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EFFECTIVENESS OF *CITRUS LIMON* PEEL ESSENTIAL OIL ON *CANDIDA ALBICANS* : *IN VITRO* STUDY

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ABSTRACT : ***Candida albicans* is a yeast that commensally inhabits the oral cavity might cause opportunistic infections and become pathogen in immunesupressed condition. More than 90% oral candidiasis caused by *C. albicans* infections. Citrus limon peel has active compound that may inhibits *C. albicans* growth. The purpose of this study is to investigate *in vitro* effectivness concentration of *Citrus limon* peel oil on *C. albicans* growth. Citrus limon peel essential oil that has obtained the serial dilution concentrations of 25%, 12.5%, 6.25%, 3.125%, 1.56%, 0.78%, 0.39% and 0.195% and added Candida albicans that had been grown in Sabouraud broth media. Furthermore, *C.albicans* grown on Sabouraud Dextrose Agar and colonies were counted. MIC (Minimum Inhibitory Concentration) *Citrus limon* peel essential oil was 0.78%. MFC (Minimum Fungicidal Concentration) Citrus lemon peel essential oil 1.56%. *Citrus limon* peel essential oil with concentration 25%, 12.5%, 6.25%, 3.125% and 1.56% had in vitro effectiveness inhibiting and cause *C. albicans* death and Citrus limon peel esential oil with concentration 0.78% had *in vitro* effectiveness inhibiting *C. albicans* growth.**

Key words : Citrus limon peel, essential oil, C*andida albicans* , antifungal, medicine

INTRODUCTION

Oral candidiasis is an oral disease caused by Candida fungi (Glick and Feagan, 2015). Several species in the Candida genus are found in humans, including *Candida albicans*, *Candida glabrata*, *Candida krusei*, *Candida dublinensis*, *Kefyr candida*, *Candida guilliermondili*, *Candida lusitaniae*, *Candida parapsilosis* and *Candida tropicalis*, but *Candida albicans* is one of the causes for most infections (> 90%) (Samaranayake, 2012). *C. albicans* is a commensal fungus that populate in the oral cavity, digestive tract and vagina (Underhill and Lliev, 2015; Nugraha *et al*, 2018a). Epidemiological studies has been found that *Candida albicans* most superficial and systemic infections (Moran *et al*, 2012).

The existence of predisposing factors that may cause Candida, which has commensal to become pathogen (Nugraha *et al*, 2017). The main factor in candidiasis is low immunity, such as in patients with Acquired Immune Deficiency Syndrome (AIDS) for patients undergoing chemotherapy, patients who use more than long, chronic irritation due to the use of prosthesis (Underhill and Lliev, 2015; Mensana *et al*, 2018; Nugraha *et al*, 2019).

Many antifungal drugs available on the market, the drug side effect might occured (Icme *et al*, 2014). The use of antifungal drugs made from chemicals such as amphotericin, nystatin, ketoconazole and griseofulvin can lead to resistance (Nugraha *et al*, 2018b). Antifungal drug resistance is defined as stable adaptation or stability, obtained from antifungal drugs, neutrality to the antifungi normally. Antifungal drugs in treating treat candidiasis in the community have very low selective toxicity. So, it is necessary to investigate other source that have more effective antifungal activity (Novianti, 2016). Natural products from plants, animals and minerals have become a treatment of diseases in community. An estimated 80% of people in developing countries still use traditional medicines. The need of herbal medicines are currently popular (Ekor, 2014).

The percentage of Indonesians who use traditional medicine continues to increase over a period of seven