Review

J Cosmet Dermatol

. 2013 Dec;12(4):306-13.
doi: 10.1111/jocd.12058.

Honey in Dermatology and Skin Care: A Review

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- PMID: 24305429

- DOI: 10.1111/jocd.12058

Abstract

Honey is a bee-derived, supersaturated solution composed mainly of fructose and glucose, and containing proteins and amino acids, vitamins, enzymes, minerals, and other minor components. Historical records of honey skin uses date back to the earliest civilizations, showing that honey has been frequently used as a binder or vehicle, but also for its therapeutic virtues. Antimicrobial properties are pivotal in dermatological applications, owing to enzymatic H2 O2 release or the presence of active components, like methylglyoxal in manuka, while medical-grade honey is also available. Honey is particularly suitable as a dressing for wounds and burns and has also been included in treatments against pityriasis, tinea, seborrhea, dandruff, diaper dermatitis, psoriasis, hemorrhoids, and anal fissure. In cosmetic formulations, it exerts emollient, humectant, soothing, and hair conditioning effects, keeps the skin juvenile and retards wrinkle formation, regulates pH and prevents pathogen infections. Honey-based cosmetic products include lip ointments, cleansing milks, hydrating creams, after sun, tonic lotions, shampoos, and conditioners. The used amounts range between 1 and 10%, but concentrations up to 70% can be reached by mixing with oils, gel, and emulsifiers, or polymer entrapment. Intermediate-moisture, dried, and chemically modified honeys are also used. Mechanisms of action on skin cells are deeply conditioned by the botanical sources and include antioxidant activity, the induction of cytokines and matrix

metalloproteinase expression, as well as epithelial-mesenchymal transition in wounded epidermis. Future achievements, throwing light on honey chemistry and pharmacological traits, will open the way to new therapeutic approaches and add considerable market value to the product.

Keywords: acacia honey; antimicrobial action; cosmetic and dermatological formulations; manuka honey; phytocompounds; skin cells; skin disease and aging; traditional medicine; wound healing.

. 2016 Aug 4;5(1):241.
doi: 10.5195/cajgh.2016.241. eCollection 2016.

Honey: A Therapeutic Agent for Disorders of the Skin

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- PMID: 29138732

- PMCID: PMC5661189

- DOI: 10.5195/cajgh.2016.241

Free PMC article

Abstract

Problems with conventional treatments for a range of dermatological disorders have led scientists to search for new compounds of therapeutic value. Efforts have included the evaluation of natural products such as honey. Manuka honey, for example, has been scientifically recognised for its anti-microbial and wound healing properties and is now used clinically as a topical treatment for wound infections. In this review, scientific evidence for the effectiveness of honey in the treatment of wounds and other skin conditions is evaluated. A plethora of *in vitro* studies have revealed that honeys from all over the world have potent antimicrobial activity against skin relevant microbes. Moreover, a number of *in vitro* studies suggest that honey is able to modulate the skin immune system. Clinical research has shown honey to be efficacious in promoting the healing of partial thickness burn wounds while its effectiveness in the treatment of non-burn acute wounds and chronic wounds is conflicted. Published research investigating the efficacy of honey in the treatment of other types of skin disorders is limited. Nevertheless, positive effects have been reported, for example, kanuka honey from New Zealand was shown to have therapeutic value in the treatment of rosacea. Anti-carcinogenic effects of honey have also been observed *in vitro* and in a murine model of melanoma. It can be concluded that honey is a biologically active and clinically interesting substance but more research is necessary for a comprehensive understanding of its medicinal value in dermatology.

Keywords: dermatology; honey; skin cancer; wound healing.

- 100 references

Review

J Microbiol Immunol Infect

. 2016 Apr;49(2):161-7.
doi: 10.1016/j.jmii.2015.01.009. Epub 2015 Jan 30.

Honey: A Realistic Antimicrobial for Disorders of the Skin

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- PMID: 25732699

- DOI: 10.1016/j.jmii.2015.01.009

Free article

Abstract

Resistance of pathogenic microorganisms to antibiotics is a serious global health concern. In this review, research investigating the antimicrobial properties of honeys from around the world against skin relevant microbes is evaluated. A plethora of in vitro studies have revealed that honeys from all over the world have potent microbicidal activity against dermatologically important microbes. Moreover, in vitro studies have shown that honey can

reduce microbial pathogenicity as well as reverse antimicrobial resistance. Studies investigating the antimicrobial properties of honey in vivo have been more controversial. It is evident that innovative research is required to exploit the antimicrobial properties of honey for clinical use and to determine the efficacy of honey in the treatment of a range of skin disorders with a microbiological etiology.

Keywords: Antimicrobial; Dermatology; Honey; Wound infections.

- Cited by 9 articles

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Review

ScientificWorldJournal

. 2011 Apr 5;11:766-87.
doi: 10.1100/tsw.2011.78.

Honey for Wound Healing, Ulcers, and Burns; Data Supporting Its Use in Clinical Practice

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- PMID: 21479349

- PMCID: PMC5720113

- DOI: 10.1100/tsw.2011.78

Free PMC article

Abstract

The widespread existence of unhealed wounds, ulcers, and burns has a great impact on public health and economy. Many interventions, including new medications and technologies, are being used to help achieve significant wound healing and to eliminate infections. Therefore, to find an intervention that has both therapeutic effect on the healing process and the ability to kill microbes is of great value. Honey is a natural product that has been recently introduced in modern medical practice. Honey's antibacterial properties and its effects on wound healing have been thoroughly investigated. Laboratory studies and clinical trials have shown that honey is an effective broad-spectrum antibacterial agent. This paper reviews data that support the effectiveness of natural honey in wound healing and its ability to sterilize infected wounds. Studies on the therapeutic effects of honey collected in different geographical areas on skin wounds, skin and gastric ulcers, and burns are reviewed and mechanisms of action are discussed. (Ulcers and burns are included as an example of challenging wounds.) The data show that the wound healing properties of honey include stimulation of tissue growth, enhanced epithelialization, and minimized scar formation. These effects are ascribed to honey's acidity, hydrogen peroxide content, osmotic effect, nutritional and antioxidant contents, stimulation of immunity, and to unidentified compounds. Prostaglandins and nitric oxide play a major role in inflammation, microbial killing, and the healing process. Honey was found to lower prostaglandin levels and elevate

nitric oxide end products. These properties might help to explain some biological and therapeutic properties of honey, particularly as an antibacterial agent or wound healer. The data presented here demonstrate that honeys from different geographical areas have considerable therapeutic effects on chronic wounds, ulcers, and burns. The results encourage the use of honey in clinical practice as a natural and safe wound healer.

- Cited by 43 articles

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Publication types, MeSH termsexpand

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Mol Cell Biochem

. 2017 Nov;435(1-2):185-192.
doi: 10.1007/s11010-017-3067-0. Epub 2017 May 11.

Honeydew Honey: Biological Effects on Skin Cells

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- PMID: 28497368

- DOI: 10.1007/s11010-017-3067-0

Abstract

Honey is a natural product well known by humankind and now reconsidered for its use as topical agent for wound and burn treatments. Floral honey is made by honeybees from the nectar of blossoms, while honeydew honey is prepared from secretions of plants or excretions of plant-sucking insects. Chemical composition is different between blossom and honeydew honeys and there is very few information about the biological properties of honeydew honey. So, this study was specifically designed to explore the potential wound healing effects of the honeydew honey. We used in vitro scratch wound healing model consisting of fibroblasts and keratinocytes. Data showed that honeydew honeys is able to increase wound closure by acting both on fibroblasts and keratinocytes. Based on our findings, honeydew honey has the potential to be useful for clinical settings.

Keywords: Chemotaxis; Honeydew honey; Scratch wound assay; Wound repair.

Br J Nurs

. 2019 Mar 28;28(6):329-335.
doi: 10.12968/bjon.2019.28.6.329.

Moisture-associated Skin Damage: Use of a Skin Protectant Containing Manuka Honey

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- PMID: 30925233

- DOI: 10.12968/bjon.2019.28.6.329

Abstract

The skin is the largest organ in the body, providing an effective barrier against excessive fluid loss and invasion from bacteria, but the barrier function of the skin can be lost when it is damaged by prolonged contact with moisture. Moisture-associated skin damage can be caused by prolonged exposure to perspiration, urine or faeces, wound exudate or stomal output. Prevention and treatment of moisture-associated skin damage involves application of skin protectants, but there is a wide range of these products available to nursing staff, and clinical decision making is hampered by a lack of robust comparative evidence. Medihoney® Barrier Cream may be used for a number of indications related to moisture-associated skin damage, including incontinence-associated dermatitis. The use of Medihoney Barrier Cream has been shown to lower pruritis complaints associated with intertrigo, and promotes patient comfort.

Keywords: Incontinence; Preventive care; Skin care; Stoma care; Wound care.

SUPPLEMENTARY INFO

Publication types, MeSH termsexpand

Review

Skin Pharmacol Physiol

. 2017;30(2):66-75.
doi: 10.1159/000458416. Epub 2017 Mar 15.

Stingless Bee Honey, the Natural Wound Healer: A Review

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- PMID: 28291965

- DOI: 10.1159/000458416

Free article

Abstract

Background: The stingless bee is a natural type of bee that exists in almost every continent. The honey produced by this bee has been widely used across time and space. The distinctive feature of this honey is that it is stored naturally in the pot (cerumen), thus contributing to its beneficial properties, especially in the wound healing process.

Methods: In this article, several studies on stingless bee honey that pointed out the numerous therapeutic profiles of this honey in terms of its antioxidant, antimicrobial, anti-inflammatory, as well as moisturizing properties are reviewed. All of these therapeutic properties are related to wound healing properties.

Results: Antioxidant in stingless bee honey could break the chain of free radicals that cause a detrimental effect to the wounded area. Furthermore, the antimicrobial properties of stingless bee honey could overcome the bacterial contamination and thus improve the healing rate. Moreover, the anti-inflammatory attribute in this honey could protect the tissue from highly toxic inflammatory mediators. The moisturizing properties of the honey could improve wound healing by promoting angiogenesis and oxygen circulation.

Conclusion: The application of honey to the wound has been widely used since ancient times. As a result, it is essential to understand the pharmacological mechanism of the honey towards the physiology of the wounded skin in order to optimize the healing rate in the future.

Keywords: Anti-inflammation; Antioxidant; Moisturizing properties; Stingless bee honey; Wound healing.

- Cited by 5 articles

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Publication types, MeSH terms, Substancesexpand

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Review

Saudi J Biol Sci

. 2017 Jul;24(5):975-978.
doi: 10.1016/j.sjbs.2016.12.010. Epub 2016 Dec 24.

Role of Honey in Modern Medicine

Sultan Ayoub Meo[1], Saleh Ahmad Al-Asiri[2], Abdul Latief Mahesar[3], Mohammad Javed Ansari[4]
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- PMID: 28663690

- PMCID: PMC5478293

- DOI: 10.1016/j.sjbs.2016.12.010

Free PMC article

Abstract

Use of honey has a very long history. Honey has been used since ancient time due to its nutritional and therapeutic values. There had been varied ways of consumption honey including its use as a sweetener and flavoring agent. Honey is produced all over the world. The most important nutriment of honey is carbohydrates present in the form of monosaccharides, fructose and glucose. Honey plays an important role as an antioxidant, anti-inflammatory, anti-bacterial agent and augments the adherence of skin grafts and

wound healing process. The role of honey has been acknowledged in the scientific literature and there is convincing evidence in support of its antioxidant and antibacterial nature, cough prevention, fertility and wound healing properties. However, its use has been controversially discussed and has not been well accepted in the modern medicine. The aim of this review was explore and highlight the role of honey in modern medicine.

Keywords: Anti-bacterial; Anti-inflammatory; Antioxidant; Honey; Modern medicine.

Review

Adv Wound Care (New Rochelle)

. 2016 May 1;5(5):208-229.
doi: 10.1089/wound.2013.0506.

Traditional Therapies for Skin Wound Healing

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- PMID: 27134765

- PMCID: PMC4827280

- DOI: 10.1089/wound.2013.0506

Free PMC article

Abstract

Significance: The regeneration of healthy and functional skin remains a huge challenge due to its multilayer structure and the presence of different cell types within the extracellular matrix in an organized way. Despite recent advances in wound care products, traditional therapies based on natural origin compounds, such as plant extracts, honey, and larvae, are interesting alternatives. These therapies offer new possibilities for the treatment of skin diseases, enhancing the access to the healthcare, and allowing overcoming some limitations associated to the modern products and therapies, such as the high costs, the long manufacturing times, and the increase in the bacterial resistance. This article gives a general overview about the recent advances in traditional therapies for skin wound healing, focusing on the therapeutic activity, action mechanisms, and clinical trials of the most commonly used natural compounds. New insights in the combination of traditional products with modern treatments and future challenges in the field are also highlighted. **Recent Advances:** Natural compounds have been used in skin wound care for many years due to their therapeutic activities, including anti-inflammatory, antimicrobial, and cell-stimulating properties. The clinical efficacy of these compounds has been investigated through *in vitro* and *in vivo* trials using both animal models and humans. Besides the important progress regarding the development of novel extraction methods, purification procedures, quality control assessment, and treatment protocols, the exact mechanisms of action, side effects, and safety of these compounds need further research. **Critical Issues:** The repair of skin lesions is one of the most complex biological processes in humans, occurring throughout an orchestrated cascade of overlapping biochemical and cellular events. To stimulate the regeneration process and prevent the wound to fail the healing, traditional therapies and natural products have been used with promising results. Although these products are in general less expensive than the modern treatments, they can be sensitive to the geographic

location and season, and exhibit batch-to-batch variation, which can lead to unexpected allergic reactions, side effects, and contradictory clinical results. **Future Directions:** The scientific evidence for the use of traditional therapies in wound healing indicates beneficial effects in the treatment of different lesions. However, specific challenges remain unsolved. To extend the efficacy and the usage of natural substances in wound care, multidisciplinary efforts are necessary to prove the safety of these products, investigate their side effects, and develop standard controlled trials. The development of good manufacturing practices and regulatory legislation also assume a pivotal role in order to improve the use of traditional therapies by the clinicians and to promote their integration into the national health system. Current trends move to the development of innovative wound care treatments, combining the use of traditional healing agents and modern products/practices, such as nanofibers containing silver nanoparticles, *Aloe vera* loaded into alginate hydrogels, propolis into dressing films, and hydrogel sheets containing honey.

- Cited by 33 articles
- 6 figures

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Publication typesexpand

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Review

Burns

. 2013 Dec;39(8):1514-25.
doi: 10.1016/j.burns.2013.06.014. Epub 2013 Jul 26.

Honey in Modern Wound Care: A Systematic Review

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Affiliations expand

- PMID: 23896128

- DOI: 10.1016/j.burns.2013.06.014

Abstract

Honey, known for centuries as a topical treatment for a wide range of wounds, has recently known a revival in modern wound care. The objective of this systematic review is to evaluate the available evidence and the role of honey in contemporary wound care. The search strategy was developed in the databases PubMed and ISI Web of Science. Fifty-five studies of any design, evaluating the use of honey in human burns, ulcers and other wounds, written in English, French, German or Dutch were eligible for inclusion. In all three wound categories honey seems to be a dressing with wound healing stimulating properties. In burns there is also evidence for its antibacterial capacity. In general, honey is also been mentioned to have deodorizing, debridement, anti-inflammatory and wound pain reducing properties, although the evidence for these properties is rather limited. Many of the included studies have methodological problems, and the quality of certain studies is low, making it difficult to formulate conclusive guidelines. This review reveals several gaps in the research of honey in modern wound care, and recommendations are suggested for future research.

Keywords: Design; Honey; Methodology; Wound healing.

- Cited by 15 articles

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