

Accepted Manuscript

Antimicrobial activity of some plant extracts against bacterial strains causing food poisoning diseases

Ashraf A. Mostafa, Abdulaziz A. Al-Askar, Khalid S. Almaary, Turki M. Dawoud, Essam N. Sholkamy, Marwah M. Bakri

PII: S1319-562X(17)30077-3
DOI: <http://dx.doi.org/10.1016/j.sjbs.2017.02.004>
Reference: SJBS 911

To appear in: *Saudi Journal of Biological Sciences*

Received Date: 14 November 2016
Revised Date: 16 January 2017
Accepted Date: 21 February 2017

Please cite this article as: A.A. Mostafa, A.A. Al-Askar, K.S. Almaary, T.M. Dawoud, E.N. Sholkamy, M.M. Bakri, Antimicrobial activity of some plant extracts against bacterial strains causing food poisoning diseases, *Saudi Journal of Biological Sciences* (2017), doi: <http://dx.doi.org/10.1016/j.sjbs.2017.02.004>

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.



Antimicrobial activity of some plant extracts against bacterial strains causing food poisoning diseases.

Ashraf A. Mostafa^{1,2}, Abdulaziz A. Al-Askar¹, Khalid S. Almaary¹, Turki M. Dawoud¹, Essam N. Sholkamy¹ and Marwah M. Bakri³

¹*Botany and Microbiology Dept. Collage of Science, King Saud University, P.O. 2455, Riyadh, 11451 Kingdom of Saudi Arabia*

²*National Institute of Oceanography and Fisheries, Al-Kanater Fish Research Station, Egypt.*

³*Microbiology Dept. Collage of Science, Jazan University, Kingdom of Saudi Arabia*

Abstract

Prevention of food spoilage and food poisoning pathogens is usually achieved by use of chemical preservatives which have negative impacts including: human health hazards of the chemical applications, chemical residues in food & feed chains and acquisition of microbial resistance to the used chemicals. Because of such concerns, the necessity to find a potentially effective, healthy safer and natural alternative preservatives is increased. Within these texts, Plant extracts have been used to control food poisoning diseases and preserve foodstuff. Antimicrobial activity of five plant extracts were investigated against *Bacillus cereus*, *Staphylococcus aureus*, *Escherichia coli*, *Pseudomonas aeruginosa* and *Salmonella typhi* using agar disc diffusion technique. Ethanolic extracts of *Punica granatum*, *Syzygium aromaticum*, *Zingiber officinales* and *Thymus vulgairs* were potentially effective with variable efficiency against the tested bacterial strains at concentration of 10 mg/ml while extract of *Cuminum cyminum* was only effective against *S. aureus* respectively. *P. granatum* and *S. aromaticum* ethanolic extracts were the most effective plant extracts and showed bacteriostatic and bactericidal activities against the highly susceptible strains of food borne pathogenic bacteria (*S. aureus* and *P. aeruginosa*) with MIC's ranged from 2.5 to 5.0 mg/ml and MBC of 5.0 and 10 mg/ml except *P. aeruginosa* which was less sensitive and its MBC reached to 12.5 mg/ml of *S. aromaticum* respectively. These plant extracts which proved to be potentially effective can be used as natural alternative preventives to control food poisoning diseases and preserve food stuff avoiding healthy hazards of chemically antimicrobial agent applications.

Keywords: Food spoilage, herbal plants, antibacterial activity, natural preservatives, MIC.

Download English Version:

<https://daneshyari.com/en/article/8849930>

Download Persian Version:

<https://daneshyari.com/article/8849930>

[Daneshyari.com](https://daneshyari.com)