Statistical Analysis of Habbatussauda's Benefits for Health (Blood Pressure, Glucose and Uric Acid)

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Abstract

Habbatussauda is one of the traditional medicine existed since a long time ago and this is one of the drugs that recommended by the Prophet Muhammad. *Habbatussauda*'s benefits have been studied extensively in the healthcare. *Habbatussauda* has also been widely used to cure various diseases. This study revealed the benefits of *Habbatussauda* in lowering blood pressure, glucose and uric acid levels in 20 respondents that given *Habbatussauda* for 2 weeks. The blood pressure, glucose and uric acid levels were measured before and after consuming *Habbatussauda*. Blood pressure, glucose, and uric acid levels in the body will decrease after consuming *Habbatussauda* that shown in the statistical analysis of the obtained data.

Keywords: Blood pressure; Glucose; *Habbatussauda*; Herbal medicine; Statistical analysis; Uric acid

INTRODUCTION

Based on data from WHO (World Health Organization) in 2010, the population of Indonesia is 249.866.000, makes Indonesia to be one of the most populated countries. Increasing number of population will certainly make many problems, one of them is a health problem. Some health problems that frequently occur in Indonesia are increased glucose level, increased blood pressure, obesity, and many more, whereas the highest rate of disease caused death are: stroke, coronary heart disease, diabetes mellitus, respiratory infections, tuberculosis, liver cirrhosis, lung disease, and hypertension.

It makes a lot of Indonesians searching for alternative medicines or just preventive medicines of various diseases. One of them is the herbal treatments, which is currently in great demand, one of them is *Nigella sativa*, or commonly known as black cumin, black seed or *Habbatussauda*.

Habatussauda is one of the traditional medicines used by people to cure various diseases. Prophet Muhammad said that *Habatussauda* can cure all diseases except death (Osman et al., 2014). Contemporary naturopathic medicine all over the world have been using *Habbatussauda* which has Thymoquinone as a major component (Salahshoor et al., 2018). Thymoquinone contained in the Habbatussauda has a protection function to counter nephrotoxicity and hepatotoxicity. It also has pharmacological effects which include antihelmintic, anticestoda, and antischistosoma, antibacterials, antifungi, antiviral, antioxidant, anti-inflammatory, and can improve the immune response of cells that are mediated T (Abdulelah & Abidin, 2007).

Habbatussauda can be used for antihypertensive treatment, antitumor, antibacterial, antioxidant, antidiabetic and antidyslipidemia (Hussain & Hussain, 2016). Other benefit of *Habbatussauda* is anti-hyperuricemia (Suhendi & Sutrisna, 2011). *Habbatussauda* is also used as a diuretic (Aboul-Enein & Abou-Basha, 1995). The study of *Habbatussauda*'s benefits are quite a lot and still being developed. Mathematics has an important role in knowing the benefits of *Habbatussauda*, by using statistics. Statistics used to process the primary data the obtained *Habbatussauda*'s benefit data will be processed by statistic methods.

Figure 1. Habbatussauda Powder.

MATERIALS AND METHODS

In this study, respondents from ages between 19 – 23 years old with the sample size of 20 respondents (11

female, 9 male). Taken respondents do not have history of serious illness, disease history owned by the respondents include stomach ucler, typhoid, and dengue fever. In this study, respondents did not consume other medicine besides *Habbatussauda* that given by the researchers. Respondents were students of UIN Sunan Kalijaga who had a history of stomach ucler, typhoid, and dengue fever.

Before starting the study, first thing to to check is a blood test to determine the initial value of blood pressure, glucose and uric acid before giving each respondent the *Habbatussauda*. Furthermore, respondents who take a blood test will be given 42 *Habbatussauda* capsule for two weeks consumption, the respondent consumes 3 *Habbatussauda* capsules daily, each capsule contains 600 mg of pure *Habbatussauda*. *Habbatussauda* used is the type of powder brand Kurma Ajwa containing 120 Capsules. Then the blood test were carry on after two weeks to take final value of respondent's blood pressure, glucose and uric acid after consuming *Habbatussauda* to know whether it decrease or increase.

During the two weeks *Habbatussauda* consumption, respondents were contacted by phone to remind them to consume *Habbatussauda* and ask them if there are any complaints or perceived side effects while taking the *Habbatussauda*. Taking blood samples to check the measure of glucose and uric acid is done by taking a blood sample from the respondent, then checked it by using the glucose and uric acid tool check, whereas for checking blood pressure was checked by using sphygmomanometer.

The data before and after consumption of *Habbatussauda* taken from respondents were collected, then statistical analysis was perform using several kinds of tests, using Statistical Package for Social Science (SPSS) version 15.0. The first test used to test for normality of 95% significance level to determine whether the obtained data is normally distributed or not. Then after the normality test, t test was perform with 95% significance level to determine whether there is a significant difference in the average before and after consumption of *Habbatussauda*. At this t test if the value of sig is more than 0.05 then the two data do not have significant differences, but if sig is less than 0.05 then the data is a significant difference.

RESULTS

The average research results that have been obtained from 20 respondents are as follows (Table 1).

According Table 1. average of the systole before consuming *Habbatussauda* is 119.1 mmHg and average of the diastole before consuming *Habbatussauda* is a 81.6 mmHg. While the average of the systole after consuming *Habbatussauda* is 111.35 mmHg and

average diastole after consuming *Habbatussauda* is 75.9 mmHg.

Table 1. Blood pressure average before and after consuming *Habbatussauda*.

Average	Blood Pressure	
	Systole (mmHg)	Diastole (mmHg)
Before consuming *Habbatussauda*	119.1	81.6
After consuming *Habbatussauda*	111.35	75.9

Table 2. Glucose average before and after consuming *Habbatussauda*.

Average	Glucose (mg/dL)
Before consuming *Habbatussauda*	90.3
After consuming *Habbatussauda*	84.6

According Table 2, average of the glucose level before consuming *Habbatussauda* is a 90.3 mg/dL, while the average of the glucose after consuming *Habbatussauda* is a 84.6 mg/dL.

Table 3. Uric acid average before and after consuming *Habbatussauda*.

Average	Uric Acid (mg/dL)
Before consuming *Habbatussauda*	5.065
After consuming *Habbatussauda*	4.555

According Table 3, average of the uric acid before consuming *Habbatussauda* is a 5.065, while the average of the uric acid after consuming *Habbatussauda* is 4.555 mg/dL.

Furthermore, the test for normality using the Shapiro-Wilk test described below in the following table.

Table 4. Test result Shapiro-Wilk Blood Pressure.

	Shapiro-wilk		
	Statistic (mmHg)	Df	*P*
Systole before consuming *Habbatussauda*	0.9191	20	0.096
Diastole before consuming *Habbatussauda*	0.972	20	0.793
Systole after consuming *Habbatussauda*	0.958	20	0.505
Diastole after consuming *Habbatussauda*	0.921	20	0.102

According Table 4, results of normality test using the Shapiro-Wilk test showed that probability value (*P*) of systole before (0.096), diastole before is 0.793, systole

after is 0.505, diastole after is 0.102 is more than 0.05 so it was concluded that the data are normally distributed.

Table 5. Test result Shapiro Wilk Glucose.

Shapiro-wilk			
	Statistic (mg/dL)	Df	*P*
Before consuming *Habbatussauda*	0.969	20	0.730
After consuming *Habbatussauda*	0.946	20	0.309

According Table 5, results of normality the test results for glucose showed that probability value (*P*) of before consuming *Habbatussauda* is 0.730 and after consuming *Habbatussauda* is 0.309 is more than 0.05 so it was concluded that the data are normally distributed.

According Table 6, normality test for uric acid showed that probability value before consumption *Habbatussauda* is 0.113 and probability value after consumption of *Habbatussauda* is 0.883 is more than 0.05 so it was concluded that the data are normally distributed.

Table 6. Test result Shapiro Wilk Uric Acid.

Shapiro-Wilk			
	Statistic (mg/dL)	Df	*P*
Before consuming *Habbatussauda*	0.923	20	0.113
After consuming *Habbatussauda*	0.977	20	0.883

From the results above, it is known that the data are normally distributed with a probability value (sig.) more than 0.05 (P > 0.05). Furthermore, the data will be tested average differences using the t test with the following results.

Table 7 shows decreasing in the average systolic and diastolic blood pressure before and after consuming *Habbatussauda*, a decrease of 7.73 mmHg in systolic and a decrease of 5.7 mmHg in diastole with a probability value (sig.) For systole (0.019) and diastole (0.012) is less than 0.05 it can be seen that there are differences in blood pressure values were significantly before and after consuming *Habbatussauda*.

Table 7. T test Result Blood Pressure.

No	Variable	Average		Standard Deviaton		T test		*P*	
		Systole (mmHg)	Diastole (mmHg)	Systole	Diastole	Systole	Diastole	Systole	Diastole
1.	Before	119.01	81.6	16.56852	9.13870	2.556	2.778	0.019	0.012
2.	After	11.37067	10.90099	75.9	111.35				

Table 8. T test Result Glucose.

No	Variable	Average (mg/dL)	Standard Deviation	T test	*P*
1.	Before	5.065	1.26419	2.338	0.030
2.	After	4.555	0.96381		

Table 9. T test Result Uric Acid.

No	Variable	Average (mg/dL)	Standard Deviation	T test	*P*
1.	Before	90.30	12.60368	2.181	0.042
2.	After	84.60	13.23631		

Table 8 shows decreasing the average content of glucose before and after consuming *Habbatussauda*, a decrease of 5.7 mg/dL with a probability value (sig.) 0.042 less than 0.05 so that it can be seen that there is a difference in the value of the content of glucose in the body significant before and after consuming *Habbatussauda*.

Table 9 shows decreasing the average content of uric acid before and after consuming *Habbatussauda*, a decrease of 0.51 mg/dL with a probability value (sig.) 0.030 less than 0.05 so it can be seen that there are differences in the content value of uric acid in the body significant before and after consuming *Habbatussauda*.

CONCLUSIONS

This study shows the results of statistical analysis *Habbatussauda*'s benefits on blood pressure, glucose and uric acid that showed significant differences between the values before and after consuming *Habbatussauda*. It is visible from a probability value obtained is less than 0.05.

From these results and from previous studies show that *Habbatussauda* can lower blood pressure values, glucose and uric acid contained in the body, this research confirm previous studies that have examined the *Habbatussauda's* benefits both medically and other research.

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