

Research article

***Angelica archangelica* extract ameliorates the oxidative stress induced by *Pseudomonas aeruginosa* in rats**

Fatma A. Ibrahim¹, Noha A. Abd El-Latif¹, Manal S. Selim², Sahar S. Mohamed², Sherif A. A. Moussa^{*1}

¹Biochemistry Department, National Research Centre, 33 Bohouth Street, Dokki, Giza, Egypt (Affiliation ID: 60014618).

²Microbial biotechnology Department, National Research Centre, 33 Bohouth Street, Dokki, Giza, Egypt (Affiliation ID: 60014618).

Received on: 04/09/2020, Revised on: 07/09/2020, Accepted on: 11/09/2020, Published on: 15/10/2020.

***Corresponding Author: Sherif A. A. Moussa**, Biochemistry Department, National Research Centre, 33 Bohouth Street, Dokki, Giza, Egypt (Affiliation ID: 60014618).

Email id: sherifmoussa96@gmail.com

Copyright © 2020 Sherif A. A. Moussa *et al.* This is an open access article distributed under the terms of the Creative Commons Attribution Non Commercial-Share Alike 4.0 International License which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

Keywords: *Angelica archangelica*,
Pseudomonas aeruginosa, Antibacterial,
Antioxidant.

Vol. 7 (4): 01-12, Oct-Dec, 2020.

Abstract

This study investigated the influence of *Angelica archangelica* roots aqueous extract on *Pseudomonas aeruginosa* bacteria. The antimicrobial activity of different concentrations of *Angelica* was assessed in vitro on two strains of yeast and two strains of fungi. *P. aeruginosa* antibiotics resistance was confirmed against three antibiotics. Results demonstrated that *Angelica* had very high activity on the growth of *P. aeruginosa*. To confirm this activity in vivo, four groups of male wistar albino rats were used. Control group received water only, infection group subjected to bacterial infection for two weeks, treatment group subjected to bacterial infection for two weeks followed by oral administration of *Angelica archangelica* roots extract for two other weeks and protection group subjected to bacterial infection with oral administration of *Angelica archangelica* extract for two weeks. At the end of experiment, histopathological examination of kidney and liver specimens was carried out; also blood samples were collected to measure biochemical and oxidative stress parameters. Amelioration of the histological images of both the liver and kidney were observed in both group 3 & 4. Biochemical results showed significant enhancement in all parameters measured in group 3 & 4 as compared to group 2. Results were more abundant in group 4 than group 3. In conclusion, *Angelica archangelica* roots aqueous extract has the potential to remove the oxidative stress caused by *P. aeruginosa* which resulted in enhancement of histopathological and biochemical results.