

عنوان مقاله:

Effect of Farnesol on Responsive Gene Expressions in Hyphal Morphogenesis Transformation of *Candida albicans*

محل انتشار:

فصلنامه عفونت، اپیدمیولوژی و پزشکی، دوره 4، شماره 2 (سال: 1397)

تعداد صفحات اصل مقاله: 5

نویسندگان:

f Nikoomanesh - *Medical Mycology Department, Medical Sciences Faculty, Tarbiat Modares University, Tehran, Iran*

sh Roudbar Mohammadi - *Medical Mycology Department, Medical Sciences Faculty, Tarbiat Modares University, Tehran, Iran*

b Bashardoust - *Medical Mycology Department, Medical Sciences Faculty, Tarbiat Modares University, Tehran, Iran*

m Zareei - *Health Department, Rescue & Treatment of I.R. Iran Police Force, Tehran, Iran*

خلاصه مقاله:

Aims *Candida albicans* a polymorphic fungus can grow as yeast, pseudohyphae and true hyphae forms. The hyphal form has a key role in infection process during invasion to mucosal membrane. A cluster of genes contribute in controlling of hyphae formation in *C. albicans*, include SAP6, HWP1 and RIM101. Farnesol is a quorum sensing molecule which inhibits switching of yeast-to-hyphae form. The aim of this study was to investigate the effect of farnesol on yeast-to-hyphae morphogenesis and its related gene expressions in *C. albicans*. Materials & Methods In this laboratory trial study, *C. albicans* was exposed to various concentration (5, 10, 20, 50, 100, 150 and 300 μ M) of farnesol and the rate of yeast cell proliferations and germ tube formation was evaluated by different methods and microscopic examination. Real time-PCR was performed to assess the expression levels of the hyphaespecific genes SAP6, HWP1 and RIM101. The results were analyzed by IBM SPSS 23 software using Student's t-test and one-way ANOVA. Findings The yeast growth reduced 5% in 300 μ M of farnesol approximately ($p < 0.05$). Germ tube formation strongly suppressed. Moreover, Real time-PCR analysis showed that 300 μ M farnesol decreased HWP1 and SAP6 gene expressions significantly in comparison to control group ($p < 0.05$), whereas, there was no difference in the expression of RIM101 gene. Conclusion Farnesol in 300 μ M concentration can inhibits growth and proliferation of *C. albicans* yeast cells and also inhibits hyphal formation. Farnesol can affect the expression of virulent genes including .pathogenic genes that are associated with hyphae morphogenesis such as SAP6 and HWP1

کلمات کلیدی:

Candida albicans; Farnesol; RIM101; SAP6; HWP1

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