

An Alternative Growth Medium for Identification of *Candida albicans* Using Germ Tube Formation Under Optimum Conditions

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The polymorphic yeast, *Candida albicans* is a commensal and can be an opportunistic pathogen. However, under certain circumstances *C. albicans* can cause severe infections. Several factors have been identified which contribute to the pathogenesis of this fungus including germ tube formation. Germ tube test is the primary test used to differentiate *C. albicans* from non albicans. This test is performed using human serum. However, it has been found that human serum has a potential inhibitory effect on germ tube formation. This study was conducted to find an effective alternative medium for germ tube formation using human serum as the standard. The effect of different growth media (Horse serum, peptone, egg white and coconut water), incubation temperatures (30 °C, 35 °C, 37 °C, 40 °C, 42 °C), incubation periods (0.5 h, 1 h, 1.5 h, 2 h, 2.5 h, 3 h) and pH values (1, 3, 5, 7, 9) on germ tube production by *C. albicans* was evaluated with the isolate ATCC 10231. At 37 °C, pH 5, egg white gave a higher number of germ tubes (1801 ± 6.50/per µL) at 2.5 hours, where coconut water showed a higher germ tube production (4319 ± 144.23/per µL) at 37 °C, pH 7 at 2 hour incubation period. Compared to human serum (4605 ± 8.54/per µL) egg white and coconut water also gave an effective amount of germ tubes under different optimum conditions. Therefore, these results suggest that egg white and coconut water might be useful as alternate media under optimum pH and temperature. These findings should be validated with the use of clinical isolates.

Keywords: *Candida albicans*, Germ Tube, Optimum Conditions