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Acta Medica Iranica

2009;47(4) : 19-23

Original Article

Inhibitory effect of farnesol on biofilm formation by *Candida tropicalis*

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Received: April 21,2008

Accept : October 12,2008

Available online: March 14,2009

Abstract:

ABSTRACT

Background: Candidiasis associated with indwelling medical devices is especially problematic since they can act as substrates for biofilm growth which are highly resistant to antifungal drugs. Farnesol is a quorum-sensing molecule that inhibits filamentation and biofilm formation in *Candida albicans*. Since in recent years *Candida tropicalis* have been reported as an important and common *non-albicans Candida* species with high drug resistance pattern, the inhibitory effect of farnesol on biofilm formation by *Candida tropicalis* was evaluated.

Methods: Five *Candida tropicalis* strains were treated with different concentration of farnesol (0, 30 and 300 μ M) after 0, 1 and 4 hrs of adherence and then they were maintained under biofilm formation condition in polystyrene, 96-well microtiter plates at 37°C for 48 hrs. Biofilm formation was measured by a semiquantitative colorimetric technique based on reduction assay of 2,3- bis -2H-tetrazolium- 5- carboxanilide (XTT).

Results: The results indicated that the initial adherence time had no effect on biofilm formation and low concentration of farnesol (30 μ M) could not inhibit biofilm formation. However the presence of non-adherent cells increased biofilm formation significantly and the high concentration of farnesol (300 μ M) could inhibit biofilm formation.

Conclusion: Results of this study showed that the high concentration of farnesol could inhibit biofilm formation and may be used as an adjuvant in prevention and in therapeutic strategies with antifungal drugs.

Keywords:

Farnesol, Biofilm, *Candida tropicalis*, Azole

TUMS ID: 12783

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