



Honey-Based Medicinal Formulations: A review

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Speaker Bio

My name is Md Lokman Hossain, I am a second year PhD student in the Division of Pharmacy, School of Allied Health, University of Western Australia. I started my career as an Officer in the Product Development Department in a Bangladeshi pharmaceutical company before working as a Senior Lecturer in the Department of Pharmacy, Faculty of Science, Stamford University Bangladesh for about five years. My PhD project is focused on the design and assessment of honey-based topical formulations for wound healing, which will provide the foundations for the future development of honey-based medicinal products.

Presentation

Aim

Due to the presence of a plethora of bioactive compounds as well as unique physicochemical properties, honey has been extensively used as medicine throughout human history alongside its widespread usage as popular food and flavouring agent. This review focuses on commercial honey-based medicinal formulations as well as in vitro, in vivo and clinical studies on honey formulations for the treatment of various ailments. In addition, it also covers the application of honey formulations and the evidence base underpinning their use.

Method

The data bases PubMed, ScienceDirect and Google scholar were searched using different combinations of the following terms: 'honey formulation', 'honey as medicine' 'honey research'. The titles and abstracts from this primary literature search were considered to categorise articles for full review, and the reference sections from each article were searched manually for additional publications of relevance. 49 articles were ultimately included in the review.

Findings

Currently, several companies sell or are developing honey products (in the main using Manuka honey), which are indicated, for example, for the treatment of wounds, minor abrasions, lacerations, minor cuts, scalds and burns and for diabetic foot ulcers. Amongst the leading honey product manufacturers are Derma Sciences, a company specialising in the development of formulations for tissue regeneration, which sells a line of Manuka honey products under the brand name Medihoney®, the New Zealand-based companies Manuka Health and ManukaMed, which also manufacture several Manuka honey based products, and the United Kingdom-based company Advancis Medical. Several in vitro and in vivo studies have confirmed the effectiveness of these commercially available honey based formulations for the treatment of various ailments. Moreover, randomized controlled clinical trials and case studies have demonstrated the efficiency of these products in a clinical setting.

Conclusion

Data obtained from in vitro, in vivo and clinical studies support the use of honey in clinical settings and provide impetus for further research into the development of honey-based medicinal products.



HPTLC as a novel analytical tool for release studies of honey-based formulations

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Presentation

Background

Honey has been appreciated for centuries not only as a food item but also for its medicinal properties, in particular for the treatment of wounds. Rather than using neat honey, certain medicinal applications might, however, benefit from its formulation into a topical dosage form such as a gel or other forms of wound dressings. Drug-release patterns are important parameters of topical formulations as they can be directly linked to potential therapeutic effects. The release profile of bioactive constituents of honey based topical formulations will, thus, need to be assessed in order to compare these formulations with neat honey. While in vitro release studies are routine undertakings for pharmaceutical products they are rare for natural products, given their chemical complexity and the presence of a range of potentially bioactive compounds.

High-Performance Thin Layer Chromatography (HPTLC) is an increasingly popular semi-automated technique for the chromatographic analysis of pharmaceuticals and clinical samples, but also for complex natural product matrices and a wide range of foods, including honey. Its application to in vitro release studies of honey based topical formulations has, however, not yet been reported.

Objective

The aim of this study is to investigate HPTLC as an analytical technique for the determination of in vitro release profiles of the organic extracts of honey based topical formulations.

Method

In vitro release profiles of honey based topical formulations alongside neat honey as a comparator are monitored in a time-dependent manner using a dialysis bag technique. At pre-defined time points compounds released from the formulations are extracted with a suitable solvent system and tracked as well as quantified by HPTLC analysis.

Findings

This novel approach to determine the in vitro release profile of honey based formulations via a qualitative and quantitative monitoring of key constituents allows for a comparative analysis between these topical formulations and neat honey. Such information is important to assess the potential of the honey based formulation as a medicinal product in the future.