Pengaruh Tempat Tumbuh Tanaman Ekstrak Etanol Temulawak (Curcuma xanthorrhiza Roxb.) Sebagai Agen Inhibisi Biofilm Candida albicans In Vitro = Does herbal therapeutics cultivation site affect in vitro Candida albicans biofilm inhibition? â a study on Curcuma xanthorrhiza Roxb. ethanolic extract

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Abstrak

Background: One of the major challenges in developing an antifungal against Candida albicans as a therapeutic strategy for oral candidiasis is its resistance towards antimicrobial agents. Currently, medicinal plants are continuously being developed as a therapeutic agent, including Javanese turmeric (Curcuma xanthorrhiza Roxb.), an Indonesian plant widely used as a traditional medicine. Its main active compound, xanthorrhizol, as well as the Javanese turmeric Ethanol Extract (EET) had been reported to have antifungal properties. However, extract quality as well as cultivation site of a medicinal plant may affect its' effectivity as a therapeutic agent. Objective: To analyze the influence of Javanese turmeric cultivation site against its' ethanolic extract effectivity in inhibiting C. albicans biofilms. Methods: 2 Javanese turmeric ethanolic extract were collected from different cultivation sites, which were Bogor, West Java and Malang, East Java. The extracts were tested for inhibitory activity against C. albicans biofilm using OD600, TPC, and MTT assay measurements. Results: There were concentration differences of xanthorrhizol content in between the two extracts. Despite so, both extracts showed insignificant MBIC50 differences at roughly 0,10 µg/mL, while their MBIC90 were measured to be constant at all biofilm development phases, at 0,30 µg/mL. Conclusion: The different cultivation site of Javanese turmeric in Java island does not influence the effectivity of JtET in inhibiting C. albicans biofilm.
.....Background: One of the major challenges in developing an antifungal against Candida albicans as a therapeutic strategy for oral candidiasis, an opportunistic oral fungal infection, is its resistance towards antimicrobial agents. Currently, medicinal plants are being developed as a therapeutic agent, including Javanese turmeric (Curcuma xanthorrhiza Roxb.), an Indonesian plant widely used as a traditional medicine. Its main active compound, xanthorrhizol, is known to have antifungal properties. However, extract quality as well as cultivation site of a medicinal plant may affect its' effectivity as a therapeutic agent. Up until now, there hasn't been any datas that explain how these factors affect Javanese turmeric ethanolic extract as a C. albicans strategy. Objective: To analyze the effect of Javanese turmeric cultivation site against its' ethanolic extract ability to inhibit C. albicans biofilms. Methods: 2 Javanese turmeric ethanolic extract were collected from different cultivation sites, which were Bogor, West Java and Malang, East Java. The extracts were tested for inhibitory activity against C. albicans biofilm using OD600, TPC, and MTT assay measurements. Results: There were concentration differences of xanthorrhizol between the extracts. Despite so, both extracts' MBIC50 differences were insignificant at roughly 0,10 µg/mL, while their MBIC90 were measured to be constant at all biofilm development phases, at 0,30 µg/mL. Conclusion: There were no significant differences between the MBICs of both extracts against C. albicans biofilm. More research needs to be done to confirm the role of other factors such as storage time on their MBIC.