# THE EFFECTIVENESS OF CEYLON CINNAMON POWDER (Cinnamomum Zeylanicum) FOR ADULT WOMEN's BLOOD PRESSURE

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**Abstract**

***Introduction:*** This research is based on the excessive number of patients with hypertension in female adults of the age group of 26-45 years old in Desa Karyawangi. ***Method:*** The methods used in this research is pra-experimental with pre and post design. The sample used in this study are 15 adult women in RW 11 Desa Karyawangi who suffer from stage one hypertension with systolic 140-159 mmHg and diastolic 90-99 mmHg, selected through purposive sampling method. Instruments in this research are sphygmomanometer aneroid General Care, stethoscope GEA, digital Mettler Toledo PL202-S pair scales, water thermometer, and a transparent glass filled with 240 cc warm water of 42-45°C. ***Results:*** Before the respondents are given 1 gr of Ceylon Cinnamomum is powder daily for 7 days, to in average BP is 145/99 mmHg. The average blood after the treatment it become 130.67/85.33 mmHg. ***Discussion:*** There is a significant difference on the blood pressure before and after treatment of the administrateof 1 gr Ceylon Cinnamon powder with the significant test value of < 0.05. Furthermore,it shown that the blood pressures value still has a significant difference before and after 1 week of interval with significant value test < 0.05 it is concludes that the Ceylon Cinnamon powder has a short effect on blood pressure.

*Keywords: Cinnamon Ceylon powder, Cinnamomum zeylanicum, primary hypertension*

## PRELIMINARY

In the world of health, hypertension is considered a serious disease that needs to be watched. It is based on reports from the World Health Organization (WHO) that every year, more than 9.4 million people worldwide die from stroke and heart disease as a complication of hypertension. Hypertension has killed 1.5 million Asians annually.In Southeast Asia alone it is estimated at above 36% of adults suffer from hypertension (Triyanto, 2014: 3).

In Indonesia, the number of patients with hypertension has increased significantly. Record from 2008 to 2013 have the increased number of patients with hypertension from 18% to 31% for men and 16% to 29% for women around the age of 25 years Widiyani (2013).

Lammert and Zeeb (2014) describe hypertension as a condition of increase systolic blood pressure over 140 mmHg and diastolic over 90 mmHg, resulting in barrier of oxygen supply and nutrients carried by the blood to body tissues.

Additionally, Wirawan (2013) also describes the state of a person's hypertension as increased blood pressure above normal indicated by the systolic and diastolic pressures when examined using either cuff sphygmomanometer mercury or digital device. Based on the presence or absence of causes hypertension can be divided is into two general categories: primary and secondary hypertension. Primary hypertension is a kind of unknown cause with clear until today. This type is most often experienced by people with hypertension the one with unknown cause. Commonly experienced by 90% of all patients with hypertension. While secondary hypertension is a type that has a clear cause and prominent affects to 510% of patients with hypertension in the world. (Ardianysah, 2011).

Different ways to solve the problem of hypertension have been done both medical and non-medically. Nevertheless, medical measures are still deemed too be risky for some people because of the use of antihypertensive drugs requires great discipline to be consumed daily (Alan, 2012). Therefore, there should be another method in addition to medical (nonmedical). Method Ceylon cinnamon (Cinnamomum

zeylanicum) can be used as a safe alternative for patients with hypertension who fight against any complications of hypertension.

Cinnamon is a green leafy plant species of the family of Lauraceace with Cinnamomum species (Nurmalina and Valley, 2012).

Ceylon cinnamon (Cinnamomum zeylanicum) and Cassia (Cinnamomum aromaticum) are often the most type found (Jayaprakasha, 2011). From about 54 species spread all over the world, 12 of them are cultivated in Indonesia, including C. zeylanicum and C. Aromaticum (Nurmalina and Valley, 2012). Stated that Several previous studies have demonstrated difference of uses of cinnamon such as anti-inflammatory activity of anti-mycobacterial, controls blood glucose levels, reduces the risk of cardiovascular disease, lowers the risk of colon cancer and improves cognitive abilities (Ouattara et al, 1997; Gruenwald et al, 2010).

Ceylon cinnamon (C. zeylanicum) or cinnamon is often referred to as a "true" pregendted from Sri Lanka. This type of cinnamon has coumarin content significantly different from other species such as Cassia (Archer et al, 1988). Coumarin is naturally present in plants, which is a compound of potent anticoagulant properties, carcinogenic and hepato-toxic or harmful to the liver. (Abraham et al, 2005).

The content of coumarin in Cassia cinnamon is very high and generally may result in the risk of health problems if it is consumed in general with high quantity. In contrast to the Ceylon cinnamon, which only has much small in amout of content of coumarin causery it is safer to use and consemti (Ranasinghe, 2012). Ceylon cinnamon has a wide range of complex and useful content for humans, including in fighting against cardiovascular disease. Although it is not fully explainable, it can be said that the content of potassium, eugenol and calcium on sweet wood work together to help relax the muscles and well blood vessels as well (Nurmalina and Valley, 2012).

Beavers (2008) in his book says that eating foods containing potassium and calcium in large quantities, such as fruits and vegetables is proved to be very useful in keeping the blood pressure in normal range. Some research has also shown that diet high in calcium can protect yourself from hypertension.

Wansi and colleagues (2007) reported in their study that the use of ethanol extract of cinnamon 5 mg / kg, 10 mg / kg and 20 mg / kg body weight of rats with hypertension is proved to decrease blood pressure due to the effects of vasorelaksation of blood vessels. For the largest doses, a decrease in blood pressure occurs approximately 8-11% within one hour in of interventions.

Akilen and colleagues (2013) in their study of the short-term effects of cinnamon on blood pressure of patients with prediabetes and type 2 diabetes stated that using cinnamon (both powder and capsules placebo) of 1-6 grams per day can decreated systolic and diastolic blood pressure of people with prediabetes and type 2 diabetes significantly reaches up to 5:39 mmHg. This is supported by the analysis conducted by Shen et al (2012) that the Ceylon cinnamon powder can be used for patients with metabolic syndrome with hypertension because of its work in helping to improve glucose metabolism of so that the blood pressure goes down.

## MATERIALS AND METHODS

The method used is the pre-experiment with one group pre-post test design. The samples were 15 adult women of 26-45 years in the village RT 11 degrees Karyawangi suffer from hypertansion systolic blood pressure of 140-159 mmHg and 90-99 mmHg diastolic. Samplel selected through purposive sampling method.

substance used in this study is Ceylon cinnamon (Cinnamomum zeylanicum) 300 g of 1 gram for each respondent. The dose is based on the report of the US Department of Health and Human Services (2011) which states that cinnamon is safely consumed orally up to a dose of 6 grams per day within 6 weeks or less. Cinnamon powder inserted into a small clear plastic and then weighed using a Mettler Toledo digital scale brand PL202-S. To dissolve Cinnamon in powder it will be put in clear glass contacnity in 240 cc of warm water with a temperature of 42-45 ° C.

Blood pressure is measured using aneroid sphygmomanometer and stethoscope acoustics. To determine the blood pressure of hypertensive patients it is conducted for 4 days following the recommendations of the American Health Association in the report Aronow et al (2011) two times in different days with intervals of 1 day of the examination.

Intake of blood pressure begins by asking the

respondent to take a break for ± 15 minutes. With a sitting position, wrist blood pressure taken is support on the table until the position approximately as level of the heart. Mounted not to hard on the wrist cuff on the arm with not too hard. Before use, clean diaphragm parts using dry tissue paper and then placed on the inside of the wrist crease of respondents then began pumped up to 20-40 mmHg above the usual blood pressure. Of air blockage is slowly, and by using a stethoscope listen to the knock signifying the systolic and diastolic pressures.

Examiner appointed by the numbers pointer pressure. The sound of the first beat is recorded as the systolic pressure value, while the last beat is the diastolic pressure value. After taking blood pressure is over, all the equipment used checks trimmed back.

Respondents were then given another intervention by steeping Ceylon cinnamon (Cinnamomum zeylanicum) as much as 1 gram in a clear glass containing 240 cc of warm water with a temperature of 42-45 ° C. Intervention is provided every morning within 7 days. On the 8th day blood pressure is measured to be used as a data post-test.

## RESULTS

Table 1. Values of blood pressure before and after the intervention were given.

| N | Pre-test | | Post-test | |
|---|---|---|---|---|
| | Sistol | Diastol | Sistol | Diastol |
| 1 | 140 | 100 | 120 | 90 |
| 2 | 140 | 90 | 120 | 80 |
| 3 | 150 | 100 | 140 | 90 |
| 4 | 140 | 95 | 130 | 80 |
| 5 | 150 | 100 | 130 | 90 |
| 6 | 140 | 95 | 120 | 80 |
| 7 | 145 | 90 | 130 | 80 |
| 8 | 155 | 110 | 150 | 90 |
| 9 | 150 | 100 | 125 | 70 |
| 10 | 140 | 90 | 130 | 90 |
| 11 | 145 | 95 | 140 | 85 |
| 12 | 140 | 90 | 130 | 80 |
| 13 | 145 | 90 | 130 | 90 |
| 14 | 155 | 100 | 135 | 95 |
| 15 | 140 | 95 | 130 | 90 |
| [redacted] | 145 | 96 | 130.67 | 85.33 |

Results of the study based on table 1 shows that before the intervention given the average blood pressure was of respondent 145/96 mmHg. Whereas given after intervention by steeping Ceylon cinnamon (Cinnamomum zeylanicum) the average blood pressure of the respondents became 130.67mmHg systolic pressure and 85.33 mmHg diastolic pressure.

Table 2. Blood pressure value before the intervention and after one week of interventions cessation.

| N | Pre-test | | Post-test | |
|---|---|---|---|---|
| | Sistol | Diastol | Sistol | Diastol |
| 1 | 140 | 100 | 130 | 80 |
| 2 | 140 | 90 | 130 | 80 |
| 3 | 150 | 100 | 130 | 100 |
| 4 | 140 | 95 | 140 | 90 |

| | | | | |
|---|---|---|---|---|
| 5 | 150 | 100 | 140 | 80 |
| 6 | 140 | 95 | 140 | 80 |
| 7 | 145 | 90 | 130 | 90 |
| 8 | 155 | 110 | 130 | 70 |
| 9 | 150 | 100 | 140 | 90 |
| 10 | 140 | 90 | 130 | 70 |
| 11 | 145 | 95 | 130 | 80 |
| 12 | 140 | 90 | 120 | 60 |
| 13 | 145 | 90 | 140 | 90 |
| 14 | 155 | 100 | 140 | 90 |
| 15 | 140 | 95 | 130 | 60 |
| [redacted] | 145 | 96 | 133.33 | 80.67 |

Based table 2 it is found that before the intervention the average blood pressure was 145 for systolic pressure and 96 mmHg for diastolic pressure. Whereas after 1 week intervention cessation for average blood pressure of the respondents became 133.33 mmHg for systolic pressure and 80.63 mmHg for diastolic pressure.

## DISCUSSION

Based on the table 1 before the intervention to the average blood pressure respondent was 145/96 mmHg and if respondent is interpreted as blood pressure hypertension degree awarded after the intervention. Where as the provision of steeping Ceylon cinnamon powder 1 g for 7 days, the average blood pressure 130.6785.33 mmHg it is interpreted as pre-hi hypertension. The average blood pressure of respondent after 1 week cessation of respondents intervention also was altered to 133.33 mmHg for systolic pressure and 80.63 mmHg for diastolic blood pressure if is interpreted as pre-hypertensive blood pressure.

Nurmalina and Valley, (2012) explained that cinnamon contains eugenol, potassium, and calcium which are good for your blood pressure. This is related to eugenol work for relaxing the nerves of the brain, potassium as an inhibitor or inhibiting renin secretion in the kidney, and calcium as a vasodilator agent ().

Potassium works to lower renin secretion causing aldosterone levels. Decrease aldosterone can affect the work of Na retention in the kidneys exercising the volume of fluid and own blood pressure (Desai, 2012). Meanwhile, the calcium content can work together with potassium as vasodilator agent dilating blood vessels (Downing and Islam, 2013).

## CONCLUSION

The conclusion of this study is Ceylon cinnamon has no effect in lowering blood pressure and has a short-term effect on blood pressure.

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