



**Evaluation natural cloning of azole- resistant genes
CDR1,CDR2,MDR and ERG11 between clinical and soil
isolates of *Candida albicans* based on gene expression**

ZaidanKhlaif Imran* and Zahra Abd Al-Karrem

All women Science College, University of Babylon, Hilla. Iraq

Abstract: Candidiasis treatment failures in patients receiving prolonged azoles therapy, and these treatment failures have been demonstrated to be due to the emergence of azole-resistant *C. albicans* strains. Spread azole-resistant among *C. albicans* strains required to pursue the transition of azole-resistant genes between clinical isolates and soil of *C. albicans* from different sources. 88 clinical isolates of *C. albicans* were collected from patients hospitalized in Margan hospital, and 60 isolates were collected from garden soils of hospital. The aim of this study detected of azole-resistant genes via reverse transcription mRNA of 20 isolates of *C. albicans*, cDNA was amplified to determine the expression of CDR1, CDR2, MDR1, ERG11 and normalized with housekeeping gene ACT1 expression, and performed antifungals sensitivity test for Fluconazole, Miconazole, Caspofungin and evaluated the MIC via E-test of Fluconazole and Caspofungin. The result showed that most isolates of *C. albicans* from both sources are susceptible for Fluconazole, Miconazole, Caspofungin and the MIC of Fluconazole and Caspofungin was <0.02, 2 respectively. The results of this study emphasis of present four azole-resistant genes CDR1, CDR2, MDR1, ERG11 and ACT1 in most clinical and soil isolates showed PCR products: 286, 364, 201, 204 and 209bp respectively, most isolates Susceptible to Caspofungin, Miconazole and fluconazole respectively. Our conclusion indicated of natural cloning possible the resistance genes among *C. albicans* population.

Key words: Natural cloning, azole-resistant, *Candida albicans*, CDR1, CDR2, MDR, ERG11, ACT1, cDNA, gene expression.