Accepted Manuscript

Antibacterial mechanisms of cinnamon and its constituents: A review

N.G. Vasconcelos, J. Croda, S. Simionatto

PII: S0882-4010(18)30566-7

DOI: 10.1016/j.micpath.2018.04.036

Reference: YMPAT 2915

To appear in: Microbial Pathogenesis

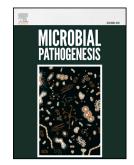
Received Date: 29 March 2018

Revised Date: 17 April 2018

Accepted Date: 19 April 2018

Please cite this article as: Vasconcelos NG, Croda J, Simionatto S, Antibacterial mechanisms of cinnamon and its constituents: A review, *Microbial Pathogenesis* (2018), doi: 10.1016/j.micpath.2018.04.036.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



1

Antibacterial Mechanisms of Cinnamon and its Constituents: a Review

Vasconcelos, N. G.^{a,b}, Croda, J.^{c,d}, and Simionatto, S.^{*a}

^aResearch Laboratory of Health Sciences, Federal University of Grande Dourados - UFGD, Dourados, Mato Grasso do Sul, Brazil;

^bUniversitary Hospital of Dourados, Federal University of Grande Dourados - UFGD, Dourados, Mato Grosso do Sul, Brazil;

^cOswaldo Cruz Foundation, Campo Grande, Mato Grosso do Sul, Brazil;

^dFederal University of Mato Grosso do Sul – UFMS, Campo Grande, Mato Grosso do Sul, Brazil.

*Address correspondence to this author at the Research Laboratory of Health Sciences, Federal University of Grande Dourados - UFGD, Rodovia Dourados - Itahum km 12, Cidade Universitária, CEP: 79804970, Dourados, Mato Grosso do Sul, Brazil. E-mail: simonesimionatto@ufgd.edu.br.

Abstract:

BACKGROUND: In the current healthcare environment, an alarming rise in multi-drug resistant bacterial infections has led to a global health threat. The lack of new antibiotics has created a need for developing alternative strategies. **OBJECTIVE:** Understanding the antibacterial mechanisms of Cinnamon and its constituents is crucial to enhance it as a potential new source of antibiotic. The objective of this review is to provide a compilation of all described mechanisms of antibacterial action of Cinnamon and its constituents and synergism with commercial antibiotics in order to better understand how Cinnamon and its constituents can collaborate as alternative treatment to multi-drug resistant bacterial infections. **METHODS:** The relevant references on antibacterial activities of cinnamon and its constituents were searched. Meanwhile, the references were classified according to the type of mechanism of action against bacteria. Relationships of cinnamon or its constituents and antibiotics were also analyzed and summarized. **RESULTS:** Cinnamon extracts, essential oils, and their compounds have been reported to inhibit bacteria by damaging cell membrane; altering the lipid profile; inhibiting ATPases, cell division, membrane porins, motility, and biofilm formation; and via anti-quorum sensing effects. **CONCLUSION:** This review describes the antibacterial effects of cinnamon and its constituents, such as cinnamaldehyde and cinnamic acid, against pathogenic Gram-positive and Gram-negative bacteria. The review also provides an overview of the current knowledge of the primary modes of action of these compounds as wells the synergistic interactions between cinnamon or its constituents with known antibacterial agents. This information will be useful in improving the effectiveness of therapeutics based on these compounds.

Running Title: Antibacterial Mechanism of Cinnamon

Keywords: antimicrobial activity, cinnamon, mechanisms of action, multi-drug resistance, synergism, trans-cinnamaldehyde.

Download English Version:

https://daneshyari.com/en/article/8749449

Download Persian Version:

https://daneshyari.com/article/8749449

Daneshyari.com