

Efek penambahan glukosa pada saburoud dextrose broth terhadap pertumbuhan candida albicans (uji in vitro)

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Abstrak

High carbohydrate intake is one of predisposing factors of oral candidiasis. Whether glucose addition in medium will increase the growth of *Candida albicans* in vitro is subject to further investigation. Objective: Investigating the effect of 1%, 5%, 10% glucose addition on the growth of *C. albicans* in vitro. Method: *C. albicans* sample was taken from oral swab of a male oral candidiasis patient. Identification of *C. albicans* was conducted using CHROMagar and confirmed by germ tube formation in serum. *C. albicans* colonies were inoculated in SDB. As a comparison, *C. albicans* ATCC 10231 was used. After 2 days the cultures were serially diluted and inoculated in SDB without glucose (control), and with 1%, 5%, 10% additional glucose, kept for 3 and 7 days in room temperature, then inoculated in SDA. The CFU/ml were counted after 2 days. ANOVA with $\alpha = 0.05$ was used. Result: After 3 days, additional 1%, 5%, and 10% glucose in media with clinical strain of *C. albicans* resulted in 181.5, 582, and 811 CFU/ml respectively while in media with *C. albicans* ATCC were 21.5, 177.5, 375.5 CFU/ml. The growth of *C. albicans* with no additional glucose were 970 (clinical strain) and 957 CFU/ml (ATCC). After 7 days, the growth of clinical strain of *C. albicans* with additional glucose 1%, 5%, 10% were 2350, 9650, 9560 CFU/ml respectively while the growth of *C. albicans* ATCC were 5000, 5450, 3550 CFU/ml. Statistically, additional 1% glucose for 3 days lead to significant decreased of growth of both clinical strain and ATCC 10231 *C. albicans* ($p < 0,05$). However, only additional 5% and 10% glucose in clinical isolate for 7 days increased the growth of *C. albicans* significantly ($p < 0,05$). Conclusion: The effect of additional glucose on the increased growth of *C. albicans* in vitro is influenced by the concentration, exposure duration of glucose, and by the strain of *C. albicans*.