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Acta Medica Iranica
2009;47(4) : 40-44

Colony PCR Is a Rapid and Sensitive Method for DNA Amplification in Yeasts

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Abstract:

Background: Yeast infections are increasing cause of morbidity and mortality in immunocompromised patients. In order to perform a DNA-based diagnostic test, availability of a rapid and easy-to-perform DNA extraction protocol is essential. In the present study we evaluated colony-PCR as the easiest way to amplification of target DNA. Methods: Instead of using templates of purified genomic DNA, we performed the PCR directly from yeast colonies or cultures. Serial cell dilution of three reference yeast strains including Candida albicans, Cryptococcus neoformans and Saccharomyces cerevisiae were used for determining the sensitivity of the colony-PCR. A total of one hundred yeast isolates were also tested. All reactions were performed using the universal fungal primers ITS1 and ITS4 complementary to the rDNA region. Results: The colony-PCR resulted in a single band (with different sizes) for 106 cells or more for all reference species. Furthermore 98 out of 100 (98%) of samples showed a relevant single band after PCR. Conclusion: Directly application of the yeast cells obtained from culture colony for PCR reaction is a fast, reliable, cost-effective and simple method for performing any PCR-based protocol including diagnostic tests.

Keywords:

Colony-PCR

TUMS ID: 3146

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