# UNIVERSITI TEKNOLOGI MARA

# THE POTENTIAL OF *Garcinia mangostana* PERICARP AS ANTI-FUNGI CREAM

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# ABSTRACT

*Garcinia mangostana* pericarp contains xanthones as the active component that can be used to treat fungi due to its anti-fungi activities. In this experiment, *G. mangostana* is being used to treat *Candida albicans* that can cause candidiasis on human due to its overgrown on parts of human body. Though there are treatments such as cream that has been commercialized, the cream may cause severe liver injury due to the content of steroids. The aim of this study is to assess the potential *of G. mangostana* pericarp as antifungi agent, to formulate anti-fungi cream enhanced *with G. mangostana* pericarp and to compare the *G. mangostana* cream with synthetic drugs that has been marketed. The extract was prepared using ethanol solvent extraction method. The variable was tested on *C. albicans* at different mass of *G. mangostana* powder, the temperature of drying and the duration of extraction. Zaricort cream is being used as the controlled experiment. All of it shows a positive result on the inhibition of *C. albicans*. The finding shows that the best inhibition of the *C. albicans* is at 1.25 gram of Garcinia mangostana powder with the diameter inhibition of C.albicans of 1.35 ± 0.25 cm. The revelation of this preliminary study has a prominent potential to act as anti-fungi on *C. albicans* and ultimately become an alternative to substitute existing commercialized medicine.

***Keywords:*** *Garcinia mangostana pericarp, anti-fungi activity, Candida albicans, Candidiasis, in-vitro, ethanol solvent extraction.*

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# CHAPTER 1

# INTRODUCTION

## 1.1 Background of study

*Candida albicans (C. albicans)* are yeasts that can cause infection in humans. It normally lives on the skin and mucous membranes thus lead to *candidiasis*. *Candidiasis* is an infection caused by yeast-like fungus called *C albicans* that affect the mouth, vagina, skin, stomach, and urinary tract. In a recent study done by University of Maryland Medical Center (2014), about 75% of women will get a vaginal yeast infection through their lifetime, and 90% out of all people having HIV/AIDS will develop *Candida* infections. However, patients who are critically ill and in medical and surgical ICUs have been the prime targets for opportunistic nosocomial fungal infections, primarily due to *Candida* species (Hidalgo, 2014).

According to Professor Judith Berman and colleagues at the University of Minnesota and Tel Aviv University as cited in Minnesota (2013), *Candida albicans* are not likely behave like other fungus as it can reproduce sexually. Through its finding, *Candida albicans* can cause fatal among human as it recorded to responsible of 400, 000 deaths annually (Minnesota, 2013). He also stated of his believed by saying *Candida albicans* may reproduce sexually without even mating.

Current treatment for candidiasis is by prescription of antifungal drugs such as Diflucan and Nystatin which is very effective antifungals. Although they are very reliable on its efficacies, the drugs may also tend to have nasty side effects (Richards, 2014). Some of the side effects of using these synthetic drugs may include headache, skin irritation, nausea, vomiting and diarrhoea. Hence, there are many natural and herbal remedies have been researched that are quite helpful in cases of fungal infections such as grape seed, garlic, oregano and coconut oil as they also have potent anti-fungi properties.