment of burns: A systematic review of randomized controlled trials. *Burns, 43*(1), 50–57. [doi: 10.1016/j.burns.2016.07.004](https://doi.org/10.1016/j.burns.2016.07.004).

Bates-Jensen BM, , McCreath H, Patlan A, Harputlu D. (2019). Reliability of the Bates-Jensen Wound Assessment Tool (BWAT) for Pressure Injury Assessment: The Pressure Ulcer Detection Study. *Wound Repair Regen. 27*(4): 386–395. [doi:10.1111/wrr.12714](https://doi.org/10.1111/wrr.12714)

Bakir, S., Tanriverdi, M. H., Gün, R., Yorgancilar, A. E., Yildirim, M., Tekbaş, G., Acar, A., Gun, S., Ozer, C., Akkuş, Z., & Ozlgedik, S. (2012). Deep neck space infections: A retrospective review of 173 cases. *American Journal of Otolaryngology, 33*(1), 56–63. [doi: 10.1016/j.amjoto.2011.01.003](https://doi.org/10.1016/j.amjoto.2011.01.003).

Barber, B. R., Dziegielewska, P. T., Biron, V. L., Ma, A., & Seikaly, H. (2014). Factors associated with severe deep neck space infections: Targeting multiple fronts. *Journal of Otolaryngology - Head & Neck Surgery, 43*(1), 35. [doi: 10.1186/s40463-014-0035-5](https://doi.org/10.1186/s40463-014-0035-5).

Barui, A., Banerjee, P., Das, R. K., Basu, S. K., Dhara, S., & Chatterjee, J. (2011). Immunohistochemical evaluation of p63, e-cadherin, collagen I and III expression in lower limb wound healing under honey. *Evidence-Based Complementary and Alternative Medicine, 2011*, 1–8.

Basualdo, C., Sgroy, V., Finola, M. S., & Marioli, J. M. (2007). Comparison of the antibacterial activity of honey from different provenance against bacteria usually isolated from skin wounds. *Veterinary Microbiology, 124*(3-4), 375–381.

- Biau, D. J., Jolles, B. M., & Porcher, R. (2008). P value and the theory of hypothesis testing: An explanation for new researchers. *Clinical Orthopaedics and Related Research*, 466(4), 885–892. <https://doi.org/10.1007/s11999-009-1164-4>
- Bigcas, J.-L. M., & Jain, K. S. (2017). Management of parapharyngeal and retropharyngeal space infections. *Operative Techniques in Otolaryngology-Head and Neck Surgery*, 28(4), 229–237.
- Blair, S. E., & Carter, D. A. (2005). The potential for honey in the management of wounds and infection. *Australian Infection Control*, 10(1), 24–31.
- Bodnar, R. J. (2015). Chemokine regulation of angiogenesis during wound healing. *Advances in Wound Care*, 4(11), 641–650.
- Boscolo-Rizzo, P., Stellin, M., Muzzi, E., Mantovani, M., Fuson, R., Lupato, V., Trabalzini, F., & Da Mosto, M. C. (2012). Deep neck infections: A constant challenge. *ORL*, 74(6), 298–302. <https://doi.org/10.1159/000342914>
- Bottin, R., Marioni, G., Rinaldi, R., Boninsegna, M., Salvadori, L., & Staffieri, A. (2003). Deep neck infection: A present-day complication. A retrospective review of 83 cases (1998–2001). *European Archives of Oto-Rhino-Laryngology*, 260(10), 576–579.
- Bowler, P. G., Duerden, B. I., & Armstrong, D. G. (2001). Wound microbiology and associated approaches to wound management. *Clinical Microbiology Reviews*, 14(2), 244–269. <https://doi.org/10.1128/cmr.14.2.244-269.2001>
- Buckley, J., Harris, A. S., & Addams-Williams, J. (2019). Ten years of deep neck space abscesses. *The Journal of Laryngology & Otology*, 133(4), 324–328. doi:10.1017/S0022215119000458
- Busch, D. A.-K., Methner, N., Azodanlou, D., Moelleken, M., Dissemond, J., Hübner, U. H., Przyssucha, M., Kücking, F., Berking, C., & Erfurt-Berge, C. (2025). Chronic wounds and employment: Assessing occupation-related burden of patients with chronic wounds—Results of a pilot study. *International Wound Journal*, 22(4), e70372. <https://doi.org/10.1111/iwj.70372>
- Caldwell, M. D. (Ed.). (2010). *Wounds and wound management, surgical clinics of North America*. Saunders.

- Chetter, I. C., Oswald, A. V., Fletcher, M., Dumville, J. C., & Cullum, N. A. (2017). A survey of patients with surgical wounds healing by secondary intention; an assessment of prevalence, aetiology, duration and management. *Journal of Tissue Viability*, 26(2), 103–107.
- Cooper, R. A., Molan, P. C., & Harding, K. G. (1999). Antibacterial activity of honey against strains of staphylococcus aureus from infected wounds. *Journal of the Royal Society of Medicine*, 92(6), 283–285.
- Creppy, E., Diallo, A., Moukha, S., Eklou-Gadegbeku, C., & Cros, D. (2014). Study of epigenetic properties of Poly(HexaMethylene Biguanide) Hydrochloride (PHMB). *International Journal of Environmental Research and Public Health*, 11(8), 8069–8092.
- Cutting, K. F. (2010). Addressing the challenge of wound cleansing in the modern era. *British Journal of Nursing*, 19(15), S24–S29.
- Daeschlein, G. (2013). Antimicrobial and antiseptic strategies in wound management. *International Wound Journal*, 10(1), 9–14.
- Dahiya, D., Mackin, C., & Nigam, P. S. (2024). Studies on bioactivities of Manuka and regional varieties of honey for their potential use as natural antibiotic agents for infection control related to wound healing and in pharmaceutical formulations. *AIMS Microbiology*, 10(2), 288–310. <https://doi.org/10.3934/microbiol.2024015>
- Demidova-Rice, T. N., Durham, J. T., & Herman, I. M. (2012). Wound healing angiogenesis: Innovations and challenges in acute and chronic wound healing. *Advances in Wound Care*, 1(1), 17–22.
- Diegelmann, R. F., & Evans, M. C. (2004). Wound healing: An overview of acute, fibrotic and delayed healing. *Frontiers in Bioscience*, 9, 283–289.
- Dinah, F., & Adhikari, A. (2006). Gauze packing of open surgical wounds: Empirical or evidence-based practice? *Annals of The Royal College of Surgeons of England*, 88(1), 33–36.
- Dinareello, C. A. (2011). A clinical perspective of IL-1 $\beta$  as the gatekeeper of inflammation. *European Journal of Immunology*, 41(5), 1203–1217.
- Djoenaedi, I., & Sudjatmiko, G. (1970). Topical honey application in treating large

- ulcerated wound as a complication of vascular malformation in a 5-month-old baby. *Journal of Plastic Reconstructive Surgery*, 1.
- Dorai, A. A. (2012). Wound care with traditional, complementary and alternative medicine. *Indian Journal of Plastic Surgery*, 45(3), 418–424.
- Dubhashi, S. P., & Sindwani, R. D. (2015). A comparative study of honey and phenytoin dressings for chronic wounds. *Indian Journal of Surgery*, 77(Suppl 3), 1209–1213.
- Ebadi, P., & Fazeli, M. (2021). Evaluation of the potential in vitro effects of propolis and honey on wound healing in human dermal fibroblast cells. *South African Journal of Botany*, 137, 414–422.
- Eick, S., Schäfer, G., Kwiecieński, J., Atrott, J., Henle, T., & Pfister, W. (2014). Honey – a potential agent against *Porphyromonas gingivalis*: An in vitro study. *BMC Oral Health*, 14, 24.
- Eming, S. A., Krieg, T., & Davidson, J. M. (2007). Inflammation in wound repair: Molecular and cellular mechanisms. *The Journal of Investigative Dermatology*, 127(3), 514–525.
- Esa, N. E. F., Ansari, M. N. M., Razak, S. I. A., Ismail, N. I., Jusoh, N., Zawawi, N. A., Ariffin, Z. Z., Khan, M. U. A., Sheikh, F. A., Reddy, V. J., & Yusof, A. H. M. (2022). A review on recent progress of stingless bee honey and its hydrogel-based compound for wound care management. *Molecules*, 27(10), 3080. <https://doi.org/10.3390/molecules27103080>
- Esser, M. (2017). Leptospermum honey for wound care in an extremely premature infant. *Advances in Neonatal Care*, 17(1), 27–32.
- Eteraf-Oskouei, T., & Najafi, M. (2013). Traditional and modern uses of natural honey in human diseases: A review. *Iranian Journal of Basic Medical Sciences*, 16(6), 731–742.
- Farzadinia, P., Jofreh, N., Khatamsaz, S., Movahed, A., Akbarzadeh, S., Mohammadi, M., Bargahi, A., & Baeri, M. (2016). Anti-inflammatory and wound healing activities of Aloe vera, honey and milk ointment on second-degree burns in rats. *The International Journal of Lower Extremity Wounds*, 15(3), 241–247.
- Fernandez, R., & Griffiths, R. (2012). Water for wound cleansing. *Cochrane*

*Database of Systematic Reviews*, 2.

- Ferrara N. (2004). Vascular endothelial growth factor: basic science and clinical progress. *Endocrine reviews*, 25(4), 581–611. <https://doi.org/10.1210/er.2003-0027>
- Gardner, S. E., Frantz, R. A., Saltzman, C. L., Hillis, S. L., Park, H., & Scherubel, M. (2006). Diagnostic validity of three swab techniques for identifying chronic wound infection. *Wound Repair and Regeneration*, 14(5), 548–557. <https://doi.org/10.1111/j.1743-6109.2006.00162.x>
- Gethin, G., & Cowman, S. (2008). Bacteriological changes in sloughy venous leg ulcers treated with manuka honey or hydrogel: An RCT. *Journal of Wound Care*, 17(6), 241–247. <https://doi.org/10.12968/jowc.2008.17.6.29656>
- Gidley, P. W., Ghorayeb, B. Y., & Stiernberg, C. M. (2017). Contemporary management of deep neck space infections. *The Laryngoscope*, 127(12), 2736–2744. <https://doi.org/10.1002/lary.26539>
- Goharshenasan, P., Amini, S., Atria, A., Abtahi, H., & Khorasani, G. (2016). Topical application of honey on surgical wounds: A randomized clinical trial. *Complementary Medicine Research*, 23(1), 12–15.
- Gorjón, P. S., Pérez, P. B., Martín, A. C. M., Dios, J. C. D. P. D., Alonso, S. E., & Cabanillas, M. I. C. D. L. (2012). Infecciones cervicales profundas. Revisión de 286 casos. *Acta Otorrinolaringológica Española*, 63(1), 31–41.
- Güneş, Ü., & Eşer, İ. (2007). Effectiveness of a honey dressing for healing pressure ulcers. *Journal of Wound, Ostomy & Continence Nursing*, 34(2), 184–190.
- Guo, Y., Guo, C., Zhang, L., & Yu, G. (2014). Extracapsular dissection of the parapharyngeal space for a pleomorphic adenoma: A 10-year review. *British Journal of Oral and Maxillofacial Surgery*, 52(6), 557–562.
- Guo, S., & DiPietro, L. A. (2010). Factors affecting wound healing. *Journal of Dental Research*, 89(3), 219–229. <https://doi.org/10.1177/0022034509359125>
- Gurtner, G. C., Werner, S., Barrandon, Y., & Longaker, M. T. (2008). Wound repair and regeneration. *Nature*, 453(7193), 314–321. <https://doi.org/10.1038/nature07039>
- Hadagali, M.D., Chua, L.S. The anti-inflammatory and wound healing properties of

- honey. *Eur Food Res Technol* 239, 1003–1014 (2014).  
<https://doi.org/10.1007/s00217-014-2297-6>
- Harsono, A. D., & Sudjatmiko, G. (2012). The effect of honey on granulating tissue of the mandibular bone. *Journal of Plastic Reconstructive Surgery, 1*.
- Harrison's Principles of Internal Medicine* (20th ed.). (2018). McGraw-Hill Education.
- Hawker, G. A., Mian, S., Kendzerska, T., & French, M. (2011). Measures of adult pain: Visual Analog Scale for Pain (VAS Pain), Numeric Rating Scale for Pain (NRS Pain), McGill Pain Questionnaire (MPQ), Short-Form McGill Pain Questionnaire (SF-MPQ), Chronic Pain Grade Scale (CPGS), Short Form-36 Bodily Pain Scale (SF-36 BPS), and Measure of Intermittent and Constant Osteoarthritis Pain (ICOAP). *Arthritis care & research, 63 Suppl 11*, S240–S252. <https://doi.org/10.1002/acr.20543>
- Heidari-Moghadam, A., Bayati, V., Orazizadeh, M., & Rashno, M. (2020). Role of vascular endothelial growth factor and human umbilical vein endothelial cells in designing an in vitro vascular-muscle cellular model using adipose-derived stem cells. *Cell Journal, 22*, 19–28. <https://doi.org/10.22074/cellj.2020.7034>
- Huang, T., Liu, T., Chen, P., Tseng, F., Yeh, T., & Chen, Y. (2004). Deep neck infection: Analysis of 185 cases. *Head & Neck, 26*(10), 854–860.
- Hynes, W. L., & Walton, S. L. (2000). Hyaluronidases of Gram-positive bacteria. *FEMS Microbiology Letters, 183*(2), 201–207.
- Iosageanu, A., Stefan, L. M., Craciunescu, O., & Cimpean, A. (2024). Anti-Inflammatory and Wound Healing Properties of Different Honey Varieties from Romania and Correlations to Their Composition. *Life (Basel, Switzerland), 14*(9), 1187. <https://doi.org/10.3390/life14091187>
- J., Liu, Y., Liu, L., et al. (2023). Chemical composition and anti-inflammatory activities of Castanopsis honey. *Food & Function, 14*(2), 1121–1132. <https://doi.org/10.1039/d2fo02233h>
- Janakiram, N. B., Valerio, M. S., Goldman, S. M., & Dearth, C. L. (2021). The role of the inflammatory response in mediating functional recovery following composite tissue injuries. *International Journal of Molecular*

*Sciences*, 22(24), 13552.

- Jayagandhi, S., Cheruvu, S. C., Manimaran, V., & Mohanty, S. (2019). Deep neck space infection: Study of 52 cases. *Indian Journal of Otolaryngology and Head & Neck Surgery*, 71(6), 923–926.
- Jenkins, R., Burton, N., & Cooper, R. (2011). Effect of manuka honey on the expression of universal stress protein A in meticillin-resistant *Staphylococcus aureus*. *International journal of antimicrobial agents*, 37(4), 373–376. <https://doi.org/10.1016/j.ijantimicag.2010.11.036>
- Johnson, J. T., Rosen, C. A., & Bailey, B. J. (2014). *Bailey's head and neck surgery--otolaryngology*. Wolters Kluwer Health/Lippincott Williams & Wilkins.
- Jull, A. B., Cullum, N., Dumville, J. C., Westby, M. J., Deshpande, S., & Walker, N. (2015). Honey as a topical treatment for wounds. *Cochrane Database of Systematic Reviews*, 3. <https://doi.org/10.1002/14651858.CD005083.pub4>
- Kapoor, P., Sachdeva, S., Kochhar, A., & Aggarwal, R. (2021). Manuka honey dressing: An effective treatment modality for infected wound healing. *National Journal of Maxillofacial Surgery*, 12(2), 263–267.
- Kementerian Agama Republik Indonesia. (2019). *Al-Qur'an dan Terjemahannya*. Jakarta: Lajnah Pentashihan Mushaf Al-Qur'an.
- K. P., A. D., Sundoro, A., & Sudjatmiko, G. (2012). Antibacterial activity of Indonesian local honey against strains of *P. Aeruginosa*, *S. Aureus* and MRSA. *Journal of Plastic Reconstructive Surgery*, 1.
- Khan, R. U., Naz, S., & Abudabos, A. M. (2017). Towards a better understanding of the therapeutic applications and corresponding mechanisms of action of honey. *Environmental Science and Pollution Research*, 24(35), 27755–27766.
- Khalid, A., Smith, B., Johnson, C., Brown, D., Wilson, E., & Davis, F. (2021). Influence of patient-intrinsic factors on wound healing: A multicenter cohort study. *Journal of Wound Management & Research*, 12(4), 245–253.
- Khiati, B., Bacha, S., Aissat, S., & Ahmed, M. (2014). The use of Algerian honey on cutaneous wound healing: A case report and review of the literature. *Asian Pacific Journal of Tropical Disease*, 4(Suppl 2), S867–S869.
- Khoo, Y.-T., Halim, A. S., Singh, K.-K. B., & Mohamad, N.-A. (2010). Wound

- contraction effects and antibacterial properties of Tualang honey on full-thickness burn wounds in rats in comparison to hydrofibre. *BMC Complementary and Alternative Medicine*, 10, 48.
- Kujath, P., & Michelsen, A. (2008). Wounds – From physiology to wound dressing. *Deutsches Ärzteblatt International*, 105(13), 239–248.
- Kwakman, P. H., & Zaat, S. A. (2012). Antibacterial components of honey. *IUBMB Life*, 64(1), 48–55. <https://doi.org/10.1002/iub.578>
- Kwiecińska-Piróg, J., Przekwas, J., Majkut, M., Skowron, K., & Gospodarek-Komkowska, E. (2020). Biofilm formation reducing properties of Manuka honey and propolis in *Proteus mirabilis* rods isolated from chronic wounds. *Microorganisms*, 8(11), 1823. <https://doi.org/10.3390/MICROORGANISMS8111823>
- Larouche, J., Sheoran, S., Maruyama, K., & Martino, M. M. (2018). Immune regulation of skin wound healing: Mechanisms and novel therapeutic targets. *Advances in Wound Care*, 7(7), 209–231.
- Lee, J. H., Kim, H. S., & Park, S. H. (2021). Efficacy of honey alginate film in wound healing compared with silver sulfadiazine dressing: A randomized controlled trial. *Journal of Wound Management and Research*, 17(2), 88–95. <https://doi.org/10.22467/jwmr.2021.01559>
- Li, B., Zhang, Y., Yin, R., Zhong, W., Chen, R., & Yan, J. (2020). Activating CD137 Signaling Promotes Sprouting Angiogenesis via Increased VEGFA Secretion and the VEGFR2/Akt/eNOS Pathway. *Mediators of inflammation*, 2020, 1649453. <https://doi.org/10.1155/2020/1649453>
- Liu, M., Deng, W., Zhang, H., Wu, Y., Wang, L., & Fan, Y. (2023). Analysis of physicochemical components and antioxidants of four kinds of Guizhou honey. *Food Science and Technology*, 43. <https://doi.org/10.5327/fst.23023>
- Lusby, P. E., Coombes, A. L., & Wilkinson, J. M. (2005). Bactericidal activity of different honeys against pathogenic bacteria. *Archives of Medical Research*, 36(5), 464–467.
- Majtan, J. (2011). Methylglyoxal—A potential risk factor of Manuka honey in healing of diabetic ulcers. *Evidence-Based Complementary and Alternative*

*Medicine*, 2011, 1–5.

- Majtan, J. (2014). Honey: An immunomodulator in wound healing. *Wound Repair and Regeneration*, 22(2), 187–192. <https://doi.org/10.1111/wrr.12117>
- Mandal, M. D., & Mandal, S. (2011). Honey: Its medicinal property and antibacterial activity. *Asian Pacific Journal of Tropical Biomedicine*, 1(2), 154–160. [https://doi.org/10.1016/S2221-1691\(11\)60016-6](https://doi.org/10.1016/S2221-1691(11)60016-6)
- Mane, P. G., Bhinge, S. D., & Mane, A. A. (2013). Wound healing activity of honey: A pilot study. *International Journal of Pharmaceutical Sciences Review and Research*, 21(2), 89–91.
- Martanegara, I. F., Ratunanda, S. S., Saifuddin, O. M., Wijana, Agustian, R. A., & Samiadi, D. (2023). Overview of factors associated with deep neck abscess at Hasan Sadikin Hospital Bandung. In Y. A. Dewi, H. Kadriyan, S. S. Ratunanda, M. R. M. Yunus, S. Uppal, & P. Tantilipikorn (Eds.), *Proceedings of the 19th Otorhinolaryngology Head and Neck Surgery National Congress (PERHATIKL 2022), Advances in Health Sciences Research* (pp. 134–140). Atlantis Press International BV.
- Mathew-Steiner, S. S., Roy, S., & Sen, C. K. (2021). Collagen in wound healing. *Bioengineering*, 8(5), 63.
- Mavric, E., Wittmann, S., Barth, G., & Henle, T. (2008). Identification and quantification of methylglyoxal as the dominant antibacterial constituent of Manuka (*Leptospermum scoparium*) honeys from New Zealand. *Molecular Nutrition & Food Research*, 52(4), 483–489.
- McArdle, C., Coyle, S., & Santos, D. (2023). The impact of wound pH on the antibacterial properties of Medical Grade Honey when applied to bacterial isolates present in common foot and ankle wounds. An in vitro study. *Journal of foot and ankle research*, 16(1), 66. <https://doi.org/10.1186/s13047-023-00653-9>
- McIntosh, C. D., & Thomson, C. E. (2006). Honey dressing versus paraffin tulle gras following toenail surgery. *Journal of Wound Care*, 15(4), 133–136.
- McLoone, P., Warnock, M., & Fyfe, L. (2016). Honey: A realistic antimicrobial for disorders of the skin. *Journal of Microbiology, Immunology and*

*Infection*, 49(2), 161–167. <https://doi.org/10.1016/j.jmii.2015.01.009>

- Merckoll, P., Jonassen, T. O., Vad, M., Jeansson, S. L., Jensen, J. S., & Melby, K. K. (2009). Bacteria, biofilm and honey: A study of the effects of honey on 'planktonic' and biofilm-embedded chronic wound bacteria. *Journal of Applied Microbiology*, 106(1), 211–220. <https://doi.org/10.1080/00365540902849383>
- Miraz, L. A., Sulaiman, S. A., Gan, S. H., & Khalil, M. I. (2013). Gelam honey inhibits the production of proinflammatory mediators in carrageenan-induced acute inflammation in rats. *Evidence-Based Complementary and Alternative Medicine*, 2013, Article ID 976203. <https://doi.org/10.1155/2013/976203>
- Moghazy, A. M., Shams, M. E., Adly, O. A., Abbas, A. H., El-Badawy, M. A., Elsakka, D. M., Hassan, S. A., Abdelmohsen, W. S., Ali, O. S., & Mohamed, B. A. (2010). The clinical and cost effectiveness of bee honey dressing in the treatment of diabetic foot ulcers. *Diabetes Research and Clinical Practice*, 89(3), 276–281.
- Molan, P. C. (2006). The evidence supporting the use of honey as a wound dressing. *The International Journal of Lower Extremity Wounds*, 5(1), 40–54.
- Moore, K. L., Dalley, A. F., & Agur, A. M. R. (2014). Clinically oriented anatomy (7th ed.). Wolters Kluwer/Lippincott Williams & Wilkins Health.
- Muhrbeck, M., Wladis, A., Lampi, M., Andersson, P., & Junker, J. P. E. (2022). Efficacy of topical honey compared to systemic gentamicin for treatment of infected war wounds in a porcine model: A non-inferiority experimental pilot study. *Injury*, 53(2), 381–392. <https://doi.org/10.1016/j.injury.2021.10.019>
- Mwangi, M. W., Wanjau, T. W., & Omwenga, E. O. (2024). Stingless bee honey: Nutritional, physicochemical, phytochemical and antibacterial validation properties against wound bacterial isolates. *PLoS ONE*, 19(5), e0301201. <https://doi.org/10.1371/journal.pone.0301201>
- Nair, H. K. R., Tatavilis, N., Pospíšilová, I., Kučerová, J., & Cremers, N. A. J. (2020). Medical-grade honey kills antibiotic-resistant bacteria and prevents amputation in diabetics with infected ulcers: A prospective case series. *Antibiotics*, 9(9), 529.

- Nasir, N.-A. M., Halim, A. S., Singh, K.-K. B., Dorai, A. A., & Haneef, M.-N. M. (2010). Antibacterial properties of tualang honey and its effect in burn wound management: A comparative study. *BMC Complementary and Alternative Medicine*, 10, 31.
- Nathan, C. (2002). Points of control in inflammation. *Nature*, 420(6917), 846–852. <https://doi.org/10.1038/nature01320>
- National Cancer Institute. (n.d.). Definition of wound. National Cancer Institute. <https://www.cancer.gov/publications/dictionaries/cancer-terms/def/wound>
- National Healthcare Safety Network. (2024). Surgical site infection event. CDC.
- Navaei-Alipour, N., Mastali, M., Ferns, G. A., Saberi-Karimian, M., & Ghayour-Mobarhan, M. (2021). The effects of honey on pro- and anti-inflammatory cytokines: A narrative review. *Phytotherapy Research*, 35(7), 3690–3701.
- Naqvi, F., Dastagir, N., & Jabeen, A. (2023). Honey proteins regulate oxidative stress, inflammation and ameliorates hyperglycemia in streptozotocin induced diabetic rats. *BMC complementary medicine and therapies*, 23(1), 14. <https://doi.org/10.1186/s12906-023-03837-9>
- Nethi, S. K., Das, S., Patra, C. R., & Mukherjee, S. (2019). Recent advances in inorganic nanomaterials for wound-healing applications. *Biomaterials Science*, 7(7), 2652–2674.
- Nilforoushzadeh, M. A., Jaffary, F., Moradi, S., Derakhshan, R., & Haftbaradaran, E. (2007). Effect of topical honey application along with intralesional injection of glucantime in the treatment of cutaneous leishmaniasis. *BMC Complementary and Alternative Medicine*, 7, 13.
- Novialdi, N., & Irfandy, D. (2012). Diagnosis dan penatalaksanaan abses retrofaring pada anak. *Jurnal Kesehatan Andalas*, 1(2), 84–89.
- Nurbaya, N., Tahir, T., & Yusuf, S. (2018). Peranan pencucian luka terhadap penurunan kolonisasi bakteri pada luka kaki diabetes. *Jurnal Keperawatan Muhammadiyah*, 3(1), 25–30.
- Orrapin, S., & Rekasem, K. (2018). Role of topical biological therapies and *dressings* in healing ischemic wounds. *The International Journal of Lower Extremity*

Wounds, 17(4), 236–246.

- O'Toole, E. A. (2001). Extracellular matrix and keratinocyte migration: Extracellular matrix and keratinocyte migration. *Clinical and Experimental Dermatology*, 26(6), 525–530.
- Pasupuleti, V. R., Sammugam, L., Ramesh, N., & Gan, S. H. (2017). Honey, propolis, and royal jelly: A comprehensive review of their biological actions and health benefits. *Oxidative Medicine and Cellular Longevity*, 2017, Article ID 1259510. <https://doi.org/10.1155/2017/1259510>
- Pineda-Alvarado, A., Lugo-Machado, J. A., Canché-Martin, E., Quintero, J. Z., Arellano-Ridriguez, I., & Lizárraga, L. L. (2021). Prevalence, morbidity and mortality of deep neck abscess in a tertiary hospital from Northwestern Mexico. *Romanian Journal of Rhinology*, 11(41), 41–46. <https://doi.org/10.2478/rjr-2021-0008>
- Pleeging, C. C. F., Wagener, F. A. D. T. G., de Rooster, H., & Cremers, N. A. J. (2022). Revolutionizing non-conventional wound healing using honey by simultaneously targeting multiple molecular mechanisms. *Drug Resistance Updates*, 62, 100834. <https://doi.org/10.1016/j.drug.2022.100834>
- Prasathkumar, M., & Sadhasivam, S. (2021). Chitosan/Hyaluronic acid/Alginate and an assorted polymers loaded with honey, plant, and marine compounds for progressive wound healing—Know-how. *International Journal of Biological Macromolecules*, 186, 656–685.
- Privrodski, A., Kmet, M., Bedenikovic, T., Smoljan, I., Matkovic, M., & Orsolcic, N. (2025). The role of Manuka honey in wound healing: Evidence from porcine burn model. *Pharmaceuticals*, 18(1), 112. <https://doi.org/10.3390/ph18010112>
- Putri, N. M., Lumbuun, R. F. M., Kreshanti, P., Rosa, Y., & Tunjung, N. (2022). Comparison study of bacterial profile, wound healing, and cost effectiveness in pressure injury patients using treatment honey dressing and hydrogel. *Wound Healing*, 9, 45–52.
- Rai, L., Ghufran, M. A., Samo, K. A., Mangi, M. H., Babar, J., & Abbasi, M. R. (2023). A comparative study between use of topical honey and Edinburgh

University's solution of lime (EUSOL) *dressing* in necrotizing fasciitis wounds. *Cureus*, 15(1), e33845.

Rakhmawati, A., Purnawati, D., & Jumaiyah, W. (2021). Efektivitas penggunaan antimicrobial *dressing* terhadap lama proses penyembuhan luka pada pasien ulkus kaki diabetik di pelayanan kesehatan wilayah Kabupaten Bekasi. *Jurnal Penelitian Kesehatan Suara Forikes*, 12(Special Issue), 80–86.

Raynaud, A., Ghezali, L., Gloaguen, V., Liagre, B., Quero, F., & Petit, J. M. (2013). Honey-induced macrophage stimulation: AP-1 and NF- $\kappa$ B activation and cytokine production are unrelated to LPS content of honey. *International immunopharmacology*, 17(3), 874–879.  
<https://doi.org/10.1016/j.intimp.2013.09.014>

Rekha, A. (2004). Keloids – a frustrating hurdle in wound healing. *International Wound Journal*, 1(2), 145–148.

Ritonga, S. H., & Daulay, N. M. (2019). Effectiveness of using sialang honey on wound bed preparation in diabetic foot ulcer. *Enfermería Clínica*, 29(Suppl 2), 88–90.

Robson, M. C., Mannari, R. J., Smith, P. D., & Payne, W. G. (1999). Maintenance of wound bacterial balance. *American Journal of Surgery*, 178(5), 399–402.

Rodeheaver, G. T. (1999). Pressure ulcer debridement and cleansing: A review of current literature. *Ostomy/Wound Management*, 45(1A Suppl), 80S–85S.

Rodriguez, I., Conti, T., & Bionda, N. (2022). A Preliminary Direct Comparison of the Inflammatory Reduction and Growth Factor Production Capabilities of Three Commercially Available Wound Products: Collagen Sheet, Manuka Honey Sheet, and a Novel Bioengineered Collagen Derivative + Manuka Honey + Hydroxyapatite Sheet. *International Journal of Molecular Sciences*, 23(18), 10670. <https://doi.org/10.3390/ijms231810670>

Saha, A., Chattopadhyay, S., Azam, M., & Sur, P. K. (2012). The role of honey in healing of bedsores in cancer patients. *South Asian Journal of Cancer*, 1(2), 66–71.

Saikaly, S. K., & Khachemoune, A. (2017). Honey and wound healing: An update. *American Journal of Clinical Dermatology*, 18(2), 237–251.

- Salehi, V., Yavari Barhaghtalab, M. J., Mehrabi, S., Iraj, A., Sadat, S. A., Yusefi, S. H., & Malekzadeh, J. M. (2022). Does application of honey improve surgical outcome in pilonidal cyst excision with secondary intention healing? A prospective randomized placebo-controlled clinical trial. *Perioperative medicine (London, England)*, 11(1), 1. <https://doi.org/10.1186/s13741-021-00237-w>
- Samarghandian, S., Farkhondeh, T., & Samini, F. (2017). Honey and health: A review of recent clinical research. *Pharmacognosy Research*, 9(2), 121–127.
- Sandbo, N., & Dulin, N. (2011). Actin cytoskeleton in myofibroblast differentiation: Ultrastructure defining form and driving function. *Translational Research*, 158(4), 181–196.
- Saputri, R. A. H., Massie, G. C., Gatera, V. A., & Boesoirie, S. F. (2022). The application of honey in wound care of raw surface at spontaneous rupture submandibular abscess that extends to submental and right neck: A case report. *International Journal of Surgery Case Reports*, 90, 106672.
- Sataloff, R. T. (2016). *Sataloff's comprehensive textbook of otolaryngology: Head & neck surgery: Head and neck surgery (1st ed.)*. Jaypee Brothers Medical Publishers.
- Sethi, D. S., & Stanley, R. E. (1994). Deep neck abscesses – changing trends. *The Journal of Laryngology & Otology*, 108(2), 138–143.
- Shah K, Chhabra S, Chauhan NS. Chemistry and Pharmacology of Honey. *Pharmacog Res.* 2022;14(4):356-9.
- Shahid, M. A., Ali, A., Uddin, M. N., Miah, S., Islam, S. M., Mohebbullah, M., Shehreen, S., & Fatema, U. K. (2021). Antibacterial wound *dressing* electrospun nanofibrous material from polyvinyl alcohol, honey and Curcuma longa extract. *Journal of Industrial Textiles*, 51(3), 455–469.
- Sherlock, O., Dolan, A., Athman, R., Power, A., Gethin, G., Cowman, S., & Humphreys, H. (2010). Comparison of the antimicrobial activity of Ulmo honey from Chile and Manuka honey against methicillin-resistant *Staphylococcus aureus*, *Escherichia coli*, and *Pseudomonas aeruginosa*. *BMC Complementary and Alternative Medicine*, 10, 47.

- Silva, B., Biluca, F. C., Gonzaga, L. V., Fett, R., Dalmarco, E. M., Caon, T., & Costa, A. C. O. (2021). In vitro anti-inflammatory properties of honey flavonoids: A review. *Food Research International*, 141, 110086. <https://doi.org/10.1016/J.FOODRES.2020.110086>
- Simón, M. (2016). Active Leptospermum honey: A strategy to prevent chronic wounds. *The Journal for Nurse Practitioners*, 12(5), 339–345.
- Smith, J., & Brown, L. (2016). Geographical disparities in wound healing outcomes: Rural vs. urban analysis. *International Journal of Dermatological Sciences*, 8(2), 110–118.
- Sundoro, A., K., N., A., N., Sudjatmiko, G., & Tedjo, A. (2012). Comparison of physical–chemical characteristic and antibacterial effect between Manuka honey and local honey. *Journal of Plastic Reconstructive Surgery*, 1.
- Suranto, A. (2004). *Khasiat & manfaat madu herbal*. AgroMedia Pustaka.
- Suryadinata, K., Basuki, A., Song, A., Yovita, N. V., Pakan, A. P., & Sagala, A. E. (2024). Effect of honey and povidone-iodine on acute laceration wound healing: A pilot randomised controlled trial. *Journal of Wound Care*, 33(8), 570–576.
- Sutcliffe, P., & Lasrado, S. (2024). *Anatomy, head and neck, deep cervical neck fascia*. In StatPearls. StatPearls Publishing.
- Syazana, M. S. N., Halim, A. S., Gan, S. H., & Shamsuddin, S. (2011). Antiproliferative effect of methanolic extraction of tualang honey on human keloid fibroblasts. *BMC Complementary and Alternative Medicine*, 11, 82.
- Tan, H. T., Rahman, R. A., Gan, S. H., Halim, A. S., Hassan, S. A., Sulaiman, S. A., & Kirnpal-Kaur, B. S. (2009). The antibacterial properties of Malaysian tualang honey against wound and enteric microorganisms in comparison to manuka honey. *BMC Complementary and Alternative Medicine*, 9, 34.
- Tan, M. K., Hasan Adli, D. S., Tumiran, M. A., Abdulla, M. A., & Yusoff, K. M. (2012). The efficacy of Gelam honey *dressing* towards excisional wound healing. *Evidence-Based Complementary and Alternative Medicine*, 2012, 1–6.
- Tang, Y., Chen, L., & Ran, X. (2024). Efficacy and safety of honey *dressings* in the

management of chronic wounds: An updated systematic review and meta-analysis. *Nutrients*, 16(15), 2455.

<https://doi.org/10.3390/nu16152455>

Tanideh, N., Abdordideh, E., Yousefabad, S. L. A., Daneshi, S., Hosseinabadi, O. K., Samani, S. M., Mohammadpour, A., Namazi, F., Ahmadi, A., Reza Ghasemi-Dehkordi, N., & Iraj, A. (2017). Evaluation of the healing effect of honey and colostrum in treatment of cutaneous wound in rat. *Comparative Clinical Pathology*, 26(1), 71–77.

Tashkandi, H. (2021). Honey in wound healing: An updated review. *Open Life Sciences*, 16(1), 1091–1100. <https://doi.org/10.1515/biol-2021-0084>

Teobaldi, I., Stoico, V., Perrone, F., Bruti, M., Bonora, E., & Mantovani, A. (2018). Honey *dressing* on a leg ulcer with tendon exposure in a patient with type 2 diabetes. *Endocrinology, Diabetes & Metabolism Case Reports*, 2018(1), 18-0056.

Thomas, M., Hamdan, M., Hailes, S., & Walker, M. (2011). Manuka honey as an effective treatment for chronic pilonidal sinus wounds. *Journal of wound care*, 20(11), 528–533. <https://doi.org/10.12968/jowc.2011.20.11.528>

Tian, X., Yi, L.-J., Ma, L., Zhang, L., Song, G.-M., & Wang, Y. (2014). Effects of honey *dressing* for the treatment of DFUs: A systematic review. *International Journal of Nursing Sciences*, 1(2), 224–231.

Tonks, A. J., Cooper, R. A., Price, A. J., Molan, P. C., & Jones, K. P. (2003). Stimulation of TNF- $\alpha$  release in monocytes by honey. *Cytokine*, 21(5), 242–247.

Tricou, G., Heurtault, B., Mahamat, A., & Martins, R. (2024). Bee better: The role of honey in modern wound care. *Advanced Therapeutics*, 7(5), 2400502. <https://doi.org/10.1002/adtp.202400502>

Tsang, K.-K., Kwong, E. W.-Y., To, T. S.-S., Chung, J. W.-Y., & Wong, T. K.-S. (2017). A pilot randomized, controlled study of nanocrystalline silver, Manuka honey, and conventional *dressing* in healing diabetic foot ulcer. *Evidence-Based Complementary and Alternative Medicine*, 2017, 1–15.

Turksen, K. (Ed.). (2018). *Wound healing: Stem cells repair and restorations: Basic*

and clinical aspects. Wiley.

Utariani A, Rahardjo E, Perdanakusuma DS. Effects of Albumin Infusion on Serum Levels of Albumin, Proinflammatory Cytokines (TNF- $\alpha$ , IL-1, and IL-6), CRP, and MMP-8; Tissue Expression of EGRF, ERK1, ERK2, TGF- $\beta$ , Collagen, and MMP-8; and Wound Healing in Sprague Dawley Rats. *Int J Inflam.* 2020; 2020

Vandamme, L., Heyneman, A., Hoeksema, H., Verbelen, J., & Monstrey, S. (2013). Honey in modern wound care: A systematic review. *Burns*, 39(8), 1514–1525.

Velhonoja, J., Lääveri, M., Soukka, T., Irjala, H., & Kinnunen, I. (2020). Deep neck space infections: an upward trend and changing characteristics. *European archives of oto-rhino-laryngology : official journal of the European Federation of Oto-Rhino-Laryngological Societies (EUFOS) : affiliated with the German Society for Oto-Rhino-Laryngology - Head and Neck Surgery*, 277(3), 863–872. <https://doi.org/10.1007/s00405-019-05742-9>

Vieira, F., Allen, S. M., Stocks, R. M. S., & Thompson, J. W. (2008). Deep neck infection. *Otolaryngologic Clinics of North America*, 41(3), 459–483.

Visavadia, B. G., Honeysett, J., & Danford, M. H. (2008). Manuka honey *dressings*: An effective treatment for chronic wound infections. *British Journal of Oral and Maxillofacial Surgery*, 46(1), 55–56.

Vyhlídalová, D., Kozáková, R., & Zeleníková, R. (2018). Management of non-healing wounds with honey *dressings*: A literature review. *Central European Journal of Nursing and Midwifery*, 9(4), 880–888.

Wahdini, S. I., Seswandhana, M. R., Vityadewi, N., Ramli, R. N., Gabriela, G. C., & Dachlan, I. (2022). The use of Indonesian randu honey for chronic wounds in a patient with uncontrolled type 2 diabetes mellitus: A case report. *International Journal of Surgery Case Reports*, 95, 107140.

Wang, L. F., Kuo, W. R., Tsai, S. M., & Huang, K. J. (2003). Characterizations of life-threatening deep cervical space infections: a review of one hundred ninety-six cases. *American journal of otolaryngology*, 24(2), 111–117. <https://doi.org/10.1053/ajot.2003.31>

Wang, C., Guo, M., Zhang, N., & Wang, G. (2019). Effectiveness of honey *dressings*

- in the treatment of diabetic foot ulcers: A systematic review and meta-analysis. *Complementary Therapies in Clinical Practice*, 34, 123–131.
- Wang, P.-H., Huang, B.-S., Horng, H.-C., Yeh, C.-C., & Chen, Y.-J. (2018). Wound healing. *Journal of the Chinese Medical Association*, 81(2), 94–101.
- Weinstein, D. A., & Kirsner, R. S. (2010). Refractory ulcers: The role of tumor necrosis factor-alpha. *Journal of the American Academy of Dermatology*, 62(1), 1–14. <https://doi.org/10.1016/j.jaad.2009.08.004>
- White, R. J., Molan, P., & Cooper, R. (2016). Biological properties and therapeutic activities of honey in wound healing: A narrative review and meta-analysis. *Journal of Tissue Viability*, 25(2), 98–118. <https://doi.org/10.1016/j.jtv.2015.12.002>
- Widyastuti, Y., & Suryanto, D. (2018). Efektivitas madu klanceng terhadap penyembuhan luka terbuka. *Jurnal Kedokteran dan Kesehatan Indonesia*, 9(3), 154–159.
- Willix, D. J., Molan, P. C., & Harfoot, C. G. (1992). A comparison of the sensitivity of wound-infecting species of bacteria to the antibacterial activity of manuka honey and other honey. *Journal of Applied Bacteriology*, 73(5), 388–394.
- Wilkinson, H. N., & Hardman, M. J. (2020). Wound healing: Cellular mechanisms and pathological outcomes. *Open Biology*, 10(9), 200223. <https://doi.org/10.1098/rsob.200223>
- Yaghoobi, R., Kazerouni, A., & Kazerouni, O. (2013). Evidence for clinical use of honey in wound healing as an anti-bacterial, anti-inflammatory anti-oxidant and anti-viral agent: A review. *Jundishapur Journal of Natural Pharmaceutical Products*, 8(3), 100–104.
- Yang, S.W. (2008). Deep neck abscess: An analysis of microbial etiology and the effectiveness of antibiotics. *Infectious Diseases in Clinical Practice*, 1(1), 25–30.
- Yanti, L. A. (2021). Characteristics and patterns of deep neck infection in Dr. Mohammad Hoesin General Hospital Palembang 2020. *Berkala Ilmu Kesehatan*, 7(3), 247–256.
- Yates, C. C., Bodnar, R., & Wells, A. (2011). Matrix control of scarring. *Cellular and*

Molecular Life Sciences, 68(11), 1871–1881.

Yilmaz, A. C., & Aygin, D. (2020). Honey *dressing* in wound treatment: A systematic review. *Complementary Therapies in Medicine*, 51, 102388.

Zohdi, R. M., Zakaria, Z. A. B., Yusof, N., Mustapha, N., & Abdullah, M. N. H. (2012). Gelam (*Melaleuca* spp.) honey-based hydrogel as burn wound *dressings*. *Evidence-Based Complementary and Alternative Medicine*, 2012, 1–7.