

CHAPTER 1

INTRODUCTION

1.1 Background

Candida albicans is a yeast-like fungal organism found in small amounts in the normal human intestinal tract. Normally kept in check by the body's own helpful bacteria, *C. albicans* can increase in numbers when this balance is disturbed causing candidiasis of the intestinal tract, or yeast infections of other parts of the body. *C. albicans* causes thrush. *Candida* species are true opportunistic pathogens that exploit recent technological advances to gain access to the circulation and deep tissues. In systemic candidal disease, up to 75% of people may die. (Healthscout, 2009; Hidalgo, 2010; Vazquez, 2010; Stoppler, 2009)

The increased prevalence of local and systemic disease caused by *Candida* species has resulted in numerous new clinical syndromes, the expression of which depends primarily on the immune status of the host. *Candida* species are the most common cause of fungal infection in immunocompromised persons. The management of serious and life-threatening invasive candidiasis remains severely hampered by delays in diagnosis and the lack of reliable diagnostic methods that allow detection of both fungemia and tissue invasion by *Candida* species. (Hidalgo, 2010; Vazquez, 2010)

It is widely known, that vegetables and fruits that consumed daily is good and is one of the way towards a healthy lifestyle. Some plants contains not only the necessary vitamin and fiber but also organic compound. *Daucus carota* or commonly known as carrot is exceptionally rich source of carotenes and vitamin-A. Carrots are natural source of falcarinol. They are phytochemicals naturally occurring in plants. Falcarinol are known for their anti-inflammatory, anti-platelet, anti-fungal, anti-viral, anti-bacterial, anti-mycobacterial and anti-cancer. (Wichtl, 1994; Bisset, 1994)

The major bioactive constituents of *Dactus carota* are the group of polyacetylenes comprising of falcarinol, falcarindiol, and falcarindiol 3-acetate. Carrot is chosen for this study because this plant is economically available worldwide; therefore should be researched on to determine its antifungal effect in candidiasis patients. It is possible that carrot can be used as home-remedy medicine that is affordable and obtainable in Indonesia for it can be grown in all seasons/weathers. (Purup, 2009; Larsen,2009; Christensen,2009)

1.2 Problem Formulation

On the basis of the background above, the research problem is formulated as follows:

- Does *Daucus carota* have antifungal effect towards *Candida albicans* in vitro?

1.3 Objective of the Research

- To investigate whether *Daucus carota* extract has antifungal effect on the growth of *Candida albicans* in vitro.
- To analyze the relationship between the concentration of *Daucus carota* extract and the growth of *Candida albicans* in vitro.

1.4 Significance of the Research

- To reduce the complications of pharmacotherapeutic treatment by using alternative treatment of natural resources rather than chemical substances.
- To impart knowledge to the society about another alternative way in treating candidiasis.