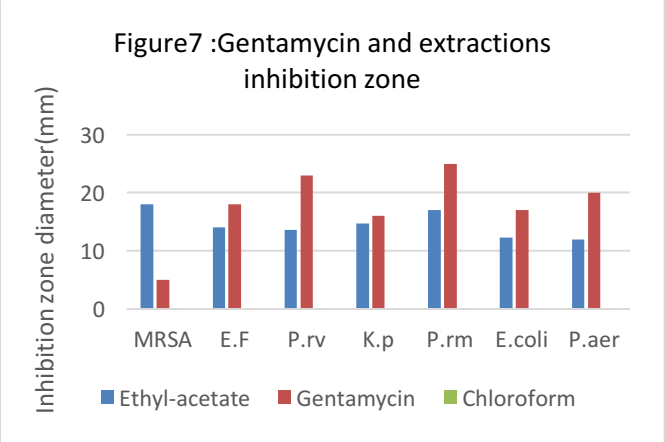
Antibacterial Activity of Date Palm Cake Extracts (*Phoenix dactylifera*)

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Abstract

Antibiotic resistance is one of the biggest hazards globally that is leading to prolonged hospital stay, inflated medical expenditures and increased morbidity and mortality. Many natural compounds have intrinsic antibacterial activity which needs to be exploited for their clinical use. Given its nutritional value, Date palm is considered as an essential nourishing source in many countries while the Date seed beverage is consumed locally to promote the health. Due to increase in the number of microorganisms resistant to drugs and antibiotics, there is an urgent need of modification of existing antibiotics and antifungal agents, updating of antimicrobial form or formula, and adding new antimicrobial agents for use in the clinics The aim of our research is to assess the active constituents from date palm seed cake for their antimicrobial activity. Method: extraction of the date seed powder using high polarity solvents i.e. hexane and ethyl-acetate using cold extraction method. The isolates were later assessed for antibacterial activity against Gram-positive and Gram-negative bacteria using agar-well diffusion method. The ethyl-acetate extract in a 10% Dimethyl sulfoxide exhibited effective inhibition of bacterial growth in comparison with gentamycin. Findings: the gram-positive bacteria showed a significantly higher sensitivity to the date palm seed extract, while the gram-negative bacteria were less susceptible. The MRSA showed the strong susceptibility as indicated by a large zone of growth inhibition of 20 mm diameter as compared to the positive control (gentamycin) followed by *E. faecalis*. Conclusion: our results show the antibacterial properties of the date seed cake extract against a wide spectrum of bacteria. Among the tested bacteria, gram-positive bacteria MRSA showed the highest sensitivity. The results of MRSA are very encouraging as the extract was more effective than the control antibiotic (gentamycin). On the other hand, although the extract showed little effectiveness against gram-negative bacteria in general.

Image



Recent Publications (Only 5) if applicable

1. Abdallah, E., Musa, K., Qureshi, K., & Sadeek, A. (2017). Antimicrobial activity and antioxidant potential of the methanolic leaf extracts of three cultivars of date palm trees (*Phoenix dactylifera*) from Saudi Arabia. Medicine Science,International Medical Journal, 1, 5-6.
2. Al-Harrasi, A., Rehman, N. U., Hussain, J., Khan, A. L., Al-Rawahi, A., Gilani, S. A., Al-Broumi, M., & Ali, L. (2014). Nutritional assessment and antioxidant analysis of 22 date palm (*Phoenix dactylifera*) varieties growing in Sultanate of Oman. *Asian Pacific Journal of Tropical Medicine*, 7, 591–598. doi:10.1016/S1995-7645(14)60294-7
3. Samad, M. A. Hashim S. H., Simarani K., Yaacob J. S. (2016). Antibacterial properties and effects of fruit chilling and extract storage on antioxidant activity, total phenolic and anthocyanin content of four date palm (Phoenix dactylifera) . Molecules 21:419
4. Hazzouri, K. M., Flowers, J. M., Visser, H. J., Khierallah, H. S., Rosas, U., Pham, G. M., et al. (2015). Whole genome re-sequencing of date palms yields insights into diversification of a fruit tree crop. *Nature Communications*, 6, 8824. doi:10.1038/ncomms9824
5. Boulenouar, N., Marouf, A., & Cheriti, A. (2009). Effect of some poisonous plants extract on *Fusarium oxysporum* f. sp. albedinis. *International Journal of Biological Sciences*, 9(6), 594–600. doi:10.3923/jbs.2009.594.600

Biography

Maha Alrajhi as clinical pharmacist internship trainee has her passion to improving the health through research and development. From prolonged hospital stay to inflated medical expenditures and increased morbidity/mortality, antibiotic resistance has serious implications on the system from the global perspective . After being closely acquainted with what the world faces from the danger of bacteria resistance, especially after the wasteful use of antibiotics, she decided to use her efforts in research and discovering a new alternatives that could be developed to benefit from them in the future.

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