The Effect of Temperature, pH and the Glucose Concentration on Germ Tube Formation of *Candida Albicans*

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Abstract

Background and objectives: Germ tube-producing ability of C.albicans in human serum is one of the most important virulent factors inducing transformation yeast to mycelia form. This phenomenon can be altered by some environmental and nutritional factors. The purpose of this study was to investigate the effect of temperature, pH and glucose concentrations in germ tube formation of C. albicans in an in vitro system.

Material and Methods: The germ tube production test in human serum (with normal glucose titer) in different temperature, pH, and glucose concentrations was conducted invitro using standard strain of *C. albicans* (ATCC 10231). The average number of cells with germ tube after 2 hours and the rate of yeast-mycelial transition were analyzed using one-way ANOVA test.

Results: Maximum germ tube production rate is seen in temperature of 37°C, pH of 6.5 and glucose concentration of 30 mg/ml (P= 0.0001) and also germ tube is seen in earliest time in these conditions in invitro.
Conclusion: It seems that these environmental and nutritional factors in human body particularly in diabetics can make this fungus to produce germ tube and invade to the different tissues.

Key words: Candida Albicans, germ tube, in vitro, Temperature, pH, Glucose