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Authors: Omar Ibrahim Alhusain, Mohamed Asad Babu

Title:

Effect of *Ducrosia anethifolia* methanol extracts against biofilms formed by MRSA and *Pseudomonas aeruginosa* using excision wound in diabetic mice model.

Ducrosia anethifolia is an aromatic desert plant, used in folk medicine and widely found in Middle Eastern countries. The methanol extract was tested for antibacterial and antibiofilm activities against methicillin-resistant *Staphylococcus aureus* (MRSA) and multi-drug resistant *Pseudomonas aeruginosa* (MDR-*P. aeruginosa*) using *in-vitro* and *in-vivo* methods. Cytotoxic effects of the extract were determined using the HaCaT cell line *in-vitro*. An excision wound model on diabetic mice was used to evaluate the *in-vivo* antibio film and wound healing activity. More than 50 different phytoconstituents were found in the extract after LC-MS analysis. The extract exhibited antibacterial activity against both tested pathogens. The extract was devoid of skin irritation on mice skin and no cytotoxicity was observed on HaCaT cells. The extract formulation improved the healing of biofilm-formed excision wounds in diabetic mice. The extract was more effective against MRSA when compared to MDR-*P. aeruginosa* in both *in-vitro* and *in vivo* experiments. The present study revealed that *Ducrosia anethifolia* methanol extract supports wound healing in infected wounds in diabetic mice through antibacterial, and antibiofilm activities.

Authors Affiliation: College of Applied Medical Sciences at Shaqra, Shaqra University, Saudi Arabia.