Aktivitas enzim fosfolipase ketiga fase biofilm candida albicans yang tereradikasi ekstrak etanol temulawak = Phospholipase enzyme activity of the three candida albicans biofilm phases that has been eradicated by javanese turmeric ethanol extract

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Abstrak

Latar Belakang: Temulawak (Curcuma xanthorrhiza Roxb.) merupakan tanaman obat asli Indonesia yang telah dilaporkan memiliki efek eradikasi terhadap biofilm Candida albicans. Faktor virulensi C. albicans di antaranya adalah aktivitas enzim fosfolipase dan pembentukan biofilm.
Tujuan: Menganalisis aktivitas enzim fosfolipase ketiga fase biofilm C. albicans yang tereradikasi ekstrak etanol temulawak.
Metode: Pada penelitian ini, kelompok perlakuan dipaparkan ekstrak etanol temulawak (EET), kelompok kontrol positif dipaparkan nystatin, dan kelompok kontrol negatif tidak dipaparkan apapun. Biofilm C. albicans diinkubasi selama 6, 24, dan 48 jam untuk mencapai fase awal, menengah, dan maturasi. Setelah inkubasi, biofilm C. albicans dipaparkan EET dengan konsentrasi sesuai kadar eradikasi biofilm minimal. Media egg yolk agar digunakan untuk mengobservasi aktivitas enzim fosfolipase C. albicans.
Hasil: Nilai aktivitas enzim fosfolipase (nilai Pz) kelompok perlakuan secara berturut-turut pada fase awal, menengah, dan maturasi adalah 0,67, 0,66, 0,70. Nilai Pz kelompok kontrol negatif secara berturut-turut pada fase awal, menengah, dan maturasi adalah 0,51, 0,50, 0,47. Kontrol positif pada ketiga fase memiliki nilai Pz 1.
Kesimpulan: Cenderung terjadi penurunan aktivitas enzim fosfolipase pada biofilm C. albicans yang tereradikasi ekstrak etanol temulawak dibandingkan pada kelompok kontrol negatif.
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Background: Javanese turmeric (Curcuma xanthorrhiza Roxb.) is an original Indonesian medicinal plant that has been reported for having eradication effect to Candida albicans biofilm. Virulence factors of C. albicans are including biofilm formation and phospholipase enzyme activity.
Objective: Analyzing phospholipase enzyme activity on three biofilm phases of C. albicans that has been eradicated by Javanese turmeric ethanol extract.
Method: The treatment group was exposed to Javanese turmeric ethanol extract, the positive control group was exposed to nystatin, and negative control group wasnt exposed to anything. C. albicans biofilm was incubated for 6, 24, and 48 hours to achieve initial, intermediate, and maturation phase. After incubation, the biofilm was exposed to minimum biofilm eradication concentration of Javanese turmeric ethanol extract. Egg yolk agar medium was used to observe phospholipase enzyme activity of C. albicans.
Result: Phospholipase enzyme activity value (Pz value) of the treatment group on initial, intermediate, and maturation phase respectively are 0,67, 0,66, and 0,70. Pz value of the negative control group on initial, intermediate, and maturation phase respectively are 0,51, 0,50, and 0,47. Positive control of every phase has Pz value = 1.
Conclusion: There is tendency of lowering phospholipase enzyme activity of C. albicans biofilm that has been eradicated by Javanese turmeric ethanol extract compared to the negative control group.