CHAPTER 5

STUDY RESULT

5.1 Study Result Data

5.1.1 Identification Results of *Candida albicans*

The isolates were obtained from the Microbiology Laboratory of Brawijaya University and subjected to Gram staining, Germ-tube test and culturing on Sabouraud Dextrose Agar plate. The results of the mentioned procedures are shown in the following table:

Table 1 Result of *Candida albicans* Identification

Gram staining	Germ-tube test
Oval-shaped, Gram-positive cells	Pseudohyphae extension (+)

From Gram staining, the isolated were observed to be oval-shaped, gram-positive *Candida albicans* cells measuring about 2-3 x 4-6 mU. The Germ-tube test revealed an extension of pseudohyphae from a cell. The colonies formed on the Sabouraud Dextrose Agar plate were noted to be of yellowish-white in colour, smooth, mildly shiny and present with its distinct yeasty odour.

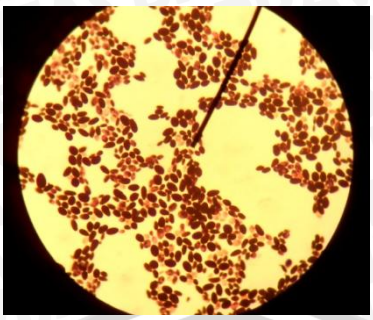


Figure 6 Oval-shaped, Gram-positive *Candida albicans* cells observed by Gram staining

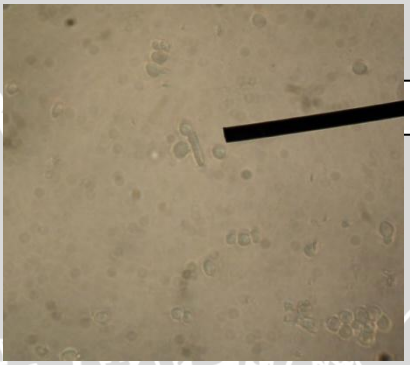


Figure 7 Pseudophyphae extension observed in the Germ-tube test

5.1.2 Determination of the Minimum Inhibitory Concentration

The Minimum Inhibitory Concentration of the carrot extract could not be determined due to the turbidity of the extract itself.

Figure 8 The turbidity of the carrot extract in different concentration

5.1.3 Determination of the Minimum Fungicidal Concentration

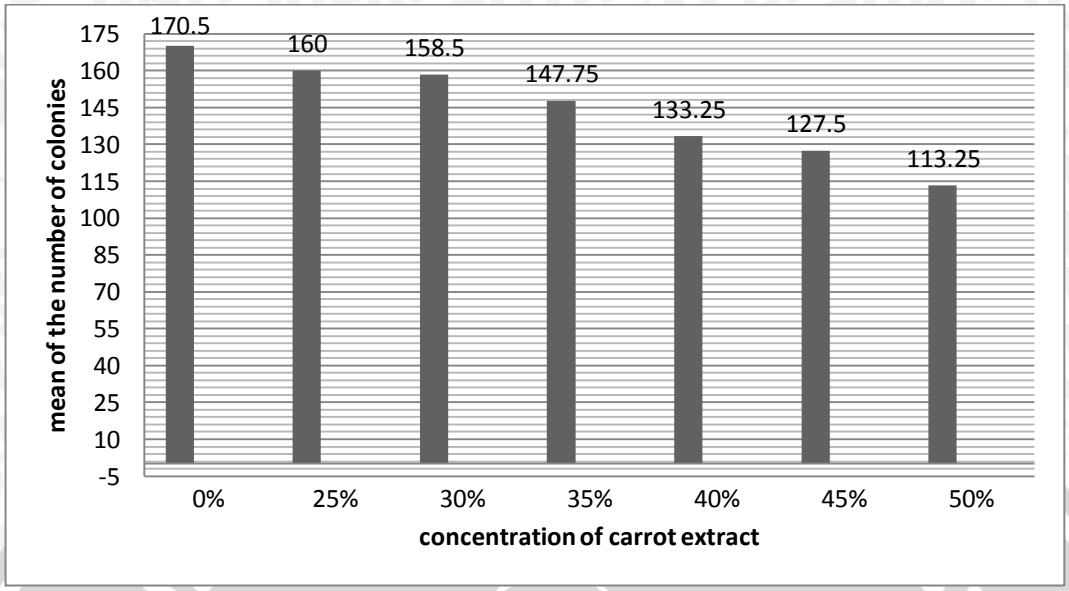
From the inoculation of the *Candida albicans* on Sabouraud Dextrose Agar medium, the numbers of colony that grew from a streak (approximately 0.005ml) of each concentration were counted under a colony counter. The results are shown in the following graph:

Table 2 The mean number of colonies that grew in different concentrations of extract

N							CF
	25%	**30%**	**35%**	**40%**	**45%**	**50%**	
1	142	153	138	121	117	101	157
2	155	151	147	132	127	111	168
3	176	169	157	143	138	122	183
4	167	161	149	137	128	119	174
Mean	160	158.5	147.75	133.25	127.5	113.25	170.5
SD	14.765	8.226	7.805	9.323	8.583	9.394	10.909

Explanation: N = number of interventions

CF = control fungus



Graph 1 Result of Colony Count and the Mean of Colonies Post-Inoculation on SDA Medium

At a concentration of 25%, the average number of colonies that grew was 160. At 30% concentration, the average number of colonies was 158.5; at 35% concentration, the average number of colonies was 147.75; at 40% concentration, the average number of colonies was 133.25; at 45% concentration, the average number of colonies was 127.5; and at 50% concentration, the average number of colonies was 113.25. From the results tabulated above, there is a consistent decrease in the mean of *Candida albicans* colonies which grew as the concentration of carrot extract increased but the extract is not effective fully. It only kills some of the *Candida albicans* colonies. At 50% concentration, the mean of colonies that grew was recorded as 113.25 compared to the control fungal colonies which is 170.5. Therefore, the Minimum Fungicidal Concentration cannot be determined .

5.2 Data Analysis

The study result data was then analyzed using the SPSS (Statistical Package for the Social Sciences) version 15.0 for Windows.

5.2.1 Data Analysis with Normality Test

The normality test; was carried out to determine whether a data set is well-modeled by a normal distribution or not. The test used is the One-Sample Kolmogorov-Smirnov Test. Data distribution was normal with $p = 0.047$ ($p>0.05$)

5.2.2 Data Analysis with Homogeneity of Variance Test

Homogeneity of variances means that the population variances are equal. A Levene's test is used to assess the equality of variances in different samples. Base on homogeneity test done in this research, the data variance of fungi colony was homogenous ($p = 0.143$; $p > 0.05$).

5.2.3 Data Analysis with Descriptive Test

This test shows the mean, standard deviation, standard error, mean interval, minimum and maximum value. Each concentration was repeated four times to minimize error. The mean colony in the control plate, 25% plate, 30% plate, 35% plate, 40% plate, 45% plate and 50% plate was 170.50, 160, 158.50, 147.75, 133.25, 127.50 and 113.25 respectively. The standard deviation was 10.909, 14.765, 8.226, 7.805, 9.323, 8.583 and 9.394 in control plate, 25% plate, 30% plate, 35% plate, 40% plate, 45% plate, and 50% plate respectively.

5.2.4 Data Analysis with One-way ANOVA test

In Anova test, It would be said that there was a significant difference of colony number among groups or different concentration would give different effect on Candida colony number significantly if the p-value < 0,05. One way anova test performed showed p value = 0.000 (p<0.05), which indicates there was a significant difference of colony number among treatment groups or different concentration would give different effect on Candida colony number significantly.

5.2.5 Data Analysis with Multiple Comparisons Test

Multi comparison Pos Hoc Tukey test was performed to analyze the difference of Candida colony number between 2 treatment groups compared. Base on Pos Hoc test result, there was significant decrease of colony number in all doses/concentration groups (25%, 30%, 35%, 40%, 45% and 50%) compared to 0% concentration group (p < 0.05). But there was no significant difference of Candida colony number among 25%, 30%, 35%, 40%, 45% and 50% extract concentration groups (p>0.05).

5.2.6 Data Analysis with Correlation Test

Pearson Correlation test was performed to investigate the association between independent and dependent variable. Based on the Pearson correlation test above, there was a significant association between treatment and Candida colony number (p = 0.000 ; p < 0.05). Pearson correlation coefficient (r value) described the strength of correlation. r-value between treatment and colony number was -0.876.With this, it can be concluded that the treatment of carrot extract with increasing concentrations has a significant association with the decrease in the number of colonies. The administration of carrot extract can

decrease the number of *Candida albicans* colony (because the correlation coefficient is negative), whereby the higher the carrot extract concentration will result in further reduction in the number of *Candida albicans* colony. The correlation is very strong.