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Biochemical and molecular activities of *Candida albicans* treated with medicinal plants

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This study aimed to compare the antimicrobial activity of *Phoenix dactylifera* and *Ziziphus spina-christi* ethanol extracts in terms of their biochemical and molecular effects on *Candida albicans*. These effects were evaluated with regard to intracellular sterols, permeability of the cell membranes, and morphological characteristics determined by scanning electron microscopy (SEM). Energy-dispersive x-ray spectroscopy (EDAX) analyses were also conducted in addition to assessment of the changes in *TEF1: QRTTEF1*, *CaERG1: ERG1*, *CdERG12: CdERG1*, and *ERG25: ERG25* genes. The results showed that sterols increased by 1.096% and 0.588% with treatment by *P. dactylifera* and *Z. spina-christi*, respectively, compared to the untreated cells. The ethanol extracts were effective on *C. albicans* permeability by reducing the cell membranes permeability. The SEM and EDAX analyses showed cell cavities and shrinkage of the cell wall. In addition, the quantity of cells was decreased to a few abnormal cells compared to the untreated cells. Yttrium was detected in the cells treated with *Z. spina-christi*, and high levels of osmium were detected in the cells treated with *P. dactylifera*. The gene sequence showed gaps and mismatches on *ERG1F*, *ERG1R*, *ERG12F*, *ERG12R*, and *ERG25F* genes after treatment with *P. dactylifera* and *Z. spina-christi* compared to untreated cells. The results were highly significant ($p \leq 0.01$), and we concluded that ethanol extracts of *P. dactylifera* and *Z. spina-christi* have an antimicrobial effect on several targets in yeast cells.

Biography

Awatif Al-Judaibi has a position of Demonstrator then a Lecturer at King Abdulaziz University. She completed her PhD at (KAU) in 2004. She has a position of Associate Professor in the Department of Biological sciences-Microbiology, and Dean's assistant in the Deanship of Community Services & Continuing Education-Rabigh branch. She has skills and experience in the antibacterial activity and molecular microbiology research, and she is the ASM country's ambassador of Saudi Arabia. In 2015, she has been awarded with a patent from King Abdulaziz City for Science and Technology. She supervised Master's students in several projects with the aims of bacteriology, multidrug resistant bacteria, antimicrobial agents. She has more than 26 publications.

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